Geometry

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them
- recognise angles as a property of shape or a description of a turn
- identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle
- identify horizontal and vertical lines, and pairs of perpendicular and parallel lines

The Big Ideas

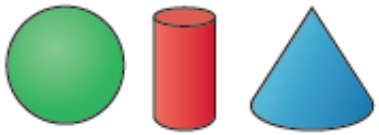
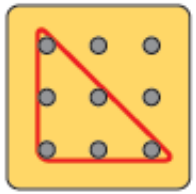
During this year there is an increasing range of shapes that pupils are familiar with. The introduction of symmetrical and non-symmetrical polygons and the requirement that pupils should be able to draw them will give rise to discussions about lengths of sides and sizes of angles. Pupils need to appreciate these features as properties of shapes as well as the number of sides and vertices.

Pupils recognise that angles are about the amount of turn – the lengths of the lines used to represent angles do not affect the size of the angle.

Pupils recognise that relationships are at the heart of properties of shapes, not particular measurements. For example, the opposite sides of any rectangle will always be equal, not that rectangles have a pair of long sides and a pair of short sides.

Mastery Check

Please note that the following columns provide indicative examples of the sorts of tasks and questions that provide evidence for mastery and mastery with greater depth of the selected programme of study statements. Pupils may be able to carry out certain procedures and answer questions like the ones outlined but the teacher will need to check that pupils really understand the idea by asking questions such as 'Why?', 'What happens if …?', and checking that pupils can use the procedures or skills to solve a variety of problems.

Mastery	Mastery with Greater Depth
Have a range of 3-D shapes in a 'feely bag'. Can you feel for the cube, the cuboid, the pyramid, the cylinder and the cone? Explain how you know. Describe what you are feeling to your classmates and see if they guess what the shape is.	True or false? The shape of a cross section of a sphere is always a circle. The shape of a cross section of a cylinder is always a circle. The shape of a cross section of a cone is always a circle. Explain your reasoning. Can you identify a 3-D shape where the cross section is always a square?  sphere cylinder cone
Can you draw a triangle with: ■ 1 right angle? ■ 2 right angles? Can you draw a quadrilateral with: ■ 1 right angle? ■ 2 right angles? ■ 5 right angles? ■ No right angle? If some of these are impossible, can you explain why?	How many different triangles can you find on a 3×3 pin geoboard? How do you decide that they are different?  How many different quadrilaterals can you find on a 3×3 pin geoboard? How do you decide that they are different?