



# Structure of Earth – SSC Notes

## 1. Definition of Earth

- **Earth:** Third planet from the Sun, spherical in shape, supports life, composed of land, water, atmosphere
- **Importance:** Provides habitat, water, minerals, climate, and resources

## 2. Layers of Earth

Earth has four main layers, differentiated by composition & physical properties:

### A. Crust

- **Outermost layer**
- **Thickness:** 5–70 km → Thinner under oceans, thicker under continents
- **Composition:** Silicates → Granite (continental), Basalt (oceanic)
- **Features:** Lithosphere → Includes crust + upper mantle
- **Supports** landforms, mountains, soil, human activities

### B. Mantle

- **Located** beneath crust → 2900 km thick
- **Composition:** Silicates rich in iron & magnesium
- **Subdivisions:**
  1. **Upper Mantle** → Solid, but partially molten → Convection currents → Plate movement
  2. **Lower Mantle** → Denser, solid

### C. Outer Core

- **Composition:** Liquid iron & nickel
- **Thickness:** ~2200 km
- **Responsible** for Earth's magnetic field → Geodynamo effect

### D. Inner Core

- **Composition:** Solid iron & nickel
- **Radius:** ~1200 km
- **Temperature:** ~5000–6000°C
- **Generates** Earth's internal heat

## 3. Physical Layers of Earth

Layer	Depth / Features
Lithosphere	Crust + upper mantle → Tectonic plates, rigid
Asthenosphere	Upper mantle → Semi-molten, allows plate movement
Mesosphere	Lower mantle → Solid, high pressure
Outer Core	Liquid → Generates magnetic field
Inner Core	Solid → Iron-nickel, very hot

## 4. Important Geological Features

- Tectonic Plates → 7 major + several minor → Drift → Earthquakes & Volcanoes
- Continental Drift Theory → Alfred Wegener → Pangaea → Plate tectonics
- Earthquakes → Movement of crust → Seismic waves
- Volcanoes → Magma eruption → Formation of mountains & islands

## 5. Important SSC Points – Structure of Earth

- Earth → Crust, Mantle, Outer Core, Inner Core
- Crust → Continental (granite), Oceanic (basalt)
- Mantle → Upper (partially molten), Lower (solid)
- Outer Core → Liquid, iron & nickel → Magnetic field
- Inner Core → Solid, iron & nickel → High temperature
- Lithosphere → Rigid, tectonic plates → Earthquakes & Volcanoes
- Convection currents in mantle → Plate movement