

Objective 1, Lesson 1

Lesson Title: ENVIRONMENTAL HISTORY OF THE CUYAHOGA RIVER

Part 1

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GRADE LEVEL: Middle Grades

GOAL: Students are exposed to the concepts of the food chain using an interactive method.

LEARNING OBJECTIVES:

1. The student will be able to utilize an interactive website to create a food chain.
2. Students will identify the levels of the food chain.
3. Students will make predictions regarding the changes in the food web when the food chain is altered.

STATE OF OHIO STANDARDS

Life Science

Benchmark:

Explain how energy entering the ecosystems as sunlight supports the life of organisms through photosynthesis and the transfer of energy through the interactions of organisms and the environment.

Performance indicators:

- Describe how organisms may interact with one another.
- Investigate how organisms or populations may interact with one another through symbiotic relationships and how some species have become so adapted to each other that neither could survive without the other (e.g., predator-prey, parasitism, mutualism and commensalisms).

- Explain how the number of organisms an ecosystem can support depends on adequate biotic (living) resources (e.g., plants, animals) and abiotic (non-living) resources (e.g., light, water and soil).

Science Inquiry

Benchmark:

Analyze and interpret data from scientific investigations using appropriate mathematical skills in order to draw valid conclusions.

Performance Indicator:

- Distinguish between observation and inference.
- Analyze alternative scientific explanations and predictions and recognize that there may be more than one good way to interpret a given set of data.

MATERIALS/RESOURCES

- Return of the Cuyahoga Website
- www.riverlee.org.uk Go to Science then to Food Chain and Food Web
- http://teacher.scholastic.com/scholasticnews/games_quizzes/index.asp
Go the bottom of the page and click on the “build your own food web” game.
- www.vtaide.com/png/foodchains.htm Go to “create a food web” at the bottom of the page

PROCEDURES:

1. Introduce food chain to students.
2. Discuss vocabulary: *Energy, producer, herbivore, primary carnivore, secondary carnivore, top carnivore, decomposer*
3. Introduce food web to students.

4. Discuss vocabulary: top *consumer (tertiary consumer)*, *secondary consumer*, *primary consumer*, *producer*, and *dead organic material*.
5. Students should use the website to practice and become more familiar with the concept of the food chain and food web.

STUDENT PRODUCTS:

Students will draw a picture of a food web. Students may refer to the *Return of the Cuyahoga River* website for an example of a food web. Each web should include a representation from each level.

Journal entry: Remove one or two items from the food web you have drawn and describe the effect this change will have on the food web.