

WATER WONDERS

4TH-6TH GRADE

NGSS: 5-LS2, ESS2, ESS3; MS-LS2, LS4, ESS2, ESS3

PROGRAM OBJECTIVES

Students will be able to:

- Define indicator species and characterize stream health based on aquatic macroinvertebrates.
- Map physical stream characteristics and understand how morphology influences water speed and direction.
- Identify native plants and explain the ecological benefit of plant-rich riparian zones.
- Describe how humans can impact stream health.

PRE-TRIP DISCUSSION TOPICS

- How can we show respect to nature?
- How can we help protect plants, animals, and the environment when we visit natural spaces?
- Where does water come from? Where does it go and how does it there?
- How can human activity impact water in streams, lake, or oceans?
- What are examples of water pollution and how can it get into streams?

CLASSROOM ACTIVITY

MACROINVERTEBRATE GRAPHING

Supplies: Small coated candies (e.g. Skittles, M&M's), small bags or bowls (1 per group), graph paper, colored pencils, macroinvertebrates images (see Macroinvertebrate Graphing link in the Resources section)



1. Assign a macroinvertebrate to each candy color, selecting species of varying tolerance levels. Divide the candy (about 30 pieces per bag/bowl). Each bag/bowl represents invertebrate samples collected from a water site. Be sure some samples represent lower-water quality streams, and others represent higher-quality streams.
2. Distribute graph paper to each student (or group). They should label the x-axis with candy colors and the y-axis with number of macroinvertebrates.
3. Give each group a bag/bowl of candy. They should sort the candies by color and then fill in their graphs using the colored pencils. Have students determine the tolerance levels of the species in their sample and then gauge the water quality of the collection site.

REFERENCES

[Aquatic Macroinvertebrate Lesson Plans](#)

- KEY TERMS -

WATER CYCLE

Continuous movement of water on Earth and in the atmosphere.

WATERSHED

Area of land that drains rainfall into streams which flow into a single outlet.

STREAM

Flowing body of water.

RIPARIAN ZONE

Land along a lake or stream.

RUNOFF

Water that cannot be absorbed by soil and flows across the ground's surface.

EROSION

Transportation of rock and soil by natural forces, like water or wind.

INDICATOR SPECIES

Plants or animals that can tell us about habitat conditions based on their presence in the habitat

POINT-SOURCE POLLUTION

Pollution from a single, identifiable source.

NONPOINT SOURCE POLLUTION

Pollution from surface water runoff.

- RESOURCES -

ACTIVITIES

[Macroinvertebrate Graphing](#)

[Water Pollution Graphing](#)

VIDEOS

[Water Quality Education](#)

[Macroinvertebrates: Understanding Water Quality](#)

[What Macroinvertebrates Can Show Us About Water Quality](#)



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