

# 1

## The Planet Earth We Live

The Earth in which we live can be considered as a marvelous creation of nature. According to the available information, the Earth is the only planet that consists of air and water with a congenial environment for living beings.

The Earth revolves round the Sun while spinning around its own axis. The Earth's movement around its own axis is called rotation and the journey around the Sun is called revolution. The Earth takes 24 hours or one day to rotate around its own axis and 365 days or one year to revolve around the Sun.

The main objective of this chapter is to study about the Earth related to information about continents, oceans, longitudes, latitudes and the shape of the Earth.

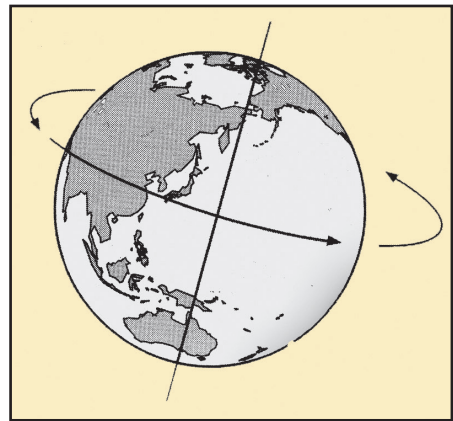


Fig. 1.1 - Rotation of the earth

### The shape of the Earth

There were different ideas about the shape of the Earth in the past. At present, the Earth has definitely been identified as a spherical object. This is proved by observing the photographs taken from space. (Fi. 1.2)

Although the Earth is considered a spherical object, it is not a full sphere. The reasons are the flatness of the Earth in the Polar Regions and the

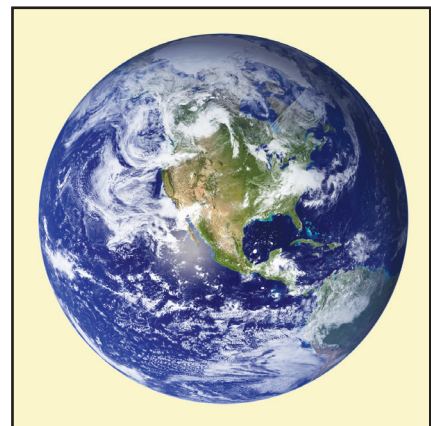
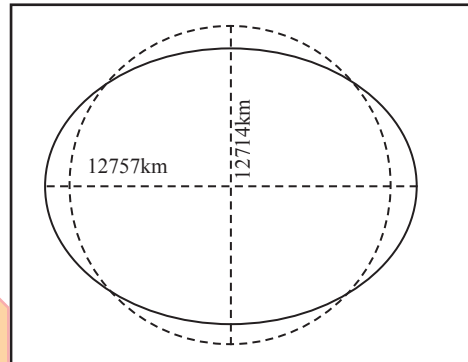


Fig.1.2 -A photograph taken from the space

largeness of the equatorial circumference than the polar circumference. (Fig. 1.3) However, the following data proves that it is only a minor difference.

Equatorial diameter	= 12757km
Polar diameter	= 12714 km
Equatorial circumference	= 40077km
Polar circumference	= 39943km



**Fig. 1.3 - shape of the Earth**

The surface area of the Earth is 510 million km<sup>2</sup>.

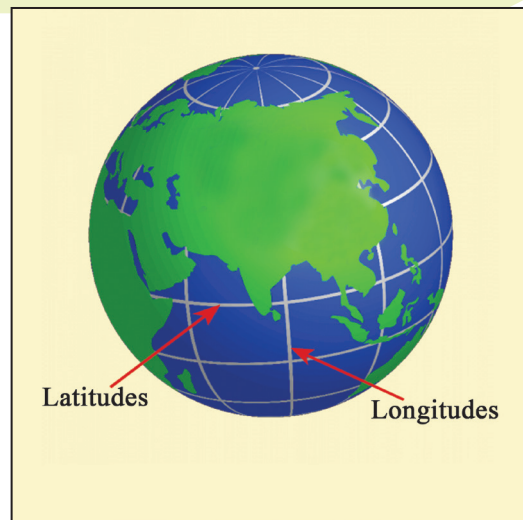
Source - <http://www.google.lk/2015/07/10>

## Activities

- Briefly explain what is meant by rotation and revolution.
  - What is the time period taken for rotation and revolution of the Earth?
- What are the evidences which help to prove that the Earth is not a mathematical sphere?

