Answers - 2D and 3D shapes

Year: Year 1

Answer to Question 1

a. The shape is perfectly round and has no straight sides and no corners, so it is a **circle**.
b. The shape has 3 straight sides and 3 corners. Any flat shape with 3 sides is a **triangle**.
c. The shape has 4 straight sides: two long sides and two short sides, with 4 square corners. It is a **rectangle**.
d. The shape has 4 straight sides that are all the same length and 4 square corners. It is a **square**.

Answer to Question 2

a. Run your finger along the edge of a triangle and count the straight lines: 1, 2, 3. A triangle has **3** sides (and 3 corners too).
b. Touch each pointy corner of the square and count: 1, 2, 3, 4. A square has **4** corners, one between each pair of sides.
c. A circle is one curved line that goes all the way round. It has no straight sides at all, so the answer is **0** sides and 0 corners.
d. Look down the Sides column of the table: the square has 4 and the rectangle has 4. So the **square** and the **rectangle** both have 4 sides.

Answer to Question 3

a. Every face is a square and all the edges are the same length, so the solid is a **cube**, like a dice.
b. It is round all over, with no flat faces and no edges. It is a **sphere**, like a ball.
c. It has a circle at the top, a circle at the bottom and a curved side, like a tin. It is a **cylinder**.
d. It has one circle at the bottom and goes up to a point. It is a **cone**, like an ice cream cone.
e. It has a flat base and triangle faces that meet at one point at the top. It is a **pyramid**.

Answer to Question 4

a. Count the flat faces: top, bottom, front, back, left and right. That makes **6** faces.
b. All the faces of a cube are the same size and each one has 4 equal sides, so each

face is a **square**.
c. An edge is where two faces meet. There are 4 edges round the top, 4 round the bottom and 4 going up the sides: 4 + 4 + 4 = **12** edges.
d. A vertex is a corner where edges meet. There are 4 corners on the top and 4 on the bottom: 4 + 4 = **8** vertices.

Answer to Question 5

a. A flat shape with 3 sides is always a **triangle**. It also has 3 corners.
b. Flat and round with no corners means the shape is a **circle**.
c. A solid shape that rolls in every direction like a ball is a **sphere**. A cylinder can roll too, but only one way, and it is not like a ball.
d. A solid with 6 faces that are all squares is a **cube**. A cuboid also has 6 faces, but some of them are rectangles.

Answer to Question 6

a. The pattern is circle, square, circle, square, circle... The next shape is a **square**.
b. The pattern is triangle, square, triangle, square, triangle... The next shape is a **square**.
c. The pattern is circle, circle, triangle, circle, circle... The next shape is a **triangle**.

Answer to Question 7

a. Each face of a cube has 4 equal sides and 4 square corners, so you would see a **square**.
b. Stand a cylinder (like a tin of beans) on the table and trace round the bottom: you draw a **circle**.
c. The flat bottom of a cone is round, so it is a **circle**. The rest of the cone is curved and goes up to a point.
d. The pyramid in this lesson stands on a base with 4 equal sides, so the base is a **square**. Its other faces are triangles.

Answer to Question 8

a. A cylinder has two circle faces and one curved side. The **tin of beans** has exactly this shape.
b. A ball is a sphere. In the table the sphere is the **ball of pasta dough**.
c. A clock face is flat and round with no corners, so it is a **circle**.
d. The tin is a cylinder. The flat top of every cylinder is round, so the top of the tin is a **circle**.

Answer to Question 9

a. 2 + 1 + 1 + 3 = **7** shapes.
b. The **cone** is best on top, with its pointed top.
c. The **cylinder** rolls on its side.
d. Cubes and cuboids have flat faces only: 2 + 3 = **5** shapes.

Answer to Question 10

a. A **circle**.
b. A **square**.
c. 4 shapes with 3 prints each: 3 + 3 + 3 + 3 = **12** prints.
d. 12 + 2 = **14** prints.

Answer to Question 11

a. A circle is the only flat shape with no corners. The roundabout is round, so the answer is the **circle** (the roundabout).
b. The sandpit is a square. Count the sides of a square: 1, 2, 3, 4. The sandpit has **4** sides, all the same length.
c. The question tells us the roof of the little house is a triangle shape, so it is a **triangle** with 3 sides and 3 corners.
d. A football is round all over and rolls in every direction, so it is a **sphere**.

Answer to Question 12

a. Only the circles: **3**.
b. 2 + 2 + 1 = **5**.
c. 3 + 5 = **8**.
d. Half of 8 is 4. 5 is more than 4. **Yes**, he is right.

Answer to Question 13

a. The sign is shaped like a cone: a circle at one end and a point at the other. It is a **cone**.
b. The boxes of sprinkles have 6 square faces, so they are **cubes**.
c. Each tub has a circle at the top and the bottom and a curved side, so it is a **cylinder**.
d. Each scoop of ice cream is a ball, and a ball is a sphere. So every one of the 7 scoops is a sphere: the answer is **7** scoops.

Answer to Question 14

a. The question says the bottom of the pyramid is a square, so the base is a **square** with 4 equal sides.
b. There is one triangle face on each side of the square base. The square has 4 sides, so there are **4** triangle faces.
c. Add the faces: 4 triangle faces + 1 square base = **5** faces in all.
d. The 4 triangle faces meet at 1 point at the top, and the square base has 4 corners. 1 + 4 = **5** vertices.

Answer to Question 15

a. Flat with 4 sides that are all the same length: this is a **square**.
b. Flat with 4 sides, two long and two short, is a **rectangle**.
c. A solid with 2 flat circle faces and 1 curved face, like a tin, is a **cylinder**.
d. A solid with 1 flat face, 1 curved face and 1 point at the top is a **cone**.

Answer to Question 16

a. After a triangle the pattern starts again, so the 7th shape is a **circle**.
b. The 8th shape is a **square**.
c. The 9th shape is a **triangle**.
d. 12 shapes make 4 repeats. Each repeat has 1 circle. **4** circles.

Answer to Question 17

a. Count the corners of a triangle: 1, 2, 3. The triangle has **3** corners.
b. A square has 4 corners and a rectangle has 4 corners. Together that is 4 + 4 = **8** corners.
c. Add the triangle, the square and rectangle, and the circle: 3 + 8 + 0 = **11** corners. The circle adds nothing because it has no corners.
d. The new triangle brings 3 more corners: 11 + 3 = **14** corners altogether.

Answer to Question 18

a. **6** squares.
b. 6, 12, then 18 is too many. She can make **2** cubes.
c. 2 cubes use 12 squares. 15 − 12 = **3** squares left.
d. 3 cubes need 6 + 6 + 6 = **18** squares.

Answer to Question 19

a. 6 + 8 = **14**.
b. 2 × 14 = 14 + 14 = **28**.
c. A cube has 8 and a pyramid has 5. The **cube** has more.
d. 8 − 5 = **3** more.

Answer to Question 20

a. Try 2 squares and 1 triangle: 4 + 4 + 3 = 11. No. Try 1 square and 2 triangles: 4 + 3 + 3 = 10. Yes. So there is **1** square.
b. There are **2** triangles.
c. 4 + 3 + 3 = **10** corners. Correct.
d. 3 squares make 12, 3 triangles make 9, 2 squares and 1 triangle make 11. Only 1 square and 2 triangles makes 10. **No**.