

A. Unit Overview

I am writing and teaching this unit to focus the lessons of watersheds, water quality, and aquatic life that the Huntingdon Area Middle School students are already getting on their annual field trip to Detwiler Park to study Standing Stone Creek. This unit will bring continuity to the stations of their field trip, incorporate introductory classroom lessons, and to incorporate some new elements (such as the outdoor recreation lesson). I have learned that enhancing the students' personal connection to the stream and to their watershed by incorporating the watershed address and a recreational and community component to the field trip will help them to connect to, learn, and retain knowledge of the other, more academically rigorous aspects of the unit as well. The students have already expressed year after year how much they enjoy the trip, but specifically including a recreation component encourages the students to invest their time in enjoying the watershed. This also reinforces the stewardship message that the Conservation District strives to convey – The students are likely to become active in conservation if they know and love the resource we hope to conserve.

I hope the students learn some of the many ways there are to scientifically **assess the health of a stream** ([Assessment Tool](#)) and some of the careers that exist in the environmental and conservation field (by learning from guest speakers). The students will accomplish a very detailed assessment of the health of Standing Stone Creek and the riparian area of the Detwiler Park property and also do their part to improve the park by planting trees and shrubs.

This unit is particularly useful for Conservation Districts as it demonstrates some of the work that we do, sends home a stewardship message with the students we reach, and provides teachers with examples of our educational work. The **lesson plans** ([Birds Eye View](#)) were developed for teachers to use on their own, adapt and use as needed, or to draw their interest in having the Conservation District conduct programming for their classroom and/or school. The unit demonstrates that the educational programming offered by the Conservation District can fit in with the school's previously planned and required units of study and that our programming is not just fun and extra. The educational goals for the Conservation District are to provide meaningful educational experiences that relate to both local water quality and the message of "we all live downstream" promoted by many Chesapeake Bay-related organizations (including grant funding sources, state and federal government objectives, and more).

KNOW: The students will know what a watershed is, the benefits of a riparian buffer, the types of macroinvertebrates found in a stream, and that macros can indicate water quality. The students will know how to conduct water quality tests using meters and chemical kits and also how to perform a physical habitat assessment as additional measures of stream health. The students will know the fish that live in local waterways, their habitat needs and relations to the other parameters assessed.

DO: The students will perform water quality assessments based on water chemistry, macroinvertebrates, and physical habitat. They will study the riparian area of a local park, assess its benefits and challenges, and participate in an action project to plant trees and shrubs along the stream.

UNDERSTAND: The students will understand how land and water are connected, how water quality can be degraded by human activities, and also how conservation can reduce those impacts. They will understand that the Huntingdon area is fortunate to have excellent water quality that is a great resource to the community for drinking water, recreation, and tourism. The students will understand the importance of the excellent water quality, numerous local parks and public areas for recreation, and high quality fisheries for the people in the Huntingdon community.