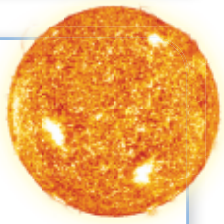
Chapter 1 Summary

1.1 Sustainability

Key Concepts

- Sustainable ecosystems endure, and they sustain the organisms that live within them.
- Matter, including nutrients such as nitrogen, are constantly moving through Earth's spheres.
- Human activities that increase the influx of nutrients into a terrestrial or aquatic ecosystem can upset the nutrient balance in the ecosystem.
- Decisions and actions that are taken to protect the health of ecosystems may involve international agreements and court decisions.

1.2 The Biosphere and Energy



Key Concepts

- The biosphere relies on a constant stream of solar energy.
- Chlorophyll in primary producers converts solar energy to chemical energy through photosynthesis.
- Most of the stored energy in one trophic level does not move to the next trophic level.
- Bioaccumulation and biomagnification can result in unhealthy levels of pollutants in organisms.

1.3 Extracting Energy from Biomass

Key Concepts

- Organisms use cellular respiration and fermentation to extract the energy stored in the glucose produced by photosynthesis.
- Burning fossil fuels has dramatically increased the concentration of carbon dioxide, a greenhouse gas, in the atmosphere.
- Acid precipitation is caused by burning fossil fuels. It can have negative effects on terrestrial and aquatic ecosystems.
- Increased awareness and improved technology have led to a decrease in acid precipitation since the 1980s.