**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 6 | STRAND:Measurement and Geometry | **SUB-STRAND:**  3D Space 2 | **WORKING MATHEMATICALLY:**  MA2-1WM ,&MA2-3WM |
| OUTCOMES: | | **Checks the accuracy of a statement and explains the reasoning used. MA2-3WM** | | |
| **CONTENT:** | | **Investigate and Represent three dimensional objects using drawings**   * Investigate types of 3D objects used in commercial packaging and give reasons for some being more commonly used. * Sketch 3D objects from different views, including top, front and side views. | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | Recognize the nets of prisms, pyramids, cylinders and cones. Match names of D shapes to nets. | | |
| WARM UP / DRILL | | Pull 3D objects out of a bag. Discuss properties.  Sort 3D models into prisms, pyramids and those that are neither. | | |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION | | Three children were each given four linking cubes. They each used their four cubes to make a different shape. What may that shape be? | | |
| 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 | | Models of prisms, pyramids, cylinders, cones.  A variety of packages from everyday goods. Eg. Cereal boxes.  Plasticene, scissors, cardboard, glue, stickt tape, sketching paper and pencils | | |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| * Explain that prisms and pyramids are named according to their bases. * Discuss everyday packets and objects shaped like pyramids and prisms and other 3D shapes. * Cut a cereal packet and flatten to expose the net. Discuss the shapes that can be seen. How would a cube differ to a rectangular prism? * Trace around prisms and pyramids then form a net that can be folded. * View 3D objects from various viewpoints. * Draw 3D objects from various viewpoints. * View rectangular prisms made of interlocking cubes. Students attempt to count the hidden cubes.   <http://www.primaryresources.co.uk/online/longshape3d.html> | LEARNING SEQUENCERemediationS1 or Early S2 | * Cut out simple nets of rectangular prisms and pyramids.   Fold along dotted lines to form nets.  Count faces edges, corners |
| LEARNING SEQUENCES2 | * Students collect boxes then cut and fold them to form nets. The nets of various prisms may be compared and discussed. The nets can be refolded and the shape made inside out. * Students could consider whether the same figure can have more than one net. E.g. consider which hexominoes can be folded from a cube. * **Investigation:** Students are given photographs of various objects and are asked to draw one of the objects from a different view. Drawings can be compared and other students have to match the different viewpoint sketches to the original object. * **Assessment:** Construct models of pyramids and prisms using a variety of materials and use formal names to describe them. Match object to their nets. |
| LEARNING SEQUENCEExtensionLate S2 or Early S3 | * Investigate the way a 3D model can be formed by combining other 3D models. * Give students isometric drawings on dot paper and ask them to draw what the figure looks like directly from the front , from one side, from the other side and the back. Students build the figure and check the elevations. |
| **EVALUATION & REFLECTION** | **Student engagement:** **Achievement of Outcomes:**  **Resources:** **Follow up:** |