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 toconstruct 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.