# K-8 Mathematics Scope and Continuum

Supporting implementation of the
NSW Mathematics Syllabus
From 2014

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# Yearly Overview

If Term 1 has 11 weeks, then Week 1 of this overview begins Week 2 of Term 1.

This overview aims to maintain consistency across the stages however the variation in focus is due to the different content demands within each Strand and Sub-strand.

| | Term 1 | Term 2 | Term 3 | Term 4 |
|---|---|---|---|---|
| Week 1 | Assessment | Whole Numbers (C) | Whole Numbers (E) | Whole Numbers (G) |
| | Best Start SENA 1 SENA 2 | Revision | Revision | Revision |
| Week 2 | Whole Numbers (A) | Whole Numbers (D) | ES1 – S1 Whole Numbers (F) / S2-S3 Patterns & Algebra (C) | Whole Number (H) |
| | Time (A) | Time (C) | Time (D) | Time (E) |
| Week 3 | ES1 – S1 Whole Numbers (B) / S2 – S3 Fractions (A) | Fractions (C) | Patterns and Algebra (D) | Fractions (E) |
| | Time (B) | 2D Space (A) | 2D Space (B) | 2D Space (C) |
| Week 4 | Patterns and Algebra (A) | ES1 – S1 Addition (C) / S2 – S3 Decimals (A) | ES1 – S1 Addition (E) / S2 – Decimals (B) S3 - Percentages | ES1 – S1 Addition (G) / S2 – S3 Decimals (C) |
| | Length (A) | Length (B) | Length (C) | Length (D) |
| Week 5 | Addition (A) | Addition (D) | Addition (F) | Addition (H) |
| | Addition (B) | 3D Space (A) | 3D Space (B) | 3D Space (C) |
| Week 6 | Subtraction (A) | Subtraction (C) | Subtraction (E) | Subtraction (G) |
| | Subtraction (B) | ES1 – S1 Subtraction (D) / S2 – S3 2D Angles (A) | ES1 – S1 Subtraction (F) / S2 – S3 2D Angles (B) | Subtraction (H) |
| Week 7 | Multiplication (A) | Multiplication (C) | Multiplication (D) | Multiplication (E) |
| | Area (A) | Area (B) | Area (C) | Area (D) |
| Week 8 | Multiplication (B) | Division (A) | Division (B) | Division (C) |
| | Volume & Capacity (A) | Volume & Capacity (B) | Volume & Capacity (C) | Volume & Capacity (D) |
| Week 9 | Fractions (B) | Patterns and Algebra (B) | Fractions (D) | Patterns and Algebra (E) |
| | Mass (A) | Mass (B) | Mass (C) | Mass (D) |
| Week 10 | Data (A) | Data (B) | Data (C) | Data (D) |
| | Position (A) | ES1 Revision / S1 – S3 Chance (A) | Position (B) | ES1 Revision / S1 – S3 Chance (B) |

The bracketed letters e.g. (A), link to the specific content focus for that particular series of lessons as outlined in the support materials that follow.

# Breakdown of the Yearly Overview

**Explanation of the Yearly Overview.**

The Yearly Overview above, divides the time spent focusing on the strands and sub-strands according to the different content demands within each Stage, aiming to provide teachers and students K-6 with the best opportunity to cover the content of the Syllabus within the year. The table showing the number of lessons throughout the year highlights the effort to provide each Stage group with enough time to cater for the Stage specific content. Some weeks of the Yearly Overview have split content, e.g. Term 1, Week 3.

| ES1 – S1 | S2 – S3 |
|---|---|
| Whole Numbers (B) | Fractions (A) |

This is to allow ES1 and S1 time to focus on the essential place value concepts of Whole Number and provides S2 and S3 time to cover the increased content within Fractions and Decimals.

**The Yearly Overview aims to cover all content within each Strand and Sub-strand of the Syllabus each year**. This means that for Stage 1, Stage 2 and Stage 3 teachers and students, the content is repeated for the years within that Stage. i.e. Stage 1 content is covered in Year 1 and again in Year 2. Obviously the first year of exposure to Stage content is an introduction but then treated in greater depth during the second year of that Stage. This provides teachers and students with;

- more time to achieve the outcomes,
- less chance of content gaps appearing,
- greater opportunities for differentiation of content.

The number of lessons is based on the implementation of a balanced numeracy session which encourages an emphasis of the Number Strand. Each week then, highlights a Number and Algebra focus and includes another focus from either Statistics and Probability or Measurement and Geometry. The ideal split across the week would be a 3 day focus on the Number and Algebra sub-strand and a 2 day focus on the sub-strand from either Statistics and Probability or Measurement and Geometry.

Effort has been made to align content across the Stages to accommodate multi-stage classrooms.

| Number of lessons throughout the year. | | | | |
|---|---|---|---|---|
| | ES1 | S1 | S2 | S3 |
| Whole Number | 24 | 24 | 18 | 18 |
| Addition | 23 | 23 | 14 | 14 |
| Subtraction | 20 | 20 | 16 | 16 |
| Multiplication | 15 | 15 | 15 | 15 |
| Division | 9 | 9 | 9 | 9 |
| Fractions | 12 | 12 | 15 | 15 |
| Decimals | | | 9 | 6 |
| Percentages | | | | 3 |
| Patterns & Algebra | 12 | 12 | 15 | 15 |
| Length | 8 | 8 | 8 | 8 |
| Area | 8 | 8 | 8 | 8 |
| Volume & Capacity | 8 | 8 | 8 | 8 |
| Mass | 8 | 8 | 8 | 8 |
| Time | 10 | 10 | 10 | 10 |
| 3D | 6 | 6 | 6 | 6 |
| 2D | 6 | 6 | 6 | 6 |
| Angles | | | 4 | 4 |
| Position | 4 | 4 | 4 | 4 |
| Data | 12 | 12 | 12 | 12 |
| Chance | | 4 | 4 | 4 |
| Revision | 10 | 6 | 6 | 6 |
| Total | 195 | 195 | 195 | 195 |

# Term 1

# Whole Numbers (A)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• counts to 30, and orders, reads and represents numbers in the range 0 to 20 MAe-4NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• applies place value, informally, to count, order, read and represent two- and three-digit numbers MA1-4NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used<br>• MA2-3WM<br>• applies place value to order, read and represent numbers of up to five digits MA2-4NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• orders, reads and represents integers of any size and describes properties MA3-4NA | **Syllabus Outcomes** |
| **Focus Key Ideas for this week**<br>• Counts forwards to 30 from a given number<br>• Counts backwards from a given number in the range 0 to 20 | **Focus Key Ideas for this week**<br>• Count forwards and backwards by ones from any starting point<br>• Partition two-digit numbers using place value | **Focus Key Ideas for this week**<br>• Count forwards and backwards by tens and hundreds from any starting point<br>• State the place value of digits in numbers up to four digits | **Focus Key Ideas for this week**<br>• Read, write and order numbers of any size<br>• State the place value of digits in numbers of any size | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Establish understanding of the language and processes of counting by naming numbers in sequences, initially to and from 20, moving from any starting point (ACMNA001)<br>• count forwards to 30 from a given number<br>• count backwards from a given number in the range 0 to 20<br>• identify the number before and after a given number<br>• describe the number before as 'one less than' and the number after as 'one more than' a given number (Communicating)<br>• Connect number names, numerals and quantities, including zero, initially up to 10 and then beyond (ACMNA002)<br>• read numbers to at least 20, including zero, and represent these using objects (such as fingers), pictures, words and numerals | **Suggested Content from Syllabus**<br>• Develop confidence with number sequences to 100 by ones from any starting point (ACMNA012)<br>• count forwards and backwards by ones from a given two-digit number<br>• identify the number before and after a given two-digit number<br>• describe the number before as 'one less than' and the number after as 'one more than' a given number (Communicating)<br>• Count collections to 100 by partitioning numbers using place value (ACMNA014)<br>• count and represent large sets of objects by systematically grouping in tens<br>• use and explain mental grouping to count and to assist with estimating the number of items in large groups<br>• use place value to partition two-digit numbers, e.g. 32 as 3 groups of ten and 2 ones | **Suggested Content from Syllabus**<br>• represent numbers of up to four digits using objects, words, numerals and digital displays<br>• make the largest and smallest number from four given digits (Communicating)<br>• identify the number before and after a given two-, three- or four-digit number<br>• describe the number before as 'one less than' and the number after as 'one more than' a given number (Communicating)<br>• count forwards and backwards by tens and hundreds on and off the decade, e.g. 1220, 1230, 1240, (on the decade); 423, 323, 223, (off the decade)<br>• arrange numbers of up to four digits in ascending and descending order | **Suggested Content from Syllabus**<br>• apply an understanding of place value and the role of zero to read and write numbers of any size<br>• state the place value of digits in numbers of any size<br>• arrange numbers of any size in ascending and descending order<br>• use numbers of any size in real-life situations<br>• interpret information from the internet, the media, the environment and other sources that use large numbers<br>• recognise different abbreviations of numbers used in everyday contexts, e.g. $350 K represents $350 000<br>• round numbers to a specified place value, e.g. round 5 461 883 to the nearest million | **Suggested Content from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• recognise numbers in a variety of contexts, e.g. classroom charts, cash register, computer keyboard, telephone (Communicating)<br>• communicate the use of numbers through everyday language, actions, materials and informal recordings (Communicating)<br>• estimate the number of objects in a group of up to 20 objects, and count to check (Reasoning)<br>• use 5 as a reference in forming numbers from 6 to 10, e.g. 'Six is one more than five'<br>• use 10 as a reference in forming numbers from 11 to 20, e.g. ''Thirteen is 1 group of ten and 3 ones' | **Suggested Content Continued**<br>• state the place value of digits in two-digit numbers, e.g. 'In the number 32, the "3" represents 30 or 3 tens'<br>• partition two-digit numbers in non-standard forms, e.g. 32 as 32 ones or 2 tens and 12 ones | **Suggested Content Continued**<br>• use place value to compare and explain the relative size of four-digit numbers (Communicating, Reasoning)<br>• use the terms and symbols for 'is less than' (<) and 'is greater than' (>) to show the relationship between two numbers | | |
| **Vocabulary from Syllabus**<br>Count forwards, count backwards, more than, less than, zero, ones, teen numbers, 'how many'. | **Vocabulary from Syllabus**<br>Count forwards, count backwards, number before, number after, more than, less than, number line, number chart, digit, zero, ones, groups of ten, tens, round to. | **Vocabulary from Syllabus**<br>Number before, number after, more than, greater than, less than, largest number, smallest number, ascending order, descending order, digit, zero, ones, groups of ten, tens, groups of one hundred, hundreds, groups of one thousand, thousands, place value, round to. | **Vocabulary from Syllabus**<br>Ascending order, descending order, zero, ones, tens, hundreds, thousands, tens of thousands, hundreds of thousands, millions, digit, place value, expanded notation, round to, whole number, | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Compare, order, read and represent numbers to at least 20<br>• Read and use the ordinal names to at least 'tenth'<br>• Subitise small collections of objects<br>• Use the term 'is the same as' to express equality of groups<br>• Use the language of money | **Other Key Ideas covered later**<br>• Read, write and order two-digit numbers<br>• Read and use ordinal names to at least 'thirty-first'<br>• Recognise, describe and order Australian coins according to their value<br>• Count forwards and backwards by twos, threes, fives and tens from any starting point<br>• Partition numbers up to three digits using place value<br>• Read write and order three-digit numbers<br>• Recognise, count and order Australian coins and notes according to their value | **Other Key Ideas covered later**<br>• Read, write and order numbers up to four digits<br>• Read, write and order numbers up to five digits<br>• State the place value of digits in numbers up to five digits<br>• Record numbers up to five digits using expanded notation | **Other Key Ideas covered later**<br>• Record numbers of any size using expanded notation<br>• Determine factors and multiples of whole numbers<br>• Recognise the location of negative numbers in relation to zero on a number line<br>• Identify and describe prime and composite numbers<br>• Model and describe square and triangular numbers | **Other Key Ideas covered later** |
| Syllabus Page : 40-42 | Syllabus Page : 66-69 | Syllabus Page : 120-121 | Syllabus Page : 180-181 | |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

Return to Yearly Overview

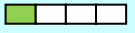
# Time (A)

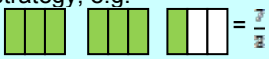
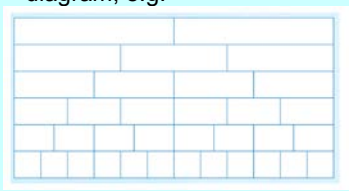
| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• sequences events, using everyday language to describe the durations of activities, and reads hour time on clocks MAe-13MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• describes, compares and orders durations of events, and reads half- and quarter-hour time | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• reads and records time in one-minute intervals and converts between hours, minutes and seconds MA2-13MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• uses 24-hour time and am and pm notation in real-life situations, and constructs timelines MA3-13MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• performs calculations of time that involve mixed units, and interprets time zones MA4-15MG |
| **Focus Key Ideas for this week**<br>• Connect days of the week to familiar events and actions | **Focus Key Ideas for this week**<br>• Name and order months and seasons<br>• Use a calendar to identify the date and determine the number of days in each month | **Focus Key Ideas for this week**<br>• Read and interpret simple timetables, timelines and calendars | **Focus Key Ideas for this week**<br>• Determine and compare duration of events<br>• Interpret and use timetables | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• recall that there are seven days in a week<br>• name and order the days of the week<br>• classify weekdays and weekend days<br>• relate events to a particular day or time of day, e.g. 'Assembly is on Tuesday', 'We come to school in the morning'<br>• identify events that occur every day, e.g. 'We have news every day' (Communicating) | **Suggested Content from Syllabus**<br>• name and order the months of the year<br>• recall the number of days that there are in each month<br>• name and order the seasons, and name the months for each season<br>• describe the environmental characteristics of each season, e.g. 'Winter is cool and some trees lose their leaves' (Communicating)<br>• recognise that in some cultures seasonal changes mark the passing of time, e.g. the flowering of plants and the migration patterns of animals are used by many peoples, including Aboriginal people (Reasoning)<br>• recognise that in countries in the northern hemisphere, the season is the opposite to that being experienced in Australia at that time (Reasoning) | **Suggested Content from Syllabus**<br>• read and interpret timetables and timelines<br>• read and interpret calendars<br>• explore and use different notations to record the date Communicating)<br>• explore and use the various date input and output options of digital technologies (Communicating) | **Suggested Content from Syllabus**<br>• use start and finish times to calculate the elapsed time of events, e.g. the time taken to travel from home to school<br>• use a stopwatch to measure and compare the duration of events<br>• read, interpret and use timetables from real-life situations, including those involving 24-hour time<br>• select an appropriate unit to measure a particular period of time and order a series of events according to the time taken to complete them<br>• use bus, train, ferry and airline timetables, including those accessed on the internet, to prepare simple travel itineraries<br>• interpret timetable information to solve unfamiliar problems using a variety of strategies (Problem Solving) | **Suggested Content from Syllabus**<br>• Solve problems involving duration, including using 12- and 24-hour time within a single time zone (ACMMG199)<br>• add and subtract time mentally using bridging strategies, e.g. from 2:45 to 3:00 is 15 minutes and from 3:00 to 5:00 is 2 hours, so the time from 2:45 until 5:00 is 15 minutes + 2 hours = 2 hours 15 minutes<br>• add and subtract time with a calculator using the 'degrees, minutes, seconds' button<br>• interpret calculator displays for time calculations, e.g. 2.25 on a calculator display for time means $2\frac{1}{4}$ hours<br>• solve problems involving duration, including where times are expressed in 12-hour and 24- hour notation, and duration that requires the use of days, hours and minutes in its calculation |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• Use a calendar to identify the date and determine the number of days in each month (ACMMG041)<br>• identify a day and date using a conventional calendar<br>• identify personally or culturally significant days (Communicating)<br>• identify the different uses of calendars in various communities (Communicating) | | | **Suggested Content Continued**<br>• round calculator answers to the nearest minute or hour<br>• solve problems involving calculations with mixed time units, e.g. 'How old is a person today if he or she was born on 30/6/1999?'<br>• Solve problems involving international time zones<br>• compare times in, and calculate time differences between, major cities of the world, e.g. 'Given that London is 10 hours behind Sydney, what time is it in London when it is 6:00 pm in Sydney?'<br>• interpret and use information related to international time zones from maps (Problem Solving)<br>• solve problems about international time relating to everyday life. |
| **Vocabulary from Syllabus**<br>Daytime, night-time, yesterday, today, tomorrow, before, after, next, a long time, a short time, week, days, weekdays, weekend days, time, morning, afternoon, clock, analog, digital, hands (of a clock), o'clock. | **Vocabulary from Syllabus**<br>Calendar, days, date, month, year, seasons, time, clock, analog, digital, hour hand, minute hand, o'clock, half past. | **Vocabulary from Syllabus**<br>Calendar, date, timetable, timeline, time, hour, minute, second, midday, noon, midnight, am (notation), pm (notation). | **Vocabulary from Syllabus**<br>Timetable, timeline, scale, 12-hour time, 24-hour time, hour, minute, second, am (notation), pm (notation). | **Vocabulary from Syllabus**<br>The words 'minute' (meaning 'small') and 'minute' (a time measure), although pronounced differently, are really the same word. A minute (time) is a minute (small) part of one hour. A minute (angle) is a minute (small) part of a right angle. |
| **Other Key Ideas covered later**<br>• Compare and order the duration of events using the everyday language of time<br>• Sequence events in time<br>• Tell time on the hour on digital and analog clocks | **Other Key Ideas covered later**<br>• Tell time to the half-hour<br>• Describe duration using months, weeks, days and hours<br>• Tell time to the quarter-hour, using the language of 'past' and 'to' | **Other Key Ideas covered later**<br>• Recognise the coordinated movements of the hands on a clock<br>• Tell time to the minute, using the language of 'past' and 'to'<br>• Convert between seconds, minutes, hours and days<br>• Use and interpret am and pm notation | **Other Key Ideas covered later**<br>• Convert between 12- and 24- hour time<br>• Draw and interpret timelines using the given scale | **Other Key Ideas covered later** |
| **Syllabus Page :** 58 - 59 | **Syllabus Page :** 100 - 103 | **Syllabus Page :** 156 - 158 | **Syllabus Page :** 220 - 221 | **Syllabus Page :** 279 - 280 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

Return to Yearly Overview

# ES1 & S1 - Whole Numbers (B) and S2 & S3 - Fractions (A)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• counts to 30, and orders, reads and represents numbers in the range 0 to 20 MAe-4NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• applies place value, informally, to count, order, read and represent two- and three-digit numbers MA1-4NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• represents, models and compares commonly used fractions and decimals MA2-7NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• compares, orders and calculates with fractions, decimals and percentages MA3-7NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• operates with fractions, decimals and percentages MA4-5NA |
| **Focus Key Ideas for this week**<br>• Counts forwards to 30 from a given number<br>• Counts backwards from a given number in the range 0 to 20 | **Focus Key Ideas for this week**<br>• Count forwards and backwards by ones from any starting point<br>• Partition two-digit numbers using place value | **Focus Key Ideas for this week**<br>• Model and represent fractions of denominators 2, 3, 4, 5 and 8<br>• Count by quarters, halves and thirds, including with mixed numerals | **Focus Key Ideas for this week**<br>• Represent, compare and order unit fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12 and 100<br>• Express mixed numerals as improper fractions and vice versa | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Establish understanding of the language and processes of counting by naming numbers in sequences, initially to and from 20, moving from any starting point (ACMNA001)<br>• count forwards to 30 from a given number<br>• count backwards from a given number in the range 0 to 20<br>• identify the number before and after a given number<br>• describe the number before as 'one less than' and the number after as 'one more than' a given number (Communicating)<br>• Connect number names, numerals and quantities, including zero, initially up to 10 and then beyond (ACMNA002) | **Suggested Content from Syllabus**<br>• Develop confidence with number sequences to 100 by ones from any starting point (ACMNA012)<br>• count forwards and backwards by ones from a given two-digit number<br>• identify the number before and after a given two-digit number<br>• describe the number before as 'one less than' and the number after as 'one more than' a given number (Communicating)<br>• Count collections to 100 by partitioning numbers using place value (ACMNA014)<br>• count and represent large sets of objects by systematically grouping in tens<br>• use and explain mental grouping to count and to assist with estimating the number of items in large groups | **Suggested Content from Syllabus**<br>• model fractions with denominators of 2, 3, 4, 5 and 8 of whole objects, shapes and collections using concrete materials and diagrams, e.g. $\frac{3}{5}$ =  <br>• recognise that as the number of parts that a whole is divided into becomes larger, the size of each part becomes smaller (Reasoning)<br>• distinguish between the use of fractions to describe one part of a whole where the parts are equal, and one part of a whole where the parts are not equal, e.g.  $\frac{1}{4}$ is shaded because the parts are equal (compared to)  One part out of four is shaded which is not the same as $\frac{1}{4}$ (Communicating)<br>• name fractions up to one whole, e.g. $\frac{1}{5}, \frac{2}{5}, \frac{3}{5}, \frac{4}{5}, \frac{5}{5}$ | **Suggested Content from Syllabus**<br>• place fractions with denominators of 2, 3, 4, 5, 6, 8, 10 and 12 on a number line between 0 and 1, e.g. 0, $\frac{1}{2}, \frac{2}{2}$, 1 or 0 $\frac{1}{6}, \frac{2}{6}, \frac{3}{6}, \frac{4}{6}, \frac{5}{6}$ 1<br>• compare the relative value of unit fractions by placing them on a number line between 0 and 1 (Communicating, Reasoning) e.g. 0 $\frac{1}{6}, \frac{2}{6}, \frac{1}{2}, \frac{4}{6}, \frac{5}{6}$ 1 or 0 $\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{5}{8}, \frac{3}{4}, \frac{7}{8}$ 1<br>• investigate and explain the relationship between the value of a unit fraction and its denominator (Communicating, Reasoning)<br>• identify and describe 'proper fractions' as fractions in which the numerator is less than the denominator<br>• identify and describe 'improper fractions' as fractions in which the numerator is greater than the denominator | **Suggested Content from Syllabus**<br>• Compare fractions using equivalence; locate and represent positive and negative fractions and mixed numbers on a number line (ACMNA152)<br>• determine highest common factors and lowest common multiples<br>• generate equivalent fractions<br>• write a fraction in its simplest form<br>• express improper fractions as mixed numerals and vice versa<br>• place positive and negative fractions, mixed numerals and decimals on a number line to compare their relative values<br>• interpret a given scale to determine fractional values represented on a number line (Problem Solving)<br>• Solve problems involving addition and subtraction of fractions, including those with unrelated denominators (ACMNA153) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• read numbers to at least 20, including zero, and represent these using objects (such as fingers), pictures, words and numerals<br>• recognise numbers in a variety of contexts, e.g. classroom charts, cash register, computer keyboard, telephone (Communicating)<br>• communicate the use of numbers through everyday language, actions, materials and informal recordings (Communicating)<br>• estimate the number of objects in a group of up to 20 objects, and count to check (Reasoning)<br>• use 5 as a reference in forming numbers from 6 to 10, e.g. 'Six is one more than five'<br>• use 10 as a reference in forming numbers from 11 to 20, e.g. "Thirteen is 1 group of ten and 3 ones' | **Suggested Content Continued**<br>• use place value to partition two-digit numbers, e.g. 32 as 3 groups of ten and 2 ones<br>• state the place value of digits in two-digit numbers, e.g. 'In the number 32, the "3" represents 30 or 3 tens'<br>• partition two-digit numbers in non-standard forms, e.g. 32 as 32 ones or 2 tens and 12 ones | **Suggested content Continued**<br>• interpret the denominator as the number of equal parts a whole has been divided into<br>• interpret the numerator as the number of equal fractional parts, e.g. $\frac{3}{8}$ means 3 equal parts of 8<br>• use the terms 'fraction', 'denominator' and 'numerator' appropriately when referring to fractions<br>• rename $\frac{2}{2}, \frac{3}{3}, \frac{4}{4}, \frac{5}{5}$ and $\frac{8}{8}$ as 1<br>• count by halves, thirds and quarters, e.g. $0, \frac{1}{3}, \frac{2}{3}, 1, 1\frac{1}{3}, 1\frac{2}{3}, 2, 2\frac{1}{3}$ | **Suggested content Continued**<br>• express mixed numerals as improper fractions and vice versa, through the use of diagrams and number lines, leading to a mental strategy, e.g.<br>  <br>• model, compare and represent fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100 of a whole object, a whole shape and a collection of objects<br>• compare the relative size of fractions drawn on the same diagram, e.g.<br>  <br>(Reasoning) | **Suggested content Continued**<br>• choose an appropriate scale to display given fractional values on a number line, e.g. when plotting thirds or sixths, a scale of 3 cm for every whole is easier to use than a scale of 1 cm for every whole (Communicating, Reasoning)<br>• add and subtract fractions, including mixed numerals and fractions with unrelated denominators, using written and calculator methods<br>• recognise and explain incorrect operations with fractions, e.g. explain why $\frac{2}{3} + \frac{1}{4} \neq \frac{3}{7}$<br>interpret fractions and mixed numerals on a calculator display (Communicating)<br>• subtract a fraction from a whole number using mental and written strategies, and a calculator, e.g. $3 - \frac{2}{3} = 2 + 1 - \frac{2}{3} = 2\frac{1}{3}$ |
| **Vocabulary from Syllabus**<br>Count forwards, count backwards, more than, less than, zero, ones, teen numbers, 'how many'. | **Vocabulary from Syllabus**<br>Count forwards, count backwards, number before, number after, more than, less than, number line, number chart, digit, zero, ones, groups of ten, tens, round to. | **Vocabulary from Syllabus**<br>Whole, part, equal parts, half, quarter, eighth, third, fifth, one-third, one-fifth, fraction, denominator, numerator, mixed numeral, whole number, fractional part, number line. | **Vocabulary from Syllabus**<br>Whole, equal parts, half, quarter, eighth, third, sixth, twelfth, fifth, tenth, hundredth, thousandth, one-thousandth, fraction, numerator, denominator, mixed numeral, whole number, number line, proper fraction, improper fraction. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Compare, order, read and represent numbers to at least 20<br>• Read and use the ordinal names to at least 'tenth'<br>• Subitise small collections of objects<br>• Use the term 'is the same as' to express equality of groups<br>• Use the language of money | **Other Key Ideas covered later**<br>• Read, write and order two-digit numbers<br>• Read and use ordinal names to at least 'thirty-first'<br>• Recognise, describe and order Australian coins according to their value<br>• Count forwards and backwards by twos, threes, fives and tens from any starting point<br>• Partition numbers up to three digits using place value<br>• Read write and order three-digit numbers<br>• Recognise, count and order Australian coins and notes according to their value | **Other Key Ideas covered later**<br>• Represent fractions on a number line that extends beyond 1<br>• Model and find equivalence between fractions<br>• Apply the place value system to represent tenths and hundredths as decimals<br>• Make connections between fraction and decimal notation<br>• Model, compare and represent decimals with up to two decimal places | **Other Key Ideas covered later**<br>• Model and represent strategies to add and subtract fractions with the same denominator<br>• Apply the place value system to represent thousandths as decimals<br>• Compare, order and represent decimals with up to three decimal places<br>• Determine, generate and record equivalent fractions<br>• Write fractions in their 'simplest form'<br>• Add and subtract fractions, included mixed numerals, with the same or related denominators<br>• Multiply fractions by whole numbers<br>• Find a simple fraction of a quantity | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | | **Suggested content Continued**<br>• Use mental, written and calculator strategies to add and subtract decimals with up to three decimal places<br>• Use mental, written and calculator strategies to multiply decimals by one- and two-digit whole numbers<br>• Use mental, written and calculator strategies to divide decimals by one-digit whole numbers, 10, 100 and 1000<br>• Solve word problems involving fractions and decimals, including money problems<br>• Recognise percentages in everyday situations<br>• Make connections between percentages, fractions and decimals<br>• Use mental, written and calculator strategies to calculate 10%, 25% and 50% of quantities, including as discounts | |
| **Syllabus Page :** 40-42 | **Syllabus Page :** 66-69 | **Syllabus Page :** 132 - 136 | **Syllabus Page :** 195 - 202 | **Syllabus Page :** 248 - 251 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Time (B)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• sequences events, using everyday language to describe the durations of activities, and reads hour time on clocks MAe-13MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• describes, compares and orders durations of events, and reads half- and quarter-hour time | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• reads and records time in one-minute intervals and converts between hours, minutes and seconds MA2-13MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• uses 24-hour time and am and pm notation in real-life situations, and constructs timelines MA3-13MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• performs calculations of time that involve mixed units, and interprets time zones MA4-15MG |
| **Focus Key Ideas for this week**<br>• Compare and order the duration of events using the everyday language of time<br>• Sequence events in time | **Focus Key Ideas for this week**<br>• Describe duration using months, weeks, days and hours | **Focus Key Ideas for this week**<br>• Recognise the coordinated movements of the hands on a clock<br>• Convert between seconds, minutes, hours and days | **Focus Key Ideas for this week**<br>• Convert between 12- and 24- hour time | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• use terms such as 'daytime', 'night-time', 'yesterday', 'today', 'tomorrow', 'before', 'after', 'next', 'morning' and 'afternoon'<br>• sequence events in time<br>• compare the duration of two events using everyday language, e.g. 'It takes me longer to eat my lunch than it does to clean my teeth'<br>• describe events that take 'a long time' and events that take 'a short time' (Communicating) | **Suggested Content from Syllabus**<br>• use a calendar to calculate the number of months, weeks or days until an upcoming event<br>• estimate and measure the duration of an event using a repeated informal unit, e.g. the number of times you can clap your hands while the teacher writes your name<br>• solve simple everyday problems about time and duration<br>• recognise that some cultures use informal units of time, e.g. the use of tidal change in Aboriginal communities<br>• compare and order the duration of events measured using a repeated informal unit, e.g. 'It takes me ten claps to write my name but only two claps to say my name'<br>• use the terms 'hour', 'minute' and 'second' | **Suggested Content from Syllabus**<br>• recognise the coordinated movements of the hands on an analog clock, including:<br>○ how many minutes it takes for the minute hand to move from one numeral to the next<br>○ how many minutes it takes for the minute hand to complete one revolution<br>○ how many minutes it takes for the hour hand to move from one numeral to the next<br>○ how many minutes it takes for the minute hand to move from the 12 to any other numeral<br>○ how many seconds it takes for the second hand to complete one revolution<br>• convert between units of time and recall time facts, e.g. 60 seconds = 1 minute, 60 minutes = 1 hour, 24 hours = 1 day | **Suggested Content from Syllabus**<br>• tell the time accurately using 24-hour time, e.g. '2330 is the same as 11:30 pm'<br>• describe circumstances in which 24-hour time is used, e.g. transport, armed forces, digital technologies (Communicating)<br>• convert between 24-hour time and time given using am or pm notation<br>• compare the local times in various time zones in Australia, including during daylight saving | **Suggested Content from Syllabus**<br>• Solve problems involving international time zones<br>• compare times in, and calculate time differences between, major cities of the world, e.g. 'Given that London is 10 hours behind Sydney, what time is it in London when it is 6:00 pm in Sydney?'<br>• interpret and use information related to international time zones from maps (Problem Solving)<br>• solve problems about international time relating to everyday life, e.g. determine whether a particular soccer game can be watched live on television during normal waking hours (Problem Solving)<br>• solve problems involving duration, including where times are expressed in 12-hour and 24- hour notation, and duration that requires the use of days, hours and minutes in its calculation |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• experience and recognise activities that have a duration of one hour, half an hour or a quarter of an hour, one minute, and a few seconds<br>• indicate when it is thought that an activity has continued for one hour, one minute or one second compare and discuss the relationship between time units, e.g. an hour is a longer time than a minute<br>• make predictions about the duration of time remaining until a particular school activity starts or finishes, e.g. the length of time until lunch begins | | | **Suggested Content Continued**<br>• solve problems involving calculations with mixed time units, e.g. 'How old is a person today if he or she was born on 30/6/1999?'<br>• Solve problems involving international time zones<br>• compare times in, and calculate time differences between, major cities of the world, e.g. 'Given that London is 10 hours behind Sydney, what time is it in London when it is 6:00 pm in Sydney?'<br>• interpret and use information related to international time zones from maps (Problem Solving)<br>• solve problems about international time relating to everyday life. |
| **Vocabulary from Syllabus**<br>Daytime, night-time, yesterday, today, tomorrow, before, after, next, a long time, a short time, week, days, weekdays, weekend days, time, morning, afternoon, clock, analog, digital, hands (of a clock), o'clock. | **Vocabulary from Syllabus**<br>Calendar, days, date, month, year, seasons, time, clock, analog, digital, hour hand, minute hand, o'clock, half past. | **Vocabulary from Syllabus**<br>Calendar, date, timetable, timeline, time, hour, minute, second, midday, noon, midnight, am (notation), pm (notation). | **Vocabulary from Syllabus**<br>Timetable, timeline, scale, 12-hour time, 24-hour time, hour, minute, second, am (notation), pm (notation). | **Vocabulary from Syllabus**<br>The words 'minute' (meaning 'small') and 'minute' (a time measure), although pronounced differently, are really the same word. A minute (time) is a minute (small) part of one hour. A minute (angle) is a minute (small) part of a right angle. |
| **Other Key Ideas covered later**<br>• Connect days of the week to familiar events and actions<br>• Tell time on the hour on digital and analog clocks | **Other Key Ideas covered later**<br>• Name and order months and seasons<br>• Use a calendar to identify the date and determine the number of days in each month<br>• Tell time to the half-hour<br>• Tell time to the quarter-hour, using the language of 'past' and 'to' | **Other Key Ideas covered later**<br>• Tell time to the minute, using the language of 'past' and 'to'<br>• Use and interpret am and pm notation<br>• Read and interpret simple timetables, timelines and calendars | **Other Key Ideas covered later**<br>• Determine and compare duration of events<br>• Interpret and use timetables<br>• Draw and interpret timelines using the given scale | **Other Key Ideas covered later** |
| **Syllabus Page :** 58 - 59 | **Syllabus Page :** 100 - 103 | **Syllabus Page :** 156 - 158 | **Syllabus Page :** 220 - 221 | **Syllabus Page :** 279 - 280 |
|  |  |  |  |  |

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# Patterns & Algebra (A)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings<br>• MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• recognises, describes and continues repeating patterns MAe-8NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems<br>• MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• creates, represents and continues a variety of patterns with numbers and objects<br>• MA1-8NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas<br>• MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems<br>• MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• generalises properties of odd and even numbers, generates number patterns, and completes simple number sentences by calculating missing values MA2-8NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• analyses and creates geometric and number patterns, constructs and completes number sentences, and locates points on the Cartesian plane MA3-8NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• generalises number properties to operate with algebraic expressions MA4-8NA |
| **Focus Key Ideas for this week**<br>• Sort and classify objects into groups | **Focus Key Ideas for this week**<br>• Recognise, continue, create and describe increasing and decreasing number patterns | **Focus Key Ideas for this week**<br>• Recognise, continue, create, describe and record increasing and decreasing number patterns | **Focus Key Ideas for this week**<br>• Recognise, continue create and describe increasing and decreasing number patterns with fractions, decimals and whole numbers | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• sort and classify a group of familiar objects into smaller groups<br>• recognise that a group of objects can be sorted and classified in different ways<br>• explain the basis for their classification of objects (Communicating, Reasoning) | **Suggested Content from Syllabus**<br>• identify and describe patterns when skip counting forwards or backwards by ones, twos, fives and tens<br>• use objects to represent counting patterns (Communicating)<br>• investigate and solve problems based on number patterns (Problem Solving)<br>• represent number patterns on number lines and number charts<br>• recognise, copy and continue given number patterns that increase or decrease, e.g.<br>1, 2, 3, 4, or 20, 18, 16, 14,<br>• describe how number patterns are made and how they can be continued<br>• create, record and describe number patterns that increase or decrease | **Suggested Content from Syllabus**<br>• identify and describe patterns when counting forwards or backwards by threes, fours, sixes, sevens, eights or nines<br>• model, describe and then record number patterns using diagrams, words or symbols<br>• ask questions about how number patterns have been created and how they can be continued (Communicating)<br>• create and continue a variety of number patterns that increase or decrease, and describe them in more than one way | **Suggested Content from Syllabus**<br>• identify, continue and create simple number patterns involving addition and subtraction<br>• describe patterns using the terms 'increase' and 'decrease', e.g. for the pattern 48, 41, 34, 27, , 'The terms decrease by seven' (Communicating, Reasoning)<br>• create, with materials or digital technologies, a variety of patterns using whole numbers, fractions or decimals, e.g. $\frac{1}{4}, \frac{2}{4}, \frac{3}{4}, \frac{4}{4}, \frac{5}{4}, \frac{6}{4}$<br>or 2.2, 2.0, 1.8, 1.6, ...<br>• use a number line or other diagram to create patterns involving fractions or decimals | **Suggested Content from Syllabus**<br>• Introduce the concept of variables as a way of representing numbers using letters<br>• use letters to represent numbers and develop the concept that pronumerals (letters) are used to represent numerical values<br>• model the following using concrete materials or otherwise:<br>• expressions that involve a pronumeral, and a pronumeral added to a constant, e.g. $a$, $a + 1$<br>• expressions that involve a pronumeral multiplied by a constant, e.g. $2a$, $3a$<br>• sums and products, e.g. $2a + 1$, $2(a + 1)$<br>• equivalent expressions, such as $x + x + y + y + y = 2x + 2y + y = 2(x + y) + y$<br>• simplifying expressions, e.g. $(a + 2) + (2a + 3) = (a + 2a) + (2 + 3) = 3a + 5$ |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• recognise, copy and continue patterns with objects or symbols<br>• recognise when an error occurs in a pattern and explain what is wrong<br>• create, record and describe patterns with objects or symbols<br>• describe a repeating pattern of objects or symbols in terms of a 'number' pattern, e.g.<br>◇○ ◇○ ◇○ is a two pattern<br>△▽○△▽○ is a three pattern<br>• make connections between repeating patterns and counting, e.g. a 'three' pattern and skip counting by threes | | | **Suggested Content Continued**<br>• recognise and use equivalent algebraic expressions, e.g.<br>$y + y + y + y = 4y$<br>$w \times w = w2$<br>$a \times b = ab$<br>$a \div b = \frac{a}{b}$<br>use algebraic symbols to represent mathematical operations written in words and vice versa, e.g. the product of $x$ and $y$ is $xy$, $x + y$ is the sum of $x$ and $y$<br>• Extend and apply the laws and properties of arithmetic to algebraic terms and expressions<br>• recognise like terms and add and subtract them to simplify algebraic expressions,<br>e.g. $2n + 4m + n = 4m + 3n$ |
| **Vocabulary from Syllabus**<br>Group, pattern, repeat. | **Vocabulary from Syllabus**<br>Pattern, number line, number chart. | **Vocabulary from Syllabus**<br>Pattern, goes up by, goes down by, rows, digit, multiplication facts. | **Vocabulary from Syllabus**<br>Pattern, increase, decrease, | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Recognise, continue, copy, create and describe repeating patterns of objects and drawings | **Other Key Ideas covered later**<br>• Recognise, create, continue and describe repeating patterns of objects or symbols as number patterns<br>• Model and describe odd and even numbers<br>• Describe patterns with numbers and identify missing elements<br>• Find missing values in number sentences involving one operation of addition or subtraction | **Other Key Ideas covered later**<br>• Identify odd and even numbers of up to four-digits<br>• Find missing values in number sentences involving an operation of addition or subtraction on both sides of the equals sign<br>• Investigate and use the properties of odd and even numbers<br>• Recognise, continue and describe number patterns resulting from performing multiplication<br>• Find missing values in number sentences involving one operation of multiplication or division | **Other Key Ideas covered later**<br>• Find missing values in number sentences involving an operation of multiplication or division on both sides of the equals sign<br>• Create, record and describe geometric and number patterns in words<br>• Determine the rule for geometric and number patterns in words and use the rule to calculate values<br>• Locate and describe points on the number plane in all four quadrants | **Other Key Ideas covered later** |
| **Syllabus Page :** 48 - 49 | **Syllabus Page :** 83 - 86 | **Syllabus Page :** 137 - 140 | **Syllabus Page :** 203 - 207 | **Syllabus Page :** 257 - 261 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Length (A)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• describes and compares lengths and distances using everyday language MAe-9MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• estimates, measures, compares and records lengths and distances using informal units, metres and centimetres MA1-9MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• estimates, measures, compares and records lengths, distances and perimeters in metres, centimetres and millimetres, and measures, compares and records temperatures MA2-9MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and uses the appropriate unit and device to measure lengths, distances and perimeters, and converts between units of length MA3-9MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• calculates the perimeter of plane shapes and the circumference of circles MA4-12MG |
| **Focus Key Ideas for this week**<br>• Identify the attribute of 'length' as a measure of an object from end to end<br>• Compare lengths using direct comparison<br>• Use comparative language to describe lengths | **Focus Key Ideas for this week**<br>• Use uniform informal units to measure, compare and estimate lengths<br>• Compare and order shapes/objects based on length using uniform informal units | **Focus Key Ideas for this week**<br>• Use metres, centimetres and millimetres to measure, compare, order and estimate lengths<br>• Record lengths using abbreviations (m, cm and mm) | **Focus Key Ideas for this week**<br>• Use the kilometre to measure lengths and distances<br>• Record distances using the abbreviation km | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• identify the attribute of 'length' as the measure of an object from end to end<br>• make and sort long and short constructions from concrete materials<br>• use everyday language to describe length, e.g. long, short, high, low<br>• use everyday language to describe distance, e.g. near, far, nearer, further, closer<br>• use comparative language to describe length, e.g. longer, higher, taller than, shortest, lower than, longest, the same as<br>• identify an object that is longer or shorter than another, e.g. 'Find an object longer than this pencil' | **Suggested Content from Syllabus**<br>• use uniform informal units to measure lengths and distances by placing the units end-to-end without gaps or overlaps<br>• select appropriate informal units to measure lengths and distances, e.g. paper clips instead of pop sticks to measure a pencil, paces instead of pop sticks to measure the length of the playground (Problem Solving)<br>• measure the length of a variety of everyday objects, e.g. use hand spans to measure the length of a table (Problem Solving)<br>• relate the term 'length' to the longest dimension when referring to an object | **Suggested Content from Syllabus**<br>• measure, compare and order lengths and distances using metres and centimetres<br>• record lengths and distances using metres and centimetres, e.g. 1 m 25 cm<br>• estimate lengths and distances using metres and centimetres and check by measuring<br>• explain strategies used to estimate lengths or distances, such as by referring to a known length, e.g. 'My hand span is 10 cm and my desk is 8 hand spans long, so my desk is about 80 cm long' (Communicating, Problem Solving) | **Suggested Content from Syllabus**<br>• recognise the need for a formal unit longer than the metre for measuring distance<br>• recognise that there are 1000 metres in 1 kilometre, i.e. 1000 metres = 1 kilometre<br>• describe one metre as one thousandth of a kilometre (Communicating)<br>• measure a kilometre and half-kilometre<br>• record distances using the abbreviation for kilometre (km) | **Suggested Content from Syllabus**<br>• Find perimeters of parallelograms, trapeziums, rhombuses and kites (ACMMG196)<br>• find the perimeter of a range of plane shapes, including parallelograms, rhombuses, kites and simple composite figures<br>• compare perimeters of rectangles with the same area (Problem Solving)<br>• solve problems involving the perimeter of plane shapes, e.g. find the dimensions of a rectangle, given its perimeter and the length of one other side |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• compare lengths directly by placing objects side-by-side and aligning the ends<br>• explain why the length of a piece of string remains unchanged whether placed in a straight line or a curve (Communicating, Reasoning)<br>• predict whether an object will be longer or shorter than another object and explain the reasons for this prediction (Communicating, Reasoning)<br>• compare lengths indirectly by copying a length, e.g. using the same strip of paper to compare lengths | **Suggested Content Continued**<br>• explain the relationship between the size of a unit and the number of units needed, e.g. more paper clips than pop sticks will be needed to measure the length of the desk (Communicating, Reasoning)<br>• make and use a tape measure calibrated in uniform informal units, e.g. calibrate a paper strip using footprints as a repeated unit<br>• use computer software to draw a line and use a simple graphic as a uniform informal unit to measure its length (Communicating)<br>• compare and order two or more shapes or objects according to their lengths using an appropriate uniform informal unit<br>• compare the lengths of two or more objects that cannot be moved or aligned (Reasoning)<br>• record length comparisons informally using drawings, numerals and words, and by referring to the uniform informal unit used | **Suggested Content Continued**<br>• recognise the need for a formal unit smaller than the centimetre to measure length<br>• recognise that there are ten millimetres in one centimetre, i.e. 10 millimetres = 1 centimetre<br>• use the millimetre as a unit to measure lengths to the nearest millimetre, using a ruler<br>• record lengths using the abbreviation for millimetre(s), e.g. 5 cm 3 mm or 53 mm<br>• describe how a length or distance was measured (Communicating)<br>• estimate lengths to the nearest millimetre and check by measuring | | |
| **Vocabulary from Syllabus**<br>Length, end, end-to-end, side-by-side, long, longer than, longest, short, shorter than, shortest, high, higher than, highest, tall, taller than, tallest, low, lower than, lowest, the same as, near, nearer, far, further, close, closer. | **Vocabulary from Syllabus**<br>Length, distance, end, end-to-end, side-by-side, gap, overlap, measure, estimate, hand span. | **Vocabulary from Syllabus**<br>Length, distance, metre, centimetre, millimetre, ruler, tape measure, trundle wheel, measure, estimate, perimeter, height, width, temperature, cold, warm, hot, degree (Celsius), thermometer. | **Vocabulary from Syllabus**<br>Length, distance, kilometre, metre, centimetre, millimetre, measure, measuring device, ruler, tape measure, trundle wheel, estimate, perimeter, dimensions, width. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Record comparisons of length informally | **Other Key Ideas covered later**<br>• Record lengths by referring to the number and type of uniform informal unit used<br>• Recognise the need for formal units to measure length<br>• Use metres and centimetres to measure and estimate lengths<br>• Record lengths using abbreviations (m and cm) | **Other Key Ideas covered later**<br>• Select and use appropriate scaled instruments and units to measure and compare lengths<br>• Estimate and measure perimeters of two-dimensional shapes<br>• Convert between millimetres, centimetres and metres<br>• Record lengths using decimal notation to two decimal places<br>• Use a scaled instrument to measure and compare temperatures | **Other Key Ideas covered later**<br>• Select and use appropriate instruments and units to measure lengths<br>• Calculate perimeters of common two-dimensional shapes and record the strategy<br>• Record lengths and distances using decimal notation to three decimal places<br>• Convert between kilometres, metres, centimetres and millimetres<br>• Solve problems involving length and perimeter | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Page :** 50 - 51 | **Syllabus Page :** 87 - 90 | **Syllabus Page :** 141 - 143 | **Syllabus Page :** 208 - 210 | **Syllabus Page :** 271 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Addition (A & B)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• combines, separates and compares collections of objects, describes using everyday language, and records using informal methods MAe-5NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of strategies and informal recording methods for addition and subtraction involving one- and two-digit numbers MA1-5NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• uses mental and written strategies for addition and subtraction involving two-, three-, four and five-digit numbers MA2-5NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and applies appropriate strategies for addition and subtraction with counting numbers of any size MA3-5NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• compares, orders and calculates with integers, applying a range of strategies to aid computation MA4-4NA |
| **Focus Key Ideas for this week**<br>• Combine two or more groups of objects to model addition<br>• Record addition informally | **Focus Key Ideas for this week**<br>• Model addition using concrete materials<br>• Recognise and recall combinations of numbers that add to numbers up to 20<br>• Use and record a range of mental strategies for addition of one- and two-digit numbers<br>• Use the equals sign to record equivalent number sentences | **Focus Key Ideas for this week**<br>• Model and apply the associative property for addition<br>• Use the equals sign to record equivalent number sentences<br>• Calculate equivalent amounts of money using different denominations<br>• Solve word problems involving purchases and the calculation of change to the nearest five cents | **Focus Key Ideas for this week**<br>• Select and apply efficient mental, written and calculator strategies for addition with numbers of any size<br>• Use estimation and rounding to check the reasonableness of answers to calculations<br>• Create a simple budget | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Represent practical situations to model addition and sharing<br>• combine two or more groups of objects to model addition<br>• use concrete materials or fingers to model and solve simple addition problems<br>• use visual representations of numbers to assist with addition, e.g. ten frames<br>• apply strategies that have been demonstrated by other students (Problem Solving) | **Suggested Content from Syllabus**<br>• Represent and solve simple addition problems using a range of strategies, including counting on, partitioning and rearranging parts<br>• use concrete materials to model addition problems involving one- and two digit numbers<br>• use the terms 'add', 'plus', 'equals' and 'is equal to'<br>• recognise and use the symbols for 'plus' (+) and 'equals' (=)<br>• record number sentences in a variety of ways using drawings, words, numerals and mathematical symbols | **Suggested Content from Syllabus**<br>• add three or more single-digit numbers<br>• model and apply the associative property of addition to aid mental computation, e.g. 2 + 3 + 8 = 2 + 8 + 3 = 10 + 3 = 13<br>• use concrete materials to model the addition of two or more numbers, with and without trading, and record the method used<br>• select, use and record a variety of mental strategies to solve addition problems, including word problems, with numbers of up to four digits | **Suggested Content from Syllabus**<br>• use the term 'sum' to describe the result of the addition of two or more numbers, e.g. 'The sum of 7 and 5 is 12'<br>• add three or more numbers with different numbers of digits, with and without digital technologies, e.g. 42 000 + 5123 + 246<br>• select and apply efficient mental, written and calculator strategies to solve addition word problems, including problems using money<br>• record the strategy used to solve addition and subtraction word problems | **Suggested Content from Syllabus**<br>• Apply the associative, commutative and distributive laws to aid mental and written computation<br>• use an appropriate non-calculator method to divide two- and three-digit numbers by a two digit number<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving)<br>• apply a practical understanding of commutativity to aid mental computation, e.g. 3 + 9 = 9 + 3 = 12, 3 × 9 = 9 × 3 = 27 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• create and recognise combinations for numbers to at least 10, e.g. 'How many more make 10?' or describe the action of combining, separating and comparing using everyday language, e.g. makes, joins, combines with, and, get, take away, how many more, all together<br>• explain or demonstrate how an answer was obtained (Communicating, Reasoning)<br>• investigate different methods of adding used in different cultures, e.g. Aboriginal and Torres Strait Islander methods involving spatial patterns and reasoning, Asian counting tools such as the abacus (Communicating, Problem Solving)<br>• count forwards by ones to add<br>• record addition informally using drawings, words and numerals | **Suggested Content Continued**<br>• recognise, recall and record combinations of two numbers that add up to 10<br>• create, record and recognise combinations of two numbers that add to numbers up to 9<br>• model and record patterns for individual numbers by making all possible whole number combinations, e.g. 5 + 0 = 5, 4 + 1 = 5, 3 + 2 = 5, 2 + 3 = 5 etc.<br>• describe combinations for numbers using words such as 'more', 'less' and 'double', e.g. describe 5 as 'one more than four', 'three combined with two', 'double two and one more' and 'one less than 6<br>• create, record and recognise combinations for numbers from 11 up to and including 20<br>• use combinations for numbers up to 10 to assist with combinations for numbers beyond 10<br>• investigate and generalise the effect of adding zero to a number, e.g. 'Adding zero to a number does not change the number'<br>• use and record a range of mental strategies to solve addition and subtraction problems involving one- and two-digit numbers:-<br>▪ counting on from the larger number to find the total of two numbers<br>▪ counting back from a number to find the number remaining<br>▪ counting on or back to find the difference between two numbers<br>▪ using doubles and near doubles, e.g. 5 + 7: double 5 and add 2<br>▪ combining numbers that add to 10, e.g. 4 + 7 + 8 + 6 + 3: group 4 and 6, and 7 and 3, first, and then add 8<br>▪ bridging to 10, e.g. 17 + 5: 17 and 3 is 20 and add 2 more partitioning numbers to at least 20 using place value (e.g. 19 as 10 + 9) and nonstandard forms (e.g. 19 as 11 + 8 or 12 + 7, etc.) | **Suggested Content Continued**<br>• give a reasonable estimate for a problem, explain how the estimate was obtained, and check the solution (Communicating, Reasoning)<br>• use the equals sign to record equivalent number sentences involving addition so to mean 'is the same as', rather than to mean to perform an operation, e.g. 32 + 13 = 30 + 15<br>check given number sentences to determine if they are true or false and describe why, e.g. 'Is 13 + 13 = 15 + 11 true? Why or why not?' (Communicating, Reasoning)<br>• Represent money values in multiple ways and count the change required for simple transactions to the nearest five cents (ACMNA059)<br>• calculate equivalent amounts of money using different denominations, e.g. 70 cents can be made up of three 20-cent coins and a 10-cent coin, or two 20-cent coins and three 10-cent coins, etc.<br>• perform simple calculations with money, including finding change, and round to the nearest five cents<br>• calculate mentally to give change<br>• Solve problems involving purchases and the calculation of change to the nearest five cents, with and without the use of digital technologies (ACMNA080)<br>• solve addition and subtraction problems involving money, with and without the use of digital technologies<br>• use a variety of strategies to solve unfamiliar problems involving money (Problem Solving)<br>• reflect on their own method of solution for a money problem, considering whether it can be improved (Communicating, Reasoning)<br>• calculate change and round to the nearest five cents | **Suggested Content Continued**<br>• interpret the words 'increase' and 'decrease' in addition word problems, e.g. 'If a computer costs $1599 and its price is then decreased by $250, how much do I pay?' (Communicating, Problem Solving)<br>• use empty number lines to record mental strategies (Communicating, Problem Solving)<br>• use selected words to describe each step in the solution process (Communicating, Problem Solving)<br>• check solutions to problems, including by using the inverse operation<br>• Use estimation and rounding to check the reasonableness of answers to calculations<br>• round numbers appropriately when obtaining estimates to numerical calculations<br>• use estimation to check the reasonableness of answers to addition calculations, e.g. 1438 + 129 is about 1440 + 130<br>• Create simple financial plans (ACMNA106)<br>• use knowledge of addition and subtraction facts to create a financial plan, such as a budget, e.g. organise a class celebration on a budget of $60 for all expenses<br>• record numerical data in a simple spreadsheet (Communicating)<br>• give reasons for selecting, prioritising and deleting items when creating a budget (Communicating, Reasoning) | **Suggested Content Continued**<br>• apply a practical understanding of associativity to aid mental computation, e.g. 3 + 8 + 2 = (3 + 8) + 2 = 3 + (8 + 2) = 13, 2 × 7 × 5 = (2 × 7) × 5 = 2 × (7 × 5) = 70<br>• Compare, order, add and subtract integers (ACMNA280)<br>• recognise the direction and magnitude of integers<br>• construct a directed number sentence to represent a real-life situation (Communicating)<br>• recognise and place integers on a number line<br>• compare the relative value of integers, including by using the symbols > and <<br>• order integers<br>• interpret different meanings (direction or operation) for the + and – signs, depending on the context<br>• add integers |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• use the equals sign to record equivalent number sentences involving addition, and to mean 'is the same as', rather than as an indication to perform an operation, e.g. 5 + 2 = 3 + 4<br>• check given number sentences to determine if they are true or false and describe why, e.g. 'Is 7 + 5 = 8 + 4 true? Why or why not?' | **Suggested Content Continued**<br>• use estimation to check the reasonableness of solutions to addition and subtraction problems, including those involving money | | |
| **Vocabulary from Syllabus**<br>Count forwards, combines with, joins, how many more, all together, makes. | **Vocabulary from Syllabus**<br>Counting on, counting back, combine, plus, add, total, more than, less than, double, equals, is equal to, is the same as, number sentence, strategy. | **Vocabulary from Syllabus**<br>Plus, add, addition, equals, is equal to, is the same as, number sentence, empty number line, strategy, digit, estimate, round to. | **Vocabulary from Syllabus**<br>Plus, sum, add, addition, increase, equals, is equal to, empty number line, strategy, digit, estimate, round to, budget. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Make connections between addition and subtraction<br>• Model and apply the commutative property for addition<br>• Use and record a range of mental strategies for addition of two-digit numbers<br>• Solve word problems involving addition | **Other Key Ideas covered later**<br>• Use and record a range of mental strategies for addition of two-, three- and four-digit numbers<br>• Use the inverse operation to check addition calculations<br>• Use the formal written algorithm for addition<br>• Use and record a range of mental strategies for addition of two-, three-, four- and five digit numbers | **Other Key Ideas covered later**<br>• Solve word problems and record the strategy used<br>• Select and apply efficient mental, written and calculator strategies to solve word problems and record the strategy used | **Other Key Ideas covered later** |
| **Syllabus Page :** 43 - 44 | **Syllabus Page :** 70 - 74 | **Syllabus Page :** 123 - 126 | **Syllabus Page :** 184 - 187 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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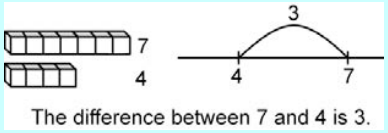
# Subtraction (A & B)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• combines, separates and compares collections of objects, describes using everyday language, and records using informal methods MAe-5NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of strategies and informal recording methods for addition and subtraction involving one- and two-digit numbers MA1-5NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• uses mental and written strategies for addition and subtraction involving two-, three-, four and five-digit numbers MA2-5NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and applies appropriate strategies for addition and subtraction with counting numbers of any size MA3-5NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• compares, orders and calculates with integers, applying a range of strategies to aid computation MA4-4NA |
| **Focus Key Ideas for this week**<br>• Take part of a group away to model subtraction<br>• Compare two groups to determine 'how many more'<br>• Record subtraction informally | **Focus Key Ideas for this week**<br>• Model subtraction using concrete materials<br>• Use the equals sign to record equivalent number sentences | **Focus Key Ideas for this week**<br>• Use and record a range of mental strategies for subtraction of two-, three- and four-digit numbers<br>• Use the equals sign to record equivalent number sentences | **Focus Key Ideas for this week**<br>• Select and apply efficient mental, written and calculator strategies for subtraction with numbers of any size<br>• Use estimation and rounding to check the reasonableness of answers to calculations | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• model subtraction by separating and taking away part of a group of objects<br>• use concrete materials or fingers to model and solve simple subtraction problems<br>• compare two groups of objects to determine 'how many more'<br>• use visual representations of numbers to assist with subtraction, e.g. ten frames<br>• create and recognise combinations for numbers to at least 10, e.g. 'How many more make 10?' or describe the action of combining, separating and comparing using everyday language, e.g. makes, joins, combines with, and, get, take away, how many more, all together | **Suggested Content from Syllabus**<br>• Represent and solve simple subtraction problems using a range of strategies, including counting back, partitioning and rearranging parts<br>• use concrete materials to model subtraction problems involving one- and two digit numbers<br>• use concrete materials and a number line to model and determine the 'difference between' two numbers, e.g. the difference between 7 and 4 is 3.<br>  <br><br>The difference between 7 and 4 is 3.<br>• recognise and use the symbols for 'take away'' (-) and 'equals' (=) | **Suggested Content from Syllabus**<br>• use concrete materials to model the subtraction of two or more numbers, with and without trading, and record the method used<br>• select, use and record a variety of mental strategies to solve subtraction problems, including word problems, with numbers of up to four digits<br>• give a reasonable estimate for a problem, explain how the estimate was obtained, and check the solution (Communicating, Reasoning)<br>• use the equals sign to record equivalent number sentences involving subtraction so to mean 'is the same as', rather than to mean to perform an operation, e.g. 32 - 13 = 30 - 11 | **Suggested Content from Syllabus**<br>• interpret the word 'decrease' in subtraction word problems, e.g. 'If a computer costs $1599 and its price is then decreased by $250, how much do I pay?' (Communicating, Problem Solving)<br>• record the strategy used to solve subtraction word problems<br>• use empty number lines to record mental strategies (Communicating, Problem Solving)<br>• use selected words to describe each step in the solution process (Communicating, Problem Solving)<br>• select and apply efficient mental, written and calculator strategies to solve subtraction word problems, including problems involving money | **Suggested Content from Syllabus**<br>• Apply the associative, commutative and distributive laws to aid mental and written computation (ACMNA151)<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving)<br>• Compare, order and subtract integers (ACMNA280)<br>• recognise the direction and magnitude of integers<br>• construct a directed number sentence to represent a real-life situation (Communicating)<br>• recognise and place integers on a number line<br>• compare the relative value of integers, including by using the symbols > and < |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• explain or demonstrate how an answer was obtained (Communicating, Reasoning)<br>• apply strategies that have been demonstrated by other students<br>• investigate different methods of subtracting used in different cultures, e.g. Aboriginal and Torres Strait Islander methods involving spatial patterns and reasoning, Asian counting tools such as the abacus<br>• count backwards by ones to subtract<br>• record subtraction informally using drawings, words and numerals | **Suggested Content Continued**<br>• record number sentences in a variety of ways using drawings, words, numerals and mathematical symbols<br>• model and record patterns for individual numbers by making all possible whole number combinations, e.g. 10 – 5 = 5, 9 – 4 = 5, 8 – 3 = 5, 7 – 2 = 5, 6 – 1 = 5<br>• describe combinations for numbers using words such as 'more', 'less' and 'double', e.g. describe 5 as 'one more than four', 'three combined with two', 'double two and one more' and 'one less than 6<br>• investigate and generalise the effect of taking zero from another number, e.g. ''Taking away zero from a number does not change the number' | **Suggested Content Continued**<br>• check given number sentences to determine if they are true or false and describe why,<br>e.g. 'Is 26 - 13 = 28 - 14 true? Why or why not?' (Communicating, Reasoning) | **Suggested Content Continued**<br>• check solutions to problems, including by using the inverse operation<br>• Use estimation and rounding to check the reasonableness of answers to calculations<br>• round numbers appropriately when obtaining estimates to numerical calculations<br>• use estimation to check the reasonableness of answers to subtraction calculations, e.g. 1442 - 129 is about 1440 – 130 | **Suggested Content Continued**<br>• order integers<br>• interpret different meanings (direction or operation) for the – sign, depending on the context<br>• subtract integers<br>• determine, by developing patterns or using a calculator, that subtracting a negative number is the same as adding a positive number (Reasoning) |
| **Vocabulary from Syllabus**<br>Count backwards, take away, how many more, all together, makes. | **Vocabulary from Syllabus**<br>Counting back, take away, minus, the difference between, total, more than, less than, double, equals, is equal to, is the same as, number sentence, strategy. | **Vocabulary from Syllabus**<br>Minus, the difference between, subtract, subtraction, equals, is equal to, is the same as, number sentence, empty number line, strategy, digit, estimate, round to. | **Vocabulary from Syllabus**<br>Minus, the difference between, subtract, subtraction, decrease, equals, is equal to, empty number line, strategy, digit, estimate, round to, budget. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• | **Other Key Ideas covered later**<br>• Make connections between addition and subtraction<br>• Use and record a range of mental strategies for subtraction of one and two-digit numbers<br>• Solve word problems involving subtraction | **Other Key Ideas covered later**<br>• Calculate equivalent amounts of money using different denominations<br>• Use the inverse operation to check subtraction calculations<br>• Use the formal written algorithm for subtraction<br>• Use and record a range of mental strategies for subtraction of two-, three-, four- and five digit numbers<br>• Solve word problems involving purchases and the calculation of change to the nearest five cents. | **Other Key Ideas covered later**<br>• Solve word problems and record the strategy used<br>• Create a simple budget<br>• Select and apply efficient mental, written and calculator strategies to solve word problems and record the strategy used | **Other Key Ideas covered later** |
| **Syllabus Page :** 43 - 44 | **Syllabus Page :** 70 - 74 | **Syllabus Page :** 123 - 126 | **Syllabus Page :** 184 - 187 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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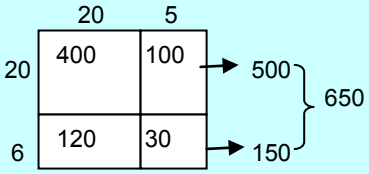
# Multiplication (A)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• groups, shares and counts collections of objects, describes using everyday language, and records using informal method MAe-6NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of mental strategies and concrete materials for multiplication MA1-6NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• uses mental and informal written strategies for multiplication MA2-6NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and applies appropriate strategies for multiplication and applies the order of operations to calculations involving more than one operation MA3-6NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• compares, orders and calculates with integers, applying a range of strategies to aid computation MA4-4NA |
| **Focus Key Ideas for this week**<br>• Investigate and model equal groups | **Focus Key Ideas for this week**<br>• Rhythmic and skip count by twos, fives and tens from any starting point | **Focus Key Ideas for this week**<br>• Recall multiplication facts for twos, threes, fives and tens<br>• Model and apply to commutative property for multiplication | **Focus Key Ideas for this week**<br>• Use and record a range of mental and written strategies to multiply by one- and two-digit operators | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• use the term 'group' to describe a collection of objects<br>• use the term 'sharing' to describe the distribution of a collection of objects<br>• model equal groups<br>• recognise groups that are not equal in size | **Suggested Content from Syllabus**<br>• Skip count by twos, fives and tens starting from zero<br>• count by twos, fives and tens using rhythmic counting and skip counting from zero<br>• use patterns on a number chart to assist in counting by twos, fives or tens (Communicating)<br>• Model and use equal groups of objects as a strategy for multiplication<br>• model and describe collections of objects as 'groups of', e.g.<br>  two groups of three | **Suggested Content from Syllabus**<br>• count by twos, threes, fives or tens using skip counting<br>• use mental strategies to recall multiplication facts for multiples of two, three, five and ten<br>• relate 'doubling' to multiplication facts for multiples of two, e.g. 'Double three is six' (Reasoning)<br>• recognise and use the symbols for 'multiplied by' (×) and 'equals' (=)<br>• model and apply the commutative property of multiplication, e.g. 5×8 = 8×5 | **Suggested Content from Syllabus**<br>• Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental and written strategies and appropriate digital technologies (ACMNA100)<br>• use mental and written strategies to multiply three- and four-digit numbers by one-digit numbers, including:<br>• multiplying the thousands, then the hundreds, then the tens and then the ones, e.g. 673 x 4 = (□□ 600x □□ 4) + (□□□□ 70x □□ 4) + (□□□□ 3x □□ 4□<br>= □2400 + □□ 280 + □12<br>= □2692<br>• using an area model, e.g.684 × 5<br>600 80 4<br>5 \| 3000 \| 400 \| 20 \|<br>3000 + 400 + 20 = 3420 | **Suggested Content from Syllabus**<br>• Apply the associative, commutative and distributive laws to aid mental and written computation<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving)<br>• apply a practical understanding of commutativity to aid mental computation, e.g. 3 + 9 = 9 + 3 = 12, 3 × 9 = 9 × 3 = 27<br>• apply a practical understanding of associativity to aid mental computation,<br>e.g. 3 + 8 + 2 = (3 + 8) + 2<br>= 3 + (8 + 2) = 13,<br>2×7×5 = (2 ×7)×5 = 2×(7×5) = 70 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | | **Suggested Content Continued**<br>• use mental and written strategies to multiply two- and three-digit numbers by two-digit numbers, including:<br>  • using an area model for two-digit by two-digit multiplication, e.g. 25 x 26<br>  <br><br>  • factorising the numbers, e.g. 12 ×25 = 3 ×4 ×25 = 3 ×100 = 300 | **Suggested Content Continued**<br>• determine by example that associativity holds true for multiplication of three or more numbers but does not apply to calculations involving division, e.g. (80 ÷ 8) ÷ 2 is not equivalent to 80 ÷ (8 ÷ 2) (Communicating)<br>• apply a practical understanding of the distributive law to aid mental computation, e.g. to multiply any number by 13, first multiply by 10 and then add 3 times the number<br>• use factors of a number to aid mental computation of multiplication and division, e.g. to multiply a number by 12, first multiply the number by 6 and then multiply by 2 |
| **Vocabulary from Syllabus**<br>Group, share, equal. | **Vocabulary from Syllabus**<br>Group, number of groups, number in each group, sharing, shared between, left over, total, equal. | **Vocabulary from Syllabus**<br>Group, row, column, horizontal, vertical, array, multiply, multiplied by, multiplication, multiplication facts, double, shared between, divide, divided by, division, equals, strategy, digit, number chart. | **Vocabulary from Syllabus**<br>Multiply, multiplied by, product, multiplication, multiplication facts, area, thousands, hundreds, tens, ones, double, multiple, factor, divide, divided by, quotient, division, halve, remainder, fraction, decimal, equals, strategy, digit, estimate, round to. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Model and use equal 'groups of' objects as a strategy for multiplication<br>• Model division as sharing a collection of objects into equal groups<br>• Model and use arrays described in terms of 'rows' and 'columns' as a strategy for multiplication<br>• Model and use repeated addition as a strategy for multiplication<br>• Model and use groups, arrays and repeated subtraction as strategies for division<br>• Record using drawings, words and numerals | **Other Key Ideas covered later**<br>• Link multiplication and division using arrays<br>• Use and record mental strategies to multiply one-digit numbers by multiples of 10<br>• Recall multiplication facts up to 10 × 10 and related division facts<br>• Determine multiples and factors of numbers<br>• Use the equals sign to record equivalent number sentences<br>• Use and record a range of mental and written strategies for multiplication and division of two-digit numbers by a one-digit operator<br>• Use mental strategies and informal recording methods for division with remainders | **Other Key Ideas covered later**<br>• Use the formal algorithm for multiplication by one- and two-digit operators<br>• Use and record a range of mental and written strategies to divide by a one-digit operator with and without remainders<br>• Solve word problems and record the strategy used<br>• Interpret remainders in division problems<br>• Select and apply efficient mental, written and calculator strategies to solve word problems and record the strategy used<br>• Use grouping symbols and the order of operations in calculations | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Page :** 45 - 46 | **Syllabus Page :** 75 - 78 | **Syllabus Page :** 127 - 131 | **Syllabus Page :** 188 - 194 | **Syllabus Page :** |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Area (A)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• describes and compares areas using everyday language MAe-10MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• estimates, measures, compares and records areas using informal units MA1-10MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• estimates, measures, compares and records areas using square centimetres and square metres MA2-10MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital<br>• technologies, in undertaking investigations MA3-2WM<br>• selects and uses the appropriate unit to calculate areas, including areas of squares, rectangles and triangles MA3-10MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• uses formulas to calculate the area of quadrilaterals and circles, and converts between units of area MA4-13MG |
| **Focus Key Ideas for this week**<br>• Identify the attribute of 'area' as a measure of the amount of surface<br>• Use comparative language to describe areas | **Focus Key Ideas for this week**<br>• Use uniform informal units to measure and estimate areas<br>• Record areas by referring to the number and type of uniform informal unit used | **Focus Key Ideas for this week**<br>• Recognise the need for formal units to measure area<br>• Use square centimetres and square metres to measure and estimate rectangular (and square) areas<br>• Record lengths using abbreviations (cm2 and m2) | **Focus Key Ideas for this week**<br>• Recognise the need for square kilometres and hectares to measure area<br>• Record areas using abbreviations (km2 and ha) | • **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• identify the attribute of 'area' as the measure of the amount of surface<br>• cover surfaces completely with smaller shapes<br>• make closed shapes and describe the area of the shape<br>• use computer software to draw a closed shape, colouring in the area (Communicating)<br>• use everyday language to describe area, e.g. surface, inside, outside<br>• use comparative language to describe area, e.g. bigger than, smaller than, the same as<br>• ask questions about area in everyday situations, e.g. 'Which book cover is bigger?' (Communicating) | **Suggested Content from Syllabus**<br>• compare, indirectly, the areas of two surfaces that cannot be moved or superimposed, e.g. by cutting paper to cover one surface and superimposing the paper over the second surface<br>• predict the larger of the areas of two surfaces of the same general shape and compare these areas by cutting and covering<br>• use uniform informal units to measure area by covering the surface in rows or columns without gaps or overlaps<br>• select and use appropriate uniform informal units to measure area (Reasoning) | **Suggested Content from Syllabus**<br>• recognise and use formal units to measure and estimate the area of rectangles<br>• recognise the need for the square centimetre as a formal unit to measure area<br>• use a 10 cm × 10 cm tile (or grid) to find rectangular areas (including the area of squares) that are less than, greater than or about the same as 100 square centimetres<br>• measure the areas of rectangles (including squares) in square centimetres<br>• estimate the areas of rectangles (including squares) in square centimetres | **Suggested Content from Syllabus**<br>• recognise the need for a formal unit larger than the square metre<br>• identify situations where square kilometres are used for measuring area, e.g. a suburb<br>• recognise and explain the need for a more convenient unit than the square kilometre<br>• recognise that there are 10 000 square metres in one hectare, i.e. 10 000 metres = 1 hectare<br>• equate one hectare to the area of a square with side lengths of 100 m (Communicating)<br>• relate the hectare to common large pieces of land, e.g. a tennis court is about one quarter of a hectare (Reasoning) | **Suggested Content from Syllabus**<br>• choose an appropriate unit to measure the areas of different shapes and surfaces, e.g. floor space, fields<br>• use the areas of familiar surfaces to assist with the estimation of larger areas (Problem Solving)<br>• convert between metric units of area: 1 $cm^2$ = 100 $mm^2$, 1 $m^2$ = 1 000 000 $mm^2$, 1 ha = 10 000 $m^2$, 1 $km^2$ = 1 000 000 $m^2$ = 100 ha<br>• Establish the formulas for areas of rectangles, triangles and parallelograms and use these in problem solving (ACMMG159)<br>• develop and use the formulas for the area of squares and rectangles: |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• explain the relationship between the size of a unit and the number of units needed to measure an area, e.g. 'I need more tiles than workbooks to measure the area of my desktop' (Communicating, Reasoning)<br>• describe why the area remains constant when units are rearranged (Communicating, Reasoning)<br>• describe any parts of units left over when counting uniform informal units to measure area<br>• use computer software to create a shape and use a simple graphic as a uniform informal unit to measure its area (Communicating)<br>• record areas by referring to the number and type of uniform informal unit used, e.g. 'The area of this surface is 20 tiles'<br>• estimate areas by referring to the number and type of uniform informal unit used and check by measuring<br>• discuss strategies used to estimate area, e.g. visualising the repeated unit (Communicating, Problem Solving) | **Suggested Content Continued**<br>• use efficient strategies for counting large numbers of square centimetres, e.g. using strips of 10 or squares of 100 record area in square centimetres using words and the abbreviation for square centimetre(s) ($cm^2$), e.g. 55 square centimetres, 55 $cm^2$<br>• discuss strategies used to estimate area in square centimetres, e.g. visualising repeated units<br>• recognise the need for a formal unit larger than the square centimetre to measure area<br>• construct a square metre and use it to measure large rectangular areas (including the areas of squares), e.g. the classroom floor or door<br>• explain where square metres are used for measuring in everyday situations, e.g. floor coverings<br>• recognise areas that are 'less than a square metre', 'about the same as a square metre' and 'greater than a square metre' (Reasoning)<br>• record areas in square metres using words and the abbreviation for square metre(s) ($m^2$), e.g. 6 square metres, 6 $m^2$<br>• estimate the areas of rectangles (including squares) in square metres<br>• discuss strategies used to estimate area in square metres, e.g. visualising repeated units | **Suggested Content Continued**<br>• determine the dimensions of different rectangles with an area of one hectare (Problem Solving)<br>• record areas using the abbreviations for square kilometre ($km^2$) and hectare (ha) | **Suggested Content Continued**<br>• Area of rectangle = $lb$ where $l$ is the length and $b$ is the breadth of the rectangle<br>• Area of square = $s^2$ where $s$ is the side length of the square<br>• explain the relationship that multiplying, dividing, squaring and factoring have with the areas of squares and rectangles with integer side lengths (Communicating)<br>• explain the relationship between the formulas for the areas of squares and rectangles (Communicating)<br>• compare areas of rectangles with the same perimeter<br>• develop, with or without digital technologies, and use the formulas for the areas of parallelograms and triangles, including triangles where the perpendicular height lies outside the shape:<br>• Area of parallelogram = $bh$ where $b$ is the length of the base and $h$ is the perpendicular height<br>• Area of triangle = $\frac{1}{2}bh$ where $b$ is the length of the 2base and $h$ is the perpendicular height<br>• identify the perpendicular height of triangles and parallelograms in different orientations (Reasoning)<br>• find the areas of simple composite figures that may be dissected into squares, rectangles, parallelograms and triangles |
| **Vocabulary from Syllabus**<br>Area, surface, closed shape, inside, outside, bigger than, smaller than, the same as. | **Vocabulary from Syllabus**<br>Area, surface, measure, row, column, gap, overlap, parts of (units), estimate. | **Vocabulary from Syllabus**<br>Area, surface, measure, grid, row, column, square centimetre, square metre, estimate. | **Vocabulary from Syllabus**<br>Area, measure, square centimetre, square metre, square kilometre, hectare, dimensions, length, width. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Record comparisons of area informally<br>• Compare areas using direct comparison | **Other Key Ideas covered later**<br>• Compare and order surfaces based on area using uniform informal units | **Other Key Ideas covered later**<br>• Measure and compare the areas of regular and irregular shapes using a square-centimetre grid<br>• Compare areas measured in square centimetres and square metres | **Other Key Ideas covered later**<br>• Calculate areas of rectangles (including squares) and record the strategy<br>• Calculate areas of triangles and record the strategy<br>• Solve problems involving areas of rectangles (including squares) and triangles | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Page :** 52 - 53 | **Syllabus Page :** 91 - 93 | **Syllabus Page :** 144 - 147 | **Syllabus Page :** 211 - 213 | **Syllabus Page :** 273 - 275 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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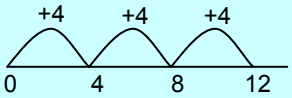
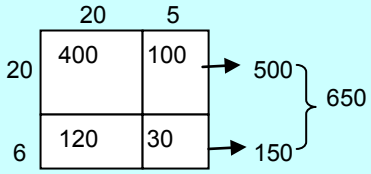
# Multiplication (B)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• groups, shares and counts collections of objects, describes using everyday language, and records using informal method MAe-6NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of mental strategies and concrete materials for multiplication and division MA1-6NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• uses mental and informal written strategies for multiplication and division MA2-6NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and applies appropriate strategies for multiplication and division, and applies the order of operations to calculations involving more than one operation MA3-6NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• compares, orders and calculates with integers, applying a range of strategies to aid computation MA4-4NA |
| **Focus Key Ideas for this week**<br>• Investigate and model equal groups | **Focus Key Ideas for this week**<br>• Model and use repeated addition as a strategy for multiplication | **Focus Key Ideas for this week**<br>• Use and record mental strategies to multiply one-digit numbers by multiples of 10 | **Focus Key Ideas for this week**<br>• Use and record a range of mental and written strategies to multiply by one- and two-digit operators<br>• Solve word problems and record the strategy used | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• use the term 'group' to describe a collection of objects<br>• use the term 'sharing' to describe the distribution of a collection of objects<br>• model equal groups<br>• recognise groups that are not equal in size | **Suggested Content from Syllabus**<br>• Recognise and represent multiplication as repeated addition, groups and arrays (ACMNA031)<br>• model multiplication as repeated addition, e.g. 3 groups of 4 is the same as 4 + 4 + 4<br>• find the total number of objects by placing into equal-sized groups and using repeated addition<br>• use empty number lines and number charts to record repeated addition, e.g.<br>  <br><br>• explore the use of repeated addition to count in practical situations, e.g. counting stock on a farm (Problem Solving) | **Suggested Content from Syllabus**<br>• use mental strategies to multiply a one-digit number by a multiple of 10, including:<br>  • repeated addition, e.g. 3 ×20 : 20 + 20 + 20 = 60<br>  • using place value concepts, e.g. 3×20 : 3×2 tens = 6 tens = 60<br>  • factorising the multiple of 10, e.g. 3×20 : 3×2×10 = 6 x10 = 60<br>  • apply the inverse relationship of multiplication and division to justify answers, e.g. 12 ÷ 3 is 4 because 4 ×3 = 12<br>• select, use and record a variety of mental strategies, and appropriate digital technologies, to solve simple multiplication problems | **Suggested Content from Syllabus**<br>• use mental and written strategies to multiply three- and four-digit numbers by one-digit numbers, including:<br>  • multiplying the thousands, then the hundreds, then the tens and then the ones, e.g.<br>673 x 4 = (□□<br>(□<br>□□4)□<br>=□2400<br>=□2692<br>  • using an area model, e.g.<br>684 × 5<br>600 80 4<br>5 \| 3000 \| 400 \| 20 \|<br>3000 + 400 + 20 = 3420 | **Suggested Content from Syllabus**<br>• Apply the associative, commutative and distributive laws to aid mental and written computation<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving)<br>• apply a practical understanding of commutativity to aid mental computation, e.g. 3 + 9 = 9 + 3 = 12, 3 × 9 = 9 × 3 = 27<br>• apply a practical understanding of associativity to aid mental computation,<br>e.g. 3 + 8 + 2 = (3 + 8) + 2<br>= 3 + (8 + 2) = 13,<br><br>2×7×5 = (2 ×7)×5 = 2×(7×5) = 70 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | **Suggested Content Continued**<br>• pose multiplication problems and apply appropriate strategies to solve them (Problem Solving)<br>• explain how an answer was obtained and compare their own method of solution with those of other students (Communicating, Reasoning)<br>• explain problem-solving strategies using language, actions, materials and drawings (Communicating, Problem Solving)<br>• describe methods used in solving multiplication problems (Communicating) | **Suggested Content Continued**<br>• use mental and written strategies to multiply two- and three-digit numbers by two-digit numbers, including:<br>  • using an area model for two-digit by two-digit multiplication, e.g. 25 x 26<br>  <br><br>  • factorising the numbers, e.g. $12 \times 25 = 3 \times 4 \times 25 = 3 \times 100 = 300$<br>• Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099)<br>• round numbers appropriately when obtaining estimates to numerical calculations<br>• use estimation to check the reasonableness of answers to multiplication calculations, e.g. '32 × 253 will be about, but more than, 30 × 250'<br>• check answers to mental calculations using digital technologies (Problem Solving)<br>• apply appropriate mental and written strategies, and digital technologies, to solve multiplication word problems<br>• use the appropriate operation when solving problems in real-life situations (Problem Solving)<br>• use inverse operations to justify solutions (Problem Solving)<br>• record the strategy used to solve multiplication word problems<br>• use selected words to describe each step in the solution process | **Suggested Content Continued**<br>• determine by example that associativity holds true for multiplication of three or more numbers but does not apply to calculations involving division, e.g. $(80 \div 8) \div 2$ is not equivalent to $80 \div (8 \div 2)$ (Communicating)<br>• apply a practical understanding of the distributive law to aid mental computation, e.g. to multiply any number by 13, first multiply by 10 and then add 3 times the number<br>• use factors of a number to aid mental computation of multiplication and division, e.g. to multiply a number by 12, first multiply the number by 6 and then multiply by 2 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Vocabulary from Syllabus**<br>Group, share, equal. | **Vocabulary from Syllabus**<br>Group, number of groups, number in each group, sharing, shared between, left over, total, equal. | **Vocabulary from Syllabus**<br>Group, row, column, horizontal, vertical, array, multiply, multiplied by, multiplication, multiplication facts, double, shared between, divide, divided by, division, equals, strategy, digit, number chart. | **Vocabulary from Syllabus**<br>Multiply, multiplied by, product, multiplication, multiplication facts, area, thousands, hundreds, tens, ones, double, multiple, factor, divide, divided by, quotient, division, halve, remainder, fraction, decimal, equals, strategy, digit, estimate, round to. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Rhythmic and skip count by twos, fives and tens from any starting point<br>• Model and use equal 'groups of' objects as a strategy for multiplication<br>• Model division as sharing a collection of objects into equal groups<br>• Model and use arrays described in terms of 'rows' and 'columns' as a strategy for multiplication<br>• Model and use groups, arrays and repeated subtraction as strategies for division<br>• Record using drawings, words and numerals | **Other Key Ideas covered later**<br>• Recall multiplication facts for twos, threes, fives and tens<br>• Link multiplication and division using arrays<br>• Model and apply to commutative property for multiplication<br>• Recall multiplication facts up to 10 × 10 and related division facts<br>• Determine multiples and factors of numbers<br>• Use the equals sign to record equivalent number sentences<br>• Use and record a range of mental and written strategies for multiplication and division of two-digit numbers by a one-digit operator<br>• Use mental strategies and informal recording methods for division with remainders | **Other Key Ideas covered later**<br>• Use the formal algorithm for multiplication by one- and two-digit operators<br>• Use and record a range of mental and written strategies to divide by a one-digit operator with and without remainders<br>• Interpret remainders in division problems<br>• Select and apply efficient mental, written and calculator strategies to solve word problems and record the strategy used<br>• Use grouping symbols and the order of operations in calculations | **Other Key Ideas covered later** |
| **Syllabus Page :** 45 - 46 | **Syllabus Page :** 75 - 78 | **Syllabus Page :** 127 - 131 | **Syllabus Page :** 188 - 194 | **Syllabus Page :** |
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# Volume & Capacity (A)

