



1. Locating Places on the Earth-I

LEARNING OUTCOMES

- ◆ Distinguish between globe and map
- ◆ Explain different map types
- ◆ Identify map components
- ◆ Understand distance measurement
- ◆ Learn to find directions
- ◆ Recognise map symbols
- ◆ Differentiate sketch and plan



SCAN ME

Think and Discuss CG 1 Critical Thinking NCF 2023

Have you ever used a map to find a place? What kind of map was it—a paper map, a mobile map app, or something else? Did you find it easy or confusing? Why?

We live on a large, spherical planet called Earth. It is impossible for us to see the entire Earth at once due to its size and shape. Even pictures taken from space, like those from satellites, can only show half of our planet at any given moment. To truly study and understand the Earth, we need models or representations of it.

A **globe** is a small, human-made model of the Earth. It provides a simple and accurate way to show the Earth's spherical shape.

Maps on a globe correctly represent the size, shape, and location of places relative to each other.

However, globes have some limitations that make them less



Fig. 1.1: A globe

practical for everyday use. This leads us to another important tool: the map.

Globes and Maps

While a globe is a great model, it has some drawbacks. For instance, it's difficult to carry a large globe around. Also, the space on a globe is limited, making it hard to show many small details. You also cannot make a globe for just a small part of the Earth, like your state or city. Showing detailed geographic features is also not easy on a globe.

This is why we need **maps**. A map is a representation of the Earth, either the whole planet or just a part of it, drawn on a flat surface like paper. Even though maps drawn on a flat surface are less accurate than a globe because of distortions (as it's impossible to perfectly flatten a curved surface without distortion), maps are generally much more useful.

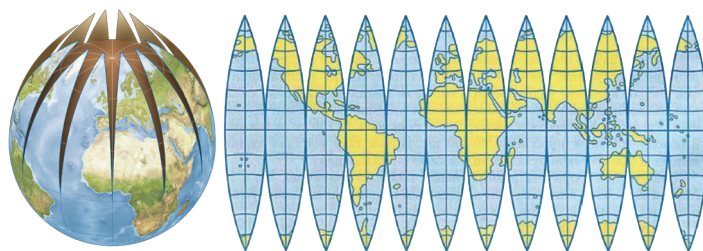


Fig. 1.2: A globe cut into parts and flattened into a map

Fact Zone

The word 'map' comes from the Latin word 'mappae', which means 'napkin'. The first collection of maps published in a book was by Mercator and Hondt. The cover featured a picture of the Greek mythological giant Atlas holding the Earth. Since then, a book of maps is called an **atlas**.



Fig. 1.3 The picture of Atlas that appeared on the cover of Mercator's sixteenth century atlas

Types of Maps

Maps can be classified in different ways. Two of the most common ways are based on the **scale** of the map and the **function** or purpose of the map.

Classification Based on Scale

The scale of a map tells us the relationship between the distance on the map and the actual distance on the ground. Based on this ratio, maps are divided into two types:

Small-scale Maps

These maps show a very large area, such as a continent or an entire country, but with fewer details. Maps found in an **atlas** or large wall maps used in classrooms are examples of **small-scale** maps. This map shows a large region, like a country or continent, where a small distance on the map represents a very large distance on the ground.

Large-scale Maps

These maps show a very small area, like a neighbourhood, village layout, or city guide,

but with many details. This map focuses on a small area, allowing for detailed features to be shown because a larger distance on the map represents a smaller distance on the ground compared to a small-scale map.

