

GRADE 8 | 2024

Earth and Universe

Natural Sciences

CAPS ALIGNED

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1. The Solar System

The Solar System consists of the Sun and all objects that orbit it, including 8 planets, moons, asteroids, and comets.

- Inner planets (rocky): Mercury, Venus, Earth, Mars
- Outer planets (gas giants): Jupiter, Saturn, Uranus, Neptune

2. Earth's Movements

Rotation

Earth rotates on its axis once every 24 hours (one day). This causes day and night.

Revolution

Earth orbits the Sun once every 365.25 days (one year). This causes the seasons.

KEY POINT: Seasons are caused by Earth's tilted axis (23.5 degrees), not its distance from the Sun.

3. The Moon

The Moon orbits Earth approximately every 29.5 days. The Moon's gravity causes ocean tides.

- New Moon: Moon between Earth and Sun (not visible)
- Full Moon: Earth between Moon and Sun (fully lit)
- Lunar eclipse: Earth's shadow falls on the Moon
- Solar eclipse: Moon's shadow falls on Earth

4. Stars and Galaxies

Stars are massive balls of hot gas that produce light and heat through nuclear fusion. Our Sun is a star.

- The Milky Way is our galaxy, containing over 200 billion stars
- A light year is the distance light travels in one year (9.5×10^{12} km)
- Stars are classified by colour and temperature: blue (hottest) to red (coolest)