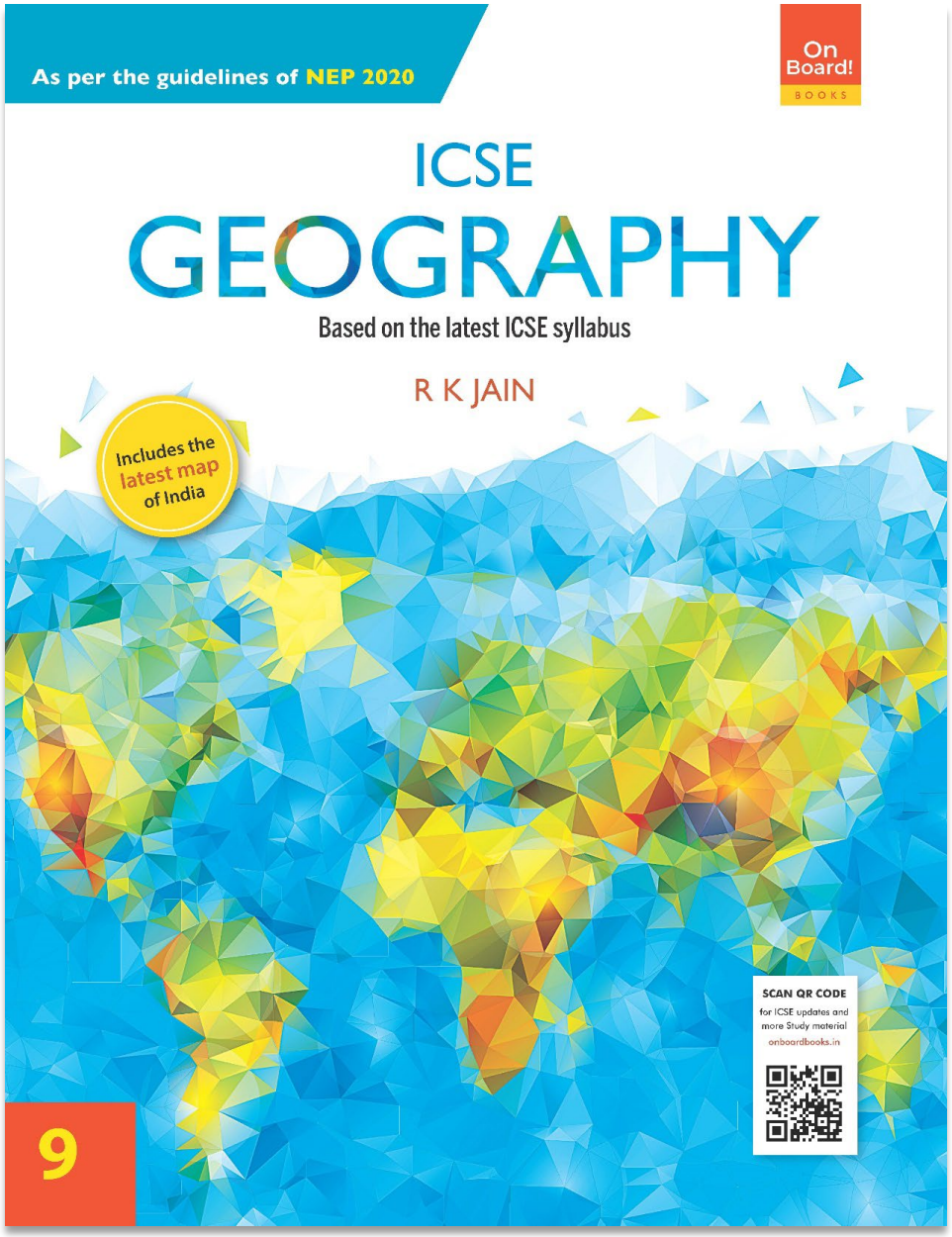
On Board!
BOOKS

On Board!

BOOKS


As per the guidelines of NEP 2020
On Board! BOOKS
ICSE
GEOGRAPHY
Based on the latest ICSE syllabus
R K JAIN
Includes the latest map of India
SCAN QR CODE
for ICSE updates and more Study material
onboardbooks.in
9

