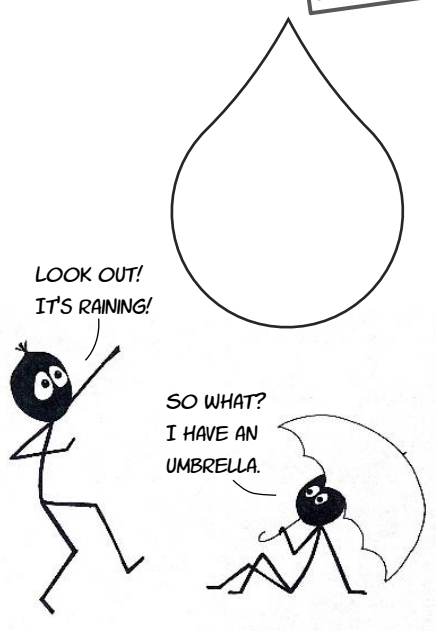
SCIENCE MOM'S Guide to WATER Part 1



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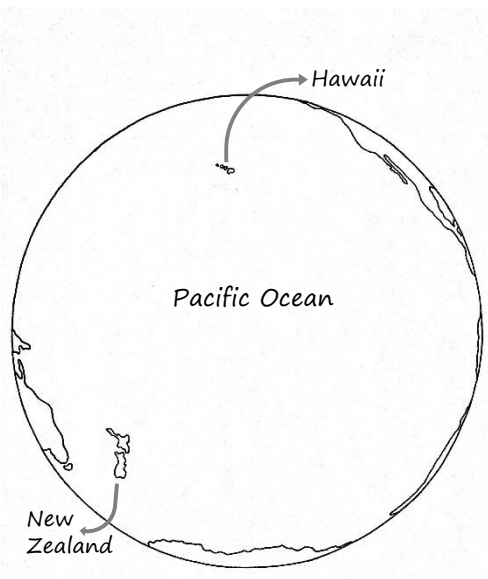
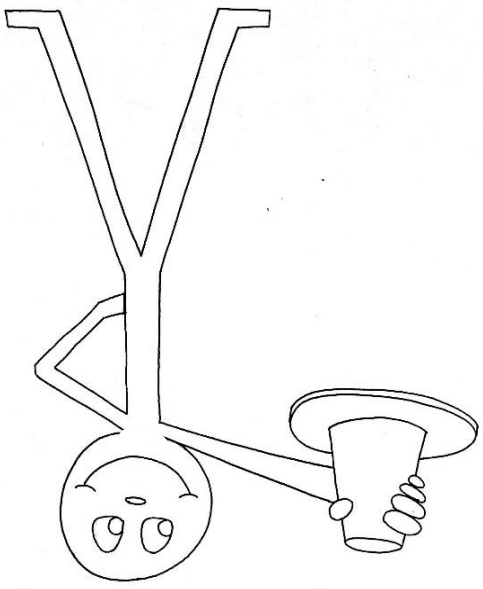
Water is the *only* thing on our planet that exists naturally in all three states of matter—as a solid, liquid, and a gas.

Gaseous water, or water vapor, is invisible. You can't see it, but it's in the air around you and we call it **humidity**. The more water vapor in the air, the more humid it is.

*The only other things on earth that come close to existing in all three states of matter are mercury, acetic acid, and carbon dioxide. While all three states of matter are **possible** for each of these, they don't occur **naturally**.* Water, on the other hand- it's everywhere.



Oceans cover most of the earth's surface, and about 70% of the planet is also covered by another form of water: clouds.



1. Gravity Defying Lid

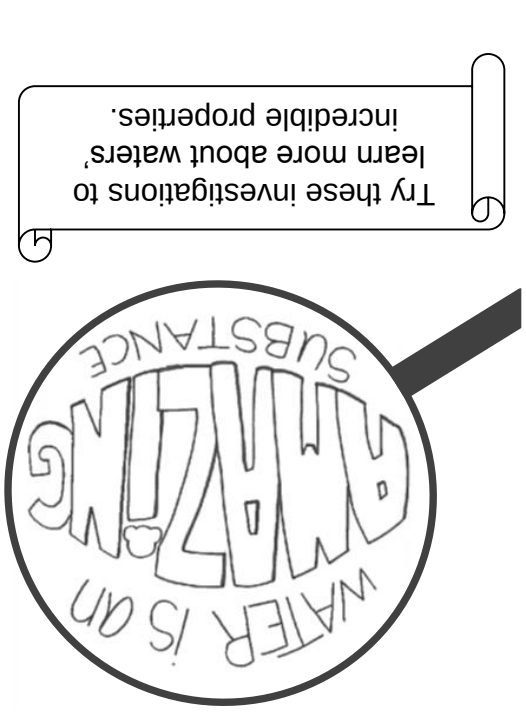
Materials:

- Cup
- Water
- Plastic lid, or a piece of cardstock or cardboard.

Method:

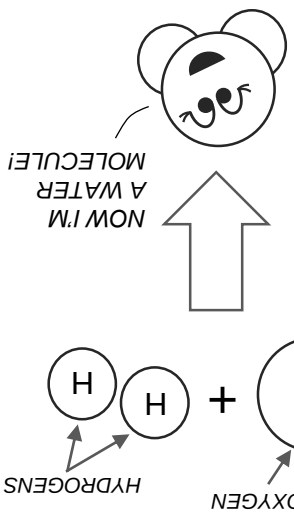
a) Pour water in the cup and place the lid on top.
b) Put hand on top of lid and INVERT the cup (Turn it upside down).
c) Remove hand and be amazed!

