

CHAPTER 2

Earth in Space

Section 1: The Solar System

Section 2: Earth-Sun Relationships

Section 3: The Earth System

Section 1

The Solar System

Objectives:

- What is Earth's position in the solar system?
- How do rotation and revolution affect Earth?

Section 1

The Solar System

Earth's position in the solar system

- one of nine planets
- third planet from the sun
- fifth-largest planet

Rotation and revolution

- Rotation and revolution affect the amount of solar energy Earth receives at different locations.
- Rotation on Earth's axis produces day and night.
- Revolution around the sun, and the tilt of Earth on its axis, determines seasons.

Section 2

Earth-Sun Relationships

Objectives:

- How does the angle of the Sun's rays affect the amount of solar energy received at different locations on Earth?
- What are solstices and equinoxes?

Angle of the Sun's rays, solar energy, and location:

- Direct vertical rays of sunlight concentrate solar energy in smaller area, making more heat.
- Angled rays spread solar energy out, making less heat.
- Earth's tilt makes direct rays most common near equator and less common at high latitudes.

Solstices and Equinoxes: each occur twice a year

- Solstices—around December 21 and June 21
 - Earth's poles tilted toward or away from the Sun
 - longest or shortest days of the year, depending on hemisphere
- Equinoxes—around March 21 and September 2
 - Earth's poles not tilted toward or away from the Sun
 - equal amount of sunlight in both hemispheres.

Section 3

The Earth System

Objectives:

- What are Earth's four spheres?
- How is Earth's environment unique in the solar system?

Section 3

The Earth System

Earth's four spheres:

- atmosphere—gases surrounding earth
- lithosphere—solid crust of the planet
- hydrosphere—Earth's water
- biosphere—all life forms

Section 3

The Earth System

Earth's unique environment:

- No other planet in the solar system has such a complex environment.
- Environment is the key to human survival and quality of life.