

A Drop in the Bucket

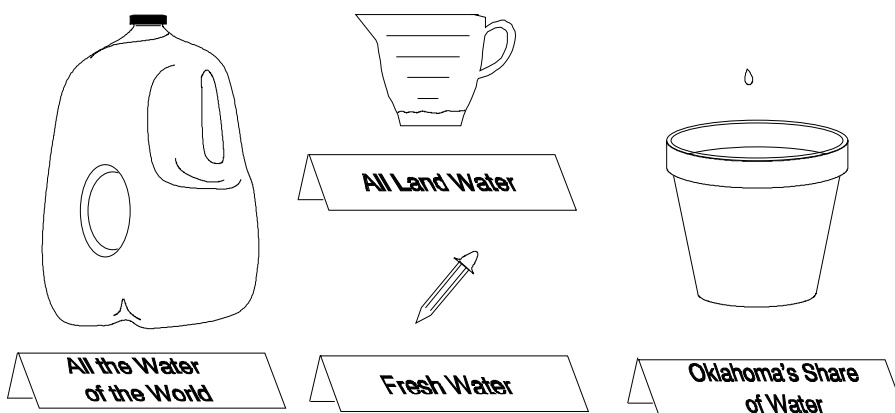
Objectives

Students will:

- Students will understand the importance of water to Oklahoma and thus to use the water carefully

Background & Procedures

- Fill a one gallon container so that it is nearly full. Tell your students that the water represents the earth's total water supply.
- Pour one ounce (1/8 cup) of water from the gallon container into the measuring cup. The water in the measuring cup represents all the earth's land water. Land water, for the purpose of this activity, is defined as the water found on and under the earth's land surface that is potentially available for human use (0.65%). This water may or may not be drinkable; for example, part of the land water is found in saline lakes. These lakes contain such high concentrations of salts that the water is not potable. The water remaining in the gallon jug represents the water stored in the oceans, seas and polar icecaps (99.35%).
- Using the pipette, remove a pipette full of water from the land water. The water in the pipette represents all good quality water found in the world's freshwater lakes, rivers and ground water. Put a drop of red food coloring into the measuring cup to show that the remaining land water is not drinkable without treatment.
- Now, release one drop from the pipette into a can or small metal bucket. Make sure your students are very quiet, so that they can hear the sound of the drop hitting the bottom of the can. Refer to the "Drop in the Bucket" as Oklahoma's share of the world's water. This one drop is precious and must be managed carefully and wisely.



Water supply comparison

Vocabulary

- gallon
- ounce
- saline
- potable
- polar
- icecaps
- pipette
- surface water
- subsurface water

Materials

- Plastic one gallon container
- Pipette
- A can or a small metal bucket
- Water
- Measuring cup (preferably clear)
- Red food coloring (or another color)

P.A.S.S.

4th Grade

Science

- Process 1.1,2, 3.1,3, 4.4

Math

- Process 1.2, 4.4

5th Grade

Science

- Life 2.2

Math

- Process 1.2, 4.4
- Content 2.1, 3.2b

4th Grade

Science

- Process 1.2, 3.1,5, 4.5
- Life 4.2

Math

- Process 1.1,3, 4.1
- Content 2.3, 4.3

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The World's Water Supply

Location	Water Volume (cubic miles*)	Percentage Total Water
Surface Water		
Freshwater lakes	30,000	.009
Salt lakes and inland seas	25,000	.008
Rivers and streams	300	.0001
Total for subsurface water (Rounded to nearest thousandths)	55,300	.017
Subsurface Water		
Soil moisture	16,000	.005
Groundwater within depth of 1/2 mile	1,000,000	.31
Deep-lying groundwater	1,000,000	.31
Total for subsurface water	2,016,000	.625
Other Water Locations		
Icecaps and glaciers	7,000,000	2.15
Atmosphere	3,100	.001
Oceans	317,000,000	97.2
Total for other water locations	324,003,100	99.351
Total (rounded)	326,000,000	100.00

* A cubic mile of water equals 1.1 trillion gallons

Adapted from *Water of the World*, Raymond Nace, U.S. Department of the Interior/Geological Survey, Publication 1984-421-618/107.

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