Characteristics of 3-D objects

CAPS Statement

Space and Shape
Learners should use characteristics of objects to distinguish, describe, sort and compare these objects in terms of the shapes of the faces and to distinguish flat and curved surfaces.

Notes

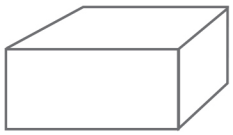
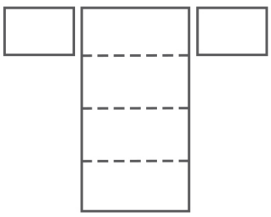
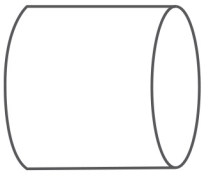
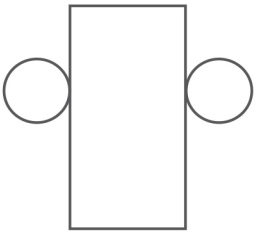
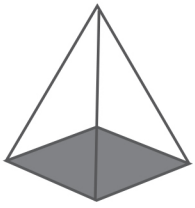
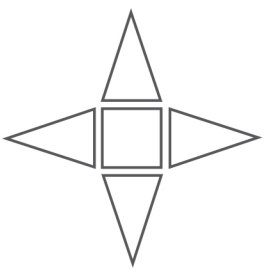
There are two characteristics of 3-D objects that we can use to distinguish them from one another. These two characteristics are:

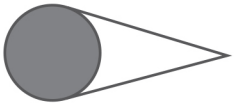
- The shape of the face of an object.
- Whether the surfaces are straight or curved.

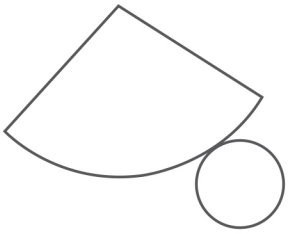
We call the flat surfaces of a 3-D object faces. Remember that objects must be described according to the type of 2-D shapes that make up the flat surfaces, for example:

- The faces of a rectangular prism can all be rectangles or two can be squares and the others can be rectangles.
- Square-based pyramids have one square face and the other faces are triangles.

Let us fold these objects open to investigate the characteristics of 3-D shapes. We call these opened shapes the net of an object.

Shape	Net	Number of curved surfaces	Number of straight surfaces
		0	6
		2	1
		0	6





This shape has one curved surface and a surface that has a curved and a straight edge.

The only geometric shapes with flat and curved surfaces are cones and cylinders. The geometric shapes with only flat surfaces are rectangular prisms and square-based pyramids.

Activity 1

Determine the number of curved and straight surfaces for the given 3-D objects.

3-D object	Number of curved surfaces	Number of straight surfaces
(a) 		
(b) 		
(c) 		
(d) 		

Teacher Tip

Learners can use everyday objects to identify and describe 3-D objects.