

### 3<sup>rd</sup> Grade Science State Science Core Scope and Sequence and “I can” Statements (2002)

- The scope is the standards with their objectives and indicators.
- The sequence is any order you want to teach the standards, however, teach each standard in the order they are shown.
- The “I can” statements are the indicators under each objective.

#### Science Benchmark

Earth orbits around the sun, and the moon orbits around Earth. Earth is spherical in shape and rotates on its axis to produce the night and day cycle. To people on Earth, this turning of the planet makes it appear as though the sun, moon, planets, and stars are moving across the sky once a day. However, this is only a perception as viewed from Earth.

**STANDARD 1: Students will understand that the shape of Earth and the moon are spherical and that Earth rotates on its axis to produce the appearance of the sun and moon moving through the sky.**

**Objective 1:** Describe the appearance of Earth and the moon.

- I can describe the shape of Earth and the moon as spherical.
- I can explain that the sun is the source of light that lights the moon.
- I can list the differences in the physical appearance of Earth and the moon as viewed from space.

**Objective 2:** Describe the movement of Earth and the moon and the apparent movement of other bodies through the sky.

- I can describe the motions of Earth (i.e., the rotation [spinning] of Earth on its axis, the revolution [orbit] of Earth around the sun).
- I can use a chart to show that the moon orbits Earth approximately every 28 days.
- I can use a model of Earth to demonstrate that Earth rotates on its axis once every 24 hours to produce the night and day cycle.
- I can use a model to demonstrate why it seems to a person on Earth that the sun, planets, and stars appear to move across the sky.

Science language  
students should use:

model, orbit, sphere, moon, axis, rotation, revolution, appearance

Science Benchmark

For any particular environment, some types of plants and animals survive well, some survive less well and some cannot survive at all. Organisms in an environment interact with their environment. Models can be used to investigate these interactions.

**STANDARD II: Students will understand that organisms depend on living and nonliving things within their environment.**

**Objective 1:** Classify living and nonliving things in an environment.

- a. I can identify characteristics of living things (i.e., growth, movement, reproduction).
- b. I can identify characteristics of nonliving things.
- c. I can classify living and nonliving things in an environment.

**Objective 2:** Describe the interactions between living and nonliving things in a small environment.

- a. I can identify living and nonliving things in a small environment (e.g., terrarium, aquarium, flowerbed) composed of living and nonliving things.
- b. I can predict the effects of changes in the environment (e.g., temperature, light, moisture) on a living organism.
- c. I can observe and record the effect of changes (e.g., temperature, amount of water, light) upon the living organisms and nonliving things in a small-scale environment.
- d. I can compare a small-scale environment to a larger environment (e.g., aquarium to a pond, terrarium to a forest).
- e. I can pose a question about the interaction between living and nonliving things in the environment that could be investigated by observation.

Science language  
students should use:

environment, interaction, living, nonliving, organism, survive, observe,  
terrarium, aquarium, temperature, moisture, small-scale

Science Benchmark

Forces cause changes in the speed or direction of the motion of an object. The greater the force placed on an object, the greater the change in motion. The more massive an object is, the less effect a given force will have upon the motion of the object. Earth's gravity pulls objects toward it without touching them.

**STANDARD III: Students will understand the relationship between the force applied to an object and resulting motion of the object.**

**Objective 1:** Demonstrate how forces cause changes in speed or direction of objects.

- a. I can show that objects at rest will not move unless a force is applied to them.
- b. I can compare the forces of pushing and pulling.
- c. I can investigate how forces applied through simple machines affect the direction and/or amount of resulting force.

**Objective 2:** Demonstrate that the greater the force applied to an object, the greater the change in speed or direction of the object.

- a. I can predict and observe what happens when a force is applied to an object (e.g., wind, flowing water).
- b. I can compare and chart the relative effects of a force of the same strength on objects of different weight (e.g., the breeze from a fan will move a piece of paper but may not move a piece of cardboard).
- c. I can compare the relative effects of forces of different strengths on an object (e.g., strong wind affects an object differently than a breeze).
- d. I can conduct a simple investigation to show what happens when objects of various weights collide with one another (e.g., marbles, balls).
- e. I can show how these concepts apply to various activities (e.g., batting a ball, kicking a ball, hitting a golf ball with a golf club) in terms of force, motion, speed, direction, and distance (e.g. slow, fast, hit hard, hit soft).

**STANDARD IV: Students will understand that objects near Earth are pulled toward Earth by gravity.**

**Objective 1:** Demonstrate that gravity is a force.

- a. I can demonstrate that a force is required to overcome gravity.
- b. I can use measurement to demonstrate that heavier objects require more force than lighter ones to overcome gravity.

**Objective 2:** Describe the effects of gravity on the motion of an object.

- a. Compare how the motion of an object rolling up or down a hill changes with the incline of the hill.
- b. I can observe, record, and compare the effect of gravity on several objects in motion (e.g., a thrown ball and a dropped ball falling to Earth).
- c. I can compose questions about gravity and forces.

Science language students should use:	distance, force, gravity, weight, motion, speed, direction, simple machine
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Science Benchmark

Light is produced by the sun and observed on Earth. Living organisms use heat and light from the sun. Heat is also produced from motion when one thing rubs against another. Things that give off heat often give off light. While operating, mechanical and electrical machines produce heat and/or light.

**STANDARD V: Students will understand that the sun is the main source of heat and light for things living on Earth. They will also understand that the motion of rubbing objects together may produce heat.**

**Objective 1:** Provide evidence showing that the sun is the source of heat and light for Earth.

- a. I can compare temperatures in sunny and shady places.
- b. I can observe and report how sunlight affects plant growth.
- c. I can provide examples of how sunlight affects people and animals by providing heat and light.
- d. I can identify and discuss as a class some misconceptions about heat sources (e.g., clothes do not produce heat, ice cubes do not give off cold).

**Objective 2:** Demonstrate that mechanical and electrical machines produce heat and sometimes light.

- a. I can identify and classify mechanical and electrical sources of heat.
- b. I can list examples of mechanical or electrical devices that produce light.
- c. I can predict, measure, and graph the temperature changes produced by a variety of mechanical machines and electrical devices while they are operating.

**Objective 3:** Demonstrate that heat may be produced when objects are rubbed against one another.

- a. I can identify several examples of how rubbing one object against another produces heat.
- b. I can compare relative differences in the amount of heat given off or force required to move an object over lubricated/non-lubricated surfaces and smooth/rough surfaces (e.g., waterslide with and without water, hands rubbing together with and without lotion).

Science language students should use:	mechanical, electrical, temperature, degrees, lubricated, misconception, heat source, machine
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