

Curriculum Guide for Parents

Third 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

Life Sciences - Plants

- Plants require air, water, nutrients, and light in order to live and thrive
- Living things grow, take in nutrients, breathe, reproduce, eliminate waste and die
- Some traits of living things have been inherited (i.e., number of limbs...)
- Some characteristics result from an individual's interactions with the environment and cannot be inherited by the next generation (i.e., having scars; riding a bicycle)
- Plants have different structures that serve different functions in growth, survival and reproduction
 - roots help support the plant and take in water and nutrients
 - leaves help plants utilize sunlight to make food for the plant
 - stems, stalk, trunks and other similar structures provide support for the plant
 - some plants have flowers
 - flowers are reproductive structures of plants that produce fruit which contains seeds
 - seeds contain stored food that aids in germination and the growth of young plants
- In order to survive in their environment, plants must be adapted to that environment.
 - seeds disperse by a plant's own mechanism and/or in a variety of ways that can include wind, water and animals
 - leaf, flower, stem and root adaptations may include variations in size, shape, thickness, color, smell and texture

STANDARD 4: LIVING ENVIRONMENT

Life Sciences - Plants continued

- Plants have life cycles. These may include beginning of a life, development into an adult, reproduction as an adult and eventually death
- Each kind of plant goes through its own stages of growth and development that may include seed, young plant and mature plant
- The length of time from beginning of development to death of the plant is called its life span
- Life cycles of some plants include changes from seed to mature plant
- Growth is the process by which plants increase in size
- Food supplies the energy and materials necessary for growth and repair
- All living things grow, take in nutrients, breathe, reproduce and eliminate waste
- Plants respond to changes in their environment. For example, the leaves of some green plants change position as the direction of light changes; the parts of some plants undergo seasonal changes that enable the plant to grow; seeds germinate, and leaves form and grow
- All animals depend on plants. Some animals (predators) eat other animals (prey)
- Plants manufacture food by utilizing air, water and energy from the Sun
- The Sun's energy is transferred on Earth from plants to animals through the food chain
- Green plants are producers because they provide the basic food supply for themselves and animals
- When the environment changes some plants survive and reproduce and other die or move to new locations

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

Human decisions and activities have had a profound impact on the physical and living environments.

- Humans depend on their natural and constructed environments
- Over time humans have changed their environment by cultivating crops and raising animals, creating shelter, using energy, manufacturing goods, developing means of transportation, changing populations, and carrying out other activities
- Humans, as individuals or communities, change environments in ways that can be either helpful or harmful for themselves and other organisms

STANDARD 4: PHYSICAL SETTING

Earth Science - Water Cycle

- Water is recycled by natural processes on Earth:
 - evaporation: changing of water (liquid) into water vapor (gas)
 - condensation: changing of water vapor (gas) into water (liquid)
 - precipitation: rain, sleet, snow, hail
 - runoff: water flowing on Earth's surface
 - groundwater: water that moves downward into the ground
- Erosion and deposition result from the interaction among air, water and land
 - interaction between air and water breaks down earth materials
 - pieces of earth material may be moved by air, water, wind and gravity
 - pieces of earth material will settle or deposit on land or in the water in different places
 - soil is composed of broken-down pieces of living and nonliving earth material
- Extreme natural events (floods, fires, earthquakes, volcanic eruptions, hurricanes, tornadoes, and other severe storms) may have positive or negative impacts on living things
- Energy and matter interact: water is evaporated by the Sun's heat, dark colors may absorb light, light colors may reflect light
- Everyday events involve one form of energy being changed into another
 - the Sun's energy warms the air and water
- Heat energy from the sun powers the water cycle

Physical Science - Matter

- Matter takes up space and has mass. Two objects cannot occupy the same place at the same time
- Matter has properties (color, hardness, odor, sound taste...) that can be observed through the senses
- Objects have properties that can be observed, described and/or measured: length, width, volume, size, shape, mass or weight, temperature, texture, flexibility and reflectiveness of light
- The mass of a material is conserved whether it is together, in parts or in a different state
- Measurements can be made with standard metric units and nonstandard units
- The materials an object is made up of determine some specific properties of the object (sink/float). Properties can be observed or measured with tools such as hand lenses, metric rulers, thermometers, balances, magnets, and graduated cylinders
- Some properties of an object are dependent on the conditions of the present surroundings in which the object exists. For example: temperature (hot or cold), lighting (shadows, color), moisture (wet or dry)
- Matter exists in three states: solid, liquid, gas; solids have a definite shape and volume; liquids do not have a definite shape but have a definite volume; gases do not hold their shape or volume

STANDARD 4: PHYSICAL SETTING

Physical Science - Matter continued

- Things can be done to materials to change some of their properties but not all materials respond in the same way to what is done to them
- Temperature can affect the state of matter of a substance
- Changes in the properties or materials of objects can be observed and described

Physical Science - Sound

- Energy exists in various forms: heat, electric, sound, chemical, mechanical, light
- Properties of sound such as pitch and loudness can be altered by changing the properties of the sound's source (i.e., changing the rate of vibrations)
- Energy can be transferred from one place to another
- Energy and matter interact: a musical instrument is played to produce sound and vibrating objects produce sound
- Interactions with forms of energy can be either helpful or harmful
- Humans utilize interactions between matter and energy: electrical to sound (i.e., doorbell buzzer); mechanical to sound (i.e., musical instruments, clapping)