

9th Grade

Stream Studies



As part of Hon. Environmental Biology students attend a field study to Seneca Creek (or other local stream site) to sample macroinvertebrates. Macroinvertebrates are an indicator of water quality and students learn to sample, categorize and assess the health of the stream using these organisms. Students ask questions and generate hypotheses regarding the health of the stream based on observations of the surrounding environments. This is done in the fall and in the spring where seasonal variations can be seen.


Great Falls National Park (VA side)


At Great Falls the students hike and practice leave no trace principles. On this interpretive hike they discuss the impact of invasive species on the park, the impact of hikers on the trail, potential problems feeding wildlife, and problems with trash in the parks.

Roosevelt Island

At Roosevelt Island in Washington, DC students learn about the history of the National Park System. They also study the invasive species plaguing the island and the impact of these invasives across the region.



Botanical Gardens (Washington, DC)	
	<p>At the Botanical Gardens in Washington, DC the students are tasked to describe plant adaptations and biomes by looking at the various displays for each region.</p> <p>The Botanical Gardens offers several virtual tours: https://www.usbg.gov/take-virtual-tour</p>

Billy Goat Trail	
<p>On the Billy Goat Trail students observe the geology of the region. On the five mile interpretive hike students look at the igneous and metamorphic rocks exposed by the river, sedimentary deposits and superposition.</p>	

10th Grade

National Archives and Capitol Hill	
	<p>The 10th grade Global students tour the National Archives to view the constitution as part of their AP NSL Class. They also have an opportunity to tour the Capitol Building and speak directly with their US Senator. These tours are a fantastic connection to the AP NSL class as they are able to actually witness the US constitution and government in action at the Capitol.</p> <p>The National Archives offers online exhibits: https://www.archives.gov/exhibits</p> <p>The Library of Congress also offers virtual tours: https://www.loc.gov/visit/online-tours/</p>

Montgomery County Recycling Center

At the Montgomery County Recycling Center students are able to witness how the recycling process works and the chemistry behind this process. They discuss and debate the pros and cons of recycling as well as the local economics and government behind recycling legislation.

While not Montgomery County, this website offers a virtual tour of a Recycling Center:

<https://recyclingsimplified.com/for-educators/virtual-field-trips/>

Baltimore Aquarium

At the Baltimore Aquarium students are able to see a wide variety of marine life and recognize the importance of this biodiversity on ocean ecosystems. Students discuss climate change and look at the chemistry of ocean acidification and the potential implication on marine life and the ocean ecosystem as a whole.

The Baltimore Aquarium currently has several livestream feeds:

<https://aqua.org/explore/livestreams>

National Museum of American History

At the American History Museum students focus on the Government Politics and Reform exhibit to see artifacts used by former presidents, various campaign artifacts and those related to political reform.

The American History Museum currently has several online exhibits:

<https://americanhistory.si.edu/exhibitions/online>



Black Hill Regional Park



At Black Hill Regional Park students focus on impervious surface runoff and the impact of construction on the water quality of the reservoir. Students use chemical testing kits to analyze the health of the water.

11th Grade

The Physics of Seneca Creek

At Seneca Creek students are tasked with determining stream velocity and use the formulas learned in class in a real life application.



National Geographic

At the National Geographic museum students are able to see the seasonal exhibits and connect the topics with what they are learning or have learned in AP World History.

National Geographic currently has several virtual exhibits that can be viewed from home:
<https://www.nationalgeographic.org/tickets/events/>

United States Institute of Peace

At the United States Institute of Peace students tour the facility and learn the goal of the organization- to use research to strengthen the capacity of policy makers to prevent and reduce violent conflict. An emphasis is placed on reducing conflict in association with climate change. Students participate in role playing activities.

Calleva Ropes Course




Students become real life vectors as they work their way through the ropes course at Calleva in Dickerson. Pictures are taken of students continuing through the ropes course and these are analyzed to calculate vectors using formulas learned in class.

The Physics of Maple Syrup


In February, students learn the physics and biology behind maple tapping. They set up taps, collect the syrup and even wrap up the day with pancakes.



12th Grade

Smithsonian National Zoo	
	<p>At the National Zoo the students learn about conservation methods employed by the Smithsonian in efforts to promote biodiversity. The students become animal behavior researchers as they spend a good portion of the day observing the great apes. They must use the same observational techniques employed by field researchers in order to learn more about these species.</p>

Carrying Capacity Lab at Little Bennett	
<p>At Little Bennett students hike into the woods to survey a large area of the oak forest. They set up large transects and must identify each oak within the plot and categorize by size. Using the measurements obtained students can calculate the carrying capacity for organisms living in the forest based upon food supply.</p>	

USDA Cool and Cold Water Aquaculture Center	
	<p>At the Cool and Cold Water Aquaculture Center the students have an opportunity to witness firsthand genetic research taking place on rainbow trout in hopes of improving aquaculture. Students learn about current projects, tour the experimental design of the trout tanks, and speak with the scientists.</p>

Poolesville Farm Tour

As Poolesville High School is located in the Agricultural Reserve of Montgomery County, students are in a unique position to learn about farming techniques such as integrated pest management, regenerative farming, grafting, and crop rotation from the local farmers in conjunction with Montgomery Countryside Alliance.



Covanta and GenOn

As part of our conventional energy unit students tour Covanta's Waste to Energy Facility in Dickerson, MD. We discuss how the process of energy generation works as well as the pros, cons and environmental justice.

