

**Augusta Canal National Heritage Area
Fifth Grade Canal Sciences Program Lesson Plans**

Standards:

GA

C5CS7 Students will be familiar with the characteristics of scientific knowledge and how it is achieved.

Students will recognize that: b. Some scientific knowledge is very old yet still applicable today.

S5P1-Student will verify that an object is the sum of its parts.

b. Investigate how common items have parts too small to be seen without magnification.

S5P3 Students will investigate the electricity, magnetism, and their relationship.

c..Investigate common materials to determine if they are insulators or conductors of electricity.

SC:

5.2-The student will demonstrate an understanding of the relationship between biotic and abiotic factors within terrestrial and aquatic ecosystems.(Life Science)

5-2.4 Identify the roles of organisms as they interact and depend on one another through food chains and food webs in an ecosystem, considering producers and consumers (herbivores, carnivores, and omnivores), decomposers (microorganisms, termites, worms, and fungi), predators and prey, and parasites and hosts.

5-2.5 Explain how limiting factors (including food, water, space, and shelter) affect populations in ecosystems.

5-4 students will demonstrate an understanding of the properties of matter. (Physical Science)

5-4.1 Recall that matter is made up of particles too small to be seen

5-4.8 Explain how the mixing and dissolving of foreign substances is related to the pollution of water, air, and soil.

5-5 Students will demonstrate an understanding of the nature of force and motion.

5-5.1 Illustrate the affects of force (including magnetism, gravity and friction) on motion.

5-5.2 Summarize the motion of an object in terms of position direction and speed.

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 is electricity?

4. What is hydro electricity?

5. How is hydro electricity a renewable resource?

Objectives:

Students will be able to explain hydro mechanical power.

Students will be able to explain hydro electric power.

Students will understand the importance of clean, renewable energy sources.

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

Plan for Field Trip

1. Students will take a 45 minutes eco-boat tour through canal aquatic and woodland habits, seeing first hand an ecosystem rich in flora and fauna. They will learn the adaptations and physical features of animals needed to survive in their environment.

Students will discuss the harmful effects of pollution, the necessity of conservation and recycling, as well as important physical and behavioral adaptations of plants and animals in response to humans, other animals, and changes in their habitats.

2. Students will take a walking tour of our hydro-electric power plant, following the water from the canal through the turbines and back to the river. Students get a first hand view of how hydro electricity is generated.

3. Students will participate in an interactive power point presentation on electricity.

4. Using the Information discussed in the power point, the students will explain as in groups the connection between the objects on their tables and electricity.

5. Students will watch how the gravitational flow of water works for man using a working model of a canal lock and a working model of a turbine.

6. Students will answer questions throughout the learning experience to facilitate understanding and reinforce standards.

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Timeline: 9:45 am-12:15

Eco-Boat Ride 45 minutes

Hydro Power Walk/Tour: 15 minutes

Cotton Room Classroom Electricity Power Point 10 minutes

Classroom Activity on Conductors, Insulators, Magnets, and Power Sources 5 minutes

Hydro Powered Turbine Demonstration and Lock Demonstration. 15minutes

Materials:

Power Point Presentation

Pot holder, wooden spoon, magnets & paper clips, Glasses of water, jar of pre -1982 pennies

Canal and turbine working models

Assessment:

Pre-visit Vocabulary worksheet

Group on-site discussion activity

School classroom post visit discussion and activities.