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| STRAND: Number + Measurement SUBSTRAND: Multiplication (A) + Area (A) STAGE: 3 |
| TERM: | 1 | 2 | 3 | 4 | WEEK: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| AHC-ICON-Aboriginal Torres Strait Islander histories-300dpiAboriginal and Torres Strait Islander histories and cultures | A-ICON-Asia Australias engagement with Asia-300dpiAsia and Australia’s engagement with Asia | S-ICON-Sustainability-300dpiSustainability | CCT-ICON-critical creative thinking-300dpiCritical and creative thinking | EU-ICON-ethical understanding-300dpiEthical understanding | ICT-ICON-300dpiInformation and communication technology capability | IU-ICON-intercultural understanding-300dpiIntercultural understanding | L-ICON-literacy 300dpiLiteracy | N-ICON-numeracy-300dpiNumeracy\* | PSC-ICON-personal social capability-300dpiPersonal and social capability | WE-work and enterprise-300dpiWork and enterprise |
| ***What are we learning to do (WALT):*** Use and record a range of mental and written strategies to multiply by one- and two-digit operatorsRecognise the need for square kilometres and hectares to measure areaRecord areas using abbreviations (km2 and ha) |
| ***Adjustment:*** | **Post Assessment Highlighted**  |
| **TEACHING AND LEARNING ACTIVITIES** | **REG** |
| **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| ***What I’m Looking For (WILF):*** ***To use and record mental and written strategies to multiply 1 & 2 digits*** | ***What I’m Looking For (WILF):*** ***To use and record mental and written strategies to multiply 1 & 2 digits*** | ***What I’m Looking For (WILF):*** ***To use and record mental and written strategies to multiply 1 & 2 digits*** | ***What I’m Looking For (WILF):*** ***To use km2 to measure areas.***  | ***What I’m Looking For (WILF):******To use km2 to measure areas.***  |
| **Lesson Breakers** | **Lesson Breakers** | **Lesson Breakers** | **Lesson Breakers** | **Lesson Breakers** |
| **Introduction****Whisper or Stress Counting** The teacher leads the class in counting by whispering the numbers not in the sequence and emphasising those that are part of the number pattern.  | **Introduction** **Tag** Students spread themselves around the room. The teacher calls out a multiplication, such as 4 x 8, and asks a student for a response. If the student correctly answers, they may take one step towards another student and attempt to tag them out of the game. This game can be used for finding the factors of a number or for division facts.   | **Introduction****Follow Me Game –Mixed Tables** Deal out one card for each child. First child starts off with “I have 10. Who has 6x7? Children all look at the top of their card and the child with the correct answer says it out loud ‘I am 42’ and asks the next question which is on the bottom of their card ‘Who has 3x4?’ Game continues until all cards have been answered.  | **Introduction**Class game. One student chooses and measures a surface in the classroom, and calculates the area in square centimetres or square metres. The class is told the area measurement and has to guess which object or surface was chosen. Students selected to be “in” may have to measure their area during a break when the class is not in the room. | **Introduction****How Big is One Hectare?** Show students a scale drawing of one hectare. Ask them how many square metres are represented. Have a brainstorming session to share the knowledge students have about hectares and to raise questions or problems they would like to investigate. Students might ask:  “Could we make a hectare with newspaper?”  “Are all hectares the same shape?”  “What is this measurement used for?”Students recognise that there are 10 000 square metres in one hectare, ie 10 000 square metres = 1 hectare- equate one hectare to the area of a square with side lengths of 100 m • relate the hectare to common large pieces of land, including courts and fields for sports, eg a tennis court is about one-quarter of a hectare (Reasoning) • determine the dimensions of different rectangles with an area of one hectare • record areas using the abbreviations for square kilometres (km2) and hectares (ha)  |
| **Body**Activity 1 - Developing mental computation Dice tables Students in pairs can play a game of Dice Tables.http://www.schools.nsw.edu.au/learning/7-12assessments/naplan/teachstrategies/yr2011/images/nn_numb_mudi_table06.jpgThe two students need three 1 to 6 dot dice, 2 sets of coloured counters and a *Dice tables* board.The first player rolls the dice and chooses two of the three numbers to multiply to match a number on their Dice tables board, e.g. if the student rolls 4, 5 and 3 they could make 4 x 5 = 20 or 4 x 3 = 12 or 5 x 3 = 15. They place a counter on the chosen multiple. Students alternate turns. The aim is to be the first to get 4 counters in a row, column, diagonal or square. | **Body**Activity 2 - Halving and Doubling Introduce halving and doubling as strategies that can be used to solve multiplication and division problems involving three-digit numbers.http://www.schools.nsw.edu.au/learning/7-12assessments/naplan/teachstrategies/yr2011/images/nn_numb_mudi_table07.jpgWork through examples to demonstrate the strategy.* To divide an even three-digit number by 4, students could find half of the number and halve again.

