

Year 1

Small Steps Guidance and Examples

Block 3 – Geometry: Shape

White Rose Maths

Overview

Small Steps

- ▶ Recognise and name 3D shapes
- ▶ Sort 3D shapes
- ▶ Recognise and name 2D shapes
- ▶ Sort 2D shapes
- ▶ Patterns with 3D and 2D shapes

NC Objectives

Recognise and name common 2-D shapes, including: (for example, rectangles (including squares), circles and triangles)

Recognise and name common 3-D shapes, including: (for example, cuboids (including cubes), pyramids and spheres.)

3D Shapes

Notes and Guidance

In this step, children are introduced to simple 3D shapes: cuboids, cubes, pyramids, spheres, cylinders and cones.

Children recognise 3D shapes from a group and name them.

They match the shape names to the shape and see how 3D shapes with the same name can look different.

Mathematical Talk

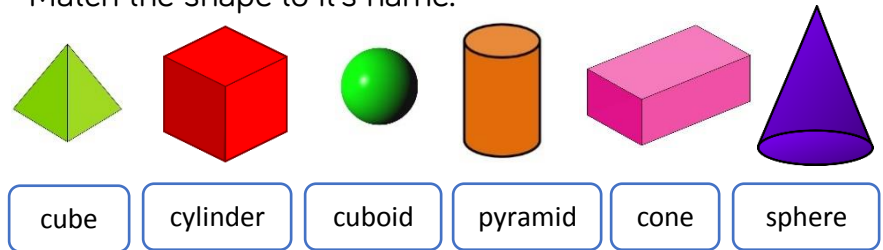
Can we see any 3D shapes in the classroom?

Do cubes all look the same?

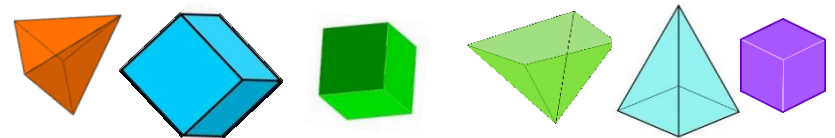
Is a pyramid only a pyramid when the point is at the top?

Varied Fluency

1 Match the shape to its name.



2 Circle the cubes. Tick the pyramids.



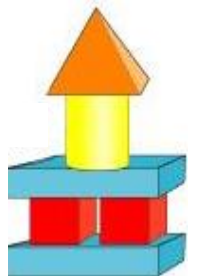
3 Lucy has built a model.
Complete the sentences to describe Lucy's model.

There are ___ cuboids.

There are ___ cylinders.

There are ___ pyramids.

There are ___ cubes.



3D Shapes

Reasoning and Problem Solving

The shapes below are shadows of a 3D shape.



What could the 3D shape be?

Place a 3D shape in a feely bag.
What shape could it be?



Explain how you know.

The square could be a shadow of a square based pyramid, cuboid or cone.
The circle could be a shadow of a cylinder, sphere or cone.

Possible answer:

I think it is a cuboid because I cannot feel any curved surfaces but I can feel a long and smaller face.

The bottom of a 3D shape is hidden.



What shape could it be?

Explain how you know.

Possible answers:

Cube

Cuboid

Sort 3D Shapes

Notes and Guidance

They start to see that shapes may have the same name but can be different sizes, orientations and colours.

Given a selection of 3D shapes, children sort their shapes into the correct group given by their name.

Mathematical Talk

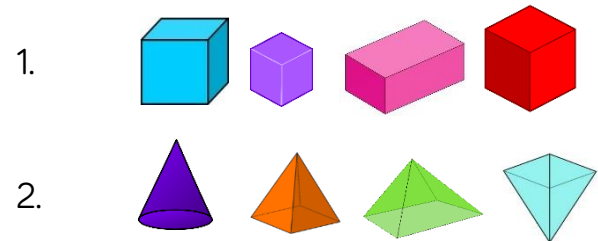
Do all cuboids look the same as each other?

How are they different?

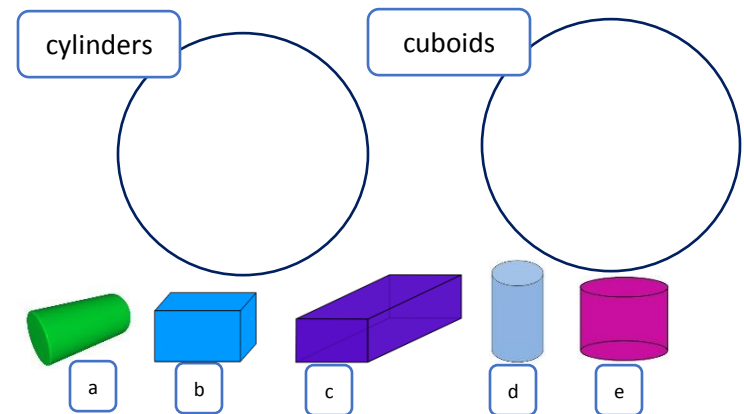
Take two different cylinders. What's the same about them?
What's different?

