Science 8 - Physical Science

Mehlville School District
Science
Grade 8, Duration 1 Year

Rationale

Surrounded by the products of scientific inquiry, scientific literacy is a necessity for everyone in order to use scientific information to make wise choices. Today, the job market demands advanced skills, requiring people to be able to learn, reason, think creatively, make decisions, and solve problems. An understanding of science and the processes of science contributes in an essential way to these skills.

Course Description

The middle school physical science course will continue to develop understanding of four ideas in the physical science including matter, chemical reactions, forces and interactions, and waves with the transfer and conservation of energy embedded in each of the four areas. The performance expectations in physical science blend the core ideas with scientific and engineering practices and crosscutting concepts to support students in developing usable knowledge to explain real world phenomena in the physical, biological, and earth and space sciences.

Course Objectives

In this course,
The student will demonstrate proficiency in developing and using models.
The student will plan and conduct investigations.
The student will analyze and interpret data.
The student will use mathematical and computational thinking
The student will construct explanations to demonstrate understanding of core ideas.
The student will formulate answers to the following questions:
“How can particles combine to produce a substance with different properties? How does thermal energy affect particles?” by building understanding of what occurs at the atomic and molecular scale.
“What happens when new materials are formed? What stays the same and what changes?” by building understanding of what occurs at the atomic and molecular scale during chemical reactions.
“How can one describe physical interactions between objects and within systems of objects?”by building understanding of why some objects will keep moving, why objects fall to the ground, and why some materials are attracted to each other while others are not.
“How can energy be transferred from one object or system to another?” through four subcategories of definitions of energy, conservation of energy and energy transfer, relationship between energy and forces, and energy in chemical process and everyday life.
“What are the characteristic properties of waves and how can they be used?” through three subcategories of investigation of wave properties, electromagnetic radiation, and information technologies and instrumentation.

BOE June 14, 2018