



3D Objects

P.3.9

Word Wall: make to ten,

Introduction

Students will sort, describe, name and represent familiar three-dimensional objects.

Resources

- 3D objects: sphere, cube, prism, cylinder, cone.
- A collection of real life 3D objects For example:
Sphere: marble, ball, orange; **Cone:** party hat, traffic cone, ice-cream cone; **Cube:** dice, rubix cube, box; **Rectangular prism:** blocks, book, tissue box; **Cylinder:** candle, can, paper towels.
- Mystery Box – Cardboard box about 25x25x35cm with a lid. Cut holes in each side (leaving a flap) as in the diagram
- Early Years FISH Kit

Time / Classroom Organisation

Each activity process may be introduced in a small or whole group context. Allow 15---20 minutes for each part of this activity. Use every opportunity to identify and describe the properties of 3D objects in the environment.

Australian Curriculum –Year Prep

Sort, describe and name familiar two-dimensional shapes and three-dimensional objects in the environment ([ACMMG009](#))

Proficiency Strand:

Problem Solving – sorting objects; using materials to model authentic problems

Activity Process--- Sorting Objects

1. Place the collection of real life objects in the centre of the group and place 3D objects in front of you.
2. Hold up each 3D shape and talk about the properties of the shape, for example: Hold up the sphere and say: *What does this shape look like? (A ball) How do you know that it is a (ball)? (It is round). Can you find a sphere here in our collection? (a marble) Can you think of another sphere that is not here? (an orange, a pea)*
3. Repeat this process for the other shapes using properties: *straight, flat, curved, faces, edges, corners.* Find the 2D shapes on the objects.
4. Give each student an object.
5. Say: *Find someone who has a shape the same as your shape.* Ask the student to describe how the shapes are the same.
6. Put the groups of similar shapes together and discuss what is the same about these shapes (properties). Label the groups with the shape name and a drawing.



Activity Process – Shapes in the Environment

1. Place the 3D objects on the floor and review names and properties
2. Each student takes a shape and looks for this shape in the classroom / playground / around the school.
3. Take a digital photo of these shapes in the environment and create a display of all the 3D shapes found.



Activity Process---Mystery Box

1. Place one set of 3D objects on display
2. From the collection of real life objects, select one to secretly place in the mystery box. Replace the lid.



3. Select a student to put their hands in to the mystery box.
4. Ask the student to feel the shape inside the mystery box and think about how to describe the shape.
5. Ask the student a series of questions to describe the shape, for example: *Is the shape straight or curved? How many faces does it have? What 2D shapes can you feel? How many corners (vertices)? How many edges?*



6. From the student's responses, ask the other students which of the real life objects displayed on the board they think is inside the mystery box.
7. Ask the student with the mystery box to reveal the shape.

Source: Marj Horne, ACU.2010.



Catholic Education
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Learning with Faith and Vision

Variations & Extensions

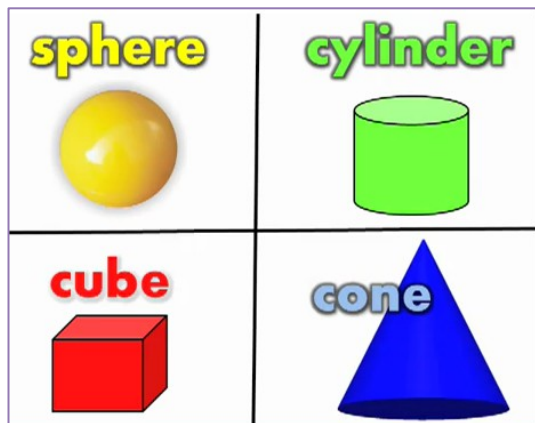
1. 3D Shape Match

Resources: Game Board and pictures
This game matches common 3D shapes to pictures of real life objects. This game is available for download on www.TeachThis.com.au



2. 3D Shapes I Know (Songs for Kids)

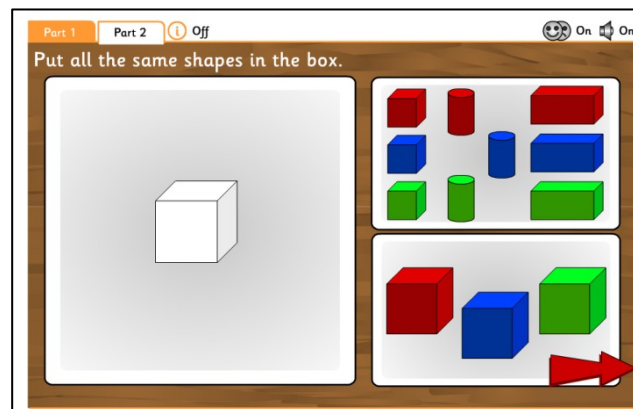
Resources: You Tube/ Whiteboard
Allow students opportunity to listen to the song about 3D Shapes.
<https://www.youtube.com/watch?v=xJq0kR8yNc>



https://www.youtube.com/watch?v=Brajow_C_NAs

Digital Resources

http://resources.hwb.wales.gov.uk/VTC/building_game/en/Introduction/default.htm



Contexts for Learning

Play:

Allow students to build and play with 3D blocks.

Investigation:

Go on a 3D object hunt around the school. Take photos of the 3D objects that you can see and make a class book about 3D objects in the school.

Real life experience:

Bring in a collection of pantry items and ask students to sort them into their 3D groupings.

Routines and Transitions:

When transitioning ask students to locate a 3D object in the classroom.

Assessment

- Display the 3D shapes: sphere, cube, prism, cylinder, cone.
- Ask students to select a shape from your description.
- *Find my shape: I am curved around the middle. I have two ends. I have a flat circle shape on each end. I look like a paper roll (cylinder).*
- *Find my shape: I have one curved round surface. I am a perfectly round 3D shape like a ball (sphere).*

- *Find my shape: I have 6 flat square faces. All the faces are the same size. I have 8 corners. I look like a dice (cube).*
- *Find my shape: I have 6 flat rectangular faces. I have 8 corners. I look like a box of tissues (rectangular prism).*
- *Find my shape: I have a flat circular base. My sides are curved. My top is pointed. I look like a party hat (cone).*
- This could be done as a transitional activity.
- Make a note if students need the real life example to select the shape.
- Make a note if students are able to name the shape.

Achievement Standard: sort shapes and objects

Background Reading

Identifying a shape by using the sense of touch rather than sight can assist children to visualise the shape through its properties. This task also requires the use of language to connect the visual picture with properties of shapes.

A **cube** has 6 flat square faces. All faces are the same size; 8 corners (vertices); 12 edges.

A **sphere** has one curved round surface. It is a perfectly round 3D shape like a ball.

A **cylinder** has two ends which are parallel to each other. Each end is exactly the same size circular shape; no corners (vertices); 2 flat faces; 2 edges.

A **cone** has a flat circular base; sides are curved; 1 edge; top is pointed and is called an apex.

A **rectangular prism** has 6 flat rectangular faces; 8 corners (vertices); 12 edges.

For more detail, please go to:

<http://www.mathleague.com/help/geometry/3space.htm>

Links to Related MAGs

P.1.9 – 2D shapes P.3.9 – 3D Objects
1.1.9 - 2D Shapes 1.3.9 - 3D Objects

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Toowoomba