9. Maps – our Companions

The land in our environment is not of the same height everywhere. This unevenness gives rise to various land shapes creating different landforms such as mountains, valleys, plateaus, plains and islands. You have studied this in the third chapter.

For a proper understanding of our environment, it is necessary to study the physical or natural set-up of the land.

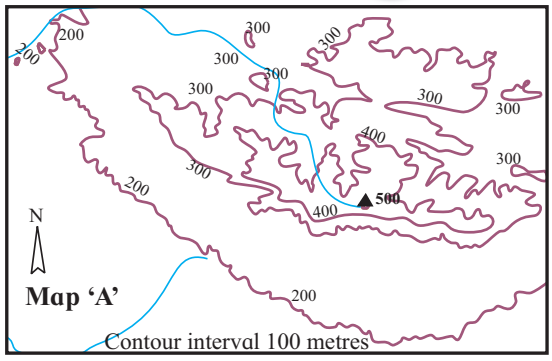
In Standard IV, when we learnt about maps, we saw a 5000-year-old map. This means that man has felt the need to make maps since ancient times. At that time, maps were mainly used in wars. While fighting a battle, it is important to have detailed knowledge of the terrain. It helps in working out strategies of defeating the enemy. Maps were very useful for this purpose.

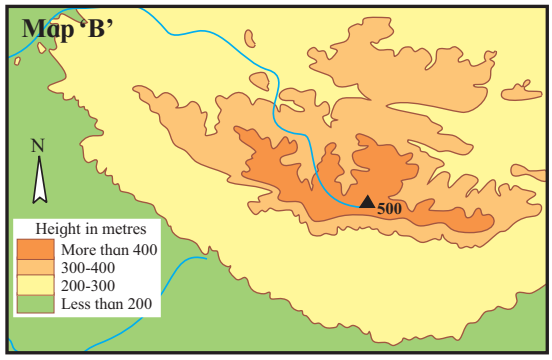
Taking into account the differences in their height, shape, etc., various landforms can be shown on a map.There are different methods of showing these landforms on a map. Let us look at these methods.

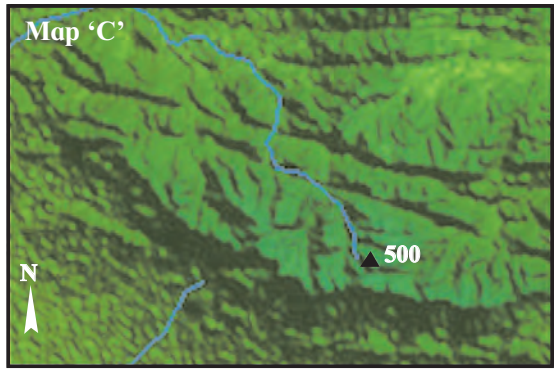
Try this.

You are going to a fort for your school trip. You travel by bus to a certain point and then get off. The fort is on a hill. To reach the fort, you have to cross another hill and also a valley. Show the two hills and the valley in the blank box given on this page. How will you show that the valley is deep and the mountain is high?

Can you tell?







Study the maps shown above. All three maps show the same area, but they look different. Study the maps and answer the following questions.

- In map A, how has the height of the land been shown?

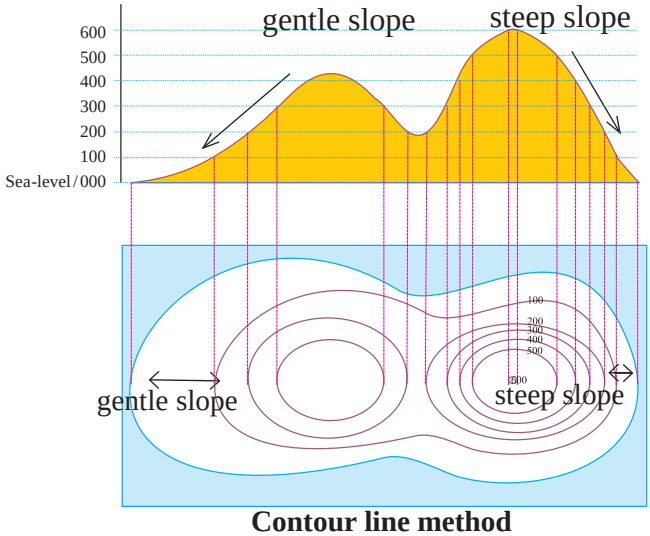
- Why have colours been used in map B?
- How is map C different from the other two maps?
- In which direction is the highest point in maps A, B and C?
- In which map can the landforms be seen most clearly?

The length and width of a landform can be easily shown on a piece of paper. However, the height and depth cannot be shown as easily. There are different methods of showing the elevation or height of the land.

