



# Cemetery Branch Testing

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A class at Exploris Middle School studied a small creek or drainage ditch that may flow into the larger tributary of Cemetery Branch. The group was made up of 2 groups of 16 eighth graders. Each group went on a different day, the first on August 19<sup>th</sup> and the other on August 20<sup>th</sup>. The principal of Exploris lives directly in front of this small creek and has some of it flowing over his property. He has cleaned the creek up and planted native plants and types that are noninvasive around it.

Why does the health of this creek matter? Cemetery Branch is one of many streams that flow into the Neuse River, one of three river basins that is entirely within North Carolina. The Neuse River is also the main drinking water supply to many North Carolinian residents. Cemetery Branch is only a mile away from the Governor’s Mansion and a mile north of Exploris Middle School.

The group was told to answer an important question,

### ‘How Healthy is This Stream?’

We used a kit that allowed us to test pH, Temperature, dissolved oxygen, phosphates, nitrates and turbidity. Most of the chemical and physical tests we did were color coded but not as easy as it looked. You had to be very accurate because a slight color difference could be completely different than what it is meant to be. For the biological tests we used large and small nets. We used these to catch macro invertebrates. We also used our hands to catch them (some people more than others). Each of the groups gathered different data so we can see if the things we found were not just temporary and to see what changes happens. We did use two different thermometers, a strip (1<sup>st</sup>) and a regular (2<sup>nd</sup>) thermometer. All information is rated 1-4. 1 is poor, 2 is fair, 3 is good, and 4 is excellent.



Here is the data we gathered;

Chemical and Physical	August 19	Score	August 20	Score
Temperature (1 <sup>st</sup> /2 <sup>nd</sup> )	28°C / 24°C	1	25°C / 22°C	1
pH	7.0	4	7.0	4
Nitrates	0 ppm	4	0 ppm	4

Phosphates	4 ppm	2	1 ppm	4
Turbidity	0 JTU	4	0 JTU	4
Dissolved Oxygen	0 ppm	1	2 ppm	1

I is intolerant which is Excellent and gets a score of 3

M is moderate which is good and gets a score of 2

T is tolerant which is fine and gets a score of 1

These are the Macroinvertebrates we found:

I Intolerant	Pouch Snail, Ramshorn Snail, and Dobson fly	Caddisfly Larvae and Pouch Snail
M Moderate	Crayfish, Water Strider, Backswimmer, Crane fly Larvae, and plenty of mosquitoes.	Crayfish, Water Strider, Isopod, Water Boatman, and plenty of mosquitoes.
T Tolerant	Leach, Tublifer Worm, and Horsehair Worm	Midge Larvae and Tublifer Worm

A salamander was found but could not be placed into chart because it is not a Macroinvertebrate.



This stream is healthy in some ways more than others. It is not very healthy in some of the physical and chemical categories but is very health biologically. It would have been a lot better if the Dissolved Oxygen was higher.

It was very good that we found so many intolerant species. Altogether this stream is considered very clean for an urban creek but there could have been some chemicals and toxins in the water. We could have also tested for any toxins or chemicals. The class and I have learned a lot through this project and had fun doing it. One question that popped into my mind when we were out in the creek was 'Are Macroinvertebrates the only group of animals that can show how healthy the stream is, if so, which ones?' and the answer to the first part of it is no. Many other animals can also be used as indicator for a stream's health but I am not sure of what other animals can be indicators.