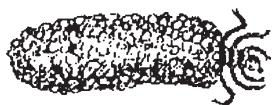


# 623-7212 (78-547) Fieldmaster® Plankton Sampling Kit



## Parts List:

24-8547	Plankton sampling instructions	1
3001-B25	Thermometer	1
78-010	Secchi disk with line/ float (with instructions)	1
78-210	Student plankton net, 80 micron (with instructions)	1
78-305	Fieldmaster® basic water bottle (with instructions)	1
7900-C27	125 mL sample bottle/caps	12
7900-D57	Wash bottle	1
7900-E27	250 mL square sample bottle/caps	12

**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.

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

## How to use:

Plankton are the plants and animals that live in water. Most of them are microscopic and require at least a dissecting microscope for identification. Plant plankton is called "phytoplankton" and animal plankton is called "zooplankton." This kit is designed to provide your students with working field sampling equipment commonly used to collect plankton samples. You most likely will want to take samples

back to the lab or classroom for close-up study.

You can use the **Secchi disk** to help your students see the effect of phytoplankton and zooplankton growth on the clarity of the water. It measures light penetration. The Secchi Disk has been used for over a century to measure water clarity, which is primarily affect by algae and suspended sediments. If you are sampling a lake or pond, algae is most likely the major factor. It is a good idea to mark (calibrate) the line on the Secchi Disk ahead of time, indicating yards and feet or meters and half-meters using a permanent marker. The student will then note the depth when the Secchi Disk disappears from view and again when it reappears. Instructions for use of the Secchi Disk are included.

You can find the depth of the water you are sampling by using the Secchi Disk as a weight on a marked line. This is a "sounding line" or "lead line."

You can attach the **thermometer** to the line with the Secchi Disk to get temperature readings at various depths. Lower it to the desired depth, leave it a few seconds, and then pull it up rather quickly. Have the students read it immediately.

**Basic Water Collection Bottle** is used to collect samples at a particular depth. You may also wish to mark the line ahead of time before sampling. This will allow your students to see the difference in the amount and variety of plankton near the warmer, bright surface and at the lower depths where there are colder temperatures and less light. Results from the water collection bottle can be used for quantitative analysis (number of organisms per measured volume of water).

individuals or groups of plankton. For long-term storage, you will want to transfer the samples to glass vials.

Most plankton sampling methods produce qualitative results, since small plankters can pass through nets and it is difficult to measure the amount of water that has flowed through the net. If your study is qualitative, the plankton should last for quite awhile in a refrigerator and will not need preservation.

If a water sample bottle was used for collection, you can get excellent quantitative results if the sample is preserved or processed quickly. Measure the exact amount of water collected before processing the sample. To concentrate the plankton for preservation or processing, they can be sieved or allowed to settle out.

Depending on the time available and the age of the students, you can have the students identify organisms into major groups (such as diatoms) or have them attempt to identify the organisms to species (*Spirogyra* is an easy one to identify).

The Bogorov Chamber is an excellent tool for counting and identifying zooplankton. Use a pipette to fill the chamber with sample. Place it under a dissecting microscope with the upper left hand end of the groove in the field of view. The students can sort through the sample by moving along the groove, minimizing the chance of counting the same organism twice. They can use the forceps and probes to gently move the organisms for a better view. Live zooplankton may be moving in the sample. Complete instructions are included with the Bogorov Chamber.

The Gridded Petri Dish can be used for quantitative and qualitative analysis. The phytoplankton can be left to settle out in the dish. Gently place it under a dissecting microscope. The dish is marked with letters going down and numbers going across, so a student can randomly select a grid to process. Have the students use a random numbers, ten-sided dice or other random method to select each grid. (Ten-sided dice are available from our sister company, Wildlife Supply® at [www.wildco.com](http://www.wildco.com) or toll-free at 800-799-8301. Refer to **182-B20**.) After all the large organisms in that grid are identified and counted, randomly select a new grid. The students can stop after 100 or 200 organisms are processed. The results can be used to determine the percentage of each type of plankton in the sample. The forceps and probes can be used to gently move the plankton for a better view. The clear rulers can be placed over an organism to obtain an

approximate size.

Smaller phytoplankton and zooplankton can be viewed under a standard microscope. Have the students use a pipette to place a drop or two of sample to a microscope slide and place a cover slip on top. Using the 10x objective, they can look over the sample and then switch to higher power when they want to get a better view of a specific plankter. Since most phytoplankton is not flat, they may have to gently focus up and down on a single cell. Also, the zooplankton can move up and down in the drop, so refocusing is almost always necessary.

The students may have to refocus quite often during all of these activities in order to view the organisms clearly and to follow the organisms that are moving. If sampling is done at different times of the year, the students should be able to notice seasonal variations in the types, percentages and numbers of plankton.

## **Other Fieldmaster® kits that may be of interest:**

### **78-545 Lake Bottom Sampling Kit**

Contains student-sized benthic grab; wash bucket; thermometer; twelve (12) sample bottles; instructions

### **78-540 Stream (Moving Water) Sampling Kit**

Contains six (6) student D-frame nets; turbidity tube; thermometer; twelve (12) sample bottles; six (6) wash bottles

### **78-505 Aquatic Invertebrate Kit**

Contains twelve (12) clear rulers; 48 plastic vials; twelve (12) critter pickin™ pans; six (6) 500-micron Nitex® sink sieves; twelve (12) hand lenses; twelve (12) entomological forceps; twelve (12) probes; twelve (12) Aquatic Insect ID books.

## **24-8547**

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