

Instructions-Parents, your ward must read the topics carefully and then answer the following questions.

Note-For further details the child should refer to the internet.

Chapter 1-Representation of Geographical Features

Geography is the study of inter- relationship between the physical features on the earth's surface and human activities. Geography has its own devices and tools such as globes, maps, models, charts, diagrams and photographs to study about the earth. We have already learnt about some of these tools in Book 6.Let us learn how the different physical and cultural features and the scale are represented in topographical maps.

The Survey of India makes large –scale maps based on actual survey of land. These maps are called topographical maps or topo sheets. They show the details about landforms, drainage patterns, land use, settlement patterns, transport, forest and cultural features.

The Survey of India makes the topo sheets on different scales such as 1:25,000, 1: 50,000 and 1:2,50,000. Previously these topo sheets were made on the scale of 1 inch : 1 mile. Now they have been modified and fully updated on the scale of 1: 50,000 for the whole country.

Most of the maps have a network of parallels (lines of latitudes) and meridians (lines of longitudes).This network forms a **grid** on the map. The grid is useful to find the correct location of a place on the earth.

On a topo sheet, it is difficult to calculate the exact latitude and longitude of a place. To solve this problem, a set of vertical and horizontal lines are drawn in red. These lines also form a grid and a network of squares. This is called the **arbitrary grid system**.

Scale

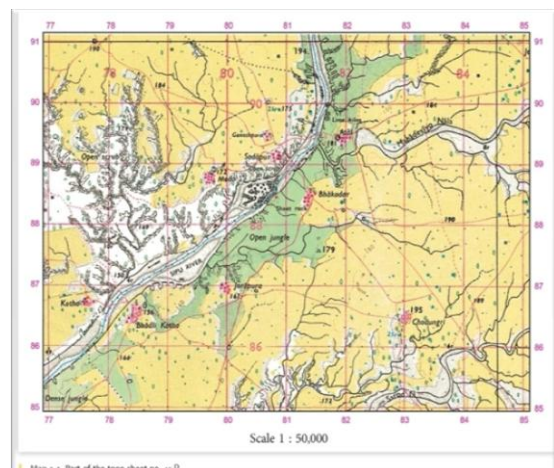
In India, we follow the metric system in which long distances are measured in kilometers (km)and short distances in metres(m).The distance between any two points on a map is measured in centimeter (cm)

*The distance between any two points on a map, measured along a straight line, is called the map distance.

*The distance between the same two places on the ground, measured along a straight line, is called the ground distance.

*The ratio between the map distance and the ground distance is called the scale of the map.

For example, if the distance between any two points on a map is 2 cm and the distance between the same two points on the ground is 5 km, then the scale of the map is 2 cm : 5 km.



There are three ways in which the scale can be shown on a map. They are:

- * By a statement
- *By a representative fraction
- *By a graphic or linear scale

By a statement

In the statement method, the scale is expressed in words such as two centimeters is to five kilometers or 2 cm : 5 km. In this statement, 2 cm is the map distance and 5 km is the ground distance. This is a quick and easy method of using the scale to measure distances. However, it has two limitations. They are:

- *The statement method can only be used by those who are familiar with the unit of measurement given in the statement.
- *On enlargement or reduction of the map, the statement of scale for the new map changes.

By a representative fraction

In the representative fraction (R.F.) method, the scale is expressed in numerical fraction. In this method, the ratio between the map distance and ground distance is given as a fraction, whose numerator is always 1.

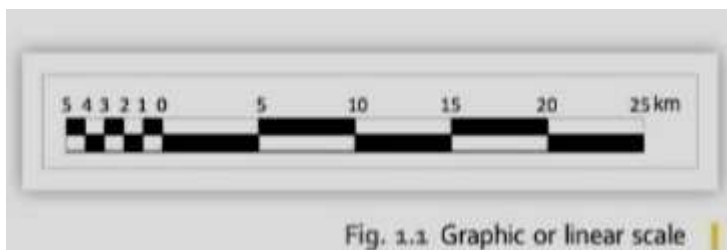
For example, the R.F. is given as $1/1,00,000$

In this example, the numerator (1) represents the map distance and the denominator (1,00,000) represents the ground distance. Thus R.F. = map distance/ground distance. It can also be written as 1 : 1,00,000.

No particular unit of measurement is used with R.F. It has the universal application in map-making. It can also be converted into a statement and the statement can be converted into R.F.

By a graphic or linear scale

In the graphic or linear scale method, the map distance is shown using a straight line. The length of the line depends on the size of the map. It is usually between 12 cm and 20 cm. This line is divided into parts known as primary divisions. Usually the first primary division on the left is further sub-divided into smaller parts known as secondary divisions.



The starting or zero point of the linear scale should be after the first primary division from the left. The primary divisions are to the right of zero, and the secondary divisions are to the left of zero.

