

## What your child will learn:

## Biology

*Biology is the study of living organisms, including their structure, functioning, evolution, distribution, and interrelationships. In Biology class,*

**The student will be able to explain the correlation between the structure and function of biologically important molecules and their relationship to cell processes.**

- The student will be able to describe the unique characteristics of chemical substances and macromolecules utilized by living systems.
- The student will be able to discuss factors involved in the regulation of chemical activity as part of a homeostatic mechanism.
- The student will be able to compare the transfer and use of matter and energy in photosynthetic and non-photosynthetic organisms.

**The student will demonstrate an understanding that all organisms are composed of cells which can function independently or as part of multicellular organisms.**

- The student will explain processes and the function of related structures found in unicellular and multicellular organisms.
- The student will conclude that cells exist within a narrow range of environmental conditions and changes to that environment may cause changes in the metabolic activity of the cell or organism.

**The student will analyze how traits are inherited and passed on from one generation to another.**

- The student will demonstrate that the sorting and recombination of genes during sexual reproduction has an effect on variation in offspring.
- The student will illustrate and explain how expressed traits are passed from parent to offspring.
- The student will explain how a genetic trait is determined by the code in a DNA molecule.
- The student will interpret how the effects of DNA alteration can be beneficial or harmful to the individual, society, and/or the environment.

**The student will explain the mechanism of evolutionary change.**

- The student will explain how new traits may result from new combinations of existing genes or from mutations of genes in reproductive cells within a population.
- The student will estimate degrees of relatedness among organisms or species.

**The student will investigate the interdependence of diverse living organisms and their interactions with the components of the biosphere.**

- The student will analyze the relationships between biotic diversity and abiotic factors in environments and the resulting influence on ecosystems.
- The student will analyze the interrelationships and interdependencies among different organisms and explain how these relationships contribute to the stability of the ecosystem.
- The student will investigate how natural and man-made changes in environmental conditions will affect individual organisms and the dynamics of populations.
- The student will illustrate how all organisms are part of and depend on two major global food webs that are positively or negatively influenced by human activity and technology.