Solid Shapes

We see a lot of objects around us with different shapes.

Let us learn about these solid shapes.

Properties of solids :
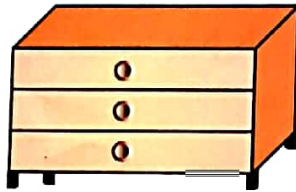
(a) Each side of these solid shapes is a surface and is called **a face** which can be flat or curved.

(b) Two faces always meet at an **edge** which can be straight or curved.

(c) Three edges meet at a point called **vertex**.

1. **Cuboid**

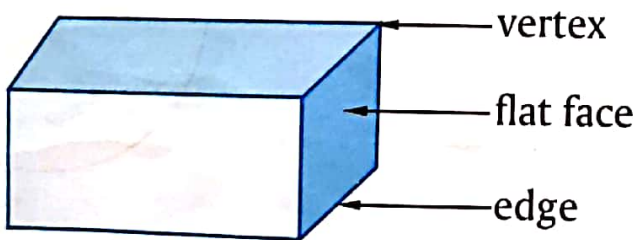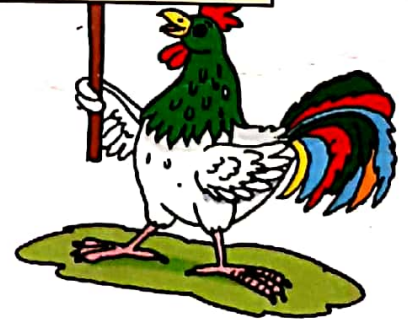   Look at the objects given below :

   | match-box | cupboard | gift | blackboard duster |

   Each of these objects has the shape of a **cuboid**.

   vertex

   flat face

   edge

   Each face of the cuboid is a rectangle.

   Remember : A cuboid has **6** faces, **12** edges and **8** vertices.

Teacher Tip:

The students should be asked to count the faces, edges and vertices using cuboidal shaped objects such as a pencil box or book.

2. Cube

Look at the objects given below :
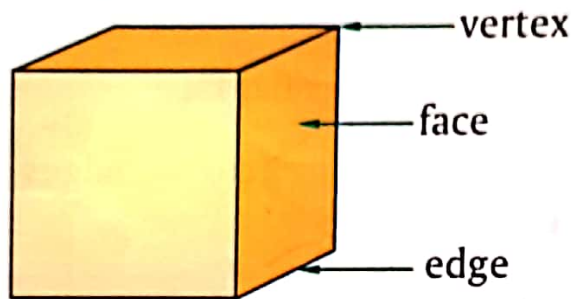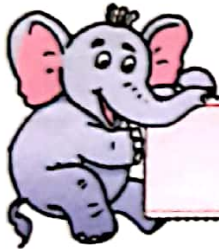

| dice | building block | sugar cube | Rubik's cube |

Each of these objects is a cube.

vertex

face

edge

> Each face of the cube is a square.

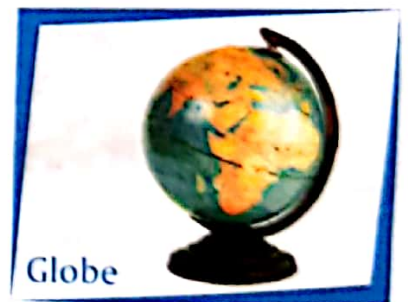**Remember :** A cube has **6** faces, **12** edges and **8** vertices.

3. Sphere

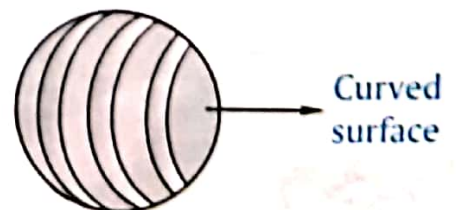Look at the following objects carefully :

Tennis ball

Foot-ball

Globe

Each of these objects is a sphere.

A sphere has only one curved surface.

Curved surface

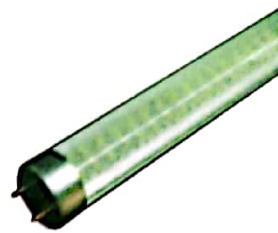**Remember :** A sphere has **1** curved face, **0** edges and **0** vertices.

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4. Cylinder

Some objects are shown below:

coke can	candle	tubelight	straw
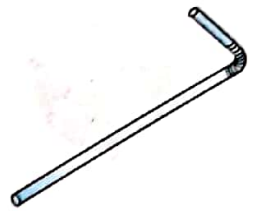
Each of these objects is a cylinder.

flat face

curved face

curved edges
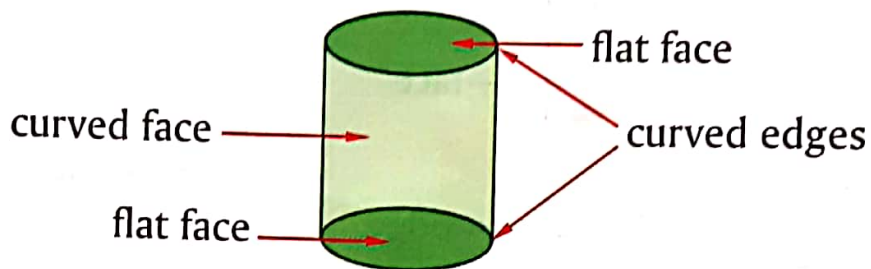
flat face

Remember : A cylinder has 1 curved face, 2 flat faces, 2 curved edges and 0 vertices.

