



How to

Collect Drinking Water Samples (not bailing)

INSTRUCTIONS SHEET

Test Location:

Depends on your experiment or activity, but samples can be obtained from a faucet, spring, creek, river, groundwater well, water authority, bottled water.

Materials (Included in Module)

12 Plastic Sample bottles (250 mL) (non sterile – for chemistry tests only)
50+ Whirl Pak Bags (sterile – for bacteria and chemical tests)
various types of bottled water

Materials

(NOT included in Module)

certain water samples
bailing device for collecting
samples from a bridge
shore-line dipper

Background Information

If you are sampling water for bacteria sampling, you need to make sure your collection containers are sterile (they should be autoclaved – heated). Some plastic sample containers can be purchased that are sterilized and come individually wrapped. Whirl Pak Bags (described below) are an inexpensive, sterile way to collect the water that does not require autoclaving sampling containers ahead of time. They are disposable when testing is completed. Chemical tests do not need sterile containers, but they should be as clean as possible.

Instructions (for using Whirl Pak Bags) = STERILE SAMPLING

These plastic bags (7 in. high and 3in. wide) are sealed shut and have a yellow band at the top with 2 small white pull tabs. If they are sealed shut, they are sterile. If they are open, do not use them for bacteria testing.

If sampling from a small stream or spring:

1. The most effective way to use the Whirl Pak Bags is to enter the stream using hip waders or boots (you do not want to be in contact with the water if it contains bacteria). With your Whirl Pak Bag, go to the center of the stream.
2. When ready to collect the water, tear away the top of the Whirl Pak bag along the perforation.
3. To open the bag, pull on the white pull tabs. This can be done while placing the bag under the water, facing the opening of the bag upstream so that water will flow into it. Opening it underwater keeps the level of contamination to a minimum – you do not want to touch the inside of the bag or breathe into the bag.
4. Fill the bag $\frac{3}{4}$ of the way full maximum.

5. Pull the bag closed using the yellow tabs and carefully pressing the top together with your fingers – do not touch the inside of the bag.
6. Grab the yellow tabs at their ends with both hands. Hold the Whirl Pak bag as far away from your body and face. Being careful not to splash water out of the bag, you will attempt to seal the bag. Quickly flip the bag forward away from you in a circle at least three times (like a gymnastics athlete flipping over the uneven bars) (see picture).
7. Take the yellow tabs and twist tie them together at their ends, making a yellow ring that you could stick your finger through to carry the bag. This should seal the bag and keep it from leaking. If you turn the Whirl Pak bag upside down and water leaks out, undo the yellow ties, unfold the top, and repeat step 6 – being careful not to contaminate the sample.

IF STUDENTS HAVE TROUBLE WITH THE BAG FLIPPING – the top of the bag can just be folded down a few times and twist tied shut. This may not produce a leak-proof seal and you may need to keep the bags upright when transporting them.

8. If bacteria testing is not going to be done within a few hours, samples should be placed in a cooler and/or refrigerator.

If you cannot enter the waterway to obtain the sample:

1. A bailer or shore-line dipper can be used, but the collection container must be sterilized before collecting the water. Autoclaving – heating is the most effective. Rinsing the device with Isopropyl Rubbing alcohol can be used as a somewhat effect sterilization method. If you do this, you must condition your sample containers (rinse) with the sample water before taking final sample in them.
2. Pour the water from the collection device into the Whirl Pak Bags (3/4 full maximum) and follow the above instructions.

If sampling from a faucet:

1. Fill the Whirl-Pak bags (3/4 full maximum) and follow the above instructions.
2. Also read the faucet information below.

Instructions (obtaining sample from a faucet):

1. Turn on faucet, place collection container under flow of water until filled to desired amount, turn off faucet – pretty simple.
2. **Note:** your water chemistry of tap water may vary depending on the follow:
 - a) cold water vs. hot water
 - b) collecting water as soon as you turn on the tap
vs. letting water run awhile before collecting it

Instructions (obtaining sample from a water authority):

1. Call your local water authority and ask if you can obtain a water sample to use in the classroom for testing. Possibly ask for a water sample as it first enters the water authority before treatment and a sample from post treatment.

Instructions (obtaining sample from a spring or small stream):

1. If using Whirl-Pak Bags, see instructions above.
2. If using sample bottles, make sure they are sterile if you want to do bacteria sampling. If you are just doing chemical testing, use a shore-line dipper (cup on a stick) to collect water. If the stream is small and you have no shore-line dipper, carefully lean next to the water and collect the water directly from the stream.

Disposal and Clean Up

Don't leave anything at the creek.

Safety Precautions

If you lose a sample bottle off of a bridge or from the shore, do not attempt to retrieve it from waterways that have deep or fast currents or if you are unsure how deep the water is. For bacteria sampling that requires entering a stream, do not enter the water unless a teacher says it is okay to do so. You should wear waders or boots. Check for unsafe flow rates, depth, or visible signs of pollution.