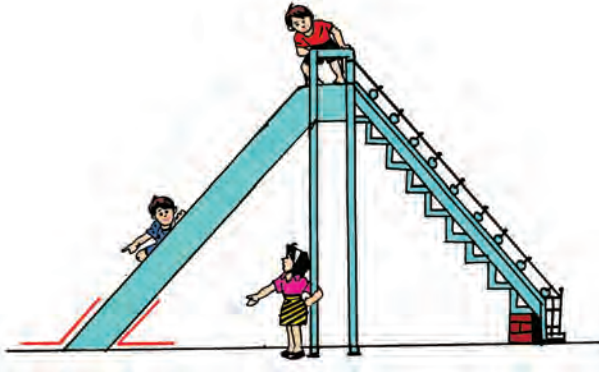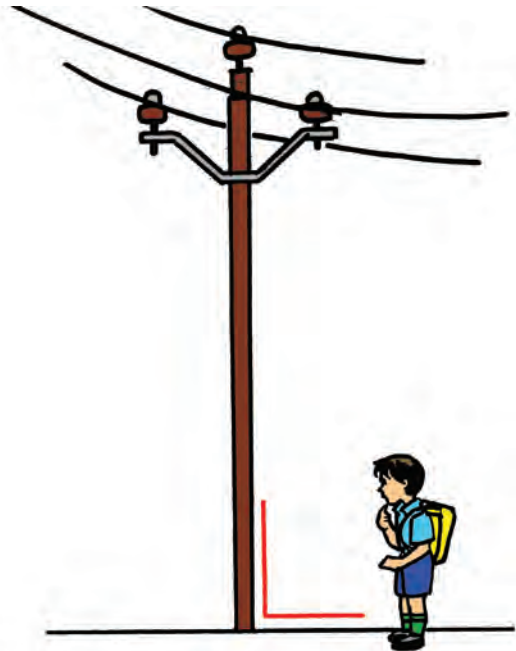# 1. Geometrical Figures

Angles

We see angles between the ground and the slide.

The ladder makes an angle with the ground.

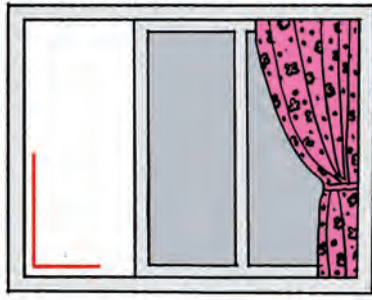We see angles between the tree trunk and its branches.

There is an angle between the electric pole and the ground.

In our surroundings, wherever we see two lines meeting, there is an angle.

◆ **Collect some pictures in which you can see angles. Mark those angles using a pencil.**

◆ **Look at the angles that can be made at your elbow.**

Right angle, acute angle, obtuse angle

We see a right angle between two adjoining sides of a window.

Two adjacent sides of a book make a right angle.

In a clock, at 3 o'clock and 9 o'clock, the minute hand and the hour hand are at right angles to each other.
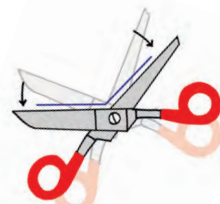
In the picture alongside, there is a **right angle** between the two blades of the scissors.

As we reduce the distance between the tips of the blades, little by little, the angle between the blades grows smaller than a right angle.
An angle which is smaller than a right angle is called an **acute angle**.

But, as we increase the distance between the tips of the blades the angle between the blades grows bigger than a right angle.
An angle that is bigger than a right angle is called an **obtuse angle**.
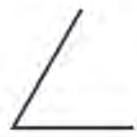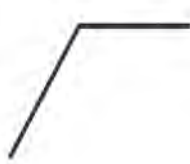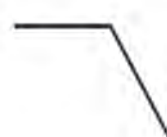
| A right angle | An acute angle | An obtuse angle |

