

YR2 GEOMETRY KNOWLEDGE ORGANISER

Key Concepts

- identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line
- identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces
- identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]
- compare and sort common 2-D and 3-D shapes and everyday objects.

Key Vocabulary

- Pentagon
- Hexagon
- Sides
- Curved/ Straight
- Edges
- Vertex/ Vertices/ Corners
- Faces
- Cuboid, Cone, Prism
- Quadrilateral
- Polygon
- Symmetry
- Vertical



2D Shapes

Children will build on their year 1 knowledge of recognising 2D shapes to begin describing their properties.



This is a triangle because it has 3 sides and 3 vertices.

Vertices are another way of describing corners, where 2 or more lines meet. If a shape only has 1 corner, it is called a **vertex**.



Any shape with 6 straight sides is a hexagon.







A **polygon** is any 2D shape with straight sides.
A **quadrilateral** is a 4-sided polygon.



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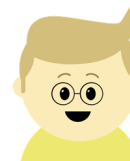
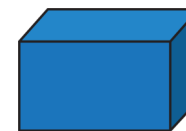
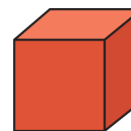
Symmetry

Children should be taught to recognise whether or not a shape has a line of symmetry. In Year 2, it is only necessary to identify a vertical line of symmetry. This can be done on everyday objects and shapes.

Vertical line of symmetry	No line of symmetry
	
	

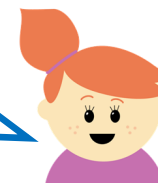
3D Shapes

Vocabulary is key when describing properties of 3D shapes, with the introduction of new mathematical language. Children will justify the recognition of 3D shapes by describing their properties.



The red shape is a cube because it has 6 faces, 12 edges and 8 vertices.

The blue shape also has 12 edges, 8 vertices and 6 faces but it is a different shape. It is a cuboid.

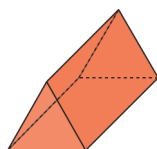


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Exploring different 3D shapes will help to reinforce the use of this language. Recording the properties supports this further. For example:

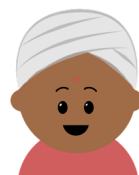
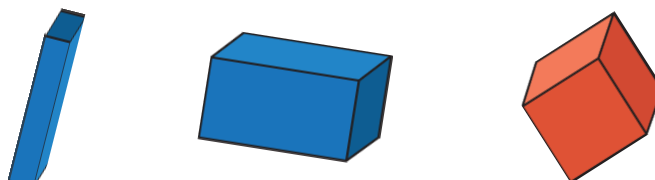


Shape	Vertices	Edges	Faces
Square based pyramid	5	8	5
Triangular based pyramid	4	6	4
Triangular prism	6	9	5
Cylinder	0	2	3
Cone	1	1	2
Cube	8	12	6
Cuboid	8	12	6



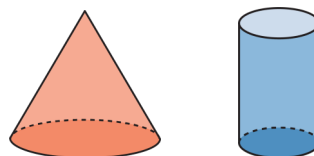
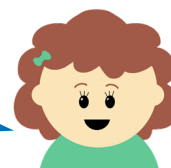
Identify 2D Shapes on 3D Shapes

When a clear understanding of 2D and 3D shapes is achieved, the next step is to identify the 2D shapes on the surfaces of 3D shapes.



A cuboid can have 6 rectangular faces, or some faces can be squares.

A cube is a special type of cuboid, it always has 6 square faces.



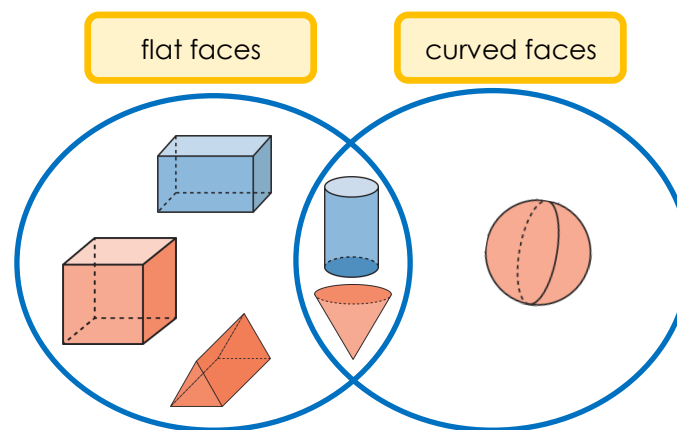
Cones and cylinders both have circle faces.

Compare and Sort 2D and 3D Shapes

Comparing and sorting can be done simply...

2D	3D

Or in a more advanced way by considering the properties of each shape carefully and identifying similarities and differences.



A sphere is the only shape that only has curved faces.