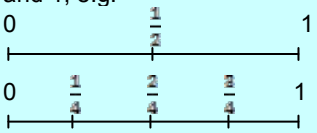
| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• describes and compares the capacities of containers and the volumes of objects or substances using everyday language MAe-11MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• estimates, measures, compares and records volumes and capacities using informal units MA1-11MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• estimates, measures, compares and records volumes and capacities using litres, millilitres and cubic centimetres MA2-11MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and uses the appropriate unit to estimate, measure and calculate volumes and capacities, and converts between units of capacity MA3-11MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• uses formulas to calculate the volume of prisms and cylinders, and converts between units of volume MA4-14MG |
| **Focus Key Ideas for this week**<br>• Identify the attribute of 'capacity' as a measure of the amount of substance a container can hold<br>• Use comparative language to describe capacities | **Focus Key Ideas for this week**<br>• Use uniform informal units to measure, compare and estimate capacities | **Focus Key Ideas for this week**<br>• Recognise the need for formal units to measure capacity<br>• Use litres to measure, compare and estimate capacities<br>• Record capacities using abbreviation (L) | **Focus Key Ideas for this week**<br>• Record capacities using decimal notation to three decimal places<br>• Convert between millilitres and litres | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Use direct and indirect comparisons to decide which holds more, and explain reasoning in everyday language (ACMMG006)<br>• identify the attribute of 'capacity' as the amount of liquid a container can hold<br>• fill and empty containers using materials such as water and sand<br>• use the terms 'full', 'empty' and 'about half-full'<br>• recognise when a container, such as a watering can, is nearly full, about half-full or empty<br>• compare the capacities of two containers directly by filling one and pouring into the other | **Suggested Content from Syllabus**<br>• Measure and compare the capacities of pairs of objects using uniform informal units (ACMMG019)<br>• use uniform informal units to measure capacities of containers by counting the number of times a smaller container can be filled and emptied into the container being measured<br>• select appropriate informal units to measure the capacities of containers, e.g. using cups rather than teaspoons to fill a bucket<br>• record capacities by referring to the number and type of uniform informal units used | **Suggested Content from Syllabus**<br>• Measure, order and compare objects using familiar metric units of capacity (ACMMG061)<br>• recognise the need for formal units to measure capacity<br>• explain the need for formal units to measure capacity (Communicating, Reasoning)<br>• use the litre as a unit to measure capacities to the nearest litre<br>• relate the litre to familiar everyday containers, e.g. milk cartons (Reasoning)<br>• recognise that one-litre containers can be a variety of shapes (Reasoning) | **Suggested Content from Syllabus**<br>• Convert between common metric units of capacity (ACMMG136)<br>• convert between millilitres and litres<br>• record capacity using decimal notation to three decimal places, e.g. 1.275 L<br>• select the appropriate unit to measure capacity | **Suggested Content from Syllabus**<br>• choose appropriate units of measurement for capacity convert from one unit to another (ACMMG195)<br>• recognise that 1000 litres is equal to one kilolitre and use the abbreviation for kilolitre (kL)<br>• recognise that 1000 kilolitres is equal to one megalitre and use the abbreviation for megalitre (ML)<br>• choose an appropriate unit to measure the capacity of different objects, e.g. swimming pools, household containers, dams<br>• use the capacity of familiar containers to assist with estimation of larger capacities (Reasoning) |

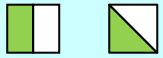
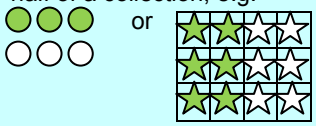
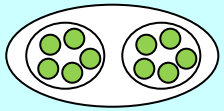
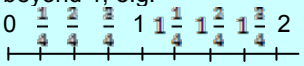
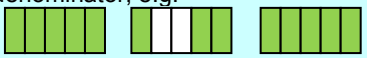
| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• predict which container has the greater capacity and explain the reasons for this prediction, e.g. plant pots of different sizes (Communicating, Reasoning)<br>• compare the capacities of two containers indirectly by pouring their contents into two other identical containers and observing the level reached by each<br>• establish that containers of different shapes may have the same capacity, e.g. a tall narrow container may hold the same amount as a short wide container<br>• use comparative language to describe capacity, e.g. has more, has less, will hold more, will hold less,<br>• record capacity comparisons informally using drawings, numerals and words | **Suggested Content Continued**<br>• explain the relationship between the size of a unit and the number of unit needed, e.g. more cups than ice cream containers will be needed to fill a bucket (Communicating, Reasoning)<br>• compare the capacities of two or more containers using appropriate uniform informal units<br>• recognise that containers of different shapes may have the same capacity (Reasoning)<br>• estimate capacities by referring to the number and type of uniform informal unit used and check by measuring<br>• pack cubic units (e.g. blocks) into rectangular containers so that there are no gaps<br>• recognise that cubes pack and stack better than other objects in rectangular containers (Reasoning)<br>• devise and explain strategies for packing and counting units to fill a box, e.g. packing in layers and ensuring that there are no gaps between units (Communicating) | **Suggested Content Continued**<br>• record capacities using the abbreviation for litre (L)<br>• compare and order two or more containers by capacity measured in litres<br>• estimate the capacity of a container in litres and check by measuring<br>• estimate the number of cups needed to fill a container with a capacity of one litre (Reasoning)<br>• Use scaled instruments to measure and compare capacities<br>• recognise the need for a formal unit smaller than the litre to measure capacity recognise that there are 1000 millilitres in one litre, i.e.<br>1000 millilitres = 1 litre<br>• relate the millilitre to familiar everyday containers and familiar informal units, e.g. 1 teaspoon is approximately 5 mL, 250 mL fruit juice containers (Reasoning) | | **Suggested Content Continued**<br>• convert between metric units of capacity, using 1 $cm^3$ = 1000 $mm^3$, 1 L = 1000 mL = 1000 $cm^3$, 1 $m^3$ = 1000 L = 1 kL, 1000 kL = 1 ML<br>• solve practical problems involving the volume and capacity of right prisms<br>• Calculate the volume of cylinders and solve related problems<br>• develop and use the formula to find the volume of cylinders: Volume of cylinder = $\pi r^2 h$<br>• where $r$ is the length of the radius of the base and $h$ is the perpendicular height<br>• recognise and explain the similarities between the volume formulas for cylinders and prisms (Communicating)<br>• solve problems involving the capacity of right prisms and cylinders, e.g. calculate the capacity of a cylindrical can of drink or a water tank |
| **Vocabulary from Syllabus**<br>The attribute of Capacity refers to the amount a container can hold, and can be measured in millilitres (mL) and/or litres (L). Capacity is only used in relation to containers and generally refers to liquid measurement. The capacity of a closed container will be slightly less than its volume – capacity is based on the inside dimensions, while volume is determined by the outside dimensions of the container. Volume is the amount of space occupied by an object or substance and can be measured in cubic units, e.g. cubic centimetres ($cm^3$) and cubic metres ($m^3$).<br>Capacity, container, liquid, full, empty, about half-full, volume, space, has more, has less, will hold more, will hold less, takes up more space. | **Vocabulary from Syllabus**<br>The attribute of Capacity refers to the amount a container can hold, and can be measured in millilitres (mL) and/or litres (L). Capacity is only used in relation to containers and generally refers to liquid measurement. The capacity of a closed container will be slightly less than its volume – capacity is based on the inside dimensions, while volume is determined by the outside dimensions of the container. Volume is the amount of space occupied by an object or substance and can be measured in cubic units, e.g. cubic centimetres ($cm^3$) and cubic metres ($m^3$).<br>Capacity, container, liquid, full, empty, volume, gap, measure, estimate. | **Vocabulary from Syllabus**<br>The attribute of Capacity refers to the amount a container can hold, and can be measured in millilitres (mL) and/or litres (L). Capacity is only used in relation to containers and generally refers to liquid measurement. The capacity of a closed container will be slightly less than its volume – capacity is based on the inside dimensions, while volume is determined by the outside dimensions of the container. Volume is the amount of space occupied by an object or substance and can be measured in cubic units, e.g. cubic centimetres ($cm^3$) and cubic metres ($m^3$).<br>Capacity, container, litre, millilitre, volume, measure, estimate. | **Vocabulary from Syllabus**<br>The attribute of Capacity refers to the amount a container can hold, and can be measured in millilitres (mL) and/or litres (L). Capacity is only used in relation to containers and generally refers to liquid measurement. The capacity of a closed container will be slightly less than its volume – capacity is based on the inside dimensions, while volume is determined by the outside dimensions of the container. Volume is the amount of space occupied by an object or substance and can be measured in cubic units, e.g. cubic centimetres ($cm^3$) and cubic metres ($m^3$).<br>Capacity, container, volume, layers, cubic centimetre, cubic metre, measure, estimate, litre, millilitre, dimensions, length, width, height. | **Vocabulary from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Other Key Ideas covered later**<br>• Identify the attribute of 'volume' as a measure of the amount of space an object occupies<br>• Compare volumes and capacities using direct comparison<br>• Record comparisons of capacity and volume informally | **Other Key Ideas covered later**<br>• Use uniform informal units to measure and estimate volumes<br>• Record capacities and volumes by referring to the number and type of uniform informal unit used<br>• Compare and order objects based on capacity or volume using uniform informal units | **Other Key Ideas covered later**<br>• Use cubic centimetres to measure and compare volumes<br>• Use litres and millilitres to measure, compare and estimate capacities and volumes<br>• Record capacities and volumes using abbreviations (L and mL)<br>• Convert between litres and millilitres | **Other Key Ideas covered later**<br>• Connect volume and capacity and their units of measurement<br>• Use cubic centimetres and cubic metres to measure and estimate volumes<br>• Select and use appropriate units to measure volume<br>• Record volumes using abbreviations (cm3 and m3)Calculate volumes of rectangular prisms and record the strategy | **Other Key Ideas covered later** |
| **Syllabus Page :** 54 - 55 | **Syllabus Page :** 94 - 96 | **Syllabus Page :** 148 - 151 | **Syllabus Page :** 214 - 217 | **Syllabus Page :** 276 - 278 |
|  |  |  |  |  |

Return to Yearly Overview

# Fractions (B)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• describes two equal parts as halves MAe-7NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• represents and models halves, quarters and eighths MA1-7NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• represents, models and compares commonly used fractions and decimals MA2-7NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• compares, orders and calculates with fractions, decimals and percentages MA3-7NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• operates with fractions, decimals and percentages MA4-5NA |
| **Focus Key Ideas for this week**<br>• Establish the concept of one-half<br>• Record halves of objects using drawings | **Focus Key Ideas for this week**<br>• Recognise, describe and represent one-half as one of two equal parts of whole objects, shapes and collections<br>• Use fraction notation $\frac{1}{2}$ | **Focus Key Ideas for this week**<br>• Represent fractions on a number line that extends beyond 1 | **Focus Key Ideas for this week**<br>• Model and represent strategies to add and subtract fractions with the same denominator<br>• Add and subtract fractions, included mixed numerals, with the same or related denominators | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• share an object by dividing it into two equal parts, e.g. cutting a piece of ribbon into halves<br>• describe how to make equal parts (Communicating)<br>• recognise that halves are two equal parts<br>• explain the reason for dividing an object in a particular way (Communicating, Reasoning)<br>• recognise when two parts are not halves of the one whole<br>• explain why two parts of one whole are or are not halves, e.g. 'The two parts are not halves because they are not the same' (Communicating, Reasoning)<br>• use the term 'half' accurately in everyday situations<br>• record halves of objects using drawings | **Suggested Content from Syllabus**<br>• Recognise and describe one-half as one of two equal parts of a whole (ACMNA016)<br>• use concrete materials to model half of a whole object, e.g.<br>  <br>• describe two equal parts of a whole object, e.g. 'I folded my paper into two equal parts and now I have halves' (Communicating)<br>• recognise that halves refer to two equal parts of a whole<br>• describe parts of a whole object as 'about a half', 'more than a half' or 'less than a half' | **Suggested Content from Syllabus**<br>• Count by quarters, halves and thirds, including with mixed numerals; locate and represent these fractions on a number line (ACMNA078)<br>• identify and describe 'mixed numerals' as having a whole number part and a fractional part<br>• count by halves, thirds and quarters, e.g. $0, \frac{1}{2}, \frac{2}{2}, 1, 1\frac{1}{2}, 1\frac{2}{2}, 2, 2\frac{1}{2}$<br>place halves, quarters, eighths and thirds on number lines between 0 and 1, e.g.<br>  | **Suggested Content from Syllabus**<br>• identify and describe 'proper fractions' as fractions in which the numerator is less than the denominator<br>• identify and describe 'improper fractions' as fractions in which the numerator is greater than the denominator<br>• express mixed numerals as improper fractions and vice versa, through the use of diagrams and number lines, leading to a mental strategy, e.g.<br>  | **Suggested Content from Syllabus**<br>• Compare fractions using equivalence; locate and represent positive and negative fractions and mixed numbers on a number line (ACMNA152)<br>• determine highest common factors and lowest common multiples<br>• generate equivalent fractions<br>• write a fraction in its simplest form<br>• express improper fractions as mixed numerals and vice versa<br>• place positive and negative fractions, mixed numerals and decimals on a number line to compare their relative values<br>• interpret a given scale to determine fractional values represented on a number line (Problem Solving) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• record two equal parts of whole objects and shapes, and the relationship of the parts to the whole, using pictures and the fraction notation for half $\frac{1}{2}$, e.g.<br>  <br>• use concrete materials to model half of a collection, e.g.<br>  <br>• describe two equal parts of a collection, e.g. 'I have halves because the two parts have the same number of seedlings' (Communicating)<br>• record two equal parts of a collection, and the relationship of the parts to the whole, using pictures and fraction notation for half $\frac{1}{2}$, e.g.<br>  | **Suggested Content Continued**<br>• place halves, thirds and quarters on number lines that extend beyond 1, e.g.<br>  <br>• compare unit fractions using diagrams and number lines and by referring to the denominator, e.g. $\frac{1}{8}$ is less than $\frac{1}{2}$<br>recognise and explain the relationship between the value of a unit fraction and its denominator (Communicating, Reasoning) | **Suggested Content Continued**<br>• model and represent strategies, including using diagrams, to add proper fractions with the same denominator, where the result may be a mixed numeral, e.g.<br>  <br>$\frac{4}{5} + \frac{3}{5} = 1\frac{2}{5}$<br>• model and represent a whole number added to a proper fraction, e.g. $2 + \frac{3}{4} = 2\frac{3}{4}$<br>• subtract a proper fraction from another proper fraction with the same denominator, e.g. $\frac{7}{8} - \frac{2}{8} = \frac{5}{8}$<br>model and represent strategies, including using diagrams, to add mixed numerals with the same denominator, e.g.<br>  <br>$1\frac{1}{5} + 1\frac{2}{5} = 2\frac{3}{5}$<br>• use diagrams, and mental and written strategies, to subtract a unit fraction from any whole number including 1, e.g.<br>$1 - \frac{1}{3} = \frac{2}{3}$<br>  <br>• solve word problems that involve addition and subtraction of fractions with the same denominator, e.g. 'I eat $\frac{1}{5}$ of a block of chocolate and you eat $\frac{3}{5}$ of the same block. How much of the block of chocolate has been eaten?'<br>• use estimation to verify that an answer is reasonable (Problem Solving, Reasoning)<br>• Solve problems involving addition and subtraction of fractions with the same or related denominators (ACMNA126) | **Suggested Content Continued**<br>• choose an appropriate scale to display given fractional values on a number line, e.g. when plotting thirds or sixths, a scale of 3 cm for every whole is easier to use than a scale of 1 cm for every whole (Communicating, Reasoning)<br>• Solve problems involving addition and subtraction of fractions, including those with unrelated denominators (ACMNA153)<br>• add and subtract fractions, including mixed numerals and fractions with unrelated denominators, using written and calculator methods<br>• recognise and explain incorrect operations with fractions, e.g. explain why $\frac{2}{3} + \frac{1}{4} \neq \frac{3}{7}$<br>interpret fractions and mixed numerals on a calculator display (Communicating)<br>• subtract a fraction from a whole number using mental and written strategies, and a calculator, e.g. $3 - \frac{2}{3} = 2 + 1 - \frac{2}{3} = 2\frac{1}{3}$ |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | | **Suggested Content Continued**<br>• add and subtract fractions, including mixed numerals, where one denominator is the same as, or a multiple of, the other, e.g. $\frac{2}{3}+\frac{1}{6}$, $2\frac{3}{8}-1\frac{1}{2}$, $2\frac{3}{8}-\frac{3}{4}$<br>• convert an answer that is an improper fraction to a mixed numeral (Communicating)<br>• use knowledge of equivalence to simplify answers when adding and subtracting fractions (Communicating, Reasoning)<br>• recognise that improper fractions may sometimes make calculations involving mixed numerals easier (Communicating)<br>• solve word problems involving the addition and subtraction of fractions where one denominator is the same as, or a multiple of, the other, e.g. 'I ate $\frac{1}{8}$ of a cake and my friend ate $\frac{1}{4}$ of the cake. What fraction of the cake remains?' | |
| **Vocabulary from Syllabus**<br>Whole, part, equal parts, half, halves. | **Vocabulary from Syllabus**<br>Whole, part, equal parts, half, halves, about a half, more than a half, less than a half. | **Vocabulary from Syllabus**<br>Whole, part, equal parts, half, quarter, eighth, third, fifth, one-third, one-fifth, fraction, denominator, numerator, mixed numeral, whole number, fractional part, number line. | **Vocabulary from Syllabus**<br>Whole, equal parts, half, quarter, eighth, third, sixth, twelfth, fifth, tenth, hundredth, thousandth, one-thousandth, fraction, numerator, denominator, mixed numeral, whole number, number line, proper fraction, improper fraction. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Recognise, describe and represent halves, quarters and eighths of whole objects, shapes and collections<br>• Use fraction notation $\frac{1}{4}$ and $\frac{1}{8}$ | **Other Key Ideas covered later**<br>• Model and represent fractions of denominators 2, 3, 4, 5 and 8<br>• Count by quarters, halves and thirds, including with mixed numerals<br>• Model and find equivalence between fractions<br>• Apply the place value system to represent tenths and hundredths as decimals<br>• Make connections between fraction and decimal notation | **Other Key Ideas covered later**<br>• Represent, compare and order unit fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12 and 100<br>• Express mixed numerals as improper fractions and vice versa<br>• Apply the place value system to represent thousandths as decimals<br>• Compare, order and represent decimals with up to three decimal places<br>• Determine, generate and record equivalent fractions | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | **Other Key Ideas covered later cont**<br>• Model, compare and represent decimals with up to two decimal places | **Other Key Ideas covered later cont**<br>• Write fractions in their 'simplest form'<br>• Multiply fractions by whole numbers<br>• Find a simple fraction of a quantity<br>• Use mental, written and calculator strategies to add and subtract decimals with up to three decimal places<br>• Use mental, written and calculator strategies to multiply decimals by one- and two-digit whole numbers<br>• Use mental, written and calculator strategies to divide decimals by one-digit whole numbers, 10, 100 and 1000<br>• Solve word problems involving fractions and decimals, including money problems<br>• Recognise percentages in everyday situations<br>• Make connections between percentages, fractions and decimals<br>• Use mental, written and calculator strategies to calculate 10%, 25% and 50% of quantities, including as discounts | |
| **Syllabus Page :** 47 - 49 | **Syllabus Page :** 79 - 82 | **Syllabus Page :** 132 - 136 | **Syllabus Page :** 195 - 202 | **Syllabus Page :** 248 - 251 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

Return to Yearly Overview

# Mass (A)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• describes and compares masses of objects using everyday language MAe-12MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1W<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• estimates, measures, compares and records masses of objects using informal units MA1-12MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• estimates, measures, compares and records masses of objects using kilograms and grams MA2-12MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• selects and uses the appropriate unit and device to measure masses of objects, and converts between units of mass MA3-12MG | **Syllabus Outcomes** |
| **Focus Key Ideas for this week**<br>• Identify the attribute of 'mass' as a measure of the amount of matter in an object<br>• Compare masses directly by hefting<br>• Use comparative language to describe masses<br>• Record comparisons of mass informally | **Focus Key Ideas for this week**<br>• Compare two objects based on mass using a pan balance<br>• Place objects on either side of a pan balance to obtain a level balance | **Focus Key Ideas for this week**<br>• Recognise the need for formal units to measure mass<br>• Use kilograms to measure, compare, order and estimate masses<br>• Record masses using abbreviations (kg) | **Focus Key Ideas for this week**<br>• Recognise the need for tonnes to measure mass<br>• Record masses using abbreviations (t, kg and g) | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Use direct and indirect comparisons to decide which is heavier, and explain reasoning in everyday language (ACMMG006)<br>• identify the attribute of 'mass' as the amount of matter in an object<br>• use everyday language to describe objects in terms of their mass, e.g. heavy, light, hard to push, hard to pull<br>• use comparative language to describe mass, e.g. heavier, lighter, heaviest, lightest<br>• identify an object that is heavier or lighter than another (Communicating)<br>• compare and describe two masses, such as by pushing or pulling | **Suggested Content from Syllabus**<br>• Investigate mass using a pan balance identify materials that are light or heavy<br>• place objects on either side of a pan balance to obtain a level balance<br>• use a pan balance to compare the masses of two objects<br>• discuss the action of a pan balance when a heavy object is placed in one pan and a lighter object in the other pan (Communicating)<br>• sort objects on the basis of their mass<br>• use a pan balance to find two collections of objects that have the same mass, e.g. a collection of blocks and a collection of counters | **Suggested Content from Syllabus**<br>• Measure, order and compare objects using familiar metric units of mass (ACMMG061)<br>• recognise the need for a formal unit to measure mass<br>• use the kilogram as a unit to measure mass, using a pan balance<br>• associate kilogram measures with familiar objects, e.g. a standard pack of flour has a mass of 1 kg, a litre of milk has a mass of approximately 1 kg (Reasoning)<br>• recognise that objects with a mass of one kilogram can be a variety of shapes and sizes (Reasoning)<br>• record masses using the abbreviation for kilograms (kg) | **Suggested Content from Syllabus**<br>• Choose appropriate units of measurement for mass (ACMMG108)<br>• recognise the need for a formal unit larger than the kilogram<br>• use the tonne to record large masses, e.g. sand, soil, vehicles<br>• record masses using the abbreviation for tonne (t)<br>• select and use the appropriate unit and device to measure mass, e.g. electronic scales, kitchen scales<br>• find the approximate mass of a small object by establishing the mass of a number of that object, e.g. 'The stated weight of a box of chocolates is 250 g. If there are 20 identical chocolates in the box, what does each chocolate weigh?' | **Suggested Content from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• compare two masses directly by hefting, e.g. 'This toy feels heavier than that one'<br>• predict which object would be heavier than, lighter than, or have about the same mass as another object and explain reasons for this prediction (Communicating, Reasoning)<br>• investigate the use of hefting in practical situations, e.g. the practice used by Aboriginal people of hefting duck eggs to determine the sex of ducks (Problem Solving)<br>• record comparisons of mass informally using drawings, numerals and words | **Suggested Content Continued**<br>• use drawings to record findings from using a pan balance | **Suggested Content Continued**<br>• use hefting to identify objects that have a mass of 'more than', 'less than' and 'about' one kilogram<br>• discuss strategies used to estimate mass, e.g. by referring to a known mass (Communicating, Problem Solving)<br>• compare and order two or more objects by mass measured to the nearest kilogram<br>• estimate the number of similar objects that have a total mass of one kilogram and check by measuring<br>• explain why two students may obtain different measures for the same mass (Communicating, Reasoning) | | |
| **Vocabulary from Syllabus**<br>Mass, matter, heavy, heavier, heaviest, light, lighter, lightest, about the same as, hard to push, hard to pull. | **Vocabulary from Syllabus**<br>Mass, heavy, heavier, light, lighter, about the same as, pan balance, (level) balance. | **Vocabulary from Syllabus**<br>Mass, more than, less than, about the same as, pan balance, (level) balance, measure, estimate, kilogram. | **Vocabulary from Syllabus**<br>Mass, measure, device, scales, tonne, kilogram, gram. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• | **Other Key Ideas covered later**<br>• Measure and compare masses using uniform informal units<br>• Record masses by referring to the number and type of uniform informal unit used | **Other Key Ideas covered later**<br>• Use kilograms and grams to measure and compare masses using a scaled instrument<br>• Record masses using abbreviations (kg and g) | **Other Key Ideas covered later**<br>• Select and use appropriate instruments and units to measure mass<br>• Record mass using decimal notation to three decimal places<br>• Convert between tonnes, kilograms and grams | **Other Key Ideas covered later** |
| **Syllabus Page :** 56 - 57 | **Syllabus Page :** 97 - 99 | **Syllabus Page :** 152 - 155 | **Syllabus Page :** 218 - 219 | |
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# Data (A)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• represents data and interprets data displays made from objects and pictures MAe-17SP | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• gathers and organises data, displays data in lists, tables and picture graphs, and interprets the results MA1-17SP | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• selects appropriate methods to collect data, and constructs, compares, interprets and evaluates data displays MA2-18SP | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• uses appropriate methods to collect data, constructs and interprets data displays, and analyses sets of data MA3-18SP | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• collects, represents and interprets single sets of data, using appropriate statistical displays MA4-19SP |
| **Focus Key Ideas for this week**<br>• Collect information about themselves and their environment<br>• Organise actual objects into data displays<br>• Interpret data displays made from objects | **Focus Key Ideas for this week**<br>• Collect data and track what has been counted<br>• Create data displays using objects and pictures (one-to-one correspondence) and interpret them | **Focus Key Ideas for this week**<br>• Plan methods for data collection<br>• Collect data, organise into categories and create displays using lists, tables, picture graphs and simple column graphs (one-to-one correspondence)<br>• Interpret and compare data displays | **Focus Key Ideas for this week**<br>• Pose and refine questions and collect categorical and numerical data<br>• Create data displays, including tables, column graphs, line graphs and dot plots, appropriate for the data type<br>• Describe and interpret data presented in tables, column graphs, line graphs and dot plots | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Answer yes/no questions to collect information (ACMSP011)<br>• collect information about themselves and their environment, including by asking and answering yes/no questions<br>• pose and answer questions about situations using everyday language, e.g. 'Do you have any brothers or sisters?', 'What is the favourite colour of most people in our class?' (Communicating)<br>• Organise objects into simple data displays and interpret the displays group objects according to characteristics to form a simple data display, e.g. sort blocks/counters according to colour | **Suggested Content from Syllabus**<br>• Choose simple questions and gather responses (ACMSP262)<br>• investigate an issue of interest by choosing suitable questions to obtain appropriate data<br>• gather data and track what has been counted by using concrete materials, tally marks, words or symbols<br>• Represent data with objects and drawings where one object or drawing represents one data value and describe the displays (ACMSP263)<br>• record a data display created from concrete materials or pictures of objects (Communicating) | **Suggested Content from Syllabus**<br>• recognise that data can be collected either by the user or by others<br>• identify possible sources of data collected by others, e.g. newspapers, government data collection agencies, sporting agencies, environmental groups<br>• pose questions about a matter of interest to obtain information that can be recorded in categories<br>• predict and create a list of categories for efficient data collection in relation to a matter of interest, e.g. 'Which breakfast cereal is the most popular with members of our class?' | **Suggested Content from Syllabus**<br>• pose and refine questions to construct a survey to obtain categorical and numerical data about a matter of interest<br>• collect categorical and numerical data through observation or by conducting surveys, e.g. observe the number of a particular type of insect in one square metre of the playground over time<br>• tabulate collected data, including numerical data, with and without the use of digital technologies such as spreadsheets<br>• construct column and line graphs of numerical data using a scale of many-to-one correspondence, with and without the use of digital technologies | **Suggested Content from Syllabus**<br>• define 'variable' in the context of statistics as something measurable or observable that is expected to change over time or between individual observations<br>• recognise variables as categorical or numerical (either discrete or continuous)<br>• identify examples of categorical variables (e.g. colour, gender), discrete numerical variables (e.g. number of students, shoe size) and continuous numerical variables (e.g. height, weight)<br>• recognise that data collected on a rating scale (Likert-type scale) is categorical, e.g. 1 = dislike, 2 = neutral, 3 = like (Communicating) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• compare the sizes of groups of objects by counting (Reasoning)<br>• arrange objects in rows or columns according to characteristics to form a data display, e.g. arrange lunchboxes in columns according to colour<br>• give reasons why a row of three objects may look bigger than a row of five objects, e.g. 'The three green lunchboxes are spaced more than the five blue lunchboxes' (Communicating, Reasoning)<br>• interpret information presented in a display of objects to answer questions, e.g. 'How many children in our class have red pencil cases?' | **Suggested Content Continued**<br>• use concrete materials and pictures of objects as symbols to create data displays where one object or picture represents one data value (one-to-one correspondence), e.g. use different-coloured blocks to represent different-coloured cars<br>• interpret information presented in data displays where one object, picture or drawing represents one data value, e.g. weather charts<br>• describe information presented in simple data displays using comparative language such as 'more than' and 'less than', e.g. 'There were more black cars than red cars' (Communicating, Reasoning)<br>• explain interpretations of information presented in data displays, e.g. 'More children like dogs because there are more dog pictures than cat pictures' (Communicating, Reasoning)<br>• write a simple sentence to describe data in a display, e.g. 'The most popular fruit snack is an apple' (Communicating) | **Suggested Content Continued**<br>• identify issues for data collection and refine investigations, e.g. 'What if some members of our class don't eat cereal?'<br>• collect data and create a list or table to organise the data, e.g. collect data on the number of each colour of lollies in a packet<br>• use computer software to create a table to organise collected data, e.g. a spreadsheet<br>• construct vertical and horizontal column graphs and picture graphs that represent data using one-to-one correspondence<br>• use grid paper to assist in constructing graphs that represent data using one-to-one correspondence (Communicating)<br>• use the terms 'horizontal axis', 'vertical axis' and 'axes' appropriately when referring to column graphs (Communicating)<br>• use graphing software to enter data and create column graphs that represent data using one-to-one correspondence<br>• mark equal spaces on axes, name and label axes, and choose appropriate titles for column graphs<br>• choose an appropriate picture/symbol for a picture graph and state the key used<br>• Interpret and compare data displays (ACMSP070)<br>• describe and interpret information presented in simple tables, column graphs and picture graphs<br>• make conclusions about data presented in different data displays, e.g. 'Football is the most popular sport for students in Year 3 at our school'<br>• represent the same data set using more than one type of display and compare the displays<br>• discuss the advantages and/or disadvantages of different representations of the same data | **Suggested Content Continued**<br>• name and label the horizontal and vertical axes when constructing<br>• choose an appropriate title to describe the data represented in a data display (Communicating)<br>• determine an appropriate many-to-one scale to represent the data in a data display (Reasoning)<br>• mark equal spaces on the axes when constructing graphs, and use the scale to label the markers<br>• construct dot plots for numerical data, e.g. the heights of students<br>• consider the data type to determine and draw the most appropriate displays, such as column graphs, dot plots and line graphs<br>• discuss and justify the choice of data display used<br>• recognise that line graphs are used to represent data that demonstrates continuous change, e.g. hourly temperature<br>• recognise which types of data display are most appropriate to represent categorical data<br>• interpret line graphs using the scales on the axes<br>• describe and interpret data presented in tables, dot plots, column graphs and line graphs, e.g. 'The graph shows that the heights of all children in the class are between 125 cm and 154 cm'<br>• determine the total number of people represented in dot plots and column graphs<br>• identify and describe relationships that can be observed in data displays, e.g. 'There are four times as many children in Year 5 whose favourite food is noodles compared to children whose favourite food is chicken'<br>• use information presented in data displays to aid decision making, e.g. decide how many of each soft drink to buy by collecting and graphing data about favourite soft drinks for the year group or school | **Suggested Content Continued**<br>• recognise and explain the difference between a 'population' and a 'sample' selected from a population when collecting data<br>• investigate and determine the differences between collecting data by observation, census and sampling<br>• identify examples of variables for which data could be collected by observation, e.g. direction travelled by vehicles arriving at an intersection, native animals in a local area (Communicating)<br>• identify examples of variables for which data could be collected by a census or by a sample, e.g. a census to collect data about the income of Australians, a sample for TV ratings (Communicating)<br>• discuss the practicalities of collecting data through a census compared to a sample, including limitations due to population size, e.g. in countries such as China and India, a census is conducted only once per decade (Communicating, Reasoning)<br>• collect data using a random process, e.g. numbers from a page in a phone book, or from a random number generator<br>• identify issues that may make it difficult to obtain representative data from either primary or secondary sources<br>• discuss constraints that may limit the collection of data or result in unreliable data, e.g. lack of proximity to the location where data could be collected, lack of access to digital technologies, or cultural sensitivities that may influence the results (Communicating, Reasoning)<br>• investigate and question the selection of data used to support a particular viewpoint, e.g. the selective use of data in product advertising |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Vocabulary from Syllabus**<br>Information, collect, group, display, objects. | **Vocabulary from Syllabus**<br>Information, data, collect, gather, display, objects, symbol, tally mark, picture, row. | **Vocabulary from Syllabus**<br>Information, data, collect, category, display, symbol, list, table, column graph, picture graph, vertical columns, horizontal bars, equal spacing, title, key, vertical axis, horizontal axis, axes, spreadsheet. | **Vocabulary from Syllabus**<br>Data, survey, category, display, tabulate, table, column graph, vertical columns, horizontal bars, equal spacing, title, scale, vertical axis, horizontal axis, axes, line graph, dot plots, spreadsheet. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• | **Other Key Ideas covered later**<br>• Pose questions and collect categorical data<br>• Create data displays using lists, tables and picture graphs (one-to-one correspondence) and interpret them | **Other Key Ideas covered later**<br>• Select and trial methods for data collection, including survey questions and recording sheets<br>• Construct data displays including tables, and column graphs and picture graphs of many-to-one correspondence<br>• Evaluate the effectiveness of different displays | **Other Key Ideas covered later**<br>• Interpret and create two-way tables<br>• Interpret side-by-side column graphs<br>• Compare a range of data displays to determine the most appropriate display for the data<br>• Interpret and critically evaluate data representations in digital media and elsewhere | **Other Key Ideas covered later** |
| **Syllabus Page :** 65 | **Syllabus Page :** 114 - 117 | **Syllabus Page :** 173 - 176 | **Syllabus Page :** 237 - 240 | **Syllabus Page** : 291 - 302 |
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# Position (A)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• describes position and gives and follows simple directions using everyday language MAe-16MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• represents and describes the position of objects in everyday situations and on maps MA1-16MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• uses simple maps and grids to represent position and follow routes, including using compass directions MA2-17MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• locates and describes position on maps using a grid-reference system MA3-17MG | **Syllabus Outcomes** |
| **Focus Key Ideas for this week**<br>• Give and follow simple directions<br>• Use everyday language to describe position | **Focus Key Ideas for this week**<br>• Give and follow directions to move to familiar locations and to position objects<br>• Describe a path from one location to another<br>• Interpret simple maps of familiar locations | **Focus Key Ideas for this week**<br>• Create and interpret simple grid maps to show position and pathways<br>• Use a grid reference on a simple map to describe and locate position<br>• Draw and describe simple maps and paths | **Focus Key Ideas for this week**<br>• Use a grid reference on a map to describe and locate position<br>• Follow a sequence of directions to find a particular location on a map<br>• Describe routes using landmarks and directional language | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• give and follow simple directions to position an object or themselves, e.g. 'Put the blue teddy in the circle'<br>• follow directions to a point or place, including in mazes and games (Reasoning)<br>• direct simple computer-controlled toys and equipment to follow a path (Communicating)<br>• describe the position of an object in relation to themselves using everyday language, such as 'between', 'next to', 'behind' or 'inside', e.g. 'The table is behind me'<br>• describe the position of an object in relation to another object using everyday language, such as 'between', 'next to', 'behind' or 'inside', e.g. 'The book is inside the box' | **Suggested Content from Syllabus**<br>• give and follow instructions to position objects in models and drawings, e.g. 'Draw the bird between the two trees'<br>• give and follow simple directions using a diagram or description (Communicating)<br>• use a diagram to give simple directions (Communicating)<br>• create a path from one location to another using computer software (Communicating)<br>• interpret simple maps by identifying objects in different locations, e.g. find a classroom on a school plan map | **Suggested Content from Syllabus**<br>• describe the location of an object using more than one descriptor, e.g. 'The book is on the third shelf and second from the left'<br>• use given directions to follow routes on simple maps<br>• use and follow positional and directional language (Communicating)<br>• use the grid references on maps to describe position, e.g. 'The lion cage is at B3'<br>• use grid references in games, including using digital technologies (Communicating)<br>• identify and mark particular locations on maps and plans, given their grid references<br>• draw and label a grid on a given map<br>• discuss the use of grids in the environment, e.g. zoo map, map of shopping centre (Reasoning)<br>• draw simple maps and plans from an aerial view, with and without labelling a grid, e.g. create a map of the classroom | **Suggested Content from Syllabus**<br>• Use a grid-reference system to describe locations (ACMMG113)<br>• find locations on maps, including maps with legends, given their grid references<br>• describe particular locations on grid-referenced maps, including maps with a legend, e.g. 'The post office is at E4'<br>• Describe routes using landmarks and directional language<br>• find a location on a map that is in a given direction from a town or landmark, e.g. locate a town that is north-east of Broken Hill<br>• describe the direction of one location relative to another, e.g. 'Perth is west of Sydney<br>• follow a sequence of two or more directions, including compass directions, to locate and identify a particular location on a map<br>• use a given map to plan and show a route from one location to another, e.g. draw a possible route to the local park or use an Aboriginal land map to plan a route | **Suggested Content from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | **Suggested Content Continued**<br>• create simple maps and plans using digital technologies (Communicating)<br>• compare different methods of identifying locations in the environment, e.g. compare the reference system used in Aboriginal Country maps with standard grid-referenced maps (Reasoning)<br>• draw and describe routes or paths on grid-referenced maps and plans<br>• use digital technologies involving maps, position and paths (Communicating)<br>• interpret and use simple maps found in factual texts and in the media | **Suggested Content Continued**<br>• use a street directory or online map to find the route to a given location (Problem Solving)<br>• describe a route taken on a map using landmarks and directional language, including compass directions, e.g. 'Start at the post office, go west to the supermarket and then go south-west to the park' | |
| **Vocabulary from Syllabus**<br>Position, between, next to, behind, inside, left, right, directions. | **Vocabulary from Syllabus**<br>Position, location, map, path. | **Vocabulary from Syllabus**<br>Position, location, map, plan, path, route, grid, grid reference, aerial view, directions. | **Vocabulary from Syllabus**<br>Position, location, map, plan, street directory, route, grid, grid reference, legend, key, scale, directions, compass, north, east, south, west, north-east, south-east, south-west, north-west. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Use the terms 'left' and 'right' to describe position in relation to themselves | **Other Key Ideas covered later**<br>• Use the terms 'left' and 'right' to describe position from the perspective of a person facing in the opposite direction<br>• Represent the position of objects in models and drawings | **Other Key Ideas covered later**<br>• Determine directions N, E, S, W and NE, SE, SW, NW given one of the directions<br>• Interpret legends and directions on maps<br>• Interpret scales on maps and calculate the distance between two points using a scale | **Other Key Ideas covered later** | **Other Key Ideas covered later** |
| **Syllabus Page :** 64 | **Syllabus Page :** 112 - 113 | **Syllabus Page :** 169 - 172 | **Syllabus Page :** 235 - 236 | |
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# Term 2

# Whole Numbers (C)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• counts to 30, and orders, reads and represents numbers in the range 0 to 20 MAe-4NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• applies place value, informally, to count, order, read and represent two- and three-digit numbers MA1-4NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• applies place value to order, read and represent numbers of up to five digits MA2-4NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• orders, reads and represents integers of any size and describes properties MA3-4NA | **Syllabus Outcomes** |
| **Focus Key Ideas for this week**<br>• Compare, order, read and represent numbers to at least 20 | **Focus Key Ideas for this week**<br>• Read, write and order two-digit numbers<br>• Count forwards and backwards by twos, threes, fives and tens from any starting point<br>• Partition numbers up to three digits using place value | **Focus Key Ideas for this week**<br>• Read, write and order numbers up to four digits | **Focus Key Ideas for this week**<br>• Recognise the location of negative numbers in relation to zero on a number line | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Compare, order and make correspondences between collections, initially to 20, and explain reasoning (ACMNA289)<br>• count with one-to-one correspondence<br>• recognise that the last number name represents the total number in the collection when counting (Communicating)<br>• make correspondences between collections, e.g. 'I have four counters, you have seven counters. So you have more counters than me'<br>• compare and order numbers and groups of objects | **Suggested Content from Syllabus**<br>• Recognise, model, read, write and order numbers to at least 100; locate these numbers on a number line (ACMNA013)<br>• represent two-digit numbers using objects, pictures, words and numerals<br>• locate and place two-digit numbers on a number line<br>• apply an understanding of place value and the role of zero to read, write and order two-digit numbers<br>• use number lines and number charts to assist with counting and ordering<br>• give reasons for placing a set of numbers in a particular order (Communicating, Reasoning)<br>• round numbers to the nearest ten | **Suggested Content from Syllabus**<br>• Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA053)<br>• apply an understanding of place value and the role of zero to read, write and order numbers of up to four digits<br>• interpret four-digit numbers used in everyday contexts (Problem Solving)<br>• use place value to partition numbers of up to four digits, e.g. 3265 as 3 groups of one thousand, 2 groups of one hundred, 6 groups of ten and 5 ones | **Suggested Content from Syllabus**<br>• recognise the location of negative whole numbers in relation to zero and locate them on a number line<br>• use the term 'integers' to describe positive and negative whole numbers and zero<br>• interpret integers in everyday contexts, e.g. temperature<br>• investigate negative whole numbers and the number patterns created when counting backwards on a calculator<br>• recognise that negative whole numbers can result from subtraction (Reasoning)<br>• ask 'What if' questions, e.g. 'What happens if we subtract a larger number from a smaller number on a calculator?' (Communicating) | **Suggested Content from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• apply counting strategies to solve simple everyday problems and justify answers (Problem Solving) | **Suggested Content Continued**<br>• estimate, to the nearest ten, the number of objects in a collection and check by counting, e.g. estimate the number of children in a room to the nearest ten<br>• solve simple everyday problems with two-digit numbers<br>• choose an appropriate strategy to solve problems, including trial-and-error and drawing a diagram (Communicating, Problem Solving)<br>• ask questions involving two-digit numbers, e.g. 'Why are the houses on either side of my house numbered 32 and 36?' (Communicating)<br>• Investigate number sequences, initially those increasing and decreasing by twos, threes, fives and tens from any starting point, then moving to other sequences (ACMNA026)<br>• count forwards and backwards by twos, threes and fives from any starting point<br>• count forwards and backwards by tens, on and off the decade, with two- and three-digit numbers, e.g. 40, 30, 20 (on the decade); 427, 437, 447 (off the decade)<br>• identify number sequences on number charts | **Suggested Content Continued**<br>• state the 'place value' of digits in numbers of up to four digits, e.g. 'In the number 3426, the "4" represents 400 or 4 hundreds'<br>• record numbers of up to four digits using place value, e.g. 5429 = 5000 + 400 + 20 + 9<br>• partition numbers of up to four digits in non-standard forms, e.g. 3265 as 32 hundreds and 65 ones<br>• round numbers to the nearest ten, hundred or thousand | | |
| **Vocabulary from Syllabus**<br>Count forwards, count backwards, more than, less than, zero, ones, teen numbers, 'how many'. | **Vocabulary from Syllabus**<br>Count forwards, count backwards, number before, number after, more than, less than, number line, number chart, digit, zero, ones, groups of ten, tens, round to. | **Vocabulary from Syllabus**<br>Number before, number after, more than, greater than, less than, largest number, smallest number, ascending order, descending order, digit, zero, ones, groups of ten, tens, groups of one hundred, hundreds, groups of one thousand, thousands, place value, round to. | **Vocabulary from Syllabus**<br>Ascending order, descending order, zero, ones, tens, hundreds, thousands, tens of thousands, hundreds of thousands, millions, digit, place value, expanded notation, round to, whole number, | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Counts forwards to 30 from a given number<br>• Counts backwards from a given number in the range 0 to 20<br>• Read and use the ordinal names to at least 'tenth' | **Other Key Ideas covered later**<br>• Count forwards and backwards by ones from any starting point<br>• Partition two-digit numbers using place value<br>• Read and use ordinal names to at least 'thirty-first' | **Other Key Ideas covered later**<br>• Count forwards and backwards by tens and hundreds from any starting point<br>• State the place value of digits in numbers up to four digits | **Other Key Ideas covered later**<br>• Read, write and order numbers of any size<br>• State the place value of digits in numbers of any size<br>• Record numbers of any size using expanded notation | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Other Key Ideas covered later cont**<br>• Subitise small collections of objects<br>• Use the term 'is the same as' to express equality of groups<br>• Use the language of money | **Other Key Ideas covered later cont**<br>• Recognise, describe and order Australian coins according to their value<br>• Read write and order three-digit numbers<br>• Recognise, count and order Australian coins and notes according to their value | **Other Key Ideas covered later cont**<br>• Read, write and order numbers up to five digits<br>• State the place value of digits in numbers up to five digits<br>• Record numbers up to five digits using expanded notation | **Other Key Ideas covered later cont**<br>• Determine factors and multiples of whole numbers<br>• Identify and describe prime and composite numbers<br>• Model and describe square and triangular numbers | |
| Syllabus Page : 40-42 | Syllabus Page : 66-69 | Syllabus Page : 120-121 | Syllabus Page : 180-181 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Whole Numbers (D)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• counts to 30, and orders, reads and represents numbers in the range 0 to 20 MAe-4NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• applies place value, informally, to count, order, read and represent two- and three-digit numbers MA1-4NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• applies place value to order, read and represent numbers of up to five digits MA2-4NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• orders, reads and represents integers of any size and describes properties MA3-4NA | **Syllabus Outcomes** |
| **Focus Key Ideas for this week**<br>• Compare, order, read and represent numbers to at least 20 | **Focus Key Ideas for this week**<br>• Read, write and order two-digit numbers<br>• Count forwards and backwards by twos, threes, fives and tens from any starting point<br>• Partition numbers up to three digits using place value | **Focus Key Ideas for this week**<br>• Record numbers up to five digits using expanded notation | **Focus Key Ideas for this week**<br>• Record numbers of any size using expanded notation | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Compare, order and make correspondences between collections, initially to 20, and explain reasoning (ACMNA289)<br>• count with one-to-one correspondence<br>• recognise that the last number name represents the total number in the collection when counting (Communicating)<br>• make correspondences between collections, e.g. 'I have four counters, you have seven counters. So you have more counters than me'<br>• compare and order numbers and groups of objects<br>• apply counting strategies to solve simple everyday problems and justify answers (Problem Solving) | **Suggested Content from Syllabus**<br>• Recognise, model, read, write and order numbers to at least 100; locate these numbers on a number line (ACMNA013)<br>• represent two-digit numbers using objects, pictures, words and numerals<br>• locate and place two-digit numbers on a number line<br>• apply an understanding of place value and the role of zero to read, write and order two-digit numbers<br>• use number lines and number charts to assist with counting and ordering<br>• give reasons for placing a set of numbers in a particular order (Communicating, Reasoning)<br>• round numbers to the nearest ten | **Suggested Content from Syllabus**<br>• use place value to partition numbers of up to five digits and recognise this as 'expanded notation', e.g. 67 012 is 60 000 + 7000 + 10 + 2<br>• partition numbers of up to five digits in non-standard forms, e.g. 67 000 as 50 000 + 17 000 | **Suggested Content from Syllabus**<br>• record numbers of any size using expanded notation, e.g. 163 480 = 100 000 + 60 000 +3000 +400+80<br>• partition numbers of any size in non-standard forms to aid mental calculation, e.g. when adding 163 480 and 150 000, 163 480 could be partitioned as 150 000 + 13 480, so that 150 000 could then be doubled and added to 13 480 | **Suggested Content from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• estimate, to the nearest ten, the number of objects in a collection and check by counting, e.g. estimate the number of children in a room to the nearest ten<br>• solve simple everyday problems with two-digit numbers<br>• choose an appropriate strategy to solve problems, including trial-and-error and drawing a diagram (Communicating, Problem Solving)<br>• ask questions involving two-digit numbers, e.g. 'Why are the houses on either side of my house numbered 32 and 36?' (Communicating)<br>• Investigate number sequences, initially those increasing and decreasing by twos, threes, fives and tens from any starting point, then moving to other sequences (ACMNA026)<br>• count forwards and backwards by twos, threes and fives from any starting point<br>• count forwards and backwards by tens, on and off the decade, with two- and three-digit numbers, e.g. 40, 30, 20 (on the decade); 427, 437, 447 (off the decade)<br>• identify number sequences on number charts | | | |
| **Vocabulary from Syllabus**<br>Count forwards, count backwards, more than, less than, zero, ones, teen numbers, 'how many'. | **Vocabulary from Syllabus**<br>Count forwards, count backwards, number before, number after, more than, less than, number line, number chart, digit, zero, ones, groups of ten, tens, round to. | **Vocabulary from Syllabus**<br>Number before, number after, more than, greater than, less than, largest number, smallest number, ascending order, descending order, digit, zero, ones, groups of ten, tens, groups of one hundred, hundreds, groups of one thousand, thousands, place value, round to. | **Vocabulary from Syllabus**<br>Ascending order, descending order, zero, ones, tens, hundreds, thousands, tens of thousands, hundreds of thousands, millions, digit, place value, expanded notation, round to, whole number, | **Vocabulary from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Other Key Ideas covered later**<br>• Counts forwards to 30 from a given number<br>• Counts backwards from a given number in the range 0 to 20<br>• Read and use the ordinal names to at least 'tenth'<br>• Subitise small collections of objects<br>• Use the term 'is the same as' to express equality of groups<br>• Use the language of money | **Other Key Ideas covered later**<br>• Count forwards and backwards by ones from any starting point<br>• Partition two-digit numbers using place value<br>• Read and use ordinal names to at least 'thirty-first'<br>• Recognise, describe and order Australian coins according to their value<br>• Partition numbers up to three digits using place value<br>• Recognise, count and order Australian coins and notes according to their value | **Other Key Ideas covered later**<br>• Count forwards and backwards by tens and hundreds from any starting point<br>• Read, write and order numbers up to four digits<br>• Read, write and order numbers up to five digits<br>• State the place value of digits in numbers up to four digits<br>• State the place value of digits in numbers up to five digits | **Other Key Ideas covered later**<br>• Read, write and order numbers of any size<br>• State the place value of digits in numbers of any size<br>• Determine factors and multiples of whole numbers<br>• Recognise the location of negative numbers in relation to zero on a number line<br>• Identify and describe prime and composite numbers<br>• Model and describe square and triangular numbers | **Other Key Ideas covered later** |
| Syllabus Page : 40-42 | Syllabus Page : 66-69 | Syllabus Page : 120-121 | Syllabus Page : 180-181 | |
|  |  |  |  |  |

Return to Yearly Overview

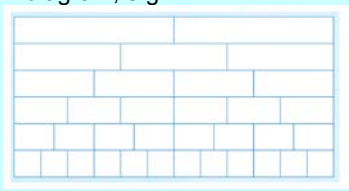
# Time (C)

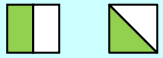
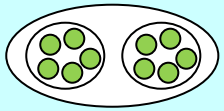
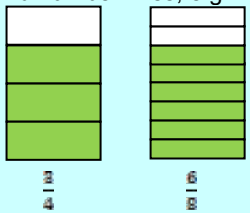
| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• sequences events, using everyday language to describe the durations of activities, and reads hour time on clocks MAe-13MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• describes, compares and orders durations of events, and reads half- and quarter-hour time | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• reads and records time in one-minute intervals and converts between hours, minutes and seconds MA2-13MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• uses 24-hour time and am and pm notation in real-life situations, and constructs timelines MA3-13MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• performs calculations of time that involve mixed units, and interprets time zones MA4-15MG |
| **Focus Key Ideas for this week**<br>• Tell time on the hour on digital and analog clocks | **Focus Key Ideas for this week**<br>• Tell time to the half-hour | **Focus Key Ideas for this week**<br>• Tell time to the minute, using the language of 'past' and 'to'<br>• Use and interpret am and pm notation | **Focus Key Ideas for this week**<br>• Convert between 12- and 24- hour time | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Tell time on the hour on analog and digital clocks<br>• read analog and digital clocks to the hour using the term 'o'clock'<br>• describe the position of the hands on an analog clock when reading hour time | **Suggested Content from Syllabus**<br>• Tell time to the half-hour (ACMMG020)<br>• read analog and digital clocks to the half-hour using the terms 'o'clock' and 'half past'<br>• describe the position of the hands on a clock for the half-hour explain why the hour hand on a clock is halfway between the two hour-markers when the minute hand shows the half-hour (Communicating, Reasoning)<br>• describe everyday events with particular hour and half-hour times, e.g. 'We start school at 9 o'clock' (Communicating)<br>• record hour and half-hour time on analog and digital clocks | **Suggested Content from Syllabus**<br>• read analog and digital clocks to the minute, including using the terms 'past' and 'to', e.g. 7:35 is read as 'seven thirty-five' or 'twenty-five to eight'<br>• record in words various times shown on analog and digital clocks<br>• Use am and pm notation and solve simple time problems (ACMMG086)<br>• record digital time using the correct notation, including am and pm, e.g. 9:15 am<br>• describe times given using am and pm notation in relation to 'midday' (or 'noon') and 'midnight', e.g. '3:15 pm is three and a quarter hours after midday' (Communicating)<br>• relate analog notation to digital notation for time, e.g. ten to nine in the morning is the same time as 8:50 am | **Suggested Content from Syllabus**<br>• Compare 12- and 24-hour time systems and convert between them (ACMMG110)<br>• tell the time accurately using 24-hour time, e.g. '2330 is the same as 11:30 pm'<br>• describe circumstances in which 24-hour time is used, e.g. transport, armed forces, digital technologies (Communicating)<br>• convert between 24-hour time and time given using am or pm notation<br>• compare the local times in various time zones in Australia, including during daylight saving | **Suggested Content from Syllabus**<br>• Solve problems involving duration, including using 12- and 24-hour time within a single time zone<br>• add and subtract time mentally using bridging strategies, e.g. from 2:45 to 3:00 is 15 minutes and from 3:00 to 5:00 is 2 hours, so the time from 2:45 until 5:00 is 15 minutes + 2 hours = 2 hours 15 minutes<br>• add and subtract time with a calculator using the 'degrees, minutes, seconds' button<br>• round calculator answers to the nearest minute or hour<br>• interpret calculator displays for time calculations, e.g. 2.25 on a calculator display for time means $2\frac{1}{4}$ hours<br>• solve problems involving duration, including where times are expressed in 12-hour and 24- hour notation, and duration that requires the use of days, hours and minutes in its calculation |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | **Suggested Content Continued**<br>• solve simple time problems using appropriate strategies, e.g. calculate the time spent on particular activities during the school day | | **Suggested Content Continued**<br>• solve problems involving calculations with mixed time units, e.g. 'How old is a person today if he or she was born on 30/6/1999?'<br>• Solve problems involving international time zones<br>• compare times in, and calculate time differences between, major cities of the world, e.g. 'Given that London is 10 hours behind Sydney, what time is it in London when it is 6:00 pm in Sydney?'<br>• interpret and use information related to international time zones from maps (Problem Solving)<br>• solve problems about international time relating to everyday life. |
| **Vocabulary from Syllabus**<br>Daytime, night-time, yesterday, today, tomorrow, before, after, next, a long time, a short time, week, days, weekdays, weekend days, time, morning, afternoon, clock, analog, digital, hands (of a clock), o'clock. | **Vocabulary from Syllabus**<br>Calendar, days, date, month, year, seasons, time, clock, analog, digital, hour hand, minute hand, o'clock, half past. | **Vocabulary from Syllabus**<br>Calendar, date, timetable, timeline, time, hour, minute, second, midday, noon, midnight, am (notation), pm (notation). | **Vocabulary from Syllabus**<br>Timetable, timeline, scale, 12-hour time, 24-hour time, hour, minute, second, am (notation), pm (notation). | **Vocabulary from Syllabus**<br>The words 'minute' (meaning 'small') and 'minute' (a time measure), although pronounced differently, are really the same word. A minute (time) is a minute (small) part of one hour. A minute (angle) is a minute (small) part of a right angle. |
| **Other Key Ideas covered later**<br>• Connect days of the week to familiar events and actions<br>• Compare and order the duration of events using the everyday language of time<br>• Sequence events in time | **Other Key Ideas covered later**<br>• Name and order months and seasons<br>• Use a calendar to identify the date and determine the number of days in each month<br>• Describe duration using months, weeks, days and hours<br>• Tell time to the quarter-hour, using the language of 'past' and 'to' | **Other Key Ideas covered later**<br>• Read and interpret simple timetables, timelines and calendars<br>• Recognise the coordinated movements of the hands on a clock<br>• Convert between seconds, minutes, hours and days | **Other Key Ideas covered later**<br>• Determine and compare duration of events<br>• Interpret and use timetables<br>• Draw and interpret timelines using the given scale | **Other Key Ideas covered later** |
| **Syllabus Page :** 58 - 59 | **Syllabus Page :** 100 - 103 | **Syllabus Page :** 156 - 158 | **Syllabus Page :** 220 - 221 | **Syllabus Page :** 279 - 280 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