Varied Fluency

1 Circle the odd one out in each group.



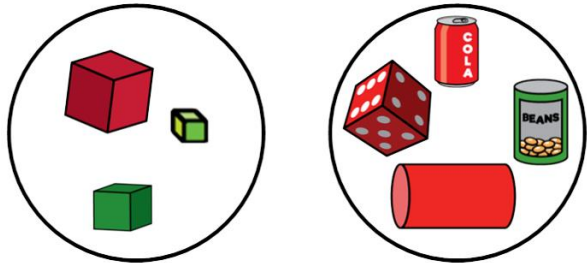
2 Place the shapes in the correct groups.



Sort 3D Shapes

Reasoning and Problem Solving

Some 3D shapes have been sorted.



Possible answers

The shapes have been sorted into colour. The green tin of beans and the red cube need to be moved.

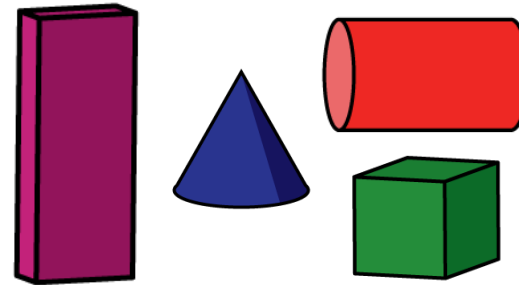
Have the shapes been sorted correctly?

Explain how you know.

How else could the shapes be sorted?

The shapes have been sorted into cylinders and cubes. The dice needs to be moved.

How many ways can you sort the shapes into groups?



Possible answers:

Straight faces and curved surfaces.

Shapes with a circular face and shapes with a square face

Big shapes and small shapes

2D Shapes

Notes and Guidance

Looking on the surface of 3D shapes, children start to see 2D shapes. They use the shapes they see to draw around and print.

Here it is important that children see 2D shapes are flat.

Looking at 2D shapes, children name triangles, squares, rectangles and circles.

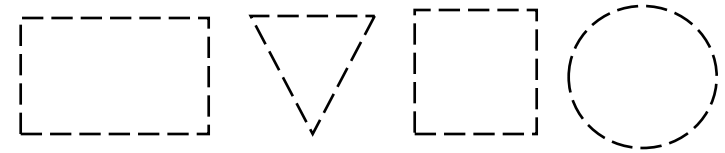
Mathematical Talk

How many of the shapes are squares?

How many are not squares?

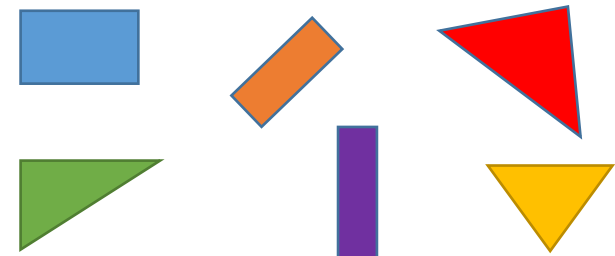
Varied Fluency

- 1 Trace around the shapes and write their names beneath them.



- 2 Choose a 3D object. Use one of the faces as a stencil to draw around. Name the shape that you have drawn. How many different 2D shapes can you draw using 3D shapes as a stencil?

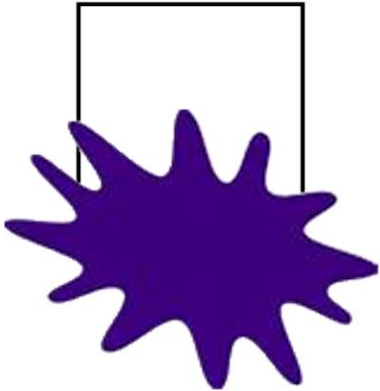
- 3 Circle the triangles and tick the rectangles.



2D Shapes

Reasoning and Problem Solving

Part of a shape is hidden.



What shape could it be?

Is there more than one possibility?

Explain your thinking.

It could be a square because it can have 4 sides the same length.

It could be a rectangle because it could have 2 longer sides.

Here is part of a shape.



