**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK:  | STRAND: Measurement and Geometry | **SUB-STRAND:** 3D Space 2 | WORKING MATHEMATICALLY: MA1-1WM |
| OUTCOMES: MA1-14MG | **Sorts, describes, represents and recognises familiar three-dimensional objects, including cones, cubes, cylinders, spheres and prisms.**  |
| **CONTENT:**  | **Describe the features of three dimensional objects.*** Distinguish between objects, which are 'three dimensional' 3D and those that are two dimensional, which are 2D two dimensional and describe the differences informally, e.g: 'This is a two-dimensional shape because it is flat'

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| * Describes mathematical situations and methods using every-day and some mathematical language, actions, materials, diagrams and symbols
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| * **Whole Class Teaching Activities-some suggested activities**
* Present a variety of Prisms and Pyramids. Discuss with children why the groups have
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | **Pre-assessment**: Students list or brainstorm differences between 2D and 3D objects.Students draw some common 2D shapes like squares, circles, rectangles and triangles, and link to 3D shapes.Students make some 3D objects using connecting blocks, play dough, etc and state comparisons. |
| WARM UP / DRILL | **Flash cards of 2D shapes and 3D objects:** Identify and sort into groups according to number of sides/faces/ corners Find objects in the classroom which match the flash card and describe the differences informally.**Mystery bag of shapes:** Students listen to description and guess the shape. Which shape am I? (guessing game) |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  |  |
| 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 | 2D shapes and 3D objects, play dough, paper, plastic knife to cut dough, blocks and interactive whiteboard |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Explicitly communicate lesson outcomes and expectations.Define and reinforce metalanguage used in the unit while teaching: object, shape, size, curved, flat, pointy, round, roll, slide, stack , cone, cube, cylinder, sphere, prism, surface, flat surface, curved surface, face, edge and vertex. Complete pre-test.Revise the names of 3D objects. Teach and review the properties of each shapehttp://www.topmarks.co.uk/maths-games http://lgfl.skoool.co.uk http://exchange.smarttech.com

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| http://yowiebayps.com.au/interactive/math.htm  |

Explicitly teach the names of 3D objects by demonstrating then allowing students opportunities to play games, manipulate and make 3D objects from different materials. | LEARNING SEQUENCERemediationES1  | * Explicitly demonstrate what 2D shapes and 3D objects are to students.
* **Pipe Cleaner Shapes:** Students investigate the objects that can be made by bending and joining pipe cleaners. Students describe their shape and use drawings to record what they have made. Alternatively, the teacher may take photos.

*Variation:* Students could use connecting straws or other appropriate material.  |
| LEARNING SEQUENCES1 | * **Explore Shapes:** Collect a selection of everyday objects like tissue boxes, Pringles cylinder etc and set up in class on a table. Have some 3D objects and 2D shapes set up with the objects. Have students look at and identify similarities and differences.
* **Investigation:** Students come up with a method of sorting shapes into groups and give reasons for their placement. (Teacher support may be needed.)
* **Assessment:** Students reflect on their learning with a buddy and state 3 things they have learned and something they want to know. (Class K W L or use a journal to record.)
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| LEARNING SEQUENCEExtension Early S2 | * Develop a set of criteria for sorting 2D shapes and 3D objects, and give reasons why.
* Students develop criteria for sorting shapes into groups and give reasons why they placed shapes in the groups they have chosen. Make a chart and display in the classroom
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| **EVALUATION & REFLECTION** | **Student Engagement:** **Achievement of Outcomes:****Resources:** **Follow up:** |