e.g. To find the answer to 324 divided by 4* Ask: Can you use the halving or doubling strategy to find the answer? How would you use this strategy? What is half of 324? (162) Is this the answer to the question? What is half of 162?
* To divide a number by 5, students could divide by 10 and double the answer.

e.g. To find the answer to $4 divided by 5 (NAPLAN 2009 Year 3, question 31)http://www.schools.nsw.edu.au/learning/7-12assessments/naplan/teachstrategies/yr2011/images/nn_numb_mudi_03_01.jpgAsk:* Can you use the halving or doubling strategy to find the answer?
* How would you use this strategy?(divide by 10 then double)
* What is $4/$4.00 divided by 10?(40c)
* What is double 40?
 | **Body**Activity 3 - Solving word problems * Pose this problem for the students to solve.

On the way to school four children found a $50 note. They handed it to the school principal. They will each get an equal share of the money if no one claims it. * Investigate the strategies used by asking these questions.

How much would each child get? What strategy did you use to find each share? Can you use doubling or halving? Which operation would you use to check if your answer is correct? How much would each child get if $5 was found? How much would each child get if 50c was found? * Repeat using other division problems, each time discussing the strategies the students used. Emphasise that students should use multiplication to check their answers to division problems.
* Pose this problem for the students to solve in pairs.
* It takes four oranges to fill a small juice bottle with juice. If I bought a box containing 93 oranges, how many bottles could be filled? How many oranges left over?
* Students in pairs, discuss how they would solve this problem. They determine two different strategies that could be used. Each pair explains the two strategies they would use.
* Students are presented with a variety of multiplication and division problems involving three- and four-digit numbers. Students first estimate their answer before solving, to compare mental and written strategies.
 | **Body****Design a Park**Students design a park and playground area. The total area of the park is 1 hectare. Discuss the scale chosen to design the park, eg. 1 square centimetre is equal to 25 square metres.(Teaching Measurement Stage 2 and Stage 3 Page 75) | **Body**• Take students to a large flat area, e.g. large playground, paddock. Students measure out 100m x 100m using trundle wheels. Students could place a marker every ten metres to show the boundaries. Ask students to name areas they think are about one hectare. • Ask students to represent one hectare by drawing a 10 x 10 square on grid paper. Students cut up the diagram and rearrange the pieces to form other shapes. The shapes can have the side lengths marked and all diagrams can be labelled as “One Hectare” or “1 ha”. Discuss the area of a hectare being equal to 10 000 square metres.  |
| **Conclusion**<http://www.mathsplayground>.com/ASB\_MeteorMultiplication.html | **Conclusion****The Multiplier: Generate Easy Multiplications** Solve multiplications such as 9x88. Use a partitioning tool to help solve randomly generated multiplications. Learn strategies to do complex arithmetic in your head. Split a multiplication into parts that are easy to work with, use simple times tables, then solve the original calculation. This learning object is one in a series of five objects. <http://tlf.dlr.det.nsw.edu.au/>learningobjects/Content/L83/object/index.html  | **Conclusion** Students discuss the strategies they used and determine which strategy is the most efficient.Discuss:How accurate was your estimation? How did your estimation help? Which operation did you use? Can you describe your strategy? Is your strategy efficient? How did you check whether your answer is correct? | **Conclusion**<http://www.funbrain.com>/funbrain//cgi-bin/poly.cgi?A1=s&A2=1&A15=0&INSTRUCTS=1 | **Conclusion**<https://www.studyladder>.com.au/games/activity/calculating-square-kilometers-using-a-scale-18162 |
| **Resources**<http://www.mathsplayground>.com/ASB\_MeteorMultiplication.html* Dice
* Dice tables
* Coloured counters or blocks
 | **Resources**<http://tlf.dlr.det.nsw.edu.au/>learningobjects/Content/L83/object/index.html * Doubling & halving strategy cards
 | **Resources*** Pack of cards
* Word problems
 | **Resources**<http://www.funbrain.com>/funbrain//cgi-bin/poly.cgi?A1=s&A2=1&A15=0&INSTRUCTS=1* Teaching Measurement Stage 2 and Stage 3 Page 75
* paper
 | **Resources*** Grid paper

<https://www.studyladder>.com.au/games/activity/calculating-square-kilometers-using-a-scale-18162 |
| **Reflection/Check In** | **Reflection/Check In** | **Reflection/Check In** | **Reflection/Check In** | **Reflection/Check In** |