CONTENTS

ICSE GEOGRAPHY

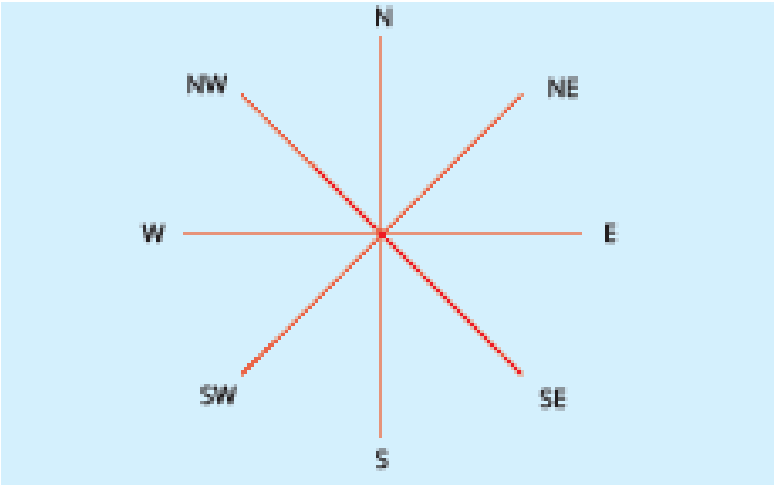
Class 9

Chapter 21: Directions and Scale

If we know the North direction, then it is easy to find out the other directions, namely South, East and West. These are the four major **cardinal points** to show the direction.

Once these four directions are marked, we can easily mark the **intermediate directions**. The direction between North and East is called the Northeast (NE). Similarly, we can also mark the Southeast (SE), Northwest (NW) and Southwest (SW) directions.

Finding directions with the help of the rising Sun



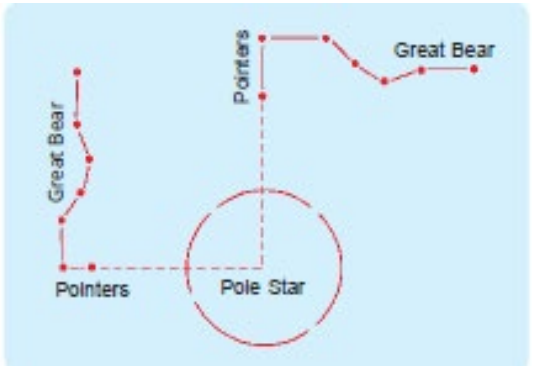
Major directions

METHODS OF FINDING DIRECTIONS

With the help of Rising Sun

- An easy and quick way to find out the direction is by facing the rising Sun.
- The Sun always rises in the East and sets in the West.
- Thus, when we are facing the rising Sun, we are actually facing the East direction. The West direction is to our back.
- The left hand will point to the North direction and the right hand will point to the South direction. This method can be used only during the day.

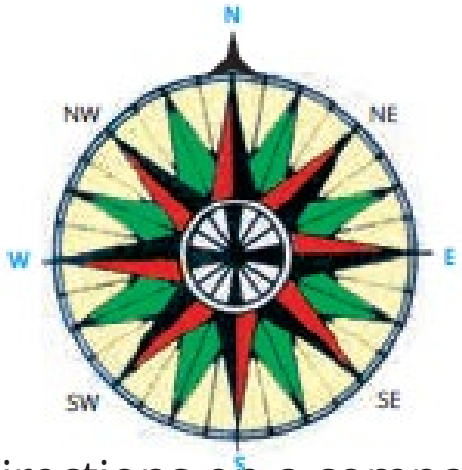
With the Help of the Pole Star and the Great Bear



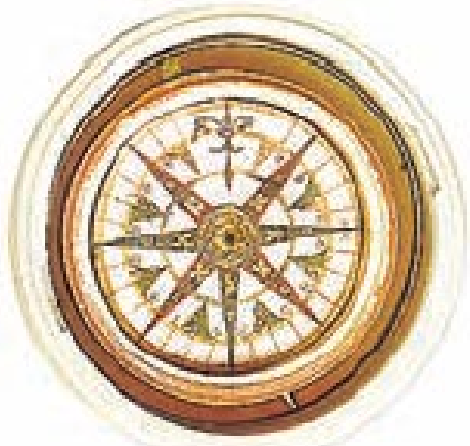
- In the Northern Hemisphere, the position of the True North can be found with the help of the **Pole Star**. A constellation of seven stars known as the **Great Bear** or the **Sapta Rishi Mandal** can be easily recognised in the northern skies.
- The Great Bear constellation keeps revolving around the Pole Star in such a way that the two stars in the front (called the pointer stars) always point towards the Pole Star.
- The Pole Star is located vertically above the North Pole.

With the Help of a Magnetic Compass

- A better way of finding the North direction is with the help of a **magnetic compass** fitted with a magnetic needle.
- The needle of the magnetic compass will always point towards the Magnetic North-South line or the Magnetic North Pole, which is different from the True North-South line or the True North Pole.



The directions on a compass



Mariner's Compass

❖ The angle between the True North-South line and the Magnetic North-South line is known as the **magnetic variation** or the **magnetic declination**. The value of the magnetic declination is always given on the topographical maps.

