

How to Teach Geometry in Year 3:

Draw 2D Shapes and Make 3D Shapes Using Modelling Materials

"In year 3, children should draw 2D shapes and make 3D shapes using modelling materials."

National curriculum statement

Within the year 2 curriculum, children were taught to identify and describe the properties of 2D shapes, including the number of sides and lines of symmetry. They also learnt to identify and describe the properties of 3D shapes, including the number of edges, vertices and faces. In year 3, children will expand on this knowledge and learn to draw 2D shapes as well as modelling 3D shapes. When children learn to draw 2D shapes, they should draw using a ruler to construct straight lines and understand the terms 'right angle' and 'parallel and perpendicular lines'. Children will learn to join a series of marked points to create a simple polygon along with naming and describing the properties of the shape they have drawn. Pupils should then move on to creating 3D shapes out of modelling materials, drawing on previous knowledge of 3D shape properties. They should also compare 3D shapes using terms such as vertices and faces. Children should use modelling materials such as straws and clay, as well as nets, to construct a variety of 3D shapes, recognising these in different orientations.

Key Vocabulary

2D, 3D, dimensions, ruler, angle, vertices, faces, line of symmetry, sides, edges, model, modelling materials, right angle, perpendicular, net

Common Misconceptions and Errors

Drawing 2D shapes

Some children may attempt to draw a straight line without a ruler.

Children might not hold their ruler straight resulting in an uneven shape.

Making 3D shapes using modelling materials

Children may need support to choose the best modelling materials for the shape that they are making.

Nets of 3D shapes can be drawn differently. Look at a variety of nets in different orientations, showing which ones will correctly make up the 3D shape.

Bringing Maths to Life

Look at a variety of model 3D shapes, discussing the properties of the shapes as a class.

Deconstruct each shape into its faces, looking at which edges must join to make up a complete net.

Practise creating shapes using a variety of materials, allowing children to experiment with modelling clay, straws, sticks, sticky tack etc.

Example Questions to Develop Understanding

- How many sets of parallel sides have you drawn?
- How many faces does your net need?
- What shape are the faces?
- Which material are you making the shape from? Why?
- How many straws will you need for the vertices?

Teaching and Learning Points

- Begin studying a 2D shape and noting the properties (number of corners, number of sides, parallel lines, etc). On squared paper, encourage children to draw crosses or points for each corner of a square or rectangle before joining with a ruler. Model this clearly, recapping ruler use and the need for straight, accurate joins.
- Once children are confident with drawing simple squares and rectangles using squared paper, challenge further with more complex polygons or provide shapes with missing points for children to complete.
- When looking at 3D shapes, children must understand how a 3D shape is constructed before attempting to make their own. Show children a net for a 3D shape and ask them to work out which 3D shape it is for.
- Encourage children to make the 3D shapes from straws and modelling clay and then move on to drawing a net of a 3D shape so they can see how the 3D shape is constructed.
- Ask children to work in pairs and describe a shape to their partner to draw (2D) or make (3D).