HOW MUCH WATER IS THERE?

INTRODUCTION

During World War II, moving across huge distances to different lands brought on great challenges. Water, which was in short supply for troops as they advanced in battle, was difficult to transport. Also, the places the troops moved through were either remote and primitive or badly damaged by battle. These conditions provided little infrastructure. The following provides you with a script that can be used for the demonstration you will do in "How much water is There?"

Holding up a filled container with a volume of one liter: "This liter of water represents all the water on Earth, including water in the atmosphere, underground, and in the oceans and lakes."

While pouring water out of liter container and into another 30 ml container: "This 30 ml container represents the water on Earth that is fresh or has no salt in it. It is about 3% of the total amount of water."

While pouring water out of the 30 ml container into another container measuring about 6 ml: "This 6 ml container represents the freshwater that is not frozen."

With an eye-dropper, take one drop out of the 6ml container.

"This drop represents the amount of freshwater that is not polluted or so deep in the ground that we can't get to it."

For effect, you could add salt to the water remaining in the original one-liter container, or add red coloring to the remainder of the water in the 6ml container.

"The total amount of available freshwater on Earth is large, but it is only about 0.003% of all the water on the Earth. We need to share it not only with the 7 billion people on the planet, but with the animals and plants here too."

STANDARDS

NGSS 5 ESS2-1
Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

NGSS 5 ESS2-2
Describe and graph the amounts of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

NGSS MS ESS2-4
Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.

NGSS MS ESS3-1
Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.

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This is a direct physical model of the water on earth, and where it is, proportionally, in the water cycle at any given moment. So it links these disciplinary concepts while exercising students in the Science and Engineering Practice of Developing and Using Models, and the Crosscutting Concepts of Systems and Systems Models, and Energy and Matter.

NAME: DATE:

HOW MUCH WATER IS THERE?

Watch your teacher's demonstration about the water on Earth and how much of it is available to us.

How much of the Earth's water is available to us?

What do you use water for?

How could we get more water?

How could we conserve and protect the water we already have?