

## Kindergarten Science Curriculum

### **Major Topic: Using Our Senses to Explore Our Environment**

**Goal 1.** Students will understand that the five senses can be used to give us information about our environment.

#### **Subtopic Performance Objectives:**

##### **1A. The Five Senses**

- a. Name the five senses (taste, smell, sight, touch, hearing).
- b. Demonstrate that living things are made up of different parts (that allow them to use their senses: ears, eyes, nose, mouth, hands) MLR-C (K-2) #1

##### **1B. Using the Senses**

- a. Describe how people use their senses to find out about their surroundings. BMK-6D (K-2) #1
- b. Explain how different senses give different information. BMK-6D (K-2) #1
- c. Show how sometimes a person can get different information about the same thing by moving closer to it or farther away. BMK-6D (K-2) #1
- d. Describe how senses can warn people about danger in their environment. BMK-6C (K-2) #2
- e. Explore magnifying devices and how they allow one to see in more detail (when exploring the environment). MLR-C (K-2) #3

##### **1C. Learning about the Local Environment Using the Senses**

- a. Describe characteristics of different living things (in the local environment, using the senses). MLR-A (K-2) #2
- b. Group objects (in the local environment) based on observable characteristics; (e.g., sort by color, texture, sounds they make) MLR-E (K-2) #3
- c. Describe a familiar local environment (sights, sounds, smells). MLR-B (K-2) #5

#### **Suggested Materials:**

- Insights – Senses

#### **Assessments:**

- MAP – Up Close and Personal
- LAD – Discovery Walk

## **Major Topic: Objects and Their Properties**

**Goal 2.** Students will understand that different objects have different properties that can be described and sometimes changed.

### **Subtopic Performance Objectives:**

#### **2A. Describing Objects**

- a. Show that large things are made up of smaller pieces. MLR-E (K-2) #1
- b. Describe some physical properties of objects (e.g., color, size, shape, weight, texture, flexibility, etc.) MLR-E (K-2) #2
- c. Group objects based on observable characteristics (e.g., color, size, texture) MLR-E (K-2) #3
- d. Recognize that objects can be described in terms of the materials they are made of (clay, cloth, paper, etc.). BMK-4D (K-2) #1
- e. Identify the differences between living things and non-living (objects). MLR-A (K-2) #1

#### **2B. Changing Objects**

- a. Describe things that can be done to materials (mixing, freezing, cutting, wetting, dissolving, bending, exposing to light, etc.) to change some of their properties. BMK-4D (K-2) #2
- b. Show that all materials do not respond in the same way when things are done to them. BMK-4D (K-2) #2
- c. Demonstrate that shadows of objects change based on where light is coming from (using objects and flashlights as a precursor to shadows and the sun). MLR-G (K-2) #2

#### **Suggested Materials:**

- Project 2061 – Parts and Wholes Lesson
- New Directions – Exploring Toys and Concepts

#### **Assessments:**

- MAP – Shadow Changes

## **Major Topic: Sun and Seasons**

**Goal 3.** Students will understand how the sun is important to the earth.

### **Subtopic Performance Objectives:**

#### **3A. Sun**

- a. Explain that no one should ever look directly at the sun.
- b. Explain that the sun can be seen only in the daytime. BMK-4A (K-2) #2
- c. Explain the cycles of day/night (in terms of when the sun is out). MLR-G (K-2) #1
- d. Demonstrate an understanding that the sun is one of many stars in the universe and is the closest star to earth. MLR-G (K-2) #3
- e. Demonstrate an understanding that the sun gives off light and heat energy. MLR-H (K-2) #1
- f. Recognize that the sun appears to move slowly across the sky (observe that it is in a different place at different times of the day). BMK-4A (K-2) #2
- g. Demonstrate that shadows of objects change based on where light is coming from (compare outdoor shadows at different times of the day). MLR-G (K-2) #2

#### **3B. Seasons**

- a. Explain the cycle of seasons. MLR-G (K-2) #1
- b. Recognize that the sun warms the land, air, and water (and that it is warmer or colder depending on the season). BMK-4E (K-2) #1
- c. Analyze the relationships between observable weather patterns and the cycling of seasons. MLR-F (K-2) #1

#### **Suggested Materials:**

#### **Assessments:**

- LAD – Seasons Book

## Grade 1 Science Curriculum

### Major Topic: Animals and Their Habitats

**Goal 1.** Students will understand there are a variety of animals with different characteristics found in a variety of habitats.

