

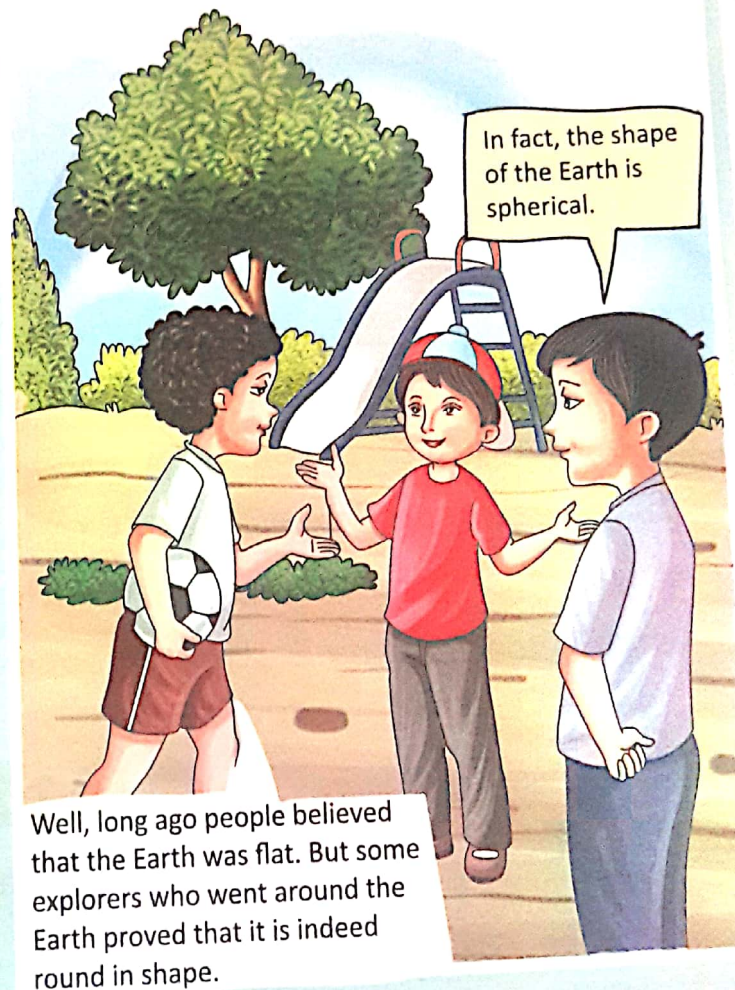
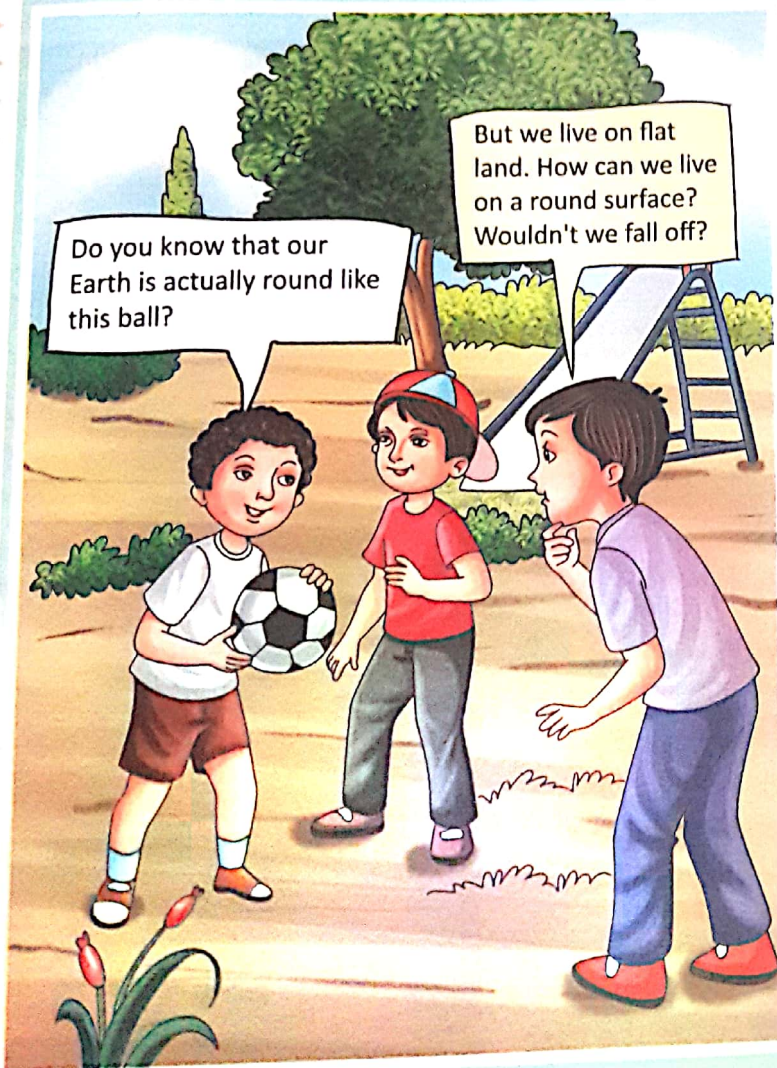
1 The Earth's Surface

Big Idea



- ✦ the Earth and its shape
- ✦ seven continents
- ✦ five oceans

Let's Get Started



ANALYTICAL SK

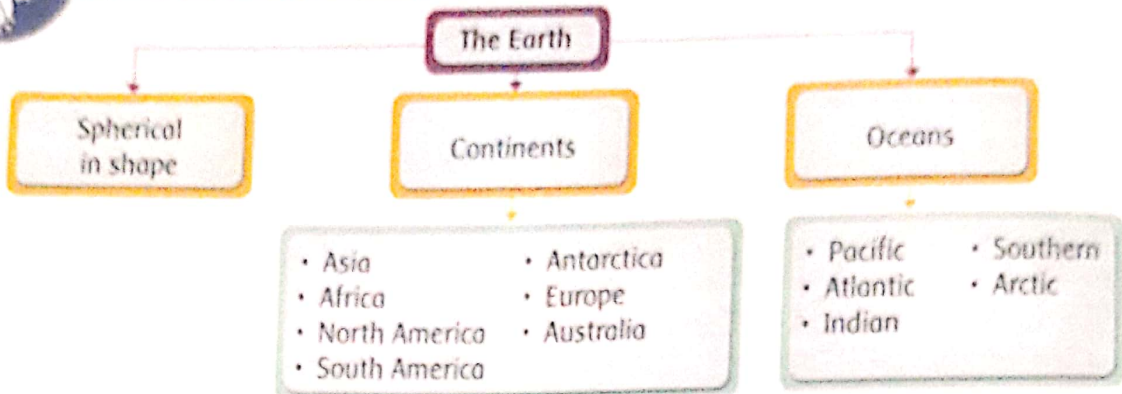
The shape of the Earth is spherical. Give reasons in support of your answer.

