

# Standing Stone Creek: Our Place in the Bay

**Essential Question:** How does the health of Standing Stone Creek impact our community?

**Enduring Understanding:** Stone Creek, like many waterways in our region, has excellent water quality that the Huntingdon community relies on for drinking water, recreation, and tourism; and the conservation of this resource is in the hands of the community residents.

1. Introductory Lesson – Watershed Address: Students will explore what a watershed is, what components make up a watershed, and use maps to identify each student’s watershed address. Students will use their own location and watershed address activity to introduce the concept of watersheds – the land that contributes water to a particular waterway – and trace the path from their backyard to the Chesapeake Bay.
2. Enviroscape Watershed Model: Students will explore a model watershed with various land uses represented to demonstrate sources of pollution along with potential solutions to environmental problems. Watershed concepts to be explored include how water flows over land, land and water connections, and learning how small streams can impact a larger water body, demonstrating why we care about Chesapeake Bay. Solutions to environmental problems, called Best Management Practices, will be introduced and demonstrated.
3. Forested Riparian Buffers: Students walk along the riparian area of Stone Creek at Detwiler Park, evaluating the connection between canopy cover, stream temperature, and dissolved oxygen as they discover the benefits of a forested riparian buffer. As they walk, students will take notice of the impacts of Emerald Ash Borer, learn how this invasive species is threatening this area and what can be done to resolve this problem.
4. Water Quality: Students will learn how to conduct chemical tests relating to the water quality of Stone Creek and practice those methods in the classroom and in the field. What does each of the parameters tell us about the water in Stone Creek? How does the land use in the watershed impact the water quality results?
5. Macroinvertebrates: Students will learn how to identify benthic macroinvertebrates using a dichotomous key both in the classroom and in the field. Students will identify how macroinvertebrates are indicators of water quality and explore the connection between water quality and dissolved oxygen and temperature. The Macromania game will be used in the classroom as a warm up to this activity where students learn how to sample in the field.
6. Fish Printing: Students will explore several species of Pennsylvania fishes, their coloration adaptations, and their habitat preferences. What are the places (within Huntingdon County) where these different fish live? Students create a print of one of these fish with a fish model and paints.

7. Physical Parameters: Students will identify and measure the physical parameters within Stone Creek and how the flow regime and pebble size distribution may impact aquatic life. How does the physical structure of the stream bottom relate to macroinvertebrate and fish habitat? How can conservation practices within a watershed improve the physical stream habitat for aquatic life?
8. Local Outdoor Recreation: Students will explore the local outdoor recreation opportunities that exist in our area as a result of the natural resources found here. What are the recreational features of Stone Creek and the natural areas in Huntingdon County? Does a fun activity involving the river, trails, or parks make you feel more connected to it? How does tourism impact our community?
9. Best Management Practices (BMPs): The people occupying a watershed have needs: shelter, food, drinking water, jobs, and recreation. Often, the human activity on land can negatively impact the water resources that people also depend on for those activities. Students will identify possible threats to Stone Creek and inquire about solutions to those threats using the activity “Watershed Decisions.” How can human activity occur alongside waterway conservation? How can tools in the conservation kit be used to address existing water pollution issues?

10. Culminating Activity: Summative Assessment to the Essential Question

Task: Students create posters focusing on some aspect of the unit, incorporating what they have learned and some research of their own. Each student’s poster may focus on a particular aspect of the unit or summarize the unit as a whole. The topic may be informative, such as a drawing of macroinvertebrates or which fish can be found in a particular local creek, or may be persuasive, such as how to plant a tree (and use live stakes for shrubs) or how to implement backyard conservation methods at home.

Event: The teachers will host a gallery walk in school, and the best posters in each topic area will be selected for public view. These posters will be copied and hung in coffee and gift shops around town.

Also, during the field experience, students will participate in a planting project as an action project to help improve the environment at the park. Students will use live stakes from native shrubs to help prevent erosion along the stream and to encourage native plant growth instead of the prevalent invasive species in the park. Students will also plant seedlings to replace the dead and dying ash trees that are prevalent in the Detwiler Park area.

Outcome: Some students may also present their posters to a local government agency, based upon availability of students to leave school to attend a public meeting. The possible forums for this presentation include Huntingdon Borough Council, the Huntingdon Co. Conservation District Board of Directors, or their school board.