

# Our Planet-Earth

Earth is the third planet from the Sun and is the largest of the terrestrial planets in the Solar System, in both diameter and mass. It is also called 'Blue Planet.'

- Earth is an oblate spheroid. It is almost spherical, flattened a little at the poles with a slight bulge at the centre (equator). It shows two types of movements :
  - (i) **Rotation or daily movement** Earth spins on its imaginary axis from West to East in one day.
  - (ii) **Revolution or annual movement** Earth's motion is elliptical orbit around the Sun in one year.
- Earth always remains inclined at an angle of  $23\frac{1}{2}^{\circ}$  from a line perpendicular to the plane of Earth's orbit.
- Earth's rotation results in the causation of days and nights and the revolution of the Earth results in change of seasons and variation in the lengths of days and nights at different times of the year.
- **Perihelion** is the nearest position of the Earth to the Sun. It happens on 3rd January and the distance is 147 million km. **Aphelion** is the farthest position of the Earth from the Sun. It happens on 4th July and the distance is 152 million km.

Land Area	29.2% of the total surface area
Water Area	70.8% of the total surface area
Rotation Speed	23 hr, 56 min and 4.100 sec
Revolution Speed	365 days, 5 hr and 45.51sec
Dates when days and nights are equal	March 21 (Vernal Equinox) 23rd September, (Autumnal Equinox)
Longest Day	21st June, (Summer Solstice) Sun is vertically overhead at Tropic of Cancer
Longest Night	22nd December, (Winter Solstice) Sun is vertically overhead at Tropic of Capricorn

## Eclipses

- When the light of the Sun or the Moon is blocked by another body the Sun or the Moon is said to be in eclipse.
- **Solar Eclipse** It is caused when the Moon revolving around the Earth comes in between the Earth and the Sun. It makes a part or whole of the Sun invisible from a particular part of the Earth. Thus, the eclipse can be partial or complete.
- **Lunar Eclipse** When the Earth comes between the Moon and the Sun, the shadow cast by the Earth on the Moon results in a Lunar eclipse.

## Latitudes

- Imaginary lines drawn on the Earth's surface parallel to the equator. Equator ( $0^\circ$ ) is the biggest latitude that divides Earth in two equal hemispheres (North and South).

Tropic of Cancer ( $23.5^\circ\text{N}$ )

Tropic of Capricorn ( $23.5^\circ\text{S}$ )

Arctic Circle ( $66.5^\circ\text{N}$ )

Antarctic Circle ( $66.5^\circ\text{S}$ )

- Each degree of latitude equals 111 km.
- The most important line of latitude is the Equator.

## Longitudes (Meridians)

- Meridians are a series of semicircles that run from pole to pole passing through the equator.
- Prime Meridian** passes through Greenwich near London, divides the Earth in Eastern and Western hemisphere. Its value is  $0^\circ$ .
- Longitude has very important function i.e. it determines local time in relation to **Greenwich Mean Time** (GMT).

## International Date Line (IDL)

- It is the longitude where the date changes by exactly one day when it is crossed.
- $180^\circ$  East and  $180^\circ$  West meridians is the same line, which is called 'the International Date line'.
- Recently Samoa island decided to shift itself on West side of IDL.

## Indian Standard Time (IST)

- The Earth takes approximately 24 hours to complete one rotation i.e. it takes 24 hours to complete  $360^\circ$  of its rotation.
- $1^\circ$  change of longitude corresponds to 4 minutes difference in time.  
Towards East-addition of 1 day  
Towards West-subtraction of 1 day
- Indian Standard Time is calculated on the basis of  $82.5^\circ\text{E}$  longitude which passes through Uttar Pradesh, Madhya Pradesh, Odisha, Chhattisgarh and Andhra Pradesh.
- IST is 5 hr 30 min ahead of GMT.
- The Earth's interior is composed of three major layers: the **crust**, the **mantle** and the **core**.

- Eduard Suess has explained the interior of Earth on the basis of chemical composition as SIAL, SIMA and NIFE.
- SIAL** (Silicon-Aluminium) Upper part of the crust.
- SIMA** (Silicon-Magnesium) Lower part of the crust.
- NIFE** (Nickel-Iron) Outer part of the core.

