

DROPS OF KNOWLEDGE FOR RIVERS OF CHANGE



GLOBAL TEACHING
AND LEARNING MATERIAL

A hands-on guide to teaching
and learning about
water, sanitation, hygiene,
and the environment

SWAROVSKI
WATERSCHOOL

ACTIVITY 2.1

ACTIVITIES FOR
WATER BASICS**ACTIVITY 2.1: LOOKING AT THE GLOBE AND UNDERSTANDING THE PERCENTAGES AND FORMS OF WATER**

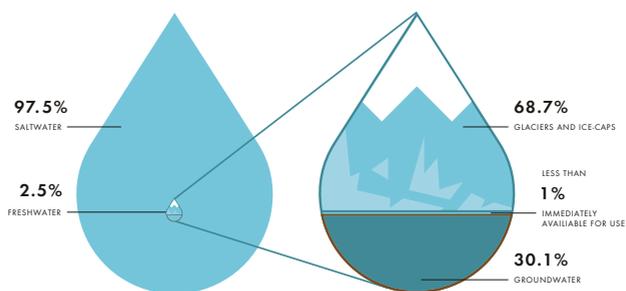
Although around 70% of the Earth's surface is covered with water,⁵ approximately 97% of the blue water that we see on a globe is saline (salty) ocean water that is not suitable for drinking by humans or animals. About 2% of the Earth's water is freshwater that is frozen in glaciers, permanent snow, and ice caps—so less than 1% of water is available for the use of all the humans and animals on Earth.⁶ This is water falling from the sky and moving into streams, rivers, lakes, and groundwater. This activity demonstrates the ratio of available freshwater to all the rest of the water on Earth.

Time: 50 minutes / **Thematic Areas:** Science, Mathematics, Social Studies /

Goal for Learning: Gain understanding of how water is distributed around the world in different forms and different amounts.



Materials: □ Globe or map of the Earth (as available) / □ 1 glass or plastic jug filled with water (3.8-liter/1-gallon size) / □ 1 teaspoon (holds 5 milliliters of liquid) / □ sheets of green and blue paper / □ black markers or crayons



Source: <https://water.usgs.gov/edu/earthhowmuch.html>

⁵ USGS Water Science School, "How Much Water Is There On, In, or Above the Earth?", U.S. Geological Survey, March 19, 2014, <https://water.usgs.gov/edu/earthhowmuch.html>. ⁶ Windows to the Universe, "The Water Cycle: A Climate Change Perspective," National Earth Science Teachers Association, www.windows2universe.org/earth/Water/water_cycle_climate_change.html.

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ACTIVITY STEPS:



WATER



1 Begin by showing a globe or map of the Earth, explaining that 70% of the planet's surface is covered by oceans. Note that, of all the water on our planet, around 97% is salt water, 2% is frozen in icebergs and glaciers and is inaccessible to human beings, and less than 1% of drinkable freshwater is accessible from groundwater, rivers, lakes, and streams.

2 Next, hold up the jug of water and a teaspoon to show the difference, explaining that the jug represents all the water on Earth and the teaspoon represents how much is available to us as freshwater. Note that water is a limited resource with unlimited use, and encourage students to think about how important it is that we keep the water in this teaspoon clean and safe.



FOG

ACTIVITY 2.1



ICE, GLACIER

ACTIVITY 2.1

- 3 Organize students in groups of four and give each group one blue sheet of paper and one green sheet of paper.
- 4 Explain that the blue paper represents drinkable freshwater, while the green represents the rest of the water on Earth. Then ask them to tear both sheets of paper into 100 pieces.
- 5 Ask students to estimate the ratio of potable (drinkable) water and non-potable water in the world by setting aside a total of 100 blue and green pieces. Not all the ripped pieces will be used. Once their estimates are done, explain the real ratio: **1/** Three pieces of blue paper represent all the freshwater on Earth, including in glaciers and ice caps; in lakes, rivers, and underground aquifers; and in the atmosphere (3%). **2/** 97 pieces of the green paper represent all the rest of the water that we cannot use (97%).
- 6 Tell students that, of the three pieces of blue paper: **1/** Two pieces represent water that is frozen in glaciers and ice caps and is hard to reach. **2/** One piece represents water from surface water and groundwater sources that we can access.

OBSERVATION AND DISCUSSION:

Discussion prompts include: Are there any freshwater sources in our community? Is there water in the soil? When you dig a hole in the ground, is the soil very wet, moist, or dry?

ADDITIONAL RESOURCES:

EPA New England, "All the Water in the World," Boston: U.S. Environmental Protection Agency, April 25, 2014. Available at: <https://www.epa.gov/education>