**MATHEMATICS STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 5 | STRAND: **Measurement and Geometry** | **SUB-STRAND:** **Length 2** | **WORKING MATHEMATICALLY:**  **MA3-1WM, MA3-3WM** |
| OUTCOMES: MA3-9MG | | **Selects and uses the appropriate unit and device to measure lengths and distances, calculates perimeters, and converts between units of length** | | |
| **CONTENT:** | | **Convert between common metric units of length (ACMMG136)**   * Convert between metres and kilometres * Convert between millimetres, centimetres and metres to compare lengths and distances * Explain and use the relationship between the size of a unit and the number of units needed to assist in determining whether multiplication or division is required when converting between units, eg 'More metres than kilometres will be needed to measure the same distance, and so to convert from kilometres to metres, I need to multiply' (Communicating, Reasoning) | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | * Sylvia’s classroom has 10 desks. Each desk measures 125cm in width. The desks are placed side by side. Calculate the total width in a) millimetres b)metres | | |
| WARM UP / DRILL | | * Counting forwards and backwards on and off the decade. | | |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION | | * Jenny cut a 70 centimetre piece of string from a length of 10 metres. How much string is left? | | |
| 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 | | Websites as per below.  Range of worksheets available to practise conversions  <http://www.mathworksheets4kids.com/metric.html> Reading scales and converting between measurements.  <http://www.primaryresources.co.uk/maths/mathsE1.htm> | | |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| Measuring metrically with Maggie<http://www.mathsisfun.com/measure/metric-system-introduction.html>Overview of all the types of conversions  Revision of cm and m conversionsRevision of cm and mm conversionsRevision of m and km conversions Complete activities as a whole group. Write out examples on the board.  What unit would you use to measure   1. Playground length 2. Shoe length 3. Australia to New Zealand 4. Grain of rice 5. Rubber   List three object in the room between:   1. 1m and 2.5m 2. 25cm and 100cm 3. 75mm and 150mm 4. 3.5m and 4m   Language  Centimetres, millimetres, kilometres, conversions, distance, measure | LEARNING SEQUENCERemediationS2 or Early S3 | * Length Lab Questions (part 1)   1. What does each unit represent?  (a) mm = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (b) m = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (c) cm = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (d) km = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  2. How much does each one equal?  (a) 1 m = \_\_\_\_\_\_\_ cm (b) 1 cm = \_\_\_\_\_\_\_ mm (c) 1 km = \_\_\_\_\_\_\_ m |
| LEARNING SEQUENCES3 | * Length Lab Questions (part 2)   1. Which measurement is the largest? Circle your answer for each pair.  (a) 14 mm or 1 cm (d) 145 m or 145 km  (b) 334 m or 1 km (e) 3.4 cm or 30 mm  (c) 1 m or 990 cm (f) 10 km or 1000 cm  2. Use a metric ruler to find each measurement.  (a) Length of the line in centimetres \_\_\_\_\_\_  (b) Length of the line to the nearest centimetre \_\_\_\_\_\_\_  (c) Height of the rectangle to the nearest millimetre \_\_\_\_\_\_\_  (d) Width of the rectangle to the nearest millimetre \_\_\_\_\_\_\_  (e) Radius of the circle to the nearest millimetre \_\_\_\_\_\_\_  (f) Diameter of the circle in centimetres \_\_\_\_\_\_\_\_  (g) Diameter of the circle to the nearest centimetre \_\_\_\_\_\_\_   * Assessment- Worksheets with basic conversions available from the websites on previous page. |
| LEARNING SEQUENCEExtensionEarly S4 | * Complete more problem solving activities using larger numbers and more steps   Example: Winston’s pace is 65cm in length. How many metres would he travel in 15 paces? |
| **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.