

Activity Title: Abiotic Water Quality Factors	
Time Required: 45 min	Leader: Naturalist
Materials Needed: Workbook Pencil Water quality testing kits Thermometer	
<i>Background: This activity shows students the different factors that influence water quality. It teaches them that there are many important abiotic factors that should be studied when examining water quality, including chemical and physical factors. It will also allow them to compare abiotic water quality factors with biotic ones (next activity).</i>	
<i>ppm = Parts per million. A unit used to describe very small concentrations of a substance in a larger solution.</i> <i>mg/l= Milligrams per litre. A measure of the concentration by weight of a substance per unit volume in water or wastewater</i>	

Directions: Fill in this table with the help of the materials provided by the naturalist.

	Site #1	Site #2	Ideal Results
Turbidity: 0 - 10			0
Water temperature: Surface (°C)			6°C
Middle (°C)			5°C
Bottom (°C)			4°C
Dissolved Oxygen (ppm)			7.5ppm
pH			7
Nitrate (ppm)			<0.5 mg/l
Nitrite (mg/l)			<2.5 mg/l
Ammonia mg/l)			<0.2 mg/l
Phosphate (ppm)			0.1-0.5mg/l

Activity Title: Biotic Water Quality Indicators

Time Required: 45 min

Leader: Naturalist

Materials Needed: Nets

Containers

Pencils

(In this activity the Naturalists and helpers will catch the invertebrates so not too many will be taken).

Background: This activity shows students the importance of invertebrates and shows students that there are many forms of life in freshwater that most people are unaware of. It teaches them the importance of aquatic invertebrates as water quality indicators.

Directions:

1. Draw and identify 3 aquatic invertebrates observed at each wetland.

Site #1	Site # 2
Name:	Name:
Name:	Name:
Name:	Name:

Bioindicators

Aquatic invertebrates can be used as bioindicators. Aquatic invertebrates can be used as bioindicators. In general, total taxon diversity tends to be lower in polluted sites than in unpolluted sites. The abundance of pollution sensitive aquatic invertebrates such as mayfly and caddisfly larvae are greatly reduced in polluted water.

Pollution tolerant	Somewhat Pollution Tolerant	Pollution Intolerant bioindicators
Midge larvae Backswimmers Water Boatmen Water Striders Leech Lunged Snails Mosquito larvae	Dragonfly nymph Damselfly nymph Cranefly larva Giant Water Bugs Beetles and beetle larva	Mayfly nymph Caddisfly larva Stonefly nymphs Gilled Snails Scuds

1. Do the biological water quality indicators concur with the abiotic water quality indicators?
2. List several Bio-Indicator Species found on your field trip. Note what environmental quality they indicate from their presence or absence.