

# STREAM WATCH

## Welcome & Introductions

### I. Discussion:

Why is it important to take care of our streams?

What is non-point source and point source pollution?

What are some causes of pollution in our streams?

What can we do to prevent some of these causes of pollution?

### Give out Handouts; explain the Stream Watch program & what we are going to do at the stream

Materials:

-Handout about the activities and purpose of Stream Watch that tells them how they can join and participate in the program

-Handout of Non-Tidal Stream Data Sheet for recording what they find at the stream

-Handout of Stream Insects & Crustaceans that help determine the health of the stream and they can use as a guide to determine what kind of insects they found

### II. Stream Watch:

**What to observe:** insects, salamanders, crayfish, frogs, fish, algae, plants under the water, any trash, plants along the stream, birds, small animals, sediment, stream flow, odors

**Show pictures of plants and insects that could be found in a healthy stream and pictures of algae and sediment erosion that could be in an unhealthy stream (or during part III.)**

- 1.) Line up along the stream, divide into teams
- 2.) Let students look at the creek for a minute. How healthy do you think the stream is by this visual survey? (Explain how fast flow over stones mixes oxygen in water, which is beneficial for animal and plant life)
- 3.) Identify insects and insect larvae-indicators of pollution (use handouts)  
Four indicator insect larvae: stoneflies need the most oxygen, and are most sensitive to pollution so their presence means the stream is "4 star" or excellent. Mayflies are the next in level of needs and sensitivity, so absence of stoneflies and presence of mayflies means the stream is "3 star", or good. Crayfish are somewhat pollution tolerant, so the stream is "2 star" or fair. Snails are pollution tolerant and can be found in any quality of water, so if they are the only type of crustacean or stream insect, the stream could be in poor condition, or "1 star."
- 4.) Look at rocks, sticks, and mud
- 5.) Be Gentle!
- 6.) Collect for 20 minutes
- 7.) Review organisms and environments they were found in (look at sheet w/ answers)
- 8.) Take the temperature of the water (show them how to convert to Fahrenheit and tell them what a good temperature would be and that colder temperatures are healthier because there is more oxygen in cooler water)
- 9.) Explain pH, acid, and bases; show them how to get the pH; tell the class that a good pH would be 7 or 8 in a stream
- 10.) Explain dissolved oxygen- Dissolved oxygen is important because all animals need oxygen to survive. The amount that dissolves depends upon the temperature of the water with colder water holding more oxygen than warmer. The water should be above 4.0 ppm D.O no matter how warm it is. (Can use a kit to measure the D.O. of the stream)
- 11.) Decide on health of the stream (clear water does not always equal a healthy stream)

### Materials:

Trash bags

Water collection bottles

Critter scopes (made out of a can with both ends cut out and plastic over one end so the floor of the stream can be viewed)

Clipboard and pencil to write down what they found (data sheet and insect identification handouts)

Thermometer

Insect Catching Nets  
Equipment to measure pH and D.O.

**III. Identification (back in classroom):**

- Use microscope to look at water samples (set up and allow kids to look into the scope)
- Review Stream Watch Handouts (information on the Stream Watch Program, what they can do to help protect streams)
- Talk about what they observed, found, and measured
- Was our stream healthy or polluted and why?

**Materials:**

Microscope/ Slides  
Pipettes  
Handouts