

ENVIRONMENTAL CHEMISTRY:

MONITORING WATER QUALITY

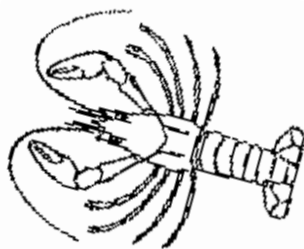
ACTIVITY 1: *Summarize, Inquire and Reflect*

This week we will be exploring and attempting to use, invertebrates as biological indicators of water quality. Prior to performing the activities, students must first explore the basic theory around monitoring water quality and the common influences on water quality. Much of this information may be review from previous experiences such as the grade 8 Fresh and Salt Water Unit .

TASK: Independently, students will read through pages 212 – 224 in the textbook (excluding quick labs and pages 218 & 223). Students are to summarize the key points of information into their notes. When finished reading and summarizing, students are to answer Check and Reflect Questions: 2-12 on page 224.

ACTIVITY 2:

Using Aquatic MacroInvertebrates as Indicators of Water Quality



Aquatic macroinvertebrates are found in lakes, streams, ponds, marshes and puddles and help maintain the health of the water ecosystems by eating bacteria and dead, decaying plants and animals. Overall water quality effects which types of organisms can survive in a body of water.

"Water quality" may include the amounts of dissolved oxygen, pollutants (including pesticides and excessive amounts of nutrients) and the pH level. Many macroinvertebrates such as: stoneflies, mayflies, caddisflies, and some beetle species require a high level of dissolved oxygen and their abundance is an indication of good water quality. These organisms would be considered **sensitive** to pollution.

Other macroinvertebrates can survive at a lower dissolved oxygen levels, such as worms and leeches. Lower dissolved oxygen levels are often associated with polluted waters. Organisms that can survive in these conditions would be considered **tolerant** to pollution.

There are several reasons why macroinvertebrates are used as **biological indicators**:

- They are sensitive to changes in the ecosystem.
- Aquatic macroinvertebrates are an important part of the food chain found in and around a body of water.
- They cannot easily escape changes in the water quality.
- They can be collected very easily from most aquatic systems with inexpensive or homemade equipment.

TASK: Biological Indicator Activity

Use the following form to complete the **Biological Indicator Activity**

CLICK HERE TO COMPLETE THE ACTIVITY:

<https://forms.gle/XvJBVfKvBhk15x948>