.....

.....



We Shall Learn



THE EARTH

Earth is the third planet from the Sun. It is the only planet known to have an atmosphere that contains oxygen.

Earlier, it was believed that the Earth was flat. In the year 1519, **Ferdinand Magellan**, a sailor from Portugal, set out in a westward direction. After sailing for three years, some members of the ship's crew reached the same port from where they had begun their voyage. This established that the Earth was round and not flat.



Pictures taken by satellites from space proved that the Earth is spherical in shape and slightly flattened at the North and South Pole.



Zoom In

Did You Know?

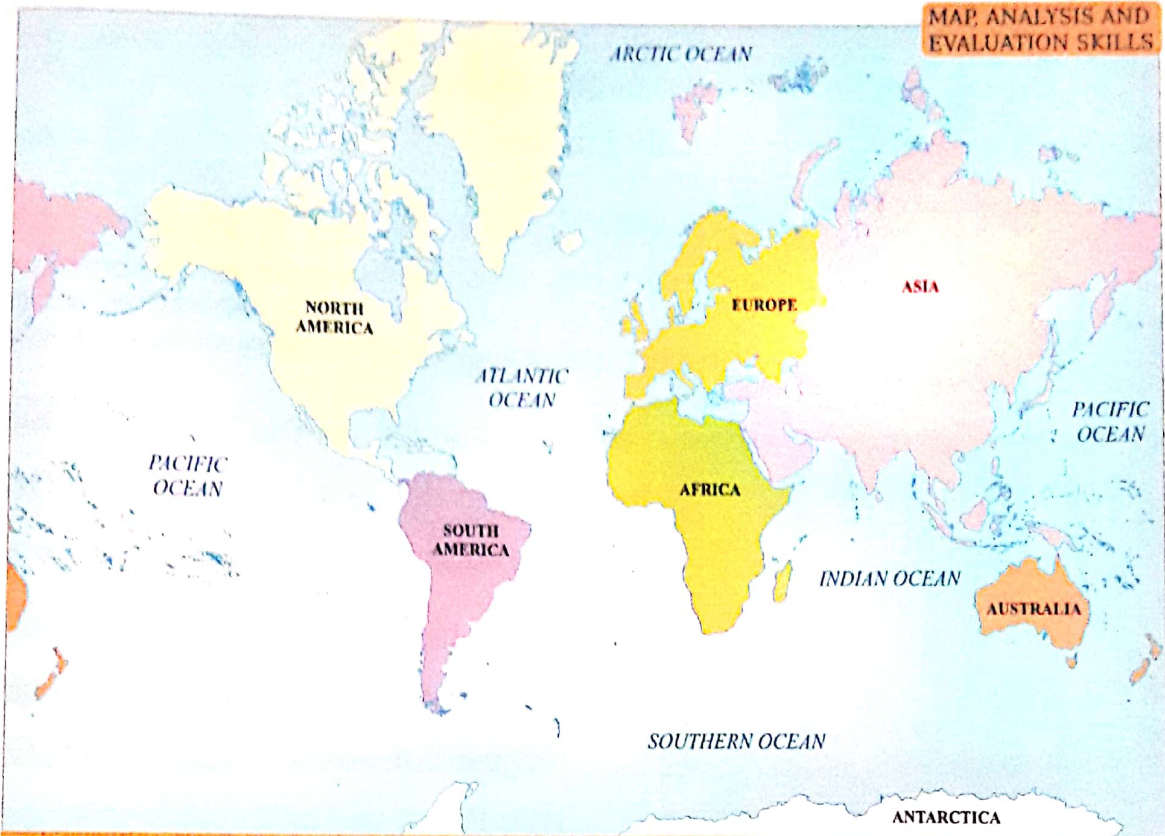
Several million years after the formation of the Earth, the first land mass that emerged was a supercontinent. This supercontinent was called **Pangaea**.

Pangaea was surrounded by a single ocean. About 200 million years ago, the Pangaea broke into two parts—**Gondwanaland** and **Laurasia**. In due course of time, Gondwanaland and Laurasia also broke up into different parts, and the present-day continents and oceans were formed.



CONTINENTS AND OCEANS

You have already studied that big land masses on the Earth's surface are called **continents**, and the large continuous masses of saltwater are called oceans. Seas, gulfs and bays are the smaller parts of these oceans.



GEOGRAPHY SKILLBUILDER: Interpreting Maps

- Identify the largest continent and the smallest ocean on this map.

Map not to scale

a map of the world showing the continents and oceans

Continents

There are seven continents in the world. These are—Asia, Africa, North America, South America, Antarctica, Europe and Australia.

Asia

Asia is the largest continent and occupies one-third of the world's total land area.



Words to Know

gulf: a large area of sea that is partially surrounded by land

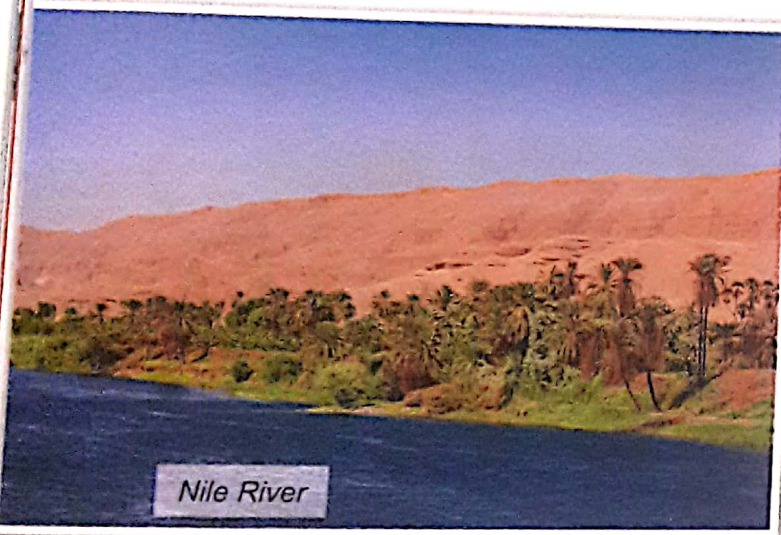
bay: a part of the sea, or of a large lake, partially surrounded by a wide curve of land

➤ This continent is surrounded by oceans on three sides. To the north lies the Arctic Ocean, to the east lies the Pacific Ocean and to the south is the Indian Ocean.

