

Sixth Grade Canal Sciences Program Outline

Standards:

GA: S6CS9. Students will investigate the features of the process of scientific inquiry.

Students will apply the following to inquiry learning practices: a. Scientific investigations are conducted for different reasons. They usually involve collecting evidence, reasoning, devising hypotheses, and formulating explanations. b. Scientists often collaborate to design research. To prevent bias, scientists conduct independent studies of the same questions. c. Accurate record keeping, data sharing, and replication of results are essential for maintaining an investigator's credibility with other scientists and society. d. Scientists use technology and mathematics to enhance the process of scientific inquiry. e. The ethics of science require that special care must be taken and used for human subjects and animals in scientific research. Scientists must adhere to the appropriate rules and guidelines when conducting research. S6E6. Students will describe various sources of energy and with their uses and conservation.

a. Explain the role of the sun as the major source of energy and its relationship to wind and water energy. b. Identify renewable and nonrenewable resources. S6CS7. Students will question scientific claims and arguments effectively.

a. Question claims based on vague attributions or on statements made by people outside the area of their particular expertise. b. Recognize that there may be more than one way to interpret a given set of findings.

SC: 6-4.7 Explain how solar energy affects Earth's atmosphere and surface (land and water).

6-3.2 Summarize the basic functions of the structures of animals that allow them to defend themselves, to move, and to obtain resources 6-3.6 Summarize how the internal stimuli (including hunger, thirst, and sleep) of animals ensure their survival.

Essential Question(s):

1. What are the different kinds of energy and how do they relate to conservation?
2. What are renewable and nonrenewable resources?
3. What functions do animals implement to survive?

Objectives:

Students will be able to differentiate between renewable and nonrenewable resources and discuss the types.

SWBAT identify different types of energy and how they relate to conservation.

SWBAT identify the functions animals implement to survive through scientific inquiry.

Plan for Field Trip:

1. Students will alternate between two activities being conducted within the Interpretive Center, Cotton Room (new classroom), and/or courtyard. There will be a boat option at extra cost to be included in the field trip.
2. In the IC/courtyard, students will participate in the Canal Quest Treasure Hunt where they will search for answers to scientific clues that include animal classification, conservation, and food chains, in order to complete each task. Each correct answer results in achieving a natural stone to accumulate a total of 10 in the end. This activity will develop cooperative learning skills, reinforce scientific main ideas, and develop higher order thinking skills for scientific inquiry.
3. In the Cotton Room, students will participate in an activity that will simulate the struggle for survival of an animal found in the NHA. They will work together in groups to experience how adaptations affect a species and how depleted resources affect the animal world.
4. For the boat option, students will experience the canal's wildlife and vegetation up close. On our Eco-Active Boat Tour they will learn about conservation and resources, recycling, clean energy, the effects of industrialization, and what they can do now to prevent harm to our environment and future problems for our planet.
5. Students will answer questions throughout the learning experience to facilitate understanding and reinforce knowledge.

Timeline:

Canal Quest: 30 minutes

Survival Simulation (Cotton Room): 45 minutes

Boat Ride/Discovery Walk: 45 min./45 min.

Materials:

- Copies of Canal Quest and Animal Survival simulation
- Chalk, plastic forks, black beans, white beans, paper cups, and role sheets for simulation
- Collection bags, natural stones, and containers for Canal Quest
- Rulers and scrap paper for calculations

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Assessment:

Students will show what they learned by taking 5-10 minutes at the end of the field trip to participate in an open forum style question and answer session with their guide. Any questions or misconceptions should be cleared up at this point.