The linear scale is useful to measure the distance directly from the map. It also gives the figures or values of the corresponding ground distance. The linear scale remains correct even after enlargement or reduction of a map.

Measuring distances on a map using scales

Distances can be measured on a map using a straight line or a curved line. Let us learn how.

Measuring straight –line distance

The straight- line distance on a map can be easily measured using a strip of paper with straight edge in the following way.

*First mark the points, say A and B, between which the distance is to be measured.

*Place the edge of the strip of paper along the line AB.

*Mark the limits of distances on the paper.

*Now place the paper along the linear scale and read the map distance.

*The distance between points A and B can also be measured using a divider.

Measuring curved -line distance

The curved- line distance on a map, such as a river or a winding track or road, cannot be correctly measured using a strip of paper. Therefore, a thread is used. The curved line distance can be measured in the following way.

*First mark the points, say A and B, between which the distance is to be measured.

*Place one end of the thread on point A and then move the thread along the curved course.

*Now place the thread along the linear scale and read the map distance.

*An instrument, called opisometer, can also be used to measure the correct map distance. The ground distance is indicated on its dial.

Q 1. Answer the following questions in short:-

Q1.Name the tools and devices used in Geography to study about the earth.

Q2.What are topographical sheets?

Q3.How is grid useful?

Q4.How can distance be measured on a map?

Q5.Which system of measurement we follow in India?

Q6.What is arbitrary grid system?

Q2. Answer the questions in detail:-

Q1.What is the difference between the map distance and ground distance?

Q2. Mention two limitations of the statement method.

Q3. How would you measure straight line distance on a map?

Q4.What are the advantages of linear scale?

Q 3. Fill in the blanks.

1. Topographical maps are also called _____ sheets.
2. The lines in the arbitrary grid system are drawn in _____
3. In India, long distances are measured in kilometers and short distances are measured in _____.
4. An instrument called _____ can also be used to measure the correct map distance.
5. In linear scale, the sub –divisions of a primary division are called _____ divisions.

Q4. Choose the correct option

1. The ratio between the map distance and the ground distance is called the _____ of a map.
a) scale b) grid
2. The unit of measurement used in the R.F. method is _____
a) no particular unit b)cm
3. The length of the line on the linear scale depends on the _____ of the map.
a)division b)size
4. To measure a curved line distance a _____ is used.
a) thread b)network
5. In the representative fraction method, the _____ is always 1.
a)numerator b)denominator

Q 5.True and False

1. The statement method has universal application in map-making.
2. The primary divisions are to the right of zero.
3. The ground distance is indicated on the dial of opisometer.
4. The maps prepared by the Survey of India are on the scale of 1:50,000 for the whole country.
5. In the representative fraction method, the scale is expressed in words.

Q6. Draw the diagram of Graphic or linear scale and also practice the conventional signs and symbols diagram.

Roads metalled: according to importance; distance stone.....		Towns or Villages: inhabited; deserted; Fort.....	
Roads unmetalled: according to importance; bridge.....		Huts: permanent; temporary; Tower; Antiquities.....	
Cart-track; Pack-track and pass; Footpath with bridge.....		Temple; Chhatri; Church; Mosque; Idgah; Tomb; Graves.....	
Bridges: with piers; without piers; Causeway; Ford or Ferry.....		Lighthouse; Lightship; Buoys: lighted; unlighted; Anchorage.....	
Streams: with track in bed; undefined; Canal.....		Mine; Vine on trellis; Grass; Scrub.....	
Dams: masonry or rock-filled; earthwork; Weir.....		Palms: palmyra; other plantations; Conifers; Bamboos; other trees.....	
River banks: shelving; steep; 3 to 6 metres; over 6 metres		Boundary: International.....	
River banks: dry with water channel; with island and rocks; Tidal river.....		Boundary: State — demarcated; undemarcated.....	
Submerged rocks; Shoal; Swamp; Reeds.....		Boundary: district; sub-division; Tehsil or Taluk; Forest.....	
Wells: lined; unlined; Tubewell; Spring; Tanks: perennial; dry.....		Boundary pillars: surveyed; unlocated; Village tri-junction.....	
Embankments: road or rail; tank; broken ground.....		Heights: triangulated station; point; approximate.....	
Railways: broad gauge; double; single with station; under construction		Bench mark: geodetic; tertiary; canal.....	
Railways: other gauges; double; single — with distance stone; under construction.....		Post office; Telegraph office; Combined office; Police station.....	
Mineral line or tramway; Telegraph line; Cutting with tunnel.....		Bungalows: dak or travellers; inspection; Rest-house.....	
Contours with sub-features: Rocky slopes; Cliffs.....		Circuit house; Camping ground; Forest: reserved; protected.....	
Sand features: (1) flat (2) sand-hills and dunes (surveyed) (3) shifting dunes.....		Spaced names: administrative; locality or tribal.....	

Fig. 1.2 The conventional signs and symbols as used by the Survey of India in topo sheets

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