

Find more FREE Science Mom Guides at www.jennyballif.com





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

SOLID WATER IS ICE OR SNOW.

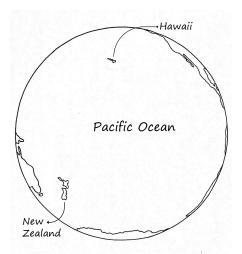
LIQUID WATER IS WHAT WE DRINK.

HEY, WHERE'S THE GAS?

THE GAS?

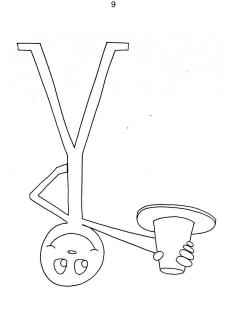
Gaseous water, or water vapor, is invisible. You can't see it, but it's in the air around you and we call it **humidity**. The more water vapor in the air, the more humid it is.

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.

2



COLOR THE SCIENTIST ON

c) Remove hand and be amazed!

the lid on top.

b) Place one hand on the lid and INVERT the cup (turn it upside

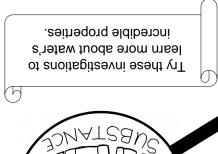
a) Pour water in the cup and place

 Plastic lid or a piece of cardstock or cardboard.

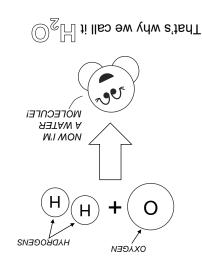
• Plastic lid or a

Materials:
• Water

1. Gravity Defying Lid







If's 1 oxygen atom plus 2 hydrogens.

## 2. Magic Screen

## Materials:

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

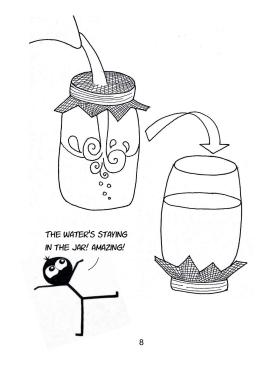
## Method:

- a) Fill jar to rim and secure screen over the 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?

THAT MEANS WATER
MOLECULES LIKE TO
STICK TOGETHER!

COOL
SCIENCE
WORDS

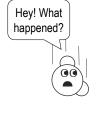
The water molecules in the jar like each other and the jar. Their attraction for each other and the container is strong enough that they effectively form a "lid" on the bottom of the jar, just like the plastic lid did in the first investigation. If air doesn't come in, the water can't go out. So the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

But then we'd have to split up! There's a screen.

Haha! Our attraction for each other is stronger than gravity.

Hey! What happened?

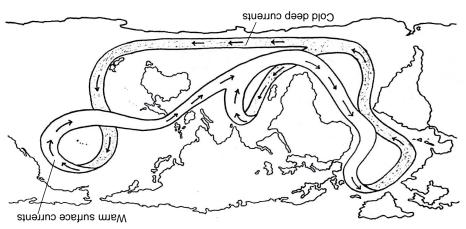
The gravitational



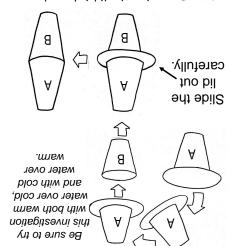


marine life and the earth's climate.

Cold water is more dense than warm water so it sinks. Warm water, on the other hand, rises or "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 both



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



cups.

other cup. **d)** Slowly, slide the flat lid or cardboard out from between the

10

with cold.

c) Place a flat lid on one cup and invert it, then set it on top of the

b) Fill each cup to the brim, one with warm water and the other

Method:

a) Add different colors of food coloring to each cup.

- Warm and cold water
- $\bullet$  2 identical clear cups or jars
  - A flat lid or cardboard

Materials:
• Food coloring

3. Hot & Cold Cups

$\mathbf{B}$	A		
B			D
F	E	E	b
E	G		