Water Quality? Ask the Bugs!

Adapted from Water Quality? Ask the Bugs! Project WET Foundation 2011

Grade Levels: 6-12

Duration: 45-60 minutes

Students will:

- Define the term macroinvertebrate
- Describe diverse macroinvertebrates
- Analyze the relationship between aquatic macroinvertebrate populations and water quality
- Evaluate a stream's water quality

Materials:

- Copies of worksheet
- Macroinvertebrate tokens

Teacher Set-Up:

- Cut the tokens and place into three different bags (3 streams). You may want to make additional copies for larger classes of students.
- Place the macroinvertebrates according to the chart below.

Macroinvertebrate	Number of	Items per	Sample	Total Items
	Stream #1	Stream #2	Stream #3	
Mayflies	35	15	0	50
Stoneflies	65	35	0	100
Caddisflies	30	20	0	50
Dobsonflies	30	20	0	50
Midges	0	20	30	50
Craneflies	25	13	12	50
Dragonflies	20	20	10	50
Scuds	5	15	30	50
Pouch Snails	0	15	35	50
Tubifex Worms	0	15	35	50
Leeches	0	15	35	50

Procedure:

1. Ask the students to define macroinvertebrate.
2. Discuss macroinvertebrates and background information in the PowerPoint.
3. Show the video on macroinvertebrate collection and testing (about 1 and a half minutes long).
4. Instruct students to determine the health of their streams by counting the number of macroinvertebrates. Pass out the worksheet for the students to fill out as they count.
5. Place the students into groups.
6. Once they've counted their macroinvertebrates and calculated their stream's health, have the students meet with other groups with a different stream. The students will compare their results.
7. Discuss the importance of stream quality and HPUD's role in ensuring the water stays clean!

Extension:

1. Have students locate specific aquatic macroinvertebrate identification keys for their watershed, state, or region. Research the pollution tolerance, habitat, and regional distribution of the individual species.
2. Have students create a field set of flash cards with the photo of the macroinvertebrates on one side of the index card and the information they researched on the other.
3. Have students create a remediation plan for streams with impaired water quality that were identified in the activity exercise.