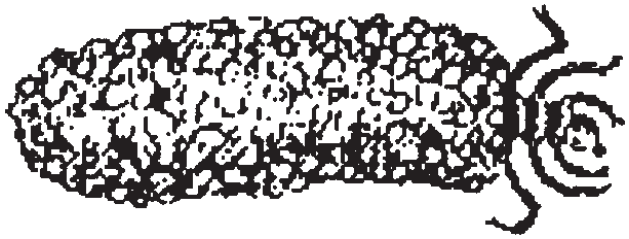
78-540 Fieldmaster® Stream Sampling Kit

(Moving Water Field Kit)



This kit contains everything needed for an entire class. Everything can be reused!

Warranty and Parts:

We replace all missing or defective parts free of charge. For replacements, use part numbers above. All products guaranteed free from defect for 90 days. This guarantee does not include accident, misuse, or normal wear and tear.

Additional materials needed (optional)

- Waterproof boots on students
- Waterproof gloves on students
- Quadrat or 78-025 Fieldmaster® Sampling Square for quantitive sampling in the field
- Sieve
- Isopropyl alcohol
- 78-505 Fieldmaster® Aquatic Invertebrate Lab Kit for processing samples

Your students most likely can work in pairs for this activity.

How to use:

Your class can easily obtain samples from creeks and streams using this equipment. After collection, the samples can be brought back tot he classroom or lab for closer examination. (Many teachers prefer to study the organisms in the field so they can be returned to their native habitat after study. The equipment in the 78-505 Fieldmaster® Aquatic Invertebrate Lab Kit is excellent for the next phase.) Please use safety precautions when working with children near the water.

Before the students enter the stream, fill the turbidity tube with water with as little disturbance of the stream as possible. Students can take turns using it to get a reading of turbidity. There is a tiny Secchi Disk at the bottom of the tube. This gives an indication of the amount of light that can enter the stream and reach the bottom as well as how much silt and other substances may be affecting the clarity of the water. This will also affect the organisms. Complete instructions are included with the Turbidity Tube.

Also before stirring up the stream, have the students use the thermometer to take the temperature of the water. Some organisms are sensitive to temperature so this can help explain the presence or absence of certain organisms in your study stream. It can help you demonstrate that many of the organisms are seasonal and may not be present when the water is warmer or colder. A string can be tied to the thermometer for this. It can be very useful information if you return to the stream more than once. Store the thermometer with the bulb down.

The lightweight Fieldmaster® D-frame nets can be used by students to collect bottom-dwelling organisms in moving water. They will need waterproof boots and gloves for this activity. One student can place the D-frame in the flowing water so that the water enters the mouth of the net and flows down-

stream through the mesh. A second student will then stir up the bottom of the stream in front of the net so the sediment and bottom organisms wash into the net. Keep in mind that the organisms are rather delicate, the students should use a soft touch if possible. This will provide a qualitative sample of the stream bottom organisms.

If a more quantitative sample is preferred, use a quadrat (sampling square) in front of the net. (You can use the **78-025** Fieldmaster® Small Sampling Square.) The student in front of the net should gently stir up the bottom and rinse all the rocks and pebbles within the quadrat. This is done by gently rubbing each rock with the hands and then discarding it to the side until the area within the quadrat is clear. The student will have to be careful to stay to the side of the quadrat so sediment from elsewhere in the stream does not get rinsed accidentally into the net.

The students can then use the wash bottles to rinse the sides of the net (rinse from the outside) to consolidate the sample. The net can be inverted to remove the sample which can be rinsed into the square sample jars. Gloves should be used as a precaution.

If you plan to take samples back to the classroom or laboratory and you plan to use them soon, you can just take them back in the jars. If the jars are not full, have the students fill them up with water. If you are taking quantitative samples, pour the water through a net when filling the jars.

When you return to the classroom or lab, remove the lids. The organisms should last for a few days.

If you plan to save them for future use, run the samples through a sieve and remove as much water as possible. Use 95% or 99% isopropyl alcohol as a preservative. If there is a lot of water, the alcohol may be too diluted and the sample will not be as well preserved. Make sure the alcohol gets well mixed with everything in the sample. Be gentle, of course, because many of the organisms are very delicate. Use at least twice as much alcohol as you have sample.

Before using preserved samples, have the student thoroughly rinse off the alcohol and work in water instead. The re-preserve with fresh alcohol. (We do not recommend using Formalin as a preservative when working with students.)

We recommend using the Fieldmaster® **78-505** Aquatic Invertebrate Lab Kit for processing the samples. It contains, white pans, entomological forceps, sieves, magnifying glasses, I.D. booklets and other items to help students sort and identify the organisms they have collected.

There are some excellent tools available on the internet for help with identification. We recommend the following website:

http:// clean-water.uwex.edu/pubs/wwwc/index/html

You can print out the "Key to Macroinvertebrate Life in the River." It is a chart with pictures of the organisms. There is also a booklet you can print out called "Wonderful, Wacky, Water Critters." It is an illustrated booklet with detailed information on over 50 aquatic organisms.

Other Fieldmaster® kits and products that may be of interest:

78-545 Lake Bottom Sampling Kit
Contains student-sized benthic grab; wash bucket; thermometer; 12 sample bottles; instructions

78-540 Stream (Moving Water) Sampling Kit
Contains 6 student D-frame nets; turbidity tube; thermometer; 12 sample bottles; 6 wash bottles

78-547 Plankton Sampling Kit
Contains water sampling bottle; secchi disk; student plankton net, Nitex® construction; 24 sample bottles, 12 each of two different sizes; wash bottle for rinsing nets.

78-505 Aquatic Invertebrate Kit
Contains 12 clear rulers; 48 plastic vials; 12 critter pickin'™ pans; 6- 500-micron Nitex® sink sieves; 12 hand lenses; 12 entomological forceps; 12 probes; 12 Aquatic Insect ID books.

78-025 Small Sampling Square
Use in shallow water or on land to mark of a quarter meter squared. Two-dimensional square is formed by four PVC legs connected with two PVC T-connectors. Shock cord is contained inside pipe legs. Folds for easy transport and storage. Economical and practical.

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