#### **Subtopic Performance Objectives:**

##### **1A. Characteristics of Animals**

- a. Describe characteristics of different living things (animals). MLR-A (K-2) #2
- b. Identify characteristics that help (animals) live in their environment. MLR-D (K-2) #2
- c. Describe the ways some animals are alike in the way they look and in the things they do, and others are very different from one another. BMK-5A (K-2) #1
- d. Demonstrate that (animals) are made up of different parts. MLR-C (K-2) #1
- e. Recognize that animals have external features that help them thrive in different kinds of places. BMK-5F (K-2) #1
- f. Recognize that stories sometimes give animals attributes they really do not have. BMK – 5A (K-2) #3
- g. Describe ways in which individual (animals) of the same species are alike and different. MLR-D (K-2) #4

##### **1B. Needs of Animals**

- a. Demonstrate an understanding that animals need food, water, and gases to survive. MLR-C (K-2) #2
- b. Recognize that animals eat plants or other animals for food and may also use plants (or even other animals) for shelter and nesting. BMK-5D (K-2) #1
- c. Describe how almost all animals' food can be traced back to plants. MLR-B (K-2) #2

##### **1C. Animals and Their Habitats**

- a. Identify ways that organisms depend upon their environment. MLR-B (K-2) #1
- b. Recognize that animals can only survive in environments in which their needs can be met. NRC-C (K-4) 1A
- c. Describe different ecological systems on earth (in terms of the animals that live there). MLR-B (K-2) #4
- d. Describe a familiar local environment (in terms of the animals that live there and the things that they need). MLR-B (K-2) #5

##### **1D. Animals' Life Cycles**

- a. Explain, draw, or otherwise demonstrate the life cycle of an organism (animal). MLR-A (L-2) #3
- b. Draw or describe ways in which an (animal) can change over its lifetime, sometimes in predictable ways (e.g., butterfly, frog). MLR-D (K-2) #3
- c. Describe how animals closely resemble their parents. NRC-C (K-4) 2B

## **1E. Animals of the Past**

- a. Explain how some kinds of (animals) that once lived on earth have completely disappeared, although they were something like others that are alive today. BMK-5F (K-2) #2
- b. Explain how fossils show the existence of past (animal) life. MLR-D (K-2) #1

### **Suggested Materials:**

- BSCS Science TRACS – Investigating Animals and Their Needs
- Frogs in Space
- STC – Life Cycle of Butterflies
- FOSS – Animals Two by Two
- FOSS – Insects

### **Assessments:**

- MAP – Animal Spaces
- MAP – What Am I?
- LAD – Birds of a Different Feather

## **Major Topic: Solids & Liquids**

**Goal 2.** Students will understand properties of solids and liquids and changes they undergo.

### **Subtopic Performance Objectives:**

#### **2A. Solids**

- a. Identify solids
- b. Describe some physical properties of (solid objects). MLR-E (K-2) #2
- c. Describe things that can be done to solid materials (mixing, melting, cutting, wetting, dissolving, bending, breaking, etc.) to change some of their properties. BMK-4D (K-2) #2

#### **2B. Liquids**

- a. Identify liquids.
- b. Describe some physical properties of (liquids). MLR-E (K-2) #2
- c. Describe things that can be done to (liquid) materials (mixing, freezing, dissolving, etc.) to change some of their properties. BMK-4D (K-2) #2
- d. Show how water left in an open container disappears, but water in a closed container does not disappear. BMK-4B (K-2) #3

#### **2C. Change in State (Solid to Liquid or Liquid to Solid)**

- a. Recognize that materials can exist in different states such as solids and liquids. Some common materials, such as water, can be changed from one state to another by heating or cooling. NRC-B (K-4) 1C
- b. Recognize if water is turned into ice and then the ice is allowed to melt, the amount of water is the same as it was before freezing. BMK-4B (K-2) #2

### **Suggested Materials:**

- Insights – Liquids
- BSCS Science TRACS – Investigating Properties
- New Directions – Constructing Toys and Concepts
- FOSS – Solids & Liquids
- STC – Solids & Liquids
- GEMS – Liquid Explorations
- GEMS – Involving Dissolving

**Assessments:**

- MAP - Sorting Things Out
- LAD – Sneakers & Shoes

**Major Topic: Earth Materials**

**Goal 3.** Students will understand that the earth is made up of a variety of materials, with different properties, and that these earth materials may undergo changes.

