Clymer Conneaut Lake Conneaut Valley Fort LeBoeuf General McLane Maplewood *Allegheny College* Saegertown Penncrest Gifted Sewickley Academy Meadville Middle Seneca
Cochranton Frick International Studies Academy Greenfield Sterrett Letsche Emily Brittain Linesville North Hills North Allegheny First District Elementary Wattsburg Middle Northwestern
Youngsville Upper St. Clair Seneca Valley Titusville Middle
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CREEK CONNECTIONS

LINK

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Newsletter for CREEK CONNECTIONS

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CEED
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Springdale High School Samples Deer Creek

By Brittany Nagy, Springdale High School Student

On September 28, 2005 our environmental science class went water testing. We tested the water in Deer Creek in Emmerling Park in Allegheny County. After all of the materials were handed out, we started the chemical tests in the creek. Soon, we were going to find out what the quality of the water was using nine chemical tests.

There were a lot of physical factors that affected the stream. The depth of the stream was two feet and the water appeared slightly cloudy. The width of the stream was thirty-nine feet, and the stream had pools, riffles, and runs. The weather was clear, and since there was no rain within the last twenty-four hours, there was no rainwater that could effect the creek. There was a lot of streamside vegetation that influenced the water by making it cooler. All of these factors played a part in affecting the stream.

Our class was eager to start the chemical tests for the creek. The temperature of the creek was 15 degrees Celsius. We also concluded that the pH was 8.4, TDS 35.3 mg/L, and dissolved oxygen 10 mg/L. My group did nitrogen and phosphorus and our results showed the nitrogen level was less than 1 mg/L, and phosphorus was 0.04 mg/L. The last three tests were alkalinity, which was 153 mg/L, turbidity which was twenty JTUs and iron which came out to be 1.25 mg/L. All of the tests we preformed came out positive with the exception that there was more iron in the creek than there should be.

After the water testing was complete, we looked for macroinvertebrates. Some of the things we found were crayfish, minnows, mayflies, and stoneflies. Water striders, larvae, and snails were also found in the creek. To find out the health of the stream by observing the macroinvertebrates that we found, we used two methods, the Indicator Organism method, and the Diversity method. The results for the Indicator Organism method came out "good". For the Diversity method, the numbers added up to 15, which means the health of the stream would be "fair". By using both of these methods, we concluded that the stream was fairly healthy.

Above: Springdale students record data information on the bank of Deer Creek with the help of Creek Connections teacher, Ms. Seth

Overall, the quality of the water in Deer Creek is good. From this trip, my class and I learned many things about water testing. I am anticipating going back to test the water in Deer Creek again in the near future, and seeing how much the health of the stream has changed since our last visit.

Questions and Answers from Maplewood Seventh Grade

By Carrie Kean, Allegheny College Student

Students from Maplewood had the opportunity to spend two days at the Erie National Wildlife Refuge where they participated in a number of activities. Creek Connections had a station set up by the pond to study the pond life where the students used D-nets to scoop up bugs from the pond to identify them. The students were just supposed to stand on the edge and scoop the bugs from there, but many of them were very anxious and went in completely. They all wanted to find the coolest specimen and they were willing to do whatever they could to get it, which included getting soaked! They found a whole slew of different macro invertebrates as well as many other creatures.

Many of the students wrote letters explaining how their experience at the pond went and what their favorite part was. Some of them even included a question or two in their letters that they were wondering about, so I'm going to attempt to answer a few of the questions that they had.

Q: *What happens to all the bugs when the water freezes?*
A: The macroinvertebrates in the water mainly live on the bottom in the mud, so the water freezing does not affect them. The water freezes from the top and doesn't usually freeze all the way through, so they are able to survive under the ice on the bottom. Some critters are present as eggs during the winter, but most live the same as they do when it's warm. One example of a macro invertebrate that spends a lot of time in the water is that of the hellgrammite which can spend 2-3 years under water in their immature stage before they become an adult Dobsonfly.

Q: *What purpose do leeches serve?*
A: Leeches serve many purposes, as do all of the creatures contained in a water source. Leeches serve as food for other organisms and have also been used a great deal in the medical

(Continued on page 3)

Feature Creature

By Matthew Knittel, Allegheny College Student

I live in most of Canada, Alaska, and most of the North Eastern United States, in damp deciduous (leaf bearing trees) woods. I am only a medium sized frog, normally growing to be 2.75 inches long. You can identify me when you see me because I am normally tan-brown (but I can be dark brown or olive green), with a dark brown mask that goes from my eyes to my eardrums. I eat small insects such as ants, crickets, beetles, spiders, slugs, moth larvae and worms. There are two facts about me that make me especially interesting. In the winter, unlike other frogs, I hibernate under the ground. This means that I actually *freeze*. I am only one of a very few number of animals that can do this. Then in the early spring, I thaw, and start looking for a mate. Also, I need a special place to mate and lay my eggs called a *vernal pool*. A vernal pool is a body of water, like a large puddle, that is in the middle of the woods. This pool is created by melting snow in the spring, and normally dries up by mid to late summer. Who am I? *See back page for answer.*

Conneaut Valley High School News

The Creek Connections Project continues at Conneaut Valley High School. Mr. Bocan, the former coordinator, was transferred to Linesville High School so Mr. Frank Bizjak and Mrs. Charlene Prince have taken over as participating teachers. Although they were not officially on board in September, they took their ecology and agricultural classes on field trips to Conneaut and Woodcock Creeks. On those trips they chemically tested the water and assessed the water for biodiversity by collecting macro invertebrates. The students and faculty are glad that Conneaut Valley can continue to be represented at Creek Connections.

