**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 9 | STRAND: Measurement and Geometry | **SUB-STRAND:** **Length 2** | **WORKING MATHEMATICALLY:** MA1-1WM, MA 1-3WM, MA1-9MG |
| OUTCOMES: | | **Measures, records, compares and estimates lengths and distances using informal units, metres and centimetres** | | |
| **CONTENT:** | | **Recognise and use informal units to measure the lengths of objects**   * Recognise the need for a formal unit smaller than the metre * Use the centimetre as a unit to measure lengths to the nearest centimetre, using a device with 1cm markings, e.g. use a paper strip of length 10 cm * Record lengths and distances using the abbreviation for centimetres (cm) * Estimate lengths and distances to the nearest centimetre and check by measuring | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | Cotton ball shot put activity- Have small groups of students take turns to throw a cotton ball like a shot put. Allow each student to take three turns. Have then use a metre ribbon or string to measure if the distance travelled is less than, the same as or more than a metre, and ask then to use tally marks to record their measurements on a group chart divided into three columns. Collate the results and discuss. Was it easy or difficult to throw the cotton ball more than 1m? What tells us? Do these results tell us who threw the cotton ball the farthest or the shortest distance? Why? Why not? Do the students recognise that they need a more precise way of measuring length in order to find distances? | | |
| WARM UP / DRILL | | * Brainstorming about the metre- Label the board with the headings ‘less than a metre’ and ‘more than a metre’ Have students suggest things that belong under each heading and record classroom objects under each heading. Students can also complete this as an independent activity | | |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION | | Newmans- The actual size of a worm. Which one of these is the best estimate of the length of the worm   * 12 mm - 12 m * 12 cm - 12 km | | |
| 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 | | Cotton balls, string, ribbon, metre rulers, 30 cm rulers, grid paper, transparent paper, straws, objects to measure, | | |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| * **Introducing centimetres-** Use IWB or overhead projector to make a transparent 10cm ruler /or use 30 cm rulers– Point out the numbers on the ruler and how they are evenly spaced. Point out the length of 1cm and where the zero is on the ruler (Explain that is the point where we start measuring.) Also point out that the cm is a standard unit, so it is always the same. * Base 10 units are 1cm long so 10 of these are 10cm long. Find objects that are shorter than the ruler, have students record the length of objects in cm. * **Assessment- Snakes Alive** -Students make snakes from plasticine or play dough and measure them to the nearest centimetre using a tape measure. A partner then checks their measurement. Students compare results. Variation: Students select a length and use estimation to make a snake of this length. Students check by measuring with a tape measure and record their results. Possible questions include: ❚ was there a difference in length when your partner measured your snake? Why? ❚ how close was your estimation to the actual length? | LEARNING SEQUENCERemediationES1 | * **Activity- Order the group** -Order from longest to shortest, three or more lengths which students have to straighten out and lay side by side, e.g. a skipping rope, a length of string and a rolled up streamer. Record and label the lengths as *longest* and *shortest*. Report the results using comparative language. * **Activity-Straws in order** -Given a number of straws of different lengths, students put them in order from longest to shortest. Straws are used because they will not stand up so students have to decide which end will be the baseline. |
| LEARNING SEQUENCES1 | * **Activity- How to use a ruler** -Begin the lesson with a whole-class discussion of how to use a ruler to draw and measure lines which have a length of a whole number of centimetres. Students check their rulers to see where the zero is marked, and practise drawing and measuring a line by starting at this point. Students work in pairs, student A and student B. Student A draws five lines for student B, each line to be an exact number of centimetres and a length of less than 30 cm. Student B estimates the length of each line, records the estimate, then measures and labels each line. The roles are then reversed. * **Investigation Activity -Any three items** -Students work in pairs to find three items in the classroom which have a total length of 25 centimetres. Students record their findings by drawing the items, labelling with the measurements in centimetres, and showing how the three lengths were added to make a total of 25 centimetres. |
| LEARNING SEQUENCEExtensionEarly S2 | * Activity- How Many Centimetres in a Metre? Students make a metre strip using 1 cm grid paper. In groups, students randomly cut their metre into 3 pieces and place all the group’s strips into a bag. Students take turns to select and measure one strip. Students estimate and calculate what length strip they would need to add to their selected length to make exactly 1 metre. They are asked to explain how they know it will be 1 metre. Calculations for each strip are recorded in a table. Students describe one centimetre as one hundredth of a metre and one millimetre as one tenth of a centimetre. Students record length using decimal notation to two decimal places e.g. 0.75m |
| **EVALUATION & REFLECTION** | **Student engagement- Achievement of outcome-**  **Resources- Follow up-** |