

De Facto IAS
GS Notes for Judiciary

Earth

- The Earth is an **oblate spheroid**. It is almost spherical, flattened a little at the poles with a slight bulge at the centre (equator).
- **Perihelion** Nearest position of the Earth to the Sun.
- **Aphelion** Farthest position of the Earth from the Sun.
- 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.
- **Rotation of the Earth** Earth spins on its imaginary axis from West to East in one day. Result in causation of day and night, tides.
- **Revolution of the Earth** Earth's motion in elliptical orbit around the Sun in one year. Result in Change of seasons.

Statistics Data of the Earth

Age	4550 million years
Mass	5 976 1024 . × kg
Volume	1083 1012 . × km 3
Mean Density	5.513 g/cm ³
Total Surface Area	510 million sq 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 45.51 sec
Dates when days and nights are equal	March 21 (Vernal Equinox); 23rd September, (Autumnal Equinox)

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Longest day	21st June, (Summer Solstice) Sun is vertically overhead at Tropic of Cancer
Shortest night	22nd December, (Winter Solstice) Sun is vertically overhead at Tropic of Capricorn
Escape velocity	11.2 km/sec
Mean surface temperature	14°C

Latitudes

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

Tropic of Cancer	23.5°N
Tropic of Capricorn	23.5°S
Arctic Circle	66.5°N
Antarctic Circle	66.5°S

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

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Longitudes (Meridians)

- Meridians are a series of semicircles that run from pole to pole passing through the equator.

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- **Prime Meridian** passes through Greenwich near London, dividing the Earth in the Eastern and Western hemisphere. Its value is 0° .
- Longitude has a very important function i.e., it determines local time in relation to **Greenwich Mean Time (GMT)**.
- 1° change of longitude corresponds to a 4 minute difference in time.

International Date Line (IDL)

- It is the longitude where the date changes by exactly one day when it is crossed.
- 180° East and 180° West meridians is the same line, which is called the International Date Line.
- Crossing Date line from West to East — addition of 1 day
- Crossing Date line from East to West — subtraction of 1 day
- 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° of its rotation.

- Indian Standard Time is calculated on the basis of 82.5°E longitude which passes through Uttar Pradesh, Madhya Pradesh, Odisha, Chhattisgarh and Andhra Pradesh.
- IST is 5 hr 30 min ahead of GMT.

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, thus making 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.

