

## Eighth Grade Canal Sciences Program Outline

### Standards:

GA: S8CS6. Students will communicate scientific ideas and activities clearly.

a. Write clear, step-by-step instructions for conducting scientific investigations, operating a piece of equipment, or following a procedure. b. Write for scientific purposes incorporating information from a circle, bar, or line graph, data tables, diagrams, and symbols.

c. Organize scientific information in appropriate tables, charts, and graphs, and identify relationships they reveal.

S8CS7. Students will question scientific claims and arguments effectively.

a. Question claims based on vague attributions (such as “Leading doctors say...”) or on statements made by people outside the area of their particular expertise.

b. Identify the flaws of reasoning in arguments that are based on poorly designed research (e.g., facts intermingled with opinion, conclusions based on insufficient evidence).

SC: 8-2.1 Explain how biological adaptations of populations enhance their survival in a particular environment.

8-2.7 Summarize the factors, both natural and man-made, that can contribute to the extinction of a species.

### Essential Question(s):

1. What effects do humans have on the environment and animals habitats?

2. How do organisms depend on one another and adapt to changing ecosystems?

3. How do ecosystems maintain themselves and relate to the flow of energy?

4. Why is conservation and renewable resources, recycling, clean energy, and the effects of industrialization important?

### Objectives:

Students will be able to determine the negative and/or positive effects humans have on the environment including population growth, power consumption, industrialization, water use, etc .

SWBAT establish an understanding and explain the interdependence of organism and their methods for generating stability within changing ecosystems.

SWBAT identify naturally occurring processes ecosystems use for maintenance.

### 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 that can 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

-Clipboards and pencils for activities

-Chalk, plastic forks, black beans, white beans, paper cups, and role sheets for simulation

-Collection bags, natural stones, and containers for Canal Quest

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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. This will give students an opportunity to clarify information, correct any misunderstandings, and review/reinforce knowledge.