

# Physical and Chemical Properties of Matter

5(D) identify the formation of a new substance by using the evidence of a possible chemical change such as production of a gas, change in temperature, production of a precipitate, or color change.

6(B) calculate density to identify an unknown substance.

6(C) test the physical properties of minerals, including hardness, color, luster, and streak.

# Classifying Elements on Periodic Table

5(A) know that an element is a pure substance represented by chemical symbols.

5(C) differentiate between elements and compounds on the most basic level.

6(A) compare metals, nonmetals, and metalloids using physical properties such as luster, conductivity, or malleability.

# Earth's Structures

5(B) recognize that a limited number of the many known elements comprise the largest portion of solid Earth, living matter, oceans, and the atmosphere.

10(A) build a model to illustrate the structural layers of Earth, including the inner core, outer core, mantle, crust, asthenosphere, and lithosphere.

10(C) identify the major tectonic plates, including Eurasian, African, Indo-Australian, Pacific, North American, and South American.

10(D) describe how plate tectonics causes major geological events such as ocean basins, earthquakes, volcanic eruptions, and mountain building.

# **Rocks and Minerals**

6 (C) test the physical properties of minerals, including hardness, color, luster, and streak.

10 (B) classify rocks as metamorphic, igneous, or sedimentary by the processes of their formation.

# Force and Motion

- 8 (A) compare and contrast potential and kinetic energy.
- 8 (B) identify and describe the changes in position, direction, and speed of an object when acted upon by unbalanced forces.
- 8 (C) calculate average speed using distance and time measurements.
- 8 (D) measure and graph changes in motion.
- 8 (E) investigate how inclined planes and pulleys can be used to change the amount of force to move an object.

# Solar System

11 (A) describe the physical properties, locations, and movements of the Sun, planets, Galilean moons, meteors, asteroids, and comets.

11 (B) understand that gravity is the force that governs the motion of our solar system.

11 (C) describe the history and future of space exploration, including the types of equipment and transportation needed for space travel.

# Law of Conservation of Energy

- (A) investigate methods of thermal energy transfer, including conduction, convection, and radiation.
- (B) verify through investigations that thermal energy moves in a predictable pattern from warmer to cooler until all the substances attain the same temperature such as an ice cube melting.
- (C) demonstrate energy transformations such as energy in a flashlight battery changes from chemical energy to electrical energy to light energy.

# Human Use of Energy

(A) research and debate the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources.

(B) design a logical plan to manage energy resources in the home, school, or community.

# Cellular Organization

(A) understand that all organisms are composed of one or more cells.

(B) recognize that the presence of a nucleus determines whether a cell is prokaryotic or eukaryotic.

# Classification of Organisms

- 12 (C) recognize that the broadest taxonomic classification of living organisms is divided into currently recognized Domains.
- 12 (D) identify the basic characteristics of organisms, including prokaryotic or eukaryotic, unicellular or multicellular, autotrophic or heterotrophic, and mode of reproduction, that further classify them in the currently recognized Kingdoms.
- 12 (E) describe biotic and abiotic parts of an ecosystem in which organisms interact.
- 12 (F) diagram the levels of organization within an ecosystem, including organism, population, community, and ecosystem.