➤ **India** and **China**, the two most populous countries in the world, are located in this continent.

Africa

Africa is the second largest continent in the world.



North America

North America is the third largest continent in the world.

➤ It is bordered by the Arctic Ocean in the north, the Atlantic Ocean in the east and the Pacific Ocean in the west.

➤ It has high mountains such as the **Rockies** and large lakes

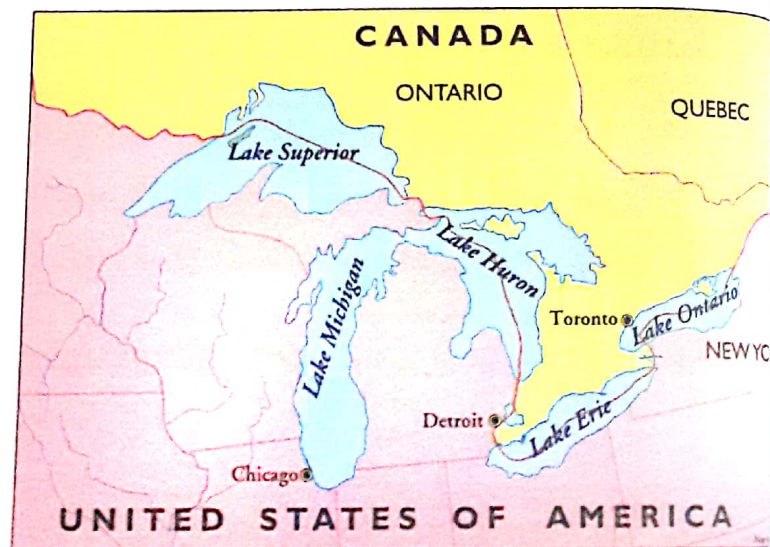
such as the Great Lakes, which is a group of five freshwater lakes.



Mount Everest, the highest mountain peak on Earth, and the Dead Sea, the lowest land region, are located in Asia.

➤ To its north lies the Mediterranean Sea, to the east lies the Indian Ocean and to the west, the Atlantic Ocean.

➤ Africa has diversity in landforms. It is home to the **Sahara Desert**, the largest hot desert in the world; the Nile River, the longest river in the world, and **Mt. Kilimanjaro**, which is the highest mountain in Africa.



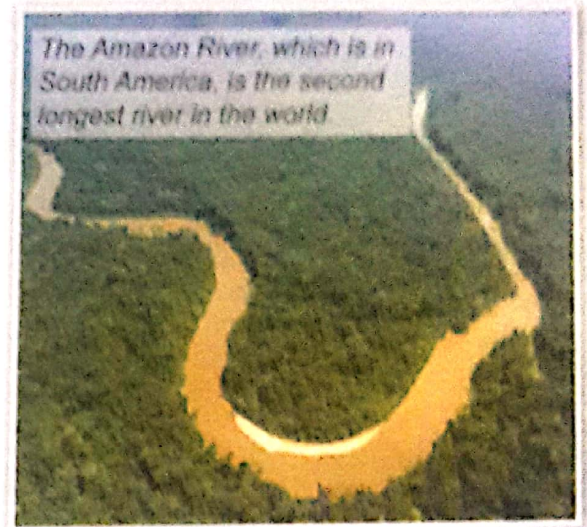
a map showing the Great Lakes

- This continent is home to many developed countries of the world such as the United States of America and Canada.

South America

South America is the fourth largest continent in the world.

- Both the Americas are joined by the Isthmus of Panama.
- A range of mountains, called the Andes, lies in the western part of South America.
- The famous Amazon rainforests are located here.



Antarctica

Antarctica is the coldest and the fifth largest continent in the world.

- It is also called the **White Continent** as it is always covered by a thick carpet of ice and snow.
- Due to its extremely cold climate, it is the world's only continent which has no permanent human habitation.



Zoom In

Did You Know?

Antarctica is the largest cold desert in the world. It has some research stations run by different countries. India also has three research stations, Dakshin Gangotri, Maitri and Bharati in Antarctica.

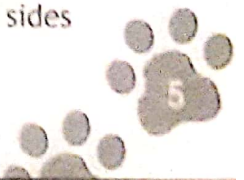


Words to Know

developed: economically and socially advanced

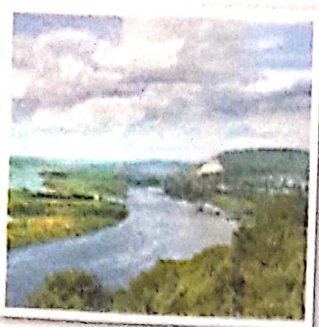
isthmus: a narrow piece of land that joins two larger areas and has water on both sides

rainforest: a dense forest that receives heavy rainfall





Europe is home to a famous mountain range called the Alps



The Volga and the Danube are two important rivers of Europe.

Europe

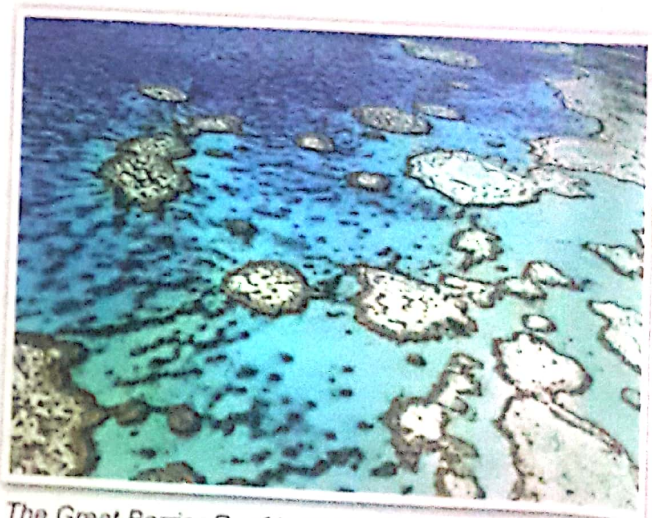
Europe is the sixth largest continent in terms of size.