5. Cone

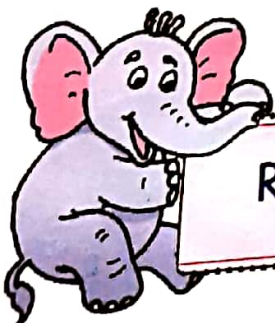| birthday cap	ice-cream cone	funnel

These objects are conical in shape.

vertex

curved face

curved edge
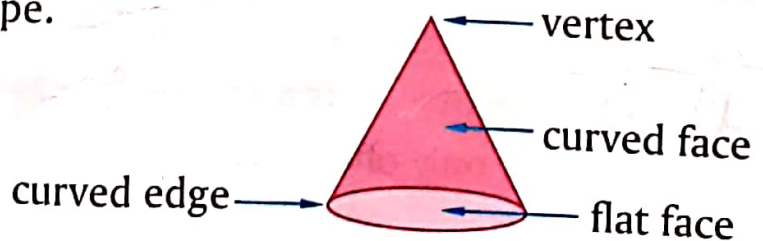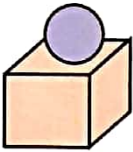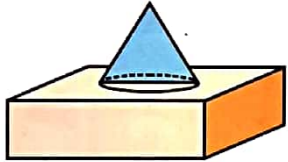
flat face

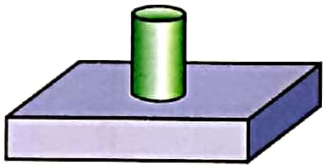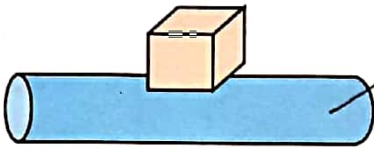**Remember :** A cone has 1 curved face, 1 flat face, 1 curved edge and 1 vertex.

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1. Match the following :

	cylinder and cube
	cuboid and cone
	cuboid and cylinder
	cube and sphere

2. Circle the correct shape of the following objects :

cylinder
(sphere)
cuboid

cube
cylinder
(cone)

(cube)
sphere
cone

cuboid
cone
(cube)

(cylinder)
sphere
cone

cone
cuboid
(sphere)

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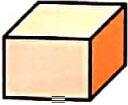
3. Complete the table :

Shape	Faces	Edges	Vertices
sphere	1	0	0
cube	6	12	8
cylinder	3	2	0
cone	2	1	1
cuboid	6	12	8

Fun Time

Try to draw the figure given below without lifting the pencil :

It's easy.
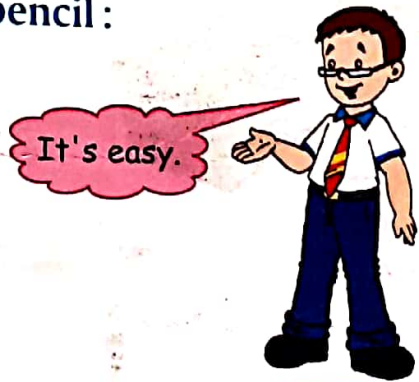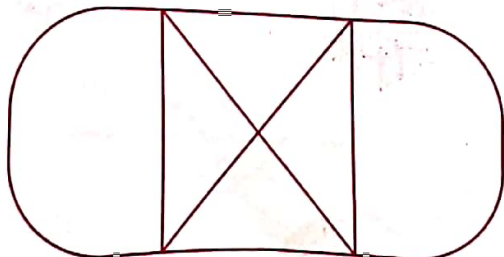
Number of straight lines ☐

Number of curved lines ☐

Objects that Roll and Slide

We have already learnt that solid shapes have curved and flat faces.

