**STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK:2 | 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 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](http://syllabus.bos.nsw.edu.au/glossary/mat/square/?ajax" \t "_blank" \o "Click for more information about 'square') with side lengths of 100 m (Communicating) * 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) | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | * **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) | | |
| WARM UP / DRILL | | * 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. | | |
| 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 | | * Trundle wheels * Grid paper * Maps of local area (eg Google maps) * Area 6.2 lesson plan *Teaching Measurement Stage 2 and Stage 3* .p 75 ,Curriculum K-12 directorate, NSW Department of Education and Training | | |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| * **Lesson 1** * Revise with students that there are 10000 square centimetre in a square metre. And there are 10000 square metres in one hectare, ie 10000 square cm = 1 sq metre and 10 000 square metres = 1 hectare. * **Lesson 2**   As a class discussion, students  - equate one hectare to the area of a [square](http://syllabus.bos.nsw.edu.au/glossary/mat/square/?ajax) 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  - determine the dimensions of different [rectangles](http://syllabus.bos.nsw.edu.au/glossary/mat/rectangle/?ajax) with an area of one hectare   * **Lesson 3**   Ask students to name areas they think are about one hectare.  Using a map of the local area (eg google maps) 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  Discuss the scale on the maps | LEARNING SEQUENCERemediationS2 or Early S3 | * **Lesson 1** * Using a trundle wheel, in pairs students measure the perimeter of the classroom, library and school hall. Record their findings. * Calculate the area of each building in square metres, and record finding in workbooks.,. |
| LEARNING SEQUENCES3 | * **Lesson 2:** * Take students to a large flat area, e.g. school playground. In groups students measure out 100m x 100m using trundle wheels. Students could place a marker every ten metres to show the boundaries.   Groups try different shapes to make 10000 square metres. Eg 100m x100m, 200m x 50m   * **Lesson 3:** * Students work with a partner to use two or three cardboard templates of different rectangles and squares to make a composite shape. Students trace around the outline of the composite shape and mark and label the lengths of all sides on 1cm grid paper. Students swap their drawing with another pair of students, who must find the area of the composite shape from the given dimensions. Students check their answer by comparing with the areas of the cardboard templates |
| LEARNING SEQUENCEExtensionEarly S4 | * **Extension:** * Students represent one hectare by drawing a scale drawings on 1cm grid paper, of square that would be 1 hectare. Scale is 1cmm = 10m. Eg square 100 m x 100m. * 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”. |
| **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.