

# Science

## Grade Level Expectations at a Glance

| Standard           | Grade Level Expectation   |
|--------------------|---|
| <b>High School</b> |   |
| Life Science       | <ol style="list-style-type: none"> <li>1. Matter tends to be cycled within an ecosystem, while energy is transformed and eventually exits an ecosystem</li> <li>2. The size and persistence of populations depend on their interactions with each other and on the abiotic factors in an ecosystem</li> <li>3. Cellular metabolic activities are carried out by biomolecules produced by organisms</li> <li>4. The energy for life primarily derives from the interrelated processes of photosynthesis and cellular respiration. Photosynthesis transforms the sun's light energy into the chemical energy of molecular bonds. Cellular respiration allows cells to utilize chemical energy when these bonds are broken.</li> <li>5. Cells use the passive and active transport of substances across membranes to maintain relatively stable intracellular environments</li> <li>6. Cells, tissues, organs, and organ systems maintain relatively stable internal environments, even in the face of changing external environments</li> <li>7. Physical and behavioral characteristics of an organism are influenced to varying degrees by heritable genes, many of which encode instructions for the production of proteins</li> <li>8. Multicellularity makes possible a division of labor at the cellular level through the expression of select genes, but not the entire genome</li> <li>9. Evolution occurs as the heritable characteristics of populations change across generations and can lead populations to become better adapted to their environment</li> </ol> |

**Standard****Grade Level Expectation**

| <b>High School (continued)</b> |  |
|--------------------------------|--|
| Earth Systems Science          | <ol style="list-style-type: none"><li>1. The history of the universe, solar system and Earth can be inferred from evidence left from past events</li><li>2. As part of the solar system, Earth interacts with various extraterrestrial forces and energies such as gravity, solar phenomena, electromagnetic radiation, and impact events that influence the planet's geosphere, atmosphere, and biosphere in a variety of ways</li><li>3. The theory of plate tectonics helps to explain geological, physical, and geographical features of Earth</li><li>4. Climate is the result of energy transfer among interactions of the atmosphere, hydrosphere, geosphere, and biosphere</li><li>5. There are costs, benefits, and consequences of exploration, development, and consumption of renewable and nonrenewable resources</li><li>6. The interaction of Earth's surface with water, air, gravity, and biological activity causes physical and chemical changes</li><li>7. Natural hazards have local, national and global impacts such as volcanoes, earthquakes, tsunamis, hurricanes, and thunderstorms</li></ol> |