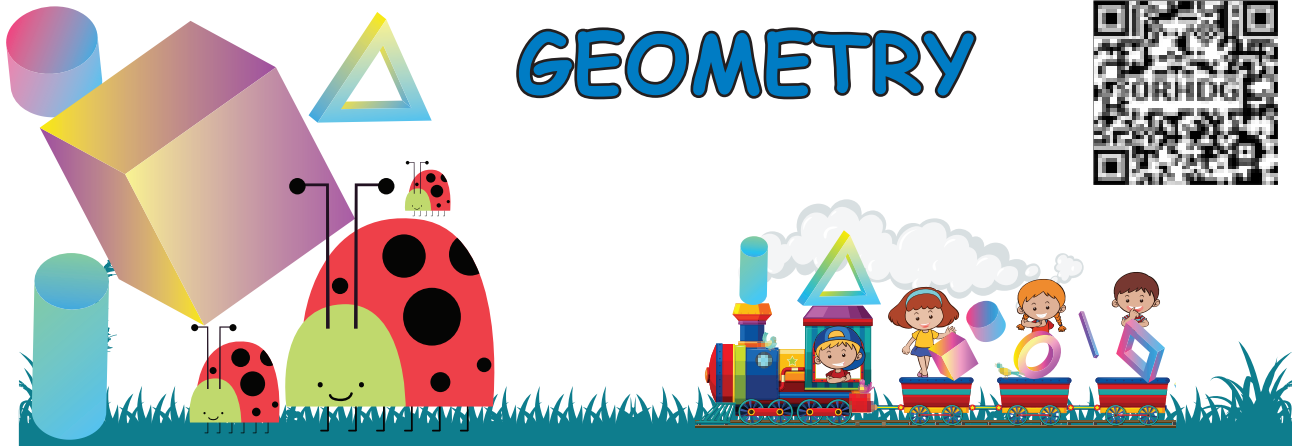
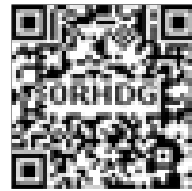


UNIT-1

GEOMETRY



Travel Through

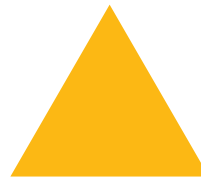
Basic Shapes



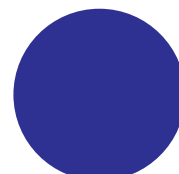
Square



Rectangle

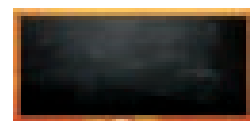
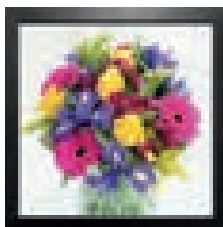
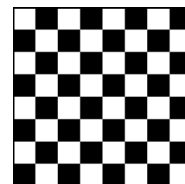


Triangle



Circle

Let us know the shapes of objects around us. Identify the shapes of the objects and Circle the squares with **Red**, rectangles with **Green**, triangles with **Yellow** and circles with **Blue** colours. Connect the objects of similar shapes.



1.1 Construction of 2D shapes



Let us make a square by folding a paper by following the given steps.

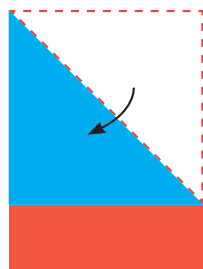
Step 1:

Take a paper



Step 2:

Fold the paper as shown in the figure.



Step 3:

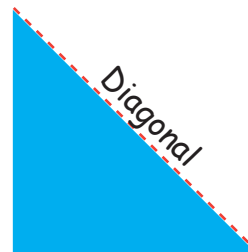
Shade the extra portion in the bottom with red colour. Tear it off and keep it aside.



Step 4: Open up the triangle. What do you observe? You could see a square.

The crease in the middle of the square is called the 'Diagonal of the square'.

You can note that the diagonal divides the square into two triangles.



Try This

Can you find the other diagonal of the square by folding it the other way? If so, how many diagonals can you find for a square?

Observe the number of sides and corners of a square.

