



I Can...

Matter and Its Interactions

- develop models to describe the atomic composition of simple molecules and extended structures.
- analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction occurred.
- develop a model that predicts and describes changes in particle motion, temperature and state of pure substance when thermal energy is added or removed.
- develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.

Earth's Systems

- develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
- construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.
- analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of past plate motions.

Earth and Human Activity

- construct scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy and groundwater resources are the result of past and current events.
- analyze and interpret data on natural hazards to forecast future catastrophic events.

Molecules to Organisms: Structures and Processes

- conduct an investigation proving that living things are made of cells and model the function of a single cell.
- provide evidence that the body is a system and interacting subsystems, with sensory receptors that respond to stimuli by sending messages to the brain.
- develop a model to describe how asexual and sexual reproduction result in identical and genetic variation.

Engineering Design

- define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution.
- evaluate design solutions using a process to determine how well they solve the constraints of the problem.
- use tests to determine differences among several design solutions to identify the best characteristic of each.
- develop a model to generate data for testing and modification of a proposed object or tool to achieve an optimal design.