COLOR THE SCIENTIST ON THE OPPOSITE PAGE TO LOOK LIKE YOU!



Try these investigations to learn more about waters' incredible properties.

That's why we call it H_2O



WHAT EXACTLY IS WATER?

It's one oxygen atom plus two hydrogens.

2. Magic Screen

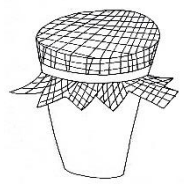
Materials:

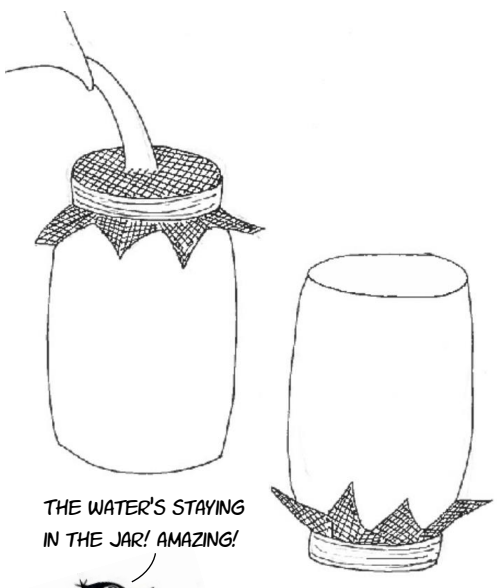
- Jar with a metal ring
- A piece of screen or mesh
- Lid
- Water

Method:

a) Fill jar to rim and secure screen on top.
b) Cover with lid and flip over.
c) Remove lid and observe.

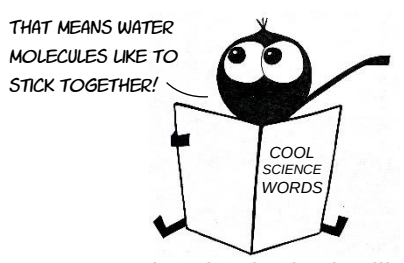
No jar? No problem. Use a cup and rubber band. But be sure the screen or mesh is FLAT and TIGHT across the rim of the cup.



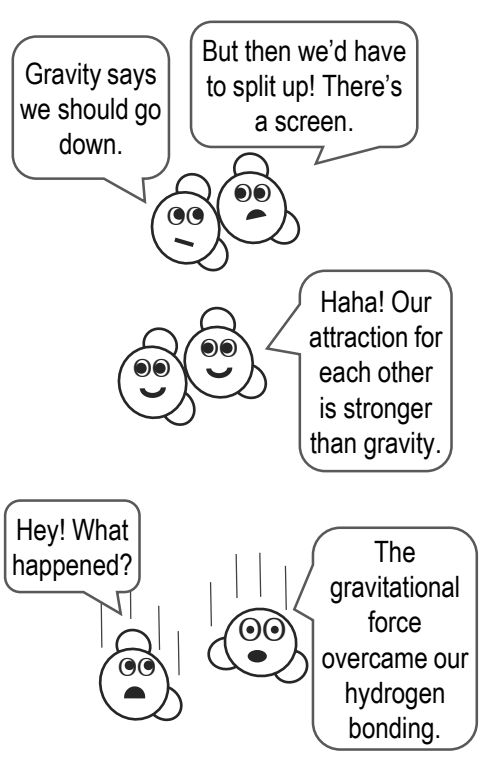


HOW DOES IT WORK?

Cohesion.



The water molecules in the jar like each other and the jar. Their attraction for each other and the container is strong enough that they effectively form a "lid" on the bottom of the jar, just like the plastic lid did in the first investigation. If air doesn't come in, the water can't go out. So the water stays inside—until you shake or tip the jar. If you do either of those things, then gravity wins.



3. Hot & Cold Cups

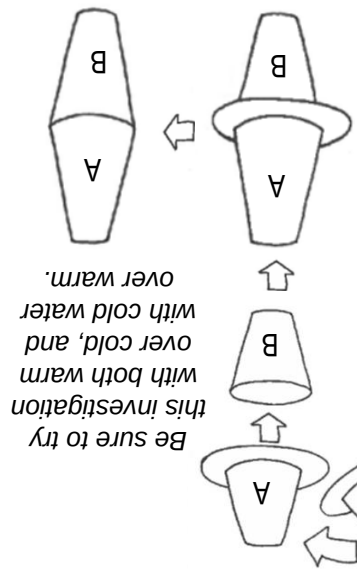
Materials:

- Food coloring
- A flat lid or cardboard
- 2 identical clear cups or jars
- Warm and cold water

Method:

a) Add different colors of food coloring to each cup.
b) Fill each cup to the brim, one with warm water and the other with cold.
c) Place a flat lid on one cup and invert it, then set it on top of the other cup.
d) Slowly, slide the flat lid or cardboard out from between the cups.

Slide the lid out carefully



Be sure to try this investigation with both warm over cold, and with cold water over warm.

Note: Removing the lid is best done with two people: one to hold the cups steady while the other pulls out the lid.

Cold water is more dense than warm water—so it sinks while warm water "floats" on top. This phenomenon drives thermohaline circulation in the oceans—a massive system of currents that slowly but steadily circulates all the water in the oceans and strongly influences marine life and the earth's climate.