

Biology I: High School

Aligned Standards

Standard 1 Principles of Biology

Students work with concepts, principles, and theories enabling them to understand the living environment. They recognize living organisms are made of cells or cell products that consist of the same components as all other matter, involve the same kinds of transformations of energy, and move using the same kinds of basic forces. Students investigate, through laboratories and fieldwork, how living things function and how they interact with one another and their environment.

B1.8: Understand and describe that all growth and development is a consequence of an increase in cell number, cell size, and/or environmental influence. Differentiate between mitosis and meiosis.

B1.11: Describe through biogenesis how all organisms begin their life cycles as a single cell and that in multi-cellular organisms, successive generations of embryonic cells form by cell division.

B.1.17: Understand and describe how the maintenance of a relatively stable internal environment is required for the continuation of life. Explain how stability is challenged by changing physical, chemical, and environmental conditions, as well as the presence of disease agents.

B.1.18: Explain that the regulatory and behavioral responses of an organism to external stimuli occur in order to maintain both short and long-term equilibrium.

B.1.19: Recognize and describe that metabolism consists of the production, modification, transport, and exchange of materials that are required for the maintenance of life.

B1.23: Understand and describe how inserting, deleting, or substituting DNA segments can alter a gene. Recognize that an altered gene may be passed on to every cell that develops from it, and the resulting features may help, harm, or have little or no effect on the offspring's success in its environment.

B1.24: Explain gene mutations can be caused by such things as radiation and chemicals. Understand when they occur in sex cells, the mutations can be passed on to offspring; if they occur in other cells, they can be passed on to descendant cells only.