



# THE EARTH'S STRUCTURE



The Earth is a unique and dynamic planet that is part of a larger system known as the Earth system. The Earth is made up of three main layers: the crust, mantle, and core.

The crust is the outermost layer of the Earth and is composed of solid rock. It is divided into several tectonic plates that constantly move and interact with each other, leading to earthquakes, volcanic eruptions, and the formation of mountains.

The mantle is the middle layer and is made up of semi-solid rock.

The core is the innermost layer and is composed of two parts: the solid inner core and the liquid outer core. Created with a mixture of iron and nickel.



The Earth's surface is constantly changing due to processes such as plate tectonics, erosion, and volcanic activity. Plate tectonics is the movement of the Earth's crustal plates, which causes earthquakes and the formation of mountains. Erosion is the process by which wind, water, and other natural forces wear away at the Earth's surface, creating features such as canyons and valleys. Volcanic activity is the process by which molten rock, ash, and gas are released from the Earth's interior, forming features such as volcanoes and geysers.

The Earth system is also composed of other components such as the:

## ATMOSPHERE

The layer of gases that surrounds the Earth and is responsible for protecting the planet from harmful radiation and regulating the climate.

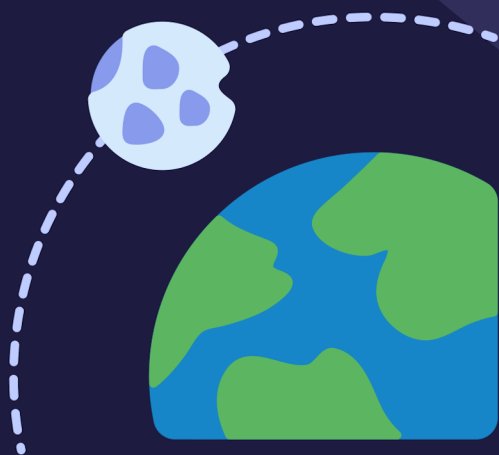
## HYDROSPHERE

The Earth's water system, which includes oceans, lakes, rivers, and glaciers.

## BIOSPHERE

The part of the Earth system that supports life, including all living organisms and their interactions with the environment.



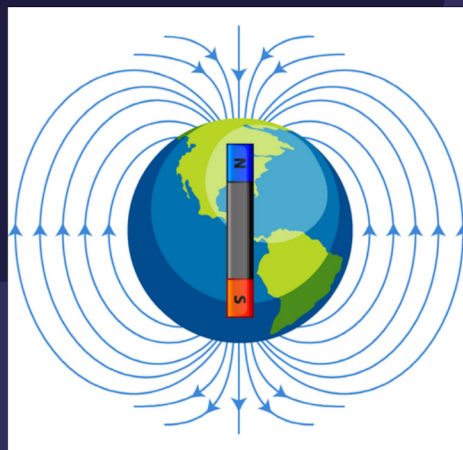


The Earth is the third planet from the sun and is the only planet with a breathable atmosphere, known to support life.

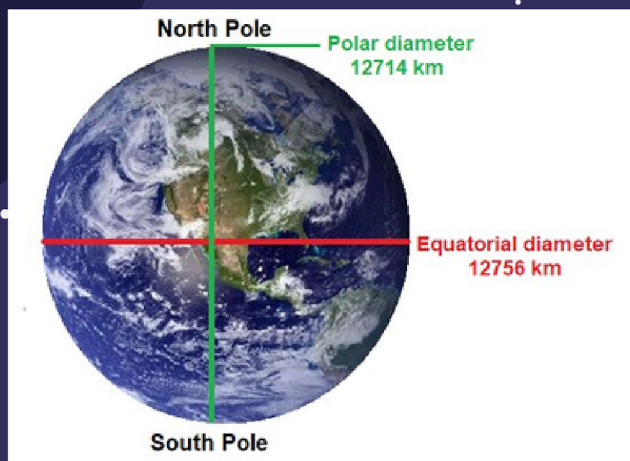
The Earth's atmosphere is composed mainly of nitrogen, oxygen, and trace amounts of other gases.

