

Earth's Unique Conditions for Life

Chapter 13: Our Home: Earth, a Unique Life-Sustaining Planet · Topic 1

Key Concept

Earth's atmosphere, rich in oxygen and protected by the ozone layer, shields living organisms from harmful ultraviolet radiation while allowing breathable air to exist. Earth's magnetic field, generated by its molten iron core, deflects most harmful solar radiation and charged particles from the Sun, protecting the atmosphere from being stripped away over time, unlike Mars, which lost much of its atmosphere partly due to a weaker magnetic field.

Quick Revision Notes

- Earth's distance from the Sun places it in the 'habitable zone' allowing liquid water.
- Earth's atmosphere provides breathable oxygen and ozone protection from UV radiation.
- Earth's magnetic field, from its molten core, protects the atmosphere from solar radiation.
- Mars lost much of its atmosphere partly due to a weaker magnetic field.

Practice Questions

- 1 List two conditions that make Earth suitable for life.
- 2 Explain the role of Earth's magnetic field in protecting the atmosphere.
- 3 Why might Mars be unable to support life as easily as Earth?