◆ **Observe the figures below and write 'right angle', 'acute angle' or 'obtuse angle' in the box below each figure.**
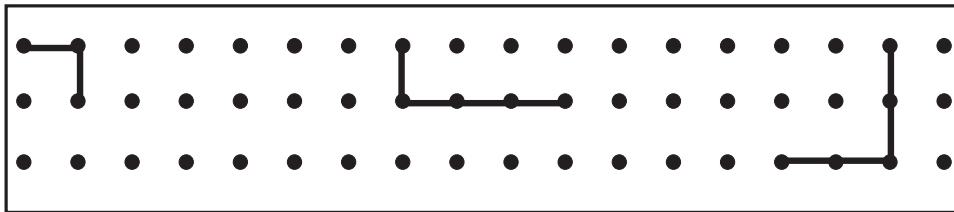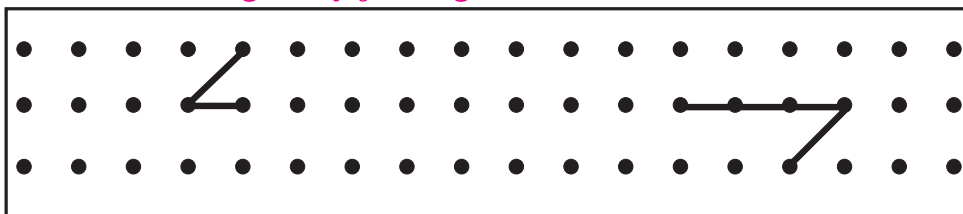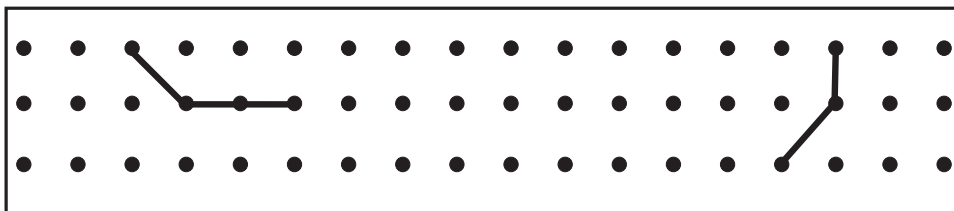
◆ **Make right angles by joining the dots in the box below.**

◆ **Make acute angles by joining the dots.**

◆ **Make obtuse angles by joining the dots.**

◆ **Make a right angle, acute angle and obtuse angle at your elbow. Show these angles to your friends and check theirs.**

◆ **Check! Is this true?**

❖ The angle an electric pole makes with the ground is a right angle.

❖ The slide makes one acute angle and one obtuse angle with the ground.

❖ The ladder makes one acute angle and one obtuse angle with the wall.

❖ The angle between the thorns of the *babul* tree is an obtuse angle.

❖ Leaving the thumb, the angles between any two adjoining fingers is an acute angle.

Activity : Observe in which places in your surroundings you find angles.
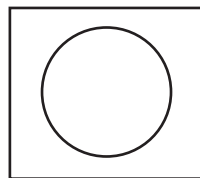Make right angles, acute angles and obtuse angles by folding paper.

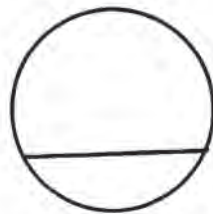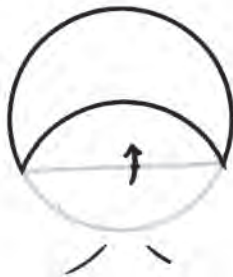**A bangle**   **A bicycle wheel**   **A cart-wheel**

All the above objects are circular.

## Circle : Centre, radius, diameter, chord

Take a small steel bowl. Place it upside down on a piece of paper and trace its outline. Remove the bowl. The figure you get on the piece of paper is a circle.

Draw two or three circles like this one and cut out the circular paper shapes.

Take one of these shapes and fold it as shown in the picture. Trace the line of the fold with a pencil. This line is called a **chord** of the circle.
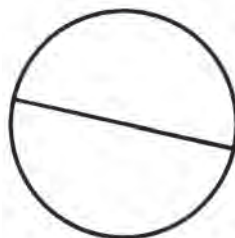
Now fold another circular shape to divide it into two halves. Trace the line of the fold with a pencil. This line is called a **diameter** of the circle.

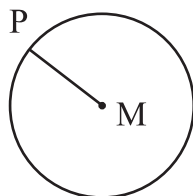The diameter, too, is a chord of the circle.
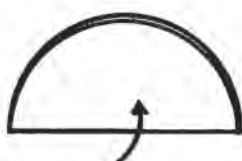
Now fold the shape again so that we get a quarter part of the shape.