The Earth has one natural satellite, the moon, which is the fifth largest moon in the solar system.

It has a diameter of approximately 12,756 kilometres and a mass of  $5.97 \times 10^{24}$  kg.

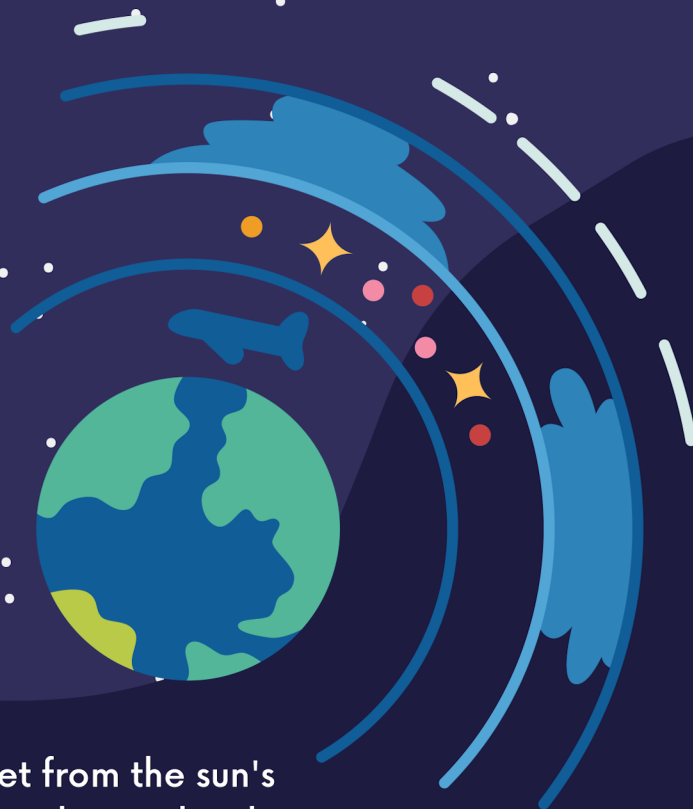


The movement of the liquid outer core creates the Earth's magnetic field, which protects the planet from harmful solar radiation.



The Earth's atmosphere is composed of several layers, including the troposphere, stratosphere, mesosphere, thermosphere, and exosphere.

The Earth's atmosphere protects the planet from the sun's harmful radiation, regulates temperature, and provides the oxygen necessary for life.



# COMPREHENSION QUESTIONS



## SET 1 (EASY)

What are the three main layers of the Earth?

What is plate tectonics?

What is erosion?

What is volcanic activity?

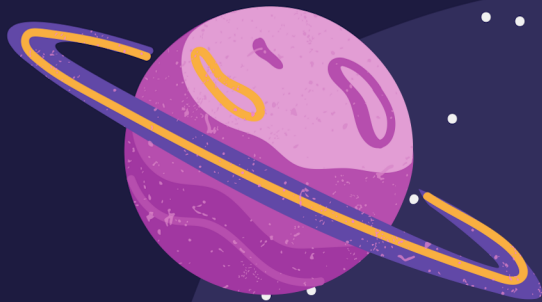
## SET 2 (MEDIUM)

What is the atmosphere and what is its function?

What is the hydrosphere?

What is the biosphere?

What is the Earth's magnetic field and how is it generated?



## SET 3 (HARD)

How does the Earth's magnetic field protect the planet from harmful solar radiation?

What is the significance of the Earth having one natural satellite?

What is the role of the Earth's biosphere in the carbon cycle?

What are some of the current and future space missions exploring the Earth system?



## SET 4 (CHALLENGE)

How did the Earth system form?

What is the history of life on Earth?

How has the Earth system changed over time?

What are some of the future challenges facing the Earth system and how can they be addressed?