Return to Yearly Overview

# Fractions (C)

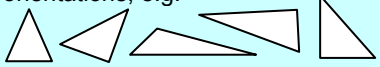
| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• describes two equal parts as halves MAe-7NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• represents and models halves, quarters and eighths MA1-7NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• represents, models and compares commonly used fractions and decimals MA2-7NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• compares, orders and calculates with fractions, decimals and percentages MA3-7NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• operates with fractions, decimals and percentages MA4-5NA |
| **Focus Key Ideas for this week**<br>• Establish the concept of one-half<br>• Record halves of objects using drawings | **Focus Key Ideas for this week**<br>• Recognise, describe and represent one-half as one of two equal parts of whole objects, shapes and collections<br>• Use fraction notation $\frac{1}{2}$ | **Focus Key Ideas for this week**<br>• Model and find equivalence between fractions | **Focus Key Ideas for this week**<br>• Determine, generate and record equivalent fractions<br>• Write fractions in their 'simplest form' | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• share an object by dividing it into two equal parts, e.g. cutting a piece of ribbon into halves<br>• describe how to make equal parts (Communicating)<br>• recognise that halves are two equal parts<br>• explain the reason for dividing an object in a particular way (Communicating, Reasoning)<br>• recognise when two parts are not halves of the one whole<br>• explain why two parts of one whole are or are not halves, e.g. 'The two parts are not halves because they are not the same' (Communicating, Reasoning)<br>• use the term 'half' accurately in everyday situations<br>• record halves of objects using drawings | **Suggested Content from Syllabus**<br>• Recognise and describe one-half as one of two equal parts of a whole (ACMNA016)<br>• use concrete materials to model half of a whole object, e.g.<br>  <br>• describe two equal parts of a whole object, e.g. 'I folded my paper into two equal parts and now I have halves' (Communicating)<br>• recognise that halves refer to two equal parts of a whole<br>• describe parts of a whole object as 'about a half', 'more than a half' or 'less than a half' | **Suggested Content from Syllabus**<br>• Investigate equivalent fractions used in contexts (ACMNA077)<br>• model, compare and represent fractions with denominators of 2, 4 and 8; 3 and 6; and 5, 10 and 100<br>• model, compare and represent the equivalence of fractions with related denominators by redividing the whole, using concrete materials, diagrams and number lines, e.g.<br>  <br>$\frac{1}{2}$ $\frac{2}{4}$ $\frac{4}{8}$<br>• record equivalent fractions using diagrams and numerals e.g. $\frac{3}{5} = \frac{6}{10}$ | **Suggested Content from Syllabus**<br>• model, compare and represent fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100 of a whole object, a whole shape and a collection of objects<br>• compare the relative size of fractions drawn on the same diagram, e.g.<br>  <br>• compare and order simple fractions with related denominators using strategies such as diagrams, the number line or equivalent fractions, e.g. write $\frac{3}{5}, \frac{3}{10}, 1\frac{1}{10}, \frac{4}{5}$ and $\frac{7}{10}$ in ascending order. | **Suggested Content from Syllabus**<br>• Compare fractions using equivalence; locate and represent positive and negative fractions and mixed numbers on a number line (ACMNA152)<br>• determine highest common factors and lowest common multiples<br>• generate equivalent fractions<br>• write a fraction in its simplest form<br>• express improper fractions as mixed numerals and vice versa<br>• place positive and negative fractions, mixed numerals and decimals on a number line to compare their relative values<br>• interpret a given scale to determine fractional values represented on a number line (Problem Solving) |

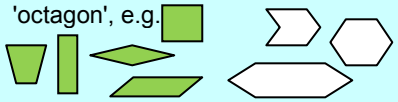
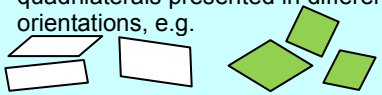
| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• record two equal parts of whole objects and shapes, and the relationship of the parts to the whole, using pictures and the fraction notation for half $\frac{1}{2}$, e.g.<br>  <br>• use concrete materials to model half of a collection, e.g.<br>  or  <br>• describe two equal parts of a collection, e.g. 'I have halves because the two parts have the same number of seedlings' (Communicating)<br>• record two equal parts of a collection, and the relationship of the parts to the whole, using pictures and fraction notation for half $\frac{1}{2}$, e.g.<br>  | | **Suggested Content Continued**<br>• find equivalent fractions by re-dividing the whole, using diagrams and number lines, e.g.<br>  <br>$\frac{3}{4}$ $\frac{6}{8}$<br>record equivalent fractions using diagrams and numerals<br>• develop mental strategies for generating equivalent fractions, such as multiplying or dividing the numerator and the denominator by the same number,<br>e.g. $\frac{1}{4} = \frac{1x2}{4x2} = \frac{1x3}{4x3} = \frac{1x4}{4x4} = \cdots$<br>i.e. $\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{4}{16} = \cdots$<br>• explain or demonstrate why two fractions are or are not equivalent (Communicating, Reasoning)<br>• write fractions in their 'simplest form' by dividing the numerator and the denominator by a common factor, e.g. $\frac{4}{16} = \frac{4 \div 4}{16 \div 4} = \frac{1}{4}$<br>• recognise that a fraction in its simplest form represents the same value as the original fraction (Reasoning)<br>• apply knowledge of equivalent fractions to convert between units of time, e.g. 15 minutes is the same as $\frac{15}{60}$ of an hour, which is the same as $\frac{1}{4}$ of an hour | **Suggested Content Continued**<br>• choose an appropriate scale to display given fractional values on a number line, e.g. when plotting thirds or sixths, a scale of 3 cm for every whole is easier to use than a scale of 1 cm for every whole (Communicating, Reasoning)<br>• Solve problems involving addition and subtraction of fractions, including those with unrelated denominators (ACMNA153)<br>• add and subtract fractions, including mixed numerals and fractions with unrelated denominators, using written and calculator methods<br>• recognise and explain incorrect operations with fractions, e.g. explain why $\frac{2}{3} + \frac{1}{4} \neq \frac{3}{7}$<br>interpret fractions and mixed numerals on a calculator display (Communicating)<br>• subtract a fraction from a whole number using mental and written strategies, and a calculator,<br>e.g. $3 - \frac{2}{3} = 2 + 1 - \frac{2}{3} = 2\frac{1}{3}$ |
| **Vocabulary from Syllabus**<br>Whole, part, equal parts, half, halves. | **Vocabulary from Syllabus**<br>Whole, part, equal parts, half, halves, about a half, more than a half, less than a half. | **Vocabulary from Syllabus**<br>Whole, part, equal parts, half, quarter, eighth, third, fifth, one-third, one-fifth, fraction, denominator, numerator, mixed numeral, whole number, fractional part, number line. | **Vocabulary from Syllabus**<br>Whole, equal parts, half, quarter, eighth, third, sixth, twelfth, fifth, tenth, hundredth, thousandth, one-thousandth, fraction, numerator, denominator, mixed numeral, whole number, number line, proper fraction, improper fraction. | **Vocabulary from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Page :** 47 – 49 | **Syllabus Page :** 79 - 82 | **Syllabus Page :** 132 - 136 | **Syllabus Page :** 195 - 202 | **Syllabus Page :** 248 – 251 |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Recognise, describe and represent halves, quarters and eighths of whole objects, shapes and collections<br>• Use fraction notation $\frac{1}{4}$ and $\frac{1}{8}$ | **Other Key Ideas covered later**<br>• Model and represent fractions of denominators 2, 3, 4, 5 and 8<br>• Count by quarters, halves and thirds, including with mixed numerals<br>• Represent fractions on a number line that extends beyond 1<br>• Apply the place value system to represent tenths and hundredths as decimals<br>• Make connections between fraction and decimal notation<br>• Model, compare and represent decimals with up to two decimal places | **Other Key Ideas covered later**<br>• Represent, compare and order unit fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12 and 100<br>• Express mixed numerals as improper fractions and vice versa<br>• Model and represent strategies to add and subtract fractions with the same denominator<br>• Add and subtract fractions, included mixed numerals, with the same or related denominators<br>• Apply the place value system to represent thousandths as decimals<br>• Compare, order and represent decimals with up to three decimal places<br>• Multiply fractions by whole numbers<br>• Find a simple fraction of a quantity<br>• Use mental, written and calculator strategies to add and subtract decimals with up to three decimal places<br>• Use mental, written and calculator strategies to multiply decimals by one- and two-digit whole numbers<br>• Use mental, written and calculator strategies to divide decimals by one-digit whole numbers, 10, 100 and 1000<br>• Solve word problems involving fractions and decimals, including money problems<br>• Recognise percentages in everyday situations<br>• Make connections for percentages, fractions and decimals<br>• Use mental, written and calculator strategies to calculate 10%, 25% and 50% of quantities, including as discounts | **Other Key Ideas covered later** |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

Return to Yearly Overview

# 2D Space (A)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• manipulates, sorts and describes representations of two-dimensional shapes, including circles, triangles, squares and rectangles, using everyday language MAe-15MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• manipulates, sorts, represents, describes and explores two-dimensional shapes, including quadrilaterals, pentagons, hexagons and octagons MA1-15MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• manipulates, classifies and sketches two-dimensional shapes, including special quadrilaterals, and describes their features MA2-15MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• manipulates, classifies and draws two-dimensional shapes, including equilateral, isosceles and scalene triangles, and describes their properties MA3-15MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• classifies, describes and uses the properties of triangles and quadrilaterals, and determines congruent triangles to find unknown side lengths and angles MA4-17MG |
| **Focus Key Ideas for this week**<br>• Describe and name circles, squares, triangles and rectangles in the environment | **Focus Key Ideas for this week**<br>• Recognise and classify triangles, quadrilaterals, pentagons, hexagons and octagons presented in different orientations<br>• Use the terms 'sides' and 'vertices' to describe two dimensional shapes | **Focus Key Ideas for this week**<br>• Recognise and classify the special quadrilaterals<br>• Identify and describe shapes as 'regular' or 'irregular'<br>• Describe and compare features of shapes, including the special quadrilaterals | **Focus Key Ideas for this week**<br>• Recognise and classify shapes, including the special triangles<br>• Compare and describe side properties of the special quadrilaterals and special triangles<br>• Explore angle properties of the special quadrilaterals and special triangles<br>• Identify and draw shapes from descriptions of their features | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• identify, represent and name circles, squares, triangles and rectangles presented in different orientations, e.g.<br>  <br>• *Triangles*<br>• identify circles, squares, triangles and rectangles in pictures and the environment, including in Aboriginal art (Problem Solving)<br>• ask and respond to questions that help identify a particular shape (Communicating, Problem Solving) | **Suggested Content from Syllabus**<br>• Recognise and classify familiar two-dimensional shapes using obvious features (ACMMG022)<br>• manipulate, compare and describe features of two-dimensional shapes, including triangles, quadrilaterals, pentagons, hexagons and octagons<br>• describe features of two-dimensional shapes using the terms 'side' and 'vertex'<br>sort two-dimensional shapes by a given attribute, e.g. by the number of sides or vertices | **Suggested Content from Syllabus**<br>• Compare and describe features of two-dimensional shapes, including the special quadrilaterals<br>• manipulate, compare and describe features of two-dimensional shapes, including the special quadrilaterals: parallelograms, rectangles, rhombuses, squares, trapeziums and kites<br>• determine the number of pairs of parallel sides of each of the special quadrilaterals (Reasoning) | **Suggested Content from Syllabus**<br>• Classify two-dimensional shapes and describe their features<br>• use the term 'two-dimensional' to describe plane (flat) shapes<br>• manipulate, identify and name right-angled, equilateral, isosceles and scalene triangles<br>• recognise that a triangle can be both right-angled and isosceles or right-angled and scalene (Reasoning)<br>• compare and describe features, in terms of sides, of equilateral, isosceles and scalene triangles | **Suggested Content from Syllabus**<br>• Classify triangles according to their side and angle properties and describe quadrilaterals (ACMMG165)<br>• label and name triangles (e.g. $\triangle ABC$) and quadrilaterals (e.g. $ABCD$) in text and on diagrams<br>• use the common conventions to mark equal intervals on diagrams<br>• recognise that a given triangle may belong to more than one class (Reasoning) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• identify and draw straight and curved lines<br>• compare and describe closed shapes and open lines | **Suggested Content Continued**<br>• explain the attribute used when sorting two-dimensional shapes<br>• identify and name two-dimensional shapes presented in different orientations according to their number of sides, including using the terms 'triangle', 'quadrilateral', 'pentagon', 'hexagon' and 'octagon', e.g.<br>  <br>quadrilaterals hexagons<br>• recognise that the name of a shape does not change when the shape changes its orientation in space, e.g. a square turned on its vertex is still a square (Communicating)<br>• select a shape from a description of its features (Reasoning)<br>• recognise that shapes with the same name may have sides of equal or different lengths (Reasoning)<br>• recognise that rectangles and squares are quadrilaterals<br>• identify and name shapes embedded in pictures, designs and the environment, e.g. Aboriginal art<br>• use computer drawing tools to outline shapes embedded in a digital picture or design(Communicating) | **Suggested Content Continued**<br>• use measurement to establish and describe side properties of the special quadrilaterals, e.g. the opposite sides of a parallelogram are the same length<br>• identify and name the special quadrilaterals presented in different orientations, e.g.<br>  <br>Parallelograms Rhombuses<br>• explain why a particular quadrilateral has a given name, e.g. 'It is a parallelogram because it has four sides and the opposite sides are parallel' (Communicating)<br>• name a shape, given a written or verbal description of its features<br>• recognise the vertices of two-dimensional shapes as the vertices of angles that have the sides of the shape as their arms<br>• identify right angles in squares and rectangles<br>• group parallelograms, rectangles, rhombuses, squares, trapeziums and kites using one or more attributes, e.g. quadrilaterals with parallel sides and right angles<br>• identify and describe two-dimensional shapes as either 'regular' or 'irregular', e.g. 'This shape is a regular pentagon because it has five equal sides and five equal angles'<br>• identify regular shapes in a group that includes irregular shapes, such as a regular pentagon in a group of pentagons, (Reasoning)<br>• explain the difference between regular and irregular two-dimensional shapes<br>• recognise that the name of a shape does not change if its size or orientation in space is changed<br>• make representations of regular and irregular two-dimensional shapes in different orientations using drawings and material | **Suggested Content Continued**<br>• explore by measurement side and angle properties of equilateral, isosceles and scalene triangles<br>• explore by measurement angle properties of squares, rectangles, parallelograms and rhombuses<br>• select and classify a two-dimensional shape from a description of its features<br>• recognise that two-dimensional shapes can be classified in more than one way, e.g. a rhombus can be more simply classified as a parallelogram (Communicating, Reasoning)<br>• identify and draw regular and irregular two-dimensional shapes from descriptions of their side and angle properties<br>• use tools such as templates, rulers, set squares and protractors to draw regular and irregular two-dimensional shapes (Communicating, Problem Solving)<br>• explain the difference between regular and irregular shapes (Communicating)<br>• use computer drawing tools to construct a shape from a description of its side and angle properties (Communicating, Problem Solving) | **Suggested Content Continued**<br>• recognise and classify types of triangles on the basis of their properties (acute-angled triangles, right-angled triangles, obtuse-angled triangles, scalene triangles, isosceles triangles and equilateral triangles)<br>• explain why the longest side of a triangle is always opposite the largest angle (Reasoning)<br>• explain why two sides of a triangle must together be longer than the third side (Communicating, Reasoning)<br>• sketch and label triangles from a worded or verbal description (Communicating)<br>• distinguish between convex and non-convex quadrilaterals (the diagonals of a convex quadrilateral lie inside the figure)<br>• investigate the properties of special quadrilaterals (trapeziums, kites, parallelograms, rectangles, squares and rhombuses), including:<br>▪ the opposite sides are parallel<br>▪ the opposite sides are equal<br>▪ the adjacent sides are perpendicular<br>▪ the opposite angles are equal<br>▪ the diagonals are equal<br>▪ the diagonals bisect each other<br>▪ the diagonals bisect each other at right angles<br>▪ the diagonals bisect the angles of the quadrilateral<br>• use techniques such as paper folding, measurement or dynamic geometry software to investigate the properties of quadrilaterals (Problem Solving, Reasoning)<br>• sketch and label quadrilaterals from a worded or verbal description (Communicating)<br>• classify special quadrilaterals on the basis of their properties<br>• describe a quadrilateral in sufficient detail for it to be sketched |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | **Suggested Content Continued**<br>• construct regular and irregular two-dimensional shapes from a variety of materials, e.g. cardboard, straws, pattern blocks<br>• determine that a triangle cannot be constructed from three straws if the sum of the lengths of the two shorter straws is less than the length of the longest straw<br>• compare the rigidity of two-dimensional frames of three sides with the rigidity of those of four or more sides<br>• construct and manipulate a four-sided frame and explain how adding a brace can make a four-sided frame rigid (Communicating) | | |
| **Vocabulary from Syllabus**<br>Object, shape, size, curved, flat, pointy, round, roll, slide, stack, shape, circle, triangle, square, rectangle, features, side, straight line, curved line, open line, closed shape. | **Vocabulary from Syllabus**<br>Shape, circle, triangle, quadrilateral, square, rectangle, pentagon, hexagon, octagon, orientation, features, side, vertex (vertices), vertical, horizontal, portrait (orientation), landscape (orientation), parallel. | **Vocabulary from Syllabus**<br>Shape, circle, triangle, quadrilateral, parallelogram, rectangle, rhombus, square, trapezium, kite, pentagon, hexagon, octagon, regular shape, irregular shape, orientation, features, properties, side, parallel, pair of parallel sides, opposite, length, vertex (vertices), angle, right angle, symmetry, line (axis) of symmetry, rigid. | **Vocabulary from Syllabus**<br>Shape, two dimensional shape, triangle, equilateral, isosceles, scalene, right-angled, quadrilateral, parallelogram, rectangle, rhombus, square, trapezium, kite, pentagon, hexagon, octagon, regular, irregular, features, properties, side, parallel, pair of parallel sides, opposite, length, vertex (vertices), angle, right angle, line (axis) of symmetry, rotational symmetry, order of rotational symmetry, translate, reflect, rotate, enlarge. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Sort, manipulate, make and draw circles, squares, triangles and rectangles | **Other Key Ideas covered later**<br>• Identify horizontal, vertical and parallel lines<br>• Make and draw shapes in different orientations<br>• Identify, perform and record the result of one-step ‘slides’ and ‘flips’<br>• Identify, perform, describe and record the result of half and quarter ‘turns’ | **Other Key Ideas covered later**<br>• Identify and draw lines of symmetry on shapes<br>• Combine common shapes to form other shapes and record the arrangement<br>• Split common shapes into other shapes and record the result<br>• Use transformations to create and describe symmetrical designs<br>• Create and record tessellations | **Other Key Ideas covered later**<br>• Use the terms ‘translate’, ‘reflect’ and ‘rotate’ to describe transformations of shapes<br>• Identify line and rotational symmetries<br>• Make and compare enlargements of shapes/pictures<br>• Draw and describe diagonals of shapes<br>• Identify and name parts of circles<br>• Identify, use and describe combinations of translations, reflections and rotations | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Page :** 62 - 63 | **Syllabus Page :** 108 - 111 | **Syllabus Page :** 162 - 166 | **Syllabus Page :** 226 - 230 | **Syllabus Page :** 283 - 287 |
|   |   |   |   |   |

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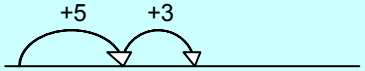
# ES1 & S1 - Addition (C) and S2 & S3 - Decimals (A)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• combines, separates and compares collections of objects, describes using everyday language, and records using informal methods MAe-5NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of strategies and informal recording methods for addition and subtraction involving one- and two-digit numbers MA1-5NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• represents, models and compares commonly used fractions and decimals MA2-7NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• compares, orders and calculates with fractions, decimals and percentages MA3-7NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• operates with fractions, decimals and percentages MA4-5NA |
| **Focus Key Ideas for this week**<br>• Combine two or more groups of objects to model addition<br>• Record addition informally | **Focus Key Ideas for this week**<br>• Solve word problems involving addition<br>• Model and apply the commutative property for addition<br>• Use and record a range of mental strategies for addition of one- and two-digit numbers<br>Jump Strategy Focus | **Focus Key Ideas for this week**<br>• Apply the place value system to represent tenths and hundredths as decimals | **Focus Key Ideas for this week**<br>• Apply the place value system to represent thousandths as decimals<br>• Compare, order and represent decimals with up to three decimal places<br>• Use mental, written and calculator strategies to add and subtract decimals with up to three decimal places | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Represent practical situations to model addition and sharing<br>• combine two or more groups of objects to model addition<br>• use concrete materials or fingers to model and solve simple addition problems<br>• create and recognise combinations for numbers to at least 10, e.g. 'How many more make 10?' or describe the action of combining, separating and comparing using everyday language, e.g. makes, joins, combines with, and, get, take away, how many more, all together | **Suggested Content from Syllabus**<br>• Solve simple addition problems using a range of efficient mental and written strategies (ACMNA030)<br>• use concrete materials to model the commutative property for addition and apply it to aid the recall of addition facts,<br>e.g. 4 + 5 = 5 + 4<br>• use and record a range of mental strategies to solve addition problems involving two-digit numbers, including:<br>• the jump strategy on an empty number line | **Suggested Content from Syllabus**<br>• Recognise that the place value system can be extended to tenths and hundredths, and make connections between fractions and decimal notation (ACMNA079)<br>• recognise and apply decimal notation to express whole numbers, tenths and hundredths as decimals,<br>e.g. 0.1 is the same as $\frac{1}{10}$<br>investigate equivalences using various methods, e.g. use a number line or a calculator to show that $\frac{1}{2}$ is the same as 0.5 and $\frac{5}{10}$ (Communicating, Reasoning) | **Suggested Content from Syllabus**<br>• Recognise that the place value system can be extended beyond hundredths (ACMNA104)<br>• express thousandths as decimals<br>• interpret decimal notation for thousandths, e.g. $0.123 = \frac{123}{1000}$<br>state the place value of digits in decimal numbers of up to three decimal places<br>• Compare, order and represent decimals (ACMNA105)<br>• compare and order decimal numbers of up to three decimal places, e.g. 0.5, 0.125, 0.25<br>• interpret zero digit(s) at the end of a decimal, e.g. 0.170 has the same value as 0.17 | **Suggested Content from Syllabus**<br>• Multiply and divide fractions and decimals using efficient written strategies and digital technologies (ACMNA154)<br>• determine the effect of multiplying or dividing by a number with magnitude less than one<br>• multiply and divide decimals using written methods, limiting operators to two digits<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving)<br>• round decimals to a given number of places |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• use visual representations of numbers to assist with addition, e.g. ten frames<br>• explain or demonstrate how an answer was obtained (Communicating, Reasoning)<br>• apply strategies that have been demonstrated by other students (Problem Solving)<br>• investigate different methods of adding used in different cultures, e.g. Aboriginal and Torres Strait Islander methods involving spatial patterns and reasoning, Asian counting tools such as the abacus (Communicating, Problem Solving)<br>• count forwards by ones to add<br>• record addition informally using drawings, words and numerals | **Suggested Content Continued**<br>• select and use a variety of strategies to solve addition problems involving one- and two-digit numbers<br>• perform simple calculations with money, e.g. buying items from a class shop and giving change (Problem Solving)<br>• check solutions using a different strategy (Problem Solving)<br>• recognise which strategies are more efficient and explain why (Communicating, Reasoning)<br>• explain or demonstrate how an answer was obtained for addition and subtraction problems, e.g. show how the answer to 15 + 8 was obtained using a jump strategy on an empty number line<br>  <br><br>(Communicating, Reasoning) | **Suggested Content Continued**<br>• identify and interpret the everyday use of fractions and decimals, such as those in advertisements<br>• state the place value of digits in decimal numbers of up to two decimal places<br>• use place value to partition decimals of up to two decimal places, e.g. $5.37 = 5 + \frac{3}{10} + \frac{7}{100}$<br>partition decimals of up to two decimal places in non-standard forms, e.g. $5.37 = 5 + \frac{37}{100}$<br>• apply knowledge of hundredths to represent amounts of money in decimal form, e.g. five<br>• dollars and 35 cents is $5\frac{35}{100}$, which is the same as $5.35 (Communicating) | **Suggested Content Continued**<br>• place decimal numbers of up to three decimal places on a number line between 0 and 1<br>• Add and subtract decimals, with and without digital technologies, and use estimation and rounding to check the reasonableness of answers (ACMNA128)<br>• add and subtract decimals with the same number of decimal places, with and without digital technologies<br>• add and subtract decimals with a different number of decimal places, with and without digital technologies<br>• relate decimals to fractions to aid mental strategies (Communicating)<br>• round a number of up to three decimal places to the nearest whole number<br>• use estimation and rounding to check the reasonableness of answers when adding and subtracting decimals<br>• describe situations where the estimation of calculations with decimals may be useful, e.g. to check the total cost of multiple items when shopping (Communicating, Problem Solving)<br>• solve word problems involving the addition and subtraction of decimals, with and without digital technologies, including those involving money<br>• use selected words to describe each step in the solution process (Communicating, Problem Solving)<br>• interpret a calculator display in the context of the problem, e.g. 2.6 means $2.60 (Communicating) | **Suggested Content Continued**<br>• use symbols for approximation, e.g. $\approx$ or<br>• Investigate terminating and recurring decimals (ACMNA184)<br>• use the notation for recurring (repeating) decimals,<br>e.g. 0.33333 = $0.\dot{3}$,<br>0.345345345 = $0.\dot{3}4\dot{5}$<br>0.266666 = $0.2\dot{6}$<br>• convert fractions to terminating or recurring decimals as appropriate<br>• recognise that calculators may show approximations to recurring decimals, and explain why, e.g. $\frac{2}{3}$ displayed as 0.666666667<br>• Connect fractions, decimals and percentages and carry out simple conversions (ACMNA157)<br>• classify fractions, terminating decimals, recurring decimals and percentages as 'rational' numbers, as they can be written in the form $\frac{a}{b}$ where $a$ and $b$ are integers and $b \neq 0$<br>• convert fractions to decimals (terminating and recurring) and percentages<br>• convert terminating decimals to fractions and percentages<br>• convert percentages to fractions and decimals<br>• evaluate the reasonableness of statements in the media that quote fractions, decimals or percentages, e.g. 'The number of children in the average family is 2.3'<br>• order fractions, decimals and percentages<br>• Investigate the concept of irrational numbers, including $\pi$ (ACMNA186)<br>• investigate 'irrational' numbers, such as $\pi$ and $\sqrt{2}$<br>describe, informally, the properties of irrational numbers |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Vocabulary from Syllabus**<br>Count forwards, combines with, joins, how many more, all together, makes. | **Vocabulary from Syllabus**<br>Counting on, counting back, combine, plus, add, total, more than, less than, double, equals, is equal to, is the same as, number sentence, strategy. | **Vocabulary from Syllabus**<br>Whole, part, equal parts, half, quarter, eighth, third, fifth, one-third, one-fifth, fraction, denominator, numerator, mixed numeral, whole number, fractional part, number line. | **Vocabulary from Syllabus**<br>Whole, equal parts, half, quarter, eighth, third, sixth, twelfth, fifth, tenth, hundredth, thousandth, one-thousandth, fraction, numerator, denominator, mixed numeral, number line, proper fraction, improper fraction | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Model addition using concrete materials<br>• Recognise and recall combinations of numbers that add to numbers up to 20<br>• Use the equals sign to record equivalent number sentences<br>• Make connections between addition and subtraction<br>• Use and record a range of mental strategies for addition of two-digit numbers | **Other Key Ideas covered later**<br>• Model and represent fractions of denominators 2, 3, 4, 5 and 8<br>• Count by quarters, halves and thirds, including with mixed numerals<br>• Represent fractions on a number line that extends beyond 1<br>• Model and find equivalence between fractions<br>• Make connections between fraction and decimal notation<br>• Model, compare and represent decimals with up to two decimal places | **Other Key Ideas covered later**<br>• Represent, compare and order unit fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12 and 100<br>• Express mixed numerals as improper fractions and vice versa<br>• Model and represent strategies to add and subtract fractions with the same denominator<br>• Add and subtract fractions, included mixed numerals, with the same or related denominators<br>• Multiply fractions by whole numbers<br>• Find a simple fraction of a quantity<br>• Determine, generate and record equivalent fractions<br>• Write fractions in their 'simplest form'<br>• Use mental, written and calculator strategies to multiply decimals by one- and two-digit whole numbers<br>• Use mental, written and calculator strategies to divide decimals by one-digit whole numbers, 10, 100 and 1000<br>• Solve word problems involving fractions and decimals, including money problems<br>• Recognise percentages in everyday situations<br>• Make connections between percentages, fractions and decimals<br>• Use mental, written and calculator strategies to calculate 10%, 25% and 50% of quantities, including as discounts | **Other Key Ideas covered later** |
| **Syllabus Page :** 43 - 44 | **Syllabus Page :** 70 - 74 | **Syllabus Page :** 132 - 136 | **Syllabus Page :** 195 - 202 | **Syllabus Page :** 248 - 251 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Length (B)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• describes and compares lengths and distances using everyday language MAe-9MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• estimates, measures, compares and records lengths and distances using informal units, metres and centimetres MA1-9MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• estimates, measures, compares and records lengths, distances and perimeters in metres, centimetres and millimetres, and measures, compares and records temperatures MA2-9MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and uses the appropriate unit and device to measure lengths, distances and perimeters, and converts between units of length MA3-9MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• calculates the perimeter of plane shapes and the circumference of circles MA4-12MG |
| **Focus Key Ideas for this week**<br>• Identify the attribute of 'length' as a measure of an object from end to end<br>• Compare lengths using direct comparison<br>• Use comparative language to describe lengths | **Focus Key Ideas for this week**<br>• Record lengths by referring to the number and type of uniform informal unit used | **Focus Key Ideas for this week**<br>• Select and use appropriate scaled instruments and units to measure and compare lengths<br>• Convert between millimetres, centimetres and metres<br>• Record lengths using decimal notation to two decimal places | **Focus Key Ideas for this week**<br>• Select and use appropriate instruments and units to measure lengths<br>• Record lengths and distances using decimal notation to three decimal places<br>• Convert between kilometres, metres, centimetres and millimetres | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• identify the attribute of 'length' as the measure of an object from end to end<br>• make and sort long and short constructions from concrete materials<br>• use everyday language to describe length, e.g. long, short, high, tall, low<br>• use everyday language to describe distance, e.g. near, far, nearer, further, closer<br>• use comparative language to describe length, e.g. longer, higher, taller than, shortest, lower than, longest, the same as | **Suggested Content from Syllabus**<br>• record lengths and distances by referring to the number and type of uniform informal unit used<br>• investigate different informal units of length used in various cultures, including those used in Aboriginal communities (Communicating)<br>• compare the lengths of two or more objects using appropriate uniform informal units and check by placing the objects side-by-side and aligning the ends | **Suggested Content from Syllabus**<br>• Use scaled instruments to measure and compare lengths (ACMMG084)<br>• use a tape measure, ruler and trundle wheel to measure lengths and distances<br>• select and use an appropriate device to measure lengths and distances (Problem Solving)<br>• explain why two students may obtain different measures for the same length (Communicating, Reasoning)<br>• select and use an appropriate unit to estimate, measure and compare lengths and distances | **Suggested Content from Syllabus**<br>• select and use the appropriate unit and measuring device to measure lengths and distances<br>• describe how a length or distance was estimated and measured (Communicating, Problem Solving)<br>• question and explain why two students may obtain different measures for the same length, distance or perimeter (Communicating, Reasoning)<br>• estimate lengths and distances using an appropriate unit and check by measuring | **Suggested Content from Syllabus**<br>• Find perimeters of parallelograms, trapeziums, rhombuses and kites (ACMMG196)<br>• find the perimeter of a range of plane shapes, including parallelograms, rhombuses, kites and simple composite figures<br>• compare perimeters of rectangles with the same area (Problem Solving)<br>solve problems involving the perimeter of plane shapes, e.g. find the dimensions of a rectangle, given its perimeter and the length of one other side |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• identify an object that is longer or shorter than another, e.g. 'Find an object longer than this pencil'<br>• compare lengths directly by placing objects side-by-side and aligning the ends<br>• explain why the length of a piece of string remains unchanged whether placed in a straight line or a curve (Communicating, Reasoning)<br>• predict whether an object will be longer or shorter than another object and explain the reasons for this prediction (Communicating, Reasoning)<br>• compare lengths indirectly by copying a length, e.g. using the same strip of paper to compare lengths | **Suggested Content Continued**<br>• explain why the length of an object remains constant when units are rearranged, e.g. 'The book was seven paper clips long. When I moved the paper clips around and measured again, the book was still seven paper clips long' (Communicating, Reasoning)<br>• estimate linear dimensions and the length of curves by referring to the number and type of uniform informal unit used and check by measuring<br>• discuss strategies used to estimate lengths, e.g. visualising the repeated unit, using the process 'make, mark and move' (Communicating, Problem Solving) | **Suggested Content Continued**<br>• convert between metres and centimetres, and between centimetres and millimetres<br>• describe one centimetre as one hundredth of a metre and one millimetre as one tenth of a centimetre (Communicating)<br>• explain the relationship between the size of a unit and the number of units needed, e.g. more centimetres than metres will be needed to measure the same length (Communicating, Reasoning)<br>• record lengths and distances using decimal notation to two decimal places, e.g. 1.25 m | **Suggested Content Continued**<br>• explain the relationship between the size of a unit and the number of units needed, e.g. more metres than kilometres will be needed to measure the same distance (Communicating, Reasoning)<br>• record lengths and distances using combinations of millimetres, centimetres, metres and kilometres, e.g. 1 km 200 m<br>• Connect decimal representations to the metric system (ACMMG135)<br>• record lengths and distances using decimal notation to three decimal places, e.g. 2.753 km<br>• Convert between common metric units of length (ACMMG136)<br>• convert between metres and kilometres<br>• convert between millimetres, centimetres and metres to compare lengths and distances | |
| **Vocabulary from Syllabus**<br>Length, end, end-to-end, side-by-side, long, longer than, longest, short, shorter than, shortest, high, higher than, highest, tall, taller than, tallest, low, lower than, lowest, the same as, near, nearer, far, further, close, closer. | **Vocabulary from Syllabus**<br>Length, distance, end, end-to-end, side-by-side, gap, overlap, measure, estimate, hand span. | **Vocabulary from Syllabus**<br>Length, distance, metre, centimetre, millimetre, ruler, tape measure, trundle wheel, measure, estimate, perimeter, height, width, temperature, cold, warm, hot, degree (Celsius), thermometer. | **Vocabulary from Syllabus**<br>Length, distance, kilometre, metre, centimetre, millimetre, measure, measuring device, ruler, tape measure, trundle wheel, estimate, perimeter, dimensions, width. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Record comparisons of length informally | **Other Key Ideas covered later**<br>• Use uniform informal units to measure, compare and estimate lengths<br>• Compare and order shapes/objects based on length using uniform informal units<br>• Recognise the need for formal units to measure length<br>• Use metres and centimetres to measure and estimate lengths<br>• Record lengths using abbreviations (m and cm) | **Other Key Ideas covered later**<br>• Use metres, centimetres and millimetres to measure, compare, order and estimate lengths<br>• Record lengths using abbreviations (m, cm and mm)<br>• Estimate and measure perimeters of two-dimensional shapes<br>• Use a scaled instrument to measure and compare temperatures | **Other Key Ideas covered later**<br>• Use the kilometre to measure lengths and distances<br>• Record distances using the abbreviation km<br>• Calculate perimeters of common two-dimensional shapes and record the strategy<br>• Solve problems involving length and perimeter | **Other Key Ideas covered later** |
| **Syllabus Page :** 50 - 51 | **Syllabus Page :** 87 - 90 | **Syllabus Page :** 141 - 143 | **Syllabus Page :** 208 - 210 | **Syllabus Page :** 271 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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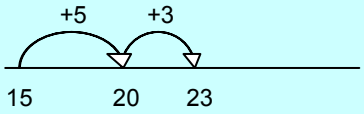
# Addition (D)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• combines, separates and compares collections of objects, describes using everyday language, and records using informal methods MAe-5NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of strategies and informal recording methods for addition and subtraction involving one- and two-digit numbers MA1-5NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• uses mental and written strategies for addition and subtraction involving two-, three-, four and five-digit numbers MA2-5NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and applies appropriate strategies for addition and subtraction with counting numbers of any size MA3-5NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• compares, orders and calculates with integers, applying a range of strategies to aid computation MA4-4NA |
| **Focus Key Ideas for this week**<br>• Combine two or more groups of objects to model addition<br>• Record addition informally | **Focus Key Ideas for this week**<br>• Solve word problems involving addition<br>• Model and apply the commutative property for addition<br>• Use and record a range of mental strategies for addition of one- and two-digit numbers<br>Jump Strategy Focus | **Focus Key Ideas for this week**<br>• Use and record a range of mental strategies for addition of two-, three- and four-digit numbers<br>• Use and record a range of mental strategies for addition of two-, three-, four- and five digit numbers<br>• Use the inverse operation to check addition calculations | **Focus Key Ideas for this week**<br>• Use estimation and rounding to check the reasonableness of answers to calculations<br>• Select and apply efficient mental, written and calculator strategies to solve word problems and record the strategy used | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Represent practical situations to model addition and sharing<br>• combine two or more groups of objects to model addition<br>• use concrete materials or fingers to model and solve simple addition problems<br>• use visual representations of numbers to assist with addition, e.g. ten frames<br>• create and recognise combinations for numbers to at least 10, e.g. 'How many more make 10?' or describe the action of combining, separating and comparing using everyday language, e.g. makes, joins, combines with, and, get, take away, how many more, all together | **Suggested Content from Syllabus**<br>• Solve simple addition problems using a range of efficient mental and written strategies (ACMNA030)<br>• use concrete materials to model the commutative property for addition and apply it to aid the recall of addition facts, e.g. 4 + 5 = 5 + 4<br>• use and record a range of mental strategies to solve addition problems involving two-digit numbers, including: the jump strategy on an empty number line<br>• select and use a variety of strategies to solve addition problems involving one- and two-digit numbers | **Suggested Content from Syllabus**<br>• apply known single-digit addition and subtraction facts to mental strategies for addition of two-, three- and four-digit numbers, including:<br>▪ the jump strategy on an empty number line, e.g. 23 + 35: 23 + 30 = 53, 53 + 5 = 58<br>▪ the compensation strategy, e.g. 63 + 29: 63 + 30 = 93, subtract 1 to obtain 92<br>▪ using patterns to extend number facts, e.g. 500 – 200: 5 – 2 = 3, so 500 – 200 = 300<br>▪ bridging the decades, e.g. 34 + 26: 34 + 6 = 40, 40 + 20 = 60<br>▪ changing the order of addends to form multiples of 10, e.g. 16 + 8 + 4: add 16 to 4 first | **Suggested Content from Syllabus**<br>• Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving addition with whole numbers (ACMNA123)<br>• solve addition word problems involving whole numbers of any size, including problems that require more than one operation, e.g. 'I have saved $40 000 to buy a new car. The basic model costs $36 118 and I add tinted windows for $860 and Bluetooth connectivity for $1376. How much money will I have left over?'<br>• select and apply appropriate mental and written strategies, with or without digital technologies, to solve unfamiliar problems | **Suggested Content from Syllabus**<br>• Apply the associative, commutative and distributive laws to aid mental and written computation<br>• use an appropriate non-calculator method to divide two- and three-digit numbers by a two digit number<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving)<br>• apply a practical understanding of commutativity to aid mental computation, e.g. 3 + 9 = 9 + 3 = 12, 3 × 9 = 9 × 3 = 27 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• explain or demonstrate how an answer was obtained (Communicating, Reasoning)<br>• apply strategies that have been demonstrated by other students (Problem Solving)<br>• investigate different methods of adding used in different cultures, e.g. Aboriginal and Torres Strait Islander methods involving spatial patterns and reasoning, Asian counting tools such as the abacus (Communicating, Problem Solving)<br>• count forwards by ones to add<br>• record addition informally using drawings, words and numerals | **Suggested Content Continued**<br>• perform simple calculations with money, e.g. buying items from a class shop and giving change (Problem Solving)<br>• check solutions using a different strategy (Problem Solving)<br>• recognise which strategies are more efficient and explain why (Communicating, Reasoning)<br>• explain or demonstrate how an answer was obtained for addition problems,<br>  <br><br>(Communicating, Reasoning) | **Suggested Content Continued**<br>• Recognise and explain the connection between addition and subtraction (ACMNA054)<br>• demonstrate how addition and subtraction are inverse operations<br>• explain and check solutions to problems, including by using the inverse operation<br>• choose and apply efficient strategies for addition (Problem Solving)<br>• discuss and compare different methods of addition (Communicating)<br>• use concrete materials to model the addition of two or more numbers, with and without trading, and record the method used<br>• select, use and record a variety of mental strategies to solve addition problems, including word problems, with numbers of up to four digits<br>• give a reasonable estimate for a problem, explain how the estimate was obtained, and check the solution (Communicating, Reasoning)<br>• use the equals sign to record equivalent number sentences involving addition so to mean 'is the same as', rather than to mean to perform an operation, e.g. 32 + 13 = 30 + 15<br>• check given number sentences to determine if they are true or false and describe why, e.g. 'Is 13 + 13 = 15 + 11 true? Why or why not?' (Communicating, Reasoning) | **Suggested Content Continued**<br>• explain how an answer was obtained for an addition problem and justify the selected calculation method (Communicating, Problem Solving, Reasoning)<br>• reflect on their chosen method of solution for a problem, considering whether it can be improved (Communicating, Reasoning)<br>• give reasons why a calculator was useful when solving a problem (Communicating, Reasoning)<br>• record the strategy used to solve addition word problems<br>• use selected words to describe each step in the solution process (Communicating, Problem Solving)<br>• check solutions to problems, including by using the inverse operation<br>• Use estimation and rounding to check the reasonableness of answers to calculations<br>• round numbers appropriately when obtaining estimates to numerical calculations<br>• use estimation to check the reasonableness of answers to addition calculations, e.g. 1438 + 129 is about 1440 + 130 | **Suggested Content Continued**<br>• apply a practical understanding of associativity to aid mental computation, e.g. 3 + 8 + 2 = (3 + 8) + 2 = 3 + (8 + 2) = 13, $2 \times 7 \times 5 = (2 \times 7) \times 5 = 2 \times (7 \times 5) = 70$<br>• Compare, order, add and subtract integers (ACMNA280)<br>• recognise the direction and magnitude of integers<br>• construct a directed number sentence to represent a real-life situation (Communicating)<br>• recognise and place integers on a number line<br>• compare the relative value of integers, including by using the symbols $>$ and $<$<br>• order integers<br>• interpret different meanings (direction or operation) for the + and – signs, depending on the context<br>• add integers |
| **Vocabulary from Syllabus**<br>Count forwards, combines with, joins, how many more, all together, makes. | **Vocabulary from Syllabus**<br>Counting on, counting back, combine, plus, add, total, more than, less than, double, equals, is equal to, is the same as, number sentence, strategy. | **Vocabulary from Syllabus**<br>Plus, add, addition, equals, is equal to, is the same as, number sentence, empty number line, strategy, digit, estimate, round to. | **Vocabulary from Syllabus**<br>Plus, sum, add, addition, increase, equals, is equal to, empty number line, strategy, digit, estimate, round to, budget, operation. | **Vocabulary from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Other Key Ideas covered later**<br>• | **Other Key Ideas covered later**<br>• Model addition using concrete materials<br>• Recognise and recall combinations of numbers that add to numbers up to 20<br>• Model and apply the commutative property for addition<br>• Use the equals sign to record equivalent number sentences<br>• Make connections between addition and subtraction<br>• Use and record a range of mental strategies for addition of two-digit numbers | **Other Key Ideas covered later**<br>• Model and apply the associative property for addition<br>• Use the equals sign to record equivalent number sentences<br>• Calculate equivalent amounts of money using different denominations<br>• Use the formal written algorithm for addition and subtraction<br>• Solve word problems involving purchases and the calculation of change to the nearest five cents | **Other Key Ideas covered later**<br>• Select and apply efficient mental, written and calculator strategies for addition with numbers of any size<br>• Solve word problems and record the strategy used<br>• Create a simple budget | **Other Key Ideas covered later** |
| **Syllabus Page :** 43 - 44 | **Syllabus Page :** 70 - 74 | **Syllabus Page :** 123 - 126 | **Syllabus Page :** 184 - 187 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# 3D Space (A)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• manipulates, sorts and represents three-dimensional objects and describes them using everyday language MAe-14MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• sorts, describes, represents and recognises familiar three-dimensional objects, including cones, cubes, cylinders, spheres and prisms MA1-14MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• makes, compares, sketches and names three-dimensional objects, including prisms, pyramids, cylinders, cones and spheres, and describes their features MA2-14MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• identifies three-dimensional objects, including prisms and pyramids, on the basis of their properties, and visualises, sketches and constructs them given drawings of different views MA3-14MG | **Syllabus Outcomes** |
| **Focus Key Ideas for this week**<br>• Describe features of common three-dimensional objects using everyday language<br>• Sort and manipulate three-dimensional objects found in the environment | **Focus Key Ideas for this week**<br>• Distinguish between flat and curved surfaces<br>• Use the term 'faces' to describe flat surfaces<br>• Recognise faces of three-dimensional objects as two-dimensional shapes | **Focus Key Ideas for this week**<br>• Identify, describe and compare features of prisms, pyramids, cylinders, cones and spheres<br>• Interpret and make drawings of objects on isometric grid paper | **Focus Key Ideas for this week**<br>• Name prisms and pyramids according to the shape of their 'base'<br>• Recognise that prisms have a uniform cross-section and pyramids do not<br>• Describe and compare properties of prisms and pyramids | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Sort, describe and name familiar three-dimensional objects in the environment (ACMMG009)<br>• describe the features of familiar three-dimensional objects, such as local landmarks including Aboriginal landmarks, using everyday language, e.g. flat, round, curved<br>• describe the difference between three-dimensional objects and two-dimensional shapes using everyday language (Communicating)<br>• sort three-dimensional objects and explain the attributes used to sort them, e.g. colour, size, shape, function | **Suggested Content from Syllabus**<br>• Recognise and classify familiar three-dimensional objects using obvious features (ACMMG022)<br>• manipulate and describe familiar three-dimensional objects, including cones, cubes, cylinders, spheres and prisms<br>• identify and name familiar three-dimensional objects, including cones, cubes, cylinders, spheres and prisms, from a collection of everyday objects<br>• select an object from a description of its features, e.g. find an object with six square faces (Reasoning) | **Suggested Content from Syllabus**<br>• identify and name three-dimensional objects as prisms, pyramids, cylinders, cones and spheres<br>• recognise and describe the use of three-dimensional objects in a variety of contexts, e.g. buildings, packaging (Communicating)<br>• describe and compare curved surfaces and flat surfaces of cylinders, cones and spheres, and faces, edges and vertices of prisms and pyramids<br>• describe similarities and differences between prisms, pyramids, cylinders, cones and spheres (Communicating) | **Suggested Content from Syllabus**<br>• Compare, describe and name prisms and pyramids<br>• identify and determine the number of pairs of parallel faces of three-dimensional objects, e.g.<br>• 'A rectangular prism has three pairs of parallel faces'<br>• identify the 'base' of prisms and pyramids and name them according to the shape of their base, e.g. rectangular prism, square pyramid<br>• recognise that the base of a prism is not always the face where the prism touches the ground<br>• visualise and draw the resulting cut face (plane section) when a three-dimensional object receives a straight cut | **Suggested Content from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• recognise how a group of objects has been sorted, e.g. 'These objects are all pointy' (Communicating, Reasoning)<br>• recognise and use informal names for three-dimensional objects, e.g. box, ball<br>• manipulate and describe a variety of objects found in the environment<br>• manipulate and describe an object hidden from view using everyday language, e.g. describe an object hidden in a 'mystery bag' (Communicating)<br>• predict and describe the movement of objects, e.g. 'This will roll because it is round'<br>• use a plank or board to determine which objects roll and which objects slide (Problem Solving)<br>• make models using a variety of three-dimensional objects and describe the models, e.g. 'I<br>• made a model of a person using a ball and some blocks'<br>• predict the building and stacking capabilities of various three-dimensional objects (Reasoning) | **Suggested Content Continued**<br>• distinguish between objects, which are 'three-dimensional' (3D), and shapes, which are 'two-dimensional' (2D), and describe the differences informally, e.g. 'This is a two-dimensional shape because it is flat'<br>• relate the terms 'two-dimensional' and 'three-dimensional' to their use in everyday situations, e.g. a photograph is two-dimensional and a sculpture is three-dimensional (Communicating, Reasoning)<br>• recognise that flat surfaces of three-dimensional objects are two-dimensional shapes and name the shapes of these surfaces<br>• sort three-dimensional objects according to particular attributes, e.g. the shape of the surfaces<br>• explain the attribute or multiple attributes used when sorting three-dimensional objects (Communicating, Reasoning)<br>• represent three-dimensional objects, including landmarks, by making simple models or by drawing or painting<br>• choose a variety of materials to represent three-dimensional objects, including digital technologies (Communicating)<br>• explain or demonstrate how a simple model was made | **Suggested Content Continued**<br>• identify prisms, pyramids, cylinders, cones and spheres in the environment and from drawings, photographs or descriptions<br>• investigate types of three-dimensional objects used in commercial packaging and give reasons for some being more commonly used (Communicating, Reasoning) | **Suggested Content Continued**<br>• recognise that prisms have a 'uniform cross-section' (plane section parallel to the base)<br>• recognise that the base of a prism is identical to the uniform cross-section of the prism (Reasoning)<br>• recognise a cube as a special type of prism (Communicating)<br>• recognise that pyramids do not have a uniform cross-section<br>• identify, describe and compare the properties of prisms and pyramids, including:<br>▪ number of faces<br>▪ shape of faces<br>▪ number and type of identical faces<br>▪ number of vertices<br>▪ number of edges<br>• describe similarities and differences between prisms and pyramids, e.g. between a triangular prism and a hexagonal prism, between a rectangular prism and a rectangular(-based) pyramid<br>• determine that the faces of prisms are rectangles, except that the base faces may not be rectangles, and that the faces of pyramids are triangles, except that the base face may not be a triangle (Reasoning)<br>• use the term 'apex' to describe the highest point above the base of a pyramid or cone | |
| **Vocabulary from Syllabus**<br>Object, shape, size, curved, flat, pointy, round, roll, slide, stack. | **Vocabulary from Syllabus**<br>Object, shape, two-dimensional (2D), three-dimensional (3D), cone, cube, cylinder, sphere, prism, surface, flat surface, curved surface, face, edge, vertex (vertices). | **Vocabulary from Syllabus**<br>Object, two-dimensional (2D), three-dimensional (3D), cone, cube, cylinder, prism, pyramid, sphere, top view, front view, side view, isometric grid paper, isometric drawing, depth. | **Vocabulary from Syllabus**<br>Object, shape, three-dimensional (3D), prism, cube, pyramid, base, uniform cross-section, face, edge, vertex (vertices), apex, top view, front view, side view, depth, net. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Identify cones, cubes, cylinders, spheres and prisms presented in different orientations<br>• Recognise that three-dimensional objects look different from different vantage-points<br>• Use the terms 'curved surfaces', 'faces', 'edges' and 'vertices' to describe three-dimensional objects | **Other Key Ideas covered later**<br>• Make models of three-dimensional objects<br>• Create nets from everyday packages<br>• Represent three-dimensional objects in drawings showing depth<br>• Sketch three-dimensional objects from different views | **Other Key Ideas covered later**<br>• Connect three-dimensional objects with their nets<br>• Construct simple prisms and pyramids using a variety of materials, and given drawings from different views | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Page :** 60 - 61 | **Syllabus Page :** 104 - 107 | **Syllabus Page :** 159 - 161 | **Syllabus Page :** 222 - 225 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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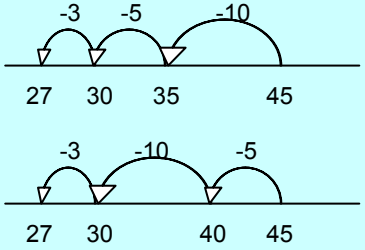
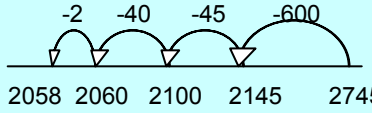
# Subtraction (C)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• combines, separates and compares collections of objects, describes using everyday language, and records using informal methods MAe-5NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of strategies and informal recording methods for addition and subtraction involving one- and two-digit numbers MA1-5NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• uses mental and written strategies for addition and subtraction involving two-, three-, four and five-digit numbers MA2-5NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and applies appropriate strategies for addition and subtraction with counting numbers of any size MA3-5NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• compares, orders and calculates with integers, applying a range of strategies to aid computation MA4-4NA |
| **Focus Key Ideas for this week**<br>• Take part of a group away to model subtraction<br>• Compare two groups to determine 'how many more'<br>• Record subtraction informally | **Focus Key Ideas for this week**<br>• Model subtraction using concrete materials<br>• Use and record a range of mental strategies for subtraction of one and two-digit numbers | **Focus Key Ideas for this week**<br>• Use and record a range of mental strategies for subtraction of two-, three-, four- and five digit numbers | **Focus Key Ideas for this week**<br>• Select and apply efficient mental, written and calculator strategies for subtraction with numbers of any size<br>• Use estimation and rounding to check the reasonableness of answers to calculations | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• model subtraction by separating and taking away part of a group of objects<br>• use concrete materials or fingers to model and solve simple subtraction problems<br>• compare two groups of objects to determine 'how many more'<br>• use visual representations of numbers to assist with subtraction, e.g. ten frames<br>• create and recognise combinations for numbers to at least 10, e.g. 'How many more make 10?' or describe the action of combining, separating and comparing using everyday language, e.g. makes, joins, combines with, and, get, take away, how many more, all together | **Suggested Content from Syllabus**<br>• Represent and solve simple subtraction problems using a range of strategies, including counting back, partitioning and rearranging parts<br>• use concrete materials to model subtraction problems involving one- and two digit numbers<br>• use concrete materials and a number line to model and determine the 'difference between' two numbers, e.g. the difference between 7 and 4 is 3.<br>• recognise and use the symbols for 'take away'' (-) and 'equals' (=)<br>• record number sentences in a variety of ways using drawings, words, numerals and mathematical symbols | **Suggested Content from Syllabus**<br>• use concrete materials to model the subtraction of two or more numbers, with and without trading, and record the method used<br>• select, use and record a variety of mental strategies to solve subtraction problems, including word problems, with numbers of up to five digits<br>• Recall subtraction facts for single-digit numbers to develop increasingly efficient mental strategies for computation | **Suggested Content from Syllabus**<br>• interpret the word 'decrease' in subtraction word problems, e.g. 'If a computer costs $1599 and its price is then decreased by $250, how much do I pay?' (Communicating, Problem Solving)<br>• record the strategy used to solve subtraction word problems<br>• use empty number lines to record mental strategies (Communicating, Problem Solving)<br>• use selected words to describe each step in the solution process (Communicating, Problem Solving)<br>• select and apply efficient mental, written and calculator strategies to solve subtraction word problems, including problems involving money | **Suggested Content from Syllabus**<br>• Apply the associative, commutative and distributive laws to aid mental and written computation (ACMNA151)<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving)<br>• Compare, order and subtract integers (ACMNA280)<br>• recognise the direction and magnitude of integers<br>• construct a directed number sentence to represent a real-life situation (Communicating)<br>• recognise and place integers on a number line |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• explain or demonstrate how an answer was obtained (Communicating, Reasoning)<br>• apply strategies that have been demonstrated by other students<br>• investigate different methods of subtracting used in different cultures, e.g. Aboriginal and Torres Strait Islander methods involving spatial patterns and reasoning, Asian counting tools such as the abacus<br>• count backwards by ones to subtract<br>• record subtraction informally using drawings, words and numerals | **Suggested Content Continued**<br>• Solve simple addition and subtraction problems using a range of efficient mental and written strategies (ACMNA030)<br>• use and record a range of mental strategies to solve addition and subtraction problems involving two-digit numbers, including the jump strategy on an empty number line<br>• explain or demonstrate how an answer was obtained for addition and subtraction problems, e.g. show how the answer to 45 - 18 was obtained using a jump strategy on an empty number line<br>  <br>(Communicating, Reasoning) | **Suggested Content Continued**<br>• apply known single-digit subtraction facts to mental strategies for subtraction of two-, three- and four-digit numbers, including:<br>• the jump strategy on an empty number line,<br>e.g. Jump Strategy<br>2745 - 687<br>  <br>• the compensation strategy, e.g. 63 - 29: 63 - 30 = 33, add 1 to obtain 34<br>• using patterns to extend number facts, e.g. 500 – 200: 5 – 2 = 3, so 500 – 200 = 300<br>• bridging the decades,<br>e.g. 134 - 76<br>= 134 – 4 = 130, 130 – 70 = 60, 60 – 2 = 58 | **Suggested Content Continued**<br>• check solutions to problems, including by using the inverse operation<br>• Use estimation and rounding to check the reasonableness of answers to calculations<br>• round numbers appropriately when obtaining estimates to numerical calculations<br>• use estimation to check the reasonableness of answers to subtraction calculations, e.g. 1442 - 129 is about 1440 – 130 | **Suggested Content Continued**<br>• compare the relative value of integers, including by using the symbols > and <<br>• order integers<br>• interpret different meanings (direction or operation) for the – sign, depending on the context<br>• subtract integers<br>• determine, by developing patterns or using a calculator, that subtracting a negative number is the same as adding a positive number (Reasoning) |
| **Vocabulary from Syllabus**<br>Count backwards, take away, how many more, all together, makes. | **Vocabulary from Syllabus**<br>Counting back, take away, minus, the difference between, total, more than, less than, double, equals, is equal to, is the same as, number sentence, strategy. | **Vocabulary from Syllabus**<br>Minus, the difference between, subtract, subtraction, equals, is equal to, is the same as, number sentence, empty number line, strategy, digit, estimate, round to. | **Vocabulary from Syllabus**<br>Minus, the difference between, subtract, subtraction, decrease, equals, is equal to, empty number line, strategy, digit, estimate, round to, budget. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Make connections between addition and subtraction<br>• Solve word problems involving subtraction<br>• Use the equals sign to record equivalent number sentences | **Other Key Ideas covered later**<br>• Use and record a range of mental strategies for subtraction of two-, three- and four-digit numbers<br>• Use the equals sign to record equivalent number sentences<br>• Calculate equivalent amounts of money using different denominations<br>• Use the inverse operation to check subtraction calculations<br>• Use the formal written algorithm for subtraction<br>• Solve word problems involving purchases and the calculation of change to the nearest five cents. | **Other Key Ideas covered later**<br>• Solve word problems and record the strategy used<br>• Create a simple budget<br>• Select and apply efficient mental, written and calculator strategies to solve word problems and record the strategy used | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Page :** 43 - 44 | **Syllabus Page :** 70 - 74 | **Syllabus Page :** 123 - 126 | **Syllabus Page :** 184 - 187 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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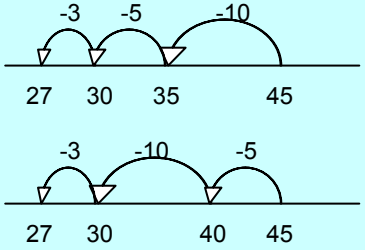
# ES1 & S1 - Subtraction (D) and S2 & S3 – 2D Angles (A)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• combines, separates and compares collections of objects, describes using everyday language, and records using informal methods MAe-5NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of strategies and informal recording methods for addition and subtraction involving one- and two-digit numbers MA1-5NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• identifies, describes, compares and classifies angles MA2-16MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• measures and constructs angles, and applies angle relationships to find unknown angles MA3-16MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• identifies and uses angle relationships, including those related to transversals on sets of parallel lines MA4-18MG |
| **Focus Key Ideas for this week**<br>• Take part of a group away to model subtraction<br>• Compare two groups to determine 'how many more'<br>• Record subtraction informally | **Focus Key Ideas for this week**<br>• Model subtraction using concrete materials<br>• Use and record a range of mental strategies for subtraction of one and two-digit numbers | **Focus Key Ideas for this week**<br>• Identify angles as measures of turn and compare angle sizes in everyday situations<br>• Identify 'perpendicular' lines and 'right angles' | **Focus Key Ideas for this week**<br>• Recognise the need for formal units to measure angles<br>• Measure and estimate angles in degrees (up to 360°)<br>• Record angle measurements using the symbol for degrees<br>• Construct angles using a protractor | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• model subtraction by separating and taking away part of a group of objects<br>• use concrete materials or fingers to model and solve simple subtraction problems<br>• compare two groups of objects to determine 'how many more'<br>• use visual representations of numbers to assist with subtraction, e.g. ten frames<br>• create and recognise combinations for numbers to at least 10, e.g. 'How many more make 10?' or describe the action of combining, separating and comparing using everyday language, e.g. makes, joins, combines with, and, get, take away, how many more, all together | **Suggested Content from Syllabus**<br>• Represent and solve simple subtraction problems using a range of strategies, including counting back, partitioning and rearranging parts<br>• use concrete materials to model subtraction problems involving one- and two digit numbers<br>• use concrete materials and a number line to model and determine the 'difference between' two numbers, e.g. the difference between 7 and 4 is 3.<br>• recognise and use the symbols for 'take away'' (-) and 'equals' (=)<br>• record number sentences in a variety of ways using drawings, words, numerals and mathematical symbols | **Suggested Content from Syllabus**<br>• identify 'angles' with two arms in practical situations, e.g. the angle between the arms of a clock<br>• identify the 'arms' and 'vertex' of an angle<br>• informally describe an angle as the 'amount of turning' between two arms<br>• recognise that the length of the arms does not affect the size of the angle (Reasoning)<br>• compare angles directly by placing one angle on top of another and aligning one arm<br>• identify 'perpendicular' lines in pictures, designs and the environment | **Suggested Content from Syllabus**<br>• Estimate, measure and compare angles using degrees (ACMMG112)<br>• identify the arms and vertex of an angle where both arms are invisible, such as for rotations and rebounds<br>• recognise the need for a formal unit for the measurement of angles<br>• record angle measurements using the symbol for degrees (°)<br>• measure angles of up to 360° using a protractor<br>• explain how a protractor is used to measure an angle (Communicating) | **Suggested Content from Syllabus**<br>• Use the language, notation and conventions of geometry<br>• define, label and name points, lines and intervals using capital letters<br>• label the vertex and arms of an angle with capital letters<br>• label and name angles using $B$ and $\angle NPW$ notation<br>• use the common conventions to indicate right angles and equal angles on diagrams<br>• Recognise the geometrical properties of angles at a point<br>• use the words 'complementary' and 'supplementary' for angles adding to 90° and 180° |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• explain or demonstrate how an answer was obtained<br>• apply strategies that have been demonstrated by other students<br>• investigate different methods of subtracting used in different cultures, e.g. Aboriginal and Torres Strait Islander methods involving spatial patterns and reasoning, Asian counting tools such as the abacus<br>• count backwards by ones to subtract<br>• record subtraction informally using drawings, words and numerals | **Suggested Content Continued**<br>• Solve simple addition and subtraction problems using a range of efficient mental and written strategies (ACMNA030)<br>• use and record a range of mental strategies to solve addition and subtraction problems involving two-digit numbers, including the jump strategy on an empty number line<br>• explain or demonstrate how an answer was obtained for addition and subtraction problems, e.g. show how the answer to 45 - 18 was obtained using a jump strategy on an empty number line<br>  <br><br>(Communicating, Reasoning) | **Suggested Content Continued**<br>• use the term 'right angle' to describe the angle formed when perpendicular lines meet<br>• describe examples of right angles in the environment (Communicating, Problem Solving)<br>• identify right angles in two-dimensional shapes and three-dimensional objects (Communicating) | **Suggested Content Continued**<br>• explore and explain how to use a semicircular protractor to measure a reflex angle (Communicating, Reasoning)<br>• extend the arms of an angle where necessary to facilitate measurement of the angle using a protractor (Problem Solving)<br>• Construct angles using a protractor (ACMMG112)<br>• construct angles of any given size using a protractor<br>• identify that a right angle is 90°, a straight angle is 180° and an angle of revolution is 360°<br>• identify and describe angle size in degrees for each of the classifications acute, obtuse and reflex<br>• use the words 'between', 'greater than' and 'less than' to describe angle size in degrees (Communicating)<br>• compare the sizes of two or more angles in degrees, e.g. compare angles in different two-dimensional shapes<br>• estimate angles in degrees and check by measuring | **Suggested Content Continued**<br>• respectively, and the associated terms 'complement' and 'supplement'<br>• identify and name adjacent angles, vertically opposite angles, straight angles and angles of complete revolution embedded in diagrams<br>• recognise that adjacent angles can form right angles, straight angles and angles of complete revolution (Communicating, Reasoning)<br>• Identify corresponding, alternate and co-interior angles when two straight lines are crossed by a transversal (ACMMG163)<br>• identify and name perpendicular lines using the symbol for 'is perpendicular to' ($\perp$), e.g. $PQ \perp FG$<br>• use the common conventions to indicate parallel lines on diagrams<br>• identify and name pairs of parallel lines using the symbol for 'is parallel to' ($\parallel$), e.g. $CD \parallel MN$<br>• define and identify 'transversals', including transversals of parallel lines<br>• identify, name and measure alternate angle pairs, corresponding angle pairs and co-interior angle pairs for two lines cut by a transversal<br>• use dynamic geometry software to investigate angle relationships formed by parallel lines and a transversal (Problem Solving, Reasoning)<br>• recognise the equal and supplementary angles formed when a pair of parallel lines is cut by a transversal<br>• Investigate conditions for two lines to be parallel (ACMMG164)<br>• use angle properties to identify parallel lines<br>• explain why two lines are either parallel or not parallel, giving a reason (Communicating) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | | | **Suggested Content Continued**<br>• Solve simple numerical problems using reasoning (ACMMG164)<br>• determine unknown angles embedded in diagrams using angle relationships, including angles at a point and angles associated with parallel lines, giving reasons<br>explain how the size of an unknown angle was calculated (Communicating, Reasoning) |
| **Vocabulary from Syllabus**<br>Count backwards, take away, how many more, all together, makes. | **Vocabulary from Syllabus**<br>Counting back, take away, minus, the difference between, total, more than, less than, double, equals, is equal to, is the same as, number sentence, strategy. | **Vocabulary from Syllabus**<br>Angle, arm, vertex, right angle, acute angle, obtuse angle, straight angle, reflex angle, angle of revolution. | **Vocabulary from Syllabus**<br>Angle, adjacent angles, right angle, straight angle, angles on a straight line, angle of revolution, angles at a point, vertically opposite angles. | |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Make connections between addition and subtraction<br>• Solve word problems involving subtraction<br>• Use the equals sign to record equivalent number sentences | **Other Key Ideas covered later**<br>• Draw and classify angles as acute, obtuse, straight, reflex, or a revolution | **Other Key Ideas covered later**<br>• Describe angle size in degrees for each angle classification<br>• Identify and name angles on a straight line, angles of complete revolution and vertically opposite angles. Use results to find unknown angles | **Other Key Ideas covered later** |
| **Syllabus Page :** 43 - 44 | **Syllabus Page :** 70 - 74 | **Syllabus Page :** 167 - 168 | **Syllabus Page :** 231 - 234 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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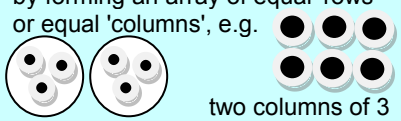
# Multiplication (C)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• groups, shares and counts collections of objects, describes using everyday language, and records using informal method MAe-6NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of mental strategies and concrete materials for multiplication and division MA1-6NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• uses mental and informal written strategies for multiplication and division MA2-6NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and applies appropriate strategies for multiplication and division, and applies the order of operations to calculations involving more than one operation MA3-6NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• compares, orders and calculates with integers, applying a range of strategies to aid computation MA4-4NA |
| **Focus Key Ideas for this week**<br>• Record grouping and sharing using informal methods | **Focus Key Ideas for this week**<br>• Model and use equal 'groups of' objects as a strategy for multiplication<br>• Model and use arrays described in terms of 'rows' and 'columns' as a strategy for multiplication<br>• Record using drawings, words and numerals | **Focus Key Ideas for this week**<br>• Recall multiplication facts up to 10 × 10 and related division facts | **Focus Key Ideas for this week**<br>• Use the formal algorithm for multiplication by one- and two-digit operators | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• group and share concrete materials to solve problems<br>• explain or demonstrate how an answer was obtained (Communicating, Reasoning)<br>• Record grouping and sharing using informal methods<br>• label the number of objects in a group<br>• record grouping and sharing informally using pictures, words and numerals | **Suggested Content from Syllabus**<br>• recognise when items have been arranged into groups, e.g. 'I can see two groups of three pencils'<br>• use concrete materials to model multiplication as equal 'groups' and by forming an array of equal 'rows' or equal 'columns', e.g.<br>  <br>2 groups of three or two columns of 3 two rows of 3<br>• describe collections of objects as 'groups of', 'rows of' and 'columns of' (Communicating) | **Suggested Content from Syllabus**<br>• link multiplication and division facts using groups or arrays, e.g.<br>• Recall multiplication facts up to 10 × 10 and related division facts (ACMNA075)<br>• count by fours, sixes, sevens, eights and nines using skip counting<br>use the term 'product' to describe the result of the multiplication of two or more numbers, e.g. 'The product of 5 and 6 is 30' | **Suggested Content from Syllabus**<br>• Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental and written strategies and appropriate digital technologies (ACMNA100)<br>• using the formal algorithm, e.g.<br>432 ×<br>5<br>2160 | **Suggested Content from Syllabus**<br>• Apply the associative, commutative and distributive laws to aid mental and written computation<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving)<br>• apply a practical understanding of commutativity to aid mental computation, e.g. 3 + 9 = 9 + 3 = 12, 3 × 9 = 9 × 3 = 27 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• recognise practical examples of arrays, such as seedling trays or vegetable gardens (Reasoning)<br>• determine and distinguish between the 'number of rows/columns' and the 'number in each row/column' when describing collections of objects (Communicating)<br>• model the commutative property of multiplication, e.g. '3 groups of 2 is the same as 2 groups of 3' | **Suggested Content Continued**<br>• use mental strategies to build multiplication facts to at least 10 × 10, including:<br>• using the commutative property of multiplication, e.g. 7 × 9 = 9 × 7<br>• using known facts to work out unknown facts, e.g. 5 × 7 is 35, so 6 × 7 is 7 more, which is 42<br>• using doubling and repeated doubling as a strategy to multiply by 2, 4 and 8, e.g. 7 ×8 is double 7, double again and then double again<br>• using the relationship between multiplication facts, e.g. the multiplication facts for 6 are double the multiplication facts for 3<br>• factorising one number, e.g. 5 × 8 is the same as 5 × 2 × 4, which becomes 10 × 4<br>• recall multiplication facts up to 10 × 10, including zero facts, with automaticity<br>• create a table or simple spreadsheet to record multiplication facts, e.g. a 10 × 10 grid showing multiplication facts (Communicating)<br>• using the inverse relationship of multiplication and division, e.g. 63 ÷ 9 = 7 because 7 × 9 = 63 | **Suggested Content Continued**<br>• using the extended form (long multiplication) of the formal algorithm, e.g.<br>521 x<br>22<br>1042<br>10402<br>11462<br>• check answers to mental calculations using digital technologies (Problem Solving) | **Suggested Content Continued**<br>• apply a practical understanding of associativity to aid mental computation,<br>e.g. 3 + 8 + 2 = (3 + 8) + 2<br>= 3 + (8 + 2) = 13,<br><br>2×7×5 = (2 ×7)×5 = 2×(7×5) = 70<br>• determine by example that associativity holds true for multiplication of three or more numbers but does not apply to calculations involving division, e.g. (80 ÷ 8) ÷ 2 is not equivalent to 80 ÷ (8 ÷ 2) (Communicating)<br>• apply a practical understanding of the distributive law to aid mental computation, e.g. to multiply any number by 13, first multiply by 10 and then add 3 times the number<br>• use factors of a number to aid mental computation of multiplication and division, e.g. to multiply a number by 12, first multiply the number by 6 and then multiply by 2 |
| **Vocabulary from Syllabus**<br>Group, share, equal. | **Vocabulary from Syllabus**<br>Group, number of groups, number in each group, sharing, shared between, left over, total, equal. | **Vocabulary from Syllabus**<br>Group, row, column, horizontal, vertical, array, multiply, multiplied by, multiplication, multiplication facts, double, shared between, divide, divided by, division, equals, strategy, digit, number chart. | **Vocabulary from Syllabus**<br>Multiply, multiplied by, product, multiplication, multiplication facts, area, thousands, hundreds, tens, ones, double, multiple, factor, divide, divided by, quotient, division, halve, remainder, fraction, decimal, equals, strategy, digit, estimate, round to. | **Vocabulary from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Other Key Ideas covered later**<br>• Investigate and model equal groups | **Other Key Ideas covered later**<br>• Rhythmic and skip count by twos, fives and tens from any starting point<br>• Model and use repeated addition as a strategy for multiplication<br>• Model division as sharing a collection of objects into equal groups<br>• Model and use groups, arrays and repeated subtraction as strategies for division | **Other Key Ideas covered later**<br>• Recall multiplication facts for twos, threes, fives and tens<br>• Link multiplication and division using arrays<br>• Model and apply to commutative property for multiplication<br>• Use and record mental strategies to multiply one-digit numbers by multiples of 10<br>• Determine multiples and factors of numbers<br>• Use the equals sign to record equivalent number sentences<br>• Use and record a range of mental and written strategies for multiplication and division of two-digit numbers by a one-digit operator<br>• Use mental strategies and informal recording methods for division with remainders | **Other Key Ideas covered later**<br>• Use and record a range of mental and written strategies to multiply by one- and two-digit operators<br>• Solve word problems and record the strategy used<br>• Use and record a range of mental and written strategies to divide by a one-digit operator with and without remainders<br>• Interpret remainders in division problems<br>• Select and apply efficient mental, written and calculator strategies to solve word problems and record the strategy used<br>• Use grouping symbols and the order of operations in calculations | **Other Key Ideas covered later** |
| **Syllabus Page :** 45 - 46 | **Syllabus Page :** 75 - 78 | **Syllabus Page :** 127 - 131 | **Syllabus Page :** 188 - 194 | **Syllabus Page :** |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Area (B)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• describes and compares areas using everyday language MAe-10MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• estimates, measures, compares and records areas using informal units MA1-10MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• estimates, measures, compares and records areas using square centimetres and square metres MA2-10MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital<br>• technologies, in undertaking investigations MA3-2WM<br>• selects and uses the appropriate unit to calculate areas, including areas of squares, rectangles and triangles MA3-10MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• uses formulas to calculate the area of quadrilaterals and circles, and converts between units of area MA4-13MG |
| **Focus Key Ideas for this week**<br>• Identify the attribute of 'area' as a measure of the amount of surface<br>• Use comparative language to describe areas | **Focus Key Ideas for this week**<br>• Use uniform informal units to measure and estimate areas<br>• Record areas by referring to the number and type of uniform informal unit used | **Focus Key Ideas for this week**<br>• Recognise the need for formal units to measure area<br>• Use square centimetres and square metres to measure and estimate rectangular (and square) areas<br>• Record lengths using abbreviations (cm2 and m2) | **Focus Key Ideas for this week**<br>• Recognise the need for square kilometres and hectares to measure area<br>• Record areas using abbreviations (km2 and ha) | • **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• identify the attribute of 'area' as the measure of the amount of surface<br>• cover surfaces completely with smaller shapes<br>• make closed shapes and describe the area of the shape<br>• use computer software to draw a closed shape, colouring in the area (Communicating)<br>• use everyday language to describe area, e.g. surface, inside, outside<br>• use comparative language to describe area, e.g. bigger than, smaller than, the same as<br>• ask questions about area in everyday situations, e.g. 'Which book cover is bigger?' (Communicating) | **Suggested Content from Syllabus**<br>• compare, indirectly, the areas of two surfaces that cannot be moved or superimposed, e.g. by cutting paper to cover one surface and superimposing the paper over the second surface<br>• predict the larger of the areas of two surfaces of the same general shape and compare these areas by cutting and covering<br>• use uniform informal units to measure area by covering the surface in rows or columns without gaps or overlaps<br>• select and use appropriate uniform informal units to measure area (Reasoning) | **Suggested Content from Syllabus**<br>• recognise and use formal units to measure and estimate the area of rectangles<br>• recognise the need for the square centimetre as a formal unit to measure area<br>• use a 10 cm × 10 cm tile (or grid) to find rectangular areas (including the area of squares) that are less than, greater than or about the same as 100 square centimetres<br>• measure the areas of rectangles (including squares) in square centimetres<br>• estimate the areas of rectangles (including squares) in square centimetres | **Suggested Content from Syllabus**<br>• recognise the need for a formal unit larger than the square metre<br>• identify situations where square kilometres are used for measuring area, e.g. a suburb<br>• recognise and explain the need for a more convenient unit than the square kilometre<br>• recognise that there are 10 000 square metres in one hectare, i.e. 10 000 metres = 1 hectare<br>• equate one hectare to the area of a square with side lengths of 100 m (Communicating)<br>• relate the hectare to common large pieces of land, e.g. a tennis court is about one quarter of a hectare (Reasoning) | **Suggested Content from Syllabus**<br>• choose an appropriate unit to measure the areas of different shapes and surfaces, e.g. floor space, fields<br>• use the areas of familiar surfaces to assist with the estimation of larger areas (Problem Solving)<br>• convert between metric units of area: 1 $cm^2$ = 100 $mm^2$, 1 $m^2$ = 1 000 000 $mm^2$, 1 ha = 10 000 $m^2$, 1 $km^2$ = 1 000 000 $m^2$ = 100 ha<br>• Establish the formulas for areas of rectangles, triangles and parallelograms and use these in problem solving (ACMMG159) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• explain the relationship between the size of a unit and the number of units needed to measure an area, e.g. 'I need more tiles than workbooks to measure the area of my desktop' (Communicating, Reasoning)<br>• describe why the area remains constant when units are rearranged (Communicating, Reasoning)<br>• describe any parts of units left over when counting uniform informal units to measure area<br>• use computer software to create a shape and use a simple graphic as a uniform informal unit to measure its area (Communicating)<br>• record areas by referring to the number and type of uniform informal unit used, e.g. 'The area of this surface is 20 tiles'<br>• estimate areas by referring to the number and type of uniform informal unit used and check by measuring<br>• discuss strategies used to estimate area, e.g. visualising the repeated unit (Communicating, Problem Solving) | **Suggested Content Continued**<br>• use efficient strategies for counting large numbers of square centimetres, e.g. using strips of 10 or squares of 100 record area in square centimetres using words and the abbreviation for square centimetre(s) ($cm^2$), e.g. 55 square centimetres, 55 $cm^2$<br>• discuss strategies used to estimate area in square centimetres, e.g. visualising repeated units<br>• recognise the need for a formal unit larger than the square centimetre to measure area<br>• construct a square metre and use it to measure large rectangular areas (including the areas of squares), e.g. the classroom floor or door<br>• explain where square metres are used for measuring in everyday situations, e.g. floor coverings<br>• recognise areas that are 'less than a square metre', 'about the same as a square metre' and 'greater than a square metre' (Reasoning)<br>• record areas in square metres using words and the abbreviation for square metre(s) ($m^2$), e.g. 6 square metres, 6 $m^2$<br>• estimate the areas of rectangles (including squares) in square metres<br>discuss strategies used to estimate area in square metres, e.g. visualising repeated units | **Suggested Content Continued**<br>• determine the dimensions of different rectangles with an area of one hectare (Problem Solving)<br>record areas using the abbreviations for square kilometre ($km^2$) and hectare (ha) | **Suggested Content Continued**<br>• develop and use the formulas for the area of squares and rectangles:<br>  • Area of rectangle = $lb$ where $l$ is the length and $b$ is the breadth of the rectangle<br>  • Area of square = $s^2$ where $s$ is the side length of the square<br>• explain the relationship that multiplying, dividing, squaring and factoring have with the areas of squares and rectangles with integer side lengths (Communicating)<br>• explain the relationship between the formulas for the areas of squares and rectangles (Communicating)<br>• compare areas of rectangles with the same perimeter (Problem Solving)<br>• develop, with or without digital technologies, and use the formulas for the areas of parallelograms and triangles, including triangles where the perpendicular height lies outside the shape:<br>  • Area of parallelogram = $bh$ where $b$ is the length of the base and $h$ is the perpendicular height<br>  • Area of triangle = $\frac{1}{2}bh$ where $b$ is the length of the 2base and $h$ is the perpendicular height<br>• identify the perpendicular height of triangles and parallelograms in different orientations (Reasoning)<br>find the areas of simple composite figures that may be dissected into squares, rectangles, parallelograms and triangles |
| **Vocabulary from Syllabus**<br>Area, surface, closed shape, inside, outside, bigger than, smaller than, the same as. | **Vocabulary from Syllabus**<br>Area, surface, measure, row, column, gap, overlap, parts of (units), estimate. | **Vocabulary from Syllabus**<br>Area, surface, measure, grid, row, column, square centimetre, square metre, estimate. | **Vocabulary from Syllabus**<br>Area, measure, square centimetre, square metre, square kilometre, hectare, dimensions, length, width. | **Vocabulary from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Other Key Ideas covered later**<br>• Record comparisons of area informally<br>• Compare areas using direct comparison | **Other Key Ideas covered later**<br>• Compare and order surfaces based on area using uniform informal units | **Other Key Ideas covered later**<br>• Measure and compare the areas of regular and irregular shapes using a square-centimetre grid<br>• Compare areas measured in square centimetres and square metres | **Other Key Ideas covered later**<br>• Calculate areas of rectangles (including squares) and record the strategy<br>• Calculate areas of triangles and record the strategy<br>• Solve problems involving areas of rectangles (including squares) and triangles | **Other Key Ideas covered later** |
| **Syllabus Page :** 52 - 53 | **Syllabus Page :** 91 - 93 | **Syllabus Page :** 144 - 147 | **Syllabus Page :** 211 - 213 | **Syllabus Page :** 273 - 275 |
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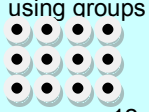
Return to Yearly Overview