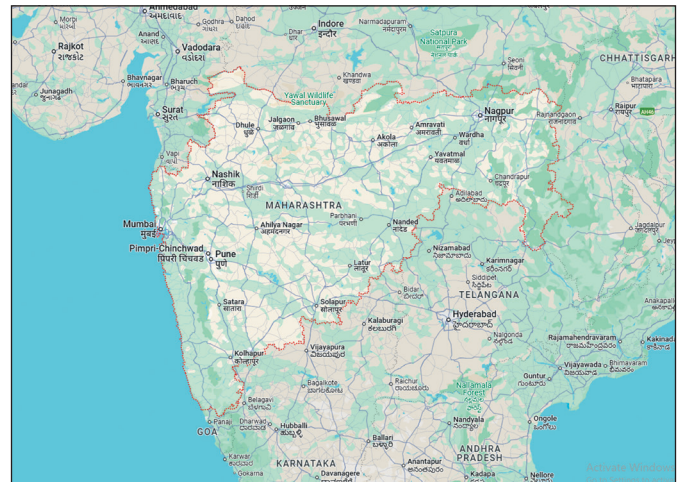


Fig. 1.4: A small-scale map



Fig 1.5: A large-scale map

Classification Based on Function

Maps are also categorised based on what they show:

Physical maps

These maps display the natural features of the Earth's surface, known as relief features. This includes mountains, hills, plateaus, plains, peaks, valleys, rivers, and oceans.



Fig 1.6: A physical map

Physical maps are helpful for tasks like finding suitable places for building homes, roads, railways, or dams.

Political maps

These maps show the boundaries between countries and the borders of different political units within a country, such as



Fig 1.7: A political map

states or districts. Political maps often serve as the base maps upon which other information, like cultural, historical, or economic data, can be shown.

Thematic maps

These maps are created to show specific types of information. The information could be anything from road networks, railway lines, or air routes to the distribution of population, climate conditions, or the location of mines and industries. The title of a thematic map usually tells you exactly what specific theme is being presented.

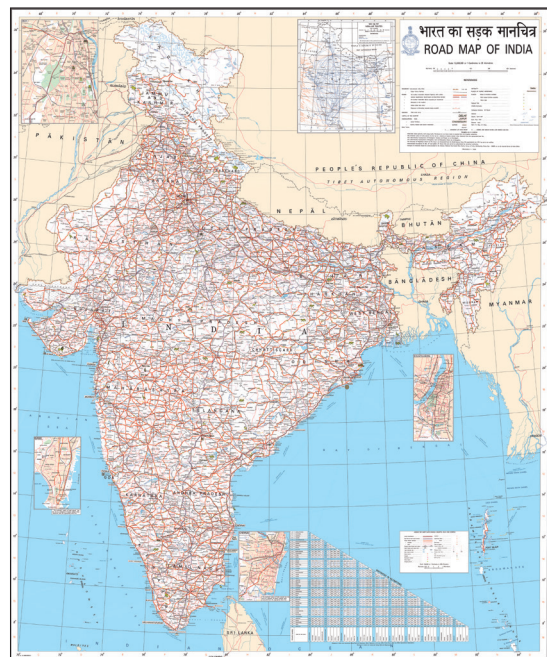


Fig 1.8: A thematic map

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Why would a physical map be important for planning a new railway line?

Components of Maps

To read and understand a map effectively, we need to know its main components.

These are:

1. Distance
2. Direction
3. Conventional Signs and Symbols

Measuring Distances

Distance is the space between any two places. We often describe distances simply as 'near' or 'far', which is related to how much time it takes to reach a place. However, time can vary depending on the person or place. For accuracy, we need a system to measure distances precisely.

In India, we commonly use the metric system. Long distances on the ground are measured in kilometres (km), and shorter distances in metres (m). On a map, distances are typically measured in centimetres (cm). We usually measure the straight-line distance between two points.

- The distance between two places as measured on the map is called the **map distance**.
- The actual distance between those same two places on the ground is called the **ground distance**.
- The **scale** of a map is the ratio of the map distance to the corresponding ground distance. For example, a scale of 1 cm : 1 km means that every 1 cm on the map represents 1 km on the ground.

Scale on a Map

Maps show scale in three main ways:

1. **By a Statement:** The scale is written out in words. For instance, "One centimetre is to two kilometres" or "1 cm : 2 km".

