

# FERNBANK

# NatureQuest

**Fernbank NatureQuest** is a different kind of museum experience, where children are engaged through over 100 interactive encounters on a journey to explore an immersive, nature-inspired environment filled with live animals, hands-on learning, the inspiration to discover, and the thrill of following curiosity's path.

The six ecosystems featured in the exhibit are representative of Georgia. As students explore the habitats of Georgia, what might seem like play is actually a rich educational experience. Everywhere you look, something lives. Everywhere you look, there is something to see and do.

**Fernbank NatureQuest** was designed with national and state curriculum standards in mind. Key concepts that can be explored in the exhibit include: habitats, lifecycles, basic needs of plants and animals, fossils, adaptation, camouflage, ecosystems, landforms, and more! Just as important are the characteristics of science standards that underlie the entire experience. Your students will ask questions, learn about tools, observe live animals, and investigate the ideas of model, change and scale. In other words, your students will realize that they can be—and they are—junior scientists!

The exhibition is a perfect complement to both science and social studies, with plenty of opportunities to integrate math and language arts activities along the way. Relevant science and social studies curriculum correlations are given below.

## Kindergarten

### Science Content

**SKE2. Students will describe the physical attributes of rocks and soils.**

c. Recognize earth materials— soil, rocks, water, air, etc.

**SKL1. Students will sort living organisms and non-living materials into groups by observable physical attributes.**

a. Recognize the difference between living organisms and nonliving materials.

b. Group animals according to their observable features such as appearance, size, motion, where it lives, etc.

c. Group plants according to their observable features such as appearance, size, etc.

**SKL2. Students will compare the similarities and differences in groups of organisms.**

- a. Explain the similarities and differences in animals. (color, size, appearance, etc.)
- b. Explain the similarities and differences in plants. (color, size, appearance, etc.)
- c. Recognize the similarities and differences between a parent and a baby.

**Characteristics of Science: Habits of Mind**

**SKCS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.**

- a. Raise questions about the world around you and be willing to seek answers to some of the questions by making careful observations (5 senses) and trying things out.

**SKCS3. Students will use tools and instruments for observing, measuring, and manipulating objects in scientific activities.**

- a. Use ordinary hand tools and instruments to construct, measure (for example: balance scales to determine heavy/light, weather data, nonstandard units for length), and look at objects (for example: magnifiers to look at rocks and soils).

**SKCS4. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.**

- a. Use a model—such as a toy or a picture—to describe a feature of the primary thing.
- c. Compare very different sizes (large/small), ages (parent/baby), speeds (fast/slow), and weights (heavy/light) of both manmade and natural things.

**Characteristics of Science: Nature of Science**

**SKCS6. Students will understand the important features of the process of scientific inquiry.** Students will apply the following to inquiry learning practices:

- b. Tools such as rulers, magnifiers, and balance scales often give more information about things than can be obtained by just observing things without help.
- c. Much can be learned about plants and animals by observing them closely, but care must be taken to know the needs of living things and how to provide for them.

## **First Grade**

### **Science Content**

**S1L1. Students will investigate the characteristics and basic needs of plants and animals.**

- a. Identify the basic needs of a plant.
- b. Identify the basic needs of an animal.

- c. Identify the parts of a plant—root, stem, leaf, and flower.
- d. Compare and describe various animals—appearance, motion, growth, basic needs.

### **Characteristics of Science: Habits of Mind**

**S1CS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.**

- a. Raise questions about the world around them and be willing to seek answers to some of the questions by making careful observations and measurements and trying to figure things out.

**S1CS3. Students will use tools and instruments for observing, measuring, and manipulating objects in scientific activities.**

- a. Use ordinary hand tools and instruments to construct, measure, and look at objects.

**S1CS4. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.**

- a. Use a model—such as a toy or a picture—to describe a feature of the primary thing.
- b. Describe changes in the size, weight, color, or movement of things, and note which of their other qualities remain the same during a specific change.
- c. Compare very different sizes, weights, ages (baby/adult), and speeds (fast/slow) of both human made and natural things.

### **Characteristics of Science: Nature of Science**

**S1CS6. Students will be familiar with the character of scientific knowledge and how it is achieved.** Students will recognize that:

- d. All different kinds of people can be and are scientists.

**S1CS7. Students will understand important features of the process of scientific inquiry.**

Students will apply the following to inquiry learning practices:

- c. Tools such as thermometers, rulers and balances often give more information about things than can be obtained by just observing things without help.
- d. Much can be learned about plants and animals by observing them closely, but care must be taken to know the needs of living things and how to provide for them.

### **Social Studies**

**SS1G3 The student will locate major topographical features of the earth's surface.**

- c. Identify and describe landforms (mountains, deserts, valleys, plains, plateaus, and coasts).

## **Second Grade**

### **Science Content**

**S2L1. Students will investigate the life cycles of different living organisms.**

#### **Characteristics of Science: Habits of Mind**

**S2CS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.**

a. Raise questions about the world around them and be willing to seek answers to some of the questions by making careful observations and measurements and trying to figure things out.

