2D Shapes P.1.9

Introduction
Students will sort, describe, name and represent familiar two-dimensional objects

Resources
- 2D shapes: circle, rectangle, square, triangles – equilateral, isosceles, right and scalene. Use commercial attribute blocks or cut from cardboard: 2D shapes
- Mystery Box – Cardboard box about 25x25x35cm with a lid. Cut holes in each side (leaving a flap) as in the diagram.

Lid on box so that shapes can easily be put in and taken out

Piece of paper taped over hole at top to cover hole and hide interior

Holes cut to allow one hand to be put into the box on each side
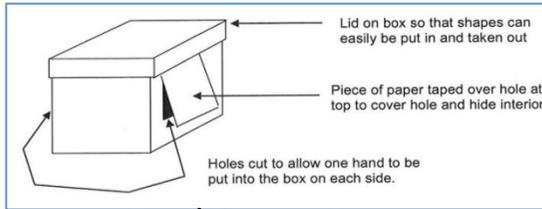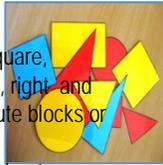
Time / Classroom Organisation
Each activity process may be introduced in a small or whole group context. Allow 15-20 minutes for each part of this activity. Use every opportunity to identify and describe the properties of 2D objects in the environment.

Australian Curriculum
Year level: Prep
(ACMMG009) Sort, describe and name familiar two-dimensional shapes and three-dimensional objects in the environment

Activity Process --- Sorting Shapes

1. Hold up each shape and talk about the properties of the shape: Say: *What is this shape called? How do you know that it is a (triangle)? Find another (triangle).*
2. Discuss the properties: 3 straight sides; 3 corners (vertices). Repeat for the other shapes.
3. Give each student a shape
4. Say: *Find someone who has a shape the same as your shape.* Ask the student to describe how the shapes are the same.
5. 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.
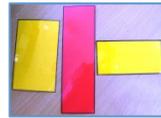
Activity Process --- Shapes in the environment

1. Place the shapes 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 shapes found.

Learning ipad-use skitch to capture and annotate shapes found on a shape safari walk
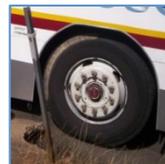
Activity Process – Mystery box

1. Place one set of shapes on display
2. From a second set of shapes, 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 e.g. *Is the shape straight or curved? How many sides does it have? How many corners (vertices)?*
6. From the student's responses, ask the other students which shape 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.)

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Variations and Extensions

1. **Mystery Box variations**

   Resources: Shapes and mystery box.
   - Add three shapes to the mystery box (e.g. circle, triangle, square). Ask a student to find a one particular shape e.g. *find the circle.*
   - Add three shapes to the mystery box (e.g. circle, triangle and square). Ask the student to find the shape: *with curved lines; with three sides; with four corners.*
   - Add more shapes as students become more confident with this activity.

2. **Game: Shape Match.**

   Resources: Games sheet and pictures.
   - This game matches common 2D shapes to pictures of real life objects. This game is available for download on www.TeachThis.com.au
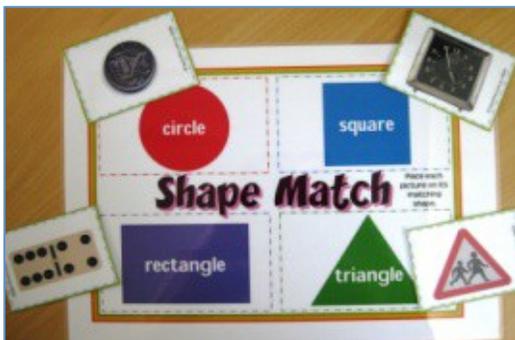

Make sure that

The learners has experiences of regular and irregular shapes, of different size and in different orienta9ons, so they can see what is the same and what is different

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Interactive Whiteboard Resources
http://www.ideal-resources.com.au/index.php

Shape Paint
Introduce the concept of shape and move on to the manipulation of objects to make patterns and pictures using shape with this powerful, open ended tool.

Create a Tile
Explore, create and print symmetrical patterns with two lines of symmetry at right angles.
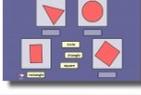
Simple Shapes
Begin to name flat shapes such as circle, triangle, square and rectangle. Drag the correct label to the corresponding shape. Turn on the rotation to change the appearance of the shape.

Contexts for learning

Play:
Tangrams: Students use tangrams to match or create pictures.

Investigation:
Shape Drawings: Draw a shape on a small whiteboard and DO NOT show it to the students. Describe your shape and then ask the students to draw the shape that they see in their head. Discuss how your shapes are the same/different.
Possible Questions: *My shape has four sides, what might my shape look like?* or *I made a picture using only circles and squares. What might my picture look like?*

Real life experience:
Cooking: While completing an cooking activity discuss the shape of the ingredients as you add them for example: *the egg is oval, the cake tin is a circle, the block of butter is a rectangle.*

Routines and Transitions:
Room Shapes: As students move to a new activity ask them to find a shape in the room, for example: *Find something that is a circle; Find an object that is the shape of a rectangle.*

Assessment
Give the student one of each of the shape types: circle, square, rectangle, and triangle. Ask them to select a shape, describe one attribute, for example*: it is curved,* and then name the shape. This could be done as a transitional activity

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Observational Checklist:
• use understanding of shape properties to sort shapes, explaining the criterion used
• name and describe features of 2D shapes, including square, rectangle, triangle, circle

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 **polygon** is a closed figure made by Joining line segments, where each line segment intersects exactly two others. Examples of polygons:
A **triangle** is a three-sided polygon. The sum of the angles of a triangle is 180 degrees.
A **rectangle** is a four-sided polygon having all right angles. The sum of the angles of a rectangle is 360 degrees.
A **square** is four-sided polygon having equal-length sides meeting at right angles. A square is a special kind of rectangle. The sum of the angles of a square is 360 degrees.
A **circle** is a perfectly round plane figure. Every point on the line enclosing the circle is at the same distance from the centre. A circle is not a polygon.
For more detail please go to:
http://www.mathleague.com/help/geometry/polygons.htm#polygon
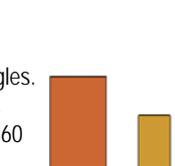
Links to other MAG's
P.2.9 – Barrier Games
P.3.9 – 3D Shapes
1.1.9 – 2D Shapes
1.3.9 – 3D Shapes