Here, 1 cm is the map distance and 2 km is the ground distance.

2. By a Numerical Fraction

(Representative Fraction or R.F.): The scale is shown as a fraction where the numerator is always 1. The ratio of map distance to ground distance is written as

$$\text{R.F.} = \text{Map} \frac{\text{distance}}{\text{Ground distance}}$$

For example, an R.F. of $\frac{1}{1,00,000}$ means 1 unit on

the map represents 1,00,000 units on the ground. A key advantage of R.F. is that it uses no specific units, making it universally applicable.

3. **By a Graphic or Linear Scale:** This is a straight line drawn on the map, divided into segments. The line shows the map distance and also indicates the corresponding ground distance values. The first part of the line is usually subdivided further for more precise measurements. This scale lets you measure distances directly from the map.

Finding Directions

Knowing directions is crucial for using a map. Maps usually show direction with an arrow pointing towards **North**. This arrow is called the **North line**.

Directions on a map are always shown relative to North. Once you know where North is, it's easy to find the other main directions. These are the four **cardinal directions:** North (N), South (S), East (E), and West (W).

Besides the cardinal directions, there are also **intermediate directions** located between the main ones. These are North-East (NE, between North and East), South-East (SE, between South and East), South-West (SW, between South and West), and North-West (NW, between North and West).

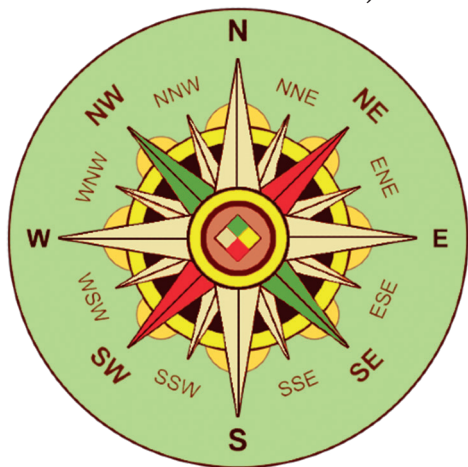


Fig 1.9: Directions on a compass

Activity Time CG 4

Experiential Learning NCF 2023

Early in the morning, stand outside facing the rising Sun. Which direction are you facing? That's East. Your back will be towards the West. Your left hand will point towards North, and your right hand towards South.

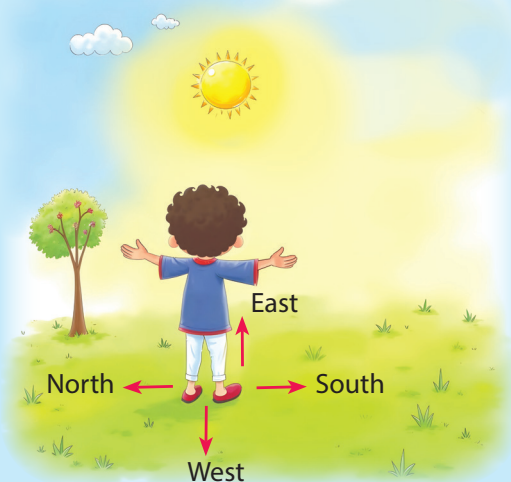


Fig 1.10: Finding directions with the rising Sun

How to Find Direction on the Ground

Using the Sun

As mentioned above, the Sun rises in the East and sets in the West. This simple observation helps find directions.

Using a Magnetic Compass

A **magnetic compass** is a tool whose needle always points towards the north-south direction. This makes it very useful for finding North. Compasses used by sailors at sea are called **mariner's compasses**.



Fig 1.11: A mariner's compass

Using the Pole Star

In the Northern Hemisphere, the **Pole Star** (Polaris) is located almost directly above the North Pole. It appears stationary in the night sky. A group of stars called the Great Bear (or **Saptarishi** in India) helps locate the Pole Star. The two stars at the end of the 'bowl' of the Great Bear always point towards the Pole Star.

