Water-What's in it?

Water: we can drink it, cook with it, and wash or swim in it.
Is it important to know what is in the water before we use it?

YES, it is very important!

If you live in a town or city, the water that comes out of your bathroom or kitchen faucets was likely prepared or specially treated to use for drinking, cooking and bathing. This water is piped from a treatment plant operated by the town. If you live in the country or on a farm, you may drink water that comes from a well, deep inside the ground. It is called ground water.

The groundwater that comes into your home is usually very clean and does not need much special treatment. But the water in ponds, lakes, streams and rivers is not treated. These types of waters are called surface waters and might have pollutants that can be harmful to people, animals, fish and aquatic insects. That is why it is very important not to drink the water from a pond or stream unless it has been treated so that you don't get sick.

The pollutants entering surface waters can also affect the fish and aquatic insects that live in the water. For this reason, scientists measure the water for pollutants. Scientists measure the physical and chemical characteristics of the water. The physical measurements can include how fast the water is flowing (called the flow rate), how large the body of water is and how much water is in a stream or lake. Physical measurements also include how clear the water is and the water temperature. By knowing these physical measurements, we can find out how much water is present and how much dirt or sediment is in the water.

The amount of water flowing past a point is known as the total discharge for a stream. Let's calculate the total discharge with a simple math formula. We will use a ruler to measure water depth and a flow meter to measure water speed. Now we can use the formulas below to calculate total discharge.

Measure and Record Water Depth and Speed and then figure out the Total Discharge

Stream Depth: _____ ft. X Stream Width: _____ ft.= _____ $ft.^2$ Stream Area

Water Speed: _____ ft./sec; then Stream Area _____ $ft.^2$ X Water Speed= _____ ft./sec.

=Total Discharge _____ $ft.^3$/sec (cubic feet per second or "cfs")

Now let's learn about water temperature. Water temperature is important to fish and aquatic insects because they cannot control their own body temperature like people do. When the water temperature changes, fish and insects' body temperatures change too. If the water is cold, the fish and insects move very slowly and if the water is warm, they move more quickly. If the water is too hot or cold or if the temperature changes very quickly, the fish and insects will be stressed or shocked, to the point that they can die. Thankfully, this does not happen very often in North Carolina streams and lakes.

Measure and Record Water Temperature Here: _____