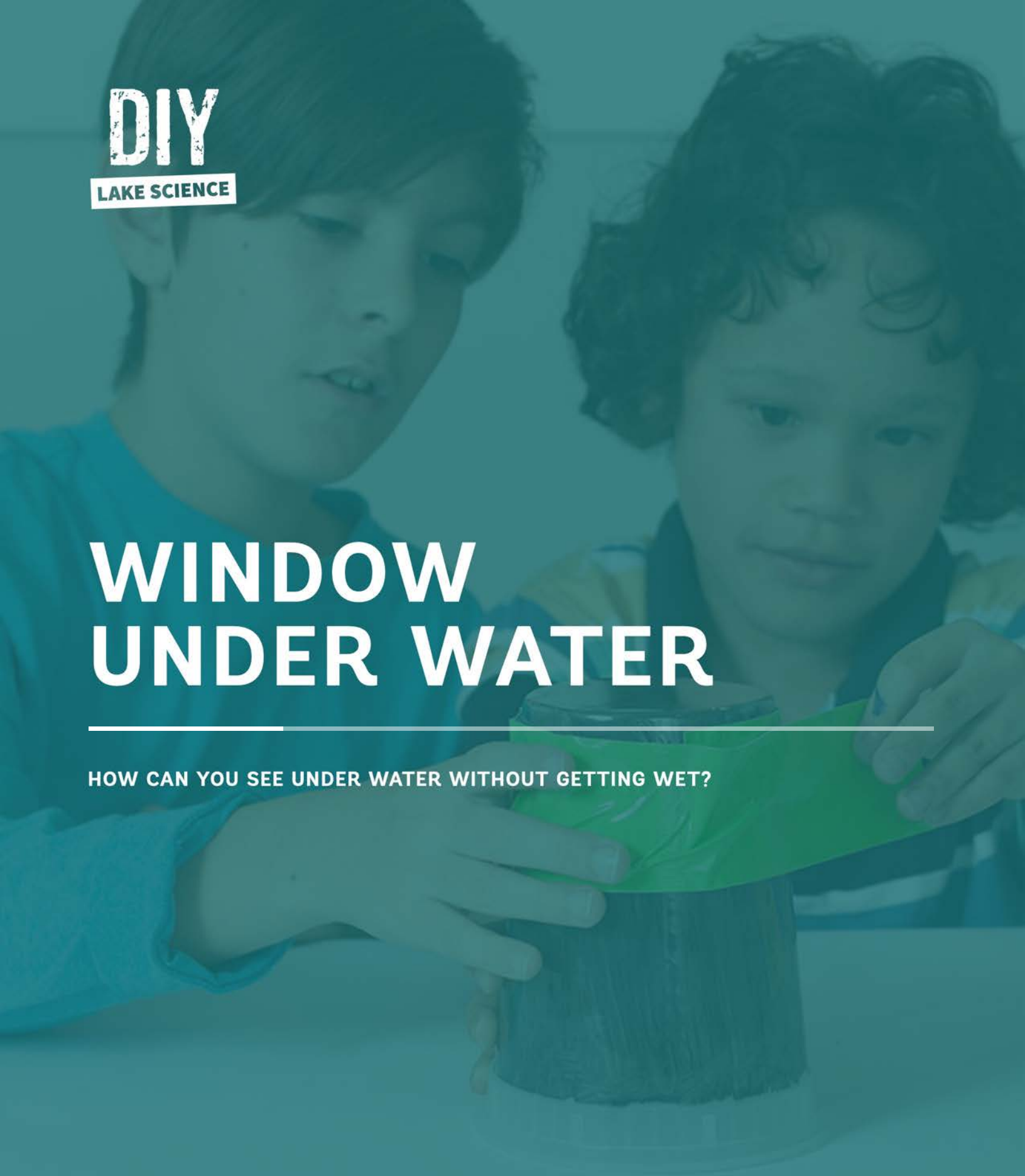
DIY

LAKE SCIENCE



WINDOW UNDER WATER

HOW CAN YOU SEE UNDER WATER WITHOUT GETTING WET?

