

A photograph of two children standing in a field of tall grass and trees. The image is covered with a semi-transparent green overlay. The child on the left is a young girl with curly hair, wearing a blue jacket and holding a long pole with a net at the top. The child on the right is a boy wearing a red jacket and holding a blue bucket. In the top left corner, the text 'DIY' is written in a large, white, distressed font, and 'LAKE SCIENCE' is written in a smaller, white, sans-serif font inside a white rectangular box.

DIY
LAKE SCIENCE

DIP DIP, HOORAY!

WHAT'S LIVING IN YOUR NEIGHBORHOOD BODY OF WATER?

ACTIVITY DESCRIPTION

Lakes, streams and other freshwater bodies are habitat for lots of living things, big and small. In this activity, you will build a dip net you can use to temporarily collect and observe your aquatic neighbors.

Age: 9 and up

Preparation: 15 minutes

Activity: 15 minutes

Cleanup: 10 minutes

ACTIVITY MATERIALS

- Wire clothes hanger
- Pair of pantyhose or tights
- Scissors
- Stapler (heavy duty stapler works best) or super glue
- Twist ties or 15 cm of wire
- Tarp or large sheet of wax paper
- Scoop from The Scoop on Habitat activity or small bucket
- Rubber boots or waterproof shoes (optional)
- Broom handle and duct tape (optional)
- Magnifying lens (optional)



SAFETY I

Exploring watersheds is fun! But it's important to be safe and respectful when doing science in or near a body of water.

- If necessary, go with an adult.
- Only enter a body of water if it is safe and legal to do so.
- Rinse off equipment with clean water after using it.
- Wear appropriate footwear and clothing when working in or near a body of water.
- Follow the “leave no trace” and “pack it in, pack it out” principles.
- Check to see if the water and/or the creatures in it are protected by environmental regulations. Some sensitive ecosystems need to be left alone in order to recover from damage or overuse.

STEP 1

Bend the loop part of the hanger into a circle, 15-20 cm in diameter, as shown in the picture. Leave the hook / handle portion the way it is. If it's difficult to bend the wire, bend the hanger around a table edge or get an adult to help. Use twist ties or a piece of wire to hold together the hanger wire at the edge of your loop, where it connects to the hook/handle. See the pictures to help you build the frame of your dip net.



STEP 2

Cut off the feet portions of the pantyhose at about knee level, and throw away the feet. Keep the rest of the pantyhose, which includes the part that covers the hips and stomach. Tie the ends of the remaining leg portions together as shown in the picture.



STEP 3

Fold the top 1-2 cm of the pantyhose waistband around the loop of the hanger. Pinch the pantyhose together around the hanger and staple the fold together. Continue stapling the pantyhose around the entire loop, putting a staple every 2 cm. Make sure to fasten the area where the loop connects to the handle very well—add extra staples here.



Tip: If the staples do not hold, you can sew the waistband to the hanger with a needle / thread or use superglue (with adult help) to fasten the pantyhose on the loop.

STEP 4

Pull the knot you made (by tying the legs together) through to the other side of the hanger, as shown in the picture. This will hide the staples, and keep tiny organisms from getting stuck under the lip of the waistband.



STEP 5

You can make a longer handle for your net (instead of just holding on to the hook end). Straighten the hanger hook portion and tightly duct tape a broomstick or rod to the straightened hook.



STEP 6

Visit a body of water (lake, stream, river, pond or ocean), wearing your waterproof shoes if necessary. Remember the safety code for working in or near a body of water. If you did the The Scoop on Habitat activity, you can use your scoop here; otherwise use a bucket.



STEP 7

To explore your aquatic ecosystem, use your dip net to take samples in different parts of the water. Empty the contents into the scoop or bucket. Do this a few times, then carefully empty and examine the contents on a tarp or wax paper. Try your dip net in deeper areas, shallow areas, sunny spots and shady spots.

Return any creatures you find to the water after 10 minutes of observation. If you catch any fish in your net, return them to the water as soon as possible—within 1-2 minutes of taking them out.



STEP 8

Observing nature sometimes require patience. Different aquatic ecosystems have different amounts (or abundances) of creatures living in them. The population of living organisms also changes with the season and from year to year. Depending on your local habitat, you may not see a lot of organisms. You may need to try more dip net samples, or come back a different time of day or during a different season.



STEP 9

What creatures did you find? How many? What do they look like? What kind of environment did you find them in—wet, dry, sunny, shady, muddy? If you want, take photos, draw pictures, and/or make notes about your observations. Make hypotheses (educated guesses) about any differences you observe between locations. For instance, if you observe more organisms in sunny areas, can you think why this might occur?



WHAT'S GOING ON?

It can be difficult to see aquatic organisms in water because they are often on the move, swimming or being pulled by currents. Using your dip net, you can temporarily collect organisms from the water and see what they look like, how many there are, and whether they change throughout the day or year.

Does the dip net give you a clear idea of what lives in your aquatic environment? With a dip net you are taking a sample of the biology living in the water. A sample is a small part of a population. The more samples you observe in different locations, at different times of day and year, the better understanding you'll get of life in the water.



Scientists use dip nets, like the one you made, to study aquatic organisms.

MACRO-INVERTEBRATES!

Scientists use dip nets to study aquatic organisms called macroinvertebrates--animals with no backbone that can be seen with the naked eye. Macroinvertebrates include insects like dragonflies, crustaceans like crayfish, and mollusks like snails. Macroinvertebrates are very sensitive to changes in their environment. Because of this, scientists can measure the number and different kind of macroinvertebrates to get an idea of the health of the body of water. If the water quality of their aquatic habitat changes, for example if a



pollutant enters the water, the number and kind of macroinvertebrates may decrease. Did you find any macroinvertebrates in your dip net?

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CREDITS |

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This activity from the DIY Lake Science app allows families to investigate and learn about lakes and bodies of water at home or on the go! The app features twelve hands-on investigations, as well as videos and a lake simulation.

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