**Subtopic Performance Objectives:**

**3A. Properties of Earth Materials (Rock and Soil)**

- Recognize that chunks of rocks come in many sizes and shapes, from boulders to grains of sand and even smaller. BMK-4C (K-2) #1
- Show that large things (such as some rocks) are made up of smaller pieces. MLR-E (K-2) #1
- Describe some physical properties of (rocks and soil). MLR-E (K-2) #2
- Group (rocks) based on observable characteristics (e.g., color, size, texture). MLR-E (K-2) #3

**3B. Changes to the Earth and Its Materials**

- Describe how change is something that happens to many things. BMK-4C (K-2) #2
- Observe changes that are caused by water, snow, wind, and ice (e.g., cracks in rocks, soil washing away) MLR-F (K-2) #3
- Observe how animals and plants sometimes cause changes in their surroundings (e.g., plants covering soil, animals digging holes in earth) BMK-4C (K-2) #3

**Suggested Materials:**

- Science Companion – Rocks
- FOSS – Pebbles, Sand, & Silt

**Assessments:**

## Grade 2 Science Curriculum

### **Major Topic: Plants and Their Habitats**

**Goal 1.** Students will understand there are a variety of plants with different characteristics found in a variety of habitats.

#### **Subtopic Performance Objectives:**

##### **1A. Characteristics of Plants**

- a. Describe characteristics of different living things (plants). MLR-A (K-2) #2
- b. Identify characteristics that help (plants) live in their environment. MLR-D (K-2) #2
- c. Demonstrate that (plants) are made up of different parts. MLR-C (K-2) #1
- d. Explore magnifying devices and how they allow one to see (plant parts) in more detail. MLR-C (K-2) #3
- e. Design and describe a classification system for objects (such as leaves, seeds, or flowers). MLR-A (K-2) #4

##### **1B. Needs of Plants**

- a. Demonstrate an understanding that plants need food, water, and gases to survive. MLR-C (K-2) #2
- b. Explain why (plants) need (light) energy. MLR-H (K-2) #2

##### **1C. Plants and Their Habitats**

- a. Recognize that plants can only survive in environments in which their needs can be met. NRC-C (K-4) 1A
- b. Describe different ecological systems on earth (in terms of the plants that live there). MLR-B (K-2) #4
- c. Describe a familiar local environment (in terms of the plants that live there). MLR-B (K-2) #5
- d. Give examples how one change in a system affects other parts of the system. MLR-B (K-2) #3. For example, changing the amount of sunlight in a terrarium (a system), which would affect the plants.

##### **1D. Plants' Life Cycles**

- a. Explain, draw, or otherwise demonstrate the life cycle of a (plant) (e.g., from seed to flower). MLR-A (K-2) #3.
- b. Draw or describe ways in which a (plant) can change over its lifetime, sometimes in predictable ways. MLR-D (K-2) #3

#### **Suggested Materials:**

- BSCS Science TRACS – Investigating Plants

- FOSS – New Plants
- Insights – Growing Things

**Assessments:**

- MAP – Life Cycle Book
- MAP – Food Chains
- LAD – Having What They Need

**Major Topic: Position and Motion**

**Goal 2.** Students will understand that the position and motion of objects can be described, changed, and measured.

**Subtopic Performance Objectives:**

**2A. Describing Motion**

- Describe the position of an object by locating it relative to another object or the background. NRC-B (K-4) 2A
- Develop a variety of ways to describe the motion of an object. MLR-I (K-2) #1
- Trace and measure the changing position of an object over time to show motion. NRC-B (K-4) 2B
- Describe how things near the earth fall to the ground unless something holds them up. BMK-4G (K-2) #1

**2B. Changing Motion**

- Demonstrate that the motion of an object can be changed. MLR-I (K-2) #2
- Show how the way to change how something is moving, is to give it a push or a pull. BMK-4F (K-2) #2
- Show how magnets can be used to make some things move without being touched. BMK-4G (K-2) #3

**Suggested Materials:**

- Insights – Balls and Ramps
- Toys in Space
- Science Companion – Motion
- BSCS Science TRACS – Investigating Position and Motion

**Assessments:**

- MAP – Paper Drop

**Major Topic: Weather and Changes Caused by Weather**

**Goal 3.** Students will understand how weather changes and the effects of weather.

**Subtopic Performance Objectives:**

**3A. Changes in Weather**

- Describe the way weather changes. MLR-F (K-2) #1

- b. Measure weather changes such as temperature, wind direction and speed, and rainfall. NRC-D (K-4) 3B
- c. Analyze the relationships between observable weather patterns and the cycling of seasons. (e.g., the weather changes from day to day but things such as temperature and rain or snow tend to be high, low, or medium in the same months every year. BMK-4B (K-2) #1, MLR-F (K-2) #2

**3B. Effects of Weather**

- a. Observe changes that are caused by water, wind, snow, and ice. MLR-F (K-2) #3

**Suggested Materials:**

- LAD – Graphing Sky Conditions

**Assessments:**