- Europe and Asia are together called **Eurasia** and form the longest stretch of land on Earth.
- Europe is bordered by the Mediterranean Sea in the south, Asia to the east and the Atlantic Ocean in the west.
- Developed countries such as the United Kingdom and France are part of Europe.

Australia

Australia is the smallest continent in the world. It is the only continent which is also a country.

- It is an island and is surrounded by water on all sides.
- Australia is famous for its **Great Australian Desert** and the **Great Barrier Reef**.



The Great Barrier Reef is the largest coral reef on Earth.

Oceans

There are five oceans—the **Pacific Ocean**, the **Atlantic Ocean**, the **Indian Ocean**, the **Southern Ocean** and the **Arctic Ocean**. A rich variety of plants and animals are found in these oceans. Together, they are called **marine life**.



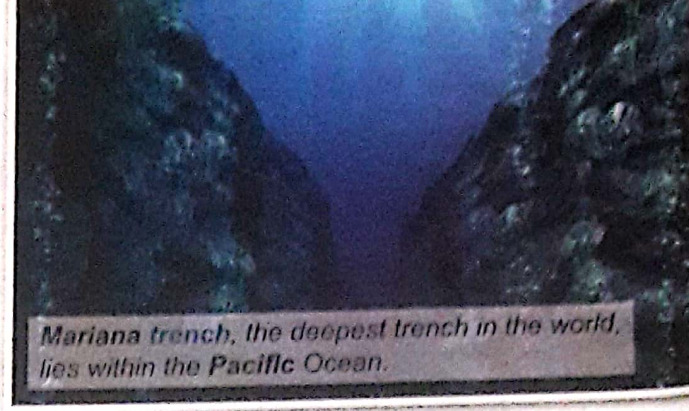
Word to Know

coral reef: a hard natural structure under the sea that is formed from coral

Pacific Ocean

The Pacific Ocean is the largest and deepest ocean in the world.

- It covers about 30 per cent of the Earth's surface.
- It separates the two Americas from Asia and Australia.
- Some of the world's most active and dormant volcanoes are found in the basin of the Pacific Ocean.

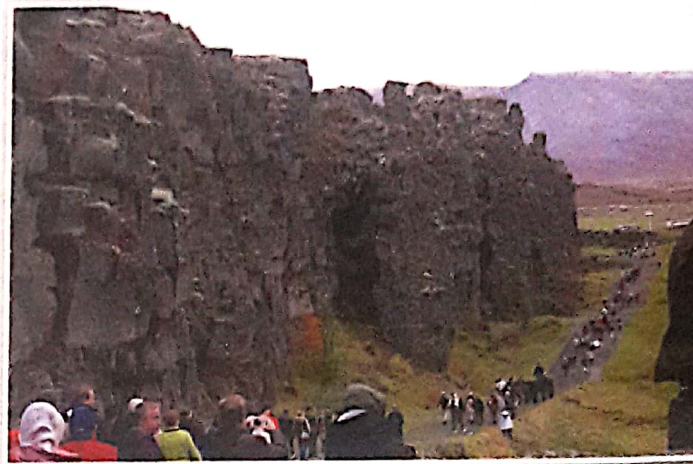


Mariana trench, the deepest trench in the world, lies within the Pacific Ocean.

Atlantic Ocean

The Atlantic Ocean is the world's second largest ocean.

- It separates Europe and Africa from North America and South America.
- There is an underwater mountain range on its ocean floor, known as the **Mid-Atlantic Ridge**. Although this ridge is mostly underwater, a portion of it is elevated enough to extend above sea level.



The elevated portion of the Mid-Atlantic Ridge passes across the Þingvellir (Thingvellir) National Park, Iceland, which is a popular tourist destination.

Indian Ocean

The Indian Ocean is the third largest ocean in the world.

- It lies to the south of Asia and is named after India, which lies at its head.
- It separates east Africa from Australia.
- It is warmer than the Pacific, Atlantic and Arctic oceans.



map showing extent of the Indian Ocean




Words to Know


dormant: not active or growing now but able to become active or grow in the future

trench: long, deep and narrow holes in the ocean floor

ridge: a mountain range underneath the ocean

I. Fill in the blanks. 

1. Big land masses on the Earth's surface are called.....
2. The journey of proved that the Earth is round.
3. Europe and Asia are together called
4. The two Americas are joined by the
5. The and the are important rivers of Europe.

II. Write 'T' for true and 'F' for false. 

1. Asia occupies one-third of the total land area in the world.
2. Europe is famous for its Great Barrier Reef.
3. Africa is home to the Sahara Desert—the largest hot desert in the world.
4. North America is known as the White Continent.
5. The Arctic Ocean is the largest ocean in the world.

III. Answer the following questions.

1. Name the five oceans and seven continents.
2. What is marine life compared of?
3. Why does the Antarctica have no permanent human habitation?
4. What is the Mid-Atlantic Ridge?
5. Write a brief note on the Southern Ocean.

IV. Think It Over! (HOTS)

What if Pangaea had not broken into different parts? Imagine the situation and write a story on how different our life would have been.

Activity Corner

MAP ANALYSIS AND EVALUATION SKILLS

Map Work

On the given outline of the world map:

- mark the seven continents and five oceans.
- Imagine you are going on a voyage from Visakhapatnam in India to Brazil. Consult the map and name the oceans and continents that you will cross.



Value Check

ENVIRONMENTAL AND CIVIC LITERACY

Have you watched the animated film *Happy Feet*? The film touches upon how overfishing by humans is causing food shortage for the emperor penguins. Find out about other human activities that adversely affect the penguins and other marine organisms. Suggest ways to check these activities.

