

Fourth Grade Canal Sciences Program Outline

Standards:

GA: 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. c. Identify patterns of change in things—such as steady, repetitive, or irregular change—using records, tables, or graphs of measurements where appropriate. **S4CS5.** Students will communicate scientific ideas and activities clearly. a. Write instructions that others can follow in carrying out a scientific procedure. b. Make sketches to aid in explaining scientific procedures or ideas. c. Use numerical data in describing and comparing objects and events. d. Locate scientific information in reference books, back issues of newspapers and magazines, CD-ROMs, and computer databases. **S4CS6.** Students will question scientific claims and arguments effectively. a. Support statements with facts found in books, articles, and databases, and identify the sources used. b. Identify when comparisons might not be fair because some conditions are different. **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. c. Predict how changes in the environment would affect a community (ecosystem) of organisms. d. Predict effects on a population if some of the plants or animals in the community are scarce or if there are too many. **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.

SC: 4-2.1 Classify organisms into major groups (including plants or animals, flowering or nonflowering plants, and vertebrates [fish, amphibians, reptiles, birds, and mammals] or invertebrates) according to their physical characteristics. **4-2.2** Explain how the characteristics of distinct environments (including swamps, rivers and streams, tropical rain forests, deserts, and the polar regions) influence the variety of organisms in each. **4-2.5** Explain how an organism's patterns of behavior are related to its environment (including the kinds and the number of other organisms present, the availability of food and other resources, and the physical characteristics of the environment). **4-2.6** Explain how organisms cause changes in their environment.

Essential Question(s):

1. What is an ecosystem and how are they important?
2. What are producers, consumers, and decomposers and how do they contribute to the environment?
3. What factors lead to extinction as well as the survival of animals against extinction?

Objectives:

Students will be able to explain the dynamics of an ecosystem and how they are important.

SWBAT develop an understanding of the contributions of producers, consumers, and decomposers.

SWBAT determine the concept of extinction and what causes it or helps animals avoid it.

Plan for Field Trip:

1. Students will alternate between activities being conducted within the Interpretive Center, Cotton Room (new classroom) and/or courtyard. There will be a boat option at extra cost that can be included in the field trip
2. In the Cotton Room, students will participate in the Discovery Learning stations where they will participate in a food chain and flow of energy diagram, an animal track identification game in groups, and an Animal Meet & Greet where they meet a native frog and learn about its habitat, characteristics, etc. They will learn the adaptations and physical features of animals needed to survive in their environment. They will also develop conclusions through kinesthetic learning.
3. Students will participate in a Heritage Area Discovery Walk detailing the harmful effects of pollution, the necessitation of conservation and recycling, as well as important physical and behavioral adaptations of plants and animals in response to humans, other animals, changes in their habitats, etc. in an ecosystem. They will learn about extinction and the factors leading to it.
4. Students will participate in the Canal Quest in the IC and the courtyard, an activity that will facilitate higher order thinking skills and cooperative learning. Students will find answers to science questions using clues in groups throughout the Center and courtyard to learn about plants, animals, their habitats, and what plants and animals do to survive that is

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unique.

5. Students may participate in the Eco-Active boat ride option. Each activity will concentrate on the environment and the importance of taking care of it. They will be able to make real world connections by relating events to the Augusta Canal.
6. Students will answer questions throughout the learning experience to facilitate understanding and reinforce knowledge.

Materials:

- Copies of Food Chain worksheet, Animal Tracks sheet, and Canal Quest
- Rulers, crayons, markers, and other science equipment (as needed)
- Binoculars and magnifiers for Heritage Area Discovery Walk
- Sidewalk chalk
- Hand sanitizer for Wildlife Meet & Greet

Timeline: 9:45 am-1:30 pm

Canal Quest: 30 minutes

Discovery Learning Stations (Cotton Room): 30 minutes

Boat Ride(optional): 45 minutes

Discovery Walk: 30 minutes

Assessment:

Students will show what they learned by taking 5-10 minutes at the end of the field trip to use sidewalk chalk to draw an important idea or concept they learned about during the trip and sign their name. Ongoing assessment will take place throughout the course of the field trip with questions and activities, as well as worksheet results.