Objectives:

Students use a dichotomous key to identify macroinvertebrates and determine pollution level of stream based on macroinvertebrates found.

Background:

Macroinvertebrates are used by scientists to measure the pollution level of a stream. Some macroinvertebrates (sensitive organisms) are very sensitive to pollution and cannot live in a polluted stream. If these macroinvertebrates are present, the stream is very clean. Trout are also very pollution sensitive, so the presence of these macroinvertebrates is a good sign for the hospitability of the stream.

Materials:

MACRO Bingo sheets (printed or laminated)

Macroinvertebrate dichotomous keys

Pens, pencils, or whiteboard markers and erasers

Takeout containers, ice cube trays, or other containers to hold macroinvertebrates

Picnic table or other hard surface in the shade to set containers on (water needs to stay cold for macroinvertebrate survival)

Kick net and waders or rain boots for collecting macroinvertebrates

Optional: magnifying glasses

Procedure:

Students use the dichotomous key to identify the macroinvertebrate samples. They then find and mark off the corresponding macroinvertebrate on the MACRO Bingo sheet. A student gets a Bingo if they get all four macroinvertebrates and the free space in a horizontal line.

Remind students not to touch the macroinvertebrates as they are sensitive animals and an important part of the ecosystem and will be returned to the stream. However, they should feel free to use magnifying glasses to get a closer look!

Wrap Up:

Ask students what they think the quality of the water is based on which line they got a Bingo in. Is the water safe for their trout?

When finished, return macroinvertebrates to the section of stream they were obtained from.