**S2CS4. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.**

b. Use a model—such as a toy or a picture—to describe a feature of the primary thing.

c. Describe changes in the size, weight, color, or movement of things, and note which of their other qualities remain the same during a specific change.

d. Compare very different sizes, weights, ages (baby/adult), and speeds (fast/slow) of both human made and natural things.

#### **Characteristics of Science: Nature of Science**

**S2CS6. Students will be familiar with the character of scientific knowledge and how it is achieved.** Students will recognize that:

d. All different kinds of people can be and are scientists.

**S2CS7. Students will understand important features of the process of scientific inquiry.**

Students will apply the following to inquiry learning practices:

c. Tools such as thermometers, rulers and balances often give more information about things than can be obtained by just observing things without help.

d. Much can be learned about plants and animals by observing them closely, but care must be taken to know the needs of living things and how to provide for them.

### **Social Studies**

**SS2G1 The student will locate major topographical features of Georgia and will describe how these features define Georgia's surface.**

a. Locate all the geographic regions of Georgia: Blue Ridge Mountains, Piedmont, Coastal Plain, Valley and Ridge, and Appalachian Plateau.

## **Third Grade**

### **Science Content**

#### **S3E1. Students will investigate the physical attributes of rocks and soils.**

- a. Explain the difference between a rock and a mineral.
- c. Use observation to compare the similarities and differences of texture, particle size, and color in top soils (such as clay, loam or potting soil, and sand).
- d. Determine how water and wind can change rocks and soil over time using observation and research.

#### **S3E2 Students will investigate fossils as evidence of organisms that lived long ago.**

- a. Investigate fossils by observing authentic fossils or models of fossils or view information resources about fossils as evidence of organisms that lived long ago.

#### **S3L1 Students will investigate the habitats of different organisms and the dependence of organisms on their habitat.**

- a. Differentiate between habitats of Georgia (mountains, marsh/swamp, coast, Piedmont, Atlantic Ocean) and the organisms that live there.
- b. Identify features of green plants that allow them to live and thrive in different regions of Georgia.
- c. Identify features of animals that allow them to live and thrive in different regions of Georgia.
- d. Explain what will happen to an organism if the habitat is changed.

#### **S3L2. Students will recognize the effects of pollution and humans on the environment.**

- a. Explain the effects of pollution (such as littering) to the habitats of plants and animals.

### **Characteristics of Science: Habits of Mind**

#### **S3CS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.**

#### **S3CS4. Students will use ideas of system, model, change, and scale in exploring scientific and technological matters.**

- a. Observe and describe how parts influence one another in things with many parts.
- b. Use geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories to represent corresponding features of objects, events, and processes in the real world.
- c. Identify ways in which the representations do not match their original counterparts.

## **Characteristics of Science: Nature of Science**

### **S3CS8. Students will understand important features of the process of scientific inquiry.**

Students will apply the following to inquiry learning practices:

- a. Scientific investigations may take many different forms, including observing what things are like or what is happening somewhere, collecting specimens for analysis, and doing experiments.
- c. Scientists use technology to increase their power to observe things and to measure and compare things accurately.
- d. Science involves many different kinds of work and engages men and women of all ages and backgrounds.

## **Fourth Grade**

### **Science Content**

#### **S4L1 Students will describe the roles of organisms and the flow of energy within an ecosystem.**

- a. Identify the roles of producers, consumers, and decomposers in a community.
- b. Demonstrate the flow of energy through a food web/food chain beginning with sunlight and including producers, consumers, and decomposers.

#### **S4L2 Students will identify factors that affect the survival or extinction of organisms such as adaptation, variation of behaviors (hibernation) and external features (camouflage and protection).**

- a. Identify external features of organisms that allow them to survive or reproduce better than organisms that do not have these features (for example: camouflage, use of hibernation, protection, etc.).
- b. Identify factors that may have led to the extinction of some organisms.

#### **S4P3. Students will demonstrate the relationship between the application of a force and the resulting change in position and motion on an object.**

- a. Identify simple machines and explain their uses (lever, pulley, wedge, inclined plane, screw, wheel and axle).

#### **S4E4. Students will analyze weather charts/maps and collect weather data to predict weather events and infer patterns and seasonal changes.**

- a. Identify weather instruments and explain how each is used in gathering weather data and making forecasts (thermometer, rain gauge, barometer, wind vane, anemometer).

### **Characteristics of Science: Habits of Mind**

**S4CS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.**

**S4CS4. Students will use ideas of system, model, change, and scale in exploring scientific and technological matters.**

- a. Observe and describe how parts influence one another in things with many parts.
- b. Use geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories to represent corresponding features of objects, events, and processes in the real world. Identify ways in which the representations do not match their original counterparts.

### **Characteristics of Science: Nature of Science**

**S4CS8. Students will understand important features of the process of scientific inquiry.**

Students will apply the following to inquiry learning practices:

- a. Scientific investigations may take many different forms, including observing what things are like or what is happening somewhere, collecting specimens for analysis, and doing experiments.
- c. Scientists use technology to increase their power to observe things and to measure and compare things accurately.
- d. Science involves many different kinds of work and engages men and women of all ages and backgrounds.