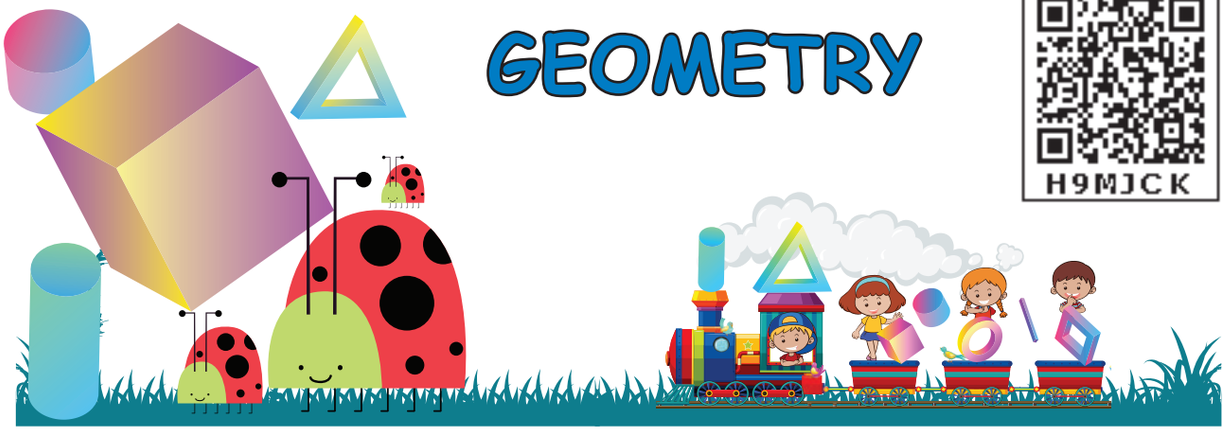
UNIT-1

GEOMETRY



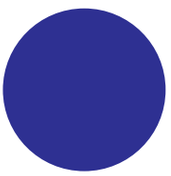
Travel Through

Basic Shapes

Square

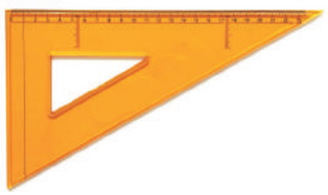
Rectangle

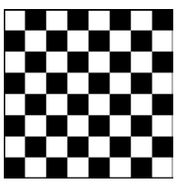
Triangle



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.

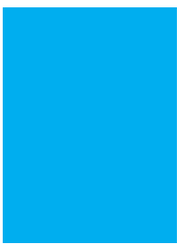




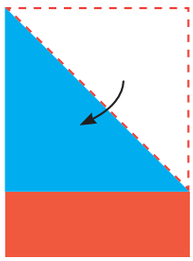
1.1 Construction of 2D shapes

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

Step 1:
Take a paper

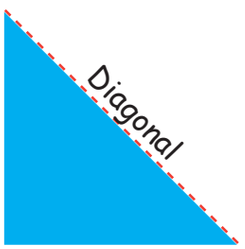


Step 2:
Fold the paper as shown in the figure.



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

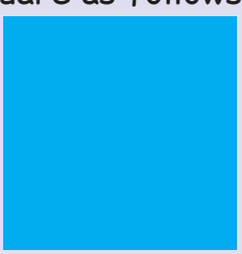
Can you find the other diagonal of the square by folding it the other way? If so, how many diagonals can you find for a square?.

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

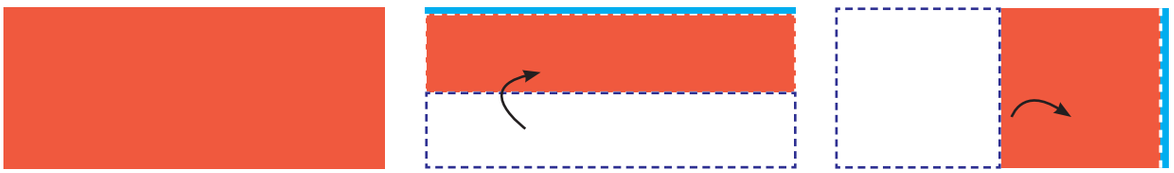
- Square has four sides.
- All the four sides are equal.
- Square has four corners.
- Square has two diagonals.
- The two diagonals are equal.



