**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 6 | STRAND: Measurement and Geometry | **SUB-STRAND:** Area 2 | **WORKING MATHEMATICALLY:** **MA2-1WM & MA2-2WM**  |
| OUTCOMES: MA2-10MG  | Measures, records, compares and estimates areas using square centimetres and square metres |
| **CONTENT:**  | * **Compare the areas of regular and [irregular shapes](http://syllabus.bos.nsw.edu.au/glossary/mat/irregular-shape/?ajax" \t "_blank" \o "Click for more information about 'irregular shapes') by informal means.**
* Develop strategies for counting partial units in the total area of the shape
* Measure the areas of irregular shapes using a square cm grid overlay.
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Students measure the same sized irregular shapes using a variety of smaller rectangular shapes.
* Discuss the results – Why is it important to use the same unit of measure?
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| WARM UP / DRILL | * Guess my number – Students choose a number and say higher or lower partner has to guess number. Fewest guesses wins. Multiplication shoot out. In teams they have a shoot out, quickest person stays in. Last person standing wins.
 |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  |  |
| QUALITY TEACHING ELEMENTS | **INTELLECTUAL QUALITY** | **QUALITY LEARNING ENVIRONMENT** | **SIGNIFICANCE** |
| Deep knowledge Deep understandingProblematic knowledgeHigher-order thinkingMetalanguage* Substantive communication
 | Explicit quality criteriaEngagementHigh expectationsSocial supportStudents’ self-regulation* Student direction
 | Background knowledgeCultural knowledgeKnowledge integrationInclusivity Connectedness* Narrative
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| RESOURCES | Grid paper, transparent grid overlays, art paper, boxes, oranges, leaves[Nrich Math](http://nrich.maths.org/9028)s – Torn Shapes[Area Teaching aid –](http://www.echalk.co.uk/maths/dfes_numeracy/Assets/area_flash.swf) How to calculate area?[Area Interactive Games](http://www.bgfl.org/bgfl/custom/resources_ftp/client_ftp/ks2/maths/perimeter_and_area/index.html)  |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| * How do I know?

Provide students with a variety of cardboard irregular shapes and a sheet of grid paper. Have the students place the rectangles on top of the grid paper and use the grid structure to determine the total number of units covered by the rectangle. Have students share their results with others and explain how they determined the total. Discuss with students why grid paper is useful for measuring.Students will need to develop strategies for counting large numbers of square cms, Teacher will model and students complete - marking off groups of ten and having a partner tally the tens- covering a box or stone in grid paper and marking only the squares that can be seen.- any square with more than half showing is counted as one- any square with less than half showing is not counted or, alternatively, mark whole squares as1 and half squares as 0.5 | LEARNING SEQUENCERemediationS1 or Early S2 | * Triangles

Cut a square with 4cm sides from centimetre grid paper. Find and record the area of this square. Draw in the diagonals and cut along them to form four triangles. Re-arrange the four triangles to make a rectangle. Find and record the area of the rectangle and discuss results with their group.[Nrich Math](http://nrich.maths.org/9028)s – Torn Shapes[Area Teaching aid –](http://www.echalk.co.uk/maths/dfes_numeracy/Assets/area_flash.swf) How to calculate area?[Area Interactive Games](http://www.bgfl.org/bgfl/custom/resources_ftp/client_ftp/ks2/maths/perimeter_and_area/index.html) |
| LEARNING SEQUENCES2 | Measure the areas of irregular shapes using a square-centimetre grid overlay, e.g.  he image shows the outline of a leaf that is covered by a grid overlay.* Blobs

Make large paint blobs – students use square-centimetre grid overlay to work out the area. Students use strategies to deal with parts of a square cm. |
| LEARNING SEQUENCEExtension Late S2 or Early S3 | * Wrapping and Measuring

Students find surface areas of solids e.g. tennis ball, stone, box. Possible strategies include the following.* Wrap the object in one centimetre grid paper and tick visible squares and colour partial squares.
* Flatten boxes and measure with transparent grid.

Investigation – Peel an orange and work out the area. |
| **EVALUATION & REFLECTION** | **Student Engagement: Achievement of Outcomes:****Resources: Follow Up:** |