1.1

* Ecosystems support life
  + Living things depend on the environment
    - **Ecology** – the scientific study of how organisms interact with their environment and all the other organisms that live in that environment
    - **Ecosystem** – describes a particular environment and all the living things that are supported by it
    - **Biotic factors** – living parts of an ecosystem
    - **Abiotic factors** – nonliving parts of an ecosystem (oxygen, soil, water, sunlight)
  + Biotic factors interact with an ecosystem
    - Living things depend on an ecosystem for food, air, and water for survival
  + Many abiotic factors affect ecosystems
    - **Temperature** – affects types of plants and animals that can survive in an area
    - **Light** – influences the number and types of plants in an ecosystem
    - **Soil** – organisms in soil break down the remains of dead plants and animals
    - **Water** – water supports life and life processes

1.2

* Matter cycles through ecosystems
  + All ecosystems need certain materials
    - **Cycle** – a series of events that happens over and over again
  + **Water cycle** – the movement of water through the environment
  + Carbon cycles through ecosystems
    - **Carbon cycle** – the process of carbon moving through Earth’s ecosystems
      * Carbon is found in all living things
      * In water ecosystems, carbon dioxide is dissolved in the water which allows various types of organisms to survive there
  + Nitrogen cycles through ecosystems
    - **Nitrogen cycle** – the process of nitrogen moving through Earth’s ecosystems
      * Nitrogen is an important element to life

1.3

* Energy flows through ecosystems
  + Living things capture and release energy
    - **Producer** – an organisms that captures energy and stores it in food as chemical energy
      * They make energy available to all the other living parts of an ecosystem
      * Most energy enters the ecosystem through photosynthesis
    - **Consumer** – organisms that get their energy by eating, or consuming, other organisms
      * Classified by their position in a feeding relationship
      * Primary consumer, secondary consumer
    - **Decomposers** – organisms that break down dead plant and animal matter into simpler compounds
  + Models help explain feeding relationships
    - **Food chain** – describes the feeding relationship between a producer and a single chain of consumers in an ecosystem
    - **Food web** – a model of the feeding relationships between many different consumers and producers in an ecosystem
  + Available energy decreases as it moves through an ecosystem
    - **Energy pyramid** – a model that shows the amount of energy available at each feeding level of an ecosystem
      * First level includes producers
      * Second level is primary consumers
      * Third level is secondary consumers

1.4

* Biomes contain many ecosystems
  + Regions of Earth are classified into biomes
    - **Biome** – a region of Earth with similar climate and types of plants and animals
      * There are 6 major land biomes
      * Taiga
      * Tundra
      * Desert
      * Grassland
      * Temperate Forest
      * Tropical Forest
  + Water covers most of Earth’s surface and creates separate biomes
    - Freshwater biomes
      * Lakes and ponds
      * Estuary – the lower end of a river that feeds into the ocean, where fresh water and salt water mix
    - Marine biomes
      * Coastal
      * Open ocean
      * Deep ocean