Left: Conneaut Valley students us kick nets to sample for macroinvertebrates at Woodcock Creek.

Right: Conneaut Valley students identify macroinvertebrates from the creek with the help of Crawford County Conservation District Employees.

A Blast From the Past:

Creek Connections 2003 - 2004 Project Coordinator Nicky Mason Tells Her Story

By Nicky Mason and Lindsay Herendeen, Allegheny College Student

Greetings Creekers! I enjoyed working with Creek Connections and all of you for about two years but during that time I discovered my passionate interest in global food security issues. After leaving Creek Connections, I moved to Washington, DC to pursue that interest working with the Partnership to Cut Hunger & Poverty in Africa before I moved on to graduate school this fall at the University of Michigan to pursue a Master's Degree in Agricultural Economics. So, what is food security, you ask? People have food security when they have enough food at all times to live healthy and productive lives. Food security is something that many of us in the United States take for granted but 3.8 million Americans still go to bed hungry every night. The figures are much bleaker in Africa where one child dies of hunger or hunger-related illnesses every five seconds.

What is the Partnership to Cut Hunger & Poverty in Africa doing to try to reverse this terrible trend in Africa? Well, since 75% of Africa's hungry live in rural areas and depend on agriculture to either grow their own food directly or work on other people's farms to earn money with which to buy food, the Partnership is encouraging the US government and African governments to invest more in the agricultural sector. The Partnership is also assessing how well current US assistance to African agriculture is matching up with the needs and challenges of Africans in the focus countries of Ghana, Mali, Mozambique and Uganda. Want to learn more about food security? Check out the Partnership web site at http://www.africanhunger.org and the Bread for the World site at:
http://www.bread.org/hungerbasics/index.html!

Changing Results for Deer Creek Tests

By Amy Elmen, Springdale High School Student

There are many physical characteristics and land uses that effect the water quality of Deer Creek. Our ninth grade science class went to Deer Creek on Wednesday, 9 November 2005 and we realized that some of these characteristics affected the stream because the results of our chemical tests changed greatly. Temperature was one of the tests that changed, it changed from 10 degrees Celsius to 16 degrees Celsius. The temperature of the stream can be affected by shade from the trees because it blocks the sun or the water could be shallower.

Another thing that could affect it is the velocity of the stream. Turbidity is another test that changed because of land use and physical characteristics. Last time it was 7.5 JTU and then changed to 5 JTU. The reason for this could have been because there was not as much construction or algal growth. Iron also changed. Iron could be affected by strip mines or Acid Mine Drainage (AMD). There was much AMD in this area and that might be why our results last time were 350 mg/L. Even though some of these tests results changed, overall Deer Creek is a fairly healthy stream.

Maplewood Q&A (Continued from page 2)

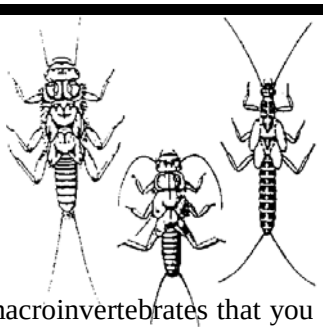
field. Only a small amount of leeches actually take blood from warm-blooded animals, most are actually predators and scavengers. This means that they help break down decaying materials.

Q: *Why does the mud look like cow patties?*
A: The muck on the bottom of a pond can resemble cow patties because it just sits there and collects all the decaying matter since the water doesn't move much like in a stream. Most of this decaying matter consists of plants, which is most of what a cow's diet includes.

Q: *Do leeches have six rows of sharp teeth and a sharp nose?*
A: There are different kinds of leeches and each has different mouthparts. They are actually grouped by how they feed. There are the jawed leeches that have jaws armed with teeth. Then there are the jawless leeches that feed by inserting a needle-like protrusion called a proboscis into the body of their host. The third type of leech is the worm leech. They don't have any jaws or teeth and they feed by swallowing their prey whole.

Q: *What kinds of fish were in the pond?*
A: There are many different kinds of fish located in the refuge's waters even though you can't fish for recreational purposes. Some kinds of fish include the black crappie, yellow perch, large mouth bass, bluegill, sunfish, bullheads, trout and the white sucker.

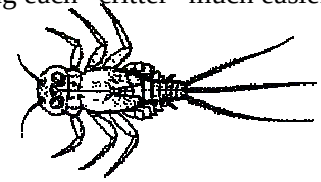
Testing Tip

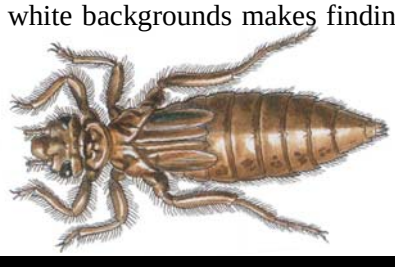


By Sarah Dippold, Allegheny College Student

Identifying your macroinvertebrates

Here are some tips to make identifying the macroinvertebrates that you have collected much easier. Empty the kick net or d-net onto a white shower curtain and spread out all of the debris. Pick through the leaves, rocks, dirt or whatever else was scooped up from the stream to find the bugs. Make sure that you thoroughly clean off the net and carefully examine what you have collected so that you don't miss anything. Then put the macroinvertebrates that you have found into a white viewing tray filled with water. Use the identification key and, if necessary, a magnifying glass or field microscope to correctly identify each sample. Using the white backgrounds makes finding and naming each "critter" much easier.





FEATURE CREATURE ANSWER:
This issue's Feature Creature (pg. 2) is a wood frog, *Rana sylvatica*.

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