Faces, Edges and Vertices: Describing 3D Shapes in Year 2 Maths

This guide is for parents and carers who would like to understand how children learn to describe 3D shapes, such as cubes, cones and spheres. It explains how to count their faces, edges and vertices using the right words. The topic is taught in Year 2 (ages 6 to 7), and children in Reception build the early ideas through play and everyday talk about shapes. The approach is hands-on and playful: children touch and count real objects, and nothing needs to be memorised. Your child's teacher is the best person to ask how their school teaches it.

What it is

3D shapes are solid shapes that take up space, unlike flat 2D shapes such as circles and squares. Mathematicians describe them by counting three things. A face is a flat or curved surface, like one side of a dice. An edge is the line where two faces meet, like the lines along the corners of a box. A vertex is a corner or point where edges meet; the plural is vertices. In Year 2, children learn to use these exact words rather than vague ones like 'sides' or 'points', so that everyone talks about shapes in the same way. The National Curriculum, the official list of what schools in England teach, asks Year 2 pupils to identify and describe the properties of 3D shapes, including the number of edges, vertices and faces. 'Properties' simply means the features that make a shape what it is.

What happens

In class, children usually handle real objects such as tins, dice, boxes and party hats. They touch each face, trace each edge with a finger and point to each corner, then count them one by one. Over time they notice patterns. A cube has 6 faces, 12 edges and 8 vertices, while a sphere has no flat faces, edges or vertices at all. Children often mix up edges and vertices, for example by calling a corner an edge. Teachers help by asking questions such as 'Is that a corner or a line?' Curved shapes can be trickier. A tin has curved parts, so schools may agree a particular way of counting its faces and edges. Methods can vary between schools, so it is worth asking the teacher which approach they use.

What it means for your child

This topic builds naturally on the shape spotting your child may already enjoy, such as noticing circles, triangles and squares around the home. Moving from simply naming a cube or a ball to explaining what makes it different is a big step, and it helps children reason about shapes rather than just recognise them. Using precise words gives children a clear way to describe and compare things, which also supports later work on geometry and measurement. Every child learns at their own pace. Children who are still learning English often find it helpful to see the object, hear the word and say it themselves, with the same words repeated often. Children with special educational needs (SEND) may find tracing and touching objects a helpful way in.

How you can help at home

Keep it short, relaxed and playful, perhaps for five minutes at a time. Try a shape hunt in the kitchen: how many flat faces does a cereal box have, and how many corners? Look at a party hat together and ask whether it has a point, and what the point is called. Roll a dice and count its faces together, or let your child count the edges of a book. Use the words naturally, such as 'face', 'edge' and 'vertex' (corner), and

let your child correct you if they like. If you speak another language at home, you can count and name the shapes in it too. Watch out for small objects like dice with younger children. Praise effort and curiosity rather than getting every answer right, and let your child lead the game whenever they can.

Questions parents often ask

Is a corner the same as an edge? No. A corner is a vertex, which is a point where edges meet. An edge is the line between two faces. Does my child need to memorise the numbers? Not necessarily. The aim is for children to understand and describe shapes by counting and handling them, and the numbers will become familiar over time. My child says 'sides' rather than 'faces'. Is that wrong? It is a natural first word, and teachers will introduce the correct vocabulary gently. Why are tins and balls harder to count? Curved surfaces do not always have clear faces, edges or corners, so schools may agree a method for them. My child is in Reception. Do they need this yet? Reception children build early ideas about shape through play. The formal Year 2 wording comes later, so there is no need to worry. If you are unsure, ask your child's teacher.

Sources

- Department for Education, 'National curriculum in England: mathematics programmes of study' (key stages 1 and 2), GOV.UK
- Department for Education, 'Early years foundation stage (EYFS) statutory framework', GOV.UK