Booragul Public School NSW Syllabus for the Australian Curriculum – Measurement and Geometry

3D Space 2			
Outcome	**Teaching and Learning Activities**	**Notes/ Future Directions/Evaluation**	**Language / Date**
A student: › describes mathematical situations and methods using everyday and some mathematical language, actions, materials, diagrams and symbols **MA1-1WM** › sorts, describes, represents and recognises familiar three-dimensional objects, including cones, cubes, cylinders, spheres and prisms **MA1-14MG** **No Pyramids until stage 2** **Most of these activities taken from HCC stage 2** **Syllabus Reference:** Hard copy: page : page 110 Digital: page 114		**Background information** In Stage 1, students begin to explore three-dimensional objects in greater detail. They continue to describe the objects using their own language and are introduced to some formal language. Developing and retaining mental images of objects is an important skill for these students. Manipulation of a variety of real three-dimensional objects and two-dimensional shapes in the classroom, the playground and outside the school is crucial to the development of appropriate levels of language and representation. A cube is a special prism in which all faces are squares. In Stage 1, students do not need to be made aware of this classification.	• object, • shape, • **two dimensional shape (2D shape** • **three-dimensional object (3D object)**, • cone, • cube, • cylinder, • sphere, • prism, • surface, • flat surface, curved surface, • face, • **edge**, • **vertex (vertices)**

Activities		
At this Stage, students begin to explore objects in greater detail. They continue to describe the objects using their own language and are introduced to some formal language. It is important to use the word 'objects' when they are three dimensional and the word 'shapes' when they are two dimensional. Developing and retaining mental images of objects is an important skill for these students. Manipulation of a variety of real objects and shapes in the classroom, the playground and outside the school is crucial to the development of appropriate levels of imagery, language and representation. Students need to understand that two-dimensional shapes are features of three-dimensional objects. The mathematical term for a corner of a three-dimensional object is 'vertex'. The plural is 'vertices'. At this Stage, students may use the everyday term 'corner'. The word 'face' has different meanings in different contexts. In mathematics the term 'face' refers to a flat surface eg a cube has six faces. What are the different 3D objects students know? Describe the 3D objects found around the room. Which objects are similar/different and why? What is meant by the faces, edges and corners? Talk about the shapes of the faces, recognising that 3D objects look different from different views eg a cup, a cone		
Mystery Bag. A variety of 3D objects including cones, cubes, cylinders, spheres and prisms are placed in the mystery bag. A student describes the properties of a 3D shape using the terms 'faces', 'edges' and 'corners'. Another student feels in the bag to find an object with those properties.		
Describe the features of three-dimensional objects (AC syllabus content page) • use the terms 'flat surface', 'curved surface', 'face', 'edge' and 'vertex' appropriately when describing three-dimensional objects . describe the number of flat surfaces, curved surfaces, faces, edges and vertices of three-dimensional objects using materials, pictures and actions, eg 'A cylinder has two flat surfaces, one curved surface, no faces, no edges and no vertices', 'This		

prism has 5 faces, 9 edges and 6 vertices'		
Whole Class Teaching Activities-some suggested activities Present a variety of Prisms and Pyramids. Discuss with children why the groups have been formed. - Definitions of Prisms - Ask children to come up with a definition looking at the prisms. *(Teachers definition - A solid comprising two congruent parallel faces and the lateral faces that connect them. Prisms are named according to their two matching parallel faces. Possible extension lateral faces are parallelograms. If they are all right angled (ie rectangle) the prism is a "right prism"; if they are not all right angled, then the prism is an oblique prism.		
Real Life 3D Prisms Children look for 3D objects in the 'real' world. Collect pictures from magazines, old photographs, birthday cards etc of 3D objects. In art, children could make a collage using these objects.		
Guess The Prism Put a 3D prism in a container or under a cloth. Allow a child to feel, but not see the object. The child describes the object and the class takes turns in guessing what it is. Repeat the exercise with as many different 3D prism as possible.		
Constructing Prisms Students build and stack attribute blocks, books, or pattern blocks to develop the idea of a prism as an object having a consistent cross-section. Students can also construct models, plasticine, playdough, clay, polydrons, copied from models provided by the teacher. Sets of prisms can then be built up. Students can informally compare attributes such as height, width, length, and number of faces.		