# Division (A)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• groups, shares and counts collections of objects, describes using everyday language, and records using informal method MAe-6NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses a range of mental strategies and concrete materials for multiplication and division MA1-6NA<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of mental strategies and concrete materials for multiplication and division MA1-6NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• uses mental and informal written strategies for multiplication and division MA2-6NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and applies appropriate strategies for multiplication and division, and applies the order of operations to calculations involving more than one operation MA3-6NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• compares, orders and calculates with integers, applying a range of strategies to aid computation MA4-4NA |
| **Focus Key Ideas for this week**<br>• Investigate and model equal groups<br>• Record sharing using informal methods | **Focus Key Ideas for this week**<br>• Model division as sharing a collection of objects into equal groups<br>• Record using drawings, words and numerals<br>• Rhythmic and skip count by twos, fives and tens from any starting point | **Focus Key Ideas for this week**<br>• Link multiplication and division using arrays<br>• Use and record a range of mental and written strategies for division of two-digit numbers by a one-digit operator | **Focus Key Ideas for this week**<br>• Use and record a range of mental and written strategies to divide by a one-digit operator with and without remainders | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Investigate and model equal groups<br>• use the term 'group' to describe a collection of objects<br>• use the term 'sharing' to describe the distribution of a collection of objects<br>• model equal groups and recognise groups that are not equal in size | **Suggested Content from Syllabus**<br>• Recognise and represent division as grouping into equal sets (ACMNA032)<br>• recognise when there are equal numbers of items in groups, e.g. 'There are three pencils in each group'<br>• model division by sharing a collection of objects into equal groups, e.g. 10 objects shared between two people | **Suggested Content from Syllabus**<br>• Recall multiplication facts of two, three, five and ten and related division facts (ACMNA056)<br>• count backwards by twos, threes, fives or tens using skip counting<br>• recognise and use the symbols for 'multiplied by' (×), 'divided by' (÷) and 'equals' (=) | **Suggested Content from Syllabus**<br>• Solve problems involving division by a one-digit number, including those that result in a remainder (ACMNA101)<br>• use the term 'quotient' to describe the result of a division calculation, e.g. 'The quotient when 30 is divided by 6 is 5'<br>• recognise and use different notations to indicate division, e.g. 25 ÷ 4, $4\overline{)25}$, $\frac{25}{4}$ | **Suggested Content from Syllabus**<br>• Apply the associative, commutative and distributive laws to aid mental and written computation<br>• use an appropriate non-calculator method to divide two- and three-digit numbers by a two digit number<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• share concrete materials to solve problems explain or demonstrate how an answer was obtained (Communicating, Reasoning)<br>• Record sharing using informal methods<br>• label the number of objects in a group<br>• record sharing informally using pictures, words and numerals | **Suggested Content Continued**<br>• describe the part left over when a collection cannot be shared equally into groups (Communicating, Problem Solving, Reasoning)<br>• Skip count backwards by twos, fives and tens<br>• use patterns on a number chart to assist in counting backwards by twos, fives or tens (Communicating) | **Suggested Content Continued**<br>• link multiplication and division facts using groups or arrays, e.g.<br>  <br>3 rows of 4 is 12<br>4 columns of 3 is 12<br>3 x 4 = 12, 4 x 3 = 12<br>12 shared into 3 rows is 4<br>12 shared into 4 columns is 3<br>12 ÷ 3 = 4, 12 ÷ 4 = 3<br>• explain why a rectangular array can be read as a division in two ways by forming vertical or horizontal groups, e.g. 12 ÷ 3 = 4 or 12 ÷ 4 = 3 (Communicating, Reasoning)<br>• apply the inverse relationship of multiplication and division to justify answers, e.g. 12 ÷ 3 is 4 because 4 × 3 = 12<br>• explain how an answer was obtained and compare their own method of solution with those of other students (Communicating, Reasoning)<br>• explain problem-solving strategies using language, actions, materials and drawings<br>• use mental strategies to divide a two-digit number by a one-digit number, including:<br>▪ using the inverse relationship of multiplication and division, e.g. 63 ÷ 9 = 7 because 7 × 9 = 63<br>▪ recalling known division facts<br>▪ using halving and repeated halving to divide by 2, 4 and 8, e.g. 36 ÷ 4: halve 36 and then halve again<br>▪ using the relationship between division facts, e.g. to divide by 5, first divide by 10 and divide by 2<br>• apply the inverse relationship of multiplication and division to justify answers,<br>e.g. 56 ÷ 8 = 7 because 7 × 8 = 56 (Problem Solving, Reasoning)<br>• recognise and use ÷ to indicate division of two-digit numbers by single-digit numbers where there is no remainder | **Suggested Content Continued**<br>• record remainders as fractions and decimals, e.g. 25÷ 4 = $6\frac{1}{4}$ or 6.25<br>• use mental and written strategies to divide a number with three or more digits by a one-digit<br>• divisor where there is no remainder, including:<br>▪ dividing the hundreds, then the tens, and then the ones, e.g.<br>3248 ÷ 4<br>3200 ÷ 4 = 800<br>40 ÷ 4 = 10<br>8 ÷ 4 = 2<br>so 3248 ÷ 4 = 812<br>▪ using the formal algorithm, e.g.<br>258 ÷ 6<br>$\begin{array}{r} 43 \\ \hline 6\overline{)\,258} \end{array}$<br>• use mental and written strategies to divide a number with three or more digits by a one-digit divisor where there is a remainder, including:<br>▪ dividing the tens and then the ones, e.g. 243 ÷ 4<br>240 ÷ 4 = 60<br>3 ÷ 4 = $\frac{3}{4}$<br>so 243 ÷ 4 = $60\frac{3}{4}$<br>• using the formal algorithm, e.g.<br>587 ÷ 6<br>$\begin{array}{r} 97\frac{5}{6} \\ \hline 6\overline{)\,587} \end{array}$<br>• explain why the remainder in a division calculation is always less than the number divided by (the divisor) (Reasoning)<br>• show the connection between division and multiplication, including where there is a remainder, e.g. 25 ÷ 4 = 6 remainder 1, so 25 = 4 × 6 + 1<br>• use digital technologies to divide whole numbers by one- and two-digit divisors | **Suggested Content Continued**<br>• determine by example that associativity holds true for multiplication of three or more numbers but does not apply to calculations involving division, e.g. (80 ÷ 8) ÷ 2 is not equivalent to 80 ÷ (8 ÷ 2) (Communicating)<br>• use factors of a number to aid mental computation of multiplication and division, e.g. to multiply a number by 12, first multiply the number by 6 and then multiply by 2 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | **Suggested Content Continued**<br>• record mental strategies used for division<br>• select and use a variety of mental and informal written strategies to solve division problems<br>check the answer to a word problem using digital technologies (Reasoning) | **Suggested Content Continued**<br>• check answers to mental calculations using digital technologies<br>• apply appropriate mental and written strategies, and digital technologies, to solve division word problems<br>• recognise when division is required to solve word problems<br>• use inverse operations to justify solutions to problems (Problem Solving, Reasoning)<br>• use and interpret remainders in solutions to division problems, e.g. recognise when it is appropriate to round up an answer, such as 'How many cars are required to take 47 people to the beach?'<br>• record the strategy used to solve division word problems<br>• use selected words to describe each step in the solution process (Communicating, Problem Solving)<br>• Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099)<br>• round numbers appropriately when obtaining estimates to numerical calculations<br>• use estimation to check the reasonableness of answers to division calculations,<br>• check answers to mental calculations using digital technologies (Problem Solving)<br>• apply appropriate mental and written strategies, and digital technologies, to solve division word problems<br>• use the appropriate operation when solving problems in real-life situations (Problem Solving)<br>• use inverse operations to justify solutions (Problem Solving)<br>• record the strategy used to solve division word problems<br>• use selected words to describe each step in the solution process | |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Vocabulary from Syllabus**<br>Group, share, equal. | **Vocabulary from Syllabus**<br>Group, number of groups, number in each group, sharing, shared between, left over, total, equal. | **Vocabulary from Syllabus**<br>Group, row, column, horizontal, vertical, array, multiply, multiplied by, multiplication, multiplication facts, double, shared between, divide, divided by, division, equals, strategy, digit, number chart. | **Vocabulary from Syllabus**<br>Multiply, multiplied by, product, multiplication, multiplication facts, area, thousands, hundreds, tens, ones, double, multiple, factor, divide, divided by, quotient, division, halve, remainder, fraction, decimal, equals, strategy, digit, estimate, round to. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Model and use groups, arrays and repeated subtraction as strategies for division | **Other Key Ideas covered later**<br>• Use mental strategies and informal recording methods for division with remainders | **Other Key Ideas covered later**<br>• Solve word problems and record the strategy used<br>• Interpret remainders in division problems<br>• Select and apply efficient mental, written and calculator strategies to solve word problems and record the strategy used<br>• Use grouping symbols and the order of operations in calculations | **Other Key Ideas covered later** |
| **Syllabus Page :** 45 - 46 | **Syllabus Page :** 75 - 78 | **Syllabus Page :** 127 - 131 | **Syllabus Page :** 188 - 194 | **Syllabus Page :** |
|  |  |  |  |  |

Return to Yearly Overview

# Volume & Capacity (B)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• describes and compares the capacities of containers and the volumes of objects or substances using everyday language MAe-11MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• estimates, measures, compares and records volumes and capacities using informal units MA1-11MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• estimates, measures, compares and records volumes and capacities using litres, millilitres and cubic centimetres MA2-11MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and uses the appropriate unit to estimate, measure and calculate volumes and capacities, and converts between units of capacity MA3-11MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• uses formulas to calculate the volume of prisms and cylinders, and converts between units of volume MA4-14MG |
| **Focus Key Ideas for this week**<br>• Identify the attribute of 'volume' as a measure of the amount of space an object occupies<br>• Use comparative language to describe volume | **Focus Key Ideas for this week**<br>• Use uniform informal units to measure and estimate volumes<br>• Record volumes by referring to the number and type of uniform informal unit used | **Focus Key Ideas for this week**<br>• Use cubic centimetres to measure and compare volumes<br>• Record volumes using abbreviations ($cm^3$) | **Focus Key Ideas for this week**<br>• Record volumes using abbreviations ($cm^3$ and $m^3$)<br>• Connect volume and capacity and their units of measurement | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• identify the attribute of 'volume' as the amount of space an object or substance occupies<br>• stack and pack blocks into defined spaces, e.g. boxes<br>• identify which three-dimensional objects pack and stack easily (Reasoning)<br>• compare the volumes of two objects made from blocks or connecting cubes directly by deconstructing one object and using its parts to construct a copy of the other object<br>• compare the volumes of two piles of material directly by filling two identical containers, e.g. 'This pile of rice has a larger volume as it takes up more space in the container's | **Suggested Content from Syllabus**<br>• measure the volume of a container by filling the container with uniform informal units and counting the number of units used, e.g. the number of blocks a box can hold<br>• explain that if there are gaps when packing and stacking, this will affect the accuracy of measuring the volume (Communicating, Reasoning)<br>• record volumes by referring to the number and type of uniform informal unit used<br>• estimate volumes of containers by referring to the number and type of uniform informal unit used and check by measuring<br>• explain a strategy used for estimating a volume (Communicating, Problem Solving) | **Suggested Content from Syllabus**<br>• Compare objects using familiar metric units of volume<br>• recognise the advantages of using a cube as a unit when packing and stacking<br>• use the cubic centimetre as a unit to measure volumes<br>• pack small containers with cubic-centimetre blocks and describe packing in terms of layers, e.g. two layers of 10 cubic-centimetre blocks (Problem Solving)<br>• construct three-dimensional objects using cubic-centimetre blocks and count the blocks to determine the volumes of the objects<br>• devise and explain strategies for counting blocks (Communicating, Problem Solving) | **Suggested Content from Syllabus**<br>• record volumes using the abbreviation for cubic metre(s) ($m^3$) and cubic centimetres ( $cm^3$)<br>• estimate the size of a cubic metre, half a cubic metre and two cubic metres<br>• select and use appropriate units to estimate the volume of a variety of objects, e.g. cubic centimetres for a lolly jar, cubic metres for the classroom<br>• Connect volume and capacity and their units of measurement (ACMMG138)<br>• select the appropriate unit to measure volume and capacity<br>• demonstrate that a cube of side 10 cm will displace 1 litre of water | **Suggested Content from Syllabus**<br>• choose appropriate units of measurement for capacity convert from one unit to another (ACMMG195)<br>• recognise that 1000 litres is equal to one kilolitre and use the abbreviation for kilolitre (kL)<br>• recognise that 1000 kilolitres is equal to one megalitre and use the abbreviation for megalitre (ML)<br>• choose an appropriate unit to measure the capacity of different objects, e.g. swimming pools, household containers, dams<br>• use the capacity of familiar containers to assist with estimation of larger capacities (Reasoning) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• compare the volumes of two objects by observing the amount of space each occupies, e.g. a garbage truck takes up more space than a car<br>use comparative language to describe volume and capacity, e.g. has more, has less, will hold more, will hold less, takes up more space | **Suggested Content Continued**<br>• predict the larger volume of two or more containers and check by measuring using uniform informal units (Reasoning)<br>estimate the volume of a pile of material and check by measuring, e.g. estimate how many buckets would be used to form a pile of sand | **Suggested Content Continued**<br>• record volumes using the abbreviation for cubic centimetre(s) ($cm^3$)<br>• compare the volumes of two or more objects made from cubic-centimetre blocks by counting blocks<br>• distinguish between mass and volume, e.g. 'This stone is heavier than the ball but it takes up less room' (Communicating, Reasoning)<br>interpret information about volume on commercial packaging (Problem Solving) | **Suggested Content Continued**<br>• demonstrate, by using a medicine cup, that a cube of side 1 cm will displace 1 mL of water<br>• equate 1 cubic centimetre to 1 millilitre and 1000 cubic-centimetres to 1 litre<br>find the volume of irregular solids in cubic-centimetres using a displacement strategy | **Suggested Content Continued**<br>• convert between metric units of capacity, using 1 $cm^3$ = 1000 $mm^3$, 1 L = 1000 mL = 1000 $cm^3$, 1 $m^3$ = 1000 L = 1 kL, 1000 kL = 1 ML solve practical problems involving the volume and capacity of right prisms<br>• Calculate the volume of cylinders and solve related problems<br>• develop and use the formula to find the volume of cylinders: Volume of cylinder = $\pi r^2 h$<br>• where $r$ is the length of the radius of the base and $h$ is the perpendicular height<br>• recognise and explain the similarities between the volume formulas for cylinders and prisms (Communicating)<br>• solve problems involving the capacity of right prisms and cylinders, e.g. calculate the capacity of a cylindrical can of drink or a water tank |
| **Vocabulary from Syllabus**<br>The attribute of Capacity refers to the amount a container can hold, and can be measured in millilitres (mL) and/or litres (L). Capacity is only used in relation to containers and generally refers to liquid measurement. The capacity of a closed container will be slightly less than its volume – capacity is based on the inside dimensions, while volume is determined by the outside dimensions of the container. Volume is the amount of space occupied by an object or substance and can be measured in cubic units, e.g. cubic centimetres ($cm^3$) and cubic metres ($m^3$).<br>Capacity, container, liquid, full, empty, about half-full, volume, space, has more, has less, will hold more, will hold less, takes up more space. | **Vocabulary from Syllabus**<br>The attribute of Capacity refers to the amount a container can hold, and can be measured in millilitres (mL) and/or litres (L). Capacity is only used in relation to containers and generally refers to liquid measurement. The capacity of a closed container will be slightly less than its volume – capacity is based on the inside dimensions, while volume is determined by the outside dimensions of the container. Volume is the amount of space occupied by an object or substance and can be measured in cubic units, e.g. cubic centimetres ($cm^3$) and cubic metres ($m^3$).<br>Capacity, container, liquid, full, empty, volume, gap, measure, estimate. | **Vocabulary from Syllabus**<br>The attribute of Capacity refers to the amount a container can hold, and can be measured in millilitres (mL) and/or litres (L). Capacity is only used in relation to containers and generally refers to liquid measurement. The capacity of a closed container will be slightly less than its volume – capacity is based on the inside dimensions, while volume is determined by the outside dimensions of the container. Volume is the amount of space occupied by an object or substance and can be measured in cubic units, e.g. cubic centimetres ($cm^3$) and cubic metres ($m^3$).<br>Capacity, container, litre, millilitre, volume, measure, estimate. | **Vocabulary from Syllabus**<br>The attribute of Capacity refers to the amount a container can hold, and can be measured in millilitres (mL) and/or litres (L). Capacity is only used in relation to containers and generally refers to liquid measurement. The capacity of a closed container will be slightly less than its volume – capacity is based on the inside dimensions, while volume is determined by the outside dimensions of the container. Volume is the amount of space occupied by an object or substance and can be measured in cubic units, e.g. cubic centimetres ($cm^3$) and cubic metres ($m^3$).<br>Capacity, container, volume, layers, cubic centimetre, cubic metre, measure, estimate, litre, millilitre, dimensions, length, width, height. | **Vocabulary from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Other Key Ideas covered later**<br>• Identify the attribute of 'capacity' as a measure of the amount of substance a container can hold<br>• Compare volumes and capacities using direct comparison<br>• Record comparisons of capacity and volume informally | **Other Key Ideas covered later**<br>• Use uniform informal units to measure, compare and estimate capacities<br>• Compare and order objects based on capacity or volume using uniform informal units | **Other Key Ideas covered later**<br>• Recognise the need for formal units to measure capacity and volume<br>• Use litres to measure, compare and estimate capacities and volumes<br>• Use litres and millilitres to measure, compare and estimate capacities and volumes<br>• Record capacities and volumes using abbreviations (L and mL)<br>• Convert between litres and millilitres | **Other Key Ideas covered later**<br>• Record volumes and capacities using decimal notation to three decimal places<br>• Convert between millilitres and litres<br>• Use cubic centimetres and cubic metres to measure and estimate volumes<br>• Select and use appropriate units to measure volume<br>• Calculate volumes of rectangular prisms and record the strategy | **Other Key Ideas covered later** |
| **Syllabus Page :** 54 - 55 | **Syllabus Page :** 94 - 96 | **Syllabus Page :** 148 - 151 | **Syllabus Page :** 214 - 217 | **Syllabus Page :** 276 - 278 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Patterns & Algebra (B)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• recognises, describes and continues repeating patterns MAe-8NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• creates, represents and continues a variety of patterns with numbers and objects<br>• MA1-8NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas<br>• MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems<br>• MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• generalises properties of odd and even numbers, generates number patterns, and completes simple number sentences by calculating missing values MA2-8NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• analyses and creates geometric and number patterns, constructs and completes number sentences, and locates points on the Cartesian plane MA3-8NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• generalises number properties to operate with algebraic expressions MA4-8NA |
| **Focus Key Ideas for this week**<br>• Sort and classify objects into groups<br>• Recognise, continue, copy, create and describe repeating patterns of objects and drawings | **Focus Key Ideas for this week**<br>• Recognise, create, continue and describe repeating patterns of objects or symbols as number patterns<br>• Model and describe odd and even numbers | **Focus Key Ideas for this week**<br>• Identify odd and even numbers of up to four-digits<br>• Investigate and use the properties of odd and even numbers | **Focus Key Ideas for this week**<br>• Create, record and describe geometric and number patterns in words | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• sort and classify a group of familiar objects into smaller groups<br>• recognise that a group of objects can be sorted and classified in different ways<br>• explain the basis for their classification of objects (Communicating, Reasoning)<br>• Copy, continue and create patterns with objects and drawings<br>• recognise, copy and continue repeating patterns using sounds and/or actions<br>• recognise, copy, continue and create repeating patterns using shapes, objects or pictures, e.g.  | **Suggested Content from Syllabus**<br>• represent number patterns on number lines and number charts<br>• recognise, copy and continue given number patterns that increase or decrease, e.g.<br>1, 2, 3, 4, or 20, 18, 16, 14,<br>• describe how number patterns are made and how they can be continued<br>• create, record and describe number patterns that increase or decrease<br>• recognise, copy and continue patterns with objects or symbols<br>• recognise when an error occurs in a pattern and explain what is wrong<br>• create, record and describe patterns with objects or symbols | **Suggested Content from Syllabus**<br>• Investigate the conditions required for a number to be even or odd and identify even and odd numbers (ACMNA051)<br>• model even and odd numbers of up to two digits using arrays with two rows<br>• compare and describe the difference between models of even numbers and models of odd numbers (Communicating)<br>• recognise the connection between even numbers and the multiplication facts for two (Reasoning)<br>• describe and generalise the conditions for a number to be even or odd | **Suggested Content from Syllabus**<br>• identify, continue and create simple number patterns involving addition and subtraction<br>• describe patterns using the terms 'increase' and 'decrease', e.g. for the pattern 48, 41, 34, 27, , 'The terms decrease by seven' (Communicating, Reasoning)<br>• create, with materials or digital technologies, a variety of patterns using whole numbers, fractions or decimals, e.g. $\frac{1}{4}, \frac{2}{4}, \frac{3}{4}, \frac{4}{4}, \frac{5}{4}, \frac{6}{4}$ or 2.2, 2.0, 1.8, 1.6, ...<br>• use a number line or other diagram to create patterns involving fractions or decimals | **Suggested Content from Syllabus**<br>• Introduce the concept of variables as a way of representing numbers using letters<br>• use letters to represent numbers and develop the concept that pronumerals (letters) are used to represent numerical values<br>• model the following using concrete materials or otherwise: • expressions that involve a pronumeral, and a pronumeral added to a constant, e.g. $a$, $a + 1$ • expressions that involve a pronumeral multiplied by a constant, e.g. $2a$, $3a$<br>• sums and products, e.g. $2a + 1$, $2(a + 1)$<br>• equivalent expressions, such as $x + x + y + y + y = 2x + 2y + y = 2(x + y) + y$ |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• create or continue a repeating pattern using simple computer graphics (Problem Solving)<br>• recognise when an error occurs in a pattern and explain what is wrong (Communicating, Reasoning)<br>• describe a repeating pattern made from shapes by referring to distinguishing features, e.g. 'I have made my pattern from squares. The colours repeat. They go red, blue, red, blue, ' | **Suggested Content Continued**<br>• describe a repeating pattern of objects or symbols in terms of a 'number' pattern, e.g.<br>◇○ ◇○ ◇○ is a two pattern<br>△▽○△▽○ is a three pattern<br>• make connections between repeating patterns and counting, e.g. a 'three' pattern and skip counting by threes<br>• model and describe 'odd' and 'even' numbers using counters paired in two rows<br>describe the pattern created by modelling odd and even numbers (Communicating) | **Suggested Content Continued**<br>• recognise the significance of the final digit of a whole number in determining whether a given number is even or odd (Reasoning)<br>• identify even or odd numbers of up to four digits<br>• Investigate and use the properties of even and odd numbers (ACMNA071)<br>• investigate and generalise the result of adding, subtracting and multiplying pairs of even numbers, pairs of odd numbers, or one even and one odd number, e.g.<br>even + odd = odd,<br>odd × odd = odd<br>• explain why the result of a calculation is even or odd with reference to the properties of the numbers used in the calculation (Communicating, Reasoning)<br>predict whether the answer to a calculation will be even or odd by using the properties of the numbers in the calculation (Reasoning) | **Suggested Content Continued**<br>• Continue and create sequences involving whole numbers, fractions and decimals; describe the rule used to create the sequence (ACMNA133)<br>• continue and create number patterns, with and without digital technologies, using whole numbers, fractions and decimals, e.g. $\frac{1}{4}, \frac{1}{8}, \frac{1}{16}$ or 1.25, 2.5, 5,<br>• describe how number patterns have been created and how they can be continued (Communicating, Problem Solving)<br>• create simple geometric patterns using concrete materials, e.g.<br>• complete a table of values for a geometric pattern and describe the pattern in words, e.g.<br>□ , □□ ,□□□ ,<br><table><tr><td>Number of squares</td><td>1</td><td>2</td><td>3</td><td>4</td><td>50</td></tr><tr><td>Number of matches</td><td>4</td><td>8</td><td>12</td><td>16</td><td></td></tr></table><br>• describe the number pattern in a variety of ways and record descriptions using words, e.g. 'It looks like the multiplication facts for four'<br>• determine the rule to describe the pattern by relating the bottom number to the top number in a table, e.g. 'You multiply the number of squares by four to get the number of matches'<br>use the rule to calculate the corresponding value for a larger number, e.g. 'How many matches are needed to create 100 squares?' | **Suggested Content Continued**<br>• simplifying expressions, e.g. $(a + 2)+ (2a + 3)=(a + 2a)+ (2 + 3)=3a + 5$<br>• recognise and use equivalent algebraic expressions, e.g.<br>$y + y + y + y = 4y$<br>$w \times w = w2$<br>$a \times b = ab$<br>$a \div b = \frac{a}{b}$<br>use algebraic symbols to represent mathematical operations written in words and vice versa, e.g. the product of $x$ and $y$ is $xy$, $x + y$ is the sum of $x$ and $y$<br>• Extend and apply the laws and properties of arithmetic to algebraic terms and expressions<br>• recognise like terms and add and subtract them to simplify algebraic expressions,<br>e.g. $2n + 4m+ n = 4m+ 3n$<br>• verify whether a simplified expression is correct by substituting numbers for pronumerals (Communicating, Reasoning)<br>• connect algebra with the commutative and associative properties of arithmetic to determine that $a + b = b+ a$ and $(a + b)+ c = a + (b+ c)$<br>• recognise the role of grouping symbols and the different meanings of expressions, such as $2a + 1$ and $2(a + 1)$<br>• translate from everyday language to algebraic language and vice versa<br>• use algebraic symbols to represent simple situations described in words, e.g. write an expression for the number of cents in $x$ dollars (Communicating)<br>• interpret statements involving algebraic symbols in other contexts, e.g. cell references when creating and formatting spreadsheets (Communicating) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | | | **Suggested Content Continued**<br>• simplify algebraic expressions that involve multiplication and division, e.g. $12a \div 3$, $4x \times 3$, $2ab \times 3a$, $\frac{8a}{2}, \frac{2a}{8}, \frac{12a}{9}$<br>recognise the equivalence of algebraic expressions involving multiplication, e.g. $3bc = 3cb$ (Communicating)<br>• connect algebra with the commutative and associative properties of arithmetic to determine that $a \times b = b \times a$ and $(a \times b) \times c = a \times (b \times c)$<br>• recognise whether particular algebraic expressions involving division are equivalent or not, e.g. $a \div bc$ is equivalent to $\frac{a}{bc}$ and $a \div (b \times c)$ but is not equivalent to $a \div b \times c$ or $\frac{a}{b} \times c$<br>• Simplify algebraic expressions involving the four operations<br>• simplify a range of algebraic expressions, including those involving mixed operations<br>apply the order of operations to simplify algebraic expressions |
| **Vocabulary from Syllabus**<br>Group, pattern, repeat. | **Vocabulary from Syllabus**<br>Pattern, number line, number chart. | **Vocabulary from Syllabus**<br>Pattern, goes up by, goes down by, rows, digit, multiplication facts. | **Vocabulary from Syllabus**<br>Pattern, increase, decrease, | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Recognise, continue, create and describe increasing and decreasing number patterns<br>• Describe patterns with numbers and identify missing elements<br>• Find missing values in number sentences involving one operation of addition or subtraction | **Other Key Ideas covered later**<br>• Recognise, continue, create, describe and record increasing and decreasing number patterns<br>• Find missing values in number sentences involving an operation of addition or subtraction on both sides of the equals sign<br>• Recognise, continue and describe number patterns resulting from performing multiplication<br>• Find missing values in number sentences involving one operation of multiplication or division | **Other Key Ideas covered later**<br>• Recognise, continue create and describe increasing and decreasing number patterns with fractions, decimals and whole numbers<br>• Find missing values in number sentences involving an operation of multiplication or division on both sides of the equals sign<br>• Determine the rule for geometric and number patterns in words and use the rule to calculate values<br>• Locate and describe points on the number plane in all four quadrants | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Page :** 48 - 49 | **Syllabus Page :** 83 - 86 | **Syllabus Page :** 137 - 140 | **Syllabus Page :** 203 - 207 | **Syllabus Page :** 257 - 261 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Mass (B)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• describes and compares masses of objects using everyday language MAe-12MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1W<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• estimates, measures, compares and records masses of objects using informal units MA1-12MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• estimates, measures, compares and records masses of objects using kilograms and grams MA2-12MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• selects and uses the appropriate unit and device to measure masses of objects, and converts between units of mass MA3-12MG | **Syllabus Outcomes** |
| **Focus Key Ideas for this week**<br>• Identify the attribute of 'mass' as a measure of the amount of matter in an object<br>• Compare masses directly by hefting<br>• Use comparative language to describe masses<br>• Record comparisons of mass informally | **Focus Key Ideas for this week**<br>• Compare two objects based on mass using a pan balance<br>• Place objects on either side of a pan balance to obtain a level balance | **Focus Key Ideas for this week**<br>• Recognise the need for formal units to measure mass<br>• Use kilograms to measure, compare, order and estimate masses<br>• Record masses using abbreviations (kg) | **Focus Key Ideas for this week**<br>• Recognise the need for tonnes to measure mass<br>• Record masses using abbreviations (t, kg and g) | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Use direct and indirect comparisons to decide which is heavier, and explain reasoning in everyday language (ACMMG006)<br>• identify the attribute of 'mass' as the amount of matter in an object<br>• use everyday language to describe objects in terms of their mass, e.g. heavy, light, hard to push, hard to pull<br>• use comparative language to describe mass, e.g. heavier, lighter, heaviest, lightest<br>• identify an object that is heavier or lighter than another (Communicating)<br>• compare and describe two masses, such as by pushing or pulling | **Suggested Content from Syllabus**<br>• Investigate mass using a pan balance identify materials that are light or heavy<br>• place objects on either side of a pan balance to obtain a level balance<br>• use a pan balance to compare the masses of two objects<br>• discuss the action of a pan balance when a heavy object is placed in one pan and a lighter object in the other pan (Communicating)<br>• sort objects on the basis of their mass<br>• use a pan balance to find two collections of objects that have the same mass, e.g. a collection of blocks and a collection of counters | **Suggested Content from Syllabus**<br>• Measure, order and compare objects using familiar metric units of mass (ACMMG061)<br>• recognise the need for a formal unit to measure mass<br>• use the kilogram as a unit to measure mass, using a pan balance<br>• associate kilogram measures with familiar objects, e.g. a standard pack of flour has a mass of 1 kg, a litre of milk has a mass of approximately 1 kg (Reasoning)<br>• recognise that objects with a mass of one kilogram can be a variety of shapes and sizes (Reasoning)<br>• record masses using the abbreviation for kilograms (kg) | **Suggested Content from Syllabus**<br>• Choose appropriate units of measurement for mass (ACMMG108)<br>• recognise the need for a formal unit larger than the kilogram<br>• use the tonne to record large masses, e.g. sand, soil, vehicles<br>• record masses using the abbreviation for tonne (t)<br>• select and use the appropriate unit and device to measure mass, e.g. electronic scales, kitchen scales<br>• find the approximate mass of a small object by establishing the mass of a number of that object, e.g. 'The stated weight of a box of chocolates is 250 g. If there are 20 identical chocolates in the box, what does each chocolate weigh?' | **Suggested Content from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• compare two masses directly by hefting, e.g. 'This toy feels heavier than that one'<br>• predict which object would be heavier than, lighter than, or have about the same mass as another object and explain reasons for this prediction (Communicating, Reasoning)<br>• investigate the use of hefting in practical situations, e.g. the practice used by Aboriginal people of hefting duck eggs to determine the sex of ducks (Problem Solving)<br>record comparisons of mass informally using drawings, numerals and words | **Suggested Content Continued**<br>use drawings to record findings from using a pan balance | **Suggested Content Continued**<br>• use hefting to identify objects that have a mass of 'more than', 'less than' and 'about' one kilogram<br>• discuss strategies used to estimate mass, e.g. by referring to a known mass (Communicating, Problem Solving)<br>• compare and order two or more objects by mass measured to the nearest kilogram<br>• estimate the number of similar objects that have a total mass of one kilogram and check by measuring<br>explain why two students may obtain different measures for the same mass (Communicating, Reasoning) | | |
| **Vocabulary from Syllabus**<br>Mass, matter, heavy, heavier, heaviest, light, lighter, lightest, about the same as, hard to push, hard to pull. | **Vocabulary from Syllabus**<br>Mass, heavy, heavier, light, lighter, about the same as, pan balance, (level) balance. | **Vocabulary from Syllabus**<br>Mass, more than, less than, about the same as, pan balance, (level) balance, measure, estimate, kilogram. | **Vocabulary from Syllabus**<br>Mass, measure, device, scales, tonne, kilogram, gram. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• | **Other Key Ideas covered later**<br>• Measure and compare masses using uniform informal units<br>• Record masses by referring to the number and type of uniform informal unit used | **Other Key Ideas covered later**<br>• Use kilograms and grams to measure and compare masses using a scaled instrument<br>• Record masses using abbreviations (kg and g) | **Other Key Ideas covered later**<br>• Select and use appropriate instruments and units to measure mass<br>• Record mass using decimal notation to three decimal places<br>• Convert between tonnes, kilograms and grams | **Other Key Ideas covered later** |
| **Syllabus Page :** 56 - 57 | **Syllabus Page :** 97 - 99 | **Syllabus Page :** 152 - 155 | **Syllabus Page :** 218 - 219 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Data (B)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• represents data and interprets data displays made from objects and pictures MAe-17SP | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• gathers and organises data, displays data in lists, tables and picture graphs, and interprets the results MA1-17SP | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• selects appropriate methods to collect data, and constructs, compares, interprets and evaluates data displays MA2-18SP | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• uses appropriate methods to collect data, constructs and interprets data displays, and analyses sets of data MA3-18SP | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• collects, represents and interprets single sets of data, using appropriate statistical displays MA4-19SP |
| **Focus Key Ideas for this week**<br>• Collect information about themselves and their environment<br>• Organise actual objects into data displays<br>• Interpret data displays made from objects | **Focus Key Ideas for this week**<br>• Collect data and track what has been counted<br>• Create data displays using objects and pictures (one-to-one correspondence) and interpret them | **Focus Key Ideas for this week**<br>• Plan methods for data collection<br>• Collect data, organise into categories and create displays using lists, tables, picture graphs and simple column graphs (one-to-one correspondence)<br>• Interpret and compare data displays | **Focus Key Ideas for this week**<br>• Pose and refine questions and collect categorical and numerical data<br>• Create data displays, including tables, column graphs, line graphs and dot plots, appropriate for the data type<br>• Describe and interpret data presented in tables, column graphs, line graphs and dot plots | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Answer yes/no questions to collect information (ACMSP011)<br>• collect information about themselves and their environment, including by asking and answering yes/no questions<br>• pose and answer questions about situations using everyday language, e.g. 'Do you have any brothers or sisters?', 'What is the favourite colour of most people in our class?' (Communicating)<br>• Organise objects into simple data displays and interpret the displays group objects according to characteristics to form a simple data display, e.g. sort blocks/counters according to colour | **Suggested Content from Syllabus**<br>• Choose simple questions and gather responses (ACMSP262)<br>• investigate an issue of interest by choosing suitable questions to obtain appropriate data<br>• gather data and track what has been counted by using concrete materials, tally marks, words or symbols<br>• Represent data with objects and drawings where one object or drawing represents one data value and describe the displays (ACMSP263)<br>• record a data display created from concrete materials or pictures of objects (Communicating) | **Suggested Content from Syllabus**<br>• recognise that data can be collected either by the user or by others<br>• identify possible sources of data collected by others, e.g. newspapers, government data collection agencies, sporting agencies, environmental groups<br>• pose questions about a matter of interest to obtain information that can be recorded in categories<br>• predict and create a list of categories for efficient data collection in relation to a matter of interest, e.g. 'Which breakfast cereal is the most popular with members of our class?' | **Suggested Content from Syllabus**<br>• pose and refine questions to construct a survey to obtain categorical and numerical data about a matter of interest<br>• collect categorical and numerical data through observation or by conducting surveys, e.g. observe the number of a particular type of insect in one square metre of the playground over time<br>• tabulate collected data, including numerical data, with and without the use of digital technologies such as spreadsheets<br>• construct column and line graphs of numerical data using a scale of many-to-one correspondence, with and without the use of digital technologies | **Suggested Content from Syllabus**<br>• define 'variable' in the context of statistics as something measurable or observable that is expected to change over time or between individual observations<br>• recognise variables as categorical or numerical (either discrete or continuous)<br>• identify examples of categorical variables (e.g. colour, gender), discrete numerical variables (e.g. number of students, shoe size) and continuous numerical variables (e.g. height, weight)<br>• recognise that data collected on a rating scale (Likert-type scale) is categorical, e.g. 1 = dislike, 2 = neutral, 3 = like (Communicating) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• compare the sizes of groups of objects by counting (Reasoning)<br>• arrange objects in rows or columns according to characteristics to form a data display, e.g. arrange lunchboxes in columns according to colour<br>• give reasons why a row of three objects may look bigger than a row of five objects, e.g. 'The three green lunchboxes are spaced more than the five blue lunchboxes' (Communicating, Reasoning)<br>• interpret information presented in a display of objects to answer questions, e.g. 'How many children in our class have red pencil cases?' | **Suggested Content Continued**<br>• use concrete materials and pictures of objects as symbols to create data displays where one object or picture represents one data value (one-to-one correspondence), e.g. use different-coloured blocks to represent different-coloured cars<br>• interpret information presented in data displays where one object, picture or drawing represents one data value, e.g. weather charts<br>• describe information presented in simple data displays using comparative language such as 'more than' and 'less than', e.g. 'There were more black cars than red cars' (Communicating, Reasoning)<br>• explain interpretations of information presented in data displays, e.g. 'More children like dogs because there are more dog pictures than cat pictures' (Communicating, Reasoning)<br>• write a simple sentence to describe data in a display, e.g. 'The most popular fruit snack is an apple' (Communicating) | **Suggested Content Continued**<br>• identify issues for data collection and refine investigations, e.g. 'What if some members of our class don't eat cereal?'<br>• collect data and create a list or table to organise the data, e.g. collect data on the number of each colour of lollies in a packet<br>• use computer software to create a table to organise collected data, e.g. a spreadsheet<br>• construct vertical and horizontal column graphs and picture graphs that represent data using one-to-one correspondence<br>• use grid paper to assist in constructing graphs that represent data using one-to-one correspondence (Communicating)<br>• use the terms 'horizontal axis', 'vertical axis' and 'axes' appropriately when referring to column graphs (Communicating)<br>• use graphing software to enter data and create column graphs that represent data using one-to-one correspondence<br>• mark equal spaces on axes, name and label axes, and choose appropriate titles for column graphs<br>• choose an appropriate picture/symbol for a picture graph and state the key used<br>• Interpret and compare data displays (ACMSP070)<br>• describe and interpret information presented in simple tables, column graphs and picture graphs<br>• make conclusions about data presented in different data displays, e.g. 'Football is the most popular sport for students in Year 3 at our school'<br>• represent the same data set using more than one type of display and compare the displays<br>• discuss the advantages and/or disadvantages of different representations of the same data | **Suggested Content Continued**<br>• name and label the horizontal and vertical axes when constructing<br>• choose an appropriate title to describe the data represented in a data display (Communicating)<br>• determine an appropriate many-to-one scale to represent the data in a data display (Reasoning)<br>• mark equal spaces on the axes when constructing graphs, and use the scale to label the markers<br>• construct dot plots for numerical data, e.g. the heights of students<br>• consider the data type to determine and draw the most appropriate displays, such as column graphs, dot plots and line graphs<br>• discuss and justify the choice of data display used<br>• recognise that line graphs are used to represent data that demonstrates continuous change, e.g. hourly temperature<br>• recognise which types of data display are most appropriate to represent categorical data<br>• interpret line graphs using the scales on the axes<br>• describe and interpret data presented in tables, dot plots, column graphs and line graphs, e.g. 'The graph shows that the heights of all children in the class are between 125 cm and 154 cm'<br>• determine the total number of people represented in dot plots and column graphs<br>• identify and describe relationships that can be observed in data displays, e.g. 'There are four times as many children in Year 5 whose favourite food is noodles compared to children whose favourite food is chicken'<br>• use information presented in data displays to aid decision making, e.g. decide how many of each soft drink to buy by collecting and graphing data about favourite soft drinks for the year group or school | **Suggested Content Continued**<br>• recognise and explain the difference between a 'population' and a 'sample' selected from a population when collecting data<br>• investigate and determine the differences between collecting data by observation, census and sampling<br>• identify examples of variables for which data could be collected by observation, e.g. direction travelled by vehicles arriving at an intersection, native animals in a local area (Communicating)<br>• identify examples of variables for which data could be collected by a census or by a sample, e.g. a census to collect data about the income of Australians, a sample for TV ratings (Communicating)<br>• discuss the practicalities of collecting data through a census compared to a sample, including limitations due to population size, e.g. in countries such as China and India, a census is conducted only once per decade (Communicating, Reasoning)<br>• collect data using a random process, e.g. numbers from a page in a phone book, or from a random number generator<br>• identify issues that may make it difficult to obtain representative data from either primary or secondary sources<br>• discuss constraints that may limit the collection of data or result in unreliable data, e.g. lack of proximity to the location where data could be collected, lack of access to digital technologies, or cultural sensitivities that may influence the results (Communicating, Reasoning)<br>• investigate and question the selection of data used to support a particular viewpoint, e.g. the selective use of data in product advertising |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Vocabulary from Syllabus**<br>Information, collect, group, display, objects. | **Vocabulary from Syllabus**<br>Information, data, collect, gather, display, objects, symbol, tally mark, picture, row. | **Vocabulary from Syllabus**<br>Information, data, collect, category, display, symbol, list, table, column graph, picture graph, vertical columns, horizontal bars, equal spacing, title, key, vertical axis, horizontal axis, axes, spreadsheet. | **Vocabulary from Syllabus**<br>Data, survey, category, display, tabulate, table, column graph, vertical columns, horizontal bars, equal spacing, title, scale, vertical axis, horizontal axis, axes, line graph, dot plots, spreadsheet. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Pose questions and collect categorical data<br>• Create data displays using lists, tables and picture graphs (one-to-one correspondence) and interpret them | **Other Key Ideas covered later**<br>• Select and trial methods for data collection, including survey questions and recording sheets<br>• Construct data displays including tables, and column graphs and picture graphs of many-to-one correspondence<br>• Evaluate the effectiveness of different displays | **Other Key Ideas covered later**<br>• Interpret and create two-way tables<br>• Interpret side-by-side column graphs<br>• Compare a range of data displays to determine the most appropriate display for the data<br>• Interpret and critically evaluate data representations in digital media and elsewhere | **Other Key Ideas covered later** |
| **Syllabus Page :** 65 | **Syllabus Page :** 114 - 117 | **Syllabus Page :** 173 - 176 | **Syllabus Page :** 237 - 240 | **Syllabus Page** : 291 - 302 |
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# ES1 – Revision and S1, S2 & S3 – Chance (A)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Revision** | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• recognises and describes the elements of chance in everyday events MA1-18SP | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• describes and compares chance events in social and experimental contexts MA2-19SP | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• conducts chance experiments and assigns probabilities as values between 0 and 1 to describe their outcomes MA3-19SP | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• represents probabilities of simple and compound events MA4-21SP |
| **Focus Key Ideas for this week** | **Focus Key Ideas for this week**<br>• Use everyday language to describe chance events<br>• Recognise and describe the element of chance in familiar situations<br>• Identify practical activities and everyday events that involve chance | **Focus Key Ideas for this week**<br>• Conduct chance experiments<br>• Identify and describe possible 'outcomes' of chance experiments<br>• Predict and record all possible combinations in a chance situation<br>• Describe possible everyday events and order their chances of occurring | **Focus Key Ideas for this week**<br>• List outcomes of chance experiments involving equally likely outcomes<br>• Represent probabilities using fractions<br>• Recognise that probabilities range from 0 to 1<br>• Conduct chance experiments with both small and large numbers of trials | **Focus Key Ideas for this week** |
| | **Suggested Content from Syllabus**<br>• Identify outcomes of familiar events involving chance and describe them using everyday language, such as 'will happen', 'won't happen' or 'might happen' (ACMSP024)<br>• identify possible outcomes of familiar activities and events, e.g. the activities that might happen if the class is asked to sit on the floor in a circle<br>• use everyday language to describe the possible outcomes of familiar activities and events, e.g. 'will happen', 'might happen', 'won't happen', 'probably' | **Suggested Content from Syllabus**<br>• Conduct chance experiments, identify and describe possible outcomes, and recognise variation in results (ACMSP067)<br>• use the term 'outcome' to describe any possible result of a chance experiment<br>• predict and list all possible outcomes in a chance experiment, e.g. list the outcomes when three pegs are randomly selected from a bag containing an equal number of pegs of two colours | **Suggested Content from Syllabus**<br>• List outcomes of chance experiments involving equally likely outcomes and represent probabilities of those outcomes using fractions (ACMSP116)<br>• use the term 'probability' to describe the numerical value that represents the likelihood of an outcome of a chance experiment<br>• recognise that outcomes are described as 'equally likely' when any one outcome has the same chance of occurring as any other outcome<br>• list all outcomes in chance experiments where each outcome is equally likely to occur | **Suggested Content from Syllabus**<br>• Construct sample spaces for single-step experiments with equally likely outcomes (ACMSP167)<br>• use the term 'chance experiment' when referring to actions such as tossing a coin, rolling a die, or randomly selecting an object from a bag<br>• use the term 'outcome' to describe a possible result of a chance experiment and list all of the possible outcomes for a single-step experiment<br>• use the term 'sample space' to describe a list of all of the possible outcomes for a chance |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• Identify practical activities and everyday events that involve chance (ACMSP047)<br>• recognise and describe the element of chance in familiar activities and events, e.g. 'I might play with my friend after school'<br>• predict what might occur during the next lesson or in the near future, e.g. 'How many people might come to your party?', 'How likely is it to rain if there are no clouds in the sky?' (Communicating, Reasoning) | **Suggested Content Continued**<br>• predict and record all possible combinations in a chance situation, e.g. list all possible outfits when choosing from three different T-shirts and two different pairs of shorts<br>• predict the number of times each outcome should occur in a chance experiment involving a set number of trials, carry out the experiment, and compare the predicted and actual results<br>• keep a tally and graph the results of a chance experiment (Communicating)<br>• explain any differences between expected results and actual results in a chance experiment (Communicating)<br>• make statements that acknowledge 'randomness' in a situation, e.g. 'The spinner could stop on any colour' (Communicating, Reasoning)<br>• repeat a chance experiment several times and discuss why the results vary (Communicating)<br>• Describe possible everyday events and order their chances of occurring (ACMSP092)<br>• use the terms 'equally likely', 'likely' and 'unlikely' to describe the chance of everyday events occurring, e.g. 'It is equally likely that you will get an odd or an even number when you roll a die'<br>• compare and order the chance of familiar events occurring and describe the events as being 'more likely' or 'less likely' to occur than each other<br>• order events from least likely to most likely to occur, e.g. 'Having 10 children away sick on the same day is less likely than having one or two away' | **Suggested Content Continued**<br>• represent probabilities of outcomes of chance experiments using fractions, e.g. for one throw of a standard six-sided die or for one spin of an eight-sector spinner<br>• determine the likelihood of winning simple games by considering the number of possible outcomes, e.g. in a 'rock-paper-scissors' game (Problem Solving, Reasoning)<br>• Recognise that probabilities range from 0 to 1 (ACMSP117)<br>• establish that the sum of the probabilities of the outcomes of any chance experiment is equal to 1<br>• order commonly used chance words on an interval from zero ('impossible') to one ('certain'), e.g. 'equally likely' would be placed at $\frac{1}{2}$ (or 0.5)<br>• describe events that are impossible and events that are certain (Communicating)<br>• describe the likelihood of a variety of events as being more or less than a half (or 0.5) and order the events on an interval (Communicating)<br>• Conduct chance experiments with both small and large numbers of trials using appropriate digital technologies (ACMSP145)<br>• assign expected probabilities to outcomes in chance experiments with random generators, including digital simulators, and compare the expected probabilities with the observed probabilities after both small and large numbers of trials<br>• determine and discuss the differences between the expected probabilities and the observed probabilities after both small and large numbers of trials (Communicating, Reasoning)<br>• explain what happens to the observed probabilities as the number of trials increases (Communicating, Reasoning) | • experiment, e.g. if a standard six-sided die is rolled once, the sample space is {1,2,3,4,5,6}<br>• distinguish between equally likely outcomes and outcomes that are not equally likely in single-step chance experiments<br>• describe single-step chance experiments in which the outcomes are equally likely, e.g. the outcomes for a single toss of a fair coin (Reasoning)<br>• describe single-step chance experiments in which the outcomes are not equally likely, e.g. the outcomes for a single roll of a die with six faces labelled 1, 2, 3, 4, 4, 4 are not equally likely since the outcome '4' is three times more likely to occur than any other outcome (Communicating, Reasoning)<br>• design a spinner, given the relationships between the likelihood of each outcome, e.g. design a spinner with three colours, red, white and blue, so that red is twice as likely to occur as blue, and blue is three times more likely to occur than white (Problem Solving)<br>• Assign probabilities to the outcomes of events and determine probabilities for events<br>• use the term 'event' to describe either one outcome or a collection of outcomes in the sample space of a chance experiment, e.g. in the experiment of rolling a standard six-sided die once, obtaining the number '1' is an 'event'; similarly, obtaining a number divisible by three is also an event<br>• explain the difference between experiments, events, outcomes and the sample space in chance situations (Communicating)<br>• assign a probability of 0 to events that are impossible and a probability of 1 to events that are certain to occur |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | **Suggested Content Continued**<br>• compare the likelihood of obtaining particular outcomes in a simple chance experiment, e.g. for a collection of 7 red, 13 blue and 10 yellow marbles, name blue as being the colour most likely to be drawn out and recognise that it is impossible to draw out a green marble | **Suggested Content Continued**<br>• use samples to make predictions about a larger 'population' from which the sample comes, e.g. take a random sample of coloured lollies from a bag, calculate the probability of obtaining each colour of lolly when drawing a lolly from the bag, and use these probabilities and the total number of lollies in the bag to predict the number of each colour of lolly in the bag<br>• discuss whether a prediction about a larger population, from which a sample comes, would be the same if a different sample were used (Communicating, Reasoning) | **Suggested Content Continued**<br>• explain the meaning of the probabilities of 0, $\frac{1}{2}$, and 1 in a given chance situation (Communicating)<br>• assign probabilities to simple events by reasoning about equally likely outcomes, e.g. the probability of randomly drawing a card of the diamond suit from a standard pack of 52 playing cards is $\frac{13}{52} = \frac{1}{4}$<br>express the probability of an event, given a finite number of equally likely outcomes in the sample space, as *P*(event) = number of favourable outcomes total number of outcomes<br>• interpret and use probabilities expressed as fractions, percentages or decimals (Communicating)<br>• solve probability problems involving single-step experiments using cards, dice, spinners, etc.<br>• Identify complementary events and use the sum of probabilities to solve problems (ACMSP204)<br>• establish that the sum of the probabilities of all of the possible outcomes of a single-step experiment is 1<br>• identify and describe the complement of an event, e.g. the complement of the event 'rolling a six' when a rolling die is 'not rolling a six'<br>• establish that the sum of the probability of an event and its complement is 1, i.e. *P*(event)+ *P*(complement of event) = 1<br>• calculate the probability of a complementary event using the fact that the sum of the probabilities of complementary events is 1, e.g. the probability of 'rolling a six' when rolling a die is $\frac{1}{6}$, therefore the probability of the complementary event, 'not rolling a six', is $1 - \frac{1}{6} = \frac{5}{6}$ |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Vocabulary from Syllabus**<br>Will happen, might happen, won't happen. | **Vocabulary from Syllabus**<br>Chance, experiment, outcome, random, trials, tally, expected results, actual results. | **Vocabulary from Syllabus**<br>Chance, event, likelihood, equally likely, experiment, outcome, expected outcomes, random, fair, trials, probability, expected probability, observed probability, frequency, expected frequency, observed frequency. | **Vocabulary from Syllabus** |
| | **Other Key Ideas covered later**<br>• Describe events as 'likely' or 'unlikely'<br>• Distinguish between 'possible' and 'impossible' events<br>• Identify some events as 'certain' or impossible | **Other Key Ideas covered later**<br>• Identify everyday events where one cannot happen if the other happens<br>• Identify events where the chance of one will not be affected by the occurrence of the other | **Other Key Ideas covered later**<br>• Compare observed frequencies in chance experiments with expected frequencies<br>• Represent probabilities using fractions, decimals and percentages | **Other Key Ideas covered later** |
| | **Syllabus Page :** | **Syllabus Page :** 177 - 179 | **Syllabus Page :** 241 - 244 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Term 3

