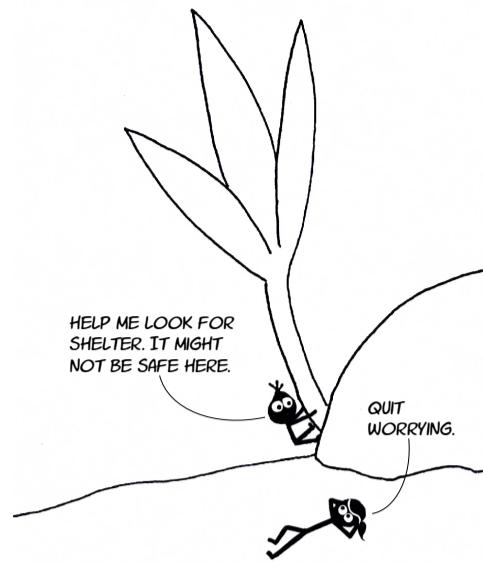


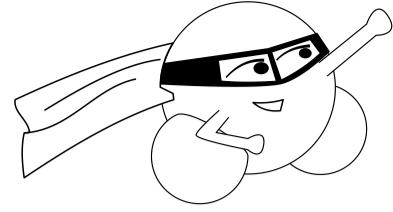
SCIENCE MOM

JENNYBALLIF.COM
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SCIENCE MOM'S Guide to WATER, Part 7

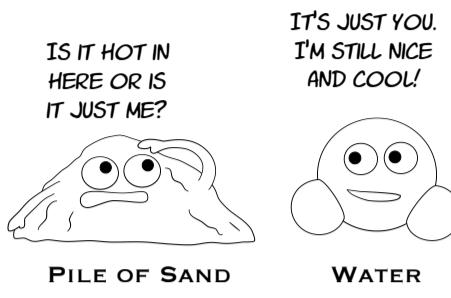


If you add the same amount of heat to water and sand, the sand will heat up FIVE times more than the water. It's almost as if water has a super power to be resistant to changes in temperature.



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.

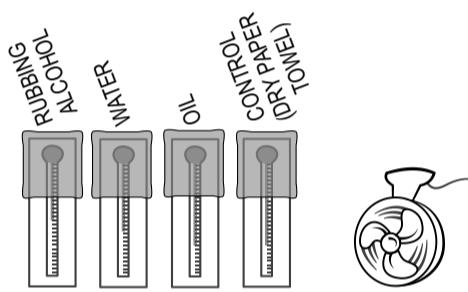
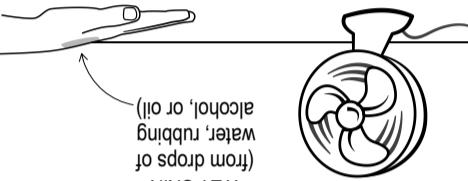
SPECIFIC HEAT CAPACITY = THE AMOUNT OF HEAT ONE GRAM ABSORBS OR LOSES TO CHANGE TEMPERATURE BY 1 DEGREES CELSIUS. WATER HAS A SPECIFIC HEAT OF 1 CALORIE (OR 4.18 JOULES)



1

2

9



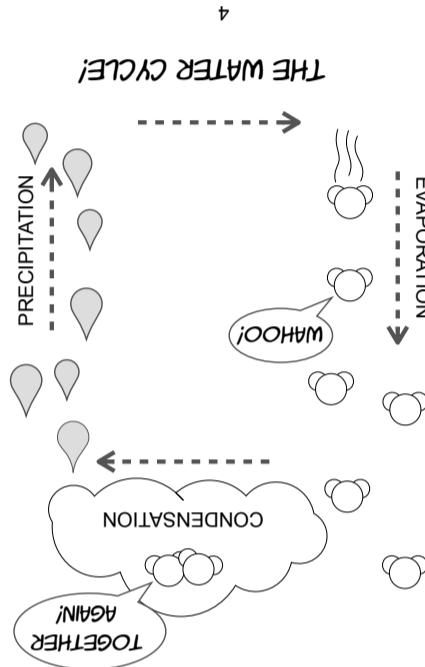
Optional variation: place paper towels soaked in different liquids over the thermometers. Observe the change in temperature over 5 to 10 minutes.

- (a) Put a small bit of water on the top of your hand.
- (b) Place your hand in front of the fan so that the wind is flowing over it for at least 20 seconds.
- (c) Repeat with the rubbing alcohol and oil.

Method:

- Rubbing Alcohol (optional)
- Water
- Oil
- Fan
- Thermometers

1. Evaporation Sensation



Water's high specific heat also plays a big role in how and when water changes between being 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 away from your body. Because drops of water take a long time to evaporate, it pulls heat away from your body.

