

#12: Studying a Stream from Headwater to Mouth



Middle School students participate in "hands-on" activities to learn the water width, depth, speed and volume of Standing Stone Creek.

Goal:

The students will identify and describe the sources of fresh water in and on the earth (specifically Standing Stone Creek).

Objectives:

1. The students will identify the pathway of water on a map.
2. The students will interpret the direction in which water in a river/stream is moving on a map.
3. The students will identify parts of a river.
4. The students will describe the path a river/stream takes from its headwater to its mouth.
5. The students will describe how rivers change land, e.g., erosion, deposition and meandering.
6. The students will collect limnological data of Standing Stone Creek, e.g., depth, width, speed, and volume.

Procedures:

Teachers use a "stream table" model to demonstrate this topic in class. Students participate in a field study of Standing Stone Creek from its source to its mouth, making four stops along the way for studies and examinations. The science instructor shares further facts about fresh water in the student's regular classes at the Middle School.

Assessment:

Teacher-Made Test, Alternative Assessment, e.g., students 1) trace local watershed from topographic maps, 2) determine stream length, 3) identify tributaries to stream

Resources to Implement:

Teacher handouts:

- Data Collection Sheet for science
- Water Quality Data Sheet

Slides:

- Standing Stone Creek- Location Shots (teacher created)

Transparencies:

- Muddy Run Watershed (Huntingdon Conservation Agency)
- Typical Watershed ([KARE Water Resources in PA](#))

Literature:

- [Scott Foresman Science text](#), (Water On Earth unit, pp. 287-303)

Equipment:

- Stream Table
- Collection bottles (bring water back to school for testing water)
- Overhead Projector/Screen

Field Study:

- Standing Stone Creek

Posters:

- Numerous

Maps:

- Numerous (local and regional)



Teacher, Jeff Miles, uses a Stream Table Model to demonstrate to students how a stream is formed.

PA Academic Standards for Environment and Ecology:

- 4.1. Watersheds & Wetlands
 - Understand the role of the watershed
 - Describe changes that occur from a stream's origin to its final flow
 - Categorize stream order in a watershed
 - Explain the relationship among landforms, vegetation and the amount and speed of water
 - Explain the relationship that exist within watersheds in the United States, e.g., Standing Stone Creek, Juniata, Susquehanna, Chesapeake Bay
 - Explain the effects of water on the life of organisms
 - Describe the physical characteristics of a stream and determine the types of organisms found in aquatic environments, e.g., macroinvertebrates
- 4.3. Environmental Health
 - Describe how human actions affect the health of the environment
 - Explain how multiple variables determine the effects of pollution on environmental health, natural process and human practices
 - Explain biological diversity as an indicator of a healthy environment
- 4.6. Ecosystems and their Interactions
 - Identify how ecosystems change over time
 - Explain how ecosystems change over time
- 4.8. Humans and the Environment
 - Explain how human activities may change the environment
 - Explain how human activities may affect local and regional environments
 - Analyze how human activities may cause changes in an ecosystem