# Whole Numbers (E)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• counts to 30, and orders, reads and represents numbers in the range 0 to 20 MAe-4NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• applies place value, informally, to count, order, read and represent two- and three-digit numbers MA1-4NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• applies place value to order, read and represent numbers of up to five digits MA2-4NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• orders, reads and represents integers of any size and describes properties MA3-4NA | **Syllabus Outcomes** |
| **Focus Key Ideas for this week**<br>• Use the language of money | **Focus Key Ideas for this week**<br>• Recognise, describe and order Australian coins according to their value<br>• Recognise, count and order Australian coins and notes according to their value | **Focus Key Ideas for this week**<br>• Read, write and order numbers up to five digits | **Focus Key Ideas for this week**<br>• Determine factors and multiples of whole numbers | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• use the language of money in everyday contexts, e.g. coins, notes, cents, dollars<br>• recognise that there are different coins and notes in our monetary system<br>• exchange money for goods in a play situation (Problem Solving) | **Suggested Content from Syllabus**<br>• Recognise, describe and order Australian coins according to their value (ACMNA017)<br>• identify, sort, order and count money using the appropriate language in everyday contexts, e.g. coins, notes, cents, dollars<br>• recognise that total amounts can be made using different denominations, e.g. 20 cents can be made using a single coin or two 10-cent coins<br>• recognise the symbols for dollars ($) and cents (c)<br>• Count and order small collections of Australian coins and notes according to their value (ACMNA034)<br>• use the face value of coins and notes to sort, order and count money | **Suggested Content from Syllabus**<br>• Recognise, represent and order numbers to at least tens of thousands (ACMNA072)<br>• apply an understanding of place value to read and write numbers of up to five digits<br>• arrange numbers of up to five digits in ascending and descending order<br>• state the place value of digits in numbers of up to five digits | **Suggested Content from Syllabus**<br>• Identify and describe factors and multiples of whole numbers and use them to solve problems (ACMNA098)<br>• determine all factors of a given whole number, e.g. 36 has factors 1, 2, 3, 4, 6, 9, 12, 18 and 36<br>• determine the highest common factor (HCF) of two whole numbers, e.g. the HCF of 16 and 24 is 8<br>• determine multiples of a given whole number, e.g. multiples of 7 are 7, 14, 21, 28,<br>• determine the lowest common multiple (LCM) of two whole numbers, e.g. the LCM of 21 and 63 is 63<br>• determine whether a particular number is a factor of a given number using digital technologies | **Suggested Content from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested content Continued**<br>• compare Australian coins and notes with those from other countries, e.g. from students' cultural backgrounds<br>• determine whether there is enough money to buy a particular item (Problem Solving, Reasoning)<br>• recognise that there are 100 cents in $1, 200 cents in $2,<br>• identify equivalent values in collections of coins and in collections of notes, e.g. four $5-dollar notes have the same value as one $20-dollar note | | **Suggested content Continued**<br>• recognise that when a given number is divided by one of its factors, the result must be a whole number (Problem Solving)<br>• solve problems using knowledge of factors and multiples, e.g. 'There are 48 people at a party. In how many ways can you set up the tables and chairs, so that each table seats the same number of people and there are no empty chairs?' | |
| **Vocabulary from Syllabus**<br>Count forwards, count backwards, more than, less than, zero, ones, teen numbers, 'how many'. | **Vocabulary from Syllabus**<br>Count forwards, count backwards, number before, number after, more than, less than, number line, number chart, digit, zero, ones, groups of ten, tens, round to. | **Vocabulary from Syllabus**<br>Number before, number after, more than, greater than, less than, largest, smallest, ascending, descending, order, digit, zero, ones, groups of ten, tens, groups of one hundred, hundreds, groups of one thousand, thousands, place value, round to. | **Vocabulary from Syllabus**<br>Ascending order, descending order, zero, ones, tens, hundreds, thousands, tens of thousands, hundreds of thousands, millions, digit, place value, expanded notation, round to, whole number, | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Counts forwards to 30 from a given number<br>• Counts backwards from a given number in the range 0 to 20<br>• Compare, order, read and represent numbers to at least 20<br>• Read and use the ordinal names to at least 'tenth'<br>• Subitise small collections of objects<br>• Use the term 'is the same as' to express equality of groups | **Other Key Ideas covered later**<br>• Count forwards and backwards by ones from any starting point<br>• Partition two-digit numbers using place value<br>• Read, write and order two-digit numbers<br>• Read and use ordinal names to at least 'thirty-first'<br>• Count forwards and backwards by twos, threes, fives and tens from any starting point<br>• Partition numbers up to three digits using place value<br>• Read write and order three-digit numbers | **Other Key Ideas covered later**<br>• Count forwards and backwards by tens and hundreds from any starting point<br>• State the place value of digits in numbers up to four digits<br>• Read, write and order numbers up to four digits<br>• State the place value of digits in numbers up to five digits<br>• Record numbers up to five digits using expanded notation | **Other Key Ideas covered later**<br>• Read, write and order numbers of any size<br>• State the place value of digits in numbers of any size<br>• Record numbers of any size using expanded notation<br>• Recognise the location of negative numbers in relation to zero on a number line<br>• Identify and describe prime and composite numbers<br>• Model and describe square and triangular numbers | **Other Key Ideas covered later** |
| Syllabus Page : 40-42 | Syllabus Page : 66-69 | Syllabus Page : 120-121 | Syllabus Page : 180-181 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# ES1 & S1 - Whole Numbers (F) and S2 & S3 – Patterns & Algebra (C)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• counts to 30, and orders, reads and represents numbers in the range 0 to 20 MAe-4NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• applies place value, informally, to count, order, read and represent two- and three-digit numbers MA1-4NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• generalises properties of odd and even numbers, generates number patterns, and completes simple number sentences by calculating missing values MA2-8NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• analyses and creates geometric and number patterns, constructs and completes number sentences, and locates points on the Cartesian plane MA3-8NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• generalises number properties to operate with algebraic expressions MA4-8NA |
| **Focus Key Ideas for this week**<br>• Read and use the ordinal names to at least 'tenth | **Focus Key Ideas for this week**<br>• Read and use ordinal names to at least 'thirty-first' | **Focus Key Ideas for this week**<br>• Find missing values in number sentences involving an operation of addition or subtraction on both sides of the equals sign | **Focus Key Ideas for this week**<br>• Find missing values in number sentences involving an operation of multiplication or division on both sides of the equals sign | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• read numbers to at least 20, including zero, and represent these using objects (such as fingers), pictures, words and numerals<br>• recognise numbers in a variety of contexts, e.g. classroom charts, cash register, computer keyboard, telephone (Communicating)<br>• communicate the use of numbers through everyday language, actions, materials and informal recordings (Communicating)<br>• estimate the number of objects in a group of up to 20 objects, and count to check (Reasoning)<br>• use 5 as a reference in forming numbers from 6 to 10, e.g. 'Six is one more than five' | **Suggested Content from Syllabus**<br>• represent two-digit numbers using objects, pictures, words and numerals<br>• apply an understanding of place value and the role of zero to read, write and order two-digit numbers<br>• give reasons for placing a set of numbers in a particular order (Communicating, Reasoning)<br>• round numbers to the nearest ten<br>• estimate, to the nearest ten, the number of objects in a collection and check by counting, e.g. estimate the number of children in a room to the nearest ten | **Suggested Content from Syllabus**<br>• Use equivalent number sentences involving addition and subtraction to find unknown quantities (ACMNA083)<br>• complete number sentences involving addition and subtraction by calculating missing numbers, e.g. find the missing numbers:<br>☐ +55 = 83, ☐- 15 = 19<br>• use inverse operations to complete number sentences<br>• justify solutions when completing number sentences (Communicating, Reasoning)<br>• find the missing number in a number sentence involving operations of addition or subtraction on both sides of the equals sign, e.g. 8 + ☐ = 6 + 7 | **Suggested Content from Syllabus**<br>• complete number sentences that involve more than one operation by calculating missing numbers, e.g.<br>5 x ☐= 4 x 10 , 5 x ☐= 30 -10<br>• describe strategies for completing simple number sentences and justify solutions (Communicating, Reasoning)<br>• identify and use inverse operations to assist with the solution of number sentences,<br>e.g. 125÷ 5 =☐ becomes<br>☐ x 5 = 125<br>• describe how inverse operations can be used to solve a number sentence (Communicating, Reasoning) | **Suggested Content from Syllabus**<br>• Create algebraic expressions and evaluate them by substituting a given value for each variable (ACMNA176)<br>• substitute into algebraic expressions and evaluate the result<br>• calculate and compare the value of $x2$ for values of $x$ with the same magnitude but opposite sign<br>• generate a number pattern from an algebraic expression,<br>• Extend and apply the distributive law to the expansion of algebraic expressions (ACMNA190)<br>• expand algebraic expressions by removing grouping symbols, e.g.<br>$3(a + 2) = 3a + 6$<br>$-5(x + 2) = -5x - 10$<br>$a(a + b) = a^2 + ab$ |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested content Continued**<br>• use 10 as a reference in forming numbers from 11 to 20, e.g. 'Thirteen is 1 group of ten and 3 ones' | | | **Suggested content Continued**<br>• complete number sentences involving multiplication and division, including those involving simple fractions or decimals,<br>e.g. 7 x ☐ = 7.7<br>• check solutions to number sentences by substituting the solution into the original question (Reasoning)<br>• write number sentences to match word problems that require finding a missing number, e.g. 'I am thinking of a number so that when I double it and add 5, the answer is 13. What is the number?' | **Suggested content Continued**<br>• connect algebra with the distributive property of arithmetic to determine that $a(b+c) = ab+ac$ (Communicating)<br>• Factorise algebraic expressions by identifying numerical factors (ACMNA191)<br>• factorise a single algebraic term, e.g. $6ab = 3 \times 2 \times a \times b$<br>• factorise algebraic expressions by finding a common factor, e.g. $6a+12 = 6(a+2)$ $-4t-12 = -4(t+3)$<br>• check expansions and factorisations by performing the reverse process (Reasoning)<br>• Factorise algebraic expressions by identifying algebraic factors<br>• factorise algebraic expressions by finding a common algebraic factor, e.g. $x^2 - 5x = x(x-5)$ $5ab+10a = 5a(b+2)$ |
| **Vocabulary from Syllabus**<br>Count forwards, count backwards, more than, less than, zero, ones, teen numbers, 'how many'. | **Vocabulary from Syllabus**<br>Count forwards, count backwards, number before, number after, more than, less than, number line, number chart, digit, zero, ones, groups of ten, tens, round to. | **Vocabulary from Syllabus**<br>Pattern, goes up by, goes down by, rows, digit, multiplication facts. | **Vocabulary from Syllabus**<br>Pattern, increase, decrease, | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Counts forwards to 30 from a given number<br>• Counts backwards from a given number in the range 0 to 20<br>• Compare, order, read and represent numbers to at least 20<br>• Subitise small collections of objects<br>• Use the term 'is the same as' to express equality of groups<br>• Use the language of money | **Other Key Ideas covered later**<br>• Count forwards and backwards by ones from any starting point<br>• Partition two-digit numbers using place value<br>• Read, write and order two-digit numbers<br>• Recognise, describe and order Australian coins according to their value<br>• Count forwards and backwards by twos, threes, fives and tens from any starting point<br>• Partition numbers up to three digits using place value<br>• Read write and order three-digit numbers<br>• Recognise, count and order Australian coins and notes according to their value | **Other Key Ideas covered later**<br>• Recognise, continue, create, describe and record increasing and decreasing number patterns<br>• Identify odd and even numbers of up to four-digits<br>• Investigate and use the properties of odd and even number<br>• Recognise, continue and describe number patterns resulting from performing multiplication<br>• Find missing values in number sentences involving one operation of multiplication or division | **Other Key Ideas covered later**<br>• Recognise, continue create and describe increasing and decreasing number patterns with fractions, decimals and whole numbers<br>• Create, record and describe geometric and number patterns in words<br>• Create, record and describe geometric and number patterns in words<br>• Determine the rule for geometric and number patterns in words and use the rule to calculate values<br>• Locate and describe points on the number plane in all four quadrants | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| Syllabus Page : 40-42 | Syllabus Page : 66-69 | **Syllabus Page :** 137 - 140 | **Syllabus Page :** 203 - 207 | **Syllabus Page :** 257 - 261 |
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# Time (D)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• sequences events, using everyday language to describe the durations of activities, and reads hour time on clocks MAe-13MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• describes, compares and orders durations of events, and reads half- and quarter-hour time | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• reads and records time in one-minute intervals and converts between hours, minutes and seconds MA2-13MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• uses 24-hour time and am and pm notation in real-life situations, and constructs timelines MA3-13MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• performs calculations of time that involve mixed units, and interprets time zones MA4-15MG |
| **Focus Key Ideas for this week**<br>• Tell time on the hour on digital and analog clocks | **Focus Key Ideas for this week**<br>• Tell time to the quarter-hour, using the language of 'past' and 'to' | **Focus Key Ideas for this week**<br>• Tell time to the minute, using the language of 'past' and 'to'<br>• Use and interpret am and pm notation | **Focus Key Ideas for this week**<br>• Draw and interpret timelines using the given scale | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Tell time on the hour on analog and digital clocks<br>• read analog and digital clocks to the hour using the term 'o'clock'<br>• describe the position of the hands on an analog clock when reading hour time | **Suggested Content from Syllabus**<br>• Tell time to the quarter-hour using the language of 'past' and 'to' (ACMMG039)<br>• read analog and digital clocks to the quarter-hour using the terms 'past' and 'to', e.g. 'It is a quarter past three', 'It is a quarter to four'<br>• describe the position of the hands on a clock for quarter past and quarter to<br>• describe the hands on a clock as turning in a 'clockwise' direction (Communicating)<br>• associate the numerals 3, 6 and 9 with 15, 30 and 45 minutes and with the terms 'quarter past', 'half past' and 'quarter to' respectively<br>• identify which hour has just passed when the hour hand is not pointing to a numeral<br>• record quarter-past and quarter-to time on analog and digital clocks | **Suggested Content from Syllabus**<br>• read analog and digital clocks to the minute, including using the terms 'past' and 'to', e.g. 7:35 is read as 'seven thirty-five' or 'twenty-five to eight'<br>• record in words various times shown on analog and digital clocks<br>• Use am and pm notation and solve simple time problems (ACMMG086)<br>• record digital time using the correct notation, including am and pm, e.g. 9:15 am<br>• describe times given using am and pm notation in relation to 'midday' (or 'noon') and 'midnight', e.g. '3:15 pm is three and a quarter hours after midday' (Communicating)<br>• relate analog notation to digital notation for time, e.g. ten to nine in the morning is the same time as 8:50 am | **Suggested Content from Syllabus**<br>• Draw and interpret timelines using a given scale<br>• determine a suitable scale and draw an accurate timeline using the scale, e.g. represent events using a many-to-one scale of 1 cm = 10 years<br>• interpret a given timeline using the given scale | **Suggested Content from Syllabus**<br>• Solve problems involving duration, including using 12- and 24-hour time within a single time zone<br>• add and subtract time mentally using bridging strategies, e.g. from 2:45 to 3:00 is 15 minutes and from 3:00 to 5:00 is 2 hours, so the time from 2:45 until 5:00 is 15 minutes + 2 hours = 2 hours 15 minutes<br>• add and subtract time with a calculator using the 'degrees, minutes, seconds' button<br>• round calculator answers to the nearest minute or hour<br>• interpret calculator displays for time calculations, e.g. 2.25 on a calculator display for time means $2\frac{1}{4}$ hours<br>• solve problems involving duration, including where times are expressed in 12-hour and 24- hour notation, and duration that requires the use of days, hours and minutes in its calculation |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | **Suggested Content Continued**<br>• solve simple time problems using appropriate strategies, e.g. calculate the time spent on particular activities during the school day | | **Suggested Content Continued**<br>• solve problems involving calculations with mixed time units, e.g. 'How old is a person today if he or she was born on 30/6/1999?'<br>• Solve problems involving international time zones<br>• compare times in, and calculate time differences between, major cities of the world, e.g. 'Given that London is 10 hours behind Sydney, what time is it in London when it is 6:00 pm in Sydney?'<br>• interpret and use information related to international time zones from maps (Problem Solving)<br>• solve problems about international time relating to everyday life. |
| **Vocabulary from Syllabus**<br>Daytime, night-time, yesterday, today, tomorrow, before, after, next, a long time, a short time, week, days, weekdays, weekend days, time, morning, afternoon, clock, analog, digital, hands (of a clock), o'clock. | **Vocabulary from Syllabus**<br>Calendar, days, date, month, year, seasons, time, clock, analog, digital, hour hand, minute hand, o'clock, half past. | **Vocabulary from Syllabus**<br>Calendar, date, timetable, timeline, time, hour, minute, second, midday, noon, midnight, am (notation), pm (notation). | **Vocabulary from Syllabus**<br>Timetable, timeline, scale, 12-hour time, 24-hour time, hour, minute, second, am (notation), pm (notation). | **Vocabulary from Syllabus**<br>The words 'minute' (meaning 'small') and 'minute' (a time measure), although pronounced differently, are really the same word. A minute (time) is a minute (small) part of one hour. A minute (angle) is a minute (small) part of a right angle. |
| **Other Key Ideas covered later**<br>• Connect days of the week to familiar events and actions<br>• Compare and order the duration of events using the everyday language of time<br>• Sequence events in time | **Other Key Ideas covered later**<br>• Name and order months and seasons<br>• Use a calendar to identify the date and determine the number of days in each month<br>• Describe duration using months, weeks, days and hours<br>• Tell time to the half-hour | **Other Key Ideas covered later**<br>• Read and interpret simple timetables, timelines and calendars<br>• Recognise the coordinated movements of the hands on a clock<br>• Convert between seconds, minutes, hours and days | **Other Key Ideas covered later**<br>• Determine and compare duration of events<br>• Interpret and use timetables<br>• Convert between 12- and 24- hour time | **Other Key Ideas covered later** |
| **Syllabus Page :** 58 - 59 | **Syllabus Page :** 100 - 103 | **Syllabus Page :** 156 - 158 | **Syllabus Page :** 220 - 221 | **Syllabus Page :** 279 - 280 |
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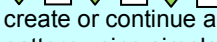
# Patterns & Algebra (D)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• recognises, describes and continues repeating patterns MAe-8NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• creates, represents and continues a variety of patterns with numbers and objects<br>• MA1-8NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• generalises properties of odd and even numbers, generates number patterns, and completes simple number sentences by calculating missing values MA2-8NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• analyses and creates geometric and number patterns, constructs and completes number sentences, and locates points on the Cartesian plane MA3-8NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• generalises number properties to operate with algebraic expressions MA4-8NA |
| **Focus Key Ideas for this week**<br>• Sort and classify objects into groups<br>• Recognise, continue, copy, create and describe repeating patterns of objects and drawings | **Focus Key Ideas for this week**<br>• Describe patterns with numbers and identify missing elements | **Focus Key Ideas for this week**<br>• Recognise, continue and describe number patterns resulting from performing multiplication | **Focus Key Ideas for this week**<br>• Determine the rule for geometric and number patterns in words and use the rule to calculate values | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• sort and classify a group of familiar objects into smaller groups<br>• recognise that a group of objects can be sorted and classified in different ways<br>• explain the basis for their classification of objects (Communicating, Reasoning)<br>• Copy, continue and create patterns with objects and drawings<br>• recognise, copy and continue repeating patterns using sounds and/or actions<br>• recognise, copy, continue and create repeating patterns using shapes, objects or pictures, e.g.  <br>• create or continue a repeating pattern using simple computer graphics (Problem Solving) | **Suggested Content from Syllabus**<br>• Describe patterns with numbers and identify missing elements (ACMNA035)<br>• describe a number pattern in words, e.g. 'It goes up by threes'<br>• determine a missing number in a number pattern, e.g. 3, 7, 11, __, 19, 23, 27<br>• describe how the missing number in a number pattern was determined (Communicating, Reasoning)<br>• check solutions when determining missing numbers in number patterns by repeating the process (Reasoning) | **Suggested Content from Syllabus**<br>• Investigate number sequences involving multiples of 3, 4, 6, 7, 8 and 9 (ACMNA074)<br>• generate number patterns using multiples of 3, 4, 6, 7, 8 and 9, e.g. 3, 6, 9, 12, ...<br>• investigate visual number patterns on a number chart (Problem Solving)<br>• Explore and describe number patterns resulting from performing multiplication (ACMNA081)<br>• use the word 'term' when referring to numbers in a number pattern<br>• describe the position of each term in a given number pattern, e.g. 'The first term is 6' (Communicating) | **Suggested Content from Syllabus**<br>• identify, continue and create simple number patterns involving addition and subtraction<br>• describe patterns using the terms 'increase' and 'decrease', e.g. for the pattern 48, 41, 34, 27, , 'The terms decrease by seven' (Communicating, Reasoning)<br>• create, with materials or digital technologies, a variety of patterns using whole numbers, fractions or decimals, e.g. $\frac{1}{4}, \frac{2}{4}, \frac{3}{4}, \frac{4}{4}, \frac{5}{4}, \frac{6}{4}$ or 2.2, 2.0, 1.8, 1.6, ...<br>• use a number line or other diagram to create patterns involving fractions or decimals<br>• Continue and create sequences involving whole numbers, fractions and decimals; describe the rule used to create the sequence | **Suggested Content from Syllabus**<br>• Introduce the concept of variables as a way of representing numbers using letters<br>• use letters to represent numbers and develop the concept that pronumerals (letters) are used to represent numerical values<br>• model the following using concrete materials or otherwise: • expressions that involve a pronumeral, and a pronumeral added to a constant, e.g. $a$, $a + 1$ • expressions that involve a pronumeral multiplied by a constant, e.g. $2a$, $3a$<br>• sums and products, e.g. $2a + 1$, $2(a + 1)$<br>• equivalent expressions, such as $x + x + y + y + y = 2x + 2y + y = 2(x + y) + y$ |

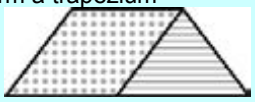
| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• recognise when an error occurs in a pattern and explain what is wrong (Communicating, Reasoning)<br>• describe a repeating pattern made from shapes by referring to distinguishing features, e.g. 'I have made my pattern from squares. The colours repeat. They go red, blue, red, blue, ' | | **Suggested Content Continued**<br>• find a higher term in a number pattern resulting from performing multiplication, given the first few terms, e.g. determine the next term in the pattern 4, 8, 16, 32, 64,<br>• describe how the next term in a number pattern is calculated, e.g. 'Each term in the pattern is double the previous term' (Communicating)<br>• Solve word problems by using number sentences involving multiplication or division where there is no remainder (ACMNA082)<br>• complete number sentences involving multiplication and division by calculating missing numbers, e.g. find the missing numbers:<br>28 = ☐ x 7 , 40 ÷ ☐ = 5<br>• represent and solve multiplication and division word problems using number sentences, e.g. 'I buy six pens and the total cost is $24. What is the cost of each pen?' can be represented as<br>6 x ☐ = 24 or 24 ÷ 6 = ☐<br>• discuss whether it is more appropriate to represent the problem using × or ÷ in order to calculate the solution (Communicating, Reasoning)<br>• pose a word problem based on a given number sentence,<br>e.g. given 4 x ☐= 28, a problem could be: 'I have 28 cans of drink and stack them into rows of 4. How many rows will there be?' (Communicating, Problem Solving, Reasoning) | **Suggested Content Continued**<br>• continue and create number patterns, with and without digital technologies, using whole numbers, fractions and decimals, e.g. $\frac{1}{4}, \frac{1}{8}, \frac{1}{16}$ or 1.25, 2.5, 5,<br>• describe how number patterns have been created and how they can be continued (Communicating, Problem Solving)<br>• create simple geometric patterns using concrete materials, e.g.<br>• complete a table of values for a geometric pattern and describe the pattern in words, e.g.<br>☐ , ☐☐ ,☐☐☐ ,<br>Number of squares: 1, 2, 3, 4, 50<br>Number of matches: 4, 8, 12, 16, <br>• describe the number pattern in a variety of ways and record descriptions using words, e.g. 'It looks like the multiplication facts for four'<br>• determine the rule to describe the pattern by relating the bottom number to the top number in a table, e.g. 'You multiply the number of squares by four to get the number of matches'<br>• use the rule to calculate the corresponding value for a larger number, e.g. 'How many matches are needed to create 100 squares?'<br>• complete a table of values for number patterns involving one operation (including patterns that decrease) and describe the pattern in words, e.g.<br>Position in pattern: 1, 2, 3, 4, 5<br>Value of term: 4, 5, 6, 7, <br>• describe the pattern in a variety of ways and record descriptions in words, e.g. 'It goes up by ones, starting from four' | **Suggested Content Continued**<br>• simplifying expressions, e.g.<br>$(a+2)+(2a+3)=(a+2a)+(2+3)=3a+5$<br>• recognise and use equivalent algebraic expressions, e.g.<br>$y+y+y+y=4y$<br>$w \times w = w2$<br>$a \times b = ab$<br>$a \div b = \frac{a}{b}$<br>use algebraic symbols to represent mathematical operations written in words and vice versa, e.g. the product of $x$ and $y$ is $xy$, $x + y$ is the sum of $x$ and $y$<br>• Extend and apply the laws and properties of arithmetic to algebraic terms and expressions<br>• recognise like terms and add and subtract them to simplify algebraic expressions,<br>e.g. $2n+4m+n=4m+3n$<br>• verify whether a simplified expression is correct by substituting numbers for pronumerals<br>• connect algebra with the commutative and associative properties of arithmetic to determine that $a+b=b+a$ and $(a+b)+c=a+(b+c)$<br>• recognise the role of grouping symbols and the different meanings of expressions, such as $2a + 1$ and $2(a + 1)$<br>• translate from everyday language to algebraic language<br>• use algebraic symbols to represent simple situations described in words, e.g. write an expression for the number of cents in $x$ dollars<br>• interpret statements involving algebraic symbols in other contexts, e.g. cell references when creating and formatting spreadsheets (Communicating) |

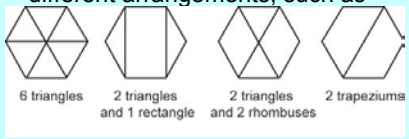
| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | | **Suggested Content Continued**<br>• determine a rule to describe the pattern from the table, e.g. 'To get the value of the term, you add three to the position in the pattern'<br>• use the rule to calculate the value of the term for a large position number, e.g. 'What is the 55th term of the pattern?'<br>• explain why it is useful to describe the rule for a pattern by describing the connection between the position in the pattern and the value of the term<br>• interpret explanations written by peers and teachers that accurately describe geometric and number patterns (Communicating)<br>• make generalisations about numbers and number relationships, e.g. 'If you add a number and then subtract the same number, the result is the number you started with'. | **Suggested Content Continued**<br>• simplify algebraic expressions that involve multiplication and division, e.g. $12a \div 3$, $4x \times 3$, $2ab \times 3a$, $\frac{8a}{2}$, $\frac{2a}{8}$, $\frac{12a}{9}$<br>• recognise the equivalence of algebraic expressions involving multiplication, e.g. $3bc = 3cb$<br>• connect algebra with the commutative and associative properties of arithmetic to determine that $a \times b = b \times a$ and $(a \times b) \times c = a \times (b \times c)$<br>• recognise whether particular algebraic expressions involving division are equivalent or not, e.g. $a \div bc$ is equivalent to $\frac{a}{bc}$ and $a \div (b \times c)$ but is not equivalent to $a \div b \times c$ or $\frac{a}{b} \times c$<br>• Simplify algebraic expressions involving the four operations<br>• simplify a range of algebraic expressions, including those involving mixed operations<br>• apply the order of operations to simplify algebraic expressions |
| **Vocabulary from Syllabus**<br>Group, pattern, repeat. | **Vocabulary from Syllabus**<br>Pattern, number line, number chart. | **Vocabulary from Syllabus**<br>Pattern, goes up by, goes down by, rows, digit, multiplication facts. | **Vocabulary from Syllabus**<br>Pattern, increase, decrease, | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Recognise, continue, create and describe increasing and decreasing number patterns<br>• Recognise, create, continue and describe repeating patterns of objects or symbols as number patterns<br>• Model and describe odd and even numbers<br>• Find missing values in number sentences involving one operation of addition or subtraction | **Other Key Ideas covered later**<br>• Recognise, continue, create, describe and record increasing and decreasing number patterns<br>• Identify odd and even numbers of up to four-digits<br>• Investigate and use the properties of odd and even numbers<br>• Find missing values in number sentences involving an operation of addition or subtraction on both sides of the equals sign<br>• Find missing values in number sentences involving one operation of multiplication or division | **Other Key Ideas covered later**<br>• Recognise, continue create and describe increasing and decreasing number patterns with fractions, decimals and whole numbers<br>• Create, record and describe geometric and number patterns in words<br>• Find missing values in number sentences involving an operation of multiplication or division on both sides of the equals sign<br>• Locate and describe points on the number plane in all four quadrants | **Other Key Ideas covered later** |
| **Syllabus Page :** 48 - 49 | **Syllabus Page :** 83 - 86 | **Syllabus Page :** 137 - 140 | **Syllabus Page :** 203 - 207 | **Syllabus Page :** 257 - 261 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

Return to Yearly Overview

# Space 2D (B)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• manipulates, sorts and describes representations of two-dimensional shapes, including circles, triangles, squares and rectangles, using everyday language MAe-15MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• manipulates, sorts, represents, describes and explores two-dimensional shapes, including quadrilaterals, pentagons, hexagons and octagons MA1-15MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• manipulates, classifies and sketches two-dimensional shapes, including special quadrilaterals, and describes their features MA2-15MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• manipulates, classifies and draws two-dimensional shapes, including equilateral, isosceles and scalene triangles, and describes their properties MA3-15MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• classifies, describes and uses the properties of triangles and quadrilaterals, and determines congruent triangles to find unknown side lengths and angles MA4-17MG |
| **Focus Key Ideas for this week**<br>• Sort, manipulate, make and draw circles, squares, triangles and rectangles | **Focus Key Ideas for this week**<br>• Identify horizontal, vertical and parallel lines<br>• Make and draw shapes in different orientations | **Focus Key Ideas for this week**<br>• Combine common shapes to form other shapes and record the arrangement<br>• Split common shapes into other shapes and record the result | **Focus Key Ideas for this week**<br>• Make and compare enlargements of shapes/pictures<br>• Draw and describe diagonals of shapes<br>• Identify and name parts of circles | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• sort two-dimensional shapes according to features such as size and shape<br>• recognise and explain how a group of two-dimensional shapes has been sorted (Communicating, Reasoning)<br>• manipulate circles, squares, triangles and rectangles, and describe features using everyday language, e.g. 'A square has four sides'<br>• turn two-dimensional shapes to fit into or match a given space (Problem Solving)<br>• make representations of two-dimensional shapes using a variety of materials, including<br>• paint, paper, body movements and computer drawing tools | **Suggested Content from Syllabus**<br>• Recognise and classify familiar two-dimensional shapes using obvious features (ACMMG022)<br>• identify vertical and horizontal lines in pictures and the environment and use the terms 'vertical' and 'horizontal' to describe such lines<br>• relate the terms 'vertical' and 'horizontal' to 'portrait' and 'landscape' page orientation when using digital technologies (Communicating)<br>• identify parallel lines in pictures and the environment and use the term 'parallel' to describe such lines<br>• recognise that parallel lines can occur in orientations other than vertical and horizontal (Reasoning) | **Suggested Content from Syllabus**<br>• Compare and describe two-dimensional shapes that result from combining and splitting common shapes, with and without the use of digital technologies (ACMMG088)<br>• combine common two-dimensional shapes, including special quadrilaterals, to form other common shapes or designs, e.g. combine a rhombus and a triangle to form a trapezium<br>  <br>• describe and/or name the shape formed from a combination of common shapes (Communicating) | **Suggested Content from Syllabus**<br>• Apply the enlargement transformation to familiar two-dimensional shapes and explore the properties of the resulting image compared with the original (ACMMG115)<br>• make enlargements of two-dimensional shapes, pictures and maps, with and without the use of digital technologies<br>• overlay an image with a grid composed of small cells (e.g. 5 mm by 5 mm) and create an enlargement by drawing the contents of each cell onto a grid composed of larger cells (e.g. 2 cm by 2 cm) (Communicating, Problem Solving) | **Suggested Content from Syllabus**<br>• Define congruence of plane shapes using transformations (ACMMG200)<br>• identify congruent figures by superimposing them through a combination of rotations, reflections and translations<br>• recognise congruent figures in tessellations, art and design work<br>• recognise that area, length of matching sides, and angle sizes are preserved in congruent figures (Reasoning)<br>• match sides and angles of two congruent polygons<br>• name vertices in matching order when using the symbol ≡ in a congruence statement<br>• determine the condition for two circles to be congruent (equal radii) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• make pictures and designs using a selection of shapes, e.g. make a house from a square and a triangle (Communicating)<br>• draw a two-dimensional shape by tracing around one face of a three-dimensional object<br>• draw closed two-dimensional shapes without tracing<br>• recognise and explain the importance of closing the shape when drawing a shape (Communicating, Reasoning) | **Suggested Content Continued**<br>• give everyday examples of parallel lines, e.g. railway tracks<br>• Describe and draw two-dimensional shapes, with and without digital technologies (ACMMG042)<br>• make representations of two-dimensional shapes in different orientations using concrete materials<br>• combine and split single shapes and arrangements of shapes to form new shapes, e.g. create a hexagon from six triangles (Communicating)<br>• draw and name two-dimensional shapes in different orientations with and without digital technologies<br>• recognise that the name of a shape does not change if its size or orientation in space is changed (Reasoning) | **Suggested Content Continued**<br>• follow written or verbal instructions to create a common shape using a specified set of two or more common shapes, e.g. create an octagon from five squares and four triangles (Communicating)<br>• use digital technologies to construct a design or logo by combining common shapes (Communicating)<br>• split a given shape into two or more common shapes and describe the result, e.g. 'I split the parallelogram into a rectangle and two equal-sized triangles'<br>  <br>• compare the area of the given shape with the area of each of the shapes it is split into, e.g. if a pentagon is split into five equal triangles, describe the area of the pentagon as five times the area of one triangle, or the area of one triangle as $\frac{1}{5}$ of the area of the pentagon (Communicating, Reasoning)<br>• record the arrangements of common shapes used to create other shapes, or after splitting other shapes, in diagrammatic form, with and without the use of digital technologies<br>• record different combinations of common shapes that can be used to form a particular regular polygon, e.g. a hexagon can be created from, or split into, many different arrangements, such as<br>  <br><br>(Communicating, Problem Solving) | **Suggested Content Continued**<br>• investigate and use functions of digital technologies that allow shapes and images to be enlarged without losing the relative proportions of the image (Problem Solving)<br>• compare representations of shapes, pictures and maps in different sizes, e.g. student drawings enlarged on a photocopier<br>• measure an interval on an original representation and its enlargement to determine how many times larger than the original the enlargement is (Problem Solving, Reasoning)<br>• Investigate the diagonals of two-dimensional shapes<br>• identify and name 'diagonals' of convex two-dimensional shapes<br>• recognise the endpoints of diagonals of shapes as the vertices of the shape (Communicating)<br>• determine and draw all the diagonals of convex two-dimensional shapes<br>• compare and describe diagonals of different convex two-dimensional shapes<br>• use measurement to determine which of the special quadrilaterals have diagonals that are equal in length (Problem Solving)<br>• determine whether any of the diagonals of a particular shape are also lines (axes) of symmetry of the shape (Problem Solving)<br>• Identify and name parts of circles<br>• create a circle by finding points that are all the same distance from a fixed point (the centre)<br>• identify and name parts of a circle, including the centre, radius, diameter, circumference, sector, semicircle and quadrant | **Suggested Content Continued**<br>• Develop the conditions for congruence of triangles (ACMMG201)<br>• investigate the minimum conditions needed, and establish the four tests, for two triangles to be congruent:<br>▪ if three sides of one triangle are respectively equal to three sides of another triangle, then the two triangles are congruent (SSS rule)<br>▪ if two sides and the included angle of one triangle are respectively equal to two sides and the included angle of another triangle, then the two triangles are congruent (SAS rule)<br>▪ if two angles and one side of one triangle are respectively equal to two angles and the matching side of another triangle, then the two triangles are congruent (AAS rule)<br>▪ if the hypotenuse and a second side of one right-angled triangle are respectively equal to the hypotenuse and a second side of another right-angled triangle, then the two triangles are congruent (RHS rule)<br>• use dynamic geometry software and/or geometrical instruments to investigate what information is needed to show that two triangles are congruent (Problem Solving)<br>• explain why the angle in the SAS test must be the included angle (Communicating, Reasoning)<br>• demonstrate that three pairs of equal matching angles is not a sufficient condition for congruence of triangles (Communicating)<br>• use the congruency tests to identify a pair of congruent triangles from a selection of triangles or from triangles embedded in a diagram |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Vocabulary from Syllabus**<br>Shape, circle, triangle, square, rectangle, features, side, straight line, curved line, open line, closed shape. | **Vocabulary from Syllabus**<br>Shape, circle, triangle, quadrilateral, square, rectangle, pentagon, hexagon, octagon, orientation, features, side, vertex (vertices), vertical, horizontal, portrait (orientation), landscape (orientation), parallel. | **Vocabulary from Syllabus**<br>Shape, circle, triangle, quadrilateral, parallelogram, rectangle, rhombus, square, trapezium, kite, pentagon, hexagon, octagon, regular shape, irregular shape, orientation, features, properties, side, parallel, pair of parallel sides, opposite, length, vertex (vertices), angle, right angle, symmetry, line (axis) of symmetry, rigid. | **Vocabulary from Syllabus**<br>Shape, two dimensional shape, triangle, equilateral triangle, isosceles triangle, scalene triangle, right-angled triangle, quadrilateral, parallelogram, rectangle, rhombus, square, trapezium, kite, pentagon, hexagon, octagon, regular, irregular, features, properties, side, parallel, pair of parallel sides, opposite, length, vertex (vertices), angle, right angle, line (axis) of symmetry, rotational symmetry, order of rotational symmetry, translate, reflect, rotate, enlarge. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Describe and name circles, squares, triangles and rectangles in the environment | **Other Key Ideas covered later**<br>• Recognise and classify triangles, quadrilaterals, pentagons, hexagons and octagons presented in different orientations<br>• Use the terms 'sides' and 'vertices' to describe two dimensional shapes<br>• Identify, perform and record the result of one-step 'slides' and 'flips'<br>• Identify, perform, describe and record the result of half and quarter 'turns' | **Other Key Ideas covered later**<br>• Recognise and classify the special quadrilaterals<br>• Identify and describe shapes as 'regular' or 'irregular'<br>• Describe and compare features of shapes, including the special quadrilaterals<br>• Identify and draw lines of symmetry on shapes<br>• Use transformations to create and describe symmetrical designs<br>• Create and record tessellations | **Other Key Ideas covered later**<br>• Recognise and classify shapes, including the special triangles<br>• Compare and describe side properties of the special quadrilaterals and special triangles<br>• Explore angle properties of the special quadrilaterals and special triangles<br>• Identify and draw shapes from descriptions of their features<br>• Use the terms 'translate', 'reflect' and 'rotate' to describe transformations of shapes<br>• Identify line and rotational symmetries<br>• Identify, use and describe combinations of translations, reflections and rotations | **Other Key Ideas covered later** |
| **Syllabus Page :** 62 - 63 | **Syllabus Page :** 108 - 111 | **Syllabus Page :** 162 - 166 | **Syllabus Page :** 226 - 230 | **Syllabus Page :** 283 - 287 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

Return to Yearly Overview

# ES1 & S1 – Addition (E), S2 – Decimals (B), S3 - Percentages (A)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• combines, separates and compares collections of objects, describes using everyday language, and records using informal methods MAe-5NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of strategies and informal recording methods for addition and subtraction involving one- and two-digit numbers MA1-5NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• represents, models and compares commonly used fractions and decimals MA2-7NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• compares, orders and calculates with fractions, decimals and percentages MA3-7NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• operates with fractions, decimals and percentages MA4-5NA |
| **Focus Key Ideas for this week**<br>• Combine two or more groups of objects to model addition<br>• Record addition informally | **Focus Key Ideas for this week**<br>• Solve word problems involving addition<br>• Model and apply the commutative property for addition<br>• Use and record a range of mental strategies for addition of one- and two-digit numbers<br>Split Strategy Focus | **Focus Key Ideas for this week**<br>• Apply the place value system to represent tenths and hundredths as decimals | **Focus Key Ideas for this week**<br>• Recognise percentages in everyday situations<br>• Make connections between percentages, fractions and decimals<br>• Use mental, written and calculator strategies to calculate 10%, 25% and 50% of quantities, including as discounts | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Represent practical situations to model addition and sharing<br>• combine two or more groups of objects to model addition<br>• use concrete materials or fingers to model and solve simple addition problems<br>• use visual representations of numbers to assist with addition, e.g. ten frames<br>• create and recognise combinations for numbers to at least 10, e.g. 'How many more make 10?' or describe the action of combining, separating and comparing using everyday language, e.g. makes, joins, combines with, and, get, take away, how many more, all together | **Suggested Content from Syllabus**<br>• Solve simple addition problems using a range of efficient mental and written strategies<br>• use and record a range of mental strategies to solve addition problems involving two-digit numbers, including:<br>• the split strategy, e.g. record how the answer to 37 + 45 was obtained using the split strategy<br>30 + 40 = 70<br>7 + 5 = 12<br>70 + 12 = 82<br>• select and use a variety of strategies to solve addition problems involving one- and two-digit numbers<br>• check solutions using a different strategy (Problem Solving) | **Suggested Content from Syllabus**<br>• Recognise that the place value system can be extended to tenths and hundredths, and make connections between fractions and decimal notation (ACMNA079)<br>• recognise and apply decimal notation to express whole numbers, tenths and hundredths as decimals,<br>e.g. 0.1 is the same as $\frac{1}{10}$<br>investigate equivalences using various methods, e.g. use a number line or a calculator to show that $\frac{1}{2}$ is the same as 0.5 and $\frac{5}{10}$ (Communicating, Reasoning)<br>• identify and interpret the everyday use of fractions and decimals, such as those in advertisements | **Suggested Content from Syllabus**<br>• Make connections between equivalent fractions, decimals and percentages (ACMNA131)<br>• recognise that the symbol % means 'percent'<br>• represent common percentages as fractions and decimals, e.g. '25% means 25 out of 100 or $\frac{1}{4}$ or 0.25'<br>• recognise fractions, decimals and percentages as different representations of the same value (Communicating)<br>• Investigate and calculate percentage discounts of 10%, 25% and 50% on sale items, with and without digital technologies (ACMNA132) | **Suggested Content from Syllabus**<br>• Find percentages of quantities and express one quantity as a percentage of another, with and without digital technologies (ACMNA158)<br>• calculate percentages of quantities<br>• choose an appropriate equivalent form for mental computation, e.g. 20% of $40 is equivalent to $\frac{1}{5}$ x $40 which is equivalent to $40 ÷ 5 (Communicating)<br>• express one quantity as a percentage of another, e.g. 45 minutes is 75% of an hour<br>• Solve problems involving percentage increases and decreases, with and without digital technologies (ACMNA187) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• explain or demonstrate how an answer was obtained (Communicating, Reasoning)<br>• apply strategies that have been demonstrated by other students (Problem Solving)<br>• investigate different methods of adding used in different cultures, e.g. Aboriginal and Torres Strait Islander methods involving spatial patterns and reasoning, Asian counting tools such as the abacus (Communicating, Problem Solving)<br>• count forwards by ones to add<br>• record addition informally using drawings, words and numerals | **Suggested Content Continued**<br>• recognise which strategies are more efficient and explain why<br>• perform simple calculations with money, e.g. buying items from a class shop and giving change (Problem Solving)<br>• check solutions using a different strategy (Problem Solving)<br>• recognise which strategies are more efficient and explain why (Communicating, Reasoning)<br>• explain or demonstrate how an answer was obtained for addition problems, (Communicating, Reasoning) | **Suggested Content Continued**<br>• state the place value of digits in decimal numbers of up to two decimal places<br>• use place value to partition decimals of up to two decimal places, e.g. $5.37 = 5 + \frac{3}{10} + \frac{7}{100}$<br>partition decimals of up to two decimal places in non-standard forms, e.g. $5.37 = 5 + \frac{37}{100}$<br>• apply knowledge of hundredths to represent amounts of money in decimal form, e.g. five<br>• dollars and 35 cents is $5\frac{35}{100}$, which is the same as $5.35 (Communicating) | **Suggested Content Continued**<br>• equate 10% to $\frac{1}{10}$, 25% to $\frac{1}{4}$ and 50% to $\frac{1}{2}$<br>calculate common percentages (10%, 25%, 50%) of quantities, with and without digital technologies<br>• choose the most appropriate equivalent form of a percentage to aid calculation, e.g. $25\% \text{ of } 200 = \frac{1}{4} \text{ of } 200 = 200 \div 4 = \$50$ (Problem Solving)<br>• use mental strategies to estimate discounts of 10%, 25% and 50%, e.g. '50% off the price of $122.70: 50% is the same as $\frac{1}{2}$, so the discount is about $60'<br>• calculate the sale price of an item after a discount of 10%, 25% and 50%, with and without digital technologies, recording the strategy and result<br>• recall commonly used equivalent percentages, decimals and fractions, e.g. 75%, 0.75, $\frac{3}{4}$ (Communicating)<br>• represent simple fractions as decimals and as percentages<br>• interpret and explain the use of fractions, decimals and percentages in everyday contexts, e.g. $\frac{3}{4}$ hour = 45 minutes, percentage of trees in the local area that are native to Australia (Communicating, Reasoning)<br>• represent decimals as fractions and percentages, e.g. $1.37 = 137\% = \frac{137}{100} = 1\frac{37}{100}$ | **Suggested Content Continued**<br>• increase and decrease a quantity by a given percentage<br>• recognise equivalences when calculating, e.g. multiplication by 1.05 will increase a number/quantity by 5%, multiplication by 0.87 will decrease a number/quantity by 13% (Reasoning)<br>• interpret and calculate percentages greater than one hundred, e.g. an increase from $2 to $5 is an increase of 150%<br>• solve a variety of real-life problems involving percentages, including percentage composition and problems involving money<br>• interpret calculator displays in formulating solutions to problems by appropriately rounding decimals (Communicating)<br>• use the unitary method to solve problems involving percentages, e.g. find the original value, given the value after an increase of 20% (Problem Solving)<br>• interpret and use nutritional information panels on products (Problem Solving)<br>• interpret and use media and sport reports involving percentages (Problem Solving)<br>• interpret and use statements about the environment involving percentages, e.g. energy use for different purposes, such as lighting (Problem Solving) |
| **Vocabulary from Syllabus**<br>Count forwards, combines with, joins, how many more, all together, makes. | **Vocabulary from Syllabus**<br>Counting on, counting back, combine, plus, add, total, more than, less than, double, equals, is equal to, is the same as, number sentence, strategy. | **Vocabulary from Syllabus**<br>Whole, part, equal parts, half, quarter, eighth, third, fifth, one-third, one-fifth, fraction, denominator, numerator, mixed numeral, whole number, fractional part, number line. | **Vocabulary from Syllabus**<br>Whole, equal parts, half, quarter, eighth, third, sixth, twelfth, fifth, tenth, hundredth, thousandth, one-thousandth, fraction, numerator, denominator, mixed numeral, number line, proper fraction, improper fraction | **Vocabulary from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Model addition using concrete materials<br>• Recognise and recall combinations of numbers that add to numbers up to 20<br>• Model and apply the commutative property for addition<br>• Use the equals sign to record equivalent number sentences<br>• Make connections between addition and subtraction<br>• Use and record a range of mental strategies for addition of two-digit numbers | **Other Key Ideas covered later**<br>• Model and represent fractions of denominators 2, 3, 4, 5 and 8<br>• Count by quarters, halves and thirds, including with mixed numerals<br>• Represent fractions on a number line that extends beyond 1<br>• Model and find equivalence between fractions<br>• Make connections between fraction and decimal notation<br>• Model, compare and represent decimals with up to two decimal places | **Other Key Ideas covered later**<br>• Represent, compare and order unit fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12 and 100<br>• Express mixed numerals as improper fractions and vice versa<br>• Model and represent strategies to add and subtract fractions with the same denominator<br>• Add and subtract fractions, included mixed numerals, with the same or related denominators<br>• Multiply fractions by whole numbers<br>• Find a simple fraction of a quantity<br>• Determine, generate and record equivalent fractions<br>• Write fractions in their 'simplest form'<br>• Apply the place value system to represent thousandths as decimals<br>• Compare, order and represent decimals with up to three decimal places<br>• Use mental, written and calculator strategies to add and subtract decimals with up to three decimal places<br>• Use mental, written and calculator strategies to multiply decimals by one- and two-digit whole numbers<br>• Use mental, written and calculator strategies to divide decimals by one-digit whole numbers, 10, 100 and 1000<br>• Solve word problems involving fractions and decimals, including money problems | **Other Key Ideas covered later** |
| **Syllabus Page :** 43 - 44 | **Syllabus Page :** 70 - 74 | **Syllabus Page :** 132 - 136 | **Syllabus Page :** 195 - 202 | **Syllabus Page :** 248 - 251 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Length (C)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• describes and compares lengths and distances using everyday language MAe-9MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• estimates, measures, compares and records lengths and distances using informal units, metres and centimetres MA1-9MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• estimates, measures, compares and records lengths, distances and perimeters in metres, centimetres and millimetres, and measures, compares and records temperatures MA2-9MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and uses the appropriate unit and device to measure lengths, distances and perimeters, and converts between units of length MA3-9MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• calculates the perimeter of plane shapes and the circumference of circles MA4-12MG |
| **Focus Key Ideas for this week**<br>• Record comparisons of length informally | **Focus Key Ideas for this week**<br>• Recognise the need for formal units to measure length | **Focus Key Ideas for this week**<br>• Estimate and measure perimeters of two-dimensional shapes | **Focus Key Ideas for this week**<br>• Calculate perimeters of common two-dimensional shapes and record the strategy | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• compare lengths indirectly by copying a length, e.g. using the same strip of paper to compare lengths<br>• record length comparisons informally by drawing, tracing, or cutting and pasting, and by using words and numerals | **Suggested Content from Syllabus**<br>• Recognise and use formal units to measure the lengths of objects<br>• recognise the need for formal units to measure lengths and distances<br>• use the metre as a unit to measure lengths and distances to the nearest metre or half-metre<br>• explain and model, using concrete materials, that a metre-length can be a straight line or a curved line (Communicating, Reasoning)<br>• record lengths and distances using the abbreviation for metre (m) | **Suggested Content from Syllabus**<br>• select and use an appropriate unit to estimate, measure and compare lengths and distances<br>• recognise the features of a three-dimensional object associated with length that can be measured, e.g. length, height, width, perimeter<br>• use the term 'perimeter' to describe the total distance around a two-dimensional shape<br>• estimate and measure the perimeter of two-dimensional shapes<br>• describe when a perimeter measurement might be used in everyday situations, e.g. determining the length of fencing required to enclose a playground (Communicating) | **Suggested Content from Syllabus**<br>• Calculate the perimeter of rectangles using familiar metric units (ACMMG109)<br>• use the term 'dimensions' to describe the 'length' and 'width' of rectangles<br>• measure and calculate the perimeter of a large rectangular section of the school, e.g. playground, netball courts<br>• calculate perimeters of common two-dimensional shapes, including squares, rectangles, triangles and regular polygons (with more than four sides, i.e. regular polygons other than equilateral triangles and squares)<br>• recognise that rectangles with the same perimeter may have different dimensions (Reasoning) | **Suggested Content from Syllabus**<br>• Find perimeters of parallelograms, trapeziums, rhombuses and kites (ACMMG196)<br>• find the perimeter of a range of plane shapes, including parallelograms, rhombuses, kites and simple composite figures<br>• compare perimeters of rectangles with the same area (Problem Solving)<br>• solve problems involving the perimeter of plane shapes, e.g. find the dimensions of a rectangle, given its perimeter and the length of one other side |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | | **Suggested Content Continued**<br>• explain that the perimeters of two-dimensional shapes can be found by finding the sum of the side lengths (Communicating)<br>• explain the relationship between the lengths of the sides and the perimeter for regular polygons (including equilateral triangles and squares) (Communicating, Reasoning)<br>• record calculations used to find the perimeter of two-dimensional shapes | |
| **Vocabulary from Syllabus**<br>Length, end, end-to-end, side-by-side, long, longer than, longest, short, shorter than, shortest, high, higher than, highest, tall, taller than, tallest, low, lower than, lowest, the same as, near, nearer, far, further, close, closer. | **Vocabulary from Syllabus**<br>Length, distance, end, end-to-end, side-by-side, gap, overlap, measure, estimate, hand span. | **Vocabulary from Syllabus**<br>Length, distance, metre, centimetre, millimetre, ruler, tape measure, trundle wheel, measure, estimate, perimeter, height, width, temperature, cold, warm, hot, degree (Celsius), thermometer. | **Vocabulary from Syllabus**<br>Length, distance, kilometre, metre, centimetre, millimetre, measure, measuring device, ruler, tape measure, trundle wheel, estimate, perimeter, dimensions, width. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Identify the attribute of 'length' as a measure of an object from end to end<br>• Compare lengths using direct comparison<br>• Use comparative language to describe lengths | **Other Key Ideas covered later**<br>• Use uniform informal units to measure, compare and estimate lengths<br>• Record lengths by referring to the number and type of uniform informal unit used<br>• Compare and order shapes/objects based on length using uniform informal units<br>• Use metres and centimetres to measure and estimate lengths<br>• Record lengths using abbreviations (m and cm) | **Other Key Ideas covered later**<br>• Use metres, centimetres and millimetres to measure, compare, order and estimate lengths<br>• Select and use appropriate scaled instruments and units to measure and compare lengths<br>• Convert between millimetres, centimetres and metres<br>• Record lengths using decimal notation to two decimal places<br>• Record lengths using abbreviations (m, cm and mm)<br>• Use a scaled instrument to measure and compare temperatures | **Other Key Ideas covered later**<br>• Use the kilometre to measure lengths and distances<br>• Record distances using the abbreviation km<br>• Solve problems involving length and perimeter<br>• Select and use appropriate instruments and units to measure lengths<br>• Record lengths and distances using decimal notation to three decimal places<br>• Convert between kilometres, metres, centimetres and millimetres | **Other Key Ideas covered later** |
| **Syllabus Page :** 50 - 51 | **Syllabus Page :** 87 - 90 | **Syllabus Page :** 141 - 143 | **Syllabus Page :** 208 - 210 | **Syllabus Page :** 271 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Addition (F)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• combines, separates and compares collections of objects, describes using everyday language, and records using informal methods MAe-5NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of strategies and informal recording methods for addition and subtraction involving one- and two-digit numbers MA1-5NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• uses mental and written strategies for addition and subtraction involving two-, three-, four and five-digit numbers MA2-5NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and applies appropriate strategies for addition and subtraction with counting numbers of any size MA3-5NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• compares, orders and calculates with integers, applying a range of strategies to aid computation MA4-4NA |
| **Focus Key Ideas for this week**<br>• Combine two or more groups of objects to model addition<br>• Record addition informally | **Focus Key Ideas for this week**<br>• Solve word problems involving addition<br>• Model and apply the commutative property for addition<br>• Use and record a range of mental strategies for addition of one- and two-digit numbers<br>Split Strategy Focus | **Focus Key Ideas for this week**<br>• Use and record a range of mental strategies for addition of two-, three- and four-digit numbers<br>• Use and record a range of mental strategies for addition of two-, three-, four- and five digit numbers<br>• Use the inverse operation to check addition calculations | **Focus Key Ideas for this week**<br>• Use estimation and rounding to check the reasonableness of answers to calculations<br>• Select and apply efficient mental, written and calculator strategies to solve word problems and record the strategy used | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Represent practical situations to model addition and sharing<br>• combine two or more groups of objects to model addition<br>• use concrete materials or fingers to model and solve simple addition problems<br>• use visual representations of numbers to assist with addition, e.g. ten frames<br>• create and recognise combinations for numbers to at least 10, e.g. 'How many more make 10?' or describe the action of combining, separating and comparing using everyday language, e.g. makes, joins, combines with, and, get, take away, how many more, all together | **Suggested Content from Syllabus**<br>• Solve simple addition problems using a range of efficient mental and written strategies (ACMNA030)<br>• use and record a range of mental strategies to solve addition problems involving two-digit numbers, including:<br>• the split strategy, e.g. record how the answer to 37 + 45 was obtained using the split strategy<br>30 + 40 = 70<br>7 + 5 = 12<br>70 + 12 = 82<br>• select and use a variety of strategies to solve addition problems involving one- and two-digit numbers | **Suggested Content from Syllabus**<br>• apply known single-digit addition facts to mental strategies for addition of two-, three- and four-digit numbers, including:<br>▪ the split strategy, e.g. 23 + 35: 20 + 30 + 3 + 5 = 58<br>▪ using place value to partition numbers, e.g. 500 + 670: 500 + 600 + 70 = 1170<br>▪ partitioning numbers in non-standard forms, e.g. 500 + 670: 670 = 500 + 170, so 500 + 670 = 500 + 500 + 170, which is 1000 + 170 = 1170<br>• Recognise and explain the connection between addition and subtraction (ACMNA054) | **Suggested Content from Syllabus**<br>• Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving addition with whole numbers (ACMNA123)<br>• solve addition word problems involving whole numbers of any size, including problems that require more than one operation, e.g. 'I have saved $40 000 to buy a new car. The basic model costs $36 118 and I add tinted windows for $860 and Bluetooth connectivity for $1376. How much money will I have left over?' | **Suggested Content from Syllabus**<br>• Apply the associative, commutative and distributive laws to aid mental and written computation<br>• use an appropriate non-calculator method to divide two- and three-digit numbers by a two digit number<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving)<br>• apply a practical understanding of commutativity to aid mental computation, e.g. 3 + 9 = 9 + 3 = 12, 3 × 9 = 9 × 3 = 27 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• explain or demonstrate how an answer was obtained (Communicating, Reasoning)<br>• apply strategies that have been demonstrated by other students (Problem Solving)<br>• investigate different methods of adding used in different cultures, e.g. Aboriginal and Torres Strait Islander methods involving spatial patterns and reasoning, Asian counting tools such as the abacus (Communicating, Problem Solving)<br>• count forwards by ones to add<br>• record addition informally using drawings, words and numerals | **Suggested Content Continued**<br>• check solutions using a different strategy (Problem Solving)<br>• recognise which strategies are more efficient and explain why<br>• perform simple calculations with money, e.g. buying items from a class shop and giving change (Problem Solving)<br>• check solutions using a different strategy (Problem Solving)<br>• recognise which strategies are more efficient and explain why (Communicating, Reasoning)<br>• explain or demonstrate how an answer was obtained for addition problems, (Communicating, Reasoning) | **Suggested Content Continued**<br>• demonstrate how addition and subtraction are inverse operations<br>• explain and check solutions to problems, including by using the inverse operation<br>• choose and apply efficient strategies for addition (Problem Solving)<br>• discuss and compare different methods of addition (Communicating)<br>• use concrete materials to model the addition of two or more numbers, with and without trading, and record the method used<br>• select, use and record a variety of mental strategies to solve addition problems, including word problems, with numbers of up to four digits<br>• give a reasonable estimate for a problem, explain how the estimate was obtained, and check the solution (Communicating, Reasoning)<br>• use the equals sign to record equivalent number sentences involving addition so to mean 'is the same as', rather than to mean to perform an operation, e.g. 32 + 13 = 30 + 15<br>• check given number sentences to determine if they are true or false and describe why, e.g. 'Is 13 + 13 = 15 + 11 true? Why or why not?' (Communicating, Reasoning) | **Suggested Content Continued**<br>• select and apply appropriate mental and written strategies, with or without digital technologies, to solve unfamiliar problems explain how an answer was obtained for an addition problem and justify the selected calculation method (Communicating, Problem Solving, Reasoning)<br>• reflect on their chosen method of solution for a problem, considering whether it can be improved (Communicating, Reasoning)<br>• give reasons why a calculator was useful when solving a problem (Communicating, Reasoning)<br>• record the strategy used to solve addition word problems<br>• use selected words to describe each step in the solution process (Communicating, Problem Solving)<br>• check solutions to problems, including by using the inverse operation<br>• Use estimation and rounding to check the reasonableness of answers to calculations<br>• round numbers appropriately when obtaining estimates to numerical calculations<br>• use estimation to check the reasonableness of answers to addition calculations, e.g. 1438 + 129 is about 1440 + 130 | **Suggested Content Continued**<br>• apply a practical understanding of associativity to aid mental computation, e.g. 3 + 8 + 2 = (3 + 8) + 2 = 3 + (8 + 2) = 13, $2 \times 7 \times 5 = (2 \times 7) \times 5 = 2 \times (7 \times 5) = 70$<br>• Compare, order, add and subtract integers (ACMNA280)<br>• recognise the direction and magnitude of integers<br>• construct a directed number sentence to represent a real-life situation (Communicating)<br>• recognise and place integers on a number line<br>• compare the relative value of integers, including by using the symbols $>$ and $<$<br>• order integers<br>• interpret different meanings (direction or operation) for the + and – signs, depending on the context<br>• add integers |
| **Vocabulary from Syllabus**<br>Count forwards, combines with, joins, how many more, all together, makes. | **Vocabulary from Syllabus**<br>Counting on, counting back, combine, plus, add, total, more than, less than, double, equals, is equal to, is the same as, number sentence, strategy. | **Vocabulary from Syllabus**<br>Plus, add, addition, equals, is equal to, is the same as, number sentence, empty number line, strategy, digit, estimate, round to. | **Vocabulary from Syllabus**<br>Plus, sum, add, addition, increase, equals, is equal to, empty number line, strategy, digit, estimate, round to, budget, operation. | **Vocabulary from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Model addition using concrete materials<br>• Recognise and recall combinations of numbers that add to numbers up to 20<br>• Model and apply the commutative property for addition<br>• Use the equals sign to record equivalent number sentences<br>• Make connections between addition and subtraction<br>• Use and record a range of mental strategies for addition of two-digit numbers | **Other Key Ideas covered later**<br>• Model and apply the associative property for addition<br>• Use the equals sign to record equivalent number sentences<br>• Calculate equivalent amounts of money using different denominations<br>• Use the formal written algorithm for addition and subtraction<br>• Solve word problems involving purchases and the calculation of change to the nearest five cents | **Other Key Ideas covered later**<br>• Select and apply efficient mental, written and calculator strategies for addition with numbers of any size<br>• Solve word problems and record the strategy used<br>• Create a simple budget | **Other Key Ideas covered later** |
| **Syllabus Page :** 43 - 44 | **Syllabus Page :** 70 - 74 | **Syllabus Page :** 123 - 126 | **Syllabus Page :** 184 - 187 | |
|  |  |  |  |  |

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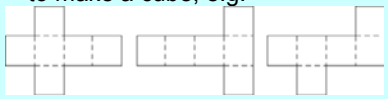
# 3D Space (B)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• manipulates, sorts and represents three-dimensional objects and describes them using everyday language MAe-14MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• sorts, describes, represents and recognises familiar three-dimensional objects, including cones, cubes, cylinders, spheres and prisms MA1-14MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• makes, compares, sketches and names three-dimensional objects, including prisms, pyramids, cylinders, cones and spheres, and describes their features MA2-14MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• identifies three-dimensional objects, including prisms and pyramids, on the basis of their properties, and visualises, sketches and constructs them given drawings of different views MA3-14MG | **Syllabus Outcomes** |
| **Focus Key Ideas for this week**<br>• Describe features of common three-dimensional objects using everyday language<br>• Sort and manipulate three-dimensional objects found in the environment | **Focus Key Ideas for this week**<br>• Use the terms 'curved surfaces', 'faces', 'edges' and 'vertices' to describe three-dimensional objects | **Focus Key Ideas for this week**<br>• Make models of three-dimensional objects<br>• Create nets from everyday packages<br>• Represent three-dimensional objects in drawings showing depth | **Focus Key Ideas for this week**<br>• Connect three-dimensional objects with their nets | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Sort, describe and name familiar three-dimensional objects in the environment (ACMMG009)<br>• describe the features of familiar three-dimensional objects, such as local landmarks including Aboriginal landmarks, using everyday language, e.g. flat, round, curved<br>• describe the difference between three-dimensional objects and two-dimensional shapes using everyday language (Communicating)<br>• sort three-dimensional objects and explain the attributes used to sort them, e.g. colour, size, shape, function | **Suggested Content from Syllabus**<br>• use the terms 'surface', 'flat surface' and 'curved surface' in describing familiar three-dimensional objects<br>• identify the type and number of flat and curved surfaces of three-dimensional objects, e.g. 'This prism has eight flat surfaces', 'A cone has two surfaces: one is a flat surface and the other is a curved surface' (Reasoning)<br>• use the term 'face' to describe a flat surface with only straight edges, including squares, rectangles and triangles<br>• distinguish between 'flat surfaces' and 'curved surfaces' and between 'flat surfaces' and 'faces' when describing three-dimensional objects (Communicating) | **Suggested Content from Syllabus**<br>• use a variety of materials to make models of prisms, pyramids, cylinders, cones and spheres, given a three-dimensional object, picture or photograph to view<br>• deconstruct everyday packages that are prisms (including cubes) to create nets, e.g. cut up tissue boxes<br>• recognise that a net requires each face to be connected to at least one other face (Reasoning)<br>• investigate, make and identify the variety of nets that can be used to create a particular prism, such as the variety of nets that can be used to make a cube, e.g.<br>  | **Suggested Content from Syllabus**<br>• Connect three-dimensional objects with their nets and other two-dimensional representations (ACMMG111)<br>• visualise and sketch three-dimensional objects from different views, including top, front and side views<br>• reflect on their own drawing of a three-dimensional object and consider how it can be improved (Reasoning)<br>• examine a diagram to determine whether it is or is not the net of a closed three-dimensional object<br>• explain why a given net will not form a closed three-dimensional object (Communicating, Reasoning)<br>• visualise and sketch nets for given three-dimensional objects | **Suggested Content from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• recognise how a group of objects has been sorted, e.g. 'These objects are all pointy' (Communicating, Reasoning)<br>• recognise and use informal names for three-dimensional objects, e.g. box, ball<br>• manipulate and describe a variety of objects found in the environment<br>• manipulate and describe an object hidden from view using everyday language, e.g. describe an object hidden in a 'mystery bag' (Communicating)<br>• predict and describe the movement of objects, e.g. 'This will roll because it is round'<br>• use a plank or board to determine which objects roll and which objects slide (Problem Solving)<br>• make models using a variety of three-dimensional objects and describe the models, e.g. 'I<br>• made a model of a person using a ball and some blocks'<br>• predict the building and stacking capabilities of various three-dimensional objects (Reasoning) | **Suggested Content Continued**<br>• sort familiar three-dimensional objects according to obvious features, e.g. 'All these objects have curved surfaces'<br>• select and name a familiar three-dimensional object from a description of its features, e.g. find an object with six square faces<br>• recognise that three-dimensional objects look different from different vantage points<br>• identify cones, cubes, cylinders and prisms when drawn in different orientations, e.g. recognise familiar three-dimensional objects from pictures and photographs, and in the environment | **Suggested Content Continued**<br>• distinguish between (flat) nets, which are 'two-dimensional', and objects created from nets, which are 'three-dimensional' (Communicating, Reasoning)<br>• sketch prisms, pyramids, cylinders and cones, attempting to show depth<br>• compare their own drawings of three-dimensional objects with other drawings and photographs of three-dimensional objects (Reasoning)<br>• draw three-dimensional objects using a computer drawing tool, attempting to show depth (Communicating) | **Suggested Content Continued**<br>• recognise whether a diagram is a net of a particular three-dimensional object (Reasoning)<br>• visualise and name prisms and pyramids, given diagrams of their nets<br>• select the correct diagram of a net for a given prism or pyramid from a group of similar diagrams that are not valid nets of the object (Reasoning)<br>• show simple perspective in drawings by showing depth | |
| **Vocabulary from Syllabus**<br>Object, shape, size, curved, flat, pointy, round, roll, slide, stack. | **Vocabulary from Syllabus**<br>Object, shape, two-dimensional (2D), three-dimensional (3D), cone, cube, cylinder, sphere, prism, surface, flat surface, curved surface, face, edge, vertex (vertices). | **Vocabulary from Syllabus**<br>Object, two-dimensional (2D), three-dimensional (3D), cone, cube, cylinder, prism, pyramid, sphere, top view, front view, side view, isometric grid paper, isometric drawing, depth. | **Vocabulary from Syllabus**<br>Object, shape, three-dimensional (3D), prism, cube, pyramid, base, uniform cross-section, face, edge, vertex (vertices), apex, top view, front view, side view, depth, net. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Distinguish between flat and curved surfaces<br>• Use the term 'faces' to describe flat surfaces<br>• Recognise faces of three-dimensional objects as two-dimensional shapes<br>• Identify cones, cubes, cylinders, spheres and prisms presented in different orientations<br>• Recognise that three-dimensional objects look different from different vantage-points | **Other Key Ideas covered later**<br>• Identify, describe and compare features of prisms, pyramids, cylinders, cones and spheres<br>• Interpret and make drawings of objects on isometric grid paper<br>• Sketch three-dimensional objects from different views | **Other Key Ideas covered later**<br>• Name prisms and pyramids according to the shape of their 'base'<br>• Recognise that prisms have a uniform cross-section and pyramids do not<br>• Describe and compare properties of prisms and pyramids<br>• Construct simple prisms and pyramids using a variety of materials, and given drawings from different views | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Page :** 60 - 61 | **Syllabus Page :** 104 - 107 | **Syllabus Page :** 159 - 161 | **Syllabus Page :** 222 - 225 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Subtraction (E)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• combines, separates and compares collections of objects, describes using everyday language, and records using informal methods MAe-5NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of strategies and informal recording methods for addition and subtraction involving one- and two-digit numbers MA1-5NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• uses mental and written strategies for addition and subtraction involving two-, three-, four and five-digit numbers MA2-5NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and applies appropriate strategies for addition and subtraction with counting numbers of any size MA3-5NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• compares, orders and calculates with integers, applying a range of strategies to aid computation MA4-4NA |
| **Focus Key Ideas for this week**<br>• Take part of a group away to model subtraction<br>• Compare two groups to determine 'how many more'<br>• Record subtraction informally | **Focus Key Ideas for this week**<br>• Solve word problems involving subtraction<br>• Use and record a range of mental strategies for subtraction of one and two-digit numbers | **Focus Key Ideas for this week**<br>• Use and record a range of mental strategies for subtraction of two-, three-, four- and five digit numbers<br>• Solve word problems involving purchases and the calculation of change to the nearest five cents.<br>• Calculate equivalent amounts of money using different denominations | **Focus Key Ideas for this week**<br>• Solve word problems and record the strategy used<br>• Select and apply efficient mental, written and calculator strategies to solve word problems and record the strategy used | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• model subtraction by separating and taking away part of a group of objects<br>• use concrete materials or fingers to model and solve simple subtraction problems<br>• compare two groups of objects to determine 'how many more'<br>• use visual representations of numbers to assist with subtraction, e.g. ten frames<br>• explain or demonstrate how an answer was obtained (Communicating, Reasoning) | **Suggested Content from Syllabus**<br>• Represent and solve simple subtraction problems using a range of strategies, including counting back, partitioning and rearranging<br>• use concrete materials to model subtraction problems involving one- and two digit numbers<br>• use concrete materials and a number line to model and determine the 'difference between' two numbers, e.g. the difference between 7 and 4 is 3.<br>• model and record patterns for individual numbers by making all possible whole number combinations, e.g. 10 – 5 = 5, 9 – 4 = 5, 8 – 3 = 5, 7 – 2 = 5, 6 – 1 = 5 | **Suggested Content from Syllabus**<br>• use concrete materials to model the subtraction of two or more numbers, with and without trading, and record the method used<br>• select, use and record a variety of mental strategies to solve subtraction problems, including word problems, with numbers of up to four digits e.g. the split strategy, 82 - 35: becomes<br>(70 +12) – (30 + 5)<br>70 – 30 = 40 12 – 5 = 7<br>= 47<br>• give a reasonable estimate for a problem, explain how the estimate was obtained, and check the solution (Communicating, Reasoning) | **Suggested Content from Syllabus**<br>• solve addition and subtraction word problems involving whole numbers of any size, including problems that require more than one operation, e.g. 'I have saved $40 000 to buy a new car. The basic model costs $36 118 and I add tinted windows for $860 and Bluetooth connectivity for $1376. How much money will I have left over?'<br>• select and apply appropriate mental and written strategies, with or without digital technologies, to solve unfamiliar problems<br>• reflect on their chosen method of solution for a problem, considering whether it can be improved (Communicating, Reasoning) | **Suggested Content from Syllabus**<br>• Apply the associative, commutative and distributive laws to aid mental and written computation (ACMNA151)<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving)<br>• Compare, order and subtract integers (ACMNA280)<br>• recognise the direction and magnitude of integers<br>• construct a directed number sentence to represent a real-life situation (Communicating)<br>• recognise and place integers on a number line<br>• order integers |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• create and recognise combinations for numbers to at least 10, e.g. 'How many more make 10?' or describe the action of combining, separating and comparing using everyday language, e.g. makes, joins, combines with, and, get, take away, how many more, all together<br>• apply strategies that have been demonstrated by other students<br>• investigate different methods of subtracting used in different cultures, e.g. Aboriginal and Torres Strait Islander methods involving spatial patterns and reasoning, Asian counting tools such as the abacus<br>• count backwards by ones to subtract<br>• record subtraction informally using drawings, words and numerals | **Suggested Content Continued**<br>• describe combinations for numbers using words such as 'more', 'less' and 'double', e.g. describe 5 as 'one more than four', 'three combined with two', 'double two and one more' and 'one less than 6<br>• investigate and generalise the effect of taking zero from another number, e.g. ''Taking away zero from a number does not change the number'<br>• select and use a variety of strategies to solve addition and subtraction problems involving one- and two-digit numbers<br>• use an inverse strategy to change a subtraction into an addition, e.g. 54 – 38: start at 38, adding 2 makes 40, then adding 10 makes 50, then adding 4 makes 54, and so the answer is 2 + 10 + 4 = 16<br>• perform simple calculations with money, e.g. buying items from a class shop and giving change (Problem Solving)<br>• check solutions using a different strategy (Problem Solving)<br>• recognise which strategies are more efficient and explain why Communicating, Reasoning) | **Suggested Content Continued**<br>• use the equals sign to record equivalent number sentences involving subtraction so to mean 'is the same as', rather than to mean to perform an operation, e.g. 32 - 13 = 30 - 11<br>• check given number sentences to determine if they are true or false and describe why, e.g. 'Is 26 - 13 = 28 - 14 true? Why or why not?' (Communicating, Reasoning)<br>• Represent money values in multiple ways and count the change required for simple transactions to the nearest five cents (ACMNA059)<br>• calculate equivalent amounts of money using different denominations, e.g. 70 cents can be made up of three 20-cent coins and a 10-cent coin, or two 20-cent coins and three 10-cent coins, etc.<br>• perform simple calculations with money, including finding change, and round to the nearest five cents<br>• calculate mentally to give change<br>• solve subtraction problems involving money, with and without the use of digital technologies<br>• use a variety of strategies to solve unfamiliar problems involving money (Communicating, Problem Solving)<br>• reflect on their own method of solution for a money problem, considering whether it can be improved (Communicating, Reasoning)<br>• calculate change and round to the nearest five cents<br>• use estimation to check the reasonableness of solutions to subtraction problems, including those involving money | **Suggested Content Continued**<br>• explain how an answer was obtained for an addition or subtraction problem and justify the selected calculation method (Communicating, Problem Solving, Reasoning)<br>• give reasons why a calculator was useful when solving a problem (Communicating, Reasoning)<br>• record the strategy used to solve addition and subtraction word problems<br>• use selected words to describe each step in the solution process (Communicating, Problem Solving) | **Suggested Content Continued**<br>• compare the relative value of integers, including by using the symbols > and <<br>• interpret different meanings (direction or operation) for the – sign, depending on the context<br>• subtract integers<br>• determine, by developing patterns or using a calculator, that subtracting a negative number is the same as adding a positive number (Reasoning) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Vocabulary from Syllabus**<br>Count backwards, take away, how many more, all together, makes. | **Vocabulary from Syllabus**<br>Counting back, take away, minus, the difference between, total, more than, less than, double, equals, is equal to, is the same as, number sentence, strategy. | **Vocabulary from Syllabus**<br>Minus, the difference between, subtract, subtraction, equals, is equal to, is the same as, number sentence, empty number line, strategy, digit, estimate, round to. | **Vocabulary from Syllabus**<br>Minus, the difference between, subtract, subtraction, decrease, equals, is equal to, empty number line, strategy, digit, estimate, round to, budget. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Make connections between addition and subtraction<br>• Use the equals sign to record equivalent number sentences | **Other Key Ideas covered later**<br>• Use and record a range of mental strategies for subtraction of two-, three- and four-digit numbers<br>• Use the inverse operation to check subtraction calculations<br>• Use the formal written algorithm for subtraction<br>• Use the equals sign to record equivalent number sentences | **Other Key Ideas covered later**<br>• Select and apply efficient mental, written and calculator strategies for subtraction with numbers of any size<br>• Use estimation and rounding to check the reasonableness of answers to calculations | **Other Key Ideas covered later** |
| **Syllabus Page :** 43 - 44 | **Syllabus Page :** 70 - 74 | **Syllabus Page :** 123 - 126 | **Syllabus Page :** 184 - 187 | |
|  |  |  |  |  |