## Latitudes and Longitudes

When observing a geographical globe, you may see a set of lines drawn from North to South and West to East. Those lines are imaginary lines drawn by us and they are called as longitudes and latitudes.



**Fig. 1.4 – Latitudes and Longitudes**

The lines drawn horizontally from the West to the East on the geographical globe are called latitudes and the lines drawn vertically from the North to the South are called longitudes. (Figure 1.4)

The line drawn horizontally on the middle of the globe is named  $0^{\circ}$  latitude or the equator.

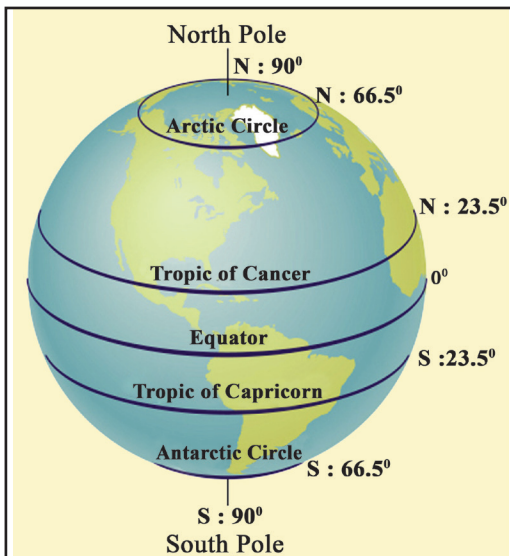


Fig. 1.5 – Latitudes

The northern part of the equator is called the Northern Hemisphere and the southern part is called the Southern Hemisphere. The lines to the North of the equator are termed North Latitudes and the lines to its South are termed South Latitudes.

There are some main latitudes among them. Observe figure 1.5 and identify them. Latitude  $90^{\circ}$  is indicated as a point. The North Latitude  $90^{\circ}$  is the North Pole and the South Latitude  $90^{\circ}$  is named the South Pole.

## Activity

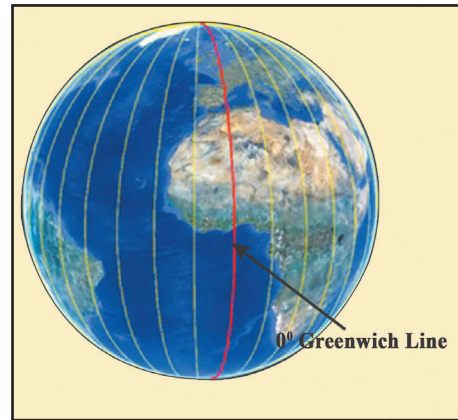
1. Observe figure 1.5 and identify the main latitudes and name them with their values.

The lines drawn on the globe connecting the North Pole and the South Pole are called longitudes.

