Shakopee Area Catholic School
Science Standards and Benchmarks
Grade Level: 1
FOSS™ Minnesota Science Standards

HISTORY AND NATURE OF SCIENCE

Standard: The Student will raise questions about the natural world, make careful observations, and seek answers.

Observe, describe, measure, compare, and contrast common objects using simple tools including but not limited to ruler, thermometer and balance.

PHYSICAL SCIENCE

Standard: The student will understand that materials have physical properties.

1. Know that objects can be described, classified, and compared by their composition (e.g., wood or metal) and their physical properties (e.g., color, size, and shape).
2. Know that objects can be grouped according to their physical characteristics (for example, shape, color, texture, form, and size).
3. Recognize that the same material can exist in different states.
4. Know the effects of heating and cooling on solids, liquids and gas.
5. Verify that things can be done to materials to change some of their physical properties (e.g., cutting, heating, and freezing), but not all materials respond the same way (e.g., heating causes water to boil and sugar to melt).
6. Know the physical properties of ice, water, and steam.

Standard: The students will identify states of matter as solids, liquids, and gases.

Describing objects according to physical properties, including hardness, color and flexibility.

Standard: Select appropriate tools and technological resources needed to gather, analyze, and interpret data.

Examples: platform balances, hand lenses, computers, maps, graphs, journals.

Standard: The student recognizes that energy may be changed in form with varying efficiency.

1. Know that the Sun supplies heat and light energy to Earth.
2. Know that heat from the Sun has varying effects depending on the surface it strikes.
3. Know that heat can be produced in many ways (e.g., by burning and rubbing).
4. Know ways that human activities require and release energy.
5. Understand that people need food energy.

EARTH AND SPACE SCIENCE

Standard: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.

1. Recognize that the solid materials making up the Earth come in all sizes, from boulders to grains of sand.
2. Extends and refines knowledge that the surface of the Earth is composed of different types of solid materials. The student will observe and describe rocks, soils, water and air.
3. Know that life occurs on or near the surface of the Earth in land, air, and water.
4. Use graphic organizers to display weather data and show weather patterns.

Standard: Identify ways to conserve earth's resources.

Example: turning off lights and water when not in use.

Standard: Describe uses of recycled materials.

Examples: manufacture of paper products from old newspapers.

LIFE SCIENCE

Standard: The student will observe plant and animal life cycles.

1. Observe and describe how plants and animals grow and change.
2. Know that living things grow and change in different ways and in different lengths of time (for example, butterfly, frog, daisy, pine trees).

Standard: Describe survival traits of living things, including color, shape, size, texture, and covering.

1. Classify plants and animals according to physical traits
   Examples: animals-six legs on insects; plants-green leaves on evergreen trees
2. Identify developmental stages of plants and animals Examples: plants seed developing into seedling, seedling developing into tree; animals-piglet developing into pig, kid developing into goat
3. Describe a variety of habitats and natural homes of animals

Standard: The student will understand that organisms have basic needs.

Know that animals need air, water and food and that plants require air, water, nutrients and light.

Standard: The student will know that the human body is made up of parts.

Observe and describe major parts of the body including, but not limited to, eyes, nose, heart, skin, arm, legs and muscles.

Standard: The student will learn that some diseases are caused by germs.

Know that diseases caused by germs can be spread from person to person; the number of germs can be reduced by personal behavior.

Standard: The student describes patterns of structure and function in living things.

1. Know how to apply knowledge about life processes to distinguish between living and non-living things.
2. Understand that structures of living things are adapted to their function in specific environments. (camouflage, teeth, spine).
3. Understand different ways in which living things can be grouped (for example, plant/animals, edible plants/ non-edible plants).
4. Know the main parts of plants (stem, leaves, roots, flowers).

Standard: The student understands the process and importance of genetic diversity.

1. Know that living things have offspring that resemble their parents.
2. Know that there are many different kinds of living things that live in a variety of environments.
3. Know plants and animals that live in a particular habitat (for example, black bears in the forest, whales in the ocean, camels in the desert, and ducks in the wetlands).
4. Match adult animals and plants to their offspring.
5. Understand that plants and animals produce offspring with similar characteristics, but individual differences (for example, kittens in a litter may be colored differently).

Standard: The student understands the competitive, interdependent, cyclic nature of living things in the environment.

1. Know that environments have living and nonliving parts.
2. Know that plants and animals are dependent upon each other for survival.
3. Know that plants produce oxygen and food for animals.
4. Understand that animals can be grouped according to what they eat.
5. Understand that living things are part of a food chain.
6. Know that there are many different plants and animals living in many different kinds of environments (e.g., hot, cold, wet, dry, sunny, and dark).

Standard: The student understands the consequences of using limited natural resources.

1. Know that if living things do not get food, water, shelter, and space, they will die.
2. Understand why living things must have food, water, shelter and space to survive.
3. Understand that there are limited resources available for all living things to use.

THE NATURE OF SCIENCE

Standard: The student uses the scientific processes and habits of mind to solve problems.

1. Know that in order to learn, it is important to observe the same things often and compare them.
2. Work with others to complete an experiment or to solve a problem.
3. Use the senses, tools and instruments to obtain information from his or her surroundings.
4. Use a variety of tools (for example, thermometers, magnifiers, rulers, scales, computers) to identify characteristics of objects.
5. Use standard (for example, centimeters) and nonstandard units (for example, paper clips, hands, pencils) to measure organisms and objects and parts of organisms and objects.