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# ES1 & S1 - Subtraction (F) and S2 & S3 - 2D Angles (B)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• combines, separates and compares collections of objects, describes using everyday language, and records using informal methods MAe-5NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of strategies and informal recording methods for addition and subtraction involving one- and two-digit numbers MA1-5NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• identifies, describes, compares and classifies angles MA2-16MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• measures and constructs angles, and applies angle relationships to find unknown angles MA3-16MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• identifies and uses angle relationships, including those related to transversals on sets of parallel lines MA4-18MG |
| **Focus Key Ideas for this week**<br>• Take part of a group away to model subtraction<br>• Compare two groups to determine 'how many more'<br>• Record subtraction informally | **Focus Key Ideas for this week**<br>• Solve word problems involving subtraction<br>• Use and record a range of mental strategies for subtraction of one and two-digit numbers | **Focus Key Ideas for this week**<br>• Draw and classify angles as acute, obtuse, straight, reflex, or a revolution | **Focus Key Ideas for this week**<br>• Describe angle size in degrees for each angle classification<br>• Identify and name angles on a straight line, angles of complete revolution and vertically opposite angles. Use results to find unknown angles | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• model subtraction by separating and taking away part of a group of objects<br>• use concrete materials or fingers to model and solve simple subtraction problems<br>• compare two groups of objects to determine 'how many more'<br>• use visual representations of numbers to assist with subtraction, e.g. ten frames<br>• explain or demonstrate how an answer was obtained create and recognise combinations for numbers to at least 10, e.g. 'How many more make 10?' or describe the action of combining, separating and comparing using everyday language, e.g. makes, joins, combines with, and, get, take away, how many more, all together | **Suggested Content from Syllabus**<br>• Represent and solve simple subtraction problems using a range of strategies, including counting back, partitioning and rearranging<br>• use concrete materials to model subtraction problems involving one- and two digit numbers<br>• use concrete materials and a number line to model and determine the 'difference between' two numbers, e.g. the difference between 7 and 4 is 3.<br>• model and record patterns for individual numbers by making all possible whole number combinations, e.g. 10 – 5 = 5, 9 – 4 = 5, 8 – 3 = 5, 7 – 2 = 5, 6 – 1 = 5<br>• select and use a variety of strategies to solve addition and subtraction problems involving one- and two-digit numbers | **Suggested Content from Syllabus**<br>• Compare angles and classify them as equal to, greater than or less than a right angle (ACMMG089)<br>• compare angles using informal means, such as by using an 'angle tester'<br>• recognise and describe angles as 'less than', 'equal to', 'about the same as' or 'greater than' a right angle<br>• classify angles as acute, right, obtuse, straight, reflex or a revolution<br>• describe the size of different types of angles in relation to a right angle, e.g. acute angles are less than a right angle (Communicating) | **Suggested Content from Syllabus**<br>• identify that a right angle is 90°, a straight angle is 180° and an angle of revolution is 360°<br>• identify and describe angle size in degrees for each of the classifications acute, obtuse and reflex<br>• use the words 'between', 'greater than' and 'less than' to describe angle size in degrees<br>• compare the sizes of two or more angles in degrees, e.g. compare angles in different two-dimensional shapes<br>• estimate angles in degrees and check by measuring<br>• recognise right angles, angles on a straight line, and angles of revolution embedded in diagrams (Reasoning) | **Suggested Content from Syllabus**<br>• Use the language, notation and conventions of geometry<br>• define, label and name points, lines and intervals using capital letters<br>• label the vertex and arms of an angle with capital letters<br>• label and name angles using *B* and $\angle NPW$ notation<br>• use the common conventions to indicate right angles and equal angles on diagrams<br>• Recognise the geometrical properties of angles at a point<br>• use the words 'complementary' and 'supplementary' for angles adding to 90° and 180°<br>• respectively, and the associated terms 'complement' and 'supplement' |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• apply strategies that have been demonstrated by other students<br>• investigate different methods of subtracting used in different cultures, e.g. Aboriginal and Torres Strait Islander methods involving spatial patterns and reasoning, Asian counting tools such as the abacus<br>• count backwards by ones to subtract<br>• record subtraction informally using drawings, words and numerals | **Suggested Content Continued**<br>• describe combinations for numbers using words such as 'more', 'less' and 'double', e.g. describe 5 as 'one more than four', 'three combined with two', 'double two and one more' and 'one less than 6<br>• investigate and generalise the effect of taking zero from another number, e.g. ''Taking away zero from a number does not change the number'<br>• use an inverse strategy to change a subtraction into an addition, e.g. 54 – 38: start at 38, adding 2 makes 40, then adding 10 makes 50, then adding 4 makes 54, and so the answer is 2 + 10 + 4 = 16<br>• perform simple calculations with money, e.g. buying items from a class shop and giving change (Problem Solving)<br>• check solutions using a different strategy (Problem Solving)<br>• recognise which strategies are more efficient and explain why Communicating, Reasoning) | **Suggested Content Continued**<br>• relate the turn of the hour hand on a clock through a right angle or straight angle to the number of hours elapsed, e.g. a turn through a right angle represents the passing of three hours (Reasoning)<br>• identify the arms and vertex of the angle in an opening, a slope and/or a turn where one arm is visible and the other arm is invisible, e.g. the bottom of an open door is the visible arm<br>• and the imaginary line on the floor across the doorway is the other arm<br>• draw and classify angles of various sizes, e.g. by tracing along the adjacent sides of shapes<br>• draw and classify the angle through which the minute hand of a clock turns from various starting points (Communicating, Reasoning) | **Suggested Content Continued**<br>• identify and name angle types at intersecting lines, including 'adjacent angles', 'vertically opposite angles', 'angles on a straight line' and 'angles at a point' that form an angle of revolution<br>• identify the vertex and arms of angles formed by intersecting lines (Communicating)<br>• recognise vertically opposite angles in different orientations and embedded in diagrams (Reasoning)<br>• investigate, with and without the use of digital technologies, adjacent angles that form a right angle and establish that they add to 90°<br>• investigate, with and without the use of digital technologies, adjacent angles on a straight line and establish that they form a straight angle and add to 180°<br>• investigate, with and without the use of digital technologies, angles at a point and establish that they form an angle of revolution and add to 360°<br>• use the results established for adjacent angles that form right angles, straight angles and angles of revolution to find the size of unknown angles in diagrams<br>• explain how the size of an unknown angle in a diagram was calculated (Communicating, Reasoning)<br>• investigate, with and without the use of digital technologies, vertically opposite angles and establish that they are equal in size<br>• use the equality of vertically opposite angles to find the size of unknown angles in diagrams | **Suggested Content Continued**<br>• identify and name adjacent angles, vertically opposite angles, straight angles and angles of complete revolution embedded in diagrams<br>• recognise that adjacent angles can form right angles, straight angles and angles of complete revolution (Communicating, Reasoning)<br>• Identify corresponding, alternate and co-interior angles when two straight lines are crossed by a transversal (ACMMG163)<br>• identify and name perpendicular lines using the symbol for 'is perpendicular to' ($\perp$), e.g. $PQ \perp FG$<br>• use the common conventions to indicate parallel lines on diagrams<br>• identify and name pairs of parallel lines using the symbol for 'is parallel to' ($\parallel$), e.g. $CD \parallel MN$<br>• define and identify 'transversals', including transversals of parallel lines<br>• identify, name and measure alternate angle pairs, corresponding angle pairs and co-interior angle pairs for two lines cut by a transversal<br>• use dynamic geometry software to investigate angle relationships formed by parallel lines and a transversal (Problem Solving, Reasoning)<br>• recognise the equal and supplementary angles formed when a pair of parallel lines is cut by a transversal<br>• Investigate conditions for two lines to be parallel (ACMMG164)<br>• use angle properties to identify parallel lines<br>• explain why two lines are either parallel or not parallel, giving a reason (Communicating)<br>• Solve simple numerical problems using reasoning (ACMMG164) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | | | **Suggested Content Continued**<br>• determine unknown angles embedded in diagrams using angle relationships, including angles at a point and angles associated with parallel lines, giving reasons<br>• explain how the size of an unknown angle was calculated (Communicating, Reasoning) |
| **Vocabulary from Syllabus**<br>Count backwards, take away, how many more, all together, makes. | **Vocabulary from Syllabus**<br>Counting back, take away, minus, the difference between, total, more than, less than, double, equals, is equal to, is the same as, number sentence, strategy. | **Vocabulary from Syllabus**<br>Angle, arm, vertex, right angle, acute angle, obtuse angle, straight angle, reflex angle, angle of revolution. | **Vocabulary from Syllabus**<br>Angle, adjacent angles, right angle, straight angle, angles on a straight line, angle of revolution, angles at a point, vertically opposite angles. | |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Make connections between addition and subtraction<br>• Use the equals sign to record equivalent number sentences | **Other Key Ideas covered later**<br>• Identify angles as measures of turn and compare angle sizes in everyday situations<br>• Identify 'perpendicular' lines and 'right angles' | **Other Key Ideas covered later**<br>• Recognise the need for formal units to measure angles<br>• Measure and estimate angles in degrees (up to 360°)<br>• Record angle measurements using the symbol for degrees<br>• Construct angles using a protractor | **Other Key Ideas covered later** |
| **Syllabus Page :** 43 - 44 | **Syllabus Page :** 70 - 74 | **Syllabus Page :** 167 - 168 | **Syllabus Page :** 231 - 234 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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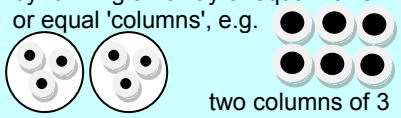
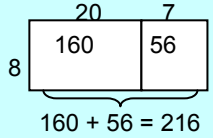
# Multiplication (D)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• groups, shares and counts collections of objects, describes using everyday language, and records using informal method MAe-6NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of mental strategies and concrete materials for multiplication and division MA1-6NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• uses mental and informal written strategies for multiplication and division MA2-6NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and applies appropriate strategies for multiplication and division, and applies the order of operations to calculations involving more than one operation MA3-6NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• compares, orders and calculates with integers, applying a range of strategies to aid computation MA4-4NA |
| **Focus Key Ideas for this week**<br>• Record grouping and sharing using informal methods | **Focus Key Ideas for this week**<br>• Model and use equal 'groups of' objects as a strategy for multiplication<br>• Model and use arrays described in terms of 'rows' and 'columns' as a strategy for multiplication<br>• Record using drawings, words and numerals | **Focus Key Ideas for this week**<br>• Determine multiples and factors of numbers<br>• Use the equals sign to record equivalent number sentences | **Focus Key Ideas for this week**<br>• Use grouping symbols and the order of operations in calculations<br>• Select and apply efficient mental, written and calculator strategies to solve word problems and record the strategy used | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• group and share concrete materials to solve problems<br>• explain or demonstrate how an answer was obtained (Communicating, Reasoning)<br>• Record grouping and sharing using informal methods<br>• label the number of objects in a group<br>• record grouping and sharing informally using pictures, words and numerals | **Suggested Content from Syllabus**<br>• recognise when items have been arranged into groups, e.g. 'I can see two groups of three pencils'<br>• use concrete materials to model multiplication as equal 'groups' and by forming an array of equal 'rows' or equal 'columns', e.g.<br>  <br>2 groups of three or two columns of 3<br>two rows of 3<br>• describe collections of objects as 'groups of', 'rows of' and 'columns of' (Communicating)<br>• recognise practical examples of arrays, such as seedling trays or vegetable gardens (Reasoning) | **Suggested Content from Syllabus**<br>• find 'multiples' for a given whole number, e.g. the multiples of 4 are 4, 8, 12, 16,<br>• relate multiplication facts to their inverse division facts, e.g. 6 × 4 = 24, so 24 ÷ 6 = 4 and 24 ÷ 4 = 6<br>• determine 'factors' for a given whole number, e.g. the factors of 12 are 1, 2, 3, 4, 6, 12<br>• use the equals sign to record equivalent number relationships involving multiplication, and to mean 'is the same as', rather than to mean to perform an operation, e.g. 4 × 3 = 6 × 2 | **Suggested Content from Syllabus**<br>• Explore the use of brackets and order of operations to write number sentences (ACMNA134)<br>• use the term 'operations' to describe collectively the processes of addition, subtraction, multiplication and division<br>• investigate and establish the order of operations using real-life contexts, e.g. 'I buy six goldfish costing $10 each and two water plants costing $4 each. What is the total cost?'; this can be represented by the number sentence 6 × 10 + 2 × 4 but, to obtain the total cost, multiplication must be performed before addition | **Suggested Content from Syllabus**<br>• Apply the associative, commutative and distributive laws to aid mental and written computation<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving)<br>• apply a practical understanding of commutativity to aid mental computation, e.g. 3 + 9 = 9 + 3 = 12, 3 × 9 = 9 × 3 = 27<br>• apply a practical understanding of associativity to aid mental computation,<br>e.g. 3 + 8 + 2 = (3 + 8) + 2<br>= 3 + (8 + 2) = 13,<br>2×7×5 = (2 ×7)×5 = 2×(7×5) = 70 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• determine and distinguish between the 'number of rows/columns' and the 'number in each row/column' when describing collections of objects (Communicating)<br>• model the commutative property of multiplication, e.g. '3 groups of 2 is the same as 2 groups of 3' | **Suggested Content Continued**<br>• connect number relationships involving multiplication to factors of a number, e.g. 'Since 4 × 3 = 6 × 2, then 4, 3, 2 and 6 are factors of 12' (Communicating, Reasoning)<br>• check number sentences to determine if they are true or false and explain why, e.g. 'Is 7 × 5 = 8 × 4 true? Why or why not?' (Communicating, Reasoning)<br>• multiply three or more single-digit numbers, e.g. 5 × 3 × 6<br>• model and apply the associative property of multiplication to aid mental computation, e.g. 2 × 3 × 5 = 2 × 5 × 3 = 10 × 3 = 30<br>• make generalisations about numbers and number relationships, e.g. 'It doesn't matter what order you multiply two numbers in because the answer is always the same' (Communicating, Reasoning)<br>• use mental and informal written strategies to multiply a two-digit number by a one-digit number, including:<br>− using known facts, e.g. 10 × 9 = 90, so 13 × 9 = 90 + 9 + 9 + 9 = 90 + 27 = 117<br>• multiplying the tens and then the units, e.g. 7 × 19: 7 tens + 7 nines is 70 + 63, which is 133<br>− using an area model, e.g. 27 × 8<br>  <br><br>160 + 56 = 216<br>• using doubling and repeated doubling to multiply by 2, 4 and 8, e.g. 23 × 4 is double 23 and then double again<br>• using the relationship between multiplication facts, e.g. 41 × 6 is 41 × 3, which is 123, and then double to obtain 246<br>− factorising the larger number, e.g. 18 × 5 = 9 × 2 × 5 = 9 × 10 = 90 | **Suggested Content Continued**<br>• write number sentences to represent real-life situations<br>• recognise that the grouping symbols () and [] are used in number sentences to indicate operations that must be performed first<br>• recognise that if more than one pair of grouping symbols are used, the operation within the innermost grouping symbols is performed first<br>• perform calculations involving grouping symbols without the use of digital technologies, e.g.<br>5+ (2 x 3) = 5+ 6<br>= 11<br>(2 + 3) x (16 " 9) = 5 x 7<br>= 35<br>3+ [20 ÷ (9 x 5)] = 3+[20 ÷ 4]<br>= 3+ 5<br>= 8<br>• apply the order of operations to perform calculations involving mixed operations and grouping symbols without the use of digital technologies, e.g.<br>32 + 2 - 4 = 34 - 4<br>= 30<br>addition and subtraction only, therefore work from left to right<br><br>32 ÷ 2 x 4 = 16 x 4<br>= 64<br>multiplication and division only, therefore work from left to right<br><br>32 ÷ (2 x 4) = 32 ÷ 8<br>= 4<br>perform operation in grouping symbols first<br><br>(32 + 2) x 4 = 34 x 4<br>= 136<br>perform operation in grouping symbols first<br><br>32 + 2 x 4 = 32 + 8<br>= 40<br>multiplication must be performed before addition | **Suggested Content Continued**<br>• determine by example that associativity holds true for multiplication of three or more numbers but does not apply to calculations involving division, e.g. (80 ÷ 8) ÷ 2 is not equivalent to 80 ÷ (8 ÷ 2) (Communicating)<br>• apply a practical understanding of the distributive law to aid mental computation, e.g. to multiply any number by 13, first multiply by 10 and then add 3 times the number<br>• use factors of a number to aid mental computation of multiplication and division, e.g. to multiply a number by 12, first multiply the number by 6 and then multiply by 2 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | | **Suggested Content Continued**<br>• investigate whether different digital technologies apply the order of operations (Reasoning)<br>• recognise when grouping symbols are not necessary, e.g. 32 + (2 × 4) has the same answer as 32 + 2 × 4<br>• Select and apply efficient mental and written strategies, and appropriate digital technologies, to solve problems involving multiplication and division with whole numbers (ACMNA123)<br>• select and use efficient mental and written strategies, and digital technologies, to solve multiplication problems involving whole numbers<br>• use efficient mental and written strategies, and digital technologies, to multiply whole numbers of up to four digits by one- and two-digit numbers<br>• estimate solutions to problems and check to justify solutions (Problem Solving, Reasoning)<br>• use mental strategies to multiply numbers by 10, 100, 1000 and their multiples<br>• use appropriate language to compare quantities, e.g. 'twice as much as', 'half as much as' (Communicating) | |
| **Vocabulary from Syllabus**<br>Group, share, equal. | **Vocabulary from Syllabus**<br>Group, number of groups, number in each group, sharing, shared between, left over, total, equal. | **Vocabulary from Syllabus**<br>Group, row, column, horizontal, vertical, array, multiply, multiplied by, multiplication, multiplication facts, double, shared between, divide, divided by, division, equals, strategy, digit, number chart. | **Vocabulary from Syllabus**<br>Multiply, multiplied by, product, multiplication, multiplication facts, area, thousands, hundreds, tens, ones, double, multiple, factor, divide, divided by, quotient, division, halve, remainder, fraction, decimal, equals, strategy, digit, estimate, round to. | **Vocabulary from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Other Key Ideas covered later**<br>• Investigate and model equal groups | **Other Key Ideas covered later**<br>• Rhythmic and skip count by twos, fives and tens from any starting point<br>• Model and use repeated addition as a strategy for multiplication<br>• Model division as sharing a collection of objects into equal groups<br>• Model and use groups, arrays and repeated subtraction as strategies for division | **Other Key Ideas covered later**<br>• Recall multiplication facts for twos, threes, fives and tens<br>• Link multiplication and division using arrays<br>• Model and apply to commutative property for multiplication<br>• Use and record mental strategies to multiply one-digit numbers by multiples of 10<br>• Recall multiplication facts up to 10 × 10 and related division facts<br>• Use and record a range of mental and written strategies for multiplication and division of two-digit numbers by a one-digit operator<br>• Use mental strategies and informal recording methods for division with remainders | **Other Key Ideas covered later**<br>• Use and record a range of mental and written strategies to multiply by one- and two-digit operators<br>• Solve word problems and record the strategy used<br>• Use the formal algorithm for multiplication by one- and two-digit operators<br>• Use and record a range of mental and written strategies to divide by a one-digit operator with and without remainders<br>• Interpret remainders in division problems | **Other Key Ideas covered later** |
| **Syllabus Page :** 45 - 46 | **Syllabus Page :** 75 - 78 | **Syllabus Page :** 127 - 131 | **Syllabus Page :** 188 - 194 | **Syllabus Page :** |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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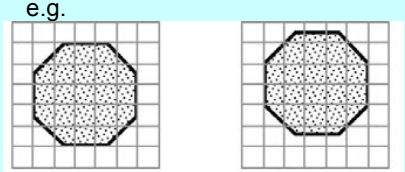
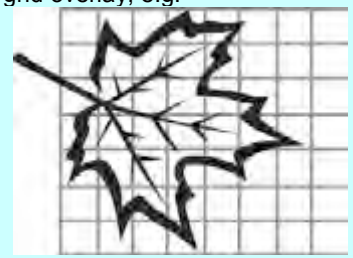
# Area (C)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• describes and compares areas using everyday language MAe-10MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• estimates, measures, compares and records areas using informal units MA1-10MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• estimates, measures, compares and records areas using square centimetres and square metres MA2-10MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital<br>• technologies, in undertaking investigations MA3-2WM<br>• selects and uses the appropriate unit to calculate areas, including areas of squares, rectangles and triangles MA3-10MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• uses formulas to calculate the area of quadrilaterals and circles, and converts between units of area MA4-13MG |
| **Focus Key Ideas for this week**<br>• Compare areas using direct comparison<br>• Record comparisons of area informally | **Focus Key Ideas for this week**<br>• Compare and order surfaces based on area using uniform informal units | **Focus Key Ideas for this week**<br>• Measure and compare the areas of regular and irregular shapes using a square-centimetre grid | **Focus Key Ideas for this week**<br>• Calculate areas of rectangles (including squares) and record the strategy<br>• Solve problems involving areas of rectangles (including squares) | • **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• use everyday language to describe area, e.g. surface, inside, outside<br>• use comparative language to describe area, e.g. bigger than, smaller than, the same as<br>• ask questions about area in everyday situations, e.g. 'Which book cover is bigger?'<br>• compare two areas directly, e.g. superimposing or superpositioning two surfaces<br>• demonstrate how one surface is bigger than another by comparing directly (Reasoning)<br>• predict whether a surface will be larger or smaller than another surface and explain the reasons for this prediction (Communicating, Reasoning)<br>• record area comparisons informally by drawing, tracing, or cutting and pasting, and using numerals and words | **Suggested Content from Syllabus**<br>• Compare and order several shapes and objects based on area using appropriate uniform informal units (ACMMG037)<br>• draw the spatial structure (grid) of repeated units covering a surface<br>• explain the structure of the unit tessellation in terms of rows and columns (Communicating)<br>• compare and order the areas of two or more surfaces that cannot be moved, or superimposed, by measuring in uniform informal units<br>• predict the larger of two or more areas and check by measuring (Reasoning)<br>• record comparisons of area informally using drawings, numerals and words, and by referring to the uniform informal unit used | **Suggested Content from Syllabus**<br>• measure the area of common two-dimensional shapes using a square centimetre grid overlay, e.g. measure the area of a regular hexagon<br>• compare different placements of a grid overlay when measuring area, e.g.<br>  <br>13 whole units and 12 partial units to be counted<br>16 whole units and 10 partial units to be counted<br>(Problem Solving)<br>• develop strategies for counting partial units in the total area of the shape, e.g. determine two or more partial units that combine to form one whole unit (Communicating, Problem Solving) | **Suggested Content from Syllabus**<br>• investigate and compare the areas of rectangles that have the same perimeter, e.g. compare the areas of all possible rectangles with whole-number dimensions and a perimeter of 20 centimetres<br>• determine the number of different rectangles that can be formed using whole-number dimensions for a given perimeter (Problem Solving, Reasoning)<br>• solve a variety of problems involving the areas of rectangles (including squares)<br>• explain the relationship between the area of a triangle and the area of the rectangle of the same length and perpendicular height (Communicating, Reasoning) | **Suggested Content from Syllabus**<br>• choose an appropriate unit to measure the areas of different shapes and surfaces, e.g. floor space, fields<br>• use the areas of familiar surfaces to assist with the estimation of larger areas (Problem Solving)<br>• convert between metric units of area: 1 $cm^2$ = 100 $mm^2$, 1 $m^2$ = 1 000 000 $mm^2$, 1 ha = 10 000 $m^2$, 1 $km^2$ = 1 000 000 $m^2$ = 100 ha<br>• Establish the formulas for areas of rectangles, triangles and parallelograms and use these in problem solving (ACMMG159)<br>• develop and use the formulas for the area of squares and rectangles:<br>  • Area of rectangle = $lb$ where $l$ is the length and $b$ is the breadth of the rectangle<br>  • Area of square = $s^2$ where $s$ is the side length of the square |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | **Suggested Content Continued**<br>• measure the area of irregular shapes using a square centimetre grid overlay, e.g.<br>  <br>• compare two or more areas by informal means, e.g. using tiles or a square centimetre grid overlay<br>• explain why two students may obtain different measurements of the area of the same irregular shape (Communicating, Reasoning) | | **Suggested Content Continued**<br>• explain the relationship that multiplying, dividing, squaring and factoring have with the areas of squares and rectangles with integer side lengths (Communicating)<br>• explain the relationship between the formulas for the areas of squares and rectangles (Communicating)<br>• compare areas of rectangles with the same perimeter (Problem Solving)<br>• develop, with or without digital technologies, and use the formulas for the areas of parallelograms and triangles, including triangles where the perpendicular height lies outside the shape:<br>  • Area of parallelogram = $bh$ where $b$ is the length of the base and $h$ is the perpendicular height<br>  • Area of triangle = $\frac{1}{2}bh$ where $b$ is the length of the 2base and $h$ is the perpendicular height<br>• identify the perpendicular height of triangles and parallelograms in different orientations (Reasoning)<br>• find the areas of simple composite figures that may be dissected into squares, rectangles, parallelograms and triangles |
| **Vocabulary from Syllabus**<br>Area, surface, closed shape, inside, outside, bigger than, smaller than, the same as. | **Vocabulary from Syllabus**<br>Area, surface, measure, row, column, gap, overlap, parts of (units), estimate. | **Vocabulary from Syllabus**<br>Area, surface, measure, grid, row, column, square centimetre, square metre, estimate. | **Vocabulary from Syllabus**<br>Area, measure, square centimetre, square metre, square kilometre, hectare, dimensions, length, width. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Identify the attribute of 'area' as a measure of the amount of surface<br>• Use comparative language to describe areas | **Other Key Ideas covered later**<br>• Use uniform informal units to measure and estimate areas<br>• Record areas by referring to the number and type of uniform informal unit used | **Other Key Ideas covered later**<br>• Recognise the need for formal units to measure area<br>• Use square centimetres and square metres to measure and estimate rectangular (and square) areas<br>• Record lengths using abbreviations (cm2 and m2)<br>• Compare areas measured in square centimetres and square metres | **Other Key Ideas covered later**<br>• Recognise the need for square kilometres and hectares to measure area<br>• Record areas using abbreviations (km2 and ha)<br>• Calculate areas of triangles and record the strategy<br>• Solve problems involving areas of triangles | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Page :** 52 - 53 | **Syllabus Page :** 91 - 93 | **Syllabus Page :** 144 - 147 | **Syllabus Page :** 211 - 213 | **Syllabus Page :** 273 - 275 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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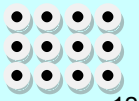
# Division (B)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• groups, shares and counts collections of objects, describes using everyday language, and records using informal method MAe-6NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses a range of mental strategies and concrete materials for multiplication and division MA1-6NA<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of mental strategies and concrete materials for multiplication and division MA1-6NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• uses mental and informal written strategies for multiplication and division MA2-6NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and applies appropriate strategies for multiplication and division, and applies the order of operations to calculations involving more than one operation MA3-6NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• compares, orders and calculates with integers, applying a range of strategies to aid computation MA4-4NA |
| **Focus Key Ideas for this week**<br>• Investigate and model equal groups<br>• Record sharing using informal methods | **Focus Key Ideas for this week**<br>• Model and use groups, arrays and repeated subtraction as strategies for division | **Focus Key Ideas for this week**<br>• Link multiplication and division using arrays<br>• Use mental strategies and informal recording methods for division with remainders | **Focus Key Ideas for this week**<br>• Use and record a range of mental and written strategies to divide by a one-digit operator with and without remainders<br>• Solve word problems and record the strategy used<br>• Interpret remainders in division problems | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Investigate and model equal groups<br>• use the term 'group' to describe a collection of objects<br>• use the term 'sharing' to describe the distribution of a collection of objects<br>• model equal groups and recognise groups that are not equal in size | **Suggested Content from Syllabus**<br>• describe collections of objects as 'groups of', 'rows of' and 'columns of' (Communicating)<br>• determine and distinguish between the 'number of rows/columns' and the 'number in each row/column' when describing collections of objects (Communicating)<br>• recognise practical examples of arrays, such as seedling trays or vegetable gardens (Reasoning) | **Suggested Content from Syllabus**<br>• link multiplication and division facts using groups or arrays, e.g.<br>  <br>3 rows of 4 is 12<br>4 columns of 3 is 12<br>3 x 4 = 12, 4 x 3 = 12<br>12 shared into 3 rows is 4<br>12 shared into 4 columns is 3<br>12 ÷ 3 = 4, 12 ÷ 4 = 3 | **Suggested Content from Syllabus**<br>• Solve problems involving division by a one-digit number, including those that result in a remainder (ACMNA101)<br>• use the term 'quotient' to describe the result of a division calculation, e.g. 'The quotient when 30 is divided by 6 is 5'<br>• recognise and use different notations to indicate division, e.g. 25 ÷ 4, $4\overline{)25}$, $\frac{25}{4}$ | **Suggested Content from Syllabus**<br>• Apply the associative, commutative and distributive laws to aid mental and written computation<br>• use an appropriate non-calculator method to divide two- and three-digit numbers by a two digit number<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• share concrete materials to solve problems explain or demonstrate how an answer was obtained (Communicating, Reasoning)<br>• Record sharing using informal methods<br>• label the number of objects in a group<br>• record sharing informally using pictures, words and numerals | **Suggested Content Continued**<br>• recognise when there are equal numbers of items in groups, e.g. 'There are three pencils in each group'<br>• model division by sharing a collection of objects into equal groups and by forming equal rows or equal columns in an array, e.g. ten objects shared between two people<br>• describe the part left over when a collection cannot be shared equally into groups (Communicating, Problem Solving, Reasoning)<br>• Represent division as grouping into equal sets and solve simple problems using these representations (ACMNA032)<br>• model division as repeated subtraction<br>• use an empty number line to record repeated subtraction (Communicating)<br>• explore the use of repeated subtraction to share in practical situations, e.g. share 20 stickers between 5 people (Problem Solving)<br>• solve division problems using objects, diagrams, imagery and actions<br>• support answers by demonstrating how an answer was obtained (Communicating)<br>• recognise which strategy worked and which did not work and explain why (Communicating, Reasoning)<br>• record answers to division problems using drawings, words and numerals, e.g. “ten shared into 2 rows is 5 in each row”<br>• Skip count backwards by twos, fives and tens<br>• use patterns on a number chart to assist in counting backwards by twos, fives or tens (Communicating)<br>• Recognise and represent division as grouping into equal sets (ACMNA032) | **Suggested Content Continued**<br>• explain why a rectangular array can be read as a division in two ways by forming vertical or horizontal groups, e.g. 12 ÷ 3 = 4 or 12 ÷ 4 = 3 (Communicating, Reasoning)<br>• apply the inverse relationship of multiplication and division to justify answers, e.g. 63 ÷ 9 = 7 because 7 x 9 = 63<br>• use mental strategies to divide a two-digit number by a one-digit number, including:<br>▪ recalling known division facts<br>▪ using halving and repeated halving to divide by 2, 4 and 8, e.g. 36 ÷ 4: halve 36 and then halve again<br>▪ using the relationship between division facts, e.g. to divide by 5, first divide by 10 and then divide by 2<br>• apply the inverse relationship of multiplication and division to justify answers, e.g. 56 ÷ 8 = 7 because 7 × 8 = 56 (Problem Solving, Reasoning)<br>• recognise and use ÷ to indicate division of two-digit numbers by single-digit numbers where there is no remainder<br>• record mental strategies used for division<br>• select and use a variety of mental and informal written strategies to solve division problems<br>• check the answer to a word problem using digital technologies<br>• Use mental strategies and informal recording methods for division with remainders<br>• model division, including where the answer involves a remainder, using concrete materials<br>• explain why a remainder is obtained in answers to some division problems (Communicating, Reasoning) | **Suggested Content Continued**<br>• record remainders as fractions and decimals, e.g. 25÷ 4 = $6\frac{1}{4}$ or 6.25<br>• use mental and written strategies to divide a number with three or more digits by a one-digit<br>• divisor where there is no remainder, including:<br>▪ dividing the hundreds, then the tens, and then the ones, e.g.<br>3248 ÷ 4<br>3200 ÷ 4 = 800<br>40 ÷ 4 = 10<br>8 ÷ 4 = 2<br>so 3248 ÷ 4 = 812<br>▪ using the formal algorithm, e.g.<br>258 ÷ 6<br>$\begin{array}{r} 43 \\ \hline 6\overline{)\,258} \end{array}$<br>• use mental and written strategies to divide a number with three or more digits by a one-digit divisor where there is a remainder, including:<br>▪ dividing the tens and then the ones, e.g. 243 ÷ 4<br>240 ÷ 4 = 60<br>3 ÷ 4 = $\frac{3}{4}$<br>so 243 ÷ 4 = $60\frac{3}{4}$<br>• using the formal algorithm, e.g.<br>587 ÷ 6<br>$\begin{array}{r} 97\frac{5}{6} \\ \hline 6\overline{)\,587} \end{array}$<br>• explain why the remainder in a division calculation is always less than the number divided by (the divisor) (Reasoning)<br>• show the connection between division and multiplication, including where there is a remainder, e.g. 25 ÷ 4 = 6 remainder 1, so 25 = 4 × 6 + 1<br>• use digital technologies to divide whole numbers by one- and two-digit divisors<br>• check answers to mental calculations using digital technologies (Problem Solving) | **Suggested Content Continued**<br>• determine by example that associativity holds true for multiplication of three or more numbers but does not apply to calculations involving division, e.g. (80 ÷ 8) ÷ 2 is not equivalent to 80 ÷ (8 ÷ 2) (Communicating)<br>• use factors of a number to aid mental computation of multiplication and division, e.g. to multiply a number by 12, first multiply the number by 6 and then multiply by 2 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | **Suggested Content Continued**<br>• use mental strategies to divide a two-digit number by a one-digit number in problems for which answers include a remainder, e.g. 29 ÷ 6: if 4 × 6 = 24 and 5 × 6 = 30, the answer is 4 remainder 5<br>• record remainders to division problems in words, e.g. 17 ÷ 4 = 4 remainder 1<br>• interpret the remainder in the context of a word problem, e.g. 'If a car can safely hold 5 people, how many cars are needed to carry 41 people?'; the answer of 8 remainder 1 means that 9 cars will be needed | **Suggested Content Continued**<br>• apply appropriate mental and written strategies, and digital technologies, to solve division word problems<br>• recognise when division is required to solve word problems (Problem Solving)<br>• use inverse operations to justify solutions to problems (Problem Solving, Reasoning)<br>• use and interpret remainders in solutions to division problems, e.g. recognise when it is appropriate to round up an answer, such as 'How many cars are required to take 47 people to the beach?'<br>• record the strategy used to solve division word problems<br>• use selected words to describe each step in the solution process (Communicating, Problem Solving)<br>• Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099)<br>• round numbers appropriately when obtaining estimates to numerical calculations<br>• use estimation to check the reasonableness of answers to division calculations,<br>• check answers to mental calculations using digital technologies (Problem Solving)<br>• apply appropriate mental and written strategies, and digital technologies, to solve division word problems<br>• use the appropriate operation when solving problems in real-life situations (Problem Solving)<br>• use inverse operations to justify solutions (Problem Solving, Reasoning)<br>• record the strategy used to solve division word problems<br>• use selected words to describe each step in the solution process (Communicating, Problem Solving) | |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Vocabulary from Syllabus**<br>Group, share, equal. | **Vocabulary from Syllabus**<br>Group, number of groups, number in each group, sharing, shared between, left over, total, equal. | **Vocabulary from Syllabus**<br>Group, row, column, horizontal, vertical, array, multiply, multiplied by, multiplication, multiplication facts, double, shared between, divide, divided by, division, equals, strategy, digit, number chart. | **Vocabulary from Syllabus**<br>Multiply, multiplied by, product, multiplication, multiplication facts, area, thousands, hundreds, tens, ones, double, multiple, factor, divide, divided by, quotient, division, halve, remainder, fraction, decimal, equals, strategy, digit, estimate, round to. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Model division as sharing a collection of objects into equal groups<br>• Record using drawings, words and numerals | **Other Key Ideas covered later**<br>• Use and record a range of mental and written strategies for division of two-digit numbers by a one-digit operator | **Other Key Ideas covered later**<br>• Select and apply efficient mental, written and calculator strategies to solve word problems and record the strategy used<br>• Use grouping symbols and the order of operations in calculations | **Other Key Ideas covered later** |
| **Syllabus Page :** 45 - 46 | **Syllabus Page :** 75 - 78 | **Syllabus Page :** 127 - 131 | **Syllabus Page :** 188 - 194 | **Syllabus Page :** |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

Return to Yearly Overview

# Volume & Capacity (C)

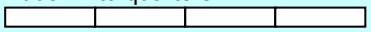
| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• describes and compares the capacities of containers and the volumes of objects or substances using everyday language MAe-11MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• estimates, measures, compares and records volumes and capacities using informal units MA1-11MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• estimates, measures, compares and records volumes and capacities using litres, millilitres and cubic centimetres MA2-11MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and uses the appropriate unit to estimate, measure and calculate volumes and capacities, and converts between units of capacity MA3-11MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• uses formulas to calculate the volume of prisms and cylinders, and converts between units of volume MA4-14MG |
| **Focus Key Ideas for this week**<br>• Compare volumes and capacities using direct comparison | **Focus Key Ideas for this week**<br>• Compare and order objects based on capacity or volume using uniform informal units | **Focus Key Ideas for this week**<br>• Use litres and millilitres to measure, compare and estimate capacities and volumes<br>• Record capacities and volumes using abbreviations (L and mL) | **Focus Key Ideas for this week**<br>• Calculate volumes of rectangular prisms and record the strategy | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• compare the volumes of two objects made from blocks or connecting cubes directly by deconstructing one object and using its parts to construct a copy of the other object<br>• compare the volumes of two piles of material directly by filling two identical containers, e.g. 'This pile of rice has a larger volume as it takes up more space in the container'<br>• compare the volumes of two objects by observing the amount of space each occupies, e.g. a garbage truck takes up more space than a car | **Suggested Content from Syllabus**<br>• Compare and order several objects based on volume and capacity using appropriate uniform informal units (ACMMG037)<br>• make and use a measuring device for capacity calibrated in uniform informal units, e.g. calibrate a bottle by adding cups of water and marking the new level as each cup is added<br>• compare and order the capacities of two or more containers by measuring each container in uniform informal units<br>• compare and order the volumes of two or more models by counting the number of blocks used in each model | **Suggested Content from Syllabus**<br>• Use scaled instruments to measure and compare capacities (ACMMG084)<br>• recognise the need for a formal unit smaller than the litre to measure capacity and volume<br>• recognise that there are 1000 millilitres in one litre, i.e. 1000 millilitres = 1 litre<br>• relate the millilitre to familiar everyday containers and familiar informal units, e.g. 1 teaspoon is approximately 5 mL, 250 mL fruit juice containers (Reasoning)<br>• make a measuring device calibrated in multiples of 100 mL to measure volume and capacity to the nearest 100 mL | **Suggested Content from Syllabus**<br>• Calculate volumes of rectangular prisms (ACMMG160)<br>• use the term 'dimensions' to describe the 'length', 'width' and 'height' of rectangular prisms<br>• construct rectangular prisms using cubic-centimetre blocks and count the blocks to determine the volumes of the prisms<br>• construct different rectangular prisms that have the same volume (Problem Solving)<br>• explain that objects with the same volume may be different shapes (Communicating, Reasoning)<br>• describe rectangular prisms in terms of layers, e.g. 'There are 3 layers of 8 cubic centimetre blocks' | **Suggested Content from Syllabus**<br>• choose appropriate units of measurement for capacity convert from one unit to another (ACMMG195)<br>• recognise that 1000 litres is equal to one kilolitre and use the abbreviation for kilolitre (kL)<br>• recognise that 1000 kilolitres is equal to one megalitre and use the abbreviation for megalitre (ML)<br>• choose an appropriate unit to measure the capacity of different objects, e.g. swimming pools, household containers, dams<br>• use the capacity of familiar containers to assist with estimation of larger capacities (Reasoning) |

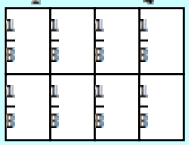
| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | • **Suggested Content Continued** recognise that models with different shapes may have the same volume, e.g. a model 4 blocks wide and 2 blocks high has the same volume as a model 2 blocks wide and 4 blocks high (Reasoning)<br>• compare and order the volumes of two or more objects by marking the change in water level when each is submerged<br>• recognise that changing the shape of an object does not change the amount of water it displaces (Reasoning)<br>• record volume and capacity comparisons informally using drawings, numerals and words, and by referring to the uniform informal unit used | **Suggested Content Continued**<br>• use the millilitre as a unit to measure volume and capacity, using a device calibrated in millilitres, e.g. place a measuring cylinder under a dripping tap to measure the volume of water lost over a particular period of time<br>• record capacities and volumes using the abbreviation for millilitre(s) (mL) | **Suggested Content Continued**<br>• use repeated addition to find the volumes of rectangular prisms, e.g. 'My rectangle has 3 layers of 6 cubes, so the total number of cubes is 6 plus 6 plus 6, or 18'<br>• establish the relationship between the number of cubes in one layer, the number of layers, and the volume of rectangular prisms<br>• explain that the volume of rectangular prisms can be found by finding the number of cubes in one layer and multiplying by the number of layers<br>• record the method for finding the volume of rectangular prisms using words and symbols, e.g. 'Volume of rectangular prism = number of cubes in one layer × number of layers'<br>• calculate volumes of rectangular prisms in cubic centimetres and cubic metres<br>• recognise that rectangular prisms with the same volume may have different dimensions (Reasoning)<br>• record calculations used to find the volumes of rectangular prisms | **Suggested Content Continued**<br>• convert between metric units of capacity, using 1 $cm^3$ = 1000 $mm^3$, 1 L = 1000 mL = 1000 $cm^3$, 1 $m^3$ = 1000 L = 1 kL, 1000 kL = 1 ML<br>• solve practical problems involving the volume and capacity of right prisms<br>• Calculate the volume of cylinders and solve related problems<br>• develop and use the formula to find the volume of cylinders: Volume of cylinder = $\pi r^2 h$<br>• where $r$ is the length of the radius of the base and $h$ is the perpendicular height<br>• recognise and explain the similarities between the volume formulas for cylinders and prisms (Communicating)<br>• solve problems involving the capacity of right prisms and cylinders, e.g. calculate the capacity of a cylindrical can of drink or a water tank |
| **Vocabulary from Syllabus**<br>The attribute of Capacity refers to the amount a container can hold, and can be measured in millilitres (mL) and/or litres (L). Capacity is only used in relation to containers and generally refers to liquid measurement. The capacity of a closed container will be slightly less than its volume – capacity is based on the inside dimensions, while volume is determined by the outside dimensions of the container. Volume is the amount of space occupied by an object or substance and can be measured in cubic units, e.g. cubic centimetres ($cm^3$) and cubic metres ($m^3$).<br>Capacity, container, liquid, full, empty, about half-full, volume, space, has more, has less, will hold more, will hold less, takes up more space. | **Vocabulary from Syllabus**<br>The attribute of Capacity refers to the amount a container can hold, and can be measured in millilitres (mL) and/or litres (L). Capacity is only used in relation to containers and generally refers to liquid measurement. The capacity of a closed container will be slightly less than its volume – capacity is based on the inside dimensions, while volume is determined by the outside dimensions of the container. Volume is the amount of space occupied by an object or substance and can be measured in cubic units, e.g. cubic centimetres ($cm^3$) and cubic metres ($m^3$).<br>Capacity, container, liquid, full, empty, volume, gap, measure, estimate. | **Vocabulary from Syllabus**<br>The attribute of Capacity refers to the amount a container can hold, and can be measured in millilitres (mL) and/or litres (L). Capacity is only used in relation to containers and generally refers to liquid measurement. The capacity of a closed container will be slightly less than its volume – capacity is based on the inside dimensions, while volume is determined by the outside dimensions of the container. Volume is the amount of space occupied by an object or substance and can be measured in cubic units, e.g. cubic centimetres ($cm^3$) and cubic metres ($m^3$).<br>Capacity, container, litre, millilitre, volume, measure, estimate. | **Vocabulary from Syllabus**<br>The attribute of Capacity refers to the amount a container can hold, and can be measured in millilitres (mL) and/or litres (L). Capacity is only used in relation to containers and generally refers to liquid measurement. The capacity of a closed container will be slightly less than its volume – capacity is based on the inside dimensions, while volume is determined by the outside dimensions of the container. Volume is the amount of space occupied by an object or substance and can be measured in cubic units, e.g. cubic centimetres ($cm^3$) and cubic metres ($m^3$).<br>Capacity, container, volume, layers, cubic centimetre, cubic metre, measure, estimate, litre, millilitre, dimensions, length, width, height. | **Vocabulary from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Other Key Ideas covered later**<br>• Identify the attribute of 'capacity' as a measure of the amount of substance a container can hold<br>• Use comparative language to describe capacities and volumes<br>• Identify the attribute of 'volume' as a measure of the amount of space an object occupies<br>• Record comparisons of capacity and volume informally | **Other Key Ideas covered later**<br>• Use uniform informal units to measure, compare and estimate capacities<br>• Use uniform informal units to measure and estimate volumes<br>• Use uniform informal units to measure, compare and estimate capacities<br>• Record capacities and volumes by referring to the number and type of uniform informal unit used | **Other Key Ideas covered later**<br>• Recognise the need for formal units to measure capacity and volume<br>• Use litres to measure, compare and estimate capacities and volumes<br>• Use cubic centimetres to measure and compare volumes<br>• Record capacities and volumes using abbreviations (L and $cm^3$)<br>• Convert between litres and millilitres | **Other Key Ideas covered later**<br>• Connect volume and capacity and their units of measurement<br>• Record volumes and capacities using decimal notation to three decimal places<br>• Convert between millilitres and litres<br>• Use cubic centimetres and cubic metres to measure and estimate volumes<br>• Select and use appropriate units to measure volume<br>• Record volumes using abbreviations ($cm^3$ and $m^3$) | **Other Key Ideas covered later** |
| **Syllabus Page :** 54 - 55 | **Syllabus Page :** 94 - 96 | **Syllabus Page :** 148 - 151 | **Syllabus Page :** 214 - 217 | **Syllabus Page :** 276 - 278 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

Return to Yearly Overview

# Fractions (D)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• describes two equal parts as halves MAe-7NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• represents and models halves, quarters and eighths MA1-7NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• represents, models and compares commonly used fractions and decimals MA2-7NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• compares, orders and calculates with fractions, decimals and percentages MA3-7NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• operates with fractions, decimals and percentages MA4-5NA |
| **Focus Key Ideas for this week**<br>• Establish the concept of one-half<br>• Record halves of objects using drawings | **Focus Key Ideas for this week**<br>• Recognise, describe and represent halves, quarters and eighths of whole objects, shapes and collections<br>• Use fraction notation $\frac{1}{4}$ and $\frac{1}{8}$ | **Focus Key Ideas for this week**<br>• Model and find equivalence between fractions | **Focus Key Ideas for this week**<br>• Multiply fractions by whole numbers<br>• Find a simple fraction of a quantity | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• share an object by dividing it into two equal parts, e.g. cutting a piece of ribbon into halves<br>• describe how to make equal parts (Communicating)<br>• recognise that halves are two equal parts<br>• explain the reason for dividing an object in a particular way (Communicating, Reasoning)<br>• recognise when two parts are not halves of the one whole<br>• explain why two parts of one whole are or are not halves, e.g. 'The two parts are not halves because they are not the same' (Communicating, Reasoning)<br>• use the term 'half' accurately in everyday situations<br>• record halves of objects using drawings | **Suggested Content from Syllabus**<br>• Recognise and interpret common uses of halves, quarters and eighths of shapes and collections<br>• use concrete materials to model a half, a quarter or an eighth of a whole object, e.g. divide a piece of ribbon into quarters<br>  <br>• create quarters by halving one half, e.g. 'I halved my paper then halved it again and now I have quarters' (Communicating, Problem Solving)<br>• describe the equal parts of a whole object, e.g. 'I folded my paper into eight equal parts and now I have eighths' (Communicating)<br>• discuss why $\frac{1}{8}$ is less than $\frac{1}{4}$, e.g. if a cake is shared among eight people, the slices are smaller than if the cake is shared among four people | **Suggested Content from Syllabus**<br>• Investigate equivalent fractions used in contexts (ACMNA077)<br>• model, compare and represent fractions with denominators of 2, 4 and 8; 3 and 6; and 5, 10 and 100<br>• model, compare and represent the equivalence of fractions with related denominators by redividing the whole, using concrete materials, diagrams and number lines, e.g.<br>  <br>$\frac{1}{2}$ $\frac{2}{4}$ $\frac{4}{8}$<br>• record equivalent fractions using diagrams and numerals e.g. $\frac{3}{5} = \frac{6}{10}$ | **Suggested Content from Syllabus**<br>• multiply simple fractions by whole numbers using repeated addition, leading to a rule, e.g. $\frac{2}{5} \times 3 = \frac{2}{5} + \frac{2}{5} + \frac{2}{5} = 1\frac{1}{5}$ leading to $\frac{2}{5} \times 3 + \frac{2 \times 3}{5} = 1\frac{1}{5}$<br>Find a simple fraction of a quantity where the result is a whole number, with and without digital technologies (ACMNA127)<br>• calculate unit fractions of collections, with and without digital technologies, e.g. calculate $\frac{1}{5}$ of 30<br>• describe the connection between finding a unit fraction of a collection and the operation of division (Communicating, Problem Solving) | **Suggested Content from Syllabus**<br>• Compare fractions using equivalence; locate and represent positive and negative fractions and mixed numbers on a number line (ACMNA152)<br>• determine highest common factors and lowest common multiples<br>• generate equivalent fractions<br>• write a fraction in its simplest form<br>• express improper fractions as mixed numerals and vice versa<br>• place positive and negative fractions, mixed numerals and decimals on a number line to compare their relative values<br>• interpret a given scale to determine fractional values represented on a number line (Problem Solving) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• recognise that fractions refer to equal parts of a whole, e.g. all four quarters of an object are the same size<br>• visualise fractions that are equal parts of a whole, e.g. 'Imagine where you would cut the rectangle before cutting it' (Problem Solving)<br>• recognise when objects and shapes have been shared into halves, quarters or eighths<br>• record equal parts of whole objects and shapes, and the relationship of the parts to the whole, using pictures and the fraction notation for half $\frac{1}{2}$, quarter $\frac{1}{4}$ and eighth $\frac{1}{8}$, e.g.  <br>• use concrete materials to model a half $\frac{1}{2}$, a quarter $\frac{1}{4}$ or an eighth $\frac{1}{8}$ of a collection, e.g. quarters  <br>• describe equal parts of a collection of objects, e.g. 'I have quarters because the four parts have the same number of counters'<br>• recognise when a collection has been shared into halves, quarters or eighths<br>• record equal parts of a collection, and the relationship of the parts to the whole, using pictures and the fraction notation for half $\frac{1}{2}$, quarter $\frac{1}{4}$ and eighth $\frac{1}{8}$<br>• use fraction language in a variety of everyday contexts, e.g. the half-hour, one-quarter of the class | | **Suggested Content Continued**<br>• calculate a simple fraction of a collection/quantity, with and without digital technologies, e.g. calculate $\frac{2}{5}$ of 30<br>• explain how unit fractions can be used in the calculation of simple fractions of collections/quantities, e.g. 'To calculate $\frac{3}{8}$ of a quantity, I found $\frac{1}{8}$ of the collection first and then multiplied by 3' (Communicating, Reasoning)<br>• solve word problems involving a fraction of a collection/quantity | **Suggested Content Continued**<br>• choose an appropriate scale to display given fractional values on a number line, e.g. when plotting thirds or sixths, a scale of 3 cm for every whole is easier to use than a scale of 1 cm for every whole (Communicating, Reasoning)<br>• Solve problems involving addition and subtraction of fractions, including those with unrelated denominators (ACMNA153)<br>• add and subtract fractions, including mixed numerals and fractions with unrelated denominators, using written and calculator methods<br>• recognise and explain incorrect operations with fractions, e.g. explain why $\frac{2}{3} + \frac{1}{4} \neq \frac{3}{7}$<br>interpret fractions and mixed numerals on a calculator display (Communicating)<br>• subtract a fraction from a whole number using mental and written strategies, and a calculator, e.g. $3 - \frac{2}{3} = 2 + 1 - \frac{2}{3} = 2\frac{1}{3}$ |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Vocabulary from Syllabus**<br>Whole, part, equal parts, half, halves. | **Vocabulary from Syllabus**<br>Whole, part, equal parts, half, halves, about a half, more than a half, less than a half. | **Vocabulary from Syllabus**<br>Whole, part, equal parts, half, quarter, eighth, third, fifth, one-third, one-fifth, fraction, denominator, numerator, mixed numeral, whole number, fractional part, number line. | **Vocabulary from Syllabus**<br>Whole, equal parts, half, quarter, eighth, third, sixth, twelfth, fifth, tenth, hundredth, thousandth, one-thousandth, fraction, numerator, denominator, mixed numeral, number line, proper fraction, improper fraction | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Recognise, describe and represent one-half as one of two equal parts of whole objects, shapes and collections<br>• Use fraction notation $\frac{1}{2}$ | **Other Key Ideas covered later**<br>• Model and represent fractions of denominators 2, 3, 4, 5 and 8<br>• Count by quarters, halves and thirds, including with mixed numerals<br>• Represent fractions on a number line that extends beyond 1<br>• Apply the place value system to represent tenths and hundredths as decimals<br>• Make connections between fraction and decimal notation<br>Model, compare and represent decimals with up to two decimal places | **Other Key Ideas covered later**<br>• Represent, compare and order unit fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12 and 100<br>• Express mixed numerals as improper fractions and vice versa<br>• Model and represent strategies to add and subtract fractions with the same denominator<br>• Add and subtract fractions, included mixed numerals, with the same or related denominators<br>• Apply the place value system to represent thousandths as decimals<br>• Compare, order and represent decimals with up to three decimal places<br>• Determine, generate and record equivalent fractions<br>• Write fractions in 'simplest form'<br>• Use mental, written and calculator strategies to add and subtract decimals with up to three decimal places<br>• Use mental, written and calculator strategies to multiply decimals by one- and two-digit whole numbers<br>• Use mental, written and calculator strategies to divide decimals by one-digit whole numbers, 10, 100 and 1000<br>• Solve word problems involving fractions and decimals, including money problems<br>• Recognise percentages in everyday situations<br>• Make connections between percentages, fractions and decimals<br>• Use mental, written and calculator strategies to calculate 10%, 25% and 50% of quantities, including as discounts | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Page :** 47 - 49 | **Syllabus Page :** 79 - 82 | **Syllabus Page :** 132 - 136 | **Syllabus Page :** 195 - 202 | **Syllabus Page :** 248 - 251 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

Return to Yearly Overview

# Mass (C)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• describes and compares masses of objects using everyday language MAe-12MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1W<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• estimates, measures, compares and records masses of objects using informal units MA1-12MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• estimates, measures, compares and records masses of objects using kilograms and grams MA2-12MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• selects and uses the appropriate unit and device to measure masses of objects, and converts between units of mass MA3-12MG | **Syllabus Outcomes** |
| **Focus Key Ideas for this week**<br>• Identify the attribute of 'mass' as a measure of the amount of matter in an object<br>• Compare masses directly by hefting<br>• Use comparative language to describe masses<br>• Record comparisons of mass informally | **Focus Key Ideas for this week**<br>• Measure and compare masses using uniform informal units<br>• Record masses by referring to the number and type of uniform informal unit used | **Focus Key Ideas for this week**<br>• Use kilograms and grams to measure and compare masses using a scaled instrument<br>• Record masses using abbreviations (kg and g) | **Focus Key Ideas for this week**<br>• Select and use appropriate instruments and units to measure mass<br>• Record mass using decimal notation to three decimal places<br>• Convert between tonnes, kilograms and grams | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Use direct and indirect comparisons to decide which is heavier, and explain reasoning in everyday language (ACMMG006)<br>• identify the attribute of 'mass' as the amount of matter in an object<br>• use everyday language to describe objects in terms of their mass, e.g. heavy, light, hard to push, hard to pull<br>• use comparative language to describe mass, e.g. heavier, lighter, heaviest, lightest<br>• identify an object that is heavier or lighter than another (Communicating)<br>• compare and describe two masses, such as by pushing or pulling | **Suggested Content from Syllabus**<br>• Compare masses of objects using balance scales (ACMMG038)<br>• compare and order the masses of two or more objects by hefting and check using a pan balance<br>• recognise that mass is conserved, e.g. the mass of a lump of plasticine remains constant regardless of the shape it is moulded into or whether it is divided up into smaller pieces<br>• use uniform informal units to measure the mass of an object by counting the number of units needed to obtain a level balance on a pan balance<br>• select an appropriate informal unit to measure the mass of an object and justify the choice | **Suggested Content from Syllabus**<br>• Use scaled instruments to measure and compare masses (ACMMG084)<br>• recognise the need for a formal unit smaller than the kilogram<br>• recognise that there are 1000 grams in one kilogram, i.e. 1000 grams = 1 kilogram<br>• use the gram as a unit to measure mass, using a scaled instrument<br>• associate gram measures with familiar objects, e.g. a standard egg has a mass of about 60 grams (Reasoning)<br>• record masses using the abbreviation for gram(s) (g)<br>• compare two or more objects by mass measured in kilograms and grams, using a set of scales | **Suggested Content from Syllabus**<br>• Connect decimal representations to the metric system (ACMMG135)<br>• measure mass using scales and record using decimal notation of up to three decimal places, e.g. 0.875 kg<br>• Convert between common metric units of mass (ACMMG136)<br>• convert between kilograms and grams and between kilograms and tonnes<br>• solve problems involving different units of mass, e.g. find the total mass of three items weighing 50 g, 750 g and 2.5 kg<br>• relate the mass of one litre of water to one kilogram | **Suggested Content from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• compare two masses directly by hefting, e.g. 'This toy feels heavier than that one'<br>• predict which object would be heavier than, lighter than, or have about the same mass as another object and explain reasons for this prediction (Communicating, Reasoning)<br>• investigate the use of hefting in practical situations, e.g. the practice used by Aboriginal people of hefting duck eggs to determine the sex of ducks (Problem Solving)<br>• record comparisons of mass informally using drawings, numerals and words | **Suggested Content Continued**<br>• explain the relationship between the mass of a unit and the number of units needed, e.g. more toothpicks than pop sticks will be needed to balance the object (Communicating, Reasoning)<br>• record masses by referring to the number and type of uniform informal unit used<br>• compare two or more objects according to their masses using appropriate uniform informal units<br>• record comparisons of mass informally using drawings, numerals and words, and by referring to the uniform informal units used<br>• find differences in mass by measuring and comparing, e.g. 'The pencil has a mass equal to three blocks and a pair of plastic scissors has a mass of six blocks, so the scissors are three blocks heavier than the pencil'<br>• predict whether the number of units will be more or less when a different unit is used, e.g. 'I will need more pop sticks than blocks as the pop sticks are lighter than the blocks' (Reasoning)<br>• solve problems involving mass (Problem Solving)<br>• estimate mass by referring to the number and type of uniform informal unit used and check by measuring | **Suggested Content Continued**<br>• interpret statements, and discuss the use of kilograms and grams, on commercial packaging (Communicating, Problem Solving)<br>• interpret commonly used fractions of a kilogram, including $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$ and relate these to the number of grams<br>• solve problems, including those involving commonly used fractions of a kilogram (Problem Solving)<br>• record masses using kilograms and grams, e.g. 1 kg 200 g | | |
| **Vocabulary from Syllabus**<br>Mass, matter, heavy, heavier, heaviest, light, lighter, lightest, about the same as, hard to push, hard to pull. | **Vocabulary from Syllabus**<br>Mass, heavy, heavier, light, lighter, about the same as, pan balance, (level) balance. | **Vocabulary from Syllabus**<br>Mass, more than, less than, about the same as, pan balance, (level) balance, measure, estimate, kilogram. | **Vocabulary from Syllabus**<br>Mass, measure, device, scales, tonne, kilogram, gram. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Compare two objects based on mass using a pan balance<br>• Place objects on either side of a pan balance to obtain a level balance | **Other Key Ideas covered later**<br>• Recognise the need for formal units to measure mass<br>• Use kilograms to measure, compare, order and estimate masses<br>• Record masses using abbreviations (kg) | **Other Key Ideas covered later**<br>• Recognise the need for tonnes to measure mass<br>• Record masses using abbreviations (t, kg and g) | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Page :** 56 - 57 | **Syllabus Page :** 97 - 99 | **Syllabus Page :** 152 - 155 | **Syllabus Page :** 218 - 219 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Data (C)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• represents data and interprets data displays made from objects and pictures MAe-17SP | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• gathers and organises data, displays data in lists, tables and picture graphs, and interprets the results MA1-17SP | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• selects appropriate methods to collect data, and constructs, compares, interprets and evaluates data displays MA2-18SP | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• uses appropriate methods to collect data, constructs and interprets data displays, and analyses sets of data MA3-18SP | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• collects, represents and interprets single sets of data, using appropriate statistical displays MA4-19SP |
| **Focus Key Ideas for this week**<br>• Collect information about themselves and their environment<br>• Organise actual objects into data displays<br>• Interpret data displays made from objects | **Focus Key Ideas for this week**<br>• Pose questions and collect categorical data<br>• Create data displays using lists, tables and picture graphs (one-to-one correspondence) and interpret them | **Focus Key Ideas for this week**<br>• Select and trial methods for data collection, including survey questions and recording sheets<br>• Construct data displays including tables, and column graphs and picture graphs of many-to-one correspondence<br>• Evaluate the effectiveness of different displays | **Focus Key Ideas for this week**<br>• Interpret and create two-way tables<br>• Interpret side-by-side column graphs<br>• Compare a range of data displays to determine the most appropriate display for the data<br>• Interpret and critically evaluate data representations in digital media and elsewhere | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Answer yes/no questions to collect information (ACMSP011)<br>• collect information about themselves and their environment, including by asking and answering yes/no questions<br>• pose and answer questions about situations using everyday language, e.g. 'Do you have any brothers or sisters?', 'What is the favourite colour of most people in our class?' (Communicating)<br>• Organise objects into simple data displays and interpret the displays group objects according to characteristics to form a simple data display, e.g. sort blocks/counters according to colour | **Suggested Content from Syllabus**<br>• Identify a question of interest based on one categorical variable and gather data relevant to the question (ACMSP048)<br>• pose suitable questions that will elicit categorical answers and gather the data, e.g. 'Which school sport is the most popular with our class members?', 'How did each student in our class get to school today?'<br>• predict the likely responses within data to be collected (Reasoning)<br>• determine what data to gather in order to investigate a question of interest, e.g. colour, mode of transport, gender, type of animal, favourite sport (Problem Solving) | **Suggested Content from Syllabus**<br>• Select and trial methods for data collection, including survey questions and recording sheets (ACMSP095)<br>• create a survey and related recording sheet, considering the appropriate organisation of categories for data collection<br>• choose effective ways to collect and record data for an investigation, e.g. creating a survey with a scale of 1 to 5 to indicate preferences (1 = don't like, 2 = like a little, 3 = don't know, 4 = like, 5 = like a lot) (Communicating, Problem Solving)<br>• refine survey questions as necessary after a small trial | **Suggested Content from Syllabus**<br>• Interpret and compare a range of data displays, including side-by-side column graphs for two categorical variables (ACMSP147)<br>• interpret data presented in two-way tables<br>• create a two-way table to organise data involving two categorical variables, e.g. interpret side-by-side column graphs for two categorical variables, e.g. favourite television show of students in Year 1 compared to students in Year 6<br>• interpret and compare different displays of the same data set to determine the most appropriate display for the data set | **Suggested Content from Syllabus**<br>• define 'variable' in the context of statistics as something measurable or observable that is expected to change over time or between individual observations<br>• recognise variables as categorical or numerical (either discrete or continuous)<br>• identify examples of categorical variables (e.g. colour, gender), discrete numerical variables (e.g. number of students, shoe size) and continuous numerical variables (e.g. height, weight)<br>• recognise that data collected on a rating scale (Likert-type scale) is categorical, e.g. 1 = dislike, 2 = neutral, 3 = like (Communicating) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• compare the sizes of groups of objects by counting (Reasoning)<br>• arrange objects in rows or columns according to characteristics to form a data display, e.g. arrange lunchboxes in columns according to colour<br>• give reasons why a row of three objects may look bigger than a row of five objects, e.g. 'The three green lunchboxes are spaced more than the five blue lunchboxes' (Communicating, Reasoning)<br>• interpret information presented in a display of objects to answer questions, e.g. 'How many children in our class have red pencil cases?' | **Suggested Content Continued**<br>• Collect, check and classify data (ACMSP049)<br>• collect data on familiar topics through questioning, e.g. 'How many students are in our class each day this week?'<br>• use tally marks to assist with data collection (Communicating)<br>• identify categories of data and use them to sort data, e.g. sort data collected on attendance by day of the week and into boys and girls present<br>• Create displays of data using lists, tables and picture graphs and interpret them (ACMSP050)<br>• represent data in a picture graph using a baseline, equal spacing, same-sized symbols and a key indicating one-to-one correspondence<br>• identify misleading representations of data in a picture graph, e.g. where the symbol used to represent one item is shown in different sizes or where symbols are not equally spaced (Reasoning)<br>• use digital technologies to create picture graphs (Communicating)<br>• display data using lists and tables<br>• use displays to communicate information gathered in other learning areas, e.g. data gathered in a unit on families or local places (Communicating)<br>• interpret information presented in lists, tables and picture graphs<br>• describe data displayed in simple tables and picture graphs found in books and created by other students (Communicating)<br>• record observations based on tables and picture graphs developed from collected data | **Suggested Content Continued**<br>• discuss and decide the most suitable question to investigate a particular matter of interest, e.g. by narrowing the focus of a question from 'What is the most popular playground game?' to 'What is the most popular playground game among Year 3 students at our school?' (Communicating, Reasoning)<br>• conduct a survey to collect categorical data<br>• after conducting a survey, discuss and determine possible improvements to the questions or recording sheet (Communicating, Reasoning)<br>• compare the effectiveness of different methods of collecting and recording data, e.g. creating categories of playground games and using tally marks, compared to asking open-ended questions such as 'What playground game do you like to play?'<br>• discuss the advantages and/or disadvantages of open-ended questions in a survey,<br>• compared to questions with pre-determined categories (Communicating, Reasoning)<br>• Construct suitable data displays, with and without the use of digital technologies, from given or collected data; include tables, column graphs and picture graphs where one picture can represent many data values (ACMSP096)<br>• represent given or collected categorical data in tables, column graphs and picture graphs, where one picture represents many data values, with and without the use digital technologies<br>• discuss and determine a suitable many-to-one correspondence to draw graphs for large data sets and state the key used, e.g. = 10 people if there are 200 data values (Communicating, Reasoning) | **Suggested Content Continued**<br>• compare the effectiveness of different student-created data displays (Communicating)<br>• discuss the advantages and disadvantages of different representations of the same data (Communicating)<br>• explain which display is the most appropriate for interpretation of a particular data set (Communicating, Reasoning)<br>• compare side-by-side column graphs with two-way tables (Reasoning)<br>• Interpret secondary data presented in digital media and elsewhere (ACMSP148)<br>• interpret data representations found in digital media and in factual texts<br>• interpret tables and graphs from the media/internet, e.g. data about different sports teams (Reasoning)<br>• identify and describe conclusions that can be drawn from a particular representation of data (Communicating, Reasoning)<br>• critically evaluate data representations found in digital media and related claims<br>• discuss the messages that those who created a particular data representation might have wanted to convey (Communicating)<br>• identify sources of possible bias in representations of data in the media by discussing various influences on data collection and representation, e.g. who created/paid for the data collection or whether the representation is part of an advertisement (Communicating, Reasoning)<br>• identify misleading representations of data in the media, e.g. broken axes, or graphics that are not drawn to scale (Reasoning) | **Suggested Content Continued**<br>• recognise and explain the difference between a 'population' and a 'sample' selected from a population when collecting data<br>• investigate and determine the differences between collecting data by observation, census and sampling<br>• identify examples of variables for which data could be collected by observation, e.g. direction travelled by vehicles arriving at an intersection, native animals in a local area (Communicating)<br>• identify examples of variables for which data could be collected by a census or by a sample, e.g. a census to collect data about the income of Australians, a sample for TV ratings (Communicating)<br>• discuss the practicalities of collecting data through a census compared to a sample, including limitations due to population size, e.g. in countries such as China and India, a census is conducted only once per decade (Communicating, Reasoning)<br>• collect data using a random process, e.g. numbers from a page in a phone book, or from a random number generator<br>• identify issues that may make it difficult to obtain representative data from either primary or secondary sources<br>• discuss constraints that may limit the collection of data or result in unreliable data, e.g. lack of proximity to the location where data could be collected, lack of access to digital technologies, or cultural sensitivities that may influence the results (Communicating, Reasoning)<br>• investigate and question the selection of data used to support a particular viewpoint, e.g. the selective use of data in product advertising |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | **Suggested Content Continued**<br>• use grid paper to assist in drawing graphs that represent data using many-to-one correspondence<br>• use data in a spreadsheet to create column graphs with appropriately labelled axes (Communicating, Problem Solving)<br>• mark equal spaces on axes, name and label axes, and choose appropriate titles for graphs (Communicating)<br>• Evaluate the effectiveness of different displays in illustrating data features, including variability (ACMSP097)<br>• interpret and evaluate the effectiveness of various data displays found in media and in factual texts, where displays represent data using many-to-one correspondence<br>• identify and discuss misleading representations of data (Communicating, Reasoning)<br>• discuss and compare features of data displays, including considering the number and<br>• appropriateness of the categories used, e.g. a display with only three categories (blue, red, other) for car colour is not likely to be useful (Communicating)<br>• discuss the advantages and disadvantages of different representations of the same categorical data, e.g. column graphs compared to picture graphs that represent data using many-to-one correspondence (Communicating) | | |
| **Vocabulary from Syllabus**<br>Information, collect, group, display, objects. | **Vocabulary from Syllabus**<br>Information, data, collect, gather, display, objects, symbol, tally mark, picture, row. | **Vocabulary from Syllabus**<br>Information, data, collect, category, display, symbol, list, table, column graph, picture graph, vertical columns, horizontal bars, equal spacing, title, key, vertical axis, horizontal axis, axes, spreadsheet. | **Vocabulary from Syllabus**<br>Data, survey, category, display, tabulate, table, column graph, vertical columns, horizontal bars, equal spacing, title, scale, vertical axis, horizontal axis, axes, line graph, dot plots, spreadsheet. | **Vocabulary from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Collect data and track what has been counted<br>• Create data displays using objects and pictures (one-to-one correspondence) and interpret them | **Other Key Ideas covered later**<br>• Plan methods for data collection<br>• Collect data, organise into categories and create displays using lists, tables, picture graphs and simple column graphs (one-to-one correspondence)<br>• Interpret and compare data displays | **Other Key Ideas covered later**<br>• Pose and refine questions and collect categorical and numerical data<br>• Create data displays, including tables, column graphs, line graphs and dot plots, appropriate for the data type<br>• Describe and interpret data presented in tables, column graphs, line graphs and dot plots | **Other Key Ideas covered later** |
| **Syllabus Page :** 65 | **Syllabus Page :** 114 - 117 | **Syllabus Page :** 173 - 176 | **Syllabus Page :** 237 - 240 | **Syllabus Page** : 291 - 302 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Position (B)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• describes position and gives and follows simple directions using everyday language MAe-16MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• represents and describes the position of objects in everyday situations and on maps MA1-16MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• uses simple maps and grids to represent position and follow routes, including using compass directions MA2-17MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• locates and describes position on maps using a grid-reference system MA3-17MG | **Syllabus Outcomes** |
| **Focus Key Ideas for this week**<br>• Use the terms 'left' and 'right' to describe position in relation to themselves | **Focus Key Ideas for this week**<br>• Use the terms 'left' and 'right' to describe position from the perspective of a person facing in the opposite direction<br>• Represent the position of objects in models and drawings | **Focus Key Ideas for this week**<br>• Determine directions N, E, S, W and NE, SE, SW, NW given one of the directions<br>• Interpret legends and directions on maps<br>• Interpret scales on maps and calculate the distance between two points using a scale | **Focus Key Ideas for this week**<br>• Use a grid reference on a map to describe and locate position<br>• Follow a sequence of directions to find a particular location on a map<br>• Describe routes using landmarks and directional language | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• describe the position of objects in relation to themselves using the terms 'left' and 'right', e.g. 'The tree is on my right'<br>• use the terms 'left' and 'right' when referring to familiar tasks, e.g. 'I hold my pencil in my right hand' (Communicating)<br>• participate in movement games involving turning and direction (Reasoning) | **Suggested Content from Syllabus**<br>• Give and follow directions to familiar locations (ACMMG023)<br>• use the terms 'left' and 'right' to describe the position of objects in relation to themselves and from the perspective of a person facing in the opposite direction, e.g. 'The ball is on her left'<br>• make simple models from memory, photographs, drawings or descriptions, e.g. students make a model of their classroom<br>• use knowledge of position in real-world contexts to re-create models (Communicating)<br>• draw a sketch of a simple model<br>• use drawings to represent the position of objects along a path | **Suggested Content from Syllabus**<br>• Use simple scales, legends and directions to interpret information contained in basic maps (ACMMG090)<br>• use a legend (or key) to locate specific objects on a map<br>• use a compass to find north and hence east, south and west<br>• use N, E, S and W to indicate north, east, south and west on a compass rose<br>• use an arrow to represent north on a map<br>• determine the directions north, east, south and west when given one of the directions<br>• use north, east, south and west to describe the location of an object on a simple map, given an arrow that represents north, e.g. 'The treasure is east of the cave'<br>• use NE, SE, SW and NW to indicate north-east, south-east, south-west and north-west on a compass rose, e.g. determine the directions NE, SE, SW and NW when given one of the directions | **Suggested Content from Syllabus**<br>• Use a grid-reference system to describe locations (ACMMG113)<br>• find locations on maps, including maps with legends, given their grid references<br>• describe particular locations on grid-referenced maps, including maps with a legend, e.g. 'The post office is at E4'<br>• Describe routes using landmarks and directional language (ACMMG113)<br>• find a location on a map that is in a given direction from a town or landmark, e.g. locate a town that is north-east of Broken Hill<br>• describe the direction of one location relative to another, e.g. 'Perth is west of Sydney<br>• follow a sequence of two or more directions, including compass directions, to locate and identify a particular location on a map | **Suggested Content from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | **Suggested Content Continued**<br>• use north-east, south-east, south-west and north-west to describe the location of an object on simple maps, given a compass rose, e.g. 'The tree is south-west of the sign'<br>• calculate the distance between two points on a map using a simple given scale<br>• use scales involving multiples up to 10 to calculate the distance between two points on maps and plans<br>• interpret simple scales on maps and plans, e.g. 'One centimetre on the map represents one metre in real life' (Reasoning)<br>• give reasons for using a particular scale on a map or plan (Communicating, Reasoning)<br>• recognise that the same location can be represented by maps or plans using different scales | **Suggested Content Continued**<br>• use a given map to plan and show a route from one location to another, e.g. draw a possible route to the local park or use an Aboriginal land map to plan a route<br>• use a street directory or online map to find the route to a given location (Problem Solving)<br>• describe a route taken on a map using landmarks and directional language, including compass directions, e.g. 'Start at the post office, go west to the supermarket and then go south-west to the park' | |
| **Vocabulary from Syllabus**<br>Position, between, next to, behind, inside, left, right, directions. | **Vocabulary from Syllabus**<br>Position, location, map, path. | **Vocabulary from Syllabus**<br>Position, location, map, plan, path, route, grid, grid reference, aerial view, directions. | **Vocabulary from Syllabus**<br>Position, location, map, plan, street directory, route, grid, grid reference, legend, key, scale, directions, compass, north, east, south, west, north-east, south-east, south-west, north-west. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Give and follow simple directions<br>• Use everyday language to describe position | **Other Key Ideas covered later**<br>• Give and follow directions to move to familiar locations and to position objects<br>• Describe a path from one location to another<br>• Interpret simple maps of familiar locations | **Other Key Ideas covered later**<br>• Create and interpret simple grid maps to show position and pathways<br>• Use a grid reference on a simple map to describe and locate position<br>• Draw and describe simple maps and paths | **Other Key Ideas covered later** | **Other Key Ideas covered later** |
| **Syllabus Page :** 64 | **Syllabus Page :** 112 - 113 | **Syllabus Page :** 169 - 172 | **Syllabus Page :** 235 - 236 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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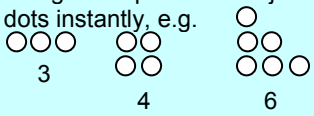
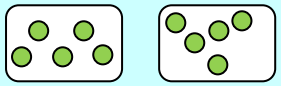
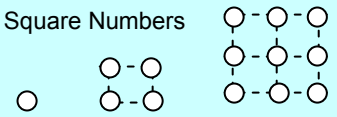
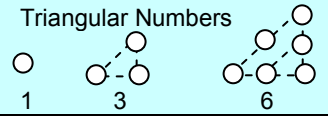
# Term 4

