**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK:  | STRAND: Measurement and Geometry | **SUB-STRAND:** Area 1 | **WORKING MATHEMATICALLY:** MA2-1WM; MA2-3WM  |
| OUTCOMES: MA2-10MG | Measures, records, compares and estimates areas using square centimetres and square metres |
| **CONTENT:**  |  **Recognise and use formal units to measure and estimate the areas of [rectangles](http://syllabus.bos.nsw.edu.au/glossary/mat/rectangle/?ajax" \t "_blank" \o "Click for more information about 'rectangles')**\* Recognise the need for the square centimetre as a formal unit to measure area\* Use a 10 cm × 10 cm tile (or grid) to find the areas of rectangles (including [squares](http://syllabus.bos.nsw.edu.au/glossary/mat/square/?ajax" \t "_blank" \o "Click for more information about 'squares')) that are less than, greater than or about the same as 100 square centimetres\* Measure the areas of rectangles (including squares) in square centimetres |
| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | Using 10x10 tiles compare the areas of 2 rectangles. Students move and align the tile systematically to preserve size.* Students represent rows and columns by drawing lines to make rectangular units.
* Students explain and use the structure of rectangular unit tessellation. eg 3 rows of 4 or skip counting
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| WARM UP / DRILL | * Trace around the outside of an item eg book
* Cover the inside space with your hands (or other items)

NB: Students should be able to communicate using the following language: greater than, less than, square centimetre, square metre. |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | New tiles are 1cm2, how many tiles are needed to cover an area of 36 sq cm? |
| 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 | http://www.schools.nsw.edu.au/learning/7-12assessments/naplan/teachstrategies/yr2011/images/working\_with\_square\_centimetres.pdfhttp://www.mathplayground.com/PartyDesigner/PartyDesigner.html (Design a party room) |

**TEACHING AND LEARNING EXPERIENCES**

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| --- | --- |
| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| 1.Using tape the teacher creates a rectangle on floor.* 2. Students cover the rectangle with same sized items eg exercise books.
* 3. Discuss statement: ? exercise books covers the surface of the rectangle.
* 4. Discuss need for formal units.
* 5. Using gridpaper each student creates a 10cm X 10 cm grid. Discuss total number of squares in a 10cm X 10cm grid.
* 6. Students ‘patchwork’ their grids to cover rectangle
* 7. Lead students to discover the total number of grids. (arrays, skip counting)
* 8. Students suggest items which may be less than, greater than or about 100 square centimetres. Test suggestions.
 | LEARNING SEQUENCERemediationS1 or Early S2 | * Simple area using grids in maths books.
* Area of hand

see Naplan Teaching Strategieshttp://www.schools.nsw.edu.au/learning/7-12assessments/naplan/teachstrategies/yr2011/images/working\_with\_square\_centimetres.pdf* Tessellation blocks and patterns
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| LEARNING SEQUENCES2 | * Work out area of hand.
* Tessellation blocks and patterns

Investigation:* Use this to estimate area of 2D objects around the room.
* Using grid on overhead transparency, check (measure) area.
* Record estimate and measure in table.
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| LEARNING SEQUENCEExtension Late S2 or Early S3 | * Design a Party room

http://www.mathplayground.com/PartyDesigner/PartyDesigner.html  |
| **EVALUATION & REFLECTION** | **Student Engagement: Achievement of Outcomes:****Resources: Follow Up:** |

* All assessment tasks should be written in **red** and planning should be based around developing the skills to complete that task.
* Assessment rubrics or marking scale should be considered.