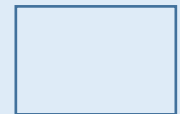
How many different ways can you complete the shape using one or more straight lines?

Compare yours with a partner.

What is the same and what is different?

Possible answers:

Children could continue the shape to make a square, rectangle or triangle.



Sort 2D Shapes

Notes and Guidance

Children place 2D shapes into groups based on their names.

Children see that 2D shapes with the same name can be different sizes, orientations and colours but still have the same name.

Mathematical Talk

What is the same about all the rectangles?

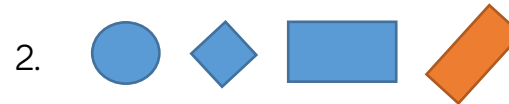
What is the same about a square and a rectangle? What's different?

Why is the shape the odd one out? Could another shape be the odd one out?

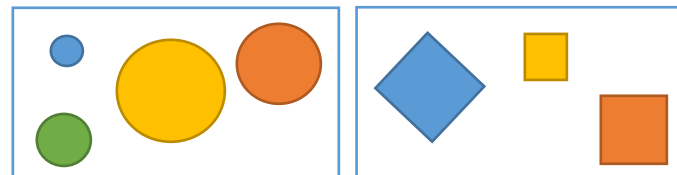
Can you label the groups?

Varied Fluency

1 Circle the odd one out in each group.



2 How are the shapes grouped?
Label each group.

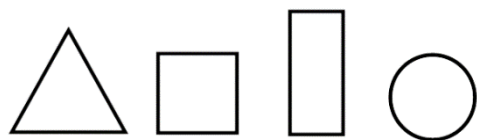


3 Use a selection of triangles, rectangles, squares and circles.
Put your shapes into groups.
Ask a friend to label the groups.

Sort 2D Shapes

Reasoning and Problem Solving

Use a selection of triangles, rectangles, squares and circles.



Put your shapes into groups.

Ask a partner to label your groups.

How many groups can you create?

Look at the square and rectangle below.



What is the same and what is different?

Possible ways of sorting:

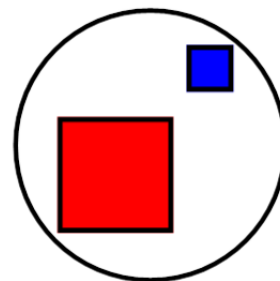
Colour, name of shape, number of sides.

The square and the rectangle both have 4 sides.

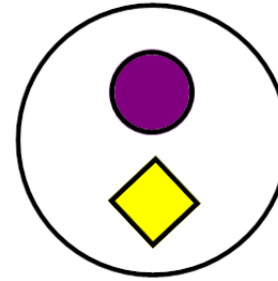
The rectangle has 2 short sides and 2 long sides.

Simon has sorted some shapes.

Squares



Not squares



Has he sorted them correctly?

Explain how you know.

Simon has not sorted them correctly.

The yellow shape is a square; it is just a different way round.

Patterns with 2D & 3D Shapes

Notes and Guidance

This step stems from the non-statutory guidance within Place Value.

Children use 2D and 3D shapes to complete and make simple patterns focusing on different shapes and sizes. Before this small step, children would have been exposed to ordinal numbers so can apply this when describing and continuing patterns.

Mathematical Talk

How can we describe the pattern? What will come next? What's the same and what's different about the first two caterpillar patterns?

What does 1st mean? What colour will come after red?

Let's look at a cone and cube- what shapes can you see on a cone? What shape can you see on a cube?

Varied Fluency

- 1 Continue the patterns.



Can you create your own using two colours?



- 2 Using blocks, cubes or paint, create and continue the pattern:

1st – Red

2nd – Green

3rd – Red

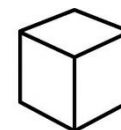
- 3 The pattern below has been created by printing 3D shapes.



What 3D shape below would you use next to continue the pattern?



Cone



Cube

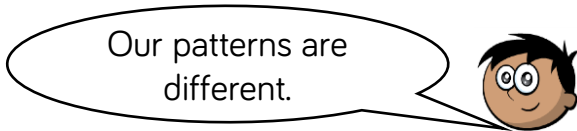
Patterns with 2D & 3D Shapes

Reasoning and Problem Solving

Fred and Emma have each created a pattern.



Emma



Fred

Who do you agree with?

Explain your answer.

Fred is correct because the triangle is in a different orientation.

Which shape could go in the grey box?



How can you check?

Can you make a different pattern with the same shapes?

The cylinder should go in the grey box

I can check by getting the shapes out and seeing if it repeats correctly.