Maths Talk and Learn: Supporting White Rose Manipulate, Compose and Decompose

Select Shapes for a Purpose

triangle, circle, rectangle, square, cube, sphere, cuboid, pyramid, belong, doesn't belong, choose

Talk about which shapes belong and don't belong. Can you explain why?

Look at these shapes. Which would you use if you want to build a rocket? Why would those shapes work well?

Rotate Shapes

match, shape, fit, rotate

Which of these shapes are the same?

Which shape will fit into this space?

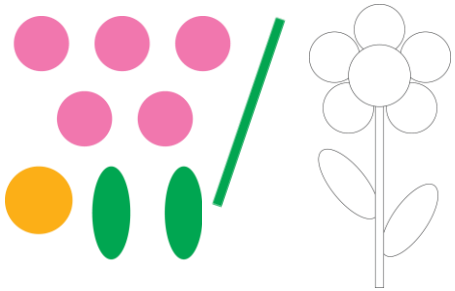
Challenge Yourself:

- Find a collection of shapes to sort. Why do these shapes belong together? Why do these shapes not belong?
- Choose some boxes or bricks of different shapes. Which will you choose to build a model? Why have you chosen these?

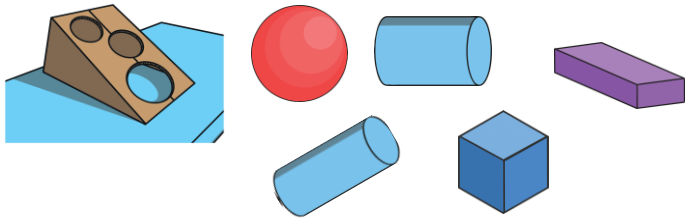
Manipulate Shapes

move, turn, rotate, flip, look, different, position, complete

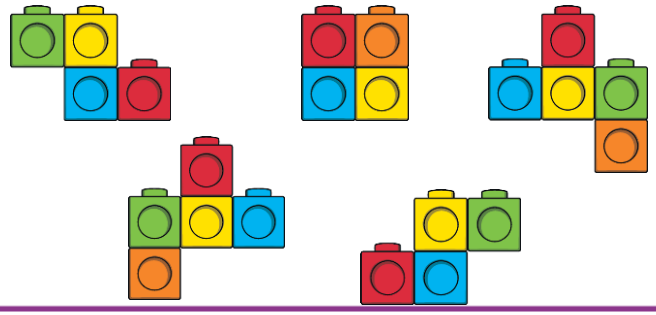
How can these shapes fit inside this outline?



Which shapes will fit inside this box? How will you need to move them so they can go inside?



Which shapes match when you flip them?



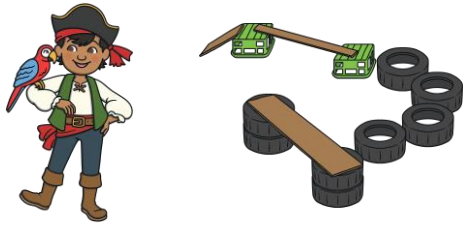
Challenge Yourself:

- Use the pieces of a tangram to make pictures of animals. What animals can you make?
- Make different models using 5 interlocking bricks. What do they look like when you flip them?

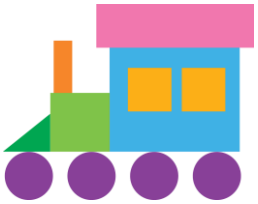
Explain Shape Arrangements

arrange, behind, next to, in front of, move, around

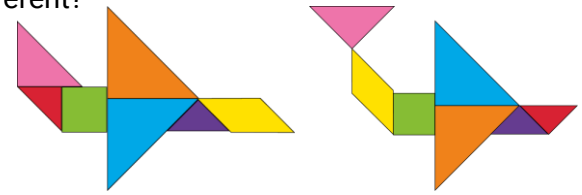
Can you explain to the pirate how to get to the end of the obstacle course?



Look at the shape picture. What shapes can you see? Where are they? Can you explain to someone else how to make the same shape picture?



Have these two children arranged their shapes in the same way? What is the same and what is different?



Challenge Yourself:

- Scatter some shapes on a table and describe where they are. Which shape is next to the triangle? Where is the circle?
- Use plastic 2D shapes and crayons with thin paper. Create and describe a picture made from rubbings of the shapes.

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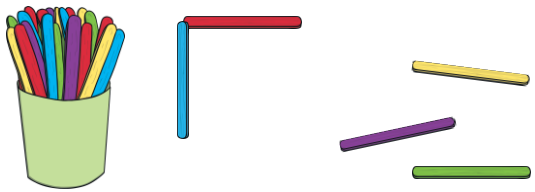
Compose Shapes

arrange, combine, how many, different, smallest, largest, piece, investigate

How can you fit these shapes together to make more triangles? How many different triangles could you make?

Can you build a rectangle with lolly sticks or twigs?



What shapes can you make by putting these two shapes together?

Can you find different ways of making this shape using some of these shapes?

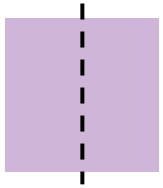
Challenge Yourself:

- Cut out some paper triangles. Can you use the triangles to make some shapes? What shapes can you make?
- Use some lolly sticks to make rectangles of different sizes. What is the smallest rectangle you can make? What is the largest?

Decompose Shapes

identify, separate, make, within, fold, cut

If you cut this shape along the dotted line, which shapes will you have?



Draw lines on this shape to make some triangles.

Tell a grown-up how you could fold this shape to make some smaller triangles.

Draw a line on this shape to show how you could make 2 other shapes. Are there different ways of doing this?

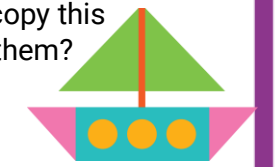
Challenge Yourself:

- Use a paper triangle. How can you cut it into two shapes?
- Which shapes can you make by putting those two shapes together?

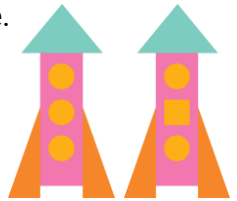
Copy 2D Shape Pictures

copy, picture, side, corner, position

What shapes would you need to copy this picture? How would you arrange them?



Cal has copied his friend's picture. He has made one change. What has he changed?

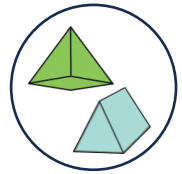


Find 2D Shapes Within 3D Shapes

within, because, face, surface, edge

Look at these 3D shapes. Which 2D shapes can you spot on the faces?

How have these shapes been sorted? Explain what is the same and what is different. Is there another way of sorting them?



Challenge Yourself:

- Create a picture using shapes and invite a grown-up to copy it. Explain what they need to do.
- Find 3D shapes around you. Can you find 2D shapes within them?