(1) Contour line method
(2) Layer tinting method
(3) Digital elevation model

(1) Contour line method: This method is used to show the unevenness of landforms on a map. The height of the land is measured from sea-level. Next, points of the same height are identified. Their position is marked accurately on the map. These locations are joined with a line. Such lines are called contour lines. See map A. In the map, lines are drawn, each joining places of a specific height. This way, the relief of the land can be easily shown. It helps us to understand the slope of the land and the height of different places.

Cross section of a hill



Contour line method

Observe the given diagram. Note that when there is less distance between the contour lines, the slope is steep whereas if the distance is great, the slope is gentle.

(2) Layer tinting method : This method is based on contour lines. In this method, the spaces between contour lines are filled with colour. Each colour indicates a specific height. For example, water bodies are coloured blue, whereas the adjoining land is coloured dark green. Land higher than that is coloured a light green, next higher land is coloured yellow, and so on.

Study the given colour index. Note how the colours change with the height. The colours between the contour lines show up the difference in the physical set-up. See map B.

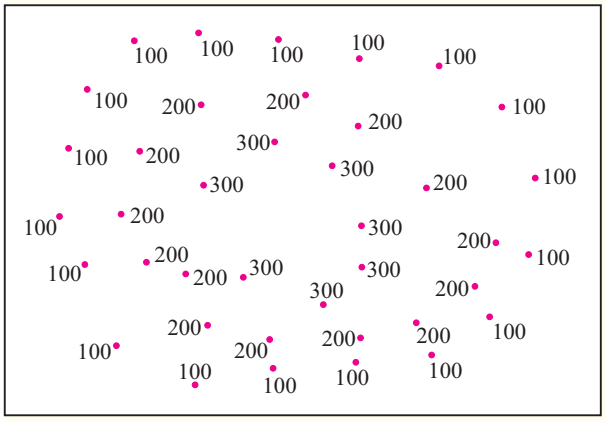
Height in metres
More than 4880
3660 to 4880
1380 to3660
600 to 1380
300 to 600
150 to 300
75 to 150
0 to 75
0 to -75
-75 to -150
Less than-150

(3) Digital elevation model : This is the most modern method. In this, the information obtained through man-made satellites is presented with the help of computers. See map C. In it, we can directly observe the differences in the height of landforms.

Maps made using the above methods help us to understand the physical set-up of a region. In other words, they give us an idea of its height, relief and slope. Using computers, we can even find the height of each point on a digital map.

Physical maps can be used in military operations, tourism, drawing up mountaineering routes, in making regional development plans, etc.

Use your brain power!



Places of different heights are shown in the above box. Find and join the dots that show places of the same height. What method of showing the landforms on a map have you used here? Write the answer in the box below.

Do you know?

Nowadays, many modern methods of making maps have been developed. Previously, relief was shown using the 'hill shading' technique. The map given below is an example of this.

Use your brain power!

A map made by the layer tinting method is given in another chapter. Find the map and write its caption in the blank box below.

Try this.

- Make an outline map showing various places in your neighbourhood or school.
- Exchange your outline maps with those of your friends.
- Make lists of what you understand and do not understand in your friends' maps.
- Discuss these things with one another.

Think about why you did not understand some of the things your friends had shown in their maps.

Many people use maps. Many components are shown in maps or outline maps. If these components are shown on different maps in different ways, it will be difficult to understand them. Therefore, standard signs and symbols are used to make the map easy to read. These symbols and signs are universally used for specific components. That is why, everyone can understand them.

Conventional signs : Signs are used to show various things on a map as per convention. These are in the form of letters or geometrical shapes, for example, lines, circles, triangles, dots, etc.

Conventional symbols : Symbols are used to show various things on a map as per convention. Symbols are miniature drawings of the respective objects. For example, temples, mosques, forts, etc.

The use of signs and symbols in a map helps the reader to get exact information about the places on the map. A list of the things that the signs and symbols represent is given in the key to the map.

Can you tell?

Identify the following signs and symbols and write their names in the boxes.

Study the list of some of the symbols used by the Survey of India while making maps.

PO — Post Office

Harbour

Lighthouse

Fort

Burial ground

International boundary line

1967 — Battlefield

Railway

Well

Spring

△200 — Triangulation mark

Settlement

Grass

500 — Contour line

Lake

Road

Mine

RF — Reserved forests

Do you know?

The 'Survey of India' is the foremost mapmaking institute in India. It was established in 1767. This institute has made a large number of topographic maps of the Indian subcontinent on various scales by conducting field surveys. These maps are known the world over for their accuracy. The institute's headquarters are in Dehradun in Uttarakhand.