Unfold the paper shape. Now, you see the circular shape again. Trace the lines of the folds.

The point at which these lines meet each other is the **centre** of the circle.

Name the centre of the circle, M. Take any point P on the circle. Draw the line MP with your ruler. MP is a **radius** of the circle.

Drawing a circle using a compass

Take a piece of paper. Choose any point near the middle of the paper. Take a suitable distance between the steel tip of the compass and the tip of the pencil. Place the steel tip on the chosen point. Hold it in place and turn the pencil tip around it to trace a circle.
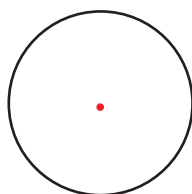
Mark with a red pencil, the point at which you held the steel tip. Now cut out this circle. Fold it twice as before to obtain two diameters of the circle. Observe that these two diameters meet at the red point. It means that the red point is the centre of the circle.
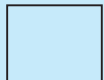
Look at each circle. Is the line shown by the arrow a chord, a diameter or a radius of the circle? Write it in the box below.

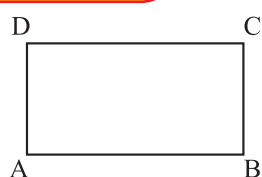|			
Centre			
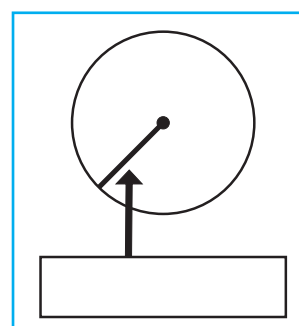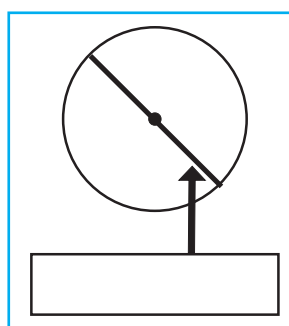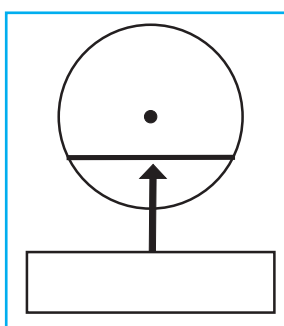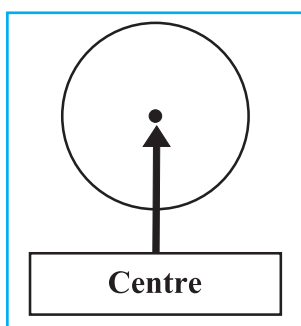
Activity : Draw different circles using things like the lid of a jar, a saucer, a bangle and coins. Find out from your teacher how a circular playing field is marked on the ground.

Geometrical figures : Vertex and side

◆ **Observe the figures and complete the table below.**

Figure			
Name of figure			
Number of sides	Four	....	....
Number of corners	Four	....	....

Rectangle

A rectangle has four edges, that is, four sides. The point where two sides meet is called a **vertex**.
In the figure alongside, A, B, C and D are the vertices.

Here the sides AB, BC, CD, AD are the sides of the rectangle.

The opposite sides of the rectangle are of equal length. All the angles of a rectangle are right angles. A rectangle is also called a right-angled quadrilateral.
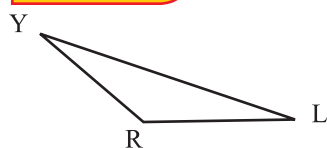
Square

A square has four vertices and four sides.
In the figure alongside, P, M, R and S are the vertices of the square.

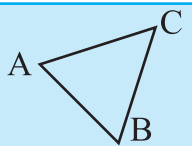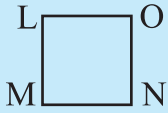All the sides of a square are of equal length and all its angles are right angles.
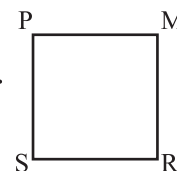
Triangle

A triangle has three vertices and three sides. Y, R and L are the vertices of this triangle. YR, RL and YL are the three sides of the triangle. A triangle has three angles.

◆ **Look at the figures and complete the table below.**

Figure			
Names of sides	Side AB ------- -------	Side PQ ------- ------- -------	Side LM ------- ------- -------
Names of vertices	A, ..., ...	P, ..., ..., ...	L, ..., ..., ...