## Continents

The Earth's surface is divided into seven continents, they are :

Continents	% of Earth Area
Asia	29.5%
Africa	20.4%
North America	16.3%
South America	11.8%
Antarctica	9.6%
Europe	7.1%
Australia	5.3%

## Oceans

There are four oceans. In the order of their size, they are: Pacific ocean, Atlantic ocean, Indian ocean and Arctic ocean. The average depth of oceans is about 4 km.

## Major Oceans

Ocean	Important Information
<b>Pacific</b>	It is the largest and deepest ocean. Most of the Islands of the ocean are volcanic or of coral origin. Mariana Trench, the world's deepest trench with depth 11033 km is in Pacific ocean.
<b>Atlantic</b>	It has the longest coastline. It is the busiest ocean for trade and commerce since Atlantic ocean is still widening. Fues to rice Trench is the deepest point of this ocean.
<b>Indian</b>	Only ocean named after a country. It is deeper than the Atlantic ocean. Here the number of continental islands is more than that of volcanic islands. Java Trench is the deepest point of this ocean.
<b>Arctic</b>	It is the smallest ocean and lies within the Arctic circle. The North pole lies in the middle of the Arctic ocean. Most of the part of the ocean is frozen and hence least saline and the shallowest among all the oceans Nansen's Trench is the deepest point of this ocean.

# Practice Exercise

- Earth is also known as.....  
 (a) Blue Planet (b) Red Planet  
 (c) Green Planet (d) Yellow Planet
- Which is the largest terrestrial planet in the solar system in both diameter and mass?  
 (a) Mars (b) Earth (c) Mercury (d) Venus
- How many types of movement is being carried out by the Earth while revolving around Sun?  
 (a) Two (b) Three (c) One (d) Four
- The nearest position of the Earth to the Sun is known as  
 (a) Perihelion (b) Aphelion  
 (c) Annihelion (d) None of these
- Farthest position of the Earth from the Sun is known as  
 (a) Aphelion (b) Perihelion  
 (c) Annihelion (d) None of these
- Indian Standard Time (IST) is ahead of Greenwich Mean Time by  
 (a) 5 hr 30 min (b) 5 hr  
 (c) 4 hr 30 min (d) 5 hr 20 min.
- Which of the following latitude is known as 'Tropic of Cancer'?  
 (a) 23. 5° N (b) 23. 5°  
 (c) 24.5° N (d) 24.5°
- Which of the following meridian is also known as 'International Date Line'?  
 (a) 180° East (b) 180° East, West  
 (c) 0° Meridian (d) 180° West
- The most important line of latitude is  
 (a) Equator (b) Tropic of Cancer  
 (c) Tropic of Capricorn (d) Antarctic Circle
- What is the distance between each degree of latitude?  
 (a) 111 km (b) 110 km  
 (c) 100 km (d) 125 km
- One degree changes in longitude increase or decrease the time by  
 (a) 4 minutes  
 (b) 3 minutes  
 (c) 10 minutes  
 (d) 12 minutes
- Which of the following city of UP is nearest to the Indian Standard Time (IST)?  
 (a) Allahabad (b) Kanpur  
 (c) Lucknow (d) Meerut
- Which of the following meridian is known as 'Prime Meridian'?  
 (a) 0° (b) 10°E  
 (c) 25°W (d) None of these
- Which of the following ocean has deepest trench?  
 (a) Pacific (b) Atlantic  
 (c) Indian (d) Arctic
- The only ocean named after a country is .....  
 (a) Indian ocean (b) Pacific ocean  
 (c) Atlantic ocean (d) Arctic ocean
- Which of the following is the largest ocean?  
 (a) Pacific (b) Indian  
 (c) Atlantic (d) Arctic
- Where is the 'Nansen Trench' is located at/in?  
 (a) Arctic (b) Indian Ocean  
 (c) Pacific ocean (d) Atlantic Ocean

## Answers

1.	(a)	2.	(b)	3.	(a)	4.	(a)	5.	(a)	6.	(a)	7.	(a)	8.	(b)	9.	(a)	10.	(a)
11.	(a)	12.	(a)	13.	(a)	14.	(a)	15.	(a)	16.	(a)	17.	(a)						