

SCIENCE MOM'S Guide to WATER **Part 1**

SEE? RAIN IS NO
PROBLEM WHEN
YOU HAVE AN
UMBRELLA.

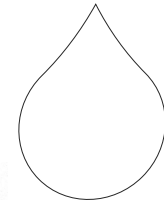


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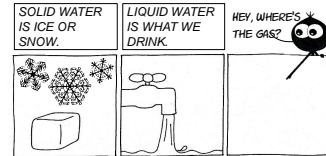
LOOK OUT!
IT'S RAINING!



SO WHAT?
I HAVE AN
UMBRELLA.

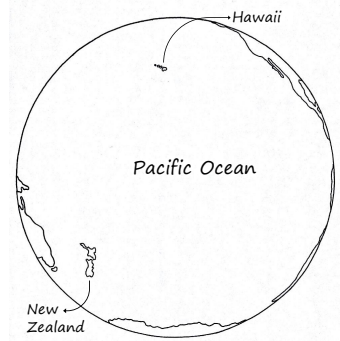


Water is the *only* thing on our planet that exists naturally in all three states of matter—as a solid, liquid, and a gas.

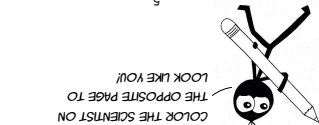
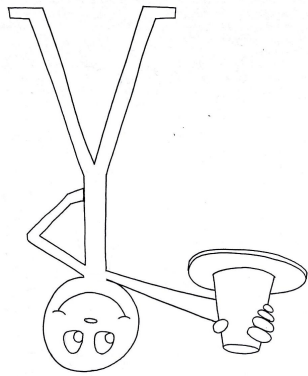


Gaseous water, or water vapor, is invisible. You can't see it, but it's in the air around you and we call it **humidity**. The more water vapor in the air, the more humid it is.

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 surface of the earth, and about 70% of the planet is covered by another form of water: clouds.



Method:
a) Pour water in the cup and place the lid on top.
b) Place one hand on the lid and INVERT the cup (turn it upside down).
c) Remove hand and be amazed!

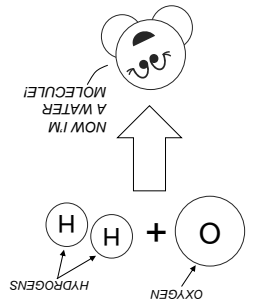
Materials:
• Water
• Cup
• Plastic lid or a piece of cardboard.

1. Gravity Defying Lid

Try these investigations to learn more about water's incredible properties.



That's why we call it H_2O



It's 1 oxygen atom plus 2 hydrogens. **WHAT EXACTLY IS WATER?**

2. Magic Screen

Materials:

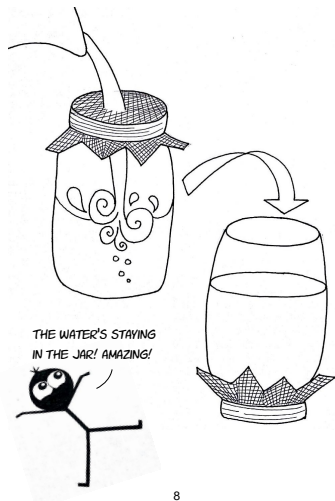
- Water
- Lid
- Canning jar with a metal ring
- A piece of screen or other mesh fabric

Method:

- Fill jar to rim and secure screen over the top.
- Cover with lid and flip over.
- Remove lid and observe.

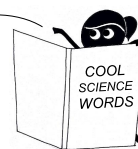
No jar? No problem.

Use a cup and rubber band. But be sure the screen or mesh is **FLAT** and **TIGHT** across the rim of the cup.

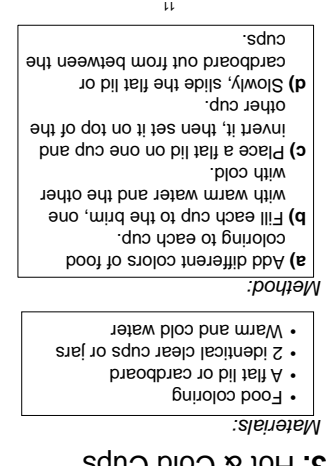
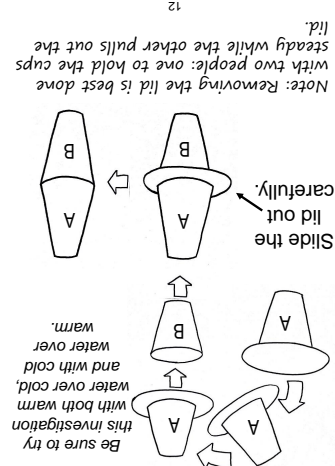
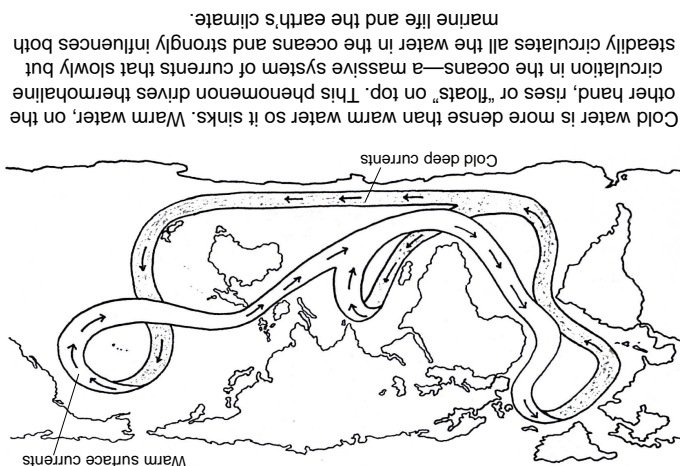
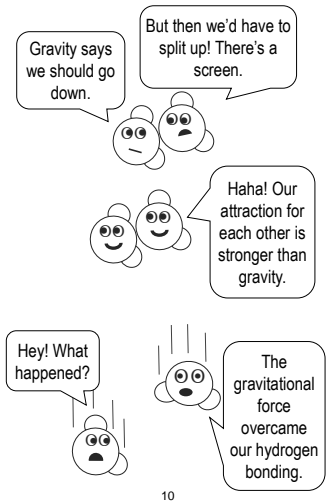


HOW DOES IT WORK? Cohesion.

THAT MEANS WATER MOLECULES LIKE TO STICK TOGETHER!



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

B

A

A

X

B

C

C

D

F

E

E

D

E

G

G

X