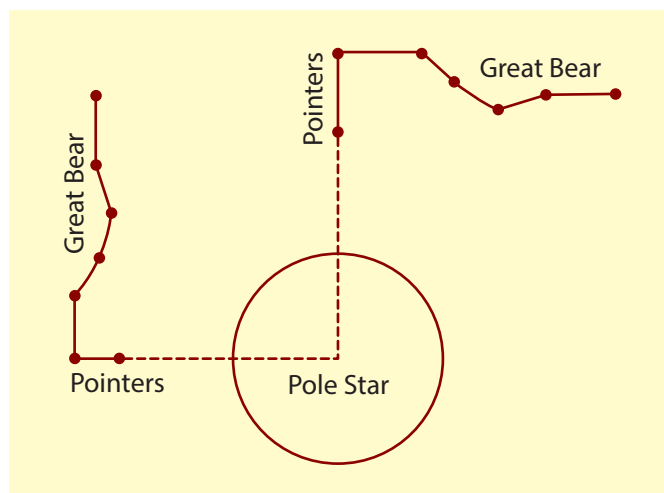


Fig 1.12: Finding directions with the help of the Pole Star

Do You Know?

If a map does not show the North direction with an arrow, it is a common practice to consider the top of the map as North, the bottom as South, the right side as East, and the left side as West when you face the map.

Conventional Signs and Symbols

Maps are used to show a wide variety of information, from political boundaries and physical features to population, resources, transport networks, and cultural sites. However, there isn't enough space on a map to draw everything in its actual size and shape. Imagine trying to draw a mountain range or a railway track to scale on a small map.

To make maps informative and easy to read despite limited space, we use **conventional signs and symbols**. These are agreed-upon symbols, colours, signs, and letterings that represent different features on a map. Using

these symbols keeps the map clean and easy to understand.

Many countries around the world have agreed to use common signs, symbols, and colours. For example, blue is generally used to show water bodies like rivers, lakes, and oceans. Green is often used to show plains. These universally understood symbols are called **conventional symbols**. To properly read any map, you need to learn what these conventional signs and symbols represent. Think of them as the 'language' of the map.

Sketch and Plan

Besides maps, there are two other types of diagrams that help us understand locations:

Sketch

A **sketch** is a rough drawing that helps you locate a place. If you draw a simple diagram showing the roads and important landmarks to help someone find a nearby shop, you are drawing a sketch. Sketches are typically drawn without measuring the exact distances or using a specific scale. They are outlines that may not use proper conventional signs and symbols.

Boundary	International	— · — · — · — · — ·	Railway	▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬
	State	— · — · — · — · — ·	Fort	⊗
	District	— · — · — · — · — ·	Temple	🕌
Road	Metalled	▬ ▬ ▬ ▬ ▬ ▬	Church	🕌
	Unmetalled	▬ ▬ ▬ ▬ ▬ ▬	Mosque	🕌
Town or village		🏠	Grass	🌿
Express highway with bridge		▬ ▬ ▬ ▬ ▬ ▬	Shrub	🌿
Stream		🌊	Wooded area	🌲
Dam		▬ ▬ ▬ ▬ ▬ ▬	Post office	📮
Well and tank		● 🌊 ●	Police station	🚓

Fig 1.13: Some conventional signs and symbols



Fig 1.14: A sketch of a neighbourhood

Plan

A **plan** is a very accurate map drawn for a very small area, like a house, a room, or a building. If you are planning to build or move into a new house, a plan or layout plan is very useful. A plan shows minute details, including the exact length, breadth, and even the height of features like rooms,

windows, and doors. Crucially, a plan is always drawn to scale. The scale of a plan is usually much larger than the scale of a typical map, as it shows a small area in great detail. For example, 1 cm on a plan might represent just 1 metre on the ground, whereas 1 cm on a map might represent 100 km.