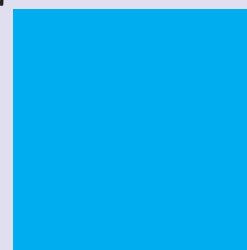
A square has **four** sides, **four** corners and **two** diagonals.



properties of a square

we shall summarise the properties of a square as follows

- Square has four sides.
- All the four sides are equal.
- Square has four corners.
- Square has two diagonals.
- The two diagonals are equal.

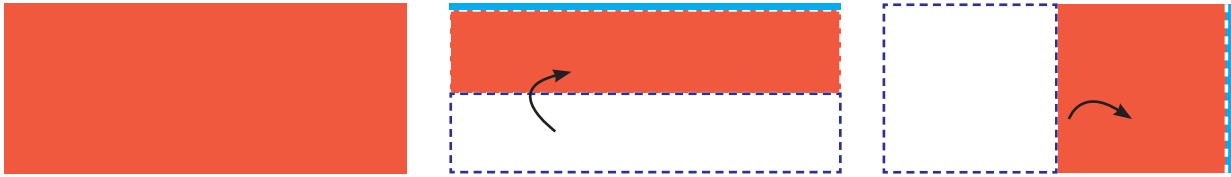


Teacher's note: Teacher can guide the children to do this paper folding activity.

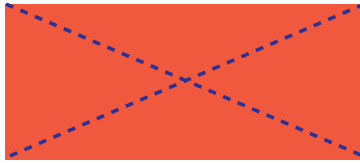


Let us make a rectangle by folding a paper

Take the red coloured piece which was kept aside. Observe its sides. Fold the opposite sides of the rectangle.



What do you observe? The sides coincide. Now we get opposite sides equal. Hence in a rectangle, opposite sides are equal.

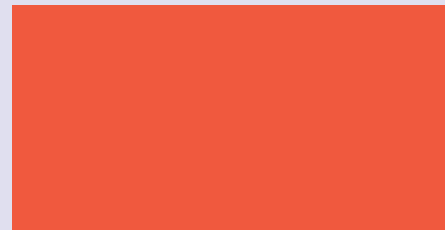


Fold the opposite corners as we did in the square. Observe the crease. It shows the diagonal of the rectangle.

properties of a rectangle

The properties of a rectangle are as follows

- Rectangle has four sides.
- Two opposite sides are equal.
- Rectangle has four corners.
- Rectangle has two diagonals.
- Two diagonals are equal.



Let us make a triangle by folding a paper

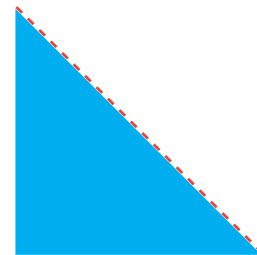
Fold the square along any of these diagonals to form a triangle.

Observe the Sides and corners of the triangle.

A triangle has **three** sides and **three** corners.

Cut the paper and make triangles of different kind.

Observe the length of the sides of the triangle.



Let us know



Isosceles triangle



Equilateral triangle



Scalene triangle



Try This

How many triangles can be made out of this square paper?



Let us draw a circle using pencil and Bangle.

Step 1:

Place a bangle on the paper as shown in figure.



Step 2:

Trace the outline of the bangle with a curved line with the pencil until you reach the starting point, we get a circle.



Properties of a circle

On observing the circle drawn, we shall write the properties of it as follows.

- Circle is a closed curve
- Circle has no sides.
- Circle has no corners.
- Circle has a centre point.



Activity 1

Write the names of few objects in everyday use and mention their geometrical shapes. Example, Paper- Rectangle



Practice

- 1) Triangle has corners.
- 2) Four sides of a square are .
- 3) Circle has sides.
- 4) Rectangle has diagonals.
- 5) Opposite sides of a rectangle are .
- 6) Circle has centre point.

Teacher's note: Facilitate the children to explore the properties of shapes in various aspects.






1.2 Properties of 3D Objects

We can see many things around us have straight lines and curved lines.