ICT SKILLS

Let's Explore: <https://www.kids-world-travel-guide.com/ocean-facts-for-kids.html>

2 Latitudes and Longitudes

Big Idea



- ◆ relative and absolute locations
- ◆ latitudes and longitudes
- ◆ the grid



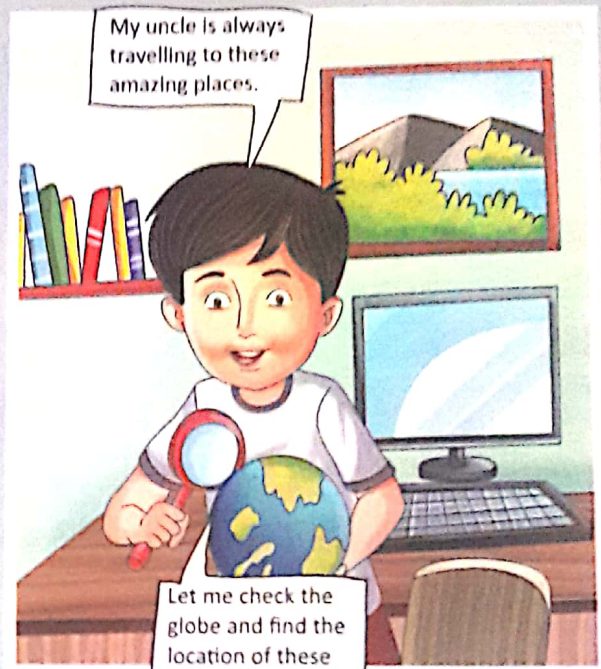
Let's Get Started

Ankit is very happy. His uncle, who lives in Canada, is coming to visit him in India.



When are you coming to Delhi, Uncle? It will be so much fun to have you with us!

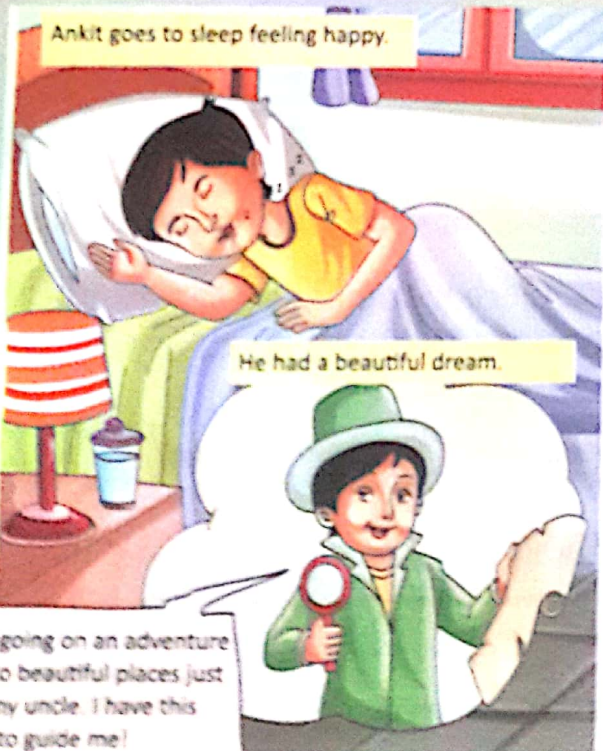
It will be soon, dear! First, I'll have to go to Frankfurt and then to Istanbul for some work.



My uncle is always travelling to these amazing places.

Let me check the globe and find the location of these places.

Ankit goes to sleep feeling happy.



He had a beautiful dream.

I am going on an adventure trip to beautiful places just like my uncle. I have this map to guide me!

CRITICAL THINKING

How would you describe the location of your residence to your friends?

.....

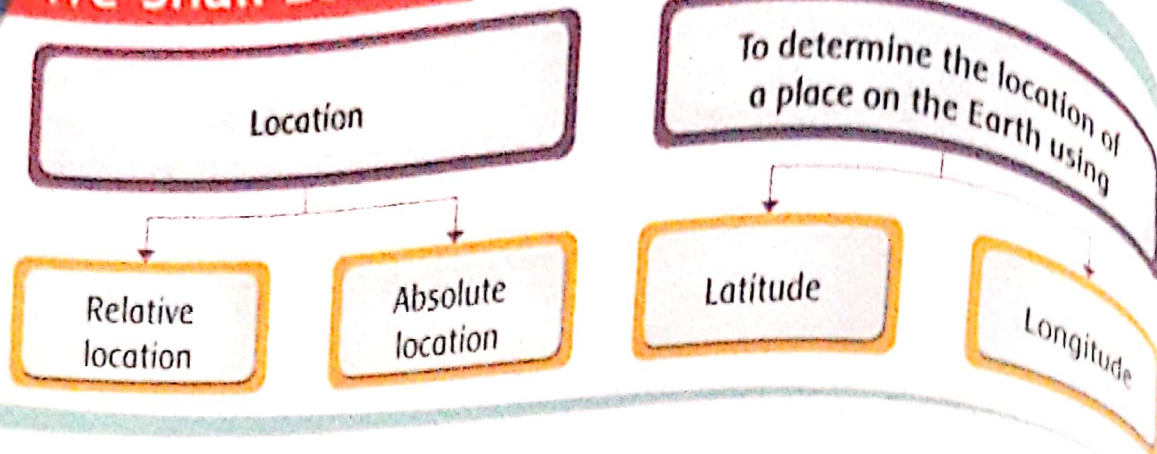
.....

.....

.....



We Shall Learn



TYPES OF LOCATION

A location is a place where something happens or exists. There are two types of locations—relative and absolute.

Relative Location

When the position of a place is described in relation to other places, it is called a **relative location**.

- For example, you may describe the location of your house to your friend by stating how it is related to other places nearby like, 'It is to the left of the mall, or just past the park.'
- We can use familiar landmarks and directions such as 'right', 'left' or 'straight ahead' to give relative locations.

Absolute Location

An **absolute location** tells us the exact position where a place is located on the surface of the Earth.

- Your home address describes the absolute position of your house on the Earth.
- You can also know about the absolute location of your place from a map.
- An absolute location is the description of a place independent of any other place.



Think It Over!

CRITICAL THINKING

HOTS

Which location will help aeroplane pilots drop aid packages at a specific location?



