**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 3 | STRAND: MEASUREMENT AND GEOMETRY | **SUB-STRAND: LENGTH 1** | **WORKING MATHEMATICALLY:** **MA2.1WM, WA2.2WM, WA2.3WM** |
| OUTCOMES: MA2-9MG | **Measures, records, compares and estimates lengths, distances and perimeters in metres, centimetres and millimetres and measures, compares and records temperatures.**  |
| **CONTENT:**  | **Measure, order and compare objects using familiar metric units of length (ACMMG061)*** Recognise the need for a formal unit smaller than the centimetre to measure length.
* Recognise that there are 10 mm in 1 cm.
* Use the millimetre as a unit to measure lengths to the nearest millimetre.
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Discussion and worksheet – Determine the unit of measurement to be used to measure a variety of objects of different lengths, widths, heights or thicknesses.
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| WARM UP / DRILL | * Measure small objects in the class room such as a paperclip, eraser, and width of a coin or pencil to understand the need for a smaller unit of measurement than the centimetre.
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | If I have 10 different objects, which ones might I measure in mm, cm,m? |
| 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 | Metalanguage labels and displays. Rulers, tape measures and trundle wheels. String and other objects to represent informal units of measurement.Examples if building tools that demonstrate the need for a small unit of measurement such as nails, screws, drill bits, etc. |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| * Teach and review the mm and how it relates to the cm and metre.
* Explain that there are objects that are thinner or shorter than a centimetre that need to be measured for reasons of accuracy
* Teach the skill of estimating lengths by first determining which unit of measurement is needed, and then estimate how many of those units the object might be.
* Explain and demonstrate real life practical applications for this knowledge and these skills. A hardware store sells many objects which are measured in millimetres: Nails and screws, (L & W), Drill bits (W), timber (L and thickness), as well as fittings for kitchen and bathroom, etc.
* The millimetre is used in building because such measurements need to be very accurate.
 | LEARNING SEQUENCERemediationS1 or Early S2 | * There is a unit of measurement that is smaller than a centimetre. It is used to measure objects that are very short or thin. It is also used to make measurement that need to be very accurate. 1cm is 1/100th of a metre. 1 short block is equal to 1cm. Objects can be measured in shorts and longs. A pencil might be 15 shorts in length, therefore is 15cm in length. Shorts and longs can be lined up along a ruler to relate to formal units of measurement such as the centimetre.
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| LEARNING SEQUENCES2 | * Investigation: Find some objects that you think are (estimate to be) less than 1 cm , then measure them to make sure. Measures objects longer than 1cm and measure them in millimetres as well as centimetres and millimetres using decimal notation. 2cm and 4mm = 2.4cm
* Assessment: Worksheet of conversions
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| LEARNING SEQUENCEExtension Late S2 or Early S3 | * Demonstrate how builders, carpenters, etc. use the millimetre for all length measurements and how this is important for accuracy, e.g. 2m and 10cm = 2010 mm
* Investigate how a micrometre is used to measure very small widths and relate this to the millimetre.
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| **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.