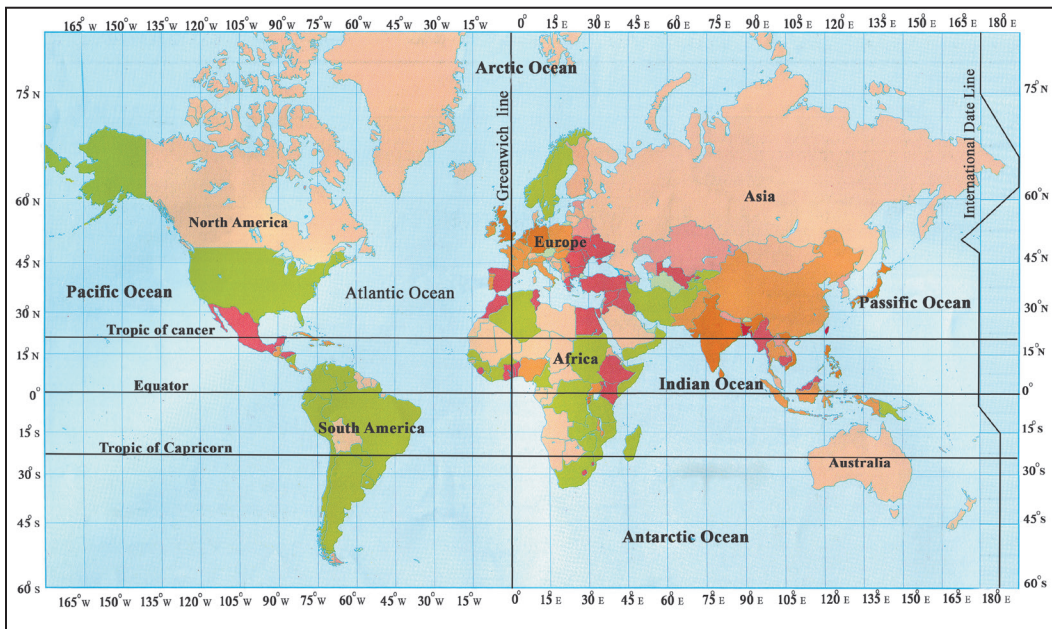
The  $0^{\circ}$  longitude which is drawn across the Greenwich City in England is the Greenwich Prime Meridian

The lines drawn to its West are called the West Longitudes and the lines to the East of it are called the East Longitudes.

From the prime meridian  $360^{\circ}$  longitudes are distributed and  $180^{\circ}$  run towards Eastwards and  $180^{\circ}$  run towards Westwards. Therefore, longitude  $180^{\circ}$  is common to both the East and West. The International Date Line follows this line. Sometimes, the International Date Line is not marked as a straight line to prevent the division of a country. Observe map 1.1 and identify how latitudes and longitudes you have studied are distributed in a world map.



**Fig. 1.4 – Longitudes**



**Map 1.1 - A world map indicating latitudes and longitudes**

Latitudes and longitudes are used to indicate the location of any place on the Earth specifically and accurately.

## Activities

1. Mark and name the following latitudes and longitudes in a blank map of the world.
  - Equator ( $0^{\circ}$ )
  - Tropic of Cancer ( $23\frac{1}{2}^{\circ}$ North latitude)
  - Tropic of Capricorn ( $23\frac{1}{2}^{\circ}$ South latitude)
  - Greenwich line ( $0^{\circ}$ )
  - Longitude  $80^{\circ}$  East
  - Arctic Circle ( $66\frac{1}{2}^{\circ}$  North latitude)
  - Antarctic Circle ( $66\frac{1}{2}^{\circ}$  South latitude)
2. With your teacher's instructions, mark the main latitudes on a medium size rigid foam ball.
3. Observe the model globe and state the location of the cities of Colombo, Tokyo, New York, London and Calcutta in relation to latitudes and longitudes.

## Continents and Oceans

71% of the surface of the Earth is covered by water and 29% is covered by land. The areas covered by water consists of Oceans and Seas and the land area consists of continents and islands.

