

Important Concepts	Alaska Science Content Standard C2:
Biodiversity	Students develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms.
6-8 Level	

Grade Level Expectations:

The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by:

[6] SC2.1 using a dichotomous key to classify animals and plants into groups using external or internal features

[6] SC2.2 identifying basic behaviors (e.g., migration, communication, hibernation) used by organisms to meet the requirements of life

[6] SC2.3 describing the levels of organization within a human body (i.e., cells, tissues, organs, systems)

[7] SC2.1 describing the basic structure and function of plant and animal cells

[7] SC2.2 identifying the seven levels of classification of organisms

[7] SC2.3 identifying and describing the functions of human organs (i.e., heart, lungs, brain)

[8] SC2.1 placing vertebrates into correct classes of taxonomy based on external, observable features

[8] SC2.2 explaining that most organisms utilize inherited and learned behaviors to meet the basic requirements of life

[8] SC2.3 describing the functions and interdependence of human body systems (i.e., circulatory, respiratory, nervous)

According to AAAS's Benchmarks for Science Literacy*, some of the things that students should know and understand by the end of eighth grade are:

By the end of 8th grade, students should know that:

- One of the most general distinctions among organisms is between plants, which use sunlight to make their own food, and animals, which consume energy-rich foods. Some kinds of organisms, many of them microscopic, cannot be neatly classified as either plants or animals.
- Similarities among organisms are found in internal anatomical features, which can be used to infer the degree of relatedness among organisms.
- Traditionally, a species has been defined as all organisms that can mate with one another to produce fertile offspring.
- The cycles continue indefinitely because organisms are decomposed after death to return food materials to the environment.
- All living things are composed of cells, from just one to millions, whose details usually are visible only through a microscope.
- Cells repeatedly divide to make more cells for growth and repair.
- Various organs and tissues function to serve the needs of all cells for food, air, and waste removal.

*Project 2061, American Association for the Advancement of Science, Benchmarks for Science Literacy. New York: Oxford University Press, 1993.

- Within cells, many of the basic functions of organisms—such as extracting energy from food and getting rid of waste—are carried out.
- To burn food for the release of energy stored in it, oxygen must be supplied to cells, and carbon dioxide removed. Lungs take in oxygen for the combustion of food and eliminate the carbon dioxide produced. The urinary system disposes of dissolved waste molecules, the intestinal tract removes solid wastes, and the skin and lungs aid in the transfer of thermal energy from the body. The circulatory system moves all these substances to or from cells where they are needed or produced, responding to changing demands.
- Specialized cells and the molecules they produce identify and destroy microbes that get inside the body.
- Hormones are chemicals from glands that affect other body parts. They are involved in helping the body respond to danger and in regulating human growth, development, and reproduction.
- Interactions among the senses, nerves, and brain make possible the learning that enables human beings to predict, analyze, and respond to changes in their environment.