**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 5 | STRAND: Measurement and Geometry | **SUB-STRAND:** **3D Space 1** | **WORKING MATHEMATICALLY:** MA2- 1WM & MA2- 3WM |
| OUTCOMES: | **Makes, compares, sketches and names three dimensional objects , including prisms, pyramids, cylinders, cones and spheres and describes their features MA2- 14MG** |
| **CONTENT:**  | * Identify prisms, pyramids, cylinders, cones and spheres in the environment and from drawings, photographs and descriptions.
* Sketch prisms, pyramids, cylinders and cones attempting to show depth.
* Compare their own drawings of 3D objects with other drawings and photographs of 3D objects.
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | Identify 3D shapes of prisms, pyramids, cylinders, cones and spheres. |
| WARM UP / DRILL | **Celebrity heads**- Students have the name of a hidden shape on their heads and they have to guess the shape. They should ask questions of the class or group eg. Do I have 5 faces?Blindfold game- place 3D objects in a bag. Pull one out blindfolded. Describe the properties of that object. |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | Serena used three rolling shapes, four boxes and one cone to build something. What did she build and what might her construction look like? |
| 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 | 3D objects i.e. pyramids, prisms, cylinders, cones and spheres.Pattern blocks Isometric dot paper and magazines. |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Provide a display of 3D objects.* Ask children if they can identify the prisms, pyramids, cylinders, cones and spheres.
* Classify the objects into their various categories.
* Discuss the importance of using the base to identify the type of prism or pyramid.
* Identify 3D objects in the school environment. Find examples in pictures in magazines.
* Sketch various 3D objects. Demonstrate how this is done, step by step, to show perspective.
* Can use sketches as the basis of an art lesson.
* Compare own sketches with other drawings and photographs.

<http://www.bbc.co.uk/bitesize/ks2/maths/shape_space/3d_shapes/play/>  | LEARNING SEQUENCERemediationS1 or Early S2 | * Model 3D objects out of plasticine. Handle them and describe their properties in every day language.
* Introduce terms of base, face, edge, corners.
* Look at everyday objects like a ball, toilet roll, tissue box. Discuss properties using newly introduced terms.
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| LEARNING SEQUENCES2 | * Classify 3D objects according to properties
* Walk around the school and identify 3D objects in the immediate environment.
* Look at magazines and cut out pictures of 3D objects identified. Make a collage of the pictures or a prisms book.
* Produce sketches of 3D objects by sketching.
* Investigation: Students make prints of the faces and bases of prisms and pyramids. Place on a chart.
* Stack attribute or pattern blocks to make a prism. Draw cross sections
* **Investigation:**

**Assessment:** Count the faces, edges, and corners of prisms and discuss results. eg. This prism has 6 corners and 5 faces. |
| LEARNING SEQUENCEExtension Late S2 or Early S3 | * Introduce 3D games, puzzles and problems.
* Recognize various objects from various viewpoints and rotations.
* Build models with cubes and fit them together to make new models.
* Sketch 3D objects using isometric dot paper.
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| **EVALUATION & REFLECTION** | **Student engagement:** **Achievement of Outcomes:****Resources:** **Follow up** |