

# 08 - DIRECTIONS

Let us go to the school garden and start the lesson with an activity.



## Activity 8.1

The lesson for today is about directions.

Stretch your right hand to the direction of sun rising and your left hand to the direction of sun setting. Here you will identify that the sun rises in the East and sun sets from the West.



## Activity 8.2

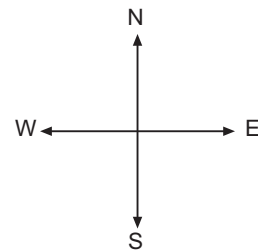
Now stand facing the East and stretch your hands. Now your right hand points towards the South and your left points towards the North.



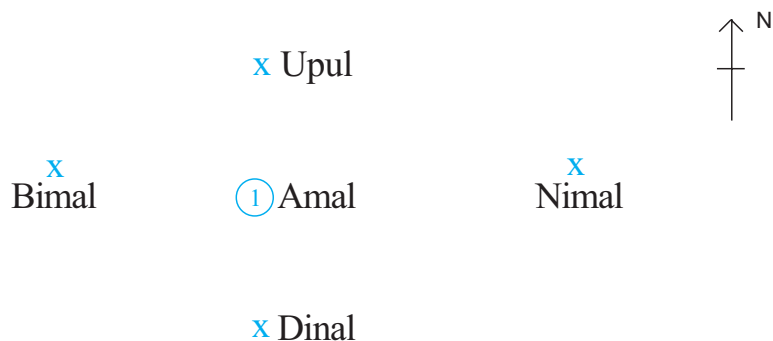
## Activity 8.3

Now you have identified the four main directions.

1. Place a student facing North.
2. Ask another student to stand in front and another student to stand behind the first student.
3. Ask another student to stand on the right side and another to stand on the left side of the first student.



You would see that the students would be standing as shown below.



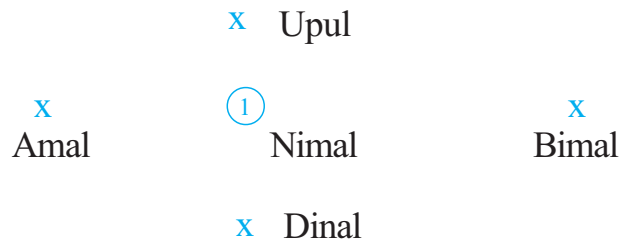
Fill in the blanks of each of the following statements.

1. The arrow shown above is pointed to the .....
2. Nimal stands .....of Amal.
3. ....stands South of Amal.
4. ....stands North of Amal.
5. ....stands West of Amal.

Observe the directions Upul, Bimal, Dinal and Amal are standing with respect to Nimal.



#### Activity 8.4



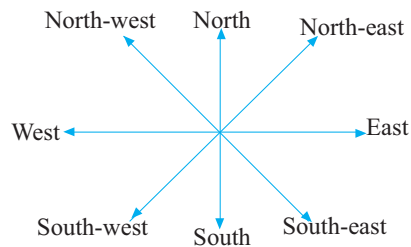
Let Nimal face North. Ask Upul to stand in front. Dinal behind, Bimal on the right, and Amal on the left of Nimal.

Now write the names of students who are in the North, the South, the East and the West of Nimal.

Draw a diagram to show the positions of the students and indicate North with an arrow. When you examine a map or a plan, you will notice that the North is shown by an arrow.

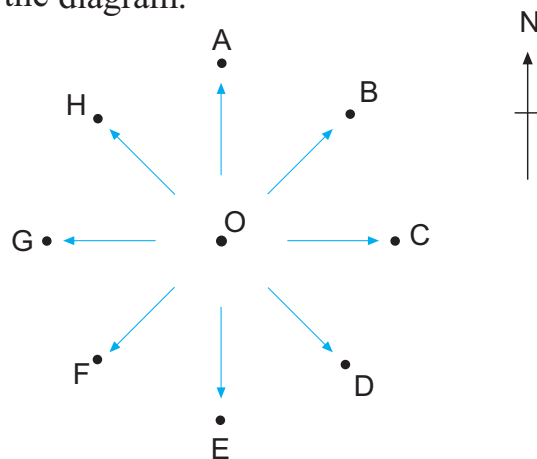
### Sub Directions:

In addition to four main directions, there are four sub directions.