ACTIVITY DESCRIPTION

Glare from the sun and ripples from the wind can make it hard to see what's below the surface of a body of water. Make your own viewscope to look closer at what's living below the surface of ponds, streams, rivers and lakes.

Age: 7 and up

Preparation: 10 minutes
Activity: 25 minutes
Cleanup: 5 minutes

ACTIVITY MATERIALS

- Large plastic or metal container (see Materials Note)
- Utility knife
- Marker
- Plastic food wrap or sheet of clear plastic
- Large rubber band
- Scissors
- Plastic packing or duct tape
- Black paint (optional)
- Paintbrush (optional)

MATERIALS NOTE

Many types of containers can work for this activity. You can use any plastic or metal cylinder, 10-30 cm in diameter and 15-60 cm long. Some examples are: large plastic yogurt container, plastic milk/juice/vinegar container, empty/clean metal paint can, metal or plastic coffee can, PVC or ABS plastic pipe.

SAFETY

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

The viewscope you make will be open on both ends. One end (the wider end if there is one) will be covered with clear plastic. This end will be inserted into the water, and you will be able to see through it!

Find the best container you can, and if necessary, cut off the closed bottom using a utility knife or scissors. Have an adult help you with the cutting. Be sure your cut is straight with no jagged edges.

STEP 2

If you have black paint and a paintbrush, you can paint the inside of your viewscope black. Painting the container's inside black helps reduce glare from the sun, and makes it easier to see under water.

STEP 3

Use a piece of plastic wrap large enough to cover the open bottom of your container. You can also use a thicker sheet of clear plastic (like from a shower curtain). With a marker, draw a circle on the plastic around your container's bottom, but make the circle about 5 cm larger than the bottom, all around (as shown in the photo).

With scissors, cut out the circle you drew.

STEP 4

Place the plastic circle over the bottom opening of your container. Fasten it to the container with a rubber band, as shown in the photo. The rubber band should not be so tight that it crushes the container. Pull the edges of your plastic circle so it's tight across the opening and has no wrinkles.

STEP 5

Use plastic packing or duct tape to tape the edge of the plastic circle to the container. The tape can cover the rubber band. The tape should provide a good seal around the opening, so water can't leak into the container when it's submerged.

STEP 6

You now have a viewscope! Visit a body of water like a lake, river, pond, stream, or ocean. Shallow bodies of water that aren't murky work best. Place the plastic-covered end of your viewscope into the water. Don't put it in too deep—if you let the open end reach the water's surface, the container will flood with water.

Can you see what's under the water's surface?

STEP 7

Visit the same spot, or as near as you can (depending on weather), throughout the year. You might get a friend to help you take pictures of what you see through your viewscope. How does the underwater area change over time? Are there plants and animals that appear sometimes during the year, but not others? Does the water seem cloudy at any time during the year?

WHAT'S GOING ON?

Water's surface can reflect sunlight and wind can cause ripples in the water, making it difficult to see what's below. Your viewscope lets you "pierce" the surface of the water. The scope provides a flat, non-reflective surface so you can easily see what's under water.

If you view a body of water during the course of a year, you may notice differences over time. As water warms in summer, plants and animals grow and can be easy to spot with your viewscope. When water gets cold during winter, these populations can decrease. Water can also get murky at different times of year. Check out the Clear Water, Murky Water activity to find out why!

The kinds and amount of plants and animals living in a body of water can change over time.

WHY LOOK UNDERWATER?

Scientists often track populations of plants and animals in bodies of water over time. This information can tell us how "healthy" a body of water is. A lake that can support many plants and animals is considered healthy. Pollution and other factors, such as invasive species, can affect the ecosystem and decrease the populations of other plants and animals.

Looking under the water's surface can tell us not only what organisms are below, but how they relate to each other. Some plants provide food and shelter for animals, but which ones? By observing organisms under water, we can learn about these complex ecosystem relationships.

LEARN MORE

For more info and other activities, visit:
LawrenceHallofScience.org/do_science_now/diy_lake_science

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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