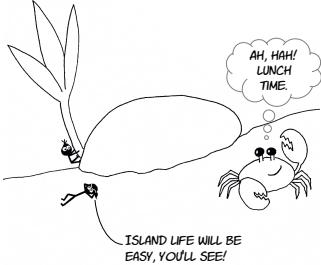
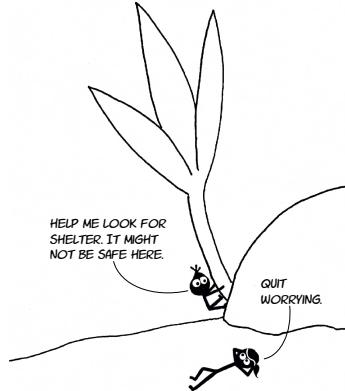


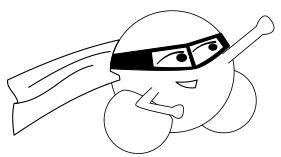
# SCIENCE MOM'S Guide to WATER, Part 7



**SCIENCE MOM**  
JENNYBALIF.COM  
[www.youtube.com/ScienceMom](http://www.youtube.com/ScienceMom)



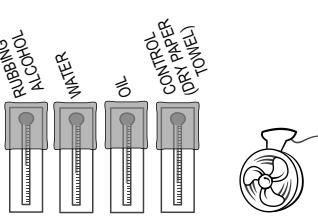
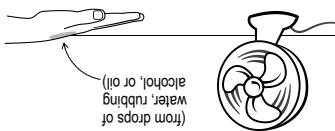
If you add the same amount of heat to water and sand, the sand will heat up FIVE times more than the water. It's almost as if water has a super power to be resistant to changes in temperature.



The ability of water to absorb a lot of heat before changing temperature is known as having a "high specific heat capacity." This attribute of water regulates the temperature of our planet, helps us cool down when we sweat, and much more.

**SPECIFIC HEAT CAPACITY = THE AMOUNT OF HEAT ONE GRAM ABSORBS OR LOSES TO CHANGE TEMPERATURE BY 1 DEGREES CELSIUS. WATER HAS A SPECIFIC HEAT OF 1 CALORIE (OR 4.18 JOULES)**

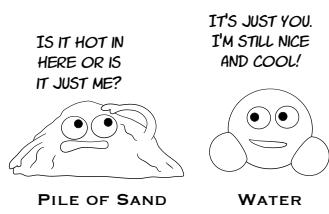
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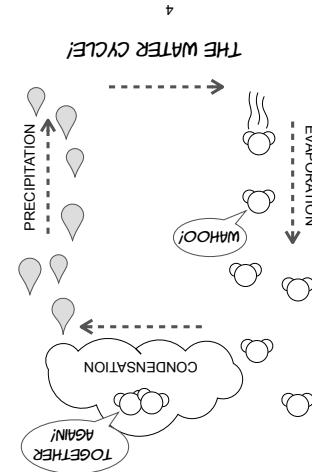
- 5  
Optional variation: place paper towels soaked in different liquids over the thermometer. Observe the change in temperature over 5 to 10 minutes.
- Put a small bit of water on the top of your hand.
  - Place your hand in front of the fan so that the wind is flowing over it for at least 20 seconds.
  - Repeat with the rubbing alcohol and oil.
  - Make note of how much colder the wet part of your skin feels.
  - Make note of how much warmer the fan is than the rest of the room.
- Method:  
**Materials:**
  - Water
  - Oil
  - Rubber Alcohol
  - A fan
  - Thermometers

## 1. Evaporation Sensation

1



2



3  
Water's high specific heat also plays a big role in how and when water changes between solid, liquid, or gas. Have you ever gotten out of a shower or bath and noticed how cold you feel while you're wet? That's because it takes a lot of energy for water to change from liquid to gas. As the water evaporates, it pulls heat energy (heat) from your body. Because it takes a lot of energy to change between solid and liquid, water's specific heat also plays a big role in how water reacts with its surroundings.