### Continents

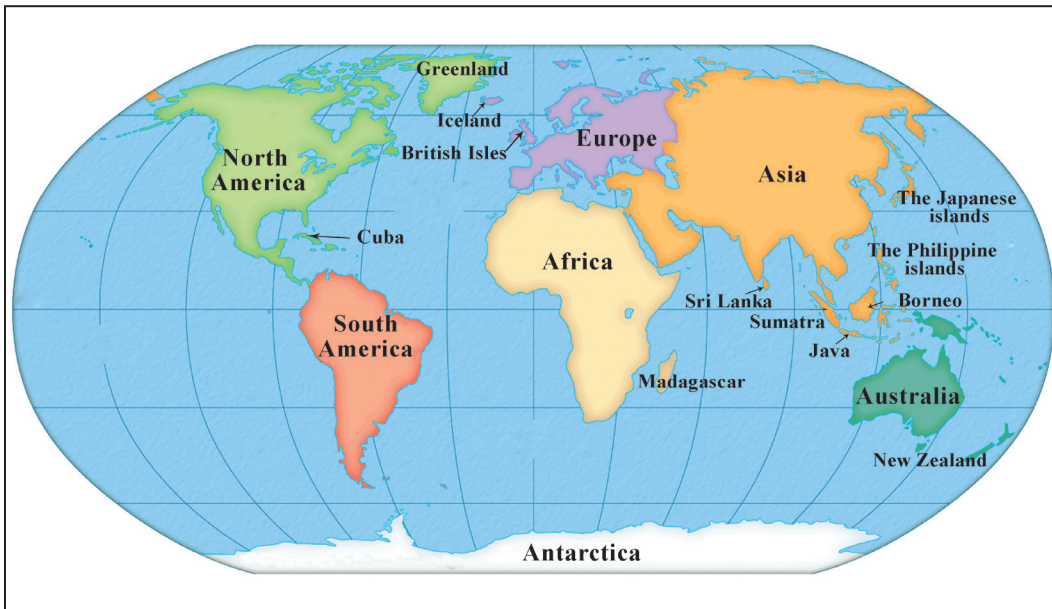
The Earth consists of seven continents.

Continent is a large land area surrounded by water.

Continents	Area million km <sup>2</sup>
1. Continent of Asia	43.6
2. Continent of Africa	30.3
3. Continent of North America	25.3
4. Continent of South America	17.8
5. Continent of Antarctica	14.0
6. Continent of Europe	10.5
7. Continent of Australia	8.9

An island is a small land area surrounded by water.

Many islands are located around the lands in coastal areas.



**Map1.2 - Continents and islands in the world**

There are politically divided countries in each of the continents. However, the continent of Australia is a single country. Observe map 1.3 and identify several countries located in different continents.



**Map 1.3 - Political divisions in the world**

## Oceans

The water masses located among continents are called oceans and the small water bodies located close to continents and inland areas are called seas.

There are five oceans in the world.

Ocean	Area million km <sup>2</sup>
1. Pacific ocean	156
2. Indian ocean	77
3. Atlantic ocean	69
4. Antarctic ocean (Southern)	20
5. Arctic ocean	14

Japanese Sea, China Sea, North Sea, Red Sea and Mediterranean Sea are several seas located close to lands and Caspian Sea and Aral Sea are located within the continent of Asia.