Fig 1.15: A plan of a house

Connect to Today

While traditional maps, sketches, and plans are still important, many people today use digital maps and navigation apps on their phones or in cars. These technologies rely heavily on the same basic principles of distance, direction, and representing features, just in a digital format.

Difference between a globe, map, sketch and a plan

Feature	Globe	Map	Sketch	Plan
Shape	Spherical model	Representation on flat surface	Rough diagram (flat)	Accurate drawing (flat)
Accuracy	Accurate representation of Earth's shape/relation	Less accurate than globe due to distortion	Not accurate for distance/direction	Very accurate for a small area

Table Cont.

Feature	Globe	Map	Sketch	Plan
Scale	Not applicable in same way as maps	Always drawn to scale	No scale used	Always drawn to scale (large scale)
Detail	Limited space for detail	Can show more details than a globe	Very limited detail	Shows minute details
Area Shown	Entire Earth	Whole Earth or a part of it	Small area (rough outline)	Very small area
Portability	Difficult to carry	Easy to carry (paper)	Easy to draw/carry	Easy to carry (paper)

Chapter Recap

- ➔ The Earth is spherical, making it hard to see fully, leading to the need for representations.
- ➔ A globe is an accurate, small model of the Earth but has limitations in portability and detail.
- ➔ A map is a representation of the Earth or a part of it on a flat surface, which is more useful than a globe despite some distortion.
- ➔ Maps can be classified by scale (small-scale, large-scale) and by function (physical, political, thematic).
- ➔ The three main components of a map are distance, direction, and conventional signs/symbols.
- ➔ A sketch is a rough diagram without scale or proper symbols.
- ➔ Scale is the ratio between map distance and ground distance, shown by statement, R.F., or linear scale.
- ➔ Direction is usually shown by a North line. Cardinal (N, S, E, W) and intermediate (NE, SE, SW, NW) directions are key.
- ➔ Directions can be found using the Sun, a magnetic compass, or the Pole Star.
- ➔ Conventional signs, symbols, and colours are used to show features on maps concisely, following universal agreements.
- ➔ A plan is an accurate, large-scale map of a very small area, showing minute details.

New Terms

globe: small model of Earth.

map: representation of Earth on flat surface.

atlas: book of maps.

scale: ratio of map distance to ground distance.

R.F.: numerical map scale fraction.

north line: arrow showing north direction.

cardinal directions: main directions (N, S, E, W).

intermediate directions: directions between cardinal ones (NE, SE, SW, NW).

mariner's compass: compass for sailors.

saptarishi: Indian name for great bear constellation.

conventional symbols: standard map signs.

sketch: rough map without scale.

plan: detailed, large-scale map of small area.

Geography Locating Places

Map Components

Conventional Signs/Symbols

- Helps read map
- For features (railways, water)
- Standard pictures/colours

Direction

- Location relative to North
- Found using
 - Sun, Pole Star, Compass

Types

Cardinal Directions (N, S, E, W), Intermediate Directions (NE, SE, NW, SW)

Scale

- Ratio of map to ground distance
- Shown by
 - Statement (words), Numerical Fraction (RF), Graphic/Linear Scale (line)

Distance

- Space between places
- Measured using Scale

Map Types

By Function

- Thematic Map**
 - Shows specific information, Roads, Population
- Political Map**
 - Shows boundaries, Countries, States
- Physical Map**
 - Shows landforms, Mountains, Rivers

By Scale

- Small-Scale Map**
 - Large area, Less detail, Atlas, Wall maps
- Large-Scale Map**
 - Small area, More detail, City guide, Village layout

Represented by

Other Representations

- Plan**
 - Large-scale map, Very small area, Shows minute details
- Sketch**
 - Rough diagram, Without scale/symbols, Shows location/landmarks