Word to Know

LOCATING PLACES ON EARTH

A globe has an axle that helps it to spin. The Earth also spins on an imaginary axle, which is known as the **axis** of the Earth. The two ends of the Earth's axis are known as **poles**. The point at the top is known as the **North Pole**, and the point at the bottom is known as the **South Pole**.

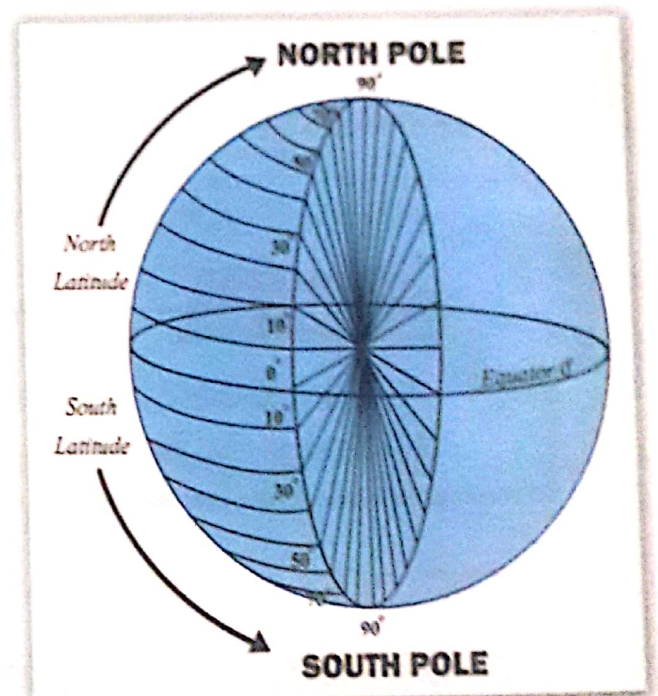
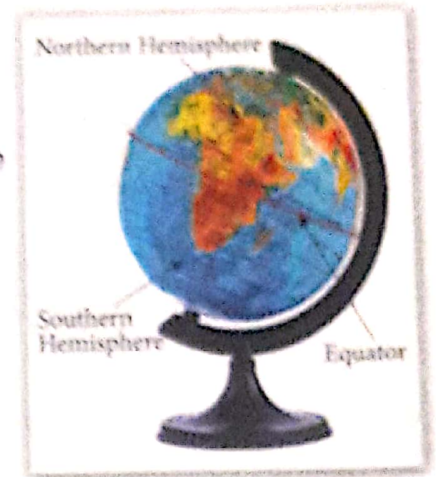
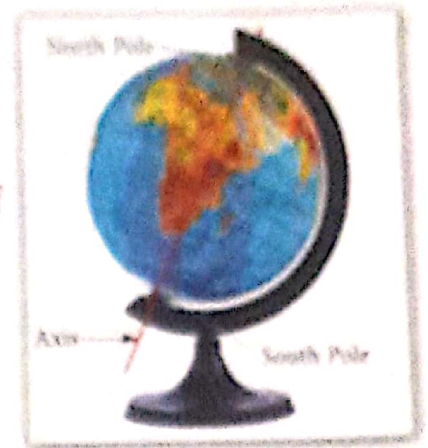
The Equator is an imaginary line that divides the Earth into two equal halves, known as **hemispheres**. The half of the Earth above the Equator is called the **Northern Hemisphere** and the half below the Equator is called the **Southern Hemisphere**.

A globe or a map has a number of lines drawn on it. In reality, there are no lines on the Earth's surface. These are imaginary lines that help us to find out the absolute location of a place on the Earth.

Latitudes

The imaginary lines in each hemisphere drawn parallel to the Equator up to the poles are called **parallels of latitude**. Since the Earth is round, these lines are circular. They run in an east-west direction around the globe. **The Equator is a line of latitude.**

Latitudes are measured in degrees. The starting point for measuring the degrees of latitude is the Equator. The diagram given here shows that the Equator is at 0° latitude. The value of all other latitudes is followed by the letter N for Northern



lines of latitude



Words to Know

axle: a long straight piece of metal that connects two rotating items

degrees: measurements that are often expressed as a number followed by the symbol "°"

Hemisphere or S for Southern Hemisphere. For example, the latitude next to the Equator in the Northern Hemisphere is 1° N.

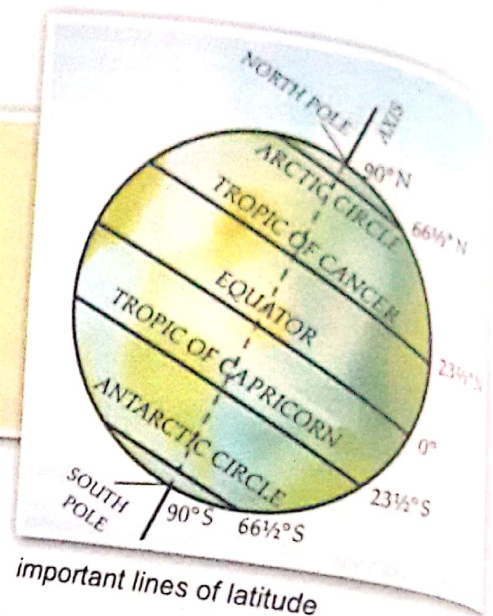
As we move further northwards, the lines of latitudes are numbered as 2° N, 3° N, 4° N and so on until we reach 90° N, which is the North Pole. The latitudes in the Southern Hemisphere are numbered in the same way till we reach the South Pole, which is located at 90° S.

The Equator, also known as the **Great Circle**, is the longest latitude. As we move northwards or southwards from it, the latitudes decrease in size till they are reduced to a dot at the poles.

Important Lines of Latitudes

Apart from the Equator and the poles, there are four other important lines of latitudes:

- Tropic of Cancer ($23\frac{1}{2}^{\circ}$ N)
- Tropic of Capricorn ($23\frac{1}{2}^{\circ}$ S)
- Arctic Circle ($66\frac{1}{2}^{\circ}$ N)
- Antarctic Circle ($66\frac{1}{2}^{\circ}$ S)



Zoom In

There are 181 lines of latitude—90 lines north of the Equator, 90 lines south of the Equator, plus the Equator.

Did You Know?

LONGITUDES

Longitudes, also known as **meridians**, are imaginary lines that run from the North Pole to the South Pole. They, too, are numbered like latitudes.

