Identifying and Combining 2-D Shapes

Match the 2-D Shape to the Correct Name

Draw a line from each shape to the correct name for that shape.

- circle
- square
- octagon
- heptagon
- triangle
- hexagon
- circle
- pentagon
- rectangle
Math Background
Geometry is about shapes and spatial relationships. In earlier grades, children learned to describe shapes and objects by how they look and move. As children have more opportunities to investigate shapes and objects, they begin to identify some of their geometric properties. They describe geometric properties using terms such as sides, edges, and corners and they learn to name 2-D shapes and 3-D objects. Children compare and sort shapes and objects by their attributes and geometric properties. They need to see and manipulate shapes and objects of various sizes, types, and orientations. By exploring and manipulating many different shapes and objects, children develop an understanding of the properties and attributes of 2-D shapes and 3-D objects in the world around them.

Purpose
In these activities, children will identify and describe familiar 2-D shapes such as circles, squares, triangles, and rectangles, and they will extend their knowledge to less familiar shapes such as pentagons, hexagons, heptagons, and octagons. They will identify the number of sides and the number of corners in each shape. Then they will have an opportunity to combine 2-D shapes to make a design.

Materials
- 2-D shapes for circle, square, rectangle, triangle, pentagon, hexagon, heptagon, and octagon. (A set of 2-D shapes is included below that you can download and print, or you can draw your own 2-D shapes.) You will need multiple copies of each shape.
- Labels for 2-D shapes: circle, square, rectangle, triangle, pentagon, hexagon, heptagon, and octagon.

Identify and Name 2-D Shapes
1. Have children describe and name some familiar 2-D shapes. Display the square, circle, rectangle, and triangle and select one shape, such as a square. Ask, What can you tell me about this shape? Introduce the concepts of sides and corners if children omit these from their descriptions. Trace your finger over one of the sides of the square and tell children that this is called a side. Ask, How many sides does this shape have? What do you notice about the sides? (They are all the same length.) Then point out where the two sides meet and explain that this is called a corner. Ask, How many corners does this shape have? (4) What is this shape called? (a square)
2. Repeat step 1 for the circle, rectangle, and triangle. Have children identify the name of the shape, the number of sides, and the number of corners.
3. Introduce shapes with more sides and corners to children. Select a pentagon and ask, How many sides does this shape have? (5) How many corners does it have? (5) Do you know what this shape is called? If children do not know, tell them that the shape is called a pentagon. Have children practise saying the word “pentagon.” Write a label naming this shape and place it next to the pentagon.
4. Next, provide children with 2-D shapes representing a hexagon, a heptagon, and an octagon. Say, **Look closely at each shape. How many sides and corners does each shape have?** Then have children select the shape that has 6 sides and 6 corners. Tell children that this shape is called a hexagon. Have them say the word and then display or write a label for “hexagon.” Place the label next to the hexagon. Continue these steps for each of the remaining shapes. You might wish to point out that the endings of these words are all spelled the same way: agon. Drawing attention to this common ending will help children when they write the words pentagon, hexagon, heptagon, and octagon.

5. Play a game of Concentration. Write the name of each 2-D shape on a card and draw a picture of the 2-D shape on another card. Shuffle the cards and turn them face down. Children flip over two cards at a time, looking for a match between the 2-D shape and the name of the shape. If the cards match, children remove the cards and take another turn. If the cards don't match, children turn the cards face down again, and it is another player’s turn. The player with the most matching cards wins the game. You may play a variation of this game in which one set of cards displays the number of sides and corners, and the other set of cards shows the 2-D shapes.

6. Children can go on a scavenger hunt to find household items that feature various 2-D shapes.

### Combine and Separate Shapes

1. Have children investigate how 2-D shapes can be separated and combined to form other shapes. Ask children to take two triangles and combine them. Ask, **What 2-D shape did you make when you put the two triangles together?** (a square)

2. Have children investigate other opportunities to separate and combine shapes, e.g.:
   - Fold a square in half top to bottom and cut along the fold line. These two halves will form two rectangles.
   - Fold a square on the diagonal and cut along the fold line. These two parts will form two triangles.
   - Place four squares together. They will form a larger square.
   - Place five triangles together. They will form a pentagon.

### Make Designs with 2-D Shapes

1. Provide multiple copies of 2-D shapes. Have children create pictures or designs by combining the shapes. You might make coloured copies of the 2-D shapes or have children colour the shapes once they have made their picture or design.

2. After children have completed their designs, have them identify all the shapes that they included in their design.
An Assortment of 2-D Shapes

- Circle
- Triangle
- Square
- Rectangle
- Pentagon
- Hexagon
- Heptagon
- Octagon