#### Activity 8.5

Let 'O', 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H' represent nine students who stand as shown in the diagram.



Let us find in what direction are the students 'D', 'B', 'H', 'F' in relation to student 'O'.  
Identify that 'B' is standing North-east of 'O'.  
'D' is standing South-east of 'O', 'F' is standing South-west of 'O'.  
'H' is standing North-west of 'O'.

**The main directions and sub directions are together called the “Eight Directions”.**

Write in your exercise book, 4 main places in the 4 main directions from your school office. Also write 4 places in the four sub directions. Draw a diagram which indicates all these places based on the school office.

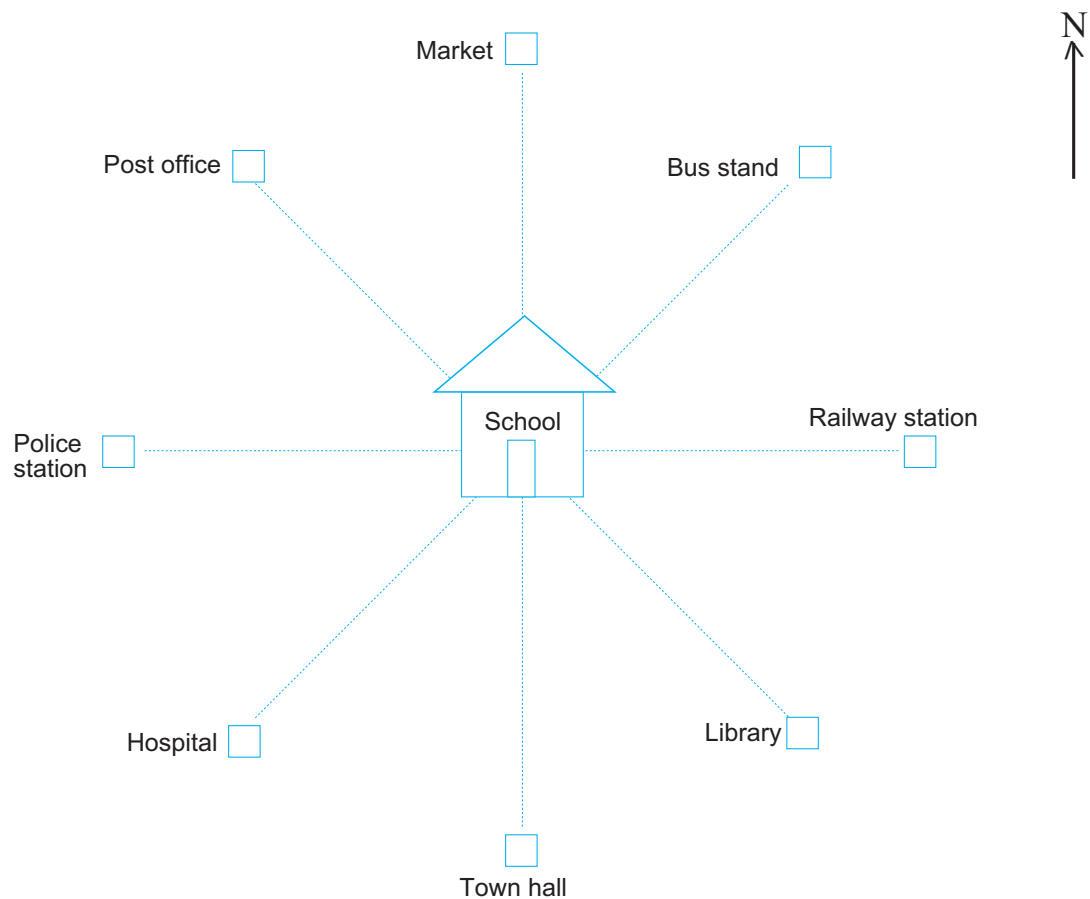
**Assignment 8.1**

1. Obtain a map of Sri Lanka. Write the names of the towns situated in all main directions and sub directions assuming Kandy as centre.

Example: Balangoda town is situated South of Kandy.

**Exercise 8.1**

1.