According to an international agreement, the longitude passing through the **Royal Observatory at Greenwich in England, United Kingdom**, is accepted

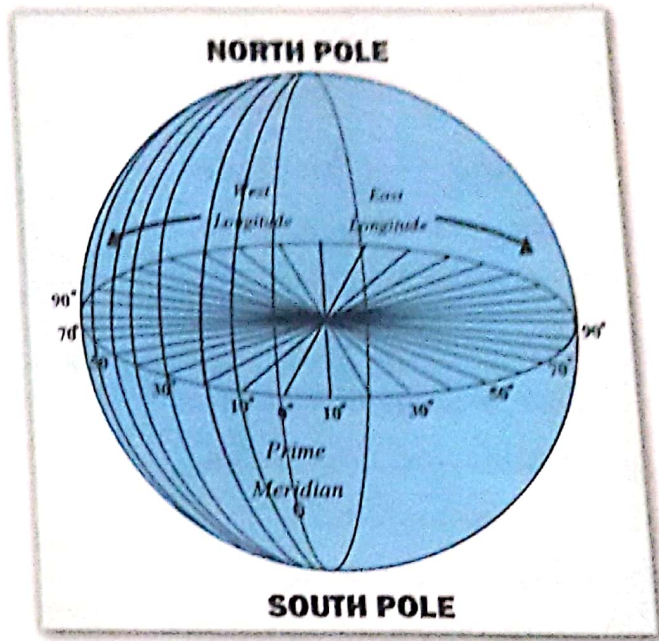


as 0° longitude. It is called the **Prime Meridian**. The Prime Meridian is the starting point for measuring longitudes. Other longitudes are drawn to the east and west of the Prime Meridian.

➤ The diagram here shows the Prime Meridian at 0° longitude. The meridians of longitude to the east of the Prime Meridian are numbered from 1° E up to 180° E. Similarly, the meridians of longitude to the west of the Prime Meridian are numbered from 1° W up to 180° W.

The Prime Meridian, too, divides the Earth into two equal parts. The area between 0° longitude and 180° E is called the **Eastern Hemisphere**, and the area between 0° longitude and 180° W is called the **Western Hemisphere**. However, 180° E and 180° W is the same longitude and is known as 180° or the **International Date Line**.

➤ The distance between two longitudes is maximum at the Equator. The distance decreases as one moves towards the poles, where the longitudes meet.



lines of longitude



The Royal Observatory at Greenwich is famous for the location of the Prime Meridian.



Zoom In

The Prime Meridian passes through these countries—the United Kingdom, France, Spain, Algeria, Mali, Burkina Faso and Ghana. It also passes through Antarctica.

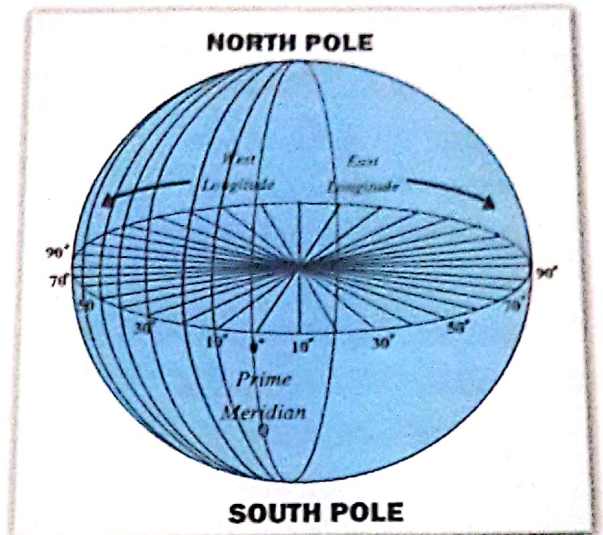
Did You Know?

as 0° longitude. It is called the **Prime Meridian**. The Prime Meridian is the starting point for measuring longitudes. Other longitudes are drawn to the east and west of the Prime Meridian.

➤ The diagram here shows the Prime Meridian at 0° longitude. The meridians of longitude to the east of the Prime Meridian are numbered from 1° E up to 180° E. Similarly, the meridians of longitude to the west of the Prime Meridian are numbered from 1° W up to 180° W.

The Prime Meridian, too, divides the Earth into two equal parts. The area between 0° longitude and 180° E is called the **Eastern Hemisphere**, and the area between 0° longitude and 180° W is called the **Western Hemisphere**. However, 180° E and 180° W is the same longitude and is known as 180° or the **International Date Line**.

➤ The distance between two longitudes is maximum at the Equator. The distance decreases as one moves towards the poles, where the longitudes meet.



lines of longitude



The Royal Observatory at Greenwich is famous for the location of the Prime Meridian.



Zoom In

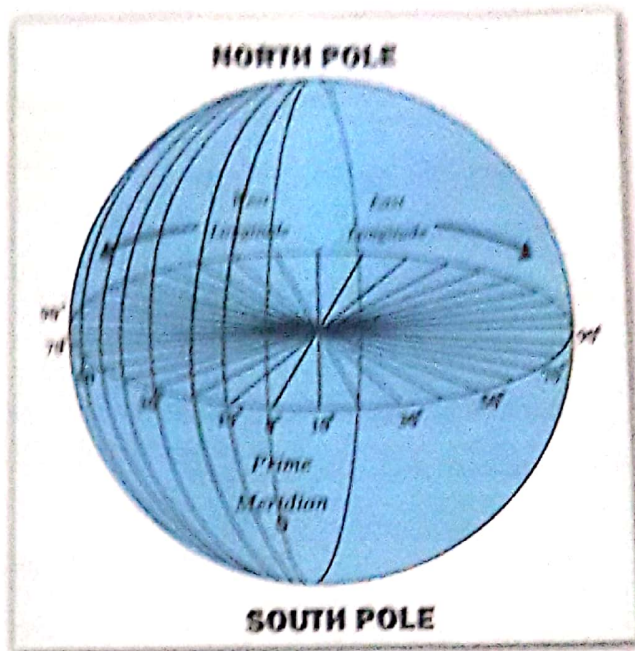
The Prime Meridian passes through these countries—the United Kingdom, France, Spain, Algeria, Mali, Burkina Faso and Ghana. It also passes through Antarctica.

