**MATHEMATICS STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK:1 | STRAND:Measurement and Geometry | **SUB-STRAND:**  **Area 1** | **WORKING MATHEMATICALLY:**  **MA3-1WM** |
| OUTCOMES: MA3-10MG | | **Selects and uses the appropriate unit to calculate areas, including areas of squares, rectangles and triangles** | | |
| **CONTENT:** | | **Choose appropriate units of measurement for area (ACMMG108)**   * recognise the need for a formal unit larger than the square metre * identify situations where square kilometres are used for measuring area, eg a suburb * recognise and explain the need for a more convenient unit than the square kilometre | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | * **Pre assessment**   Show the students the following shaped room  4m  7m  Ask the students to point and explain what part of the rectangle is the perimeter. If successful to ask him or her to figure out the perimeter. Repeat the steps for the area. | | |
| WARM UP / DRILL | | Maths game: Funbrain : Area Game  <http://www.funbrain.com/funbrain//cgi-bin/poly.cgi?A1=s&A2=1&A15=0&INSTRUCTS=1> | | |
| 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 |
| RESOURCES | | * Metre Ruler/ Newspaper * Funbrain <http://www.funbrain.com/funbrain//cgi-bin/poly.cgi?A1=s&A2=1&A15=0&INSTRUCTS=1> * Area 6.1 lesson plan Teaching *Measurement Stage 2 and Stage 3* .p 72 –73,Curriculum K-12 directorate, NSW Department of Education and Training * Worksheet: Area of Rectangles <http://www.teachingideas.co.uk/maths/files/areaofrectangles.pdf> | | |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| * **Lesson 1** * Revise terms square centimetre, square metre, etc * **Lesson 2** * Discuss/revise the hectare and square kilometre as units of area measure. Explain that the hectare is 10 000 square metres and a square kilometre is 100 hectares. * Discuss strategies which students might use to calculate how many students will fit into a hectare and a square kilometre. Students will probably decide to work with 1 m2, but other strategies may be suggested and evaluated.   - Students suggest ways of working out an estimation.   * **Lesson 3**   Whole class: using Google maps on smartboard, calculate the area of the school.  Research the area of NSW, and other states.  Record in workbooks. | LEARNING SEQUENCERemediationS2 or Early S3 | * **Lesson 1**   Students individually complete written work, revising square metres   * Worksheet: Area of Rectangles <http://www.teachingideas.co.uk/maths/files/areaofrectangles.pdf> |
| LEARNING SEQUENCES3 | * **Lesson 2**   **Students make square metres out of newspapers**  Have students work in pairs or small groups to discuss and implement a  chosen strategy that the student may:  • calculate the number of students that could stand shoulder to shoulder in a square metre. Record findings.  **Students then make estimations to:**  • calculate the number of students that would fit in a hectare  • calculate the number of students that would fit in a square kilometre.  . |
| LEARNING SEQUENCEExtensionEarly S4 | * **Lesson 3**   In pairs, using the information recorded in workbooks, students can calculate:   * how many people could fit into the school grounds, shoulder to shoulder, or * how many could fit into a particular state.   Extension problem: If the world’s population was standing shoulder to shoulder, what area would be covered. |
| **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.