Missouri Science

# Grade 5

Adopted 2016

## Matter and Its Interactions PS1

### A. Structure and Properties of Matter PS1.A

a. Develop a model to describe that matter is made of particles too small to be seen. 5.PS1.A.A

b. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. 5.PS1.A.B

### B. Types of Interactions of Matter PS1.B

a. Plan and conduct investigations to separate the components of a mixture/solution by their physical properties (i.e., sorting, filtration, magnets, screening). 5.PS1.B.A

b. Conduct an investigation to determine whether the combining of two or more substances results in new substances. 5.PS1.B.B

## Motion and Stability: Forces and Interactions PS2

### B. Types of Interaction PS2.B

B. Support an argument that the gravitational force exerted by Earth on objects is directed toward the planet's center. 5.PS2.B

## Energy PS3

### D. Energy in Chemical Process and Everyday PS3.D

D. Use models to describe that energy stored in food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. 5.PS3.D

## Waves and Their Applications in technologies for Information Transfer PS4

### A. Wave Properties PS4.A

A. Develop a model to describe that objects can be seen only when light is reflected off them or when they produce their own light. 5.PS4.A

## From Molecules to Organisms: Structure and Processes LS1

### A. Structure and Function LS1.A

A. Compare and contrast the major organs/organ systems (e.g. support, reproductive, digestive, transport/circulatory, excretory, response) that perform similar functions for animals belonging to different vertebrate classes. 5.LS1.A

**C. Organization for Matter and Energy Flow in Organisms** LS1.C

C. Support an argument that plants get the materials (i.e. carbon dioxide, water, sunlight) they need for growth chiefly from air and water. 5.LS1.C

**Ecosystems: Interactions, Energy, and Dynamics** LS2

**B. Cycles of matter and Energy Transfer in Ecosystems** LS2.B

B. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. 5.LS2.B

**Earth's Place in the Universe** ESS1

**A. The Universe and its Stars** ESS1.A

A. Support an argument that relative distances from Earth affects the apparent brightness of the sun compared to other stars. 5.ESS1.A

**B. Earth and the Solar System** ESS1.B

a. Make observations during different seasons to relate the amount of daylight to the time of year. 5.ESS1.B.A

b. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. 5.ESS1.B.B

**Earth's Systems** ESS2

**A. Earth Materials and Systems** ESS2.A

A. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. 5.ESS2.A

**C. The Role of Water in Earth's Surface Processes** ESS2.C

C. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. 5.ESS2.C

**Earth and Human Activity** ESS3

**C. Human Impacts on Earth's Systems** ESS3.C

C. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. 5.ESS3.C

**Engineering Design** ETS1

**A. Defining and Delimiting Engineering Problems** ETS1.A

A. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 5.ETS1.A

**B. Developing Possible Solutions** ETS1.B

B. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 5.ETS1.B

## C. Optimizing the Solution Process ETS1.C

C. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. 5.ETS1.C