- (i) In which direction is the town hall situated from school?
  - (ii) What is situated to the West of the school?
  - (iii) In which direction is the post office situated from the school?
  - (iv) In which direction is the school situated from the library?
  - (v) In which direction is the bus stand situated from the hospital?
  - (vi) What are the places situated to the West of the railway station?
  - (vii) What is situated in the South-east of the market?
2. (i) Write the letter "X" in the middle cage of a page in a square ruled exercise book.
- (ii) Write the digit 1 in the fourth cage to the East of the letter "X". Write digit 2 in the fourth cage to the North from 1. Write the digit 3 in the fourth cage to the East from 2. Write the digit 4 in the fourth cage to the South from 3.

Now, in which direction is 4 situated from 'X' ?

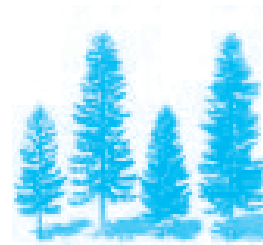
	2	3
X	1	4

## Vertical and Horizontal Concepts.



### Activity 8.6

The trees you see here are a kind of pine trees. These trees grow in coniferous forests in the cool temperate climate. They grow straight upwards.



Also you must have seen masons using a plumb-line when they build walls of houses. They, as well as we know if walls are not built straight upwards there are possibilities of the walls collapsing. We use the plumb-line to check whether something is **vertical**.



An improvised plumb-line can be made by tying a hard piece of string to a weight. This weight may be a piece of stone with a regular shape. The picture shows a pupil holding an improvised plumb-line with his hand. The flag staff in the picture is planted vertical.



There are volleyball courts, netball courts, and tennis courts in schools. The grounds of these courts are flat. Also

the playground of the school too is flat. The property of this flatness is termed as **horizontal**. The floors of buildings are horizontal.

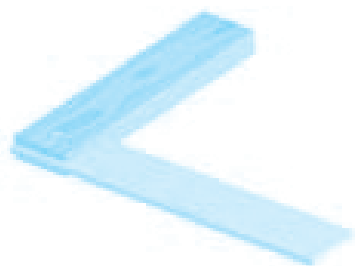
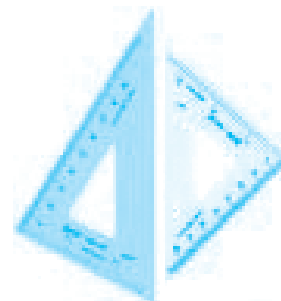
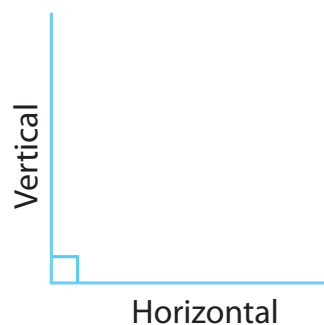
We can draw horizontal lines. We can draw vertical lines as well. See the diagram.

At a point where a vertical straight line meets a horizontal straight line, an angle of  $90^\circ$  is formed.

In your box of instruments you will find two instruments called set squares. See the diagram. Talk to your teacher and find out information about them, length of sides and magnitudes of angles.

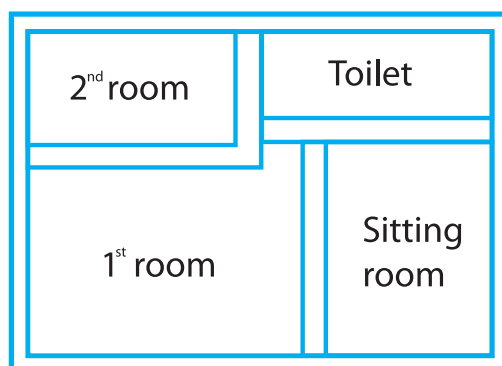
Carpenters and masons too need an instrument of this nature for their construction work. You can see a diagram of that

instrument here. The instrument is called a **Try square**. One blade of a **Try square** is vertical and the other is horizontal. Therefore the angle between them is a right angle. This instrument helps us to check whether a wall is built vertical to a horizontal floor. That is checking whether the angle in between the vertical and the horizontal is a right angle.



