

# Curriculum Guide for Parents

## Fifth Grade Science

### **STANDARD 1: ANALYSIS, INQUIRY AND DESIGN**

Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions.

Scientific Inquiry:

The Scientific Method is the process scientists use to go from asking a question to finding an answer. Students should:

- define/identify a problem
- form a hypothesis
- follow a procedure of experiments
- make observations throughout experiment
- gather results
- draw a conclusion using written and/or verbal responses
- communicate results

For a more detailed list of process skills refer to pages 10 and 15 of the New York State Elementary Science Core Curriculum at <http://www.emsc.nysed.gov/ciai/mst/pub/elecoresci.pdf>.

### **STANDARD 4: LIVING ENVIRONMENT**

Health and Nutrition

- Humans need a variety of healthy foods, exercise and rest in order to grow and maintain good health
- Good health habits include hand washing and personal cleanliness, avoiding harmful substances, eating a balanced diet, engaging in regular exercise

### **STANDARD 4: PHYSICAL SETTING**

Light

- Knows that light travels in a straight line unless it strikes an object
- Light passes through some materials, sometimes refracting in the process
- Understands that light can be reflected by a mirror, refracted by a lens or absorbed by an object
- Knows that light interacts with matter by transmission (including refraction), absorption, or scattering (including reflection)
- Understands that something can be seen when light waves emitted or reflected by it enter the eye
- Understands that light is made up of a mixture of many different colors of light, even though to the eye the light looks almost white. Other things that give off or reflect light have a different mix of colors

## STANDARD 4: PHYSICAL SETTING

### Light continued

- Knows that only a narrow range of wavelengths of electromagnetic radiation can be seen by the human eye; differences of wavelength within the range of visible light are perceived as differences in color
- Different forms of electromagnetic energy have different wavelengths. Some examples of electromagnetic energy are microwaves, infrared light, visible light, ultraviolet light, x-rays, and gamma rays

### Geology

- Observe that smaller rocks can come from the breaking up of bigger rocks
- Understands that soil is made up of weathered rock and organic matter
- Can identify basic layers of the earth and their characteristics (inner core, outer core, mantle, crust)
- The rock at Earth's surface forms a nearly continuous shell around Earth called the lithosphere
- The majority of the lithosphere is covered by a relatively thin layer of water called the hydrosphere
- Rocks are classified according to their method of formation. The three classes of rocks are sedimentary, metamorphic, and igneous. Most rocks show characteristics that give clues to their formation conditions
- Fossils are usually found in sedimentary rocks. Fossils can be used to study past climates and environments
- Identifies the 3 basic types of rock (sedimentary, igneous and metamorphic) and explains how they are transformed within the rock cycle
- The rock cycle model shows how types of rock or rock material may be transformed from one type of rock to another
- Rocks are composed of minerals. Only a few rock-forming minerals make up most of the rocks of Earth. Minerals are identified on the basis of physical properties such as streak, hardness and reaction to acid
- Performs tests and collects data to identify rock and mineral samples
- Using identification tests and a flow chart, identify mineral samples
- Use a diagram of the rock cycle to determine geological processes that led to the formation of a specific rock type

## STANDARD 4: PHYSICAL SETTING

### Heat and Changes

- Substances have characteristic properties. Some of these properties include color, odor, phase at room temperature, boiling and freezing points
- The motion of particles helps to explain the phases (states) of matter as well as changes from one phase to another. The phase in which matter exists depends on the attractive forces among its particles
- Gases have neither a determined shape nor a definite volume. Gases assume the shape and volume of a closed container
- A liquid has definite volume, but takes the shape of a container
- A solid has definite shape and volume. Particles resist a change in position
- During a physical change, a substance keeps its composition. Examples of physical changes include freezing, melting, condensation, boiling, evaporation, tearing and crushing
- Different Forms of energy include heat
- Heat moves in predictable ways, flowing from warmer objects to cooler ones, until both reach the same temperature
- Most substances expand when heated and contract when cooled. Water is an exception, expanding when changing to ice