True North and Magnetic North

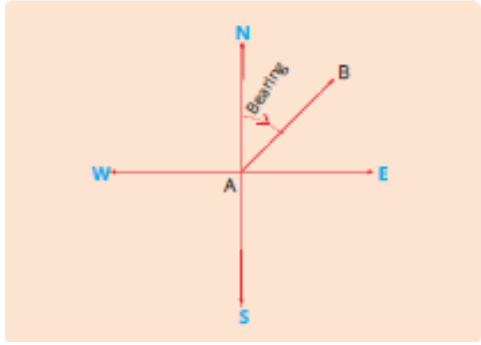
❖ The True North is fixed and is also known as the **Geographic North**. But the Magnetic North Pole is not a fixed point as it changes from place to place and from time to time.

❖ The Magnetic North may be west or east of the True North. Thus it is easy to find out the location of the True North-South line with the help of a given magnetic declination.

True Bearing and Magnetic Bearing

❖ The true bearing is always constant while the magnetic bearing varies from place to place and from time to time. This is due to the irregularities in the magnetic field of the Earth.

❖ The angular distance of any point on the map with respect to the True North and the Magnetic North is called the **true bearing** and the **magnetic bearing** of that point respectively. The bearings are always measured in the clockwise direction.

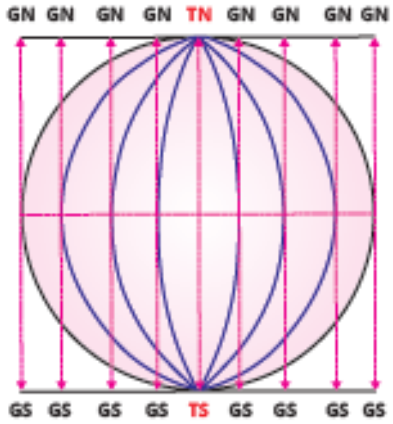


Bearing

The Grid North

The **Grid North** is the direction of the north-south grid lines. It coincides with the True North only along the meridian of origin on the topographical map.

The Grid North is also referred to as the True North. The true bearing of any point on a map can be measured with reference to the North-South line.



True North and Grid North

REPRESENTATION OF SCALE ON A MAP

In India, we follow the **metric system** of measurement. In this system, the distances are measured in kilometres (km), metres (m) and centimetres (cm). We normally measure the straight-line distance on the ground and also on the map.

The distance between any two points on a map is called the **map distance**. The distance between the same two corresponding places on the ground is called the **ground distance**. The ratio between the map distance and the ground distance is called the **scale of the map**.

BY A STATEMENT

In the statement method the scale is expressed in words, such as two centimetres is to five kilometres 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 method of using the scale for measuring distances. But it has two **limitations**.

a. It can only be understood and used by those who are familiar with the units of measurement given in the statement of scale.

b. If a map is enlarged or reduced from the given original map, the scale of the new map will change. This can cause problem in the measurement of distances on the new map.

BY A REPRESENTATIVE FRACTION OR R.F.

In the Representative Fraction or R.F. method, the scale on a map is expressed in the **numerical fraction**. In this method, the ratio between the map distance and the ground distance is always given as a fraction, whose numerator is always 1.
The R.F. of a map is expressed as 1/1,00,000
In the above R.F., the **numerator** (1) is the map distance and the **denominator** (1,00,000) is the ground distance. Thus the R.F. of the map is expressed as
Map distance / Ground distance
Sometimes, the R.F. on a map is also expressed as 1 : 1,00,000. It is like a statement, but the units of measurements are not given. We can apply any units of measurement depending on our need.

Thus this method of expressing the scale on a map can be used by any country according to its own units of measurement.
The **advantage** of expressing the scale on a map in terms of the R.F. is that one can find distance on a map made in a foreign country, even if he is not familiar with the units of linear measurement of that country. Hence, this method of expressing the scale on a map has a **universal application**.
The **disadvantage** of expressing the scale on a map in terms of the R.F. is that if the map is photographically enlarged or reduced, the R.F. will no longer be correct.

Uses of Graphic Scale or Linear Scale

The graphic scale or linear scale can be used for the following two purposes.

a. **To measure distance between two points on the map:**

- Take a sheet or strip of paper with a sharp edge.
- Place it on the map and mark the points as A and B, between which the distance is to be measured.
- Now place this strip on the scale and read the ground distance from it with the help of primary and secondary divisions.

b. **To measure out a certain length from the scale:**

- Suppose the ground distance required to be measured is 60 km.
- Take a strip of paper with sharp edge and place it along the scale.
- Mark on this strip the distance of 60 km from the scale.
- One end points at zero and the other at 60 km mark.
- This distance can also be measured with the help of dividers.

THANK YOU