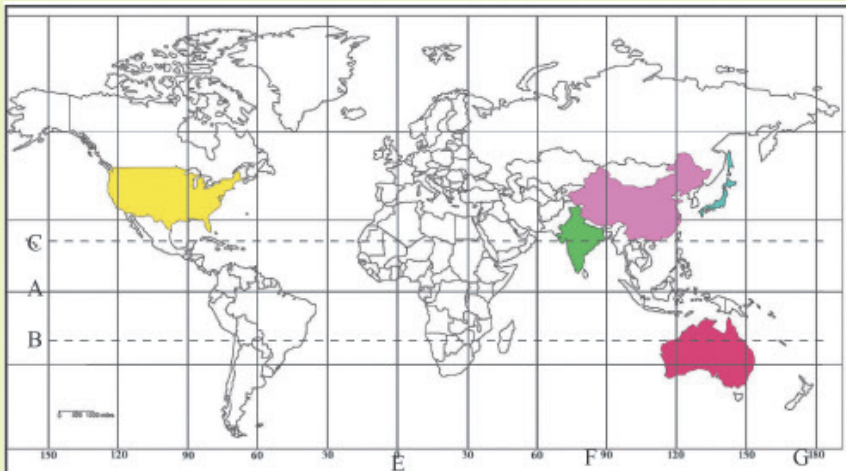


**Map 1.4 - Oceans and Seas in the world**

## Activities

1. Shade the oceans in the world in blue.
2. Mark and name three seas connected to the oceans and three seas located inside countries.
3. With the help of an Atlas name three islands located in the Indian Ocean close to Sri Lanka.

4.





- i. Name the latitudes indicated by letters A, B, C in the above world map and write the value of them, and state the value of the longitudes indicated by letters E, F and G.
  - ii. Observe the map and name the latitudes located on either sides of Sri Lanka.
  - iii. Name the island located close to line F in the map.
  - iv. Name the five shaded countries in the map.
5. On a blank map of the world,
- i. Shade the seven continents in different colours and name them.
  - ii. Mark and name two countries from continents other than Australia and Antarctica.
  - iii. Mark and name the following cities.  
San Francisco, Rio de Janeiro, Cairo, Dacca

### Assignment

1. Refer to an atlas and select any five cities and mention the latitude or longitude close to them.
2. Name two countries which are located across the Tropic of Cancer, Tropic of Capricorn and the Equator.

### References

- [https://www.google.lk/?gws\\_rd=ssl#q=area+in+the+earth](https://www.google.lk/?gws_rd=ssl#q=area+in+the+earth)

### Glossary

- |            |             |           |
|------------|-------------|-----------|
| ● Earth    | - පෘථිවිය   | - புவி    |
| ● Planet   | - ග්‍රහලෝකය | - கோள்கள் |
| ● Axis     | - අක්ෂය     | - அச்ச    |
| ● Rotation | - භ්‍රමණය   | - சுழற்சி |

- Revolution - பரிபுரணம் - சுற்றுக்கை
- Latitudes - அகலம் - அகலங்கு
- Longitudes - அகலம் - நெட்டாங்கு
- Space - அளவுகூறு - விண்வெளி
- Observation - நிகழ்ச்சிகள் - அவதானிப்பு
- Equatorial circumference - புவியின் பரிபுரணம் - மத்தியகோட்டு சுற்றளவு
- Polar circumference - புவியின் பரிபுரணம் - துருவ சுற்றளவு
- Diameter - விட்டம் - விட்டம்
- Imaginary lines - கற்பனைக்கோடுகள் - கற்பனைக்கோடுகள்
- Northern hemisphere - வட அரைக்கோளம் - வட அரைக்கோளம்
- Southern hemisphere - தென் அரைக்கோளம் - தென் அரைக்கோளம்
- Equator - மத்திய கோடு - மத்திய கோடு
- Greenwich meridian - கிழிந்தி மத்திய நெட்டாங்கு - கிழிந்தி மத்திய நெட்டாங்கு
- International Date Line - சர்வதேச தேதிக்கோடு - சர்வதேச தேதிக்கோடு
- Tropic of Cancer - கடகக்கோடு - கடகக்கோடு
- Tropic of Capricorn - மகரக்கோடு - மகரக்கோடு
- East longitudes - கிழக்கு நெடுங்கோடு - கிழக்கு நெடுங்கோடு
- Arctic Circle - ஆக்டிக் வட்டம் - ஆக்டிக் வட்டம்
- Antarctic Circle - அந்தாட்டிக் வட்டம் - அந்தாட்டிக் வட்டம்
- Continents - கண்டங்கள் - கண்டங்கள்
- Oceans - சமுத்திரங்கள் - சமுத்திரங்கள்
- Seas - கடல்கள் - கடல்கள்
- Islands - தீவுகள் - தீவுகள்