**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 5 | **STRAND:** Measurement and Geometry | **SUB-STRAND:** Angles 2 | **WORKING MATHEMATICALLY:**   |  | | --- | | MA2- WM | |
| OUTCOMES: MA2-16MG | | **Identifies, describes, compares and classifies angles** | | |
| **CONTENT:** | | **Compare angles and classify them as equal to, greater than or less than a right angle** (ACMMG089)   * Classify angles as acute, right, obtuse, straight, reflex or a revolution. * Describe the different types of angles in relation to a right angle, eg acute angles are less than a right angle (communicating) * Relate the turn of the hour hand on a clock through a right angle or straight angle to the number of hours elapsed , eg a turn through a right angle represents the passing of three hours (Reasoning) | | |
| **ASSESSMENT FOR LEARNING**  **(PRE-ASSESSMENT)** | | * Students complete a KWL on angles. Students may add to these using a different coloured pencil throughout or at the end of the angles unit. | | |
| **WARM UP/ DRILL** | | * Using their body, students make a variety of angles for classmates to guess the name of the angle. | | |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION | | Matthew needed to count how many right angles on the windows in his house. He had seven windows with four right angles. How many right angles did he count? | | |
| 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 | | Teaching about angles (stage 2), straws, cameras, printers | | |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| * **Explicitly communicate lesson outcomes and work quality.** * **Teach and review** right angles and discuss the terminology used to describe angles. * **Demonstrate** how to use a bent straw to measure the angle on the whiteboard. Use the straw to compare the size of other angles in the classroom. * **Questioning:** * Find some angles in the classroom that are not right angles. * Can you explain what acute and obtuse angles are? * Where can you see acute and obtuse angles in the room? * How do know the angles are the same size? * How would you describe an acute / obtuse angle to your friends? | LEARNING SEQUENCERemediationLate S1 |  |
| LEARNING SEQUENCES2 | * **Acute and obtuse angles**   Students look for acute and obtuse angles in the classroom. They make drawings of the angles, compare the angles with the corners of pattern blocks, and classify the angles according to size.   * **Measuring angles in the classroom**   Students use the windmill pattern as an angle tester to measure and record at least three different angles found in the classroom. Students record an acute, an obtuse, straight, reflex, revolution and a right angle.   * **Measuring body angles**   Students investigate and record angles made by parts of their body, using the windmill angle tester  to measure the angles.   * **Equal angles**   Students use different methods to check that all of the angles on a windmill pattern are the same  size, even though the lines are of different lengths.   * **Measuring angles in the classroom**   Students use the windmill pattern as an angle tester to measure and record at least three different  angles found in the classroom. Students record an acute, an obtuse, straight, reflex, revolution and  a right angle.   * **Windmill**   Students move their arms around in different positions for their partner to identify hours that have passed as well as the angle the arms have moved. Students record correct and incorrect answers.   * **Measuring body angles**   Students make different body angles with their body and discuss these with a partner. |
| LEARNING SEQUENCEExtensionEarly S3 | * **Exploring vertical angles:** Have students use the software available at <http://www.mathwarehouse.com/geometry/angle/interactive-vertical-angles.php> to manipulate and explore vertical angles. |
| **EVALUATION & REFLECTION** |  |