# Whole Numbers (G)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• counts to 30, and orders, reads and represents numbers in the range 0 to 20 MAe-4NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• applies place value, informally, to count, order, read and represent two- and three-digit numbers MA1-4NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• applies place value to order, read and represent numbers of up to five digits MA2-4NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• orders, reads and represents integers of any size and describes properties MA3-4NA | **Syllabus Outcomes** |
| **Focus Key Ideas for this week**<br>• Subitise small collections of objects | **Focus Key Ideas for this week**<br>• Read write and order three-digit numbers | **Focus Key Ideas for this week**<br>• State the place value of digits in numbers up to five digits | **Focus Key Ideas for this week**<br>• Model and describe square and triangular numbers | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Subitise small collections of objects (ACMNA003)<br>• recognise a pattern of objects or dots instantly, e.g.<br>  <br><br>• recognise dice and domino dot patterns (Communicating)<br>• instantly recognise (subitise) different arrangements for the same number, e.g. different representations of five<br>  <br>• recognise that the way objects are arranged affects how easy it is to subitise (Reasoning) | **Suggested Content from Syllabus**<br>• Develop confidence with number sequences from 100 by ones from any starting point (ACMNA012)<br>• count forwards or backwards by ones, from a given three-digit number<br>• identify the numbers before and after a given three-digit number<br>• describe the number before as 'one less than' and the number after as 'one more than' a given number (Communicating)<br>• Recognise, model, represent and order numbers to at least 1000 (ACMNA027)<br>• represent three-digit numbers using objects, pictures, words and numerals<br>• use the terms 'more than' and 'less than' to compare numbers<br>• use number lines and number charts beyond 100 to assist with counting and ordering (Communicating, Problem Solving) | **Suggested Content from Syllabus**<br>• pose and answer questions that extend understanding of numbers, e.g. 'What happens if I rearrange the digits in the number 12 345?', 'How can I rearrange the digits to make the largest number?' (Communicating, Reasoning)<br>• use place value to partition numbers of up to five digits<br>round numbers to the nearest ten, hundred, thousand or ten thousand | **Suggested Content from Syllabus**<br>• model square and triangular numbers and record each number group in numerical and diagrammatic form<br>• explain how square and triangular numbers are created (Communicating, Reasoning)<br>• explore square and triangular numbers using arrays, grid paper or digital technologies (Communicating, Problem Solving)<br>• recognise and explain the relationship between the way each pattern of numbers is created and the name of the number group (Communicating, Reasoning)<br>Square Numbers<br>  <br><br>Triangular Numbers<br>  <br> | **Suggested Content from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• give reasons for placing a set of numbers in a particular order (Communicating, Reasoning)<br>• Group, partition and rearrange collections of up to 1000 in hundreds, tens and ones to facilitate more efficient counting (ACMNA028)<br>• apply an understanding of place value and the role of zero to read, write and order three digit numbers<br>• make the largest and smallest number from three given digits (Communicating, Reasoning)<br>• count and represent large sets of objects by systematically grouping in tens and hundreds<br>• use models such as base 10 material, interlocking cubes and bundles of sticks to explain grouping (Communicating, Reasoning)<br>• use and explain mental grouping to count and to assist with estimating the number of items in large groups<br>• use place value to partition three-digit numbers, e.g. 326 as 3 groups of one hundred, 2 groups of ten and 6 ones<br>• state the place value of digits in numbers of up to three digits, e.g. 'In the number 583, the "5" represents 500 or 5 hundreds'<br>• partition three-digit numbers in non-standard forms, e.g. 326 can be 32 groups of ten and 6 ones<br>• round numbers to the nearest hundred<br>• estimate, to the nearest hundred, the number of objects in a collection and check by counting, e.g. show 120 pop sticks and ask students to estimate to the nearest hundred | | | |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Vocabulary from Syllabus**<br>Count forwards, count backwards, more than, less than, zero, ones, teen numbers, 'how many'. | **Vocabulary from Syllabus**<br>Count forwards, count backwards, number before, number after, more than, less than, number line, number chart, digit, zero, ones, groups of ten, tens, round to. | **Vocabulary from Syllabus**<br>Number before, number after, more than, greater than, less than, largest number, smallest number, ascending order, descending order, digit, zero, ones, groups of ten, tens, groups of one hundred, hundreds, groups of one thousand, thousands, place value, round to. | **Vocabulary from Syllabus**<br>Number line, whole number, zero, positive number, negative number, integer, prime number, composite number, factor, square number, triangular number. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Counts forwards to 30 from a given number<br>• Counts backwards from a given number in the range 0 to 20Compare, order, read and represent numbers to at least 20<br>• Read and use the ordinal names to at least 'tenth'<br>• Use the term 'is the same as' to express equality of groups<br>• Use the language of money | **Other Key Ideas covered later**<br>• Count forwards and backwards by ones from any starting point<br>• Partition two-digit numbers using place value Read, write and order two-digit numbers<br>• Read and use ordinal names to at least 'thirty-first'<br>• Recognise, describe and order Australian coins according to their value<br>• Count forwards and backwards by twos, threes, fives and tens from any starting point<br>• Partition numbers up to three digits using place value<br>• Recognise, count and order Australian coins and notes according to their value | **Other Key Ideas covered later**<br>• Count forwards and backwards by tens and hundreds from any starting point<br>• State the place value of digits in numbers up to four digits Read, write and order numbers up to four digits<br>• Read, write and order numbers up to five digits<br>• Record numbers up to five digits using expanded notation | **Other Key Ideas covered later**<br>• Read, write and order numbers of any size<br>• State the place value of digits in numbers of any size Record numbers of any size using expanded notation<br>• Determine factors and multiples of whole numbers<br>• Recognise the location of negative numbers in relation to zero on a number line<br>• Identify and describe prime and composite numbers | **Other Key Ideas covered later** |
| Syllabus Page : 40-42 | Syllabus Page : 66-69 | Syllabus Page : 120-121 | Syllabus Page : 180-181 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Whole Numbers (H)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• counts to 30, and orders, reads and represents numbers in the range 0 to 20 MAe-4NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• applies place value, informally, to count, order, read and represent two- and three-digit numbers MA1-4NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• applies place value to order, read and represent numbers of up to five digits MA2-4NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• orders, reads and represents integers of any size and describes properties MA3-4NA | **Syllabus Outcomes** |
| **Focus Key Ideas for this week**<br>• Use the term 'is the same as' to express equality of groups | **Focus Key Ideas for this week**<br>• Read write and order three-digit numbers | **Focus Key Ideas for this week**<br>• State the place value of digits in numbers up to five digits | **Focus Key Ideas for this week**<br>• Identify and describe prime and composite numbers | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• use the term 'is the same as' to express equality of groups<br>• determine whether two groups have the same number of objects and describe the equality, e.g. 'The number of objects here is the same as the number there' (Communicating, Reasoning) | **Suggested Content from Syllabus**<br>• Develop confidence with number sequences from 100 by ones from any starting point (ACMNA012)<br>• count forwards or backwards by ones, from a given three-digit number<br>• identify the numbers before and after a given three-digit number<br>• describe the number before as 'one less than' and the number after as 'one more than' a given number (Communicating)<br>• Recognise, model, represent and order numbers to at least 1000 (ACMNA027)<br>• represent three-digit numbers using objects, pictures, words and numerals<br>• use the terms 'more than' and 'less than' to compare numbers<br>• use number lines and number charts beyond 100 to assist with counting and ordering (Communicating, Problem Solving) | **Suggested Content from Syllabus**<br>• pose and answer questions that extend understanding of numbers, e.g. 'What happens if I rearrange the digits in the number 12 345?', 'How can I rearrange the digits to make the largest number?' (Communicating, Reasoning)<br>• use place value to partition numbers of up to five digits<br>round numbers to the nearest ten, hundred, thousand or ten thousand | **Suggested Content from Syllabus**<br>• Identify and describe properties of prime, composite, square and triangular numbers (ACMNA122)<br>• determine whether a number is prime, composite or neither<br>• explain whether a whole number is prime, composite or neither by finding the number of factors, e.g. '13 has two factors (1 and 13) and therefore is prime', '21 has more than two factors (1, 3, 7, 21) and therefore is composite', '1 is neither prime nor composite as it has only one factor, itself' (Communicating, Reasoning)<br>• explain why a prime number, when modelled as an array, can have only one row (Communicating, Reasoning) | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• give reasons for placing a set of numbers in a particular order (Communicating, Reasoning)<br>• Group, partition and rearrange collections of up to 1000 in hundreds, tens and ones to facilitate more efficient counting (ACMNA028)<br>• apply an understanding of place value and the role of zero to read, write and order three digit numbers<br>• make the largest and smallest number from three given digits (Communicating, Reasoning)<br>• count and represent large sets of objects by systematically grouping in tens and hundreds<br>• use models such as base 10 material, interlocking cubes and bundles of sticks to explain grouping (Communicating, Reasoning)<br>• use and explain mental grouping to count and to assist with estimating the number of items in large groups<br>• use place value to partition three-digit numbers, e.g. 326 as 3 groups of one hundred, 2 groups of ten and 6 ones<br>• state the place value of digits in numbers of up to three digits, e.g. 'In the number 583, the "5" represents 500 or 5 hundreds'<br>• partition three-digit numbers in non-standard forms, e.g. 326 can be 32 groups of ten and 6 ones<br>• round numbers to the nearest hundred<br>• estimate, to the nearest hundred, the number of objects in a collection and check by counting, e.g. show 120 pop sticks and ask students to estimate to the nearest hundred | | | |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Vocabulary from Syllabus**<br>Count forwards, count backwards, more than, less than, zero, ones, teen numbers, 'how many'. | **Vocabulary from Syllabus**<br>Count forwards, count backwards, number before, number after, more than, less than, number line, number chart, digit, zero, ones, groups of ten, tens, round to. | **Vocabulary from Syllabus**<br>Number before, number after, more than, greater than, less than, largest number, smallest number, ascending order, descending order, digit, zero, ones, groups of ten, tens, groups of one hundred, hundreds, groups of one thousand, thousands, place value, round to. | **Vocabulary from Syllabus**<br>Number line, whole number, zero, positive number, negative number, integer, prime number, composite number, factor, square number, triangular number. | **Suggested Content from Syllabus** |
| **Other Key Ideas covered later**<br>• Counts forwards to 30 from a given number<br>• Counts backwards from a given number in the range 0 to 20<br>• Compare, order, read and represent numbers to at least 20<br>• Read and use the ordinal names to at least 'tenth'<br>• Subitise small collections of objects<br>Use the language of money | **Other Key Ideas covered later**<br>• Count forwards and backwards by ones from any starting point<br>• Partition two-digit numbers using place value Read, write and order two-digit numbers<br>• Read and use ordinal names to at least 'thirty-first'<br>• Recognise, describe and order Australian coins according to their value<br>• Count forwards and backwards by twos, threes, fives and tens from any starting point<br>• Partition numbers up to three digits using place value<br>• Recognise, count and order Australian coins and notes according to their value | **Other Key Ideas covered later**<br>• Count forwards and backwards by tens and hundreds from any starting point<br>• State the place value of digits in numbers up to four digits Read, write and order numbers up to four digits<br>• Read, write and order numbers up to five digits<br>• Record numbers up to five digits using expanded notation | **Other Key Ideas covered later**<br>• Read, write and order numbers of any size<br>• State the place value of digits in numbers of any size<br>• Record numbers of any size using expanded notation<br>• Determine factors and multiples of whole numbers<br>• Recognise the location of negative numbers in relation to zero on a number line<br>Model and describe square and triangular numbers | **Vocabulary from Syllabus** |
| Syllabus Page : 40-42 | Syllabus Page : 66-69 | Syllabus Page : 120-121 | Syllabus Page : 180-181 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Time (E)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• sequences events, using everyday language to describe the durations of activities, and reads hour time on clocks MAe-13MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• describes, compares and orders durations of events, and reads half- and quarter-hour time | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• reads and records time in one-minute intervals and converts between hours, minutes and seconds MA2-13MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• uses 24-hour time and am and pm notation in real-life situations, and constructs timelines MA3-13MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• performs calculations of time that involve mixed units, and interprets time zones MA4-15MG |
| **Focus Key Ideas for this week**<br>• Tell time on the hour on digital and analog clocks | **Focus Key Ideas for this week**<br>• Tell time to the quarter-hour, using the language of 'past' and 'to' | **Focus Key Ideas for this week**<br>• Tell time to the minute, using the language of 'past' and 'to'<br>• Use and interpret am and pm notation | **Focus Key Ideas for this week**<br>• Convert between 12- and 24- hour time | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Tell time on the hour on analog and digital clocks<br>• read analog and digital clocks to the hour using the term 'o'clock'<br>• describe the position of the hands on an analog clock when reading hour time | **Suggested Content from Syllabus**<br>• Tell time to the quarter-hour using the language of 'past' and 'to' (ACMMG039)<br>• read analog and digital clocks to the quarter-hour using the terms 'past' and 'to', e.g. 'It is a quarter past three', 'It is a quarter to four'<br>• describe the position of the hands on a clock for quarter past and quarter to<br>• describe the hands on a clock as turning in a 'clockwise' direction (Communicating)<br>• associate the numerals 3, 6 and 9 with 15, 30 and 45 minutes and with the terms 'quarter past', 'half past' and 'quarter to' respectively<br>• identify which hour has just passed when the hour hand is not pointing to a numeral<br>• record quarter-past and quarter-to time on analog and digital clocks | **Suggested Content from Syllabus**<br>• read analog and digital clocks to the minute, including using the terms 'past' and 'to', e.g. 7:35 is read as 'seven thirty-five' or 'twenty-five to eight'<br>• record in words various times shown on analog and digital clocks<br>• Use am and pm notation and solve simple time problems (ACMMG086)<br>• record digital time using the correct notation, including am and pm, e.g. 9:15 am<br>• describe times given using am and pm notation in relation to 'midday' (or 'noon') and 'midnight', e.g. '3:15 pm is three and a quarter hours after midday' (Communicating)<br>• relate analog notation to digital notation for time, e.g. ten to nine in the morning is the same time as 8:50 am | **Suggested Content from Syllabus**<br>• Compare 12- and 24-hour time systems and convert between them (ACMMG110)<br>• tell the time accurately using 24-hour time, e.g. '2330 is the same as 11:30 pm'<br>• describe circumstances in which 24-hour time is used, e.g. transport, armed forces, digital technologies (Communicating)<br>• convert between 24-hour time and time given using am or pm notation<br>• compare the local times in various time zones in Australia, including during daylight saving | **Suggested Content from Syllabus**<br>• Solve problems involving duration, including using 12- and 24-hour time within a single time zone<br>• add and subtract time mentally using bridging strategies, e.g. from 2:45 to 3:00 is 15 minutes and from 3:00 to 5:00 is 2 hours, so the time from 2:45 until 5:00 is 15 minutes + 2 hours = 2 hours 15 minutes<br>• add and subtract time with a calculator using the 'degrees, minutes, seconds' button<br>• round calculator answers to the nearest minute or hour<br>• interpret calculator displays for time calculations, e.g. 2.25 on a calculator display for time means $2\frac{1}{4}$ hours<br>• solve problems involving duration, including where times are expressed in 12-hour and 24- hour notation, and duration that requires the use of days, hours and minutes in its calculation |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | **Suggested Content Continued**<br>• solve simple time problems using appropriate strategies, e.g. calculate the time spent on particular activities during the school day | | **Suggested Content Continued**<br>• solve problems involving calculations with mixed time units, e.g. 'How old is a person today if he or she was born on 30/6/1999?'<br>• Solve problems involving international time zones<br>• compare times in, and calculate time differences between, major cities of the world, e.g. 'Given that London is 10 hours behind Sydney, what time is it in London when it is 6:00 pm in Sydney?'<br>• interpret and use information related to international time zones from maps (Problem Solving)<br>• solve problems about international time relating to everyday life. |
| **Vocabulary from Syllabus**<br>Daytime, night-time, yesterday, today, tomorrow, before, after, next, a long time, a short time, week, days, weekdays, weekend days, time, morning, afternoon, clock, analog, digital, hands (of a clock), o'clock. | **Vocabulary from Syllabus**<br>Calendar, days, date, month, year, seasons, time, clock, analog, digital, hour hand, minute hand, o'clock, half past. | **Vocabulary from Syllabus**<br>Calendar, date, timetable, timeline, time, hour, minute, second, midday, noon, midnight, am (notation), pm (notation). | **Vocabulary from Syllabus**<br>Timetable, timeline, scale, 12-hour time, 24-hour time, hour, minute, second, am (notation), pm (notation). | **Vocabulary from Syllabus**<br>The words 'minute' (meaning 'small') and 'minute' (a time measure), although pronounced differently, are really the same word. A minute (time) is a minute (small) part of one hour. A minute (angle) is a minute (small) part of a right angle. |
| **Other Key Ideas covered later**<br>• Connect days of the week to familiar events and actions<br>• Compare and order the duration of events using the everyday language of time<br>• Sequence events in time | **Other Key Ideas covered later**<br>• Name and order months and seasons<br>• Use a calendar to identify the date and determine the number of days in each month<br>• Describe duration using months, weeks, days and hours<br>• Tell time to the half-hour | **Other Key Ideas covered later**<br>• Read and interpret simple timetables, timelines and calendars<br>• Recognise the coordinated movements of the hands on a clock<br>• Convert between seconds, minutes, hours and days | **Other Key Ideas covered later**<br>• Determine and compare duration of events<br>• Interpret and use timetables<br>• Draw and interpret timelines using the given scale | **Other Key Ideas covered later** |
| **Syllabus Page :** 58 - 59 | **Syllabus Page :** 100 - 103 | **Syllabus Page :** 156 - 158 | **Syllabus Page :** 220 - 221 | **Syllabus Page :** 279 - 280 |
|  |  |  |  |  |

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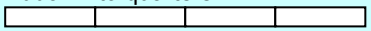
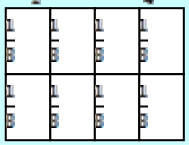
# Fractions (E)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• describes two equal parts as halves MAe-7NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• represents and models halves, quarters and eighths MA1-7NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• represents, models and compares commonly used fractions and decimals MA2-7NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• compares, orders and calculates with fractions, decimals and percentages MA3-7NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• operates with fractions, decimals and percentages MA4-5NA |
| **Focus Key Ideas for this week**<br>• Establish the concept of one-half<br>• Record halves of objects using drawings | **Focus Key Ideas for this week**<br>• Recognise, describe and represent halves, quarters and eighths of whole objects, shapes and collections<br>• Use fraction notation $\frac{1}{4}$ and $\frac{1}{8}$ | **Focus Key Ideas for this week**<br>• Make connections between fraction and decimal notation | **Focus Key Ideas for this week**<br>• Solve word problems involving fractions and decimals, including money problems<br>• Make connections between percentages, fractions and decimals | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• share an object by dividing it into two equal parts, e.g. cutting a piece of ribbon into halves<br>• describe how to make equal parts (Communicating)<br>• recognise that halves are two equal parts<br>• explain the reason for dividing an object in a particular way (Communicating, Reasoning)<br>• recognise when two parts are not halves of the one whole<br>• explain why two parts of one whole are or are not halves, e.g. 'The two parts are not halves because they are not the same' (Communicating, Reasoning)<br>• use the term 'half' accurately in everyday situations<br>• record halves of objects using drawings | **Suggested Content from Syllabus**<br>• Recognise and interpret common uses of halves, quarters and eighths of shapes and collections<br>• use concrete materials to model a half, a quarter or an eighth of a whole object, e.g. divide a piece of ribbon into quarters<br>  <br>• create quarters by halving one half, e.g. 'I halved my paper then halved it again and now I have quarters' (Communicating, Problem Solving)<br>• describe the equal parts of a whole object, e.g. 'I folded my paper into eight equal parts and now I have eighths' (Communicating)<br>• discuss why $\frac{1}{8}$ is less than $\frac{1}{4}$, e.g. if a cake is shared among eight people, the slices are smaller than if the cake is shared among four people | **Suggested Content from Syllabus**<br>• Recognise that the place value system can be extended to tenths and hundredths, and make connections between fractions and decimal notation (ACMNA079)<br>• recognise and apply decimal notation to express whole numbers, tenths and hundredths as decimals, e.g. 0.1 is the same as $\frac{1}{10}$<br>investigate equivalences using various methods, e.g. use a number line or a calculator to show that $\frac{1}{2}$ is the same as 0.5 and $\frac{5}{10}$ (Communicating, Reasoning)<br>• identify and interpret the everyday use of fractions and decimals, such as those in advertisements (Communicating, Problem Solving) | **Suggested Content from Syllabus**<br>• Make connections between equivalent fractions, decimals and percentages (ACMNA131)<br>• recognise that the symbol % means 'percent'<br>• represent common percentages as fractions and decimals, e.g. '25% means 25 out of 100 or $\frac{1}{4}$ or 0.25'<br>• recognise fractions, decimals and percentages as different representations of the same value (Communicating)<br>• recall commonly used equivalent percentages, decimals and fractions, e.g. 75%, 0.75, $\frac{3}{4}$ (Communicating)<br>• represent simple fractions as decimals and as percentages | **Suggested Content from Syllabus**<br>• Compare fractions using equivalence; locate and represent positive and negative fractions and mixed numbers on a number line (ACMNA152)<br>• determine highest common factors and lowest common multiples<br>• generate equivalent fractions<br>• write a fraction in its simplest form<br>• express improper fractions as mixed numerals and vice versa<br>• place positive and negative fractions, mixed numerals and decimals on a number line to compare their relative values<br>• interpret a given scale to determine fractional values represented on a number line (Problem Solving) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• recognise that fractions refer to equal parts of a whole, e.g. all four quarters of an object are the same size<br>• visualise fractions that are equal parts of a whole, e.g. 'Imagine where you would cut the rectangle before cutting it' (Problem Solving)<br>• recognise when objects and shapes have been shared into halves, quarters or eighths<br>• record equal parts of whole objects and shapes, and the relationship of the parts to the whole, using pictures and the fraction notation for half $\frac{1}{2}$, quarter $\frac{1}{4}$ and eighth $\frac{1}{8}$, e.g.  <br>• use concrete materials to model a half $\frac{1}{2}$, a quarter $\frac{1}{4}$ or an eighth $\frac{1}{8}$ of a collection, e.g. quarters  <br>• describe equal parts of a collection of objects, e.g. 'I have quarters because the four parts have the same number of counters'<br>• recognise when a collection has been shared into halves, quarters or eighths<br>• record equal parts of a collection, and the relationship of the parts to the whole, using pictures and the fraction notation for half $\frac{1}{2}$, quarter $\frac{1}{4}$ and eighth $\frac{1}{8}$<br>• use fraction language in a variety of everyday contexts, e.g. the half-hour, one-quarter of the class | **Suggested Content Continued**<br>• state the place value of digits in decimal numbers of up to two decimal places<br>• use place value to partition decimals of up to two decimal places, e.g. $5.37 = 5 + \frac{3}{10} + \frac{7}{100}$<br>partition decimals of up to two decimal places in non-standard forms, e.g. $5.37 = 5 + \frac{37}{100}$<br>• apply knowledge of hundredths to represent amounts of money in decimal form, e.g. five<br>• dollars and 35 cents is $5\frac{35}{100}$, which is the same as $5.35 (Communicating) | **Suggested Content Continued**<br>• interpret and explain the use of fractions, decimals and percentages in everyday contexts, e.g. $\frac{3}{4}$ hour = 45 minutes, percentage of trees in the local area that are native to Australia (Communicating, Reasoning)<br>• represent decimals as fractions and percentages, e.g. $1.37 = 137\% = \frac{137}{100} = 1\frac{37}{100}$ | **Suggested Content Continued**<br>• choose an appropriate scale to display given fractional values on a number line, e.g. when plotting thirds or sixths, a scale of 3 cm for every whole is easier to use than a scale of 1 cm for every whole (Communicating, Reasoning)<br>• Solve problems involving addition and subtraction of fractions, including those with unrelated denominators (ACMNA153)<br>• add and subtract fractions, including mixed numerals and fractions with unrelated denominators, using written and calculator methods<br>• recognise and explain incorrect operations with fractions, e.g. explain why $\frac{2}{3} + \frac{1}{4} \neq \frac{3}{7}$<br>interpret fractions and mixed numerals on a calculator display (Communicating)<br>• subtract a fraction from a whole number using mental and written strategies, and a calculator, e.g. $3 - \frac{2}{3} = 2 + 1 - \frac{2}{3} = 2\frac{1}{3}$ |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Vocabulary from Syllabus**<br>Whole, part, equal parts, half, halves. | **Vocabulary from Syllabus**<br>Whole, part, equal parts, half, halves, about a half, more than a half, less than a half. | **Vocabulary from Syllabus**<br>Whole, part, equal parts, half, quarter, eighth, third, fifth, one-third, one-fifth, fraction, denominator, numerator, mixed numeral, whole number, fractional part, number line. | **Vocabulary from Syllabus**<br>Whole, equal parts, half, quarter, eighth, third, sixth, twelfth, fifth, tenth, hundredth, thousandth, one-thousandth, fraction, numerator, denominator, mixed numeral, number line, proper fraction, improper fraction | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Recognise, describe and represent one-half as one of two equal parts of whole objects, shapes and collections<br>• Use fraction notation $\frac{1}{2}$ | **Other Key Ideas covered later**<br>• Model and represent fractions of denominators 2, 3, 4, 5 and 8<br>• Count by quarters, halves and thirds, including with mixed numerals<br>• Represent fractions on a number line that extends beyond 1<br>• Model and find equivalence between fractions<br>• Apply the place value system to represent tenths and hundredths as decimals<br>• Model, compare and represent decimals with up to two decimal places | **Other Key Ideas covered later**<br>• Represent, compare and order unit fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12 and 100<br>• Express mixed numerals as improper fractions and vice versa<br>• Model and represent strategies to add and subtract fractions with the same denominator<br>• Add and subtract fractions, included mixed numerals, with the same or related denominators<br>• Multiply fractions by whole numbers<br>• Find a simple fraction of a quantity<br>• Apply the place value system to represent thousandths as decimals<br>• Compare, order and represent decimals with up to three decimal places<br>• Determine, generate and record equivalent fractions<br>• Write fractions in their 'simplest form'<br>• Use mental, written and calculator strategies to add and subtract decimals with up to three decimal places<br>• Use mental, written and calculator strategies to multiply decimals by one- and two-digit whole numbers<br>• Use mental, written and calculator strategies to divide decimals by one-digit whole numbers, 10, 100 and 1000<br>• Recognise percentages in everyday situations<br>• Use mental, written and calculator strategies to calculate 10%, 25% and 50% of quantities, including as discounts | **Other Key Ideas covered later** |
| **Syllabus Page :** 47 - 49 | **Syllabus Page :** 79 - 82 | **Syllabus Page :** 132 - 136 | **Syllabus Page :** 195 - 202 | **Syllabus Page :** 248 - 251 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

Return to Yearly Overview

# 2D Space (C)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• manipulates, sorts and describes representations of two-dimensional shapes, including circles, triangles, squares and rectangles, using everyday language MAe-15MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• manipulates, sorts, represents, describes and explores two-dimensional shapes, including quadrilaterals, pentagons, hexagons and octagons MA1-15MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• manipulates, classifies and sketches two-dimensional shapes, including special quadrilaterals, and describes their features MA2-15MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• manipulates, classifies and draws two-dimensional shapes, including equilateral, isosceles and scalene triangles, and describes their properties MA3-15MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• classifies, describes and uses the properties of triangles and quadrilaterals, and determines congruent triangles to find unknown side lengths and angles MA4-17MG |
| **Focus Key Ideas for this week**<br>• Sort, manipulate, make and draw circles, squares, triangles and rectangles | **Focus Key Ideas for this week**<br>• Identify, perform and record the result of one-step ‘slides’ and ‘flips’<br>• Identify, perform, describe and record the result of half and quarter ‘turns’ | **Focus Key Ideas for this week**<br>• Identify and draw lines of symmetry on shapes<br>• Use transformations to create and describe symmetrical designs<br>• Create and record tessellation | **Focus Key Ideas for this week**<br>• Identify, use and describe combinations of translations,<br>• Use the terms ‘translate’, ‘reflect’ and ‘rotate’ to describe transformations of shapes<br>• Identify line and rotational symmetries | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• sort two-dimensional shapes according to features such as size and shape<br>• recognise and explain how a group of two-dimensional shapes has been sorted (Communicating)<br>• manipulate circles, squares, triangles and rectangles, and describe features using everyday language, e.g. 'A square has four sides'<br>• turn two-dimensional shapes to fit into or match a given space<br>• make representations of two-dimensional shapes using a variety of materials, including paint, paper, body movements and computer drawing tools | **Suggested Content from Syllabus**<br>• Investigate the effect of one-step slides and flips, with and without digital technologies (ACMMG045)<br>• identify a slide or flip of a single shape and use the terms 'slide' and 'flip' to describe the movement of the shape<br>• perform a one-step slide or flip with a single shape<br>• recognise that sliding or flipping a shape does not change its size or features (Reasoning)<br>• describe the result of a single slide or flip of a shape, e.g. 'When I flip the shape it is the same but backwards' (Communicating) | **Suggested Content from Syllabus**<br>• Identify symmetry in the environment (ACMMG066)<br>• identify lines of symmetry in pictures, artefacts, designs and the environment, e.g. Aboriginal rock carvings or Asian lotus designs<br>• identify and draw lines of symmetry on given shapes, including the special quadrilaterals and other regular and irregular shapes<br>• determine and explain whether a given line through a shape is a line of symmetry (Communicating, Reasoning)<br>• recognise and explain why any line through the centre (and across) of a circle is a line of symmetry (Communicating, Reasoning) | **Suggested Content from Syllabus**<br>• Describe translations, reflections and rotations of two-dimensional shapes (ACMMG114)<br>• use the terms 'translate', 'reflect' and 'rotate' to describe the movement of two-dimensional shapes<br>• rotate a graphic or object through a specified angle about a particular point, including by using the rotate function in a computer drawing program (Communicating)<br>• describe the effect when a two-dimensional shape is translated, reflected or rotated, e.g. when a vertical arrow is rotated 90°, the resulting arrow is horizontal | **Suggested Content from Syllabus**<br>• Classify triangles according to their side and angle properties and describe quadrilaterals (ACMMG165)<br>• label and name triangles (e.g. $\triangle ABC$) and quadrilaterals (e.g. $ABCD$) in text and on diagrams<br>• use the common conventions to mark equal intervals on diagrams<br>• recognise and classify types of triangles on the basis of their properties (acute-angled triangles, right-angled triangles, obtuse-angled triangles, scalene triangles, isosceles triangles and equilateral triangles) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• make pictures and designs using a selection of shapes, e.g. make a house from a square and a triangle (Communicating)<br>• draw a two-dimensional shape by tracing around one face of a three-dimensional object<br>• draw closed two-dimensional shapes without tracing<br>• recognise and explain the importance of closing the shape when drawing a shape (Communicating, Reasoning) | **Suggested Content Continued**<br>• record the result of performing one-step slides and flips with and without the use of digital technologies<br>• copy and manipulate a shape using the computer functions for slide and flip (Communicating)<br>• make designs with line symmetry using paper-folding, pattern blocks, drawings and paintings<br>• recognise the connection between line symmetry and performing a flip (Reasoning)<br>• Identify and describe half-turns and quarter-turns (ACMMG046)<br>• identify full-, half- and quarter-turns of a single shape and use the terms 'turn', 'full-turn', 'half-turn' and 'quarter-turn' to describe the movement of the shape<br>• identify and describe amounts of turn using the terms 'clockwise' and 'anti-clockwise'<br>• perform full-, half- and quarter-turns with a single shape<br>• recognise that turning a shape does not change its size or features (Reasoning)<br>• describe the result of a turn of a shape, e.g. 'When the shape does a half-turn, it is the same but upside-down' (Communicating)<br>• record the result of performing full-, half- and quarter-turns of a shape, with and without the use of digital technologies<br>• copy and manipulate a shape using the computer function for turn (Communicating)<br>• determine the number of half-turns required for a full-turn and the number of quarter-turns required for a full-turn<br>• connect the use of quarter- and half-turns to the turn of the minute hand on a clock for<br>• the passing of quarter- and half-hours (Communicating) | **Suggested Content Continued**<br>• Create symmetrical patterns, pictures and shapes, with and without the use of digital technologies (ACMMG091)<br>• create symmetrical patterns, designs, pictures and shapes by reflecting (flipping), translating (sliding) and rotating (turning) one or more common shapes<br>• use different types of graph paper to assist in creating symmetrical designs (Communicating)<br>• use digital technologies to create designs by copying, pasting, reflecting, translating and rotating common shapes (Communicating)<br>• apply and describe amounts of rotation, in both 'clockwise' and 'anti-clockwise' directions, including half-turns, quarter-turns and three-quarter-turns, when creating designs (Communicating)<br>• describe the creation of symmetrical designs using the terms 'reflect', 'translate' and 'rotate' (Communicating)<br>• create and record tessellating designs by reflecting, translating and rotating common shapes<br>• use digital technologies to create tessellating designs (Communicating)<br>• determine which of the special quadrilaterals can be used to create tessellating designs (Reasoning)<br>• explain why tessellating shapes are best for measuring area (Communicating, Reasoning)<br>• identify shapes that do and do not tessellate<br>• explain why a shape does or does not tessellate (Communicating)<br>• draw the reflection (mirror image) to complete symmetrical pictures and shapes, given a line of symmetry, with and without the use of digital technologies | **Suggested Content Continued**<br>• recognise that the properties of shapes do not change when shapes are translated, reflected or rotated (Reasoning)<br>• Identify line and rotational symmetries (ACMMG114)<br>• identify and quantify the total number of lines (axes) of symmetry (if any exist) of two dimensional shapes, including the special quadrilaterals and triangles<br>• identify shapes that have rotational symmetry and determine the 'order' of rotational symmetry<br>• construct designs with rotational symmetry, with and without the use of digital technologies (Communicating, Problem Solving)<br>• Investigate combinations of translations, reflections and rotations, with and without the use of digital technologies (ACMMG142)<br>• identify whether a two-dimensional shape has been translated, reflected or rotated, and how many times, e.g. 'The square has been rotated clockwise through 90° once and then reflected once'<br>• construct patterns of two-dimensional shapes that involve translations, reflections and rotations using computer software<br>• predict the next translation, reflection or rotation in a pattern, e.g. 'The arrow is being rotated 90° anti-clockwise each time'<br>• choose the correct pattern from a number of options when given information about a combination of transformations (Reasoning) | **Suggested Content Continued**<br>• recognise that a given triangle may belong to more than one class (Reasoning)<br>• explain why the longest side of a triangle is always opposite the largest angle (Reasoning)<br>• explain why two sides of a triangle must together be longer than the third side (Communicating, Reasoning)<br>• sketch and label triangles from a worded or verbal description (Communicating)<br>• distinguish between convex and non-convex quadrilaterals (the diagonals of a convex quadrilateral lie inside the figure)<br>• investigate the properties of special quadrilaterals (trapeziums, kites, parallelograms, rectangles, squares and rhombuses), including:<br>▪ the opposite sides are parallel<br>▪ the opposite sides are equal<br>▪ the adjacent sides are perpendicular<br>▪ the opposite angles are equal<br>▪ the diagonals are equal<br>▪ the diagonals bisect each other<br>▪ the diagonals bisect each other at right angles<br>▪ the diagonals bisect the angles of the quadrilateral<br>• use techniques such as paper folding, measurement or dynamic geometry software to investigate the properties of quadrilaterals (Problem Solving, Reasoning)<br>• sketch and label quadrilaterals from a worded or verbal description (Communicating)<br>• classify special quadrilaterals on the basis of their properties<br>• describe a quadrilateral in sufficient detail for it to be sketched (Communicating) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Vocabulary from Syllabus**<br>Shape, circle, triangle, square, rectangle, features, side, straight line, curved line, open line, closed shape. | **Vocabulary from Syllabus**<br>Shape, circle, triangle, quadrilateral, square, rectangle, pentagon, hexagon, octagon, orientation, features, side, vertex (vertices), vertical, horizontal, portrait (orientation), landscape (orientation), parallel, orientation, features, symmetry, slide, flip, turn, full-turn, half-turn, quarter-turn, clockwise, anti-clockwise. | **Vocabulary from Syllabus**<br>Shape, circle, triangle, quadrilateral, parallelogram, rectangle, rhombus, square, trapezium, kite, pentagon, hexagon, octagon, regular shape, irregular shape, orientation, features, properties, side, parallel, pair of parallel sides, opposite, length, vertex (vertices), angle, right angle, symmetry, line (axis) of symmetry, rigid, line (axis) of symmetry, reflect (flip), translate (slide), rotate (turn), tessellate, clockwise, anti-clockwise, half-turn, quarter-turn, three-quarter-turn. | **Vocabulary from Syllabus**<br>Shape, two dimensional shape, triangle, equilateral triangle, isosceles triangle, scalene triangle, right-angled triangle, quadrilateral, parallelogram, rectangle, rhombus, square, trapezium, kite, pentagon, hexagon, octagon, regular, irregular, features, properties, side, parallel, pair of parallel sides, opposite, length, vertex (vertices), angle, right angle, line (axis) of symmetry, rotational symmetry, order of rotational symmetry, translate, reflect, rotate, enlarge. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Describe and name circles, squares, triangles and rectangles in the environment | **Other Key Ideas covered later**<br>• Identify horizontal, vertical and parallel lines<br>• Recognise and classify triangles, quadrilaterals, pentagons, hexagons and octagons presented in different orientations<br>• Use the terms ‘sides’ and ‘vertices’ to describe two dimensional shapes<br>• Make and draw shapes in different orientations | **Other Key Ideas covered later**<br>• Recognise and classify the special quadrilaterals<br>• Identify and describe shapes as ‘regular’ or ‘irregular’<br>• Describe and compare features of shapes, including the special quadrilaterals<br>• Combine common shapes to form other shapes and record the arrangement<br>• Split common shapes into other shapes and record the result | **Other Key Ideas covered later**<br>• Recognise and classify shapes, including the special triangles<br>• Compare and describe side properties of the special quadrilaterals and special triangles<br>• Explore angle properties of the special quadrilaterals and special triangles<br>• Identify and draw shapes from descriptions of their features<br>• Make and compare enlargements of shapes/pictures<br>• Draw and describe diagonals of shapes<br>• Identify and name parts of circles<br>• reflections and rotations | **Other Key Ideas covered later** |
| **Syllabus Page :** | **Syllabus Page :** 108 - 111 | **Syllabus Page :** 162 - 166 | **Syllabus Page :** 226 - 230 | **Syllabus Page :** 283 - 287 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

Return to Yearly Overview

# ES1 & S1 – Addition (G) and S2 & S3 Decimals (C)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• combines, separates and compares collections of objects, describes using everyday language, and records using informal methods MAe-5NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of strategies and informal recording methods for addition and subtraction involving one- and two-digit numbers MA1-5NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• represents, models and compares commonly used fractions and decimals MA2-7NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• compares, orders and calculates with fractions, decimals and percentages MA3-7NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• operates with fractions, decimals and percentages MA4-5NA |
| **Focus Key Ideas for this week**<br>• Combine two or more groups of objects to model addition<br>• Record addition informally | **Focus Key Ideas for this week**<br>• Solve word problems involving addition<br>• Use and record a range of mental strategies for addition of one- and two-digit numbers | **Focus Key Ideas for this week**<br>• Model, compare and represent decimals with up to two decimal places | **Focus Key Ideas for this week**<br>• Use mental, written and calculator strategies to multiply decimals by one- and two-digit whole numbers<br>• Use mental, written and calculator strategies to divide decimals by one-digit whole numbers, 10, 100 and 1000 | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Represent practical situations to model addition and sharing<br>• combine two or more groups of objects to model addition<br>• use concrete materials or fingers to model and solve simple addition problems<br>• use visual representations of numbers to assist with addition, e.g. ten frames<br>• create and recognise combinations for numbers to at least 10, e.g. 'How many more make 10?' or describe the action of combining, separating and comparing using everyday language, e.g. makes, joins, combines with, and, get, take away, how many more, all together<br>• explain or demonstrate how an answer was obtained (Communicating, Reasoning) | **Suggested Content from Syllabus**<br>• use and record a range of mental strategies to solve addition and subtraction problems involving one- and two-digit numbers, including:<br>• counting on from the larger number to find the total of two numbers<br>• counting back from a number to find the number remaining<br>• counting on or back to find the difference between two numbers<br>• using doubles and near doubles, e.g. 5 + 7: double 5 and add 2<br>• combining numbers that add to 10, e.g. 4 + 7 + 8 + 6 + 3: group 4 and 6, and 7 and 3, first, and then add 8<br>• partitioning numbers to at least 20 using place value (e.g. 19 as 10 + 9) and nonstandard forms (e.g. 19 as 11 + 8 or 12 + 7, etc.) | **Suggested Content from Syllabus**<br>• model, compare and represent decimals of up to two decimal places<br>• apply knowledge of decimals to record measurements, e.g. 123 cm = 1.23 m (Communicating)<br>• interpret zero digit(s) at the end of a decimal, e.g. 0.70 has the same value as 0.7, 3.00 and 3.0 have the same value as 3 (Communicating)<br>• recognise that amounts of money are written with two decimal places, e.g. $4.30 is not written as $4.3 (Communicating)<br>• use one of the symbols for dollars ($) and cents (c) correctly when expressing amounts of money, i.e. $5.67 and 567c are correct, but $5.67c is not (Communicating) | **Suggested Content from Syllabus**<br>• Multiply decimals by whole numbers and perform divisions by non-zero whole numbers where the results are terminating decimals, with and without digital technologies (ACMNA129)<br>• use mental strategies to multiply simple decimals by single-digit numbers, e.g. 3.5 × 2<br>• multiply decimals of up to three decimal places by whole numbers of up to two-digits, with and without digital technologies, e.g. 'I measured three desks. Each desk was 1.25 m in length, so the total length is 3 × 1.25 = 3.75 m'<br>• divide decimals by a one-digit whole number where the result is a terminating decimal, e.g. 5.25 ÷ 5 = 1.05 | **Suggested Content from Syllabus**<br>• Multiply and divide fractions and decimals using efficient written strategies and digital technologies (ACMNA154)<br>• determine the effect of multiplying or dividing by a number with magnitude less than one<br>• multiply and divide decimals using written methods, limiting operators to two digits<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving)<br>• round decimals to a given number of places<br>• use symbols for approximation, e.g. ≈ or ≒<br>• Investigate terminating and recurring decimals (ACMNA184) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• apply strategies that have been demonstrated by other students (Problem Solving)<br>• investigate different methods of adding used in different cultures, e.g. Aboriginal and Torres Strait Islander methods involving spatial patterns and reasoning, Asian counting tools such as the abacus (Communicating, Problem Solving)<br>• count forwards by ones to add<br>• record addition informally using drawings, words and numerals | **Suggested Content Continued**<br>• bridging to 10, e.g. 17 + 5: 17 and 3 is 20 and add 2 more<br>• use and record a range of mental strategies to solve addition and subtraction problems involving two-digit numbers, including:<br>▪ the jump strategy on an empty number line<br>▪ the split strategy, e.g. record how the answer to 37 + 45 was obtained using the split strategy<br>30 + 40 = 70<br>7 + 5 = 12<br>70 + 12 = 82<br>▪ an inverse strategy to change a subtraction into an addition, e.g. 54 – 38: start at 38, adding 2 makes 40, then adding 10 makes 50, then adding 4 makes 54, and so the answer is 2 + 10 + 4 = 16 | **Suggested Content Continued**<br>• use a calculator to create patterns involving decimal numbers, e.g. 1 ÷ 10, 2 ÷ 10, 3 ÷ 10 (Communicating)<br>• place decimals of up to two decimal places on a number line, e.g. place 0.5, 0.25 and 0.75 on a number line<br>• round a number with one or two decimal places to the nearest whole number | **Suggested Content Continued**<br>• solve word problems involving the multiplication and division of decimals, including those involving money, e.g. determine the 'best buy' for different-sized cartons of cans of soft drink<br>• Multiply and divide decimals by powers of 10 (ACMNA130)<br>• recognise the number pattern formed when decimals are multiplied or divided by 10, 100 and 1000<br>• multiply and divide decimals by 10, 100 and 1000<br>• use a calculator to explore the effect of multiplying or dividing decimals by multiples of 10 (Reasoning) | **Suggested Content Continued**<br>• use the notation for recurring (repeating) decimals,<br>e.g. 0.33333 = $0.\dot{3}$,<br>0.345345345 = $0.\dot{3}4\dot{5}$<br>0.266666 = $0.2\dot{6}$<br>• convert fractions to terminating or recurring decimals as appropriate<br>• recognise that calculators may show approximations to recurring decimals, and explain why, e.g. $\frac{2}{3}$ displayed as 0.666666667<br>• Connect fractions, decimals and percentages and carry out simple conversions (ACMNA157)<br>• classify fractions, terminating decimals, recurring decimals and percentages as 'rational' numbers, as they can be written in the form $\frac{a}{b}$ where $a$ and $b$ are integers and $b \neq 0$<br>• convert fractions to decimals (terminating and recurring) and percentages<br>• convert terminating decimals to fractions and percentages<br>• convert percentages to fractions and decimals<br>• evaluate the reasonableness of statements in the media that quote fractions, decimals or percentages, e.g. 'The number of children in the average family is 2.3'<br>• order fractions, decimals and percentages<br>• Investigate the concept of irrational numbers, including $\pi$ (ACMNA186)<br>• investigate 'irrational' numbers, such as $\pi$ and $\sqrt{2}$<br>describe, informally, the properties of irrational numbers |
| **Vocabulary from Syllabus**<br>Count forwards, combines with, joins, how many more, all together, makes. | **Vocabulary from Syllabus**<br>Counting on, combine, plus, add, total, more than, less than, double, equals, is equal to, is the same as, number sentence, strategy. | **Vocabulary from Syllabus**<br>Whole, part, whole number, number line, is equal to, equivalent fractions, decimal, decimal point, digit, place value, round to, decimal places, dollars, cents. | **Vocabulary from Syllabus**<br>Whole, equal parts, tenth, hundredth, thousandth, one-thousandth, ascending order, descending order, decimal, decimal point, digit, round to, decimal places, dollars, cents, best buy, percent, percentage, discount, sale price. | **Vocabulary from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Model addition using concrete materials<br>• Recognise and recall combinations of numbers that add to numbers up to 20<br>• Model and apply the commutative property for addition<br>• Use the equals sign to record equivalent number sentences<br>• Make connections between addition and subtraction<br>• Use and record a range of mental strategies for addition of two-digit numbers | **Other Key Ideas covered later**<br>• Model and represent fractions of denominators 2, 3, 4, 5 and 8<br>• Count by quarters, halves and thirds, including with mixed numerals<br>• Represent fractions on a number line that extends beyond 1<br>• Model and find equivalence between fractions<br>• Make connections between fraction and decimal notation<br>• Apply the place value system to represent tenths and hundredths as decimals | **Other Key Ideas covered later**<br>• Represent, compare and order unit fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12 and 100<br>• Express mixed numerals as improper fractions and vice versa<br>• Model and represent strategies to add and subtract fractions with the same denominator<br>• Add and subtract fractions, included mixed numerals, with the same or related denominators<br>• Multiply fractions by whole numbers<br>• Find a simple fraction of a quantity<br>• Determine, generate and record equivalent fractions<br>• Write fractions in their 'simplest form'<br>• Apply the place value system to represent thousandths as decimals<br>• Compare, order and represent decimals with up to three decimal places<br>• Use mental, written and calculator strategies to add and subtract decimals with up to three decimal places<br>• Solve word problems involving fractions and decimals, including money problems<br>• Recognise percentages in everyday situations<br>• Make connections between percentages, fractions and decimals<br>• Use mental, written and calculator strategies to calculate 10%, 25% and 50% of quantities, including as discounts | **Other Key Ideas covered later** |
| **Syllabus Page :** 43 - 44 | **Syllabus Page :** 70 - 74 | **Syllabus Page :** | **Syllabus Page :** 195 - 202 | **Syllabus Page :** 248 - 251 |
|  |  |  |  |  |

