

8th Grade Physical Science Matter

Implementation Guide

Grade Level Expectation

Systems

- 1.1.1 Understand how to use physical and chemical properties to sort and identify substances.
- 1.1.4 Understand that energy is a property of matter, objects, and systems and comes in many forms (i.e., heat [thermal] energy, sound energy, light energy, electrical energy, kinetic energy, potential energy, and chemical energy)
- 1.2.1 Analyze how the parts of a system interconnect and influence each other.
- 1.2.2 Understand how various factors affect energy transfers and that energy can be transformed from one form of energy to another.
- 1.2.3 Understand that all matter is made of particles called atoms and that atoms may combine to form molecules and that atoms and molecules can form mixtures
- 1.3.3 Understand that matter is conserved during physical and chemical changes.

Inquiry

- 2.1.1 Understand how to generate a question that can be answered through investigation
- 2.1.2 Understand how to plan and conduct scientific investigations
- 2.1.3 Apply understanding of how to construct a scientific explanation using evidence and inferential logic.
- 2.1.4 Analyze how models are used to investigate objects, events, systems and processes.
- 2.1.5 Apply understanding of how to report investigations and explanations of objects, events, systems, and processes.
- 2.2.1 Apply curiosity, honesty, skepticism, and openness when considering explanations and conducting investigations
- 2.2.2 Understand scientific theories explain facts using inferential logic.
- 2.2.3 Analyze inconsistent results from scientific investigations to determine how the results can be explained.
- 2.2.4 Understand how to make the results of scientific investigations reliable and how to make the methods of investigation valid.
- 2.2.5 Understand that increase comprehension of systems leads to new inquiry.

Application

- 3.1.1 Analyze common problems or challenges in which scientific design can be to has been used to design solutions.
- 3.1.2 Apply the scientific design process to develop and implement solutions to problems or challenges.
- 3.1.3 Analyze multiple solutions to a problem or challenge.
- 3.2.1 Analyze how science and technology have been developed, used, and affected by many diverse individuals, cultures, and societies throughout human history.
- 3.2.2 Analyze scientific inquiry and scientific design and understand how science supports technological development and vice versa.