Did You Know?

as 0° longitude. It is called the **Prime Meridian**. The Prime Meridian is the starting point for measuring longitudes. Other longitudes are drawn to the east and west of the Prime Meridian.

➡ The diagram here shows the Prime Meridian at 0° longitude. The meridians of longitude to the east of the Prime Meridian are numbered from 1° E up to 180° E. Similarly, the meridians of longitude to the west of the Prime Meridian are numbered from 1° W up to 180° W.

The Prime Meridian, too, divides the Earth into two equal parts. The area between 0° longitude and 180° E is called the **Eastern Hemisphere**, and the area between 0° longitude and 180° W is called the **Western Hemisphere**. However, 180° E and 180° W is the same longitude and is known as 180° or the **International Date Line**.



Lines of longitude



The Royal Observatory at Greenwich is famous for the location of the Prime Meridian.

➡ The distance between two longitudes is maximum at the Equator. The distance decreases as one moves towards the poles, where the longitudes meet.



Zoom In

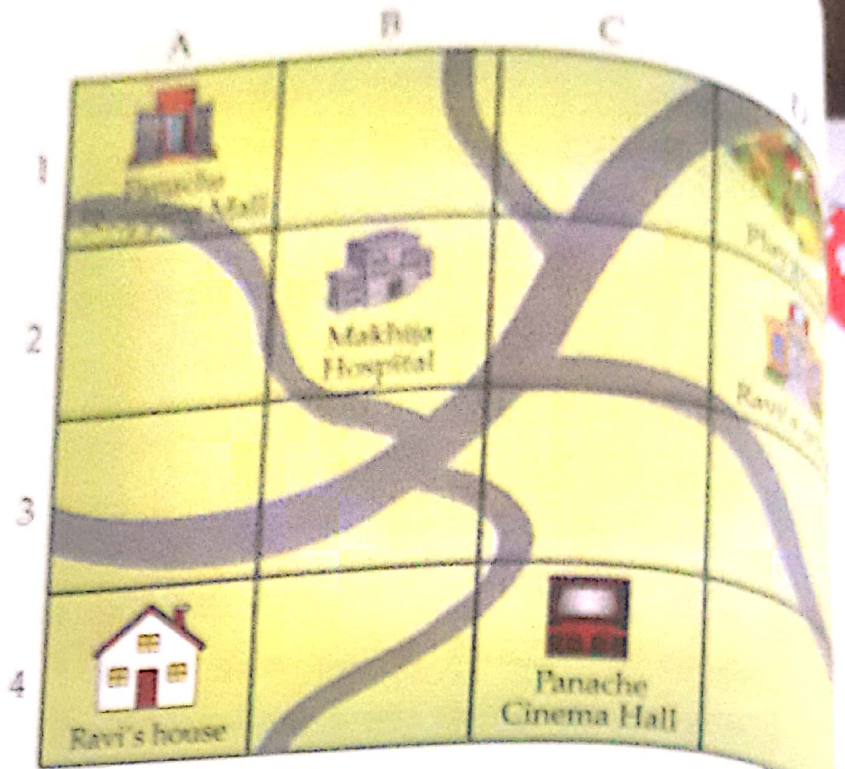
The Prime Meridian passes through these countries—the United Kingdom, France, Spain, Algeria, Mali, Burkina Faso and Ghana. It also passes through Antarctica.

Did You Know?

Grid

Longitudes and latitudes crisscross each other to form a network of lines known as a **grid**. The point in the grid where latitudes and longitudes intersect each other is called a **coordinate**.

Coordinates help us to locate any place or point on Earth.



Let us understand this with the help of the map given above. In this map, the columns are labelled on the top with the letters A, B, C and D. The rows are labelled with the numbers 1, 2, 3 and 4.

Ravi's house is located in the grid box/square formed in column A, row 4. The name of the grid box/square is A 4. Similarly, Makhija Hospital is located at B 2.

Now, find out in which grid (box/square) Panache Shopping Mall and Ravi's school are located. Write your answers here:

Ravi's school

Panache Shopping Mall

Chapter Checklist

Tick (✓) the concepts you have understood.


The Equator divides the Earth into two equal halves—the Northern Hemisphere and the Southern Hemisphere.

Latitudes are imaginary lines running parallel to the Equator.


Longitudes are imaginary lines running from the North Pole to the South Pole.

The Prime Meridian divides the Earth into two halves—the Eastern Hemisphere and the Western Hemisphere.

The grid boxes/squares formed by latitudes and longitudes help us to locate a place on Earth.

I. Match the following. 

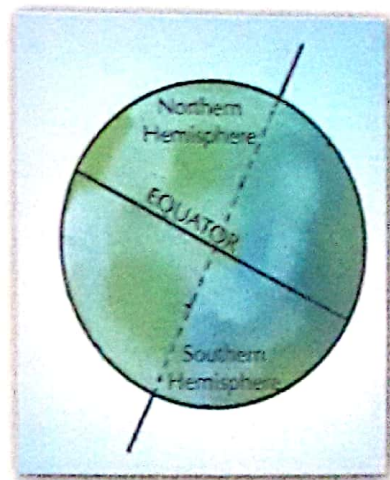
- | | |
|-----------------------|--|
| 1. Equator | a. $66\frac{1}{2}^{\circ}$ N latitude |
| 2. Prime Meridian | b. a latitude which lies in the middle of the Earth, at an equal distance from the North Pole and the South Pole |
| 3. Arctic Circle | c. a longitude that passes through Greenwich, London |
| 4. Western Hemisphere | d. $23\frac{1}{2}^{\circ}$ N latitude |
| 5. Tropic of Cancer | e. area between 0° and 180° W |

II. Rearrange the jumbled words. 

- | | |
|----------------------|--|
| 1. T U D E L A T I | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> |
| 2. L O N D E T U G I | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> |
| 3. R O T A Q U E | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> |
| 4. A N D I R I M E | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> |
| 5. R D I G | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> |

III. Answer the following questions.

- How can we locate a place on the Earth?
- Mention one similarity and one difference between a latitude and a longitude.
- Name the four hemispheres into which the Earth can be divided.
- What is the International Date Line?
- What is a grid?



IV. Think It Over! (HOTS)

Have you or anyone you know, used a taxi service such as Uber or Ola? How do these taxis find your location to pick you up and drop you at your chosen destination? Discuss in class.