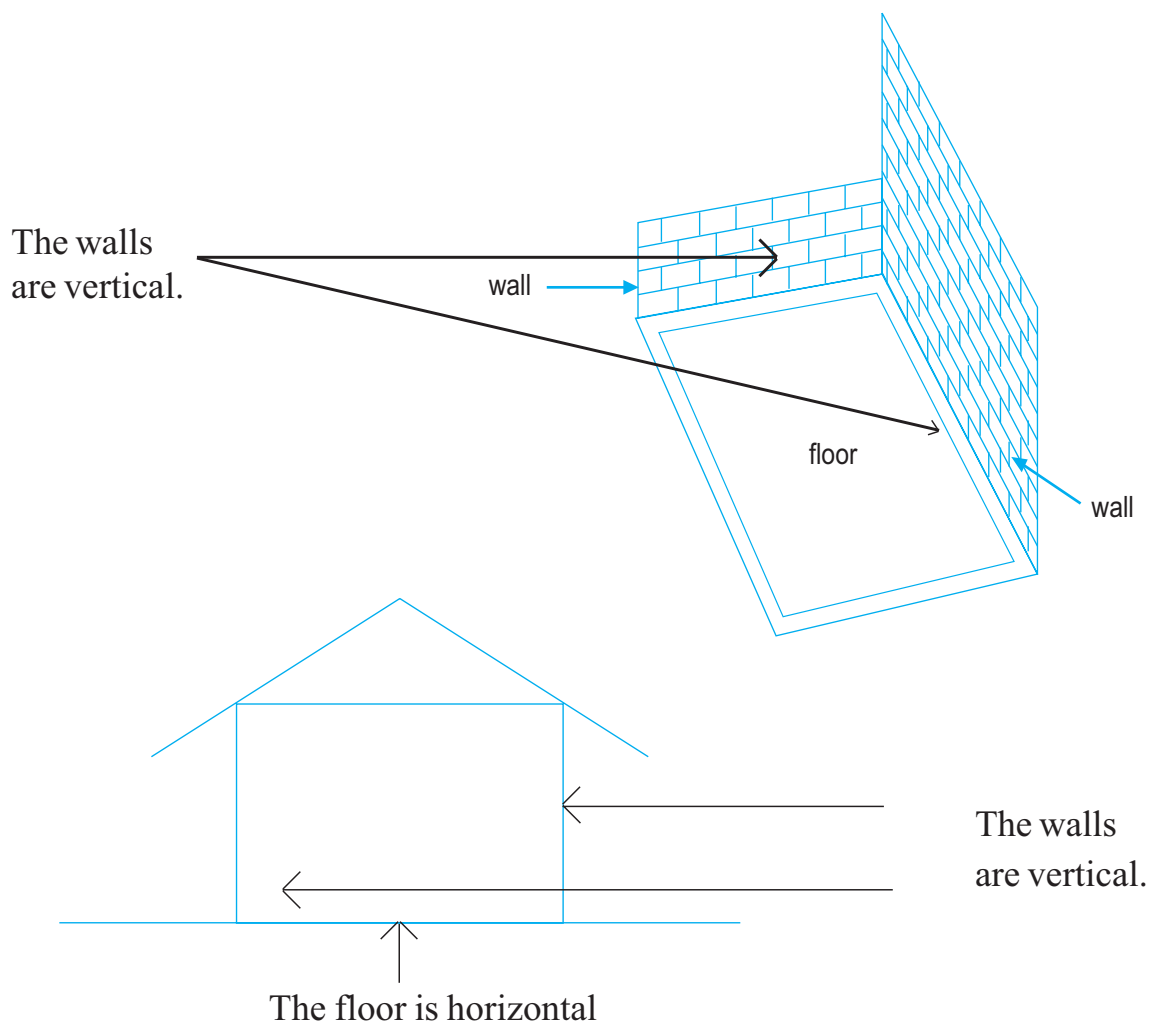
↑  
**A Try Square**

The first step to be taken in building a house is to construct the foundation as in the following diagram.



← The foundation is horizontal.

The foundation, which is on the ground, is said to be horizontal. Now let us observe how walls are constructed on the foundation.



