

DIY

LAKE SCIENCE

THE WORLD'S WATER

WHAT FRACTION OF THE WORLD'S WATER IS FOUND IN LAKES?

WETLANDS

LAKES

GROUNDWATER &
SOIL MOISTURE

GLACIERS &
PERMANENT WATER

ACTIVITY DESCRIPTION

You can find water in lakes, the ocean, rivers, underground, and frozen in glaciers. How much of the world's water is found in each source? In this activity, you'll model how much water of each type is found around the globe.

Age: 9 and up

Preparation: 5 minutes

Activity: 30 minutes

Cleanup: 10 minutes

ACTIVITY MATERIALS

- 8 large drinking cups or bowls, each 500 mL (about 16 oz) or larger
- Liquid measuring cup, 500 mL or larger
- Measuring spoon set
- Masking tape
- Marker
- Dropper
- Water
- Food coloring (optional)
- Paper and pencil (optional)
- Map (optional)



STEP 1

There is a lot of water on Earth! Where is it all found? Using the idea of scale can help you understand the scope of our planet's water resources, by representing something large with something small. A map is one kind of scale model. You might have seen a map of where you live. Your city or town might really be a few kilometers wide or larger, but a map of it might be only 100 centimeters wide. This map is much, much smaller than where you live, but it lets us see an entire city or town to examine its parts.



STEP 2

To better visualize the Earth's total water, we will scale it all down to the size of a cup of water. This is just like scaling down your city or town to the size of a map.

Using a liquid measuring cup, pour 500 mL (about 16 oz) into one of your cups. This amount represents all Earth's water. With masking tape and a marker, label the cup "The World's Water."



STEP 3

With masking tape and a marker again, label the other 7 cups to each represent a water source on Earth:

- Oceans
- Glaciers & Other Frozen Water
- Groundwater & Soil Moisture
- Lakes
- Wetlands
- Atmosphere
- Rivers



STEP 4

Predict how much of the world's water belongs in each source cup. Based on your predictions, transfer water from "The World's Water" cup into the other 7 cups. Be sure to pour water from "The World's Water" cup first into a measuring cup and/or measuring spoons, so you can measure the water volume you transfer into each source cup. Write down your measurements.



Do you think any of the world's water sources have only tiny amounts of water? If so, use the dropper to transfer water from "The World's Water" cup into those source cups.

STEP 5

When you're done, your "World's Water" cup should be empty. All its water should now be in the 7 cups representing Earth's different water sources.

This table shows how much each cup (source) should have if Earth's real water is scaled down to a total 500 mL. How close were your predictions to this table?

Water Source	% of Total	Volume
Ocean	96.50%	483 mL (-16 oz)
Glaciers & Other Frozen Water	1.80%	9 mL (1.5 tsp)
Groundwater & Soil Moisture	1.70%	8 mL (1.5 tsp)
Lakes	0.01%	1 drop
Wetlands	<0.01%	0.1 drops
Atmosphere	<0.01%	0.1 drops
Rivers	<0.01%	0.02 drops
Total	100%	500 mL

These percentages altogether equal slightly more than 100% because of rounding.

STEP 6

Pour all the water from the 7 cups back into the "World's Water" cup. Now use the table to pour or drop the correct amounts of water into the 7 source cups. Leave cups empty for sources that are less than one drop.

Did any of the actual volumes of water surprise you? Where is most of the water on Earth located?



WHAT'S GOING ON?

Most of the world's water—about 97%—is located in the ocean! All this water is salty, and cannot be used for drinking or farming unless the salt is removed through a process called desalination. Some lakes and groundwater are salty too. The rest of the world's water—about 2.5%—is freshwater, with little or no salt. Some of this water is frozen in glaciers and icecaps, where it's hard to access. Only about 0.01% of all water on Earth is located in freshwater lakes.



A tiny fraction of earth's water is located in lakes. Most of the water is in the ocean!

PRECIOUS FRESHWATER

Because such a small percentage of Earth's water is freshwater, we need to take good care of it. We use freshwater for farming, drinking, bathing, cleaning, and even generating electricity. Plants and animals also need clean freshwater to survive! When freshwater sources like rivers, lakes, and groundwater become polluted, we must clean the water before it's safe for people, plants and animals. This process can



be difficult and very expensive. Sometimes it's so hard to fix problems caused by pollution, that a contaminated water source can't be used again for many, many years.

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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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