Map

- Flat representation
- More useful than globe
- Drawn to scale

Globe

- Model of Earth
- Accurate shape/location
- Difficult to carry
- Limited detail



A. Choose the correct option.

1. Which of the following is a limitation of a globe?

- a. it is not drawn to scale
- b. it shows too many details
- c. it cannot represent a small area in detail
- d. it is a flat surface

2. A map that shows natural landforms like rivers and mountains is called a:
 - a. political map
 - b. thematic map
 - c. physical map
 - d. district map
3. The colour commonly used to show water bodies on maps is:
 - a. green
 - b. blue
 - c. brown
 - d. yellow
4. Which one of these is not a method of showing scale on a map?
 - a. numerical scale
 - b. graphic scale
 - c. verbal statement
 - d. colour coding
5. The Great Bear constellation helps in locating which star?
 - a. Sirius
 - b. North Star
 - c. Alpha Centauri
 - d. Orion

B. Fill in the blanks.

1. The is a small model of the Earth.
2. maps show features like rivers and mountains.
3. The ratio of map distance to ground distance is called
4. The four main directions are also called directions.
5. The Pole Star remains almost fixed in the direction.

C. Write T for true and F for false statement.

1. A globe can show detailed features of a neighbourhood.
2. A plan is always drawn without a scale.
3. Thematic maps are used to show specific information like population or rainfall.
4. The Sun rises in the west.
5. A compass needle points in the north-south direction.

D. Give short answers.

1. What is a globe?
2. Define a small-scale map with one example.
3. What are cardinal directions?
4. What is the purpose of conventional symbols in maps?
5. How does a compass help in finding directions?
6. Write two differences between a sketch and a plan.

E. Give long answers.

1. Explain the advantages and limitations of using a globe.
2. Describe the three main types of maps based on their function with examples.
3. What are the three methods of showing scale on a map? Explain each with an example.

- How can we find direction using the Sun, compass, and stars?
- Compare and contrast a map and a plan on the basis of scale, detail, and use.

Higher Order Thinking Skills (HOTS) Questions CG 1

Critical & Analytical Thinking NCF 2023

If a map has an R.F. of 1:50,000, what does this mean in terms of distance on the ground if you measure 5 cm on the map?

Assertion and Reason Questions CG 3

Logical Reasoning NCF 2023

Each question consists of two statements, namely, **Assertion (A)** and **Reason (R)**. For selecting the correct answer, use the following code:

- Both Assertion and Reason are true and Reason is the correct explanation.
 - Both Assertion and Reason are true, but Reason is not the correct explanation.
 - Assertion is true, but Reason is false.
 - Both Assertion and Reason are false.
- Assertion (A):** A physical map helps in locating rivers, mountains, and valleys.
Reason (R): Physical maps show the boundaries between different states and countries.
 - Assertion (A):** Conventional symbols help represent features clearly on maps.
Reason (R): Symbols reduce clutter and allow more information to be shown in limited space.
 - Assertion (A):** Large-scale maps show a very large area with limited details.
Reason (R): Small-scale maps are used to show cities and neighbourhoods with high accuracy.

Map Skills CG 3

Spatial Thinking NCF 2023

On a given outline map of India, mark and label:

- The direction from Delhi to Mumbai
- A mountain range in the north (use a conventional symbol)
- A river flowing from west to east

Picture Analysis CG 1

Observation & Interpretation Skills NCF 2023

Observe the given figure showing a compass and answer:

- Which direction lies exactly between East and South?
- What is the direction opposite to North-West?
- If a person is walking towards North-East, which hand would point East?



Project Work / Activity

Creativity and Innovation NCF 2023

Measure your classroom and draw a plan using a ruler and suitable scale (e.g., 1 cm = 1 m). Include features like doors, windows, benches, and the teacher's table.

Explore More CG 2 CG 4

Extended Learning Opportunities NCF 2023

Find out how GPS works and how it uses satellites to help us navigate.