

## Sixth Grade Science ELO's Updated May, 2020

**Course Description:** Sixth grade science is an introductory course designed to allow students to explore the basic concepts of physical science. Students will be introduced to the history and nature of science. The course includes an introduction to the fundamental concepts of physics, chemistry, and basic understanding of scientific investigation. Students will be encouraged to explore the relationship between science and everyday life

### Big Ideas:

1. Matter is anything that has mass and takes up space. Atoms are the basic building blocks of all matter, and all matter can change state. (Solid, liquid, and gas)
2. Energy and the different forms that apply to everyday life. Electrical, Thermal, Chemical, Light, and Sound.
3. Force and Motion how the act together to change an object speed and direction
4. Conducting valid experiments that require being able to identify the different variables in a scientific investigation.

ELO 1	6-8 PS1.A.1	Atomic Structure: Students will be able to develop models to describe atomic composition of simple molecules and extended structures. Examples of molecular level models could include drawings 3D ball and stick structures, or computer representations.
ELO 2	6-8 PS1.A.2	Properties of Matter: Students will be able to interpret properties of substance before and after the substance interact to determine if a chemical reaction has occurred.
ELO 3	6-8 PS1.A.4	Phase Change: Students will be develop a model that describes changes in particle motion, temperature, and state of pure substance when thermal energy is added or removed.
ELO 4	6-8 PS3.A.1 6-8 PS3.A.2	Potential and Kinetic Energy: Students will be able to construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object. Calculating speed (Distance/Time)
ELO 5	6-8 PS3.A.3	Thermal Energy: Students will be able to apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer. Examples of devices could include an insulated box, a solar cooker, and a Styrofoam cup.
ELO 6	6-8 PS3.A.4. 6-8 PS3.B.1	Energy Transfer/Conservation of Energy: Students will be able to plan and conduct an investigation to determine the relationships among the energy transferred the type of matter, the mass, and the change in the temperature of the sample. Moreover, Construct and use, and present argument to support the claim that when the kinetic energy of an object changes, energy is transferred to or from an object.
ELO 7	6-8 PS4.A.2	Light and Sound: Students will be able to develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.
ELO 8	6-8 PS2.A.1 6-8 PS2.A.2	Force and Motion: Students will be able to plan and conduct an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.
ELO 9	6-8 ETS1.B.3	Engineering Design: Students will develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.