Important Properties of Water

Engage

Materials: clear glass or beaker, ice cubes, water

What to Do:

1. Your teacher will show you a glass or beaker with some ice cubes in the bottom and a bottle of water.
2. Predict whether the ice will stay at the bottom of the glass or float when your teacher pours the water to the top of the glass.

My prediction: The ice will _____

3. Your teacher will pour the water into the glass to close to the top.
4. What happened?

_____

5. Discuss with your partners and see if you can remember what you learned in 6th grade about why anything floats on water. Write your ideas below.

6. Can you name all the planets of our Solar System in order from the Sun. Write them below.

7. Predict which one is the hottest. _____

8. Predict which one is the coldest. _____

9. At what temperature does water freeze in ºC? _____

10. At what temperature does water boil in ºC? _____

Explore

Part 1

Materials: pipette or medicine dropper, wax paper or a plastic sandwich size bag, flat toothpick, beaker or cup of water

What to Do:

1. Use the pipette to place about 15 small drops of the water on the center of the wax paper or plastic bag.
2. Use the toothpick to stretch the drops of water along the wax paper.
3. Try to break up the large water drop into small droplets.
4. Draw what you observed in the space below.

Part 2

Materials: pipette and cup of water from Part 1, cup of rubbing alcohol with red food coloring, plastic petri dish, penny, paper towel

What To Do:

1. Place the penny inside the petri dish.
2. Place small drops of water on top of the penny until the water falls off the side of the penny. Count them as you do this.
3. How many drops of water were you able to get to stay on the penny? _____
4. Dry off the penny and petri dish.
5. Place drops on the penny again but stop before you get to the last one.
6. Look from the side and draw what the penny and water look like on the oval.

7. Dry off the penny and petri dish.
8. Place drops of rubbing alcohol on the penny and count them.
9. How many drops of alcohol were you able to get to stay on the penny? _____
10. Look from the side and draw what the penny and alcohol look like on the oval.

Part 3

Materials: Petri dish , toothpick, and water from previous activities, pepper, drop of dish washing soap,

What To Do:

1. Fill the petri dish with water about half full.
2. Sprinkle the pepper on top of the water.
3. Use the toothpick to try to get the pepper flakes to the side of the petri dish.
4. Pick up a small drop of the dishwashing soap on the tip of the toothpick.
5. Place it in the center of the petri dish and pepper.
6. Draw what you observed below.

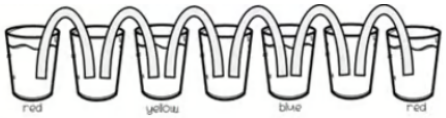
Part 4 Teacher Demonstration

Materials: 7 glasses or beakers, water, red, blue and yellow food coloring, water, 6 half sheet paper towels folded

What To Do:

1. Your teacher will line up 7 glasses or beakers.
2. They will fill glasses 1, 3, 5, and 7 with water.
3. They will place 5 drops of red food coloring in cups 1 **AND** 7, place 5 drops of yellow food coloring in cup 3,and place 5 drops of blue food coloring in cup 5.
6. They will fold the paper towels into fourths and then in a V.
7. They will place one of the paper towels in cup 1 and 2 and continue so the set up looks like the picture below.
8. Color what you see in the BEFORE picture below.
9. Watch what is happening to the paper towels and the water in the cups.
10. Color what you observe in the AFTER picture.

BEFORE



AFTER

PROPERTIES OF WATER

Explain

DENSITY

SURFACE TENSION

COHESION

CAPILLARY ACTION

Elaborate

What To Do:

1. Analyze the chart below.
2. Answer the questions.

Planet	Average temperature ºC	Notes
Mercury	167ºC	Closest to the Sun
Venus	464 ºC	hottest
Earth	15ºC	moderate
Mars	-65ºC	Desert world
Jupiter	-110ºC	Temperature measured on the cloud tops
Saturn	-140ºC	Temperature measured in the upper atmosphere
Uranus	-195ºC	Ice giant rather than gas giant
Neptune	-200ºC	coldest

Questions:

1. On which planet(s) would water boil off from the surface?

_____

2. On which planets would water freeze?

_____

3. On which planet would you find liquid water?

_____

4. Why do you think the presence of liquid water on a planet is important? _____

5. All of the planets but two have frozen water ice on them. Which of the planets would NOT have frozen water ice?

_____

Evaluate

Name _____ period _____

EXIT TICKET

Important Properties of Water

1. Which is the only planet in our solar system to have liquid water?

A. Earth
B. Venus
C. Mars

2. Why is important to have liquid water on a planet?

A. To supply the solar system with drinking water.
B. So the ice crust will float
C. Liquid water is needed for life.

3. A property of water that allows pepper to float on top is called –

A. Cohesion
B. Capillary action
C. Surface tension

4. A property of water where water molecules stick to each other because they pull on each other is called –

A. Cohesion
B. Capillary action
C. Surface tension

5. A property of a liquid that allows it to flow through narrow spaces without external forces is called –

A. Cohesion
B. Capillary action
C. Surface tension