## 2. Water Cycle in a Jar

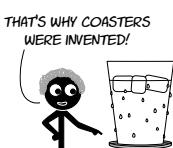
### Materials:

- Clear jar or cup
- Ice
- Hot water
- Plate

### Method:

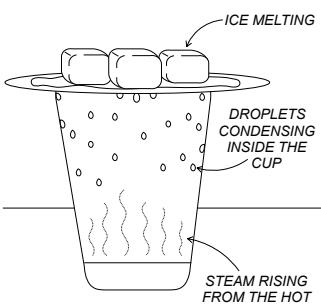
- Place a small amount of hot water in the cup or jar.
- Cover the cup or jar with a plate and place ice on top of the plate.
- Observe the water droplets condensing on the sides of the cup and underneath the plate.

HAVE YOU EVER SEEN WATER CONDENSE ON THE OUTSIDE OF AN ICE-COLD DRINK? THE MORE HUMID IT IS, THE WETTER THE CUP WILL BE.



7

ALL THREE STATES OF WATER TOGETHER IN ONE COOL PLACE:



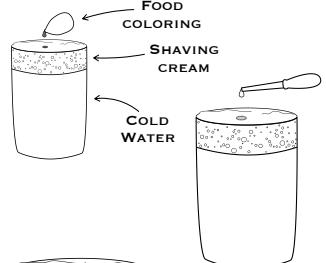
## 3. Rain in a Jar

### Materials:

- Clear jar or cup
- Food coloring
- Shaving cream
- Dropper

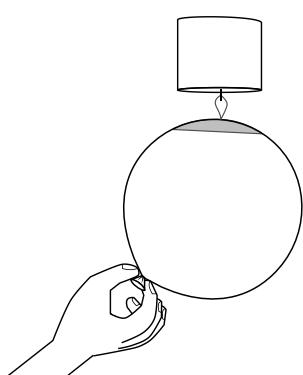
### Method:

- Fill the jar most of the way full with warm water.
- Add shaving cream and smooth it out so the shaving cream completely covers the water.
- Add 5 to 7 drops of food coloring on top of the shaving cream.
- Observe for a few moments. If desired, use a water dropper to add 3 to 4 drops of water on top of the spot(s) of food coloring.
- Observe the jar and watch as the food coloring moves down and into the water.

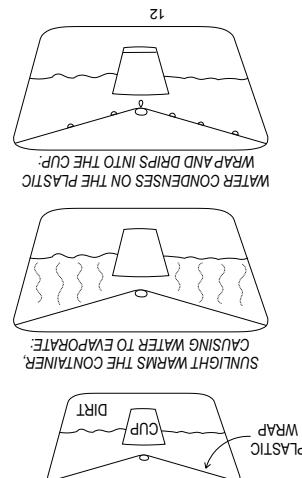


9  
Water travels through the shaving cream because water is more dense. Similarly, rain occurs when droplets get big enough to be more dense than the surrounding air.

14



- 13  
a) Put a few spoonfuls of water into one balloon and tie a knot at the ends.  
b) Blow up each balloon and tie a knot at the ends.  
c) Light the center of the balloons.  
d) Hold each balloon over the candle so that it just barely touches the flame.  
e) Observe if and when they pop!
- Method:  
**Materials:**
  - Water
  - Balloons
  - Candles
- 14  
a) Place damp dirt into the large bowl or container.  
b) Put the small cup or bowl in the center of the large container.  
c) Cover the bowl with a loose layer of plastic wrap and place a small rock or other object in the center so the plastic has a low point over the center of the cup.  
d) Secure the plastic wrap so that it is airtight. Use tape if needed.  
e) Place the container in direct sunlight and leave outside overnight.



- 11  
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e) Place the container in direct sunlight and leave outside overnight.
- Method:  
**Materials:**
  - Dirt
  - Large bowl
  - Plastic wrap
  - Small cup
  - A small pebble
- 14  
a) Water from dirt

B

A

A

X

B

C

C

D

F

E

E

D

E

G

G

X