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# Length (D)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• describes and compares lengths and distances using everyday language MAe-9MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• estimates, measures, compares and records lengths and distances using informal units, metres and centimetres MA1-9MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• estimates, measures, compares and records lengths, distances and perimeters in metres, centimetres and millimetres, and measures, compares and records temperatures MA2-9MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and uses the appropriate unit and device to measure lengths, distances and perimeters, and converts between units of length MA3-9MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• calculates the perimeter of plane shapes and the circumference of circles MA4-12MG |
| **Focus Key Ideas for this week**<br>• Record comparisons of length informally | **Focus Key Ideas for this week**<br>• Use metres and centimetres to measure and estimate lengths<br>• Record lengths using abbreviations (m and cm) | **Focus Key Ideas for this week**<br>• Use a scaled instrument to measure and compare temperatures | **Focus Key Ideas for this week**<br>• Solve problems involving length and perimeter | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• compare lengths indirectly by copying a length, e.g. using the same strip of paper to compare lengths<br>• record length comparisons informally by drawing, tracing, or cutting and pasting, and by using words and numerals | **Suggested Content from Syllabus**<br>• record lengths and distances using the abbreviation for metre (m)<br>• estimate lengths and distances to the nearest metre and check by measuring<br>• recognise the need for a unit smaller than the metre<br>• recognise that 100 centimetres is equal to 1 metre<br>• use the centimetre as a unit to measure lengths to the nearest centimetre, using a device with 1 cm markings, e.g. use a paper strip of length 10 cm<br>• record lengths and distances using the abbreviation for centimetre (cm)<br>• estimate lengths and distances to the nearest centimetre and check by measuring | **Suggested Content from Syllabus**<br>• Use scaled instruments to measure and compare temperatures (ACMMG084)<br>• identify temperature as a measure of how hot or cold something is<br>• use everyday language to describe temperature, e.g. 'cold', 'warm', 'hot'<br>• recognise the need for formal units to measure temperature<br>• use a thermometer to measure and compare temperatures to the nearest degree Celsius<br>• record temperatures to the nearest degree Celsius using the symbol for degrees (°)<br>• use a thermometer to take and record daily temperature readings (Communicating) | **Suggested Content from Syllabus**<br>• Solve problems involving the comparison of lengths using appropriate units (ACMMG137)<br>• investigate and compare perimeters of rectangles with the same area<br>• determine the number of different rectangles that can be formed using whole-number dimensions for a given area (Problem Solving, Reasoning)<br>• solve a variety of problems involving length and perimeter, including problems involving different units of length, e.g. 'Find the total length of three items measuring 5 mm, 20 cm and 1.2 m' | **Suggested Content from Syllabus**<br>• Find perimeters of parallelograms, trapeziums, rhombuses and kites (ACMMG196)<br>• find the perimeter of a range of plane shapes, including parallelograms, rhombuses, kites and simple composite figures<br>• compare perimeters of rectangles with the same area (Problem Solving)<br>• solve problems involving the perimeter of plane shapes, e.g. find the dimensions of a rectangle, given its perimeter and the length of one other side |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Vocabulary from Syllabus**<br>Length, end, end-to-end, side-by-side, long, longer than, longest, short, shorter than, shortest, high, higher than, highest, tall, taller than, tallest, low, lower than, lowest, the same as, near, nearer, far, further, close, closer. | **Vocabulary from Syllabus**<br>Length, distance, end, end-to-end, side-by-side, gap, overlap, measure, estimate, hand span. | **Vocabulary from Syllabus**<br>Length, distance, metre, centimetre, millimetre, ruler, tape measure, trundle wheel, measure, estimate, perimeter, height, width, temperature, cold, warm, hot, degree (Celsius), thermometer. | **Vocabulary from Syllabus**<br>Length, distance, kilometre, metre, centimetre, millimetre, measure, measuring device, ruler, tape measure, trundle wheel, estimate, perimeter, dimensions, width. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Identify the attribute of 'length' as a measure of an object from end to end<br>• Compare lengths using direct comparison<br>• Use comparative language to describe lengths<br>• | **Other Key Ideas covered later**<br>• Use uniform informal units to measure, compare and estimate lengths<br>• Record lengths by referring to the number and type of uniform informal unit used<br>• Compare and order shapes/objects based on length using uniform informal units<br>• Recognise the need for formal units to measure length | **Other Key Ideas covered later**<br>• Use metres, centimetres and millimetres to measure, compare, order and estimate lengths<br>• Select and use appropriate scaled instruments and units to measure and compare lengths<br>• Convert between millimetres, centimetres and metres<br>• Estimate and measure perimeters of two-dimensional shapes<br>• Record lengths using decimal notation to two decimal places<br>• Record lengths using abbreviations (m, cm and mm) | **Other Key Ideas covered later**<br>• Use the kilometre to measure lengths and distances<br>• Select and use appropriate instruments and units to measure lengths<br>• Record distances using the abbreviation km<br>• Calculate perimeters of common two-dimensional shapes and record the strategy<br>• Record lengths and distances using decimal notation to three decimal places<br>• Convert between kilometres, metres, centimetres and millimetres | **Other Key Ideas covered later** |
| **Syllabus Page :** 50 - 51 | **Syllabus Page :** 87 - 90 | **Syllabus Page :** 141 - 143 | **Syllabus Page :** 208 - 210 | **Syllabus Page :** 271 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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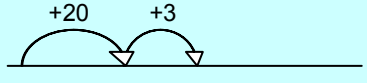
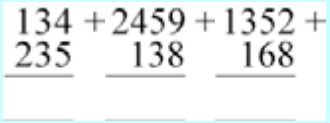
# Addition (H)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• combines, separates and compares collections of objects, describes using everyday language, and records using informal methods MAe-5NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of strategies and informal recording methods for addition and subtraction involving one- and two-digit numbers MA1-5NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• uses mental and written strategies for addition and subtraction involving two-, three-, four and five-digit numbers MA2-5NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and applies appropriate strategies for addition and subtraction with counting numbers of any size MA3-5NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• compares, orders and calculates with integers, applying a range of strategies to aid computation MA4-4NA |
| **Focus Key Ideas for this week**<br>• Combine two or more groups of objects to model addition<br>• Record addition informally | **Focus Key Ideas for this week**<br>• Solve word problems involving addition<br>• Use and record a range of mental strategies for addition of one- and two-digit numbers | **Focus Key Ideas for this week**<br>• Use the formal written algorithm for addition | **Focus Key Ideas for this week**<br>• Select and apply efficient mental, written and calculator strategies for addition with numbers of any size<br>• Solve word problems and record the strategy used | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Represent practical situations to model addition and sharing<br>• combine two or more groups of objects to model addition<br>• use concrete materials or fingers to model and solve simple addition problems<br>• use visual representations of numbers to assist with addition, e.g. ten frames<br>• create and recognise combinations for numbers to at least 10, e.g. 'How many more make 10?' or describe the action of combining, separating and comparing using everyday language, e.g. makes, joins, combines with, and, get, take away, how many more, all together<br>• explain or demonstrate how an answer was obtained (Communicating, Reasoning) | **Suggested Content from Syllabus**<br>• use and record a range of mental strategies to solve addition and subtraction problems involving one- and two-digit numbers, including:<br>• counting on from the larger number to find the total of two numbers<br>• counting back from a number to find the number remaining<br>• counting on or back to find the difference between two numbers<br>• using doubles and near doubles, e.g. 5 + 7: double 5 and add 2<br>• combining numbers that add to 10, e.g. 4 + 7 + 8 + 6 + 3: group 4 and 6, and 7 and 3, first, and then add 8<br>• bridging to 10, e.g. 17 + 5: 17 and 3 is 20 and add 2 more | **Suggested Content from Syllabus**<br>• Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems (ACMNA073)<br>• select, use and record a variety of mental strategies to solve addition problems, including word problems, with numbers of up to and including five digits, e.g. 159 + 23: 'I added 20 to 159 to get 179, then I added 3 more to get 182' or using an empty number line:<br>  <br><br>• pose simple addition and subtraction problems and apply appropriate strategies to solve them (Communicating, Problem Solving) | **Suggested Content from Syllabus**<br>• Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving addition with whole numbers (ACMNA123)<br>• solve addition word problems involving whole numbers of any size, including problems that require more than one operation, e.g. 'I have saved $40 000 to buy a new car. The basic model costs $36 118 and I add tinted windows for $860 and Bluetooth connectivity for $1376. How much money will I have left over?'<br>• select and apply appropriate mental and written strategies, with or without digital technologies, to solve unfamiliar problems<br>• use selected words to describe each step in the solution process | **Suggested Content from Syllabus**<br>• Apply the associative, commutative and distributive laws to aid mental and written computation<br>• use an appropriate non-calculator method to divide two- and three-digit numbers by a two digit number<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving)<br>• apply a practical understanding of commutativity to aid mental computation, e.g. 3 + 9 = 9 + 3 = 12, 3 × 9 = 9 × 3 = 27 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• apply strategies that have been demonstrated by other students (Problem Solving)<br>• investigate different methods of adding used in different cultures, e.g. Aboriginal and Torres Strait Islander methods involving spatial patterns and reasoning, Asian counting tools such as the abacus (Communicating, Problem Solving)<br>• count forwards by ones to add<br>• record addition informally using drawings, words and numerals | **Suggested Content Continued**<br>• partitioning numbers to at least 20 using place value (e.g. 19 as 10 + 9) and nonstandard forms (e.g. 19 as 11 + 8 or 12 + 7, etc.)<br>• use and record a range of mental strategies to solve addition and subtraction problems involving two-digit numbers, including:<br>▪ the jump strategy on an empty number line<br>▪ the split strategy, e.g. record how the answer to 37 + 45 was obtained using the split strategy<br>30 + 40 = 70<br>7 + 5 = 12<br>70 + 12 = 82<br>▪ an inverse strategy to change a subtraction into an addition, e.g. 54 – 38: start at 38, adding 2 makes 40, then adding 10 makes 50, then adding 4 makes 54, and so the answer is 2 + 10 + 4 = 16 | **Suggested Content Continued**<br>• use a formal written algorithm to record addition and subtraction calculations involving two-, three-, four- and five-digit numbers, e.g.<br>  <br>134 + 235<br>2459 + 138<br>1352 + 168 | **Suggested Content Continued**<br>• explain how an answer was obtained for an addition problem and justify the selected calculation method<br>• reflect on their chosen method of solution for a problem, considering whether it can be improved<br>• give reasons why a calculator was useful when solving a problem<br>• record the strategy used to solve addition word problems<br>• check solutions to problems, including by using the inverse operation<br>• Use estimation and rounding to check the reasonableness of answers to calculations<br>• round numbers appropriately when obtaining estimates to numerical calculations<br>• use estimation to check the reasonableness of answers to addition calculations, e.g. 1438 + 129 is about 1440 + 130 | **Suggested Content Continued**<br>• apply a practical understanding of associativity to aid mental computation, e.g. 3 + 8 + 2 = (3 + 8) + 2 = 3 + (8 + 2) = 13,<br>2 × 7 × 5 = (2 × 7) × 5 = 2 × (7 × 5) = 70<br>• Compare, order, add and subtract integers (ACMNA280)<br>• recognise the direction and magnitude of integers<br>• construct a directed number sentence to represent a real-life situation (Communicating)<br>• recognise and place integers on a number line<br>• compare the relative value of integers, including by using the symbols > and <<br>• order integers<br>• interpret different meanings (direction or operation) for the + and – signs, depending on the context<br>• add integers |
| **Vocabulary from Syllabus**<br>Count forwards, combines with, joins, how many more, all together, makes. | **Vocabulary from Syllabus**<br>Counting on, combine, plus, add, total, more than, less than, double, equals, is equal to, is the same as, number sentence, strategy. | **Vocabulary from Syllabus**<br>Plus, add, addition, equals, is equal to, is the same as, number sentence, empty number line, strategy, digit, estimate, round to. | **Vocabulary from Syllabus**<br>Plus, sum, add, addition, increase, equals, is equal to, empty number line, strategy, digit, estimate, round to, budget, operation. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Model addition using concrete materials<br>• Recognise and recall combinations of numbers that add to numbers up to 20<br>• Model and apply the commutative property for addition<br>• Use the equals sign to record equivalent number sentences<br>• Make connections between addition and subtraction<br>• Use and record a range of mental strategies for addition of two-digit numbers | **Other Key Ideas covered later**<br>• Model and apply the associative property for addition<br>• Use the equals sign to record equivalent number sentences<br>• Calculate equivalent amounts of money using different denominations<br>• Use and record a range of mental strategies for addition of two-, three- and four-digit numbers<br>• Use and record a range of mental strategies for addition of two-, three-, four- and five digit numbers<br>• Use the inverse operation to check addition calculations<br>• Solve word problems involving purchases and the calculation of change to the nearest five cents | **Other Key Ideas covered later**<br>• Create a simple budget<br>• Use estimation and rounding to check the reasonableness of answers to calculations<br>• Select and apply efficient mental, written and calculator strategies to solve word problems and record the strategy used | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Page :** 43 - 44 | **Syllabus Page :** 70 - 74 | **Syllabus Page :** 123 - 126 | **Syllabus Page :** 184 - 187 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# 3D Space (C)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• manipulates, sorts and represents three-dimensional objects and describes them using everyday language MAe-14MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• sorts, describes, represents and recognises familiar three-dimensional objects, including cones, cubes, cylinders, spheres and prisms MA1-14MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• makes, compares, sketches and names three-dimensional objects, including prisms, pyramids, cylinders, cones and spheres, and describes their features MA2-14MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• identifies three-dimensional objects, including prisms and pyramids, on the basis of their properties, and visualises, sketches and constructs them given drawings of different views MA3-14MG | **Syllabus Outcomes** |
| **Focus Key Ideas for this week**<br>• Describe features of common three-dimensional objects using everyday language<br>• Sort and manipulate three-dimensional objects found in the environment | **Focus Key Ideas for this week**<br>• Identify cones, cubes, cylinders, spheres and prisms presented in different orientations<br>• Recognise that three-dimensional objects look different from different vantage-points | **Focus Key Ideas for this week**<br>• Represent three-dimensional objects in drawings showing depth<br>• Sketch three-dimensional objects from different views | **Focus Key Ideas for this week**<br>• Connect three-dimensional objects with their nets | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Sort, describe and name familiar three-dimensional objects in the environment (ACMMG009)<br>• describe the features of familiar three-dimensional objects, such as local landmarks including Aboriginal landmarks, using everyday language, e.g. flat, round, curved<br>• describe the difference between three-dimensional objects and two-dimensional shapes using everyday language (Communicating)<br>• sort three-dimensional objects and explain the attributes used to sort them, e.g. colour, size, shape, function | **Suggested Content from Syllabus**<br>• select and name a familiar three-dimensional object from a description of its features, e.g. find an object with six square faces<br>• recognise that three-dimensional objects look different from different vantage points<br>• identify cones, cubes, cylinders and prisms when drawn in different orientations, e.g.<br>  <br>Cones<br>• recognise familiar three-dimensional objects from pictures and photographs, and in the environment | **Suggested Content from Syllabus**<br>• sketch three-dimensional objects from different views, including top, front and side views<br>• investigate different two-dimensional representations of three-dimensional objects in the environment, e.g. in Aboriginal art (Communicating)<br>• draw different views of an object constructed from connecting cubes on isometric grid paper<br>• interpret given isometric drawings to make models of three-dimensional objects using connecting cubes | **Suggested Content from Syllabus**<br>• Construct simple prisms and pyramids (ACMMG140)<br>• create prisms and pyramids using a variety of materials, e.g. plasticine, paper or cardboard nets, connecting cubes<br>• construct as many rectangular prisms and pyramids as possible using a given number of connecting cubes (Problem Solving)<br>• create skeletal models of prisms and pyramids, e.g. using toothpicks and modelling clay or straws and tape<br>• connect the edges of prisms and pyramids with the construction of their skeletal models (Problem Solving) | **Suggested Content from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• recognise how a group of objects has been sorted, e.g. 'These objects are all pointy' (Communicating, Reasoning)<br>• recognise and use informal names for three-dimensional objects, e.g. box, ball<br>• manipulate and describe a variety of objects found in the environment<br>• manipulate and describe an object hidden from view using everyday language, e.g. describe an object hidden in a 'mystery bag' (Communicating)<br>• predict and describe the movement of objects, e.g. 'This will roll because it is round'<br>• use a plank or board to determine which objects roll and which objects slide (Problem Solving)<br>• make models using a variety of three-dimensional objects and describe the models, e.g. 'I<br>• made a model of a person using a ball and some blocks'<br>• predict the building and stacking capabilities of various three-dimensional objects (Reasoning) | | | **Suggested Content Continued**<br>• construct three-dimensional models of prisms and pyramids and sketch the front, side and top views<br>• describe to another student how to construct or draw a three-dimensional object (Communicating)<br>• construct three-dimensional models of prisms and pyramids, given drawings of different views | |
| **Vocabulary from Syllabus**<br>Object, shape, size, curved, flat, pointy, round, roll, slide, stack. | **Vocabulary from Syllabus**<br>Object, shape, two-dimensional (2D), three-dimensional (3D), cone, cube, cylinder, sphere, prism, surface, flat surface, curved surface, face, edge, vertex (vertices). | **Vocabulary from Syllabus**<br>Object, two-dimensional (2D), three-dimensional (3D), cone, cube, cylinder, prism, pyramid, sphere, top view, front view, side view, isometric grid paper, isometric drawing, depth. | **Vocabulary from Syllabus**<br>Object, shape, three-dimensional (3D), prism, cube, pyramid, base, uniform cross-section, face, edge, vertex (vertices), apex, top view, front view, side view, depth, net. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Distinguish between flat and curved surfaces<br>• Use the term 'faces' to describe flat surfaces<br>• Recognise faces of three-dimensional objects as two-dimensional shapes<br>• Use the terms 'curved surfaces', 'faces', 'edges' and 'vertices' to describe three-dimensional objects | **Other Key Ideas covered later**<br>• Identify, describe and compare features of prisms, pyramids, cylinders, cones and spheres<br>• Interpret and make drawings of objects on isometric grid paper<br>• Make models of three-dimensional objects<br>• Create nets from everyday packages<br>• Represent three-dimensional objects in drawings showing depth<br>• Sketch three-dimensional objects from different views | **Other Key Ideas covered later**<br>• Name prisms and pyramids according to the shape of their 'base'<br>• Recognise that prisms have a uniform cross-section and pyramids do not<br>• Describe and compare properties of prisms and pyramids<br>• Construct simple prisms and pyramids using a variety of materials, and given drawings from different views | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Page :** 60 - 61 | **Syllabus Page :** 104 - 107 | **Syllabus Page :** 159 - 161 | **Syllabus Page :** 222 - 225 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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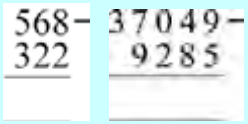
# Subtraction (G & H)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• combines, separates and compares collections of objects, describes using everyday language, and records using informal methods MAe-5NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of strategies and informal recording methods for addition and subtraction involving one- and two-digit numbers MA1-5NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• uses mental and written strategies for addition and subtraction involving two-, three-, four and five-digit numbers MA2-5NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and applies appropriate strategies for addition and subtraction with counting numbers of any size MA3-5NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• compares, orders and calculates with integers, applying a range of strategies to aid computation MA4-4NA |
| **Focus Key Ideas for this week**<br>• Take part of a group away to model subtraction<br>• Compare two groups to determine 'how many more'<br>• Record subtraction informally | **Focus Key Ideas for this week**<br>• Make connections between addition and subtraction | **Focus Key Ideas for this week**<br>• Use the formal written algorithm for subtraction | **Focus Key Ideas for this week**<br>• Select and apply efficient mental, written and calculator strategies to solve word problems and record the strategy used | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• model subtraction by separating and taking away part of a group of objects<br>• use concrete materials or fingers to model and solve simple subtraction problems<br>• compare two groups of objects to determine 'how many more'<br>• use visual representations of numbers to assist with subtraction, e.g. ten frames<br>• create and recognise combinations for numbers to at least 10, e.g. 'How many more make 10?' or describe the action of combining, separating and comparing using everyday language, e.g. makes, joins, combines with, and, get, take away, how many more, all together<br>• explain or demonstrate how an answer was obtained | **Suggested Content from Syllabus**<br>• Explore the connection between addition and subtraction (ACMNA029)<br>• use concrete materials to model how addition and subtraction are inverse operations<br>• use related addition and subtraction number facts to at least 20, e.g. 15 + 3 = 18, so 18 – 3 = 15 and 18 – 15 = 3<br>• model and record patterns for individual numbers by making all possible whole number combinations, e.g. 10 – 5 = 5, 9 – 4 = 5, 8 – 3 = 5, 7 – 2 = 5, 6 – 1 = 5<br>• describe combinations for numbers using words such as 'more', 'less' and 'double', e.g. describe 5 as 'one more than four', 'three combined with two', 'double two and one more' and 'one less than 6 | **Suggested Content from Syllabus**<br>• use a formal written algorithm to record addition and subtraction calculations involving two-, three-, four- and five-digit numbers, e.g.<br>  <br><br>• use concrete materials to model the subtraction of two or more numbers, with and without trading, and record the method used<br>• give a reasonable estimate for a problem, explain how the estimate was obtained, and check the solution (Communicating, Reasoning) | **Suggested Content from Syllabus**<br>• select and apply appropriate mental and written strategies, with or without digital technologies, to solve unfamiliar problems (Problem Solving)<br>• explain how an answer was obtained for an addition or subtraction problem and justify the selected calculation method (Communicating, Problem Solving, Reasoning)<br>• reflect on their chosen method of solution for a problem, considering whether it can be improved (Communicating, Reasoning)<br>• give reasons why a calculator was useful when solving a problem (Communicating, Reasoning) | **Suggested Content from Syllabus**<br>• Apply the associative, commutative and distributive laws to aid mental and written computation (ACMNA151)<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving)<br>• Compare, order and subtract integers (ACMNA280)<br>• recognise the direction and magnitude of integers<br>• construct a directed number sentence to represent a real-life situation (Communicating)<br>• recognise and place integers on a number line<br>• compare the relative value of integers, including by using the symbols > and <<br>• order integers |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• apply strategies that have been demonstrated by other students<br>• investigate different methods of subtracting used in different cultures, e.g. Aboriginal and Torres Strait Islander methods involving spatial patterns and reasoning, Asian counting tools such as the abacus<br>• count backwards by ones to subtract<br>• record subtraction informally using drawings, words and numerals | | | | **Suggested Content Continued**<br>• interpret different meanings (direction or operation) for the – sign, depending on the context<br>• subtract integers<br>• determine, by developing patterns or using a calculator, that subtracting a negative number is the same as adding a positive number (Reasoning) |
| **Vocabulary from Syllabus**<br>Count backwards, take away, how many more, all together, makes. | **Vocabulary from Syllabus**<br>Counting back, take away, minus, the difference between, total, more than, less than, double, equals, is equal to, is the same as, number sentence, strategy. | **Vocabulary from Syllabus**<br>Minus, the difference between, subtract, subtraction, equals, is equal to, is the same as, number sentence, empty number line, strategy, digit, estimate, round to. | **Vocabulary from Syllabus**<br>Minus, the difference between, subtract, subtraction, decrease, equals, is equal to, empty number line, strategy, digit, estimate, round to, budget. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Model subtraction using concrete materials<br>• Use the equals sign to record equivalent number sentences<br>• Use and record a range of mental strategies for subtraction of one and two-digit numbers<br>• Solve word problems involving subtraction | **Other Key Ideas covered later**<br>• Use and record a range of mental strategies for subtraction of two-, three- and four-digit numbers<br>• Use the equals sign to record equivalent number sentences<br>• Calculate equivalent amounts of money using different denominations<br>• Use the inverse operation to check subtraction calculations<br>• Use and record a range of mental strategies for subtraction of two-, three-, four- and five digit numbers<br>• Solve word problems involving purchases and the calculation of change to the nearest five cents. | **Other Key Ideas covered later**<br>• Solve word problems and record the strategy used<br>• Create a simple budget<br>• Select and apply efficient mental, written and calculator strategies for subtraction with numbers of any size<br>• Use estimation and rounding to check the reasonableness of answers to calculations | **Other Key Ideas covered later** |
| **Syllabus Page :** 43 - 44 | **Syllabus Page :** 70 - 74 | **Syllabus Page :** 123 - 126 | **Syllabus Page :** 184 - 187 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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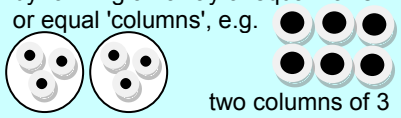
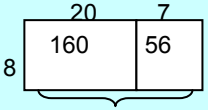
# Multiplication (E)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• groups, shares and counts collections of objects, describes using everyday language, and records using informal method MAe-6NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of mental strategies and concrete materials for multiplication and division MA1-6NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• uses mental and informal written strategies for multiplication and division MA2-6NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and applies appropriate strategies for multiplication and division, and applies the order of operations to calculations involving more than one operation MA3-6NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• compares, orders and calculates with integers, applying a range of strategies to aid computation MA4-4NA |
| **Focus Key Ideas for this week**<br>• Record grouping and sharing using informal methods | **Focus Key Ideas for this week**<br>• Model and use equal 'groups of' objects as a strategy for multiplication<br>• Model and use arrays described in terms of 'rows' and 'columns' as a strategy for multiplication<br>• Record using drawings, words and numerals | **Focus Key Ideas for this week**<br>• Use and record a range of mental and written strategies for multiplication of two-digit numbers by a one-digit operator | **Focus Key Ideas for this week**<br>• Use grouping symbols and the order of operations in calculations<br>• Select and apply efficient mental, written and calculator strategies to solve word problems and record the strategy used | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• group and share concrete materials to solve problems<br>• explain or demonstrate how an answer was obtained (Communicating, Reasoning)<br>• Record grouping and sharing using informal methods<br>• label the number of objects in a group<br>• record grouping and sharing informally using pictures, words and numerals | **Suggested Content from Syllabus**<br>• recognise when items have been arranged into groups, e.g. 'I can see two groups of three pencils'<br>• use concrete materials to model multiplication as equal 'groups' and by forming an array of equal 'rows' or equal 'columns', e.g.<br>  <br>2 groups of three or two rows of 3<br><br>two columns of 3<br>• describe collections of objects as 'groups of', 'rows of' and 'columns of' (Communicating)<br>• recognise practical examples of arrays, such as seedling trays or vegetable gardens (Reasoning) | **Suggested Content from Syllabus**<br>• use mental and informal written strategies to multiply a two-digit number by a one-digit number, including:<br>− using known facts, e.g. 10 × 9 = 90, so 13 × 9 = 90 + 9 + 9 + 9 = 90 + 27 = 117<br>• multiplying the tens and then the units, e.g. 7 × 19: 7 tens + 7 nines is 70 + 63, which is 133<br>− using an area model, e.g. 27 × 8<br>  <br><br>160 + 56 = 216 | **Suggested Content from Syllabus**<br>• Explore the use of brackets and order of operations to write number sentences (ACMNA134)<br>• use the term 'operations' to describe collectively the processes of addition, subtraction, multiplication and division<br>• investigate and establish the order of operations using real-life contexts, e.g. 'I buy six goldfish costing $10 each and two water plants costing $4 each. What is the total cost?'; this can be represented by the number sentence 6 × 10 + 2 × 4 but, to obtain the total cost, multiplication must be performed before addition | **Suggested Content from Syllabus**<br>• Apply the associative, commutative and distributive laws to aid mental and written computation<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving)<br>• apply a practical understanding of commutativity to aid mental computation, e.g. 3 + 9 = 9 + 3 = 12, 3 × 9 = 9 × 3 = 27<br>• apply a practical understanding of associativity to aid mental computation,<br>e.g. 3 + 8 + 2 = (3 + 8) + 2<br>= 3 + (8 + 2) = 13,<br>2×7×5 = (2 ×7)×5 = 2×(7×5) = 70 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• determine and distinguish between the 'number of rows/columns' and the 'number in each row/column' when describing collections of objects (Communicating)<br>• model the commutative property of multiplication, e.g. '3 groups of 2 is the same as 2 groups of 3' | **Suggested Content Continued**<br>• using doubling and repeated doubling to multiply by 2, 4 and 8, e.g. 23 × 4 is double 23 and then double again<br>• using the relationship between multiplication facts, e.g. 41 × 6 is 41 × 3, which is 123, and then double to obtain 246<br>− factorising the larger number, e.g. 18 × 5 = 9 × 2 × 5 = 9 × 10 = 90<br>• create a table or simple spreadsheet to record multiplication facts, e.g. a 10 × 10 grid showing multiplication facts (Communicating)<br>• using the inverse relationship of multiplication and division, e.g. 63 ÷ 9 = 7 because 7 × 9 = 63<br>• apply the inverse relationship of multiplication and division to justify answers, e.g. 56 ÷ 8 = 7 because 7 × 8 = 56 (Problem Solving, Reasoning) | **Suggested Content Continued**<br>• write number sentences to represent real-life situations<br>• recognise that the grouping symbols () and [] are used in number sentences to indicate operations that must be performed first<br>• recognise that if more than one pair of grouping symbols are used, the operation within the innermost grouping symbols is performed first<br>• perform calculations involving grouping symbols without the use of digital technologies, e.g.<br>5+ (2 x 3) = 5+ 6<br>= 11<br>(2 + 3) x (16 " 9) = 5 x 7<br>= 35<br>3+ [20 ÷ (9 x 5)] = 3+[20 ÷ 4]<br>= 3+ 5<br>= 8<br>• apply the order of operations to perform calculations involving mixed operations and grouping symbols without the use of digital technologies, e.g.<br>32 + 2 - 4 = 34 - 4<br>= 30<br>addition and subtraction only, therefore work from left to right<br><br>32 ÷ 2 x 4 = 16 x 4<br>= 64<br>multiplication and division only, therefore work from left to right<br><br>32 ÷ (2 x 4) = 32 ÷ 8<br>= 4<br>perform operation in grouping symbols first<br><br>(32 + 2) x 4 = 34 x 4<br>= 136<br>perform operation in grouping symbols first<br><br>32 + 2 x 4 = 32 + 8<br>= 40<br>multiplication must be performed before addition | **Suggested Content Continued**<br>• determine by example that associativity holds true for multiplication of three or more numbers but does not apply to calculations involving division, e.g. (80 ÷ 8) ÷ 2 is not equivalent to 80 ÷ (8 ÷ 2) (Communicating)<br>• apply a practical understanding of the distributive law to aid mental computation, e.g. to multiply any number by 13, first multiply by 10 and then add 3 times the number<br>• use factors of a number to aid mental computation of multiplication and division, e.g. to multiply a number by 12, first multiply the number by 6 and then multiply by 2 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | | **Suggested Content Continued**<br>• investigate whether different digital technologies apply the order of operations (Reasoning)<br>• recognise when grouping symbols are not necessary, e.g. 32 + (2 × 4) has the same answer as 32 + 2 × 4<br>• Select and apply efficient mental and written strategies, and appropriate digital technologies, to solve problems involving multiplication and division with whole numbers (ACMNA123)<br>• select and use efficient mental and written strategies, and digital technologies, to solve multiplication problems involving whole numbers<br>• use efficient mental and written strategies, and digital technologies, to multiply whole numbers of up to four digits by one- and two-digit numbers<br>• estimate solutions to problems and check to justify solutions (Problem Solving, Reasoning)<br>• use mental strategies to multiply numbers by 10, 100, 1000 and their multiples<br>• use appropriate language to compare quantities, e.g. 'twice as much as', 'half as much as' (Communicating) | |
| **Vocabulary from Syllabus**<br>Group, share, equal. | **Vocabulary from Syllabus**<br>Group, number of groups, number in each group, sharing, shared between, left over, total, equal. | **Vocabulary from Syllabus**<br>Group, row, column, horizontal, vertical, array, multiply, multiplied by, multiplication, multiplication facts, double, shared between, divide, divided by, division, equals, strategy, digit, number chart. | **Vocabulary from Syllabus**<br>Multiply, multiplied by, product, multiplication, multiplication facts, area, thousands, hundreds, tens, ones, double, multiple, factor, divide, divided by, quotient, division, halve, remainder, fraction, decimal, equals, strategy, digit, estimate, round to. | **Vocabulary from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Other Key Ideas covered later**<br>• Investigate and model equal groups | **Other Key Ideas covered later**<br>• Rhythmic and skip count by twos, fives and tens from any starting point<br>• Model and use repeated addition as a strategy for multiplication<br>• Model division as sharing a collection of objects into equal groups<br>• Model and use groups, arrays and repeated subtraction as strategies for division | **Other Key Ideas covered later**<br>• Recall multiplication facts for twos, threes, fives and tens<br>• Link multiplication and division using arrays<br>• Model and apply to commutative property for multiplication<br>• Use and record mental strategies to multiply one-digit numbers by multiples of 10<br>• Recall multiplication facts up to 10 × 10 and related division facts<br>• Determine multiples and factors of numbers<br>• Use the equals sign to record equivalent number sentences<br>• Use mental strategies and informal recording methods for division with remainders | **Other Key Ideas covered later**<br>• Use and record a range of mental and written strategies to multiply by one- and two-digit operators<br>• Solve word problems and record the strategy used<br>• Use the formal algorithm for multiplication by one- and two-digit operators<br>• Use and record a range of mental and written strategies to divide by a one-digit operator with and without remainders<br>• Interpret remainders in division problems | **Other Key Ideas covered later** |
| **Syllabus Page :** 45 - 46 | **Syllabus Page :** 75 - 78 | **Syllabus Page :** 127 - 131 | **Syllabus Page :** 188 - 194 | **Syllabus Page :** |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Area (D)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• describes and compares areas using everyday language MAe-10MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• estimates, measures, compares and records areas using informal units MA1-10MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• estimates, measures, compares and records areas using square centimetres and square metres MA2-10MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital<br>• technologies, in undertaking investigations MA3-2WM<br>• selects and uses the appropriate unit to calculate areas, including areas of squares, rectangles and triangles MA3-10MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• uses formulas to calculate the area of quadrilaterals and circles, and converts between units of area MA4-13MG |
| **Focus Key Ideas for this week**<br>• Compare areas using direct comparison<br>• Record comparisons of area informally | **Focus Key Ideas for this week**<br>• Compare and order surfaces based on area using uniform informal units | **Focus Key Ideas for this week**<br>• Compare areas measured in square centimetres and square metres | **Focus Key Ideas for this week**<br>• Calculate areas of triangles and record the strategy<br>• Solve problems involving areas of triangles | • **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• use everyday language to describe area, e.g. surface, inside, outside<br>• use comparative language to describe area, e.g. bigger than, smaller than, the same as<br>• ask questions about area in everyday situations, e.g. 'Which book cover is bigger?'<br>• compare two areas directly, e.g. superimposing or superpositioning two surfaces<br>• demonstrate how one surface is bigger than another by comparing directly (Reasoning)<br>• predict whether a surface will be larger or smaller than another surface and explain the reasons for this prediction (Communicating, Reasoning)<br>• record area comparisons informally by drawing, tracing, or cutting and pasting, and using numerals and words | **Suggested Content from Syllabus**<br>• Compare and order several shapes and objects based on area using appropriate uniform informal units (ACMMG037)<br>• draw the spatial structure (grid) of repeated units covering a surface<br>• explain the structure of the unit tessellation in terms of rows and columns (Communicating)<br>• compare and order the areas of two or more surfaces that cannot be moved, or superimposed, by measuring in uniform informal units<br>• predict the larger of two or more areas and check by measuring (Reasoning)<br>• record comparisons of area informally using drawings, numerals and words, and by referring to the uniform informal unit used | **Suggested Content from Syllabus**<br>• Compare objects using familiar metric units of area (ACMMG290)<br>• estimate the larger of two or more rectangular areas (including the areas of squares) in square centimetres and then measure in square centimetres to compare the areas<br>• estimate the larger of two or more rectangular areas (including the areas of squares) in square metres and then measure in square metres to compare the areas | **Suggested Content from Syllabus**<br>• investigate the area of a triangle by comparing the area of a given triangle to the area of the rectangle of the same length and perpendicular height, e.g. place a copy of the given triangle with the given triangle to form a rectangle<br>• explain the relationship between the area of a triangle and the area of the rectangle of the same length and perpendicular height (Communicating, Reasoning)<br>• establish the relationship between the base length, perpendicular height and area of a triangle<br>• record the method for finding the area of any triangle using words and symbols,<br>e.g. 'Area of triangle = $\frac{1}{2}$ × base × perpendicular height'<br>• solve a variety of problems involving the areas of triangles | **Suggested Content from Syllabus**<br>• choose an appropriate unit to measure the areas of different shapes and surfaces, e.g. floor space, fields<br>• use the areas of familiar surfaces to assist with the estimation of larger areas (Problem Solving)<br>• convert between metric units of area: 1 $cm^2$ = 100 $mm^2$, 1 $m^2$ = 1 000 000 $mm^2$, 1 ha = 10 000 $m^2$, 1 $km^2$ = 1 000 000 $m^2$ = 100 ha<br>• Establish the formulas for areas of rectangles, triangles and parallelograms and use these in problem solving (ACMMG159)<br>• develop and use the formulas for the area of squares and rectangles:<br>  • Area of rectangle = $lb$ where $l$ is the length and $b$ is the breadth of the rectangle<br>  • Area of square = $s^2$ where $s$ is the side length of the square |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | | **Suggested Content Continued**<br>• explain the relationship between the area of a triangle and the area of the rectangle of the same length and perpendicular height (Communicating, Reasoning) | **Suggested Content Continued**<br>• explain the relationship that multiplying, dividing, squaring and factoring have with the areas of squares and rectangles with integer side lengths (Communicating)<br>• explain the relationship between the formulas for the areas of squares and rectangles (Communicating)<br>• compare areas of rectangles with the same perimeter (Problem Solving)<br>• develop, with or without digital technologies, and use the formulas for the areas of parallelograms and triangles, including triangles where the perpendicular height lies outside the shape:<br>  • Area of parallelogram = $bh$ where $b$ is the length of the base and $h$ is the perpendicular height<br>  • Area of triangle = $\frac{1}{2}bh$ where $b$ is the length of the 2base and $h$ is the perpendicular height<br>• identify the perpendicular height of triangles and parallelograms in different orientations (Reasoning)<br>• find the areas of simple composite figures that may be dissected into squares, rectangles, parallelograms and triangles |
| **Vocabulary from Syllabus**<br>Area, surface, closed shape, inside, outside, bigger than, smaller than, the same as. | **Vocabulary from Syllabus**<br>Area, surface, measure, row, column, gap, overlap, parts of (units), estimate. | **Vocabulary from Syllabus**<br>Area, surface, measure, grid, row, column, square centimetre, square metre, estimate. | **Vocabulary from Syllabus**<br>Area, measure, square centimetre, square metre, square kilometre, hectare, dimensions, length, width. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later**<br>• Identify the attribute of 'area' as a measure of the amount of surface<br>• Use comparative language to describe areas | **Other Key Ideas covered later**<br>• Use uniform informal units to measure and estimate areas<br>• Record areas by referring to the number and type of uniform informal unit used | **Other Key Ideas covered later**<br>• Recognise the need for formal units to measure area<br>• Use square centimetres and square metres to measure and estimate rectangular (and square) areas<br>• Record lengths using abbreviations (cm2 and m2)<br>• Measure and compare the areas of regular and irregular shapes using a square-centimetre grid | **Other Key Ideas covered later**<br>• Recognise the need for square kilometres and hectares to measure area<br>• Record areas using abbreviations (km2 and ha)<br>• Calculate areas of rectangles (including squares) and record the strategy<br>• Solve problems involving areas of rectangles (including squares) | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Page :** 52 - 53 | **Syllabus Page :** 91 - 93 | **Syllabus Page :** 144 - 147 | **Syllabus Page :** 211 - 213 | **Syllabus Page :** 273 - 275 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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# Division (C)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• groups, shares and counts collections of objects, describes using everyday language, and records using informal method MAe-6NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses a range of mental strategies and concrete materials for multiplication and division MA1-6NA<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• uses a range of mental strategies and concrete materials for multiplication and division MA1-6NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• uses mental and informal written strategies for multiplication and division MA2-6NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and applies appropriate strategies for multiplication and division, and applies the order of operations to calculations involving more than one operation MA3-6NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• compares, orders and calculates with integers, applying a range of strategies to aid computation MA4-4NA |
| **Focus Key Ideas for this week**<br>• Investigate and model equal groups<br>• Record sharing using informal methods | **Focus Key Ideas for this week**<br>• Model and use groups, arrays and repeated subtraction as strategies for division | **Focus Key Ideas for this week**<br>• Link multiplication and division using arrays<br>• Use mental strategies and informal recording methods for division with remainders | **Focus Key Ideas for this week**<br>• Select and apply efficient mental, written and calculator strategies to solve word problems and record the strategy used<br>• Use grouping symbols and the order of operations in calculations | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Investigate and model equal groups<br>• use the term 'group' to describe a collection of objects<br>• use the term 'sharing' to describe the distribution of a collection of objects<br>• model equal groups and recognise groups that are not equal in size<br>• share concrete materials to solve problems explain or demonstrate how an answer was obtained (Communicating, Reasoning) | **Suggested Content from Syllabus**<br>• describe collections of objects as 'groups of', 'rows of' and 'columns of' (Communicating)<br>• determine and distinguish between the 'number of rows/columns' and the 'number in each row/column' when describing collections of objects (Communicating)<br>• recognise practical examples of arrays, such as seedling trays or vegetable gardens (Reasoning) | **Suggested Content from Syllabus**<br>• link multiplication and division facts using groups or arrays, e.g.<br>  <br>3 rows of 4 is 12<br>4 columns of 3 is 12<br>3 x 4 = 12, 4 x 3 = 12<br>12 shared into 3 rows is 4<br>12 shared into 4 columns is 3<br>12 ÷ 3 = 4, 12 ÷ 4 = 3 | **Suggested Content from Syllabus**<br>• Solve problems involving division by a one-digit number, including those that result in a remainder (ACMNA101)<br>• use the term 'quotient' to describe the result of a division calculation, e.g. 'The quotient when 30 is divided by 6 is 5'<br>• recognise and use different notations to indicate division, e.g. 25 ÷ 4, $4\overline{)25}$, $\frac{25}{4}$<br>record remainders as fractions and decimals, e.g. 25÷ 4 = $6\frac{1}{4}$ or 6.25 | **Suggested Content from Syllabus**<br>• Apply the associative, commutative and distributive laws to aid mental and written computation<br>• use an appropriate non-calculator method to divide two- and three-digit numbers by a two digit number<br>• compare initial estimates with answers obtained by written methods and check with a calculator (Problem Solving) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• Record sharing using informal methods<br>• label the number of objects in a group<br>• record sharing informally using pictures, words and numerals | **Suggested Content Continued**<br>• recognise when there are equal numbers of items in groups, e.g. 'There are three pencils in each group'<br>• model division by sharing a collection of objects into equal groups and by forming equal rows or equal columns in an array, e.g. ten objects shared between two people<br>• describe the part left over when a collection cannot be shared equally into groups (Communicating, Problem Solving, Reasoning)<br>• Represent division as grouping into equal sets and solve simple problems using these representations (ACMNA032)<br>• model division as repeated subtraction<br>• use an empty number line to record repeated subtraction (Communicating)<br>• explore the use of repeated subtraction to share in practical situations, e.g. share 20 stickers between 5 people (Problem Solving)<br>• solve division problems using objects, diagrams, imagery and actions<br>• support answers by demonstrating how an answer was obtained (Communicating)<br>• recognise which strategy worked and which did not work and explain why (Communicating, Reasoning)<br>• record answers to division problems using drawings, words and numerals, e.g. “ten shared into 2 rows is 5 in each row”<br>• Skip count backwards by twos, fives and tens<br>• use patterns on a number chart to assist in counting backwards by twos, fives or tens (Communicating)<br>• Recognise and represent division as grouping into equal sets (ACMNA032) | **Suggested Content Continued**<br>• explain why a rectangular array can be read as a division in two ways by forming vertical or horizontal groups, e.g. 12 ÷ 3 = 4 or 12 ÷ 4 = 3 (Communicating, Reasoning)<br>• apply the inverse relationship of multiplication and division to justify answers, e.g. 63 ÷ 9 = 7 because 7 x 9 = 63<br>• use mental strategies to divide a two-digit number by a one-digit number, including:<br>▪ recalling known division facts<br>▪ using halving and repeated halving to divide by 2, 4 and 8, e.g. 36 ÷ 4: halve 36 and then halve again<br>▪ using the relationship between division facts, e.g. to divide by 5, first divide by 10 and then divide by 2<br>• apply the inverse relationship of multiplication and division to justify answers, e.g. 56 ÷ 8 = 7 because 7 × 8 = 56 (Problem Solving, Reasoning)<br>• recognise and use ÷ to indicate division of two-digit numbers by single-digit numbers where there is no remainder<br>• record mental strategies used for division<br>• select and use a variety of mental and informal written strategies to solve division problems<br>• check the answer to a word problem using digital technologies<br>• Use mental strategies and informal recording methods for division with remainders<br>• model division, including where the answer involves a remainder, using concrete materials<br>• explain why a remainder is obtained in answers to some division problems (Communicating, Reasoning) | **Suggested Content Continued**<br>• use mental and written strategies to divide a number with three or more digits by a one-digit<br>• divisor where there is no remainder, including:<br>▪ dividing the hundreds, then the tens, and then the ones, e.g.<br>3248 ÷ 4<br>3200 ÷ 4 = 800<br>40 ÷ 4 = 10<br>8 ÷ 4 = 2<br>so 3248 ÷ 4 = 812<br>▪ using the formal algorithm, e.g.<br>258 ÷ 6<br>43<br>6) 258<br>• use mental and written strategies to divide a number with three or more digits by a one-digit divisor where there is a remainder, including:<br>▪ dividing the tens and then the ones, e.g. 243 ÷ 4<br>240 ÷ 4 = 60<br>3 ÷ 4 = $\frac{3}{4}$<br>so 243 ÷ 4 = $60\frac{3}{4}$<br>• using the formal algorithm, e.g.<br>587 ÷ 6<br>$97\frac{5}{6}$<br>6) 587<br>• explain why the remainder in a division calculation is always less than the number divided by (the divisor) (Reasoning)<br>• show the connection between division and multiplication, including where there is a remainder, e.g. 25 ÷ 4 = 6 remainder 1, so 25 = 4 × 6 + 1<br>• use digital technologies to divide whole numbers by one- and two-digit divisors<br>• check answers to mental calculations using digital technologies (Problem Solving) | **Suggested Content Continued**<br>• determine by example that associativity holds true for multiplication of three or more numbers but does not apply to calculations involving division, e.g. (80 ÷ 8) ÷ 2 is not equivalent to 80 ÷ (8 ÷ 2) (Communicating)<br>• use factors of a number to aid mental computation of multiplication and division, e.g. to multiply a number by 12, first multiply the number by 6 and then multiply by 2 |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | **Suggested Content Continued**<br>• use mental strategies to divide a two-digit number by a one-digit number in problems for which answers include a remainder, e.g. 29 ÷ 6: if 4 × 6 = 24 and 5 × 6 = 30, the answer is 4 remainder 5<br>• record remainders to division problems in words, e.g. 17 ÷ 4 = 4 remainder 1<br>• interpret the remainder in the context of a word problem, e.g. 'If a car can safely hold 5 people, how many cars are needed to carry 41 people?'; the answer of 8 remainder 1 means that 9 cars will be needed | **Suggested Content Continued**<br>• apply appropriate mental and written strategies, and digital technologies, to solve division word problems<br>• recognise when division is required to solve word problems (Problem Solving)<br>• use inverse operations to justify solutions to problems (Problem Solving, Reasoning)<br>• use and interpret remainders in solutions to division problems, e.g. recognise when it is appropriate to round up an answer, such as 'How many cars are required to take 47 people to the beach?'<br>• record the strategy used to solve division word problems<br>• use selected words to describe each step in the solution process (Communicating, Problem Solving)<br>• Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099)<br>• round numbers appropriately when obtaining estimates to numerical calculations<br>• use estimation to check the reasonableness of answers to division calculations,<br>• check answers to mental calculations using digital technologies (Problem Solving)<br>• apply appropriate mental and written strategies, and digital technologies, to solve division word problems<br>• use the appropriate operation when solving problems in real-life situations (Problem Solving)<br>• use inverse operations to justify solutions (Problem Solving, Reasoning)<br>• record the strategy used to solve division word problems<br>• use selected words to describe each step in the solution process (Communicating, Problem Solving) | |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Vocabulary from Syllabus**<br>Group, share, equal. | **Vocabulary from Syllabus**<br>Group, number of groups, number in each group, sharing, shared between, left over, total, equal. | **Vocabulary from Syllabus**<br>Group, row, column, horizontal, vertical, array, multiply, multiplied by, multiplication, multiplication facts, double, shared between, divide, divided by, division, equals, strategy, digit, number chart. | **Vocabulary from Syllabus**<br>Multiply, multiplied by, product, multiplication, multiplication facts, area, thousands, hundreds, tens, ones, double, multiple, factor, divide, divided by, quotient, division, halve, remainder, fraction, decimal, equals, strategy, digit, estimate, round to. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Model division as sharing a collection of objects into equal groups<br>• Record using drawings, words and numerals | **Other Key Ideas covered later**<br>• Use and record a range of mental and written strategies for division of two-digit numbers by a one-digit operator | **Other Key Ideas covered later**<br>• Use and record a range of mental and written strategies to divide by a one-digit operator with and without remainders<br>• Solve word problems and record the strategy used<br>• Interpret remainders in division problems | **Other Key Ideas covered later** |
| **Syllabus Page :** 45 - 46 | **Syllabus Page :** 75 - 78 | **Syllabus Page :** 127 - 131 | **Syllabus Page :** 188 - 194 | **Syllabus Page :** |
|  |  |  |  |  |

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# Volume & Capacity (D)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• describes and compares the capacities of containers and the volumes of objects or substances using everyday language MAe-11MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• estimates, measures, compares and records volumes and capacities using informal units MA1-11MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• estimates, measures, compares and records volumes and capacities using litres, millilitres and cubic centimetres MA2-11MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• selects and uses the appropriate unit to estimate, measure and calculate volumes and capacities, and converts between units of capacity MA3-11MG | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• uses formulas to calculate the volume of prisms and cylinders, and converts between units of volume MA4-14MG |
| **Focus Key Ideas for this week**<br>• Record comparisons of capacity and volume informally | **Focus Key Ideas for this week**<br>• Record capacities and volumes by referring to the number and type of uniform informal unit used | **Focus Key Ideas for this week**<br>• Convert between litres and millilitres | **Focus Key Ideas for this week**<br>• Record volumes and capacities using decimal notation to three decimal places<br>• Convert between millilitres and litres | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• use comparative language to describe volume and capacity, e.g. has more, has less, will hold more, will hold less, takes up more space<br>• record volume and capacity comparisons informally using drawings, numerals and words | **Suggested Content from Syllabus**<br>• record volumes by referring to the number and type of uniform informal unit used<br>• estimate volumes of containers by referring to the number and type of uniform informal unit used and check by measuring<br>• explain a strategy used for estimating a volume (Communicating, Problem Solving)<br>• predict the larger volume of two or more containers and check by measuring using uniform informal units (Reasoning)<br>• estimate the volume of a pile of material and check by measuring, e.g. estimate how many buckets would be used to form a pile of sand | **Suggested Content from Syllabus**<br>• record capacities and volumes using the abbreviation for millilitre(s) (mL)<br>• convert between millilitres and litres, e.g. 1250 mL = 1 litre 250 millilitres<br>• compare and order the capacities of two or more containers measured in millilitres<br>• estimate the capacity of a container in millilitres and check by measuring<br>• compare the volumes of two or more objects by marking the change in water level when each is submerged in a container<br>• estimate the change in water level when an object is submerged (Reasoning) | **Suggested Content from Syllabus**<br>• Connect decimal representations to the metric system (ACMMG135)<br>• record volume and capacity using decimal notation to three decimal places, e.g. 1.275 L<br>• Convert between common metric units of capacity (ACMMG136)<br>• convert between millilitres and litres | **Suggested Content from Syllabus**<br>• choose appropriate units of measurement for capacity convert from one unit to another (ACMMG195)<br>• recognise that 1000 litres is equal to one kilolitre and use the abbreviation for kilolitre (kL)<br>• recognise that 1000 kilolitres is equal to one megalitre and use the abbreviation for megalitre (ML)<br>• choose an appropriate unit to measure the capacity of different objects, e.g. swimming pools, household containers, dams<br>• use the capacity of familiar containers to assist with estimation of larger capacities (Reasoning) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | **Suggested Content Continued**<br>• measure the overflow in millilitres when different objects are submerged in a container filled to the brim with water<br>• estimate the volume of a substance in a partially filled container from the information on the label detailing the contents of the container | | **Suggested Content Continued**<br>• convert between metric units of capacity, using 1 $cm^3$ = 1000 $mm^3$, 1 L = 1000 mL = 1000 $cm^3$, 1 $m^3$ = 1000 L = 1 kL, 1000 kL = 1 ML<br>• solve practical problems involving the volume and capacity of right prisms<br>• Calculate the volume of cylinders and solve related problems<br>• develop and use the formula to find the volume of cylinders: Volume of cylinder = $\pi r^2 h$<br>• where $r$ is the length of the radius of the base and $h$ is the perpendicular height<br>• recognise and explain the similarities between the volume formulas for cylinders and prisms (Communicating)<br>• solve problems involving the capacity of right prisms and cylinders, e.g. calculate the capacity of a cylindrical can of drink or a water tank |
| **Vocabulary from Syllabus**<br>The attribute of Capacity refers to the amount a container can hold, and can be measured in millilitres (mL) and/or litres (L). Capacity is only used in relation to containers and generally refers to liquid measurement. The capacity of a closed container will be slightly less than its volume – capacity is based on the inside dimensions, while volume is determined by the outside dimensions of the container. Volume is the amount of space occupied by an object or substance and can be measured in cubic units, e.g. cubic centimetres ($cm^3$) and cubic metres ($m^3$).<br>Capacity, container, liquid, full, empty, about half-full, volume, space, has more, has less, will hold more, will hold less, takes up more space. | **Vocabulary from Syllabus**<br>The attribute of Capacity refers to the amount a container can hold, and can be measured in millilitres (mL) and/or litres (L). Capacity is only used in relation to containers and generally refers to liquid measurement. The capacity of a closed container will be slightly less than its volume – capacity is based on the inside dimensions, while volume is determined by the outside dimensions of the container. Volume is the amount of space occupied by an object or substance and can be measured in cubic units, e.g. cubic centimetres ($cm^3$) and cubic metres ($m^3$).<br>Capacity, container, liquid, full, empty, volume, gap, measure, estimate. | **Vocabulary from Syllabus**<br>The attribute of Capacity refers to the amount a container can hold, and can be measured in millilitres (mL) and/or litres (L). Capacity is only used in relation to containers and generally refers to liquid measurement. The capacity of a closed container will be slightly less than its volume – capacity is based on the inside dimensions, while volume is determined by the outside dimensions of the container. Volume is the amount of space occupied by an object or substance and can be measured in cubic units, e.g. cubic centimetres ($cm^3$) and cubic metres ($m^3$).<br>Capacity, container, litre, millilitre, volume, measure, estimate. | **Vocabulary from Syllabus**<br>The attribute of Capacity refers to the amount a container can hold, and can be measured in millilitres (mL) and/or litres (L). Capacity is only used in relation to containers and generally refers to liquid measurement. The capacity of a closed container will be slightly less than its volume – capacity is based on the inside dimensions, while volume is determined by the outside dimensions of the container. Volume is the amount of space occupied by an object or substance and can be measured in cubic units, e.g. cubic centimetres ($cm^3$) and cubic metres ($m^3$).<br>Capacity, container, volume, layers, cubic centimetre, cubic metre, measure, estimate, litre, millilitre, dimensions, length, width, height. | **Vocabulary from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Other Key Ideas covered later**<br>• Identify the attribute of 'capacity' as a measure of the amount of substance a container can hold<br>• Use comparative language to describe capacities and volumes<br>• Identify the attribute of 'volume' as a measure of the amount of space an object occupies<br>• Compare volumes and capacities using direct comparison | **Other Key Ideas covered later**<br>• Use uniform informal units to measure, compare and estimate capacities<br>• Use uniform informal units to measure and estimate volumes<br>• Compare and order objects based on capacity or volume using uniform informal units<br>• Use uniform informal units to measure, compare and estimate capacities | **Other Key Ideas covered later**<br>• Recognise the need for formal units to measure capacity and volume<br>• Use litres to measure, compare and estimate capacities and volumes<br>• Use cubic centimetres to measure and compare volumes<br>• Record capacities and volumes using abbreviations (L and $cm^3$)<br>• Use litres and millilitres to measure, compare and estimate capacities and volumes<br>• Record capacities and volumes using abbreviations (L and mL) | **Other Key Ideas covered later**<br>• Connect volume and capacity and their units of measurement<br>• Use cubic centimetres and cubic metres to measure and estimate volumes<br>• Select and use appropriate units to measure volume<br>• Record volumes using abbreviations ($cm^3$ and $m^3$)<br>• Calculate volumes of rectangular prisms and record the strategy | **Other Key Ideas covered later** |
| **Syllabus Page :** 54 - 55 | **Syllabus Page :** 94 - 96 | **Syllabus Page :** 148 - 151 | **Syllabus Page :** 214 - 217 | **Syllabus Page :** 276 - 278 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

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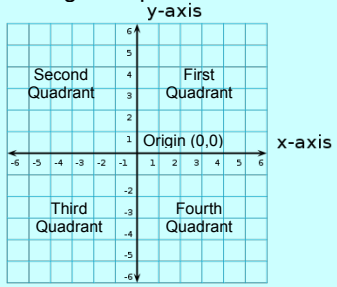
# Patterns & Algebra (E)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses objects, actions, technology and/or trial and error to explore mathematical problems MAe-2WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• recognises, describes and continues repeating patterns MAe-8NA | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• creates, represents and continues a variety of patterns with numbers and objects<br>• MA1-8NA | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• generalises properties of odd and even numbers, generates number patterns, and completes simple number sentences by calculating missing values MA2-8NA | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• analyses and creates geometric and number patterns, constructs and completes number sentences, and locates points on the Cartesian plane MA3-8NA | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• generalises number properties to operate with algebraic expressions MA4-8NA |
| **Focus Key Ideas for this week**<br>• Sort and classify objects into groups<br>• Recognise, continue, copy, create and describe repeating patterns of objects and drawings | **Focus Key Ideas for this week**<br>• Find missing values in number sentences involving one operation of addition or subtraction | **Focus Key Ideas for this week**<br>• Find missing values in number sentences involving one operation of multiplication or division | **Focus Key Ideas for this week**<br>• Locate and describe points on the number plane in all four quadrants | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• sort and classify a group of familiar objects into smaller groups<br>• recognise that a group of objects can be sorted and classified in different ways<br>• explain the basis for their classification of objects (Communicating, Reasoning)<br>• Copy, continue and create patterns with objects and drawings<br>• recognise, copy and continue repeating patterns using sounds and/or actions<br>• recognise, copy, continue and create repeating patterns using shapes, objects or pictures, e.g. ◆ □ ◆ □ ◆ □<br>• create or continue a repeating pattern using simple computer graphics (Problem Solving) | **Suggested Content from Syllabus**<br>• Solve problems by using number sentences for addition or subtraction (ACMNA036)<br>• complete number sentences involving one operation of addition or subtraction by calculating the missing number,<br>e.g. find ☐ so that 5 + ☐ = 13 or<br>15 - ☐ = 9<br>• make connections between addition and related subtraction facts to at least 20 (Reasoning)<br>• describe how a missing number in a number sentence was calculated (Communicating, Reasoning)<br>• solve problems involving addition or subtraction by using number sentences | **Suggested Content from Syllabus**<br>• Investigate number sequences involving multiples of 3, 4, 6, 7, 8 and 9 (ACMNA074)<br>• generate number patterns using multiples of 3, 4, 6, 7, 8 and 9, e.g. 3, 6, 9, 12, ...<br>• investigate visual number patterns on a number chart<br>• Explore and describe number patterns resulting from performing multiplication (ACMNA081)<br>• use the word 'term' when referring to numbers in a number pattern<br>• describe the position of each term in a given number pattern, e.g. 'The first term is 6' (Communicating) | **Suggested Content from Syllabus**<br>• Introduce the Cartesian coordinate system using all four quadrants (ACMMG143)<br>• recognise that the number plane (Cartesian plane) is a visual way of describing location on a grid<br>• recognise that the number plane consists of a horizontal axis ($x$-axis) and a vertical axis ($y$-axis), creating four quadrants<br>  | **Suggested Content from Syllabus**<br>• Introduce the concept of variables as a way of representing numbers using letters<br>• use letters to represent numbers and develop the concept that pronumerals (letters) are used to represent numerical values<br>• model the following using concrete materials or otherwise: • expressions that involve a pronumeral, and a pronumeral added to a constant, e.g. $a$, $a + 1$ • expressions that involve a pronumeral multiplied by a constant, e.g. $2a$, $3a$<br>• sums and products, e.g. $2a + 1$, $2(a + 1)$<br>• equivalent expressions, such as $x + x + y + y + y = 2x + 2y + y = 2(x + y) + y$ |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• recognise when an error occurs in a pattern and explain what is wrong (Communicating, Reasoning)<br>• describe a repeating pattern made from shapes by referring to distinguishing features, e.g. 'I have made my pattern from squares. The colours repeat. They go red, blue, red, blue, ' | **Suggested Content Continued**<br>• represent a word problem as a number sentence (Communicating, Problem Solving)<br>• pose a word problem to represent a number sentence (Communicating, Problem Solving) | **Suggested Content Continued**<br>• find a higher term in a number pattern resulting from performing multiplication, given the first few terms, e.g. determine the next term in the pattern 4, 8, 16, 32, 64,<br>• describe how the next term in a number pattern is calculated, e.g. 'Each term in the pattern is double the previous term' (Communicating)<br>• Solve word problems by using number sentences involving multiplication or division where there is no remainder (ACMNA082)<br>• complete number sentences involving multiplication and division by calculating missing numbers, e.g. find the missing numbers:<br>28 = ☐ x 7 , 40 ÷ ☐ = 5<br>• represent and solve multiplication and division word problems using number sentences, e.g. 'I buy six pens and the total cost is $24. What is the cost of each pen?' can be represented as 6 x ☐ = 24 or 24 ÷ 6 = ☐<br>• discuss whether it is more appropriate to represent the problem using × or ÷ in order to calculate the solution (Communicating, Reasoning)<br>• pose a word problem based on a given number sentence,<br>e.g. given 4 x ☐= 28, a problem could be: 'I have 28 cans of drink and stack them into rows of 4. How many rows will there be?' (Communicating, Problem Solving, Reasoning) | **Suggested Content Continued**<br>• recognise that the horizontal axis and the vertical axis meet at right angles (Reasoning)<br>• identify the point of intersection of the two axes as the origin, having coordinates (0,0)<br>• plot points in all four quadrants of the number plane<br>• plot a sequence of coordinates to create a picture (Communicating)<br>• identify and record the coordinates of given points in all four quadrants of the number plane<br>• recognise that the order of coordinates is important when locating points on the number plane, e.g. (2,3) is a location different from (3,2) (Communicating) | **Suggested Content Continued**<br>• simplifying expressions, e.g. $(a+2)+(2a+3)=(a+2a)+(2+3)=3a+5$<br>• recognise and use equivalent algebraic expressions, e.g. $y+y+y=4y$ $w \times w = w2$ $a \times b = ab$ $a \div b = \frac{a}{b}$<br>use algebraic symbols to represent mathematical operations written in words and vice versa, e.g. the product of $x$ and $y$ is $xy$, $x + y$ is the sum of $x$ and $y$<br>• Extend and apply the laws and properties of arithmetic to algebraic terms and expressions<br>• recognise like terms and add and subtract them to simplify algebraic expressions, e.g. $2n+4m+n=4m+3n$<br>• verify whether a simplified expression is correct by substituting numbers for pronumerals<br>• connect algebra with the commutative and associative properties of arithmetic to determine that $a+b=b+a$ and $(a+b)+c=a+(b+c)$<br>• recognise the role of grouping symbols and the different meanings of expressions, such as $2a + 1$ and $2(a + 1)$<br>• translate from everyday language to algebraic language<br>• use algebraic symbols to represent simple situations described in words, e.g. write an expression for the number of cents in $x$ dollars<br>• interpret statements involving algebraic symbols in other contexts, e.g. cell references when creating and formatting spreadsheets (Communicating)<br>• simplify algebraic expressions that involve multiplication and division, e.g. $12a \div 3$, $4x \times 3$, $2ab \times 3a$, $\frac{8a}{2}$, $\frac{2a}{8}$, $\frac{12a}{9}$ |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | | | **Suggested Content Continued**<br>• recognise the equivalence of algebraic expressions involving multiplication, e.g. $3bc = 3cb$<br>• connect algebra with the commutative and associative properties of arithmetic to determine that $a \times b = b \times a$ and $(a \times b) \times c = a \times (b \times c)$<br>• recognise whether particular algebraic expressions involving division are equivalent or not, e.g. $a \div bc$ is equivalent to $\frac{a}{bc}$ and $a \div (b \times c)$ but is not equivalent to $a \div b \times c$ or $\frac{a}{b} \times c$<br>• Simplify algebraic expressions involving the four operations<br>• simplify a range of algebraic expressions, including those involving mixed operations<br>• apply the order of operations to simplify algebraic expressions |
| **Vocabulary from Syllabus**<br>Group, pattern, repeat. | **Vocabulary from Syllabus**<br>Pattern, number line, number chart. | **Vocabulary from Syllabus**<br>Pattern, goes up by, goes down by, rows, digit, multiplication facts. | **Vocabulary from Syllabus**<br>Pattern, increase, decrease, | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Recognise, continue, create and describe increasing and decreasing number patterns<br>• Recognise, create, continue and describe repeating patterns of objects or symbols as number patterns<br>• Model and describe odd and even numbers<br>• Describe patterns with numbers and identify missing elements | **Other Key Ideas covered later**<br>• Recognise, continue, create, describe and record increasing and decreasing number patterns<br>• Identify odd and even numbers of up to four-digits<br>• Investigate and use the properties of odd and even numbers<br>• Find missing values in number sentences involving an operation of addition or subtraction on both sides of the equals sign<br>• Recognise, continue and describe number patterns resulting from performing multiplication | **Other Key Ideas covered later**<br>• Recognise, continue create and describe increasing and decreasing number patterns with fractions, decimals and whole numbers<br>• Create, record and describe geometric and number patterns in words<br>• Find missing values in number sentences involving an operation of multiplication or division on both sides of the equals sign<br>• Determine the rule for geometric and number patterns in words and use the rule to calculate values | **Other Key Ideas covered later** |
| **Syllabus Page :** 48 - 49 | **Syllabus Page :** 83 - 86 | **Syllabus Page :** 137 - 140 | **Syllabus Page :** 203 - 207 | **Syllabus Page :** 257 - 261 |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

Return to Yearly Overview

# Mass (D)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• describes and compares masses of objects using everyday language MAe-12MG | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1W<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• estimates, measures, compares and records masses of objects using informal units MA1-12MG | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• estimates, measures, compares and records masses of objects using kilograms and grams MA2-12MG | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• selects and uses the appropriate unit and device to measure masses of objects, and converts between units of mass MA3-12MG | **Syllabus Outcomes** |
| **Focus Key Ideas for this week**<br>• Identify the attribute of 'mass' as a measure of the amount of matter in an object<br>• Compare masses directly by hefting<br>• Use comparative language to describe masses<br>• Record comparisons of mass informally | **Focus Key Ideas for this week**<br>• Measure and compare masses using uniform informal units<br>• Record masses by referring to the number and type of uniform informal unit used | **Focus Key Ideas for this week**<br>• Use kilograms and grams to measure and compare masses using a scaled instrument<br>• Record masses using abbreviations (kg and g) | **Focus Key Ideas for this week**<br>• Select and use appropriate instruments and units to measure mass<br>• Record mass using decimal notation to three decimal places<br>• Convert between tonnes, kilograms and grams | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Use direct and indirect comparisons to decide which is heavier, and explain reasoning in everyday language (ACMMG006)<br>• identify the attribute of 'mass' as the amount of matter in an object<br>• use everyday language to describe objects in terms of their mass, e.g. heavy, light, hard to push, hard to pull<br>• use comparative language to describe mass, e.g. heavier, lighter, heaviest, lightest<br>• identify an object that is heavier or lighter than another (Communicating)<br>• compare and describe two masses, such as by pushing or pulling | **Suggested Content from Syllabus**<br>• Compare masses of objects using balance scales (ACMMG038)<br>• compare and order the masses of two or more objects by hefting and check using a pan balance<br>• recognise that mass is conserved, e.g. the mass of a lump of plasticine remains constant regardless of the shape it is moulded into or whether it is divided up into smaller pieces<br>• use uniform informal units to measure the mass of an object by counting the number of units needed to obtain a level balance on a pan balance<br>• select an appropriate informal unit to measure the mass of an object and justify the choice | **Suggested Content from Syllabus**<br>• Use scaled instruments to measure and compare masses (ACMMG084)<br>• recognise the need for a formal unit smaller than the kilogram<br>• recognise that there are 1000 grams in one kilogram, i.e. 1000 grams = 1 kilogram<br>• use the gram as a unit to measure mass, using a scaled instrument<br>• associate gram measures with familiar objects, e.g. a standard egg has a mass of about 60 grams (Reasoning)<br>• record masses using the abbreviation for gram(s) (g)<br>• compare two or more objects by mass measured in kilograms and grams, using a set of scales | **Suggested Content from Syllabus**<br>• Connect decimal representations to the metric system (ACMMG135)<br>• measure mass using scales and record using decimal notation of up to three decimal places, e.g. 0.875 kg<br>• Convert between common metric units of mass (ACMMG136)<br>• convert between kilograms and grams and between kilograms and tonnes<br>• solve problems involving different units of mass, e.g. find the total mass of three items weighing 50 g, 750 g and 2.5 kg<br>• relate the mass of one litre of water to one kilogram | **Suggested Content from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• compare two masses directly by hefting, e.g. 'This toy feels heavier than that one'<br>• predict which object would be heavier than, lighter than, or have about the same mass as another object and explain reasons for this prediction (Communicating, Reasoning)<br>• investigate the use of hefting in practical situations, e.g. the practice used by Aboriginal people of hefting duck eggs to determine the sex of ducks (Problem Solving)<br>• record comparisons of mass informally using drawings, numerals and words | **Suggested Content Continued**<br>• explain the relationship between the mass of a unit and the number of units needed, e.g. more toothpicks than pop sticks will be needed to balance the object (Communicating, Reasoning)<br>• record masses by referring to the number and type of uniform informal unit used<br>• compare two or more objects according to their masses using appropriate uniform informal units<br>• record comparisons of mass informally using drawings, numerals and words, and by referring to the uniform informal units used<br>• find differences in mass by measuring and comparing, e.g. 'The pencil has a mass equal to three blocks and a pair of plastic scissors has a mass of six blocks, so the scissors are three blocks heavier than the pencil'<br>• predict whether the number of units will be more or less when a different unit is used, e.g. 'I will need more pop sticks than blocks as the pop sticks are lighter than the blocks' (Reasoning)<br>• solve problems involving mass (Problem Solving)<br>• estimate mass by referring to the number and type of uniform informal unit used and check by measuring | **Suggested Content Continued**<br>• interpret statements, and discuss the use of kilograms and grams, on commercial packaging (Communicating, Problem Solving)<br>• interpret commonly used fractions of a kilogram, including $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$ and relate these to the number of grams<br>• solve problems, including those involving commonly used fractions of a kilogram (Problem Solving)<br>• record masses using kilograms and grams, e.g. 1 kg 200 g | | |
| **Vocabulary from Syllabus**<br>Mass, matter, heavy, heavier, heaviest, light, lighter, lightest, about the same as, hard to push, hard to pull. | **Vocabulary from Syllabus**<br>Mass, heavy, heavier, light, lighter, about the same as, pan balance, (level) balance. | **Vocabulary from Syllabus**<br>Mass, more than, less than, about the same as, pan balance, (level) balance, measure, estimate, kilogram. | **Vocabulary from Syllabus**<br>Mass, measure, device, scales, tonne, kilogram, gram. | **Vocabulary from Syllabus** |
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Compare two objects based on mass using a pan balance<br>• Place objects on either side of a pan balance to obtain a level balance | **Other Key Ideas covered later**<br>• Recognise the need for formal units to measure mass<br>• Use kilograms to measure, compare, order and estimate masses<br>• Record masses using abbreviations (kg) | **Other Key Ideas covered later**<br>• Recognise the need for tonnes to measure mass<br>• Record masses using abbreviations (t, kg and g) | **Other Key Ideas covered later** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Page :** 56 - 57 | **Syllabus Page :** 97 - 99 | **Syllabus Page :** 152 - 155 | **Syllabus Page :** 218 - 219 | |
| Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 | Numeracy continuum K-10 |

Return to Yearly Overview

# Data (D)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Syllabus Outcomes**<br>• describes mathematical situations using everyday language, actions, materials and informal recordings MAe-1WM<br>• uses concrete materials and/or pictorial representations to support conclusions MAe-3WM<br>• represents data and interprets data displays made from objects and pictures MAe-17SP | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• uses objects, diagrams and technology to explore mathematical problems MA1-2WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• gathers and organises data, displays data in lists, tables and picture graphs, and interprets the results MA1-17SP | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• selects appropriate methods to collect data, and constructs, compares, interprets and evaluates data displays MA2-18SP | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• uses appropriate methods to collect data, constructs and interprets data displays, and analyses sets of data MA3-18SP | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• collects, represents and interprets single sets of data, using appropriate statistical displays MA4-19SP |
| **Focus Key Ideas for this week**<br>• Collect information about themselves and their environment<br>• Organise actual objects into data displays<br>• Interpret data displays made from objects | **Focus Key Ideas for this week**<br>• Pose questions and collect categorical data<br>• Create data displays using lists, tables and picture graphs (one-to-one correspondence) and interpret them | **Focus Key Ideas for this week**<br>• Select and trial methods for data collection, including survey questions and recording sheets<br>• Construct data displays including tables, and column graphs and picture graphs of many-to-one correspondence<br>• Evaluate the effectiveness of different displays | **Focus Key Ideas for this week**<br>• Interpret and create two-way tables<br>• Interpret side-by-side column graphs<br>• Compare a range of data displays to determine the most appropriate display for the data<br>• Interpret and critically evaluate data representations in digital media and elsewhere | **Focus Key Ideas for this week** |
| **Suggested Content from Syllabus**<br>• Answer yes/no questions to collect information (ACMSP011)<br>• collect information about themselves and their environment, including by asking and answering yes/no questions<br>• pose and answer questions about situations using everyday language, e.g. 'Do you have any brothers or sisters?', 'What is the favourite colour of most people in our class?' (Communicating)<br>• Organise objects into simple data displays and interpret the displays group objects according to characteristics to form a simple data display, e.g. sort blocks/counters according to colour | **Suggested Content from Syllabus**<br>• Identify a question of interest based on one categorical variable and gather data relevant to the question (ACMSP048)<br>• pose suitable questions that will elicit categorical answers and gather the data, e.g. 'Which school sport is the most popular with our class members?', 'How did each student in our class get to school today?'<br>• predict the likely responses within data to be collected (Reasoning)<br>• determine what data to gather in order to investigate a question of interest, e.g. colour, mode of transport, gender, type of animal, favourite sport (Problem Solving) | **Suggested Content from Syllabus**<br>• Select and trial methods for data collection, including survey questions and recording sheets (ACMSP095)<br>• create a survey and related recording sheet, considering the appropriate organisation of categories for data collection<br>• choose effective ways to collect and record data for an investigation, e.g. creating a survey with a scale of 1 to 5 to indicate preferences (1 = don't like, 2 = like a little, 3 = don't know, 4 = like, 5 = like a lot) (Communicating, Problem Solving)<br>• refine survey questions as necessary after a small trial | **Suggested Content from Syllabus**<br>• Interpret and compare a range of data displays, including side-by-side column graphs for two categorical variables (ACMSP147)<br>• interpret data presented in two-way tables<br>• create a two-way table to organise data involving two categorical variables, e.g. interpret side-by-side column graphs for two categorical variables, e.g. favourite television show of students in Year 1 compared to students in Year 6<br>• interpret and compare different displays of the same data set to determine the most appropriate display for the data set<br>• compare the effectiveness of different student-created data | **Suggested Content from Syllabus**<br>• define 'variable' in the context of statistics as something measurable or observable that is expected to change over time or between individual observations<br>• recognise variables as categorical or numerical (either discrete or continuous)<br>• identify examples of categorical variables (e.g. colour, gender), discrete numerical variables (e.g. number of students, shoe size) and continuous numerical variables (e.g. height, weight)<br>• recognise that data collected on a rating scale (Likert-type scale) is categorical, e.g. 1 = dislike, 2 = neutral, 3 = like (Communicating) |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Suggested Content Continued**<br>• compare the sizes of groups of objects by counting (Reasoning)<br>• arrange objects in rows or columns according to characteristics to form a data display, e.g. arrange lunchboxes in columns according to colour<br>• give reasons why a row of three objects may look bigger than a row of five objects, e.g. 'The three green lunchboxes are spaced more than the five blue lunchboxes' (Communicating, Reasoning)<br>• interpret information presented in a display of objects to answer questions, e.g. 'How many children in our class have red pencil cases?' | **Suggested Content Continued**<br>• Collect, check and classify data (ACMSP049)<br>• collect data on familiar topics through questioning, e.g. 'How many students are in our class each day this week?'<br>• use tally marks to assist with data collection (Communicating)<br>• identify categories of data and use them to sort data, e.g. sort data collected on attendance by day of the week and into boys and girls present<br>• Create displays of data using lists, tables and picture graphs and interpret them (ACMSP050)<br>• represent data in a picture graph using a baseline, equal spacing, same-sized symbols and a key indicating one-to-one correspondence<br>• identify misleading representations of data in a picture graph, e.g. where the symbol used to represent one item is shown in different sizes or where symbols are not equally spaced (Reasoning)<br>• use digital technologies to create picture graphs (Communicating)<br>• display data using lists and tables<br>• use displays to communicate information gathered in other learning areas, e.g. data gathered in a unit on families or local places (Communicating)<br>• interpret information presented in lists, tables and picture graphs<br>• describe data displayed in simple tables and picture graphs found in books and created by other students (Communicating)<br>• record observations based on tables and picture graphs developed from collected data | **Suggested Content Continued**<br>• discuss and decide the most suitable question to investigate a particular matter of interest, e.g. by narrowing the focus of a question from 'What is the most popular playground game?' to 'What is the most popular playground game among Year 3 students at our school?' (Communicating, Reasoning)<br>• conduct a survey to collect categorical data<br>• after conducting a survey, discuss and determine possible improvements to the questions or recording sheet (Communicating, Reasoning)<br>• compare the effectiveness of different methods of collecting and recording data, e.g. creating categories of playground games and using tally marks, compared to asking open-ended questions such as 'What playground game do you like to play?'<br>• discuss the advantages and/or disadvantages of open-ended questions in a survey,<br>• compared to questions with pre-determined categories (Communicating, Reasoning)<br>• Construct suitable data displays, with and without the use of digital technologies, from given or collected data; include tables, column graphs and picture graphs where one picture can represent many data values (ACMSP096)<br>• represent given or collected categorical data in tables, column graphs and picture graphs, where one picture represents many data values, with and without the use digital technologies<br>• discuss and determine a suitable many-to-one correspondence to draw graphs for large data sets and state the key used, e.g. = 10 people if there are 200 data values (Communicating, Reasoning) | displays (Communicating)<br>• discuss the advantages and disadvantages of different representations of the same data (Communicating)<br>• explain which display is the most appropriate for interpretation of a particular data set (Communicating, Reasoning)<br>• compare side-by-side column graphs with two-way tables (Reasoning)<br>• Interpret secondary data presented in digital media and elsewhere (ACMSP148)<br>• interpret data representations found in digital media and in factual texts<br>• interpret tables and graphs from the media/internet, e.g. data about different sports teams (Reasoning)<br>• identify and describe conclusions that can be drawn from a particular representation of data (Communicating, Reasoning)<br>• critically evaluate data representations found in digital media and related claims<br>• discuss the messages that those who created a particular data representation might have wanted to convey (Communicating)<br>• identify sources of possible bias in representations of data in the media by discussing various influences on data collection and representation, e.g. who created/paid for the data collection or whether the representation is part of an advertisement (Communicating, Reasoning)<br>• identify misleading representations of data in the media, e.g. broken axes, or graphics that are not drawn to scale (Reasoning) | **Suggested Content Continued**<br>• recognise and explain the difference between a 'population' and a 'sample' selected from a population when collecting data<br>• investigate and determine the differences between collecting data by observation, census and sampling<br>• identify examples of variables for which data could be collected by observation, e.g. direction travelled by vehicles arriving at an intersection, native animals in a local area (Communicating)<br>• identify examples of variables for which data could be collected by a census or by a sample, e.g. a census to collect data about the income of Australians, a sample for TV ratings (Communicating)<br>• discuss the practicalities of collecting data through a census compared to a sample, including limitations due to population size, e.g. in countries such as China and India, a census is conducted only once per decade (Communicating, Reasoning)<br>• collect data using a random process, e.g. numbers from a page in a phone book, or from a random number generator<br>• identify issues that may make it difficult to obtain representative data from either primary or secondary sources<br>• discuss constraints that may limit the collection of data or result in unreliable data, e.g. lack of proximity to the location where data could be collected, lack of access to digital technologies, or cultural sensitivities that may influence the results (Communicating, Reasoning)<br>• investigate and question the selection of data used to support a particular viewpoint, e.g. the selective use of data in product advertising |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | | **Suggested Content Continued**<br>• use grid paper to assist in drawing graphs that represent data using many-to-one correspondence<br>• use data in a spreadsheet to create column graphs with appropriately labelled axes (Communicating, Problem Solving)<br>• mark equal spaces on axes, name and label axes, and choose appropriate titles for graphs (Communicating)<br>• Evaluate the effectiveness of different displays in illustrating data features, including variability (ACMSP097)<br>• interpret and evaluate the effectiveness of various data displays found in media and in factual texts, where displays represent data using many-to-one correspondence<br>• identify and discuss misleading representations of data (Communicating, Reasoning)<br>• discuss and compare features of data displays, including considering the number and<br>• appropriateness of the categories used, e.g. a display with only three categories (blue, red, other) for car colour is not likely to be useful (Communicating)<br>• discuss the advantages and disadvantages of different representations of the same categorical data, e.g. column graphs compared to picture graphs that represent data using many-to-one correspondence (Communicating) | | |
| **Vocabulary from Syllabus**<br>Information, collect, group, display, objects. | **Vocabulary from Syllabus**<br>Information, data, collect, gather, display, objects, symbol, tally mark, picture, row. | **Vocabulary from Syllabus**<br>Information, data, collect, category, display, symbol, list, table, column graph, picture graph, vertical columns, horizontal bars, equal spacing, title, key, vertical axis, horizontal axis, axes, spreadsheet. | **Vocabulary from Syllabus**<br>Data, survey, category, display, tabulate, table, column graph, vertical columns, horizontal bars, equal spacing, title, scale, vertical axis, horizontal axis, axes, line graph, dot plots, spreadsheet. | **Vocabulary from Syllabus** |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Other Key Ideas covered later** | **Other Key Ideas covered later**<br>• Collect data and track what has been counted<br>• Create data displays using objects and pictures (one-to-one correspondence) and interpret them | **Other Key Ideas covered later**<br>• Plan methods for data collection<br>• Collect data, organise into categories and create displays using lists, tables, picture graphs and simple column graphs (one-to-one correspondence)<br>• Interpret and compare data displays | **Other Key Ideas covered later**<br>• Pose and refine questions and collect categorical and numerical data<br>• Create data displays, including tables, column graphs, line graphs and dot plots, appropriate for the data type<br>• Describe and interpret data presented in tables, column graphs, line graphs and dot plots | **Other Key Ideas covered later** |
| **Syllabus Page :** 65 | **Syllabus Page :** 114 - 117 | **Syllabus Page :** 173 - 176 | **Syllabus Page :** 237 - 240 | **Syllabus Page** : 291 - 302 |
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# ES1 – Revision and S1, S2 & S3 – Chance (B)

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| **Revision** | **Syllabus Outcomes**<br>• describes mathematical situations and methods using every day and some mathematical language, actions, materials, diagrams and symbols MA1-1WM<br>• supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM<br>• recognises and describes the elements of chance in everyday events MA1-18SP | **Syllabus Outcomes**<br>• uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM<br>• checks the accuracy of a statement and explains the reasoning used MA2-3WM<br>• describes and compares chance events in social and experimental contexts MA2-19SP | **Syllabus Outcomes**<br>• describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM<br>• selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM<br>• gives a valid reason for supporting one possible solution over another MA3-3WM<br>• conducts chance experiments and assigns probabilities as values between 0 and 1 to describe their outcomes MA3-19SP | **Syllabus Outcomes**<br>• communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM<br>• applies appropriate mathematical techniques to solve problems MA4-2WM<br>• recognises and explains mathematical relationships using reasoning MA4-3WM<br>• represents probabilities of simple and compound events MA4-21SP |
| **Focus Key Ideas for this week** | **Focus Key Ideas for this week**<br>• Describe events as 'likely' or 'unlikely'<br>• Distinguish between 'possible' and 'impossible' events<br>• Identify some events as 'certain' or impossible | **Focus Key Ideas for this week**<br>• Identify everyday events where one cannot happen if the other happens<br>• Identify events where the chance of one will not be affected by the occurrence of the other | **Focus Key Ideas for this week**<br>• Compare observed frequencies in chance experiments with expected frequencies<br>• Represent probabilities using fractions, decimals and percentages | **Focus Key Ideas for this week** |
| | **Suggested Content from Syllabus**<br>• Describe outcomes as 'likely' or 'unlikely' and identify some events as 'certain' or 'impossible' (ACMSP047)<br>• describe possible outcomes in everyday activities and events as being 'likely' or 'unlikely' to happen<br>• compare familiar activities and events and describe them as being 'likely' or 'unlikely' to happen<br>• identify and distinguish between 'possible' and 'impossible' events<br>• describe familiar events as being 'possible' or 'impossible', e.g. 'It is possible that it will rain today', 'It is impossible to roll a standard six-sided die and get a seven' (Communicating) | **Suggested Content from Syllabus**<br>• Identify everyday events where one occurring cannot happen if the other happens (ACMSP093)<br>• identify and discuss everyday events occurring that cannot occur at the same time, e.g. the sun rising and the sun setting<br>• Identify events where the chance of one occurring will not be affected by the occurrence of the other (ACMSP094)<br>• identify and discuss events where the chance of one event occurring will not be affected by the occurrence of the other, e.g. obtaining a 'head' when tossing a coin does not affect the chance of obtaining a 'head' on the next toss | **Suggested Content from Syllabus**<br>• Compare observed frequencies across experiments with expected frequencies (ACMSP146)<br>• use the term 'frequency' to describe the number of times a particular outcome occurs in a chance experiment<br>• distinguish between the 'frequency' of an outcome and the 'probability' of an outcome in a chance experiment (Communicating)<br>• compare the expected frequencies of outcomes of chance experiments with observed frequencies, including where the outcomes are not equally likely | **Suggested Content from Syllabus**<br>• Construct sample spaces for single-step experiments with equally likely outcomes (ACMSP167)<br>• use the term 'chance experiment' when referring to actions such as tossing a coin, rolling a die, or randomly selecting an object from a bag<br>• use the term 'outcome' to describe a possible result of a chance experiment and list all of the possible outcomes for a single-step experiment<br>• use the term 'sample space' to describe a list of all of the possible outcomes for a chance<br>• experiment, e.g. if a standard six-sided die is rolled once, the sample space is {1,2,3,4,5,6} |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Suggested Content Continued**<br>• identify and distinguish between 'certain' and 'uncertain' events<br>• describe familiar situations as being certain or uncertain, e.g. 'It is uncertain what the weather will be like tomorrow', 'It is certain that tomorrow is Saturday' (Communicating) | **Suggested Content Continued**<br>• explain why the chance of each of the outcomes of a second toss of a coin occurring does not depend on the result of the first toss, whereas drawing a card from a pack of playing cards and not returning it to the pack changes the chance of obtaining a particular card or cards in future draws (Communicating)<br>• compare events where the chance of one event occurring is not affected by the occurrence of the other, with events where the chance of one event occurring is affected by the occurrence of the other, e.g. decide whether taking five red lollies out of a packet containing 10 red and 10 green lollies affects the chance of the next lolly taken out being red and compare this to what happens if the first five lollies taken out are put back in the jar before the sixth lolly is selected (Reasoning) | **Suggested Content Continued**<br>• recognise that some random generators have outcomes that are not equally likely and discuss the effect on expected outcomes, e.g. on this spinner, green is more likely to occur than red or grey or blue (Reasoning)<br>• discuss the 'fairness' of simple games involving chance (Communicating, Reasoning)<br>• explain why observed frequencies of outcomes in chance experiments may differ from expected frequencies (Communicating, Reasoning)<br>• Describe probabilities using fractions, decimals and percentages (ACMSP144)<br>• list the outcomes for chance experiments where the outcomes are not equally likely to occur and assign probabilities to the outcomes using fractions<br>• use knowledge of equivalent fractions, decimals and percentages to assign probabilities to the likelihood of outcomes, e.g. there is a 'five in ten', $\frac{1}{2}$, 50%, 0.5 or 'one in two' chance of a particular event occurring<br>• use probabilities in real-life contexts, e.g. 'My football team has a 50% chance of winning the game' (Communicating, Reasoning)<br>• design a spinner or label a die so that a particular outcome is more likely than another and discuss the probabilities of the outcomes (Communicating, Problem Solving) | **Suggested Content Continued**<br>• distinguish between equally likely outcomes and outcomes that are not equally likely in single-step chance experiments<br>• describe single-step chance experiments in which the outcomes are equally likely, e.g. the outcomes for a single toss of a fair coin (Reasoning)<br>• describe single-step chance experiments in which the outcomes are not equally likely, e.g. the outcomes for a single roll of a die with six faces labelled 1, 2, 3, 4, 4, 4 are not equally likely since the outcome '4' is three times more likely to occur than any other outcome (Communicating, Reasoning)<br>• design a spinner, given the relationships between the likelihood of each outcome, e.g. design a spinner with three colours, red, white and blue, so that red is twice as likely to occur as blue, and blue is three times more likely to occur than white (Problem Solving)<br>• Assign probabilities to the outcomes of events and determine probabilities for events<br>• use the term 'event' to describe either one outcome or a collection of outcomes in the sample space of a chance experiment, e.g. in the experiment of rolling a standard six-sided die once, obtaining the number '1' is an 'event'; similarly, obtaining a number divisible by three is also an event<br>• explain the difference between experiments, events, outcomes and the sample space in chance situations (Communicating)<br>• assign a probability of 0 to events that are impossible and a probability of 1 to events that are certain to occur |

| ES1 | ST1 | ST2 | ST3 | ST4 |
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| | | | | **Suggested Content Continued**<br>• explain the meaning of the probabilities of 0, $\frac{1}{2}$, and 1 in a given chance situation<br>• assign probabilities to simple events by reasoning about equally likely outcomes, e.g. the probability of randomly drawing a card of the diamond suit from a standard pack of 52 playing cards is $\frac{13}{52} = \frac{1}{4}$<br>express the probability of an event, given a finite number of equally likely outcomes in the sample space, as *P*(event) = number of favourable outcomes total number of outcomes<br>• interpret and use probabilities expressed as fractions, percentages or decimals (Communicating)<br>• solve probability problems involving single-step experiments using cards, dice, spinners, etc.<br>• Identify complementary events and use the sum of probabilities to solve problems (ACMSP204)<br>• establish that the sum of the probabilities of all of the possible outcomes of a single-step experiment is 1<br>• identify and describe the complement of an event, e.g. the complement of the event 'rolling a six' when a rolling die is 'not rolling a six'<br>• establish that the sum of the probability of an event and its complement is 1, i.e. *P*(event)+ *P*(complement of event) = 1<br>• calculate the probability of a complementary event using the fact that the sum of the probabilities of complementary events is 1, e.g. the probability of 'rolling a six' when rolling a die is $\frac{1}{6}$, therefore the probability of the complementary event, 'not rolling a six', is 1 - $\frac{1}{6} = \frac{5}{6}$ |

| ES1 | ST1 | ST2 | ST3 | ST4 |
|---|---|---|---|---|
| | **Vocabulary from Syllabus**<br>Will happen, might happen, won't happen. | **Vocabulary from Syllabus**<br>Chance, experiment, outcome, random, trials, tally, expected results, actual results. | **Vocabulary from Syllabus**<br>Chance, event, likelihood, equally likely, experiment, outcome, expected outcomes, random, fair, trials, probability, expected probability, observed probability, frequency, expected frequency, observed frequency. | **Vocabulary from Syllabus** |
| | **Other Key Ideas covered later**<br>• Use everyday language to describe chance events<br>• Recognise and describe the element of chance in familiar situations<br>• Identify practical activities and everyday events that involve chance | **Other Key Ideas covered later**<br>• Conduct chance experiments<br>• Identify and describe possible 'outcomes' of chance experiments<br>• Predict and record all possible combinations in a chance situation<br>• Describe possible everyday events and order their chances of occurring | **Other Key Ideas covered later**<br>• List outcomes of chance experiments involving equally likely outcomes<br>• Represent probabilities using fractions<br>• Recognise that probabilities range from 0 to 1<br>• Conduct chance experiments with both small and large numbers of trials | **Other Key Ideas covered later** |
| | **Syllabus Page :** 118 - 119 | **Syllabus Page :** 177 - 179 | **Syllabus Page :** 241 - 244 | |
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