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Breakneck Creek offers students hands-on lesson in environment

PORTAGE PARK DISTRICT

One of the great resources in our community is Breakneck Creek, the second-largest tributary to the Cuyahoga River, which enters the Cuyahoga north of Kent just downstream of Lake Rockwell Reservoir. A great place to see the creek is from the bridge on the Portage Hike and Bike Trail, west of Lake Rockwell Road, or at the Portage Park District's Breakneck Creek Preserve on Lakewood Road.

Breakneck Creek's watershed (the area of land that drains to Breakneck Creek) covers 78 square miles across 11 different communities from Randolph to Ravenna and Kent, providing drinking water for tens of thousands of people.

However, human activity can also pollute the water, which impacts fish and wildlife, too. When it rains, water runs off the land, carrying with it pollutants such as sediment, fertilizers, pesticides, oil, and other chemicals that end up in Breakneck Creek, and eventually the Cuyahoga River.

To learn more about the quality of water and how we can protect it, some local students have started a monitoring project that gives them valuable hands-on personal learning experiences.

More than 300 students from Theodore Roosevelt High School's Advanced Chemistry, Environmental Science, and CP Physical Science classes recently got out of the classroom and went down to the creek to perform a variety of scientific measurements.

Physical Science students used tape measures and meter sticks to plot out the cross-sectional contour of the creek at five sites, while Environmental Science and Advanced Chemistry students worked together to take a variety of water quality measurements to determine the creek's Water Quality Index.

To collect data the students used everything from high-tech Vernier LabQuests and electronic sensors and water testing kits to low-tech oranges and mesh nets. The students then brought the data back to their classes to map out the creek's cross-section, aggregate their water quality data, and determine the flow rate of the creek.

We found that, even though it had rained the day before, the water quality was very good, which is a testament to the high quality woods and water.

GREEN PORTAGE



Christopher Carman

lands in the watershed that filter the water, along with the efforts of many to reduce the sources of pollution entering the creek.

As the year progresses, we hope to collect all of this data into a stream study about Breakneck Creek that we can pass on to the Ohio Environmental Protection Agency. We are also planning on returning with different classes to do biological index measurements as well as habitat and additional water quality measurements.

Our goal at Roosevelt High School is for every one of our students, through one class or another, to get out of the classroom and go down to the creek to perform real scientific measurements that benefit the community on multiple levels. For those who are interested, more information, data, and pictures are available on our "Creek Day" web page at kentschools.net/thsscience/creek-day/

As a society, we are becoming increasingly aware of the environmental issues that we face on a global scale — global warming, pollution, peak oil, and sustainability. However, these concepts remain esoteric and nebulous for our students unless we actually get them out into their local environment so they can get their hands dirty and make concrete connections between their own actions and their impact on the world around them.

We're fortunate to have so many great resources available in northeast Ohio and through agencies such as Portage Park District, Portage County Soil & Water Conservation District, and the Portage Health District, which are working to protect our valuable resources for our students and citizens to examine and learn from.

Christopher Carman lives in Kent and teaches Environmental Science and Chemistry at Theodore Roosevelt High School in Kent. Green Portage is a monthly feature of the Record-Courier.