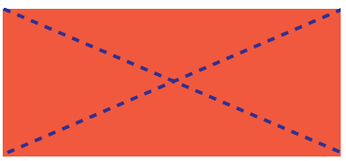
Teacher's note: Teacher can guide the children to do this paper folding activity.

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.

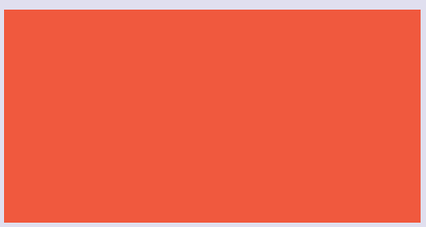


Fold the opposite corners as we did in the square. Observe the crease. It shows the diagonal of the rectangle.

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

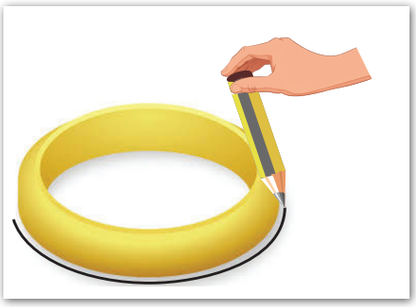
Scalene triangle

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

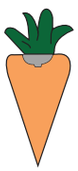
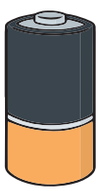
Tick the appropriate boxes to show the lines found in the given objects.

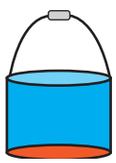
Objects					
Curved line					
Straight line					

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.



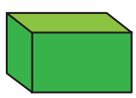

Curved Surface: Surfaces of few objects such as ball, flowerwase, pot are curved. Cone,Cylinder and sphere have curved surfaces.




Practice

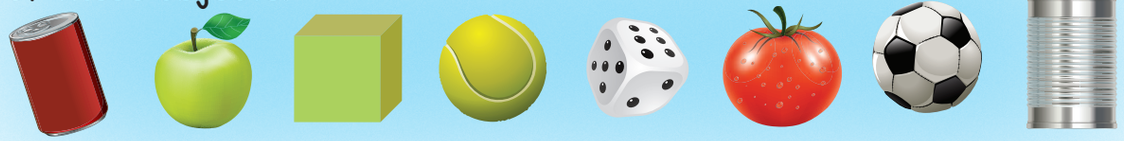
Tick the appropriate columns.

Shapes					
Plane surface					
Curved surface					
Plane surface and Curved surface					

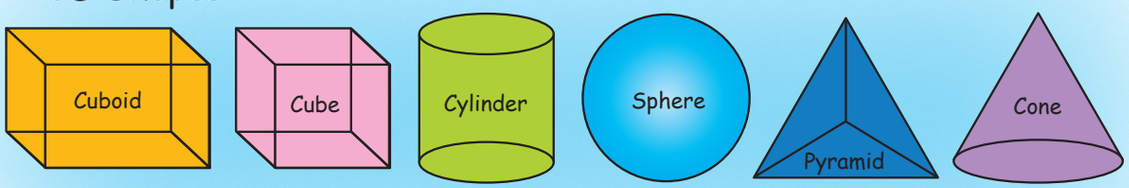
Teacher's note: Teacher can discuss about the types of lines found in objects in everyday use and enable the children to draw them in above tabular column.

Look at the things around you.

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



3D Shapes



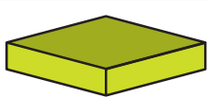
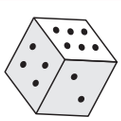
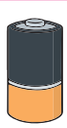
Solid shapes have 3 dimensions namely length, breadth, and height. These are shortly called as 3D shapes.

Let us know

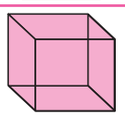
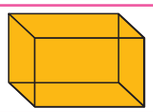
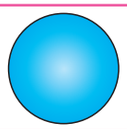
A Cube is a solid shape made of squares. It has 6 faces, 12 edges and 8 vertices.
A Cuboid is a solid shape made of rectangles. It has 6 faces, 12 edges and 8 vertices.
A Sphere is a solid shape made of circles. It has 1 face, no edges and no vertex.

Practice

1. Match the following.

	cone	
	cube	
	cylinder	
	sphere	
	cuboid	

2. Complete the following table by filing 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.

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