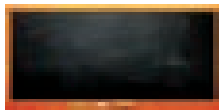


Activity 2

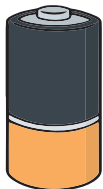
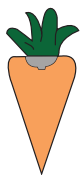
Tick the appropriate boxes to show the lines found in the given objects.

| Objects |  |  |  |  |  |
|---------------|---|---|--|---|---|
| Curved line | | | | | |
| Straight line | | | | | |

Plane Surface: Surface of few objects like walls, floors papers and top of a table are flat. Flat surfaces are otherwise called as plane surfaces or planes. Cubes and cuboids have flat surfaces.




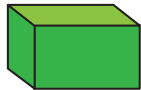



Curved Surface: Surfaces of few objects such as ball, flower vase, pot are curved. Cone, Cylinder and sphere have curved surfaces.



Practice

Tick the appropriate columns.



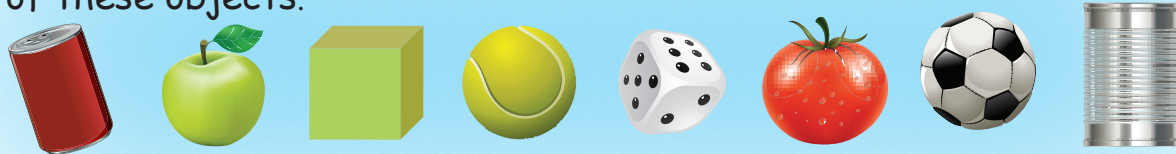
| Shapes |  |  |  |  |  |
|----------------------------------|---|---|--|---|---|
| Plane surface | | | | | |
| Curved surface | | | | | |
| Plane surface and Curved surface | | | | | |

Teacher's note: Teacher can discuss about the types of lines found in objects in everyday use and enable the children to draw them in above tabular column.

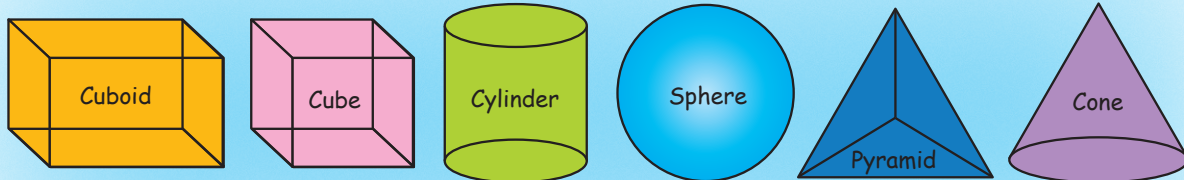
Look at the things around you.



Identify the shapes of the objects. Observe the dimensions of these objects.



3D Shapes



Solid shapes have 3 dimensions namely length, breadth, and height. These are shortly called as 3D shapes.

Let us know






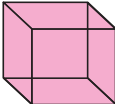
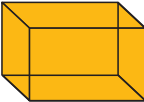
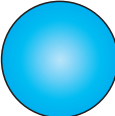
A **Cube** is a solid shape made of squares. It has 6 faces, 12 edges and 8 vertices.
 A **Cuboid** is a solid shape made of rectangles. It has 6 faces, 12 edges and 8 vertices.
 A **Sphere** is a solid shape made of circles. It has 1 face, no edges and no vertex.

Practice

1. Match the following.

| | | |
|--|--|--|
| | | |
| | | |
| | | |
| | | |
| | | |

2. Complete the following table by filling the properties of 2D and 3D shapes.

| S. No | Figure | 2D or 3D | Name of the Shape | Number of sides | Number of edges | Number of corners | Number of diagonals |
|-------|---|----------|-------------------|-----------------|-----------------|-------------------|---------------------|
| 1 |  | 2D | Rectangle | | | | |
| 2 |  | 2D | Traingle | | | | |
| 3 |  | 2D | Circle | | | | |
| 4 |  | 2D | Square | | | | |
| 5 |  | 2D | Traingle | | | | |
| 6 |  | 2D | Rectangle | | | | |
| 7 |  | 3D | Cube | | | | |
| 8 |  | 3D | Cuboid | | | | |
| 9 |  | 3D | Sphere | | | | |

Teacher's note: Teacher shall facilitate the children to draw the front and side views of 3d shapes by providing the objects.