1. **Solid shapes with flat faces slide on a slope.**
   Examples :   cuboid and cube.
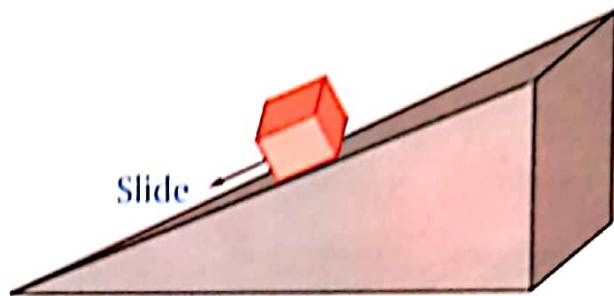
Slide

2. **Solid shapes with curved faces roll on a slope.**
   Example :   sphere.
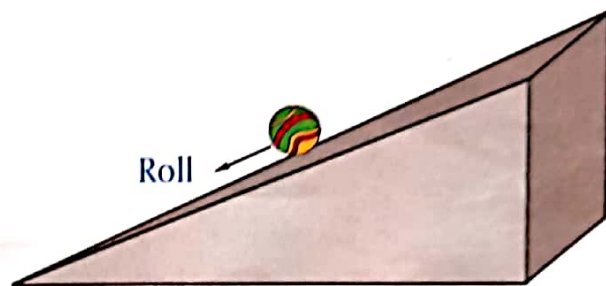
Roll

3. **Solid shapes with both flat and curved faces roll or slide depending on the face.**
   Examples :   cone and cylinder.

Roll

Slide

A cylinder will roll on a .... face.

A cone will slide on a .... face.

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Who am I ?

I have one flat face and one curved face. My flat face is circular in shape. I look like a party hat!

I am a .....*Cone*...............

I have two flat faces and one curved face. My flat faces are circular. I don't have vertices.
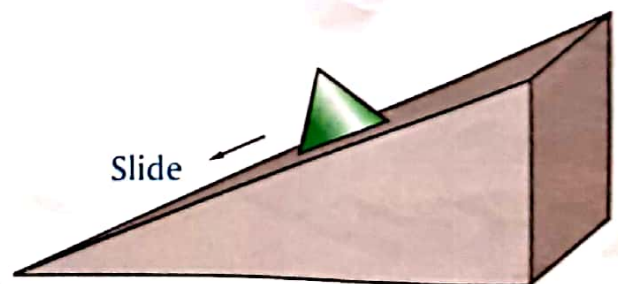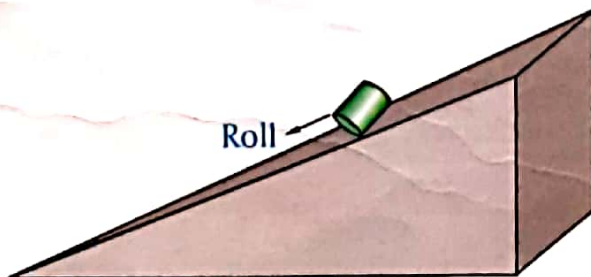
I am a .....*Cylinder*...........

I have 6 flat faces, 12 edges and 8 vertices. All my edges are of the same length.

I am a .....*Cube*...............

I am perfectly round. I don't have flat face and I don't have straight edges.

I am a .....*Sphere*...............

Mental Maths Corner

1. Tick (✓) the correct answer :

   (a) A cuboid has ......12...... edges.

   (i) 8 ☐   (ii) 12 ✓   (iii) 6 ☐

   (b) A sphere has ......1...... curved face

   (i) 1 ✓   (ii) 2 ☐   (iii) 0 ☐

   (c) The name of the shape given in the adjoining figure is

   (i) Square ☐   (ii) Circle ☐   (iii) Cuboid ✓   ☐

2. An example of a cone is ...ice-cream cone.

3. The number of vertices in a rectangle is ...4...... .

4. A cylinder has ...3...... faces.

Review Exercise

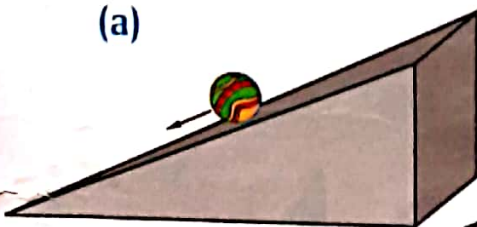1. Complete the statement :

   (a) A cube has ......6...... faces.

   All the faces of a cube are ...Squares...... .

   (b) A cuboid also has ......6...... faces.

   The faces of a cuboid are ...Rectangles... .
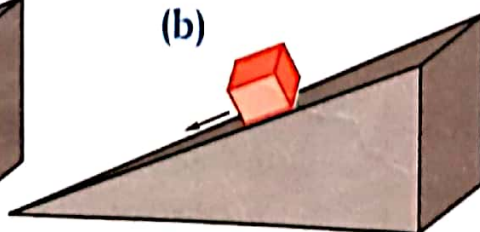
2. Look at the pictures and choose the correct answer :

   (a)
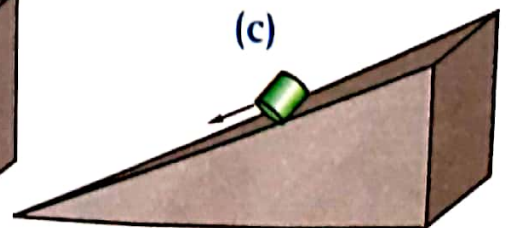
   The sphere will roll/slide

   (b)

   The cube will roll/slide

   (c)

   The cylinder will roll/slide

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