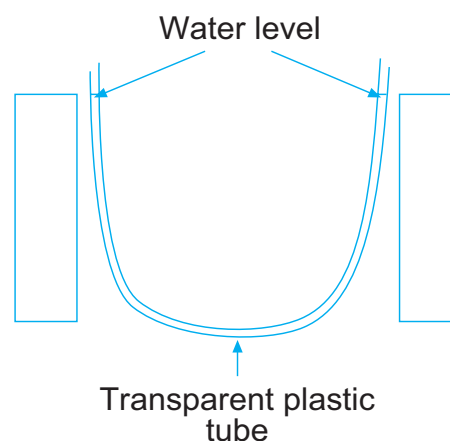
Draw a diagram of a house and show the floor and walls showing the length, the breadth and the height .



### Activity 8.7

1. In an earlier lesson you have identified a rectangle. Get a piece of card board or a piece of wooden plank having right angles and place its corner with the right angle between the wall and the floor of the class room and verify whether the wall and the floor are at right angles.
2. Find out more vertical and horizontal places like this. In the classroom, when two vertical walls meet, a vertical edge is formed. The edge formed in between the cement floor and a vertical wall is a horizontal edge.

Have you seen instances when masons use an instrument like the one shown in the diagram to check whether two walls placed fairly apart are in the same level.



### **Activity 8.8**

Fill water into a transparent bottle in full and remove a little water from it so that an air bubble is made inside. Close it tightly.

Now place the bottle on the classroom floor horizontally as shown in the diagram.

Mark the position of the air bubble.

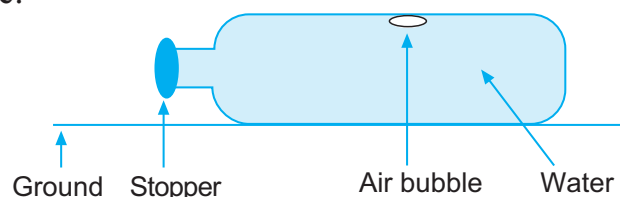
Now lift the bottle from the lid side slightly.

What happens to the air bubble?

Raise the bottom side of the bottle slightly.

Examine the position of the bubble.

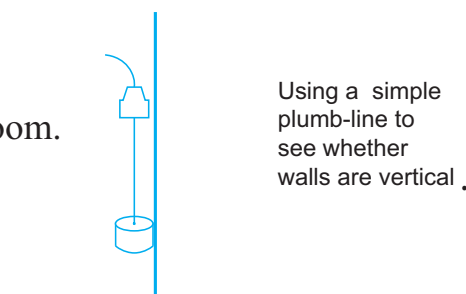
Discuss with other students the position of the air bubble when placed horizontally and otherwise.



### **Activity 8.9**

Make an improvised plumb-line in the classroom.

Use it and examine whether the walls, table legs, surfaces of the classroom cupboard etc. are vertical.



### **Exercise 8.1**

1. Write 4 objects at home or in the classroom that are vertical.
2. Write 4 things that are horizontal.
3. Keep a box on the table and observe it.
  - (i) How many vertical planes of the box are seen?
  - (ii) How many horizontal planes of the box are seen?

- (iii) How many vertical edges are seen?
- (iv) How many horizontal edges are seen?
- 4. Stand in the classroom. Can you raise your hands so that they are vertical?
- 5. Can you change the position of the hands so that they are horizontal?
- 6. Are there planes that are not vertical in the environment? Write 2 examples.
- 7. Are there planes that are not horizontal in the environment? Write 2 examples.
- 8. Is the surface of a water in a reservoir horizontal, when the water is still?

### Additional Exercises

Draw diagrams to illustrate the information given in questions 1 and 2.

1. The gate is situated to the North of Shantha's house. To the East of the house there is a tree full of flowers and to the South there is a well. In the North-west of the house there is a firewood shed. Mallika's house is to the West of Shantha's house.
2. Hemantha cycles 5km to the North and then turns to the East and cycles 2km. He then cycles 3km to the North-east and turns to the South and cycles 1km to reach his uncle's house.
3. Find what is horizontal / vertical out of the following.
  - The surface of the door in a house.
  - Planted electricity wire posts.
  - The floor of the classroom.
  - The top surface of the teacher's table.
  - The seating part of the teacher's chair.
  - The surfaces of the walls of the school building.

### Summary

- \* **The main directions are North, East, South and West.**
- \* **The sub directions are North-east, South-east, South-west and North-west.**
- \* **The eight directions are the four main directions and the four sub directions.**
- \* **A right angle is formed at a point where a vertical straight line and a horizontal straight line meet.**