Section 1   Abiotic Factors
A. Living or once-living environmental features are called biotic factors; **abiotic** factors are nonliving physical features.

B. **Atmosphere**—the **air** that surrounds Earth

C. **Water**—the major ingredient of the fluid inside the cells of all organisms

D. **Soil**—a mixture of mineral and rock particles, the remains of dead organisms, water, and air

E. **Sunlight**—the source of energy for most life on Earth

F. Most organisms’ body **temperature** should stay within the range of 0°C to 50°C for survival.
   1. Temperature is affected by **latitude**; areas closer to the equator are warmer than areas farther from the equator.
   2. **Elevation**—distance above sea level that affects temperature, wind, and soil

G. **Climate**—an area’s average **weather** conditions over time, including temperature, precipitation, and wind
   1. For most living things, **temperature** and **precipitation** are the two most important components of climate.
   2. Heat energy from the Sun creates air currents called **wind**

Section 2   Cycles in Nature
A. Earth’s biosphere contains a fixed amount of water, carbon, nitrogen, oxygen, and other materials that **cycle** through the environment and are reused by different organisms.

B. **Water cycle**—how water moves from the Earth’s surface to the **atmosphere** and back to the surface again
   1. **Evaporation**—when liquid water changes into water **vapor** and enters the atmosphere
   2. **Condensation**—the process of changing water from a gas to a liquid
3. When water drops become large and heavy enough, they fall to the ground as rain or other precipitation.

C. **Nitrogen Cycle**—the transfer of nitrogen from the atmosphere to the soil, to living organisms, and back to the atmosphere.

1. **Nitrogen fixation**—a process in which some types of soil bacteria can form the nitrogen compounds that plants need.
2. Farmers replace nitrogen in the soil by growing nitrogen-fixing crops or using fertilizers that contain nitrogen compounds that plants need for growth.

D. **Carbon Cycle**—how carbon molecules move between the living and nonliving world.

1. Producers remove carbon dioxide gas from the air during photosynthesis.
2. **Respiration**—the chemical process that provides energy for cells.

**Section 3  Energy Flow**

A. Matter can be **recycled** over and over again, but energy is **converted** from one form to another.

1. During **photosynthesis** producers convert light energy to chemical energy.
2. **Chemosynthesis**—the production of energy-rich nutrient molecules from chemicals.

B. Energy stored in the molecules of one organism is transferred to another when one organism becomes **food** for another organism.

1. **Food Chains**—a simple way of showing how matter and energy pass from one organism to another.
2. **Food web**—shows all the possible feeding relationships among the organisms in a community.

C. **Energy Pyramid**—shows the amount of energy available at each feeding level in an ecosystem.