2. Water Cycle in a Jar

Materials:

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

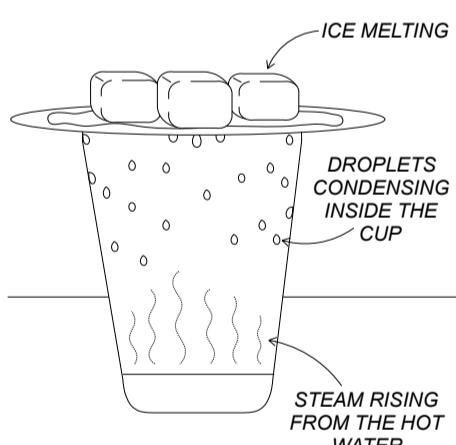
Method:

- a) Place a small amount of hot water in the cup or jar.
- b) Cover the cup or jar with a plate and place ice on top of the plate.
- c) 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.

THAT'S WHY COASTERS WERE INVENTED!

ALL THREE STATES OF WATER TOGETHER IN ONE COOL PLACE:



- 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 other balloon.
- c) Light the candle. NOTE: ALWAYS HAVE ADULT SUPERVISION WHEN USING FIRE. A BIRTHDAY CAKE CONDENSES ON THE PLASTIC WRAP AND DRIPS INTO THE CUP.
- d) Hold each balloon over the candle so that it just barely touches the flame.
- e) Observe if and when they pop!

Method:

- Water
- Balloons
- Candle
- Matches

5. Pop-proof balloon

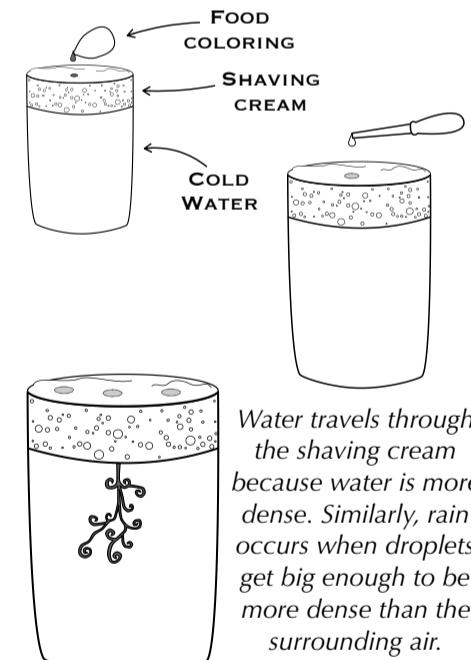
3. Rain in a Jar

Materials:

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

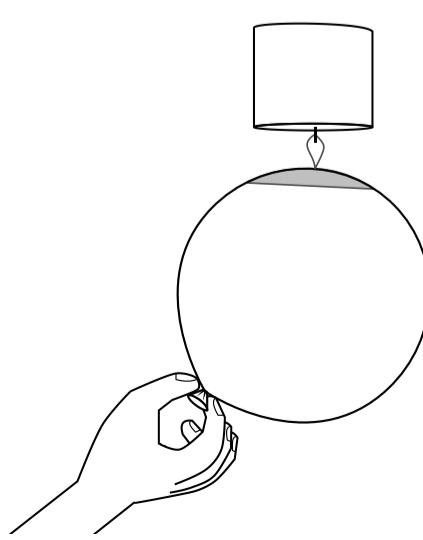
Method:

- a) Fill the jar most of the way full with warm water.
- b) Add shaving cream and smooth it out so the shaving cream completely covers the water.
- c) Add 5 to 7 drops of food coloring on top of the shaving cream.
- d) 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.
- e) Observe the jar and watch as the food coloring moves down and into the water.



10

14

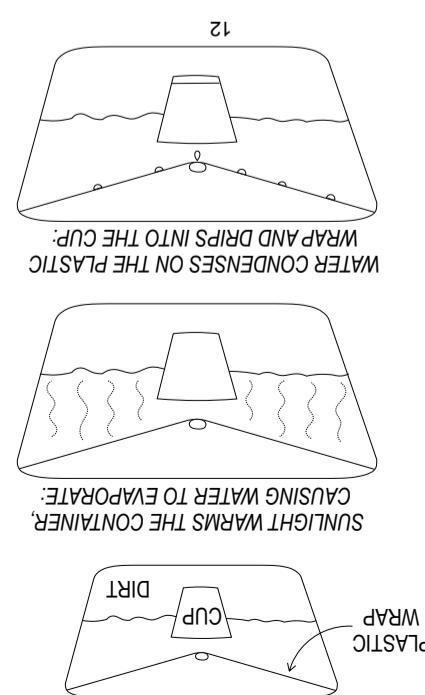


- a) Place damp dirt into the large bowl or container.
- b) Put the small cup or bowl in the center of the large container.
- c) Cover the bowl with a loose layer of plastic wrap and place a small rock or other object in the center of the plastic wrap so the plastic wrap has a low point over the center of the cup.
- d) Secure the plastic wrap so that it is air tight. Use tape if needed.
- e) Place the container in direct sunlight and leave outside overnight.

Method:

- Dirt
- Large bowl • Plastic wrap
- Small cup • A small pebble

4. Water from dirt



11

B

A

A

X

B

C

C

D

F

E

E

D

E

G

G

X