Summing-up

Organisms are characterized by unity

1.1 Living organisms are diverse

- There is a great variety of life on Earth.
- Some organisms are microscopic and simple in appearance.
- More complex organisms are distinguishable by how they acquire food. Fungi absorb their food, plants photosynthesize, and animals ingest their food.

1.2 Life has many levels of organization

- From the atomic level to organisms, each level is more complex than the preceding one.

- Organisms also interact among themselves and with their environment in ecosystems and the biosphere.

1.3 Organisms share the same characteristics of life

- Living things display these seven characteristics:
  - Order.
  - Response to stimuli.
  - Regulation of internal environment.
  - Acquisition of materials and energy.
  - Reproduction and development.
  - Genetic inheritance.
  - Evolutionary adaptations.
- Evolution is the process by which species change over time.
- Charles Darwin told us that evolution has two aspects: the descent from a common ancestor and adaptation to the environment by natural selection.

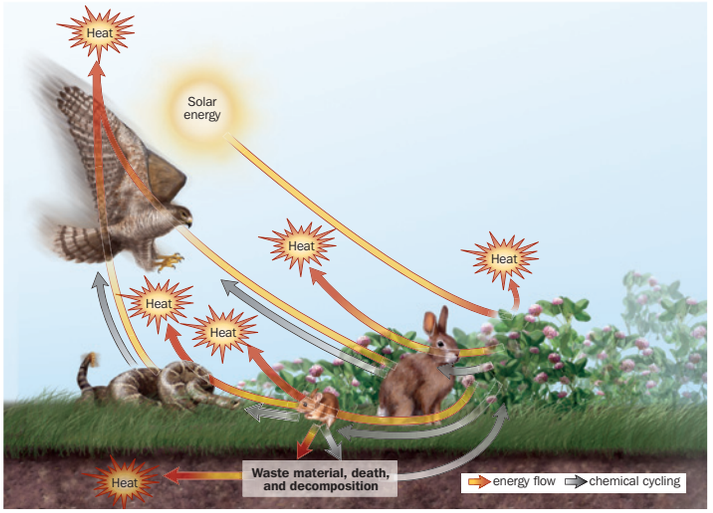
Classification helps us understand diversity

1.4 Taxonomists group organisms according to evolutionary relationships

- The classification categories are species (least inclusive), genus, family, order, class, phylum, kingdom, and domain (most inclusive).
- There are three domains: Bacteria, Archaea, and Eukarya.
- Domain Eukarya contains eukaryotes (organisms with a membrane-bounded nucleus).
- The kingdoms in domain Eukarya are:
  - Protista: unicellular to multicellular organisms with various modes of nutrition.
  - Fungi: molds and mushrooms.
  - Plantae: multicellular photosynthesizers.
  - Animalia: multicellular organisms that ingest food.

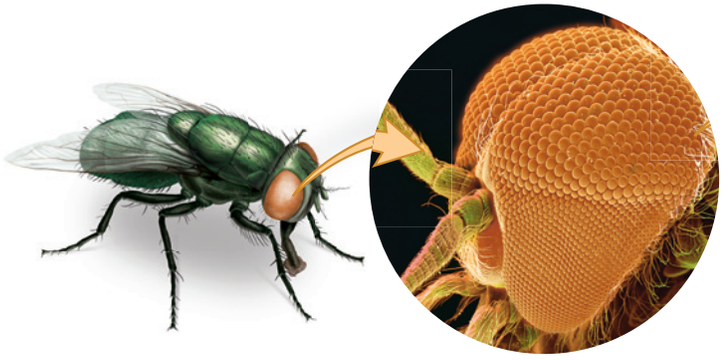
- To classify an organism, two-part scientific names are used, consisting of the genus name and the specific epithet.

The biosphere is organized



1.5 The biosphere is divided into ecosystems

- Individual organisms of the same species living in the same geographical area belong to a population.
- The populations of a community interact among themselves and with their physical environment to form an ecosystem.
- Ecosystems are either aquatic or terrestrial.
- Within an ecosystem, chemicals cycle, while energy flows but does not cycle.



Scientists apply the scientific method

1.6 The natural world is studied by using scientific methods

- Biology is the scientific study of life.
- The scientific process involves the use of the scientific method.
- The scientific method consists of four steps: observation, hypothesis, testing, and conclusion.
- A scientific theory is supported by many observations, experiments, and data.

1.7 Control groups allow for the comparison of results

- In a scientific experiment, the experimental variable is deliberately chosen but the control group is not exposed to the experimental variable.