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.

Materials

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

Vocabulary

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

P.A.S.S.

4th Grade Science
- Process 1.1, 2, 3.1, 3.2, 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, 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

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

* A cubic mile of water equals 1.1 trillion gallons