

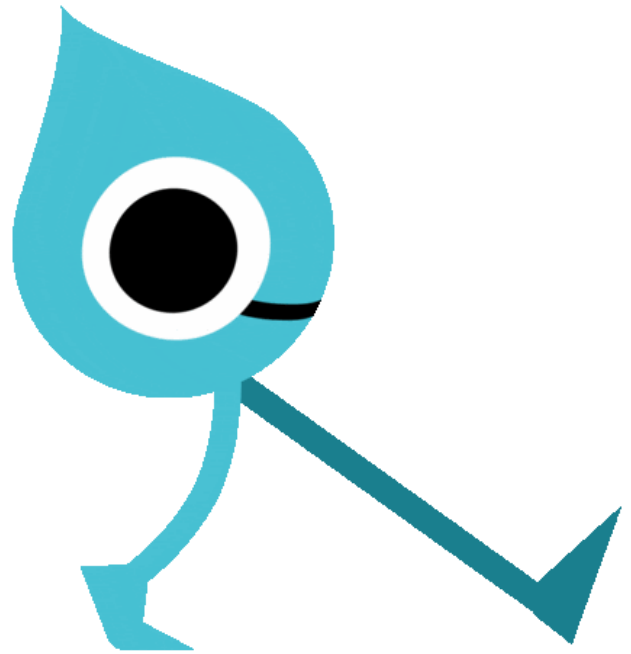


## WATER CYCLE IN A JAR

### Supplies:

Small Plastic Mason Jar, Pebbles, Sand, Soil, Small Plant (with roots), Small Shell, Water

1. Fill a small jar with  $\sim\frac{1}{2}$  inch layer of pebbles.
2. Add  $\sim\frac{1}{2}$  inch layer of sand.
3. Add a layer of soil  $\sim 2$  inches deep.
4. Make a small depression in the soil to set a small plant in & gently cover its roots with soil.
5. Pour a small amount of water onto the soil around the plant.
6. Fill a small shell (or bottle cap) with water and set it gently inside the jar.
7. Screw the lid onto the jar, but not too tightly.
8. Place your water cycle model in a sunny window.
9. Watch for signs of the water cycle, like water droplets (condensation) on the inside of the jar, over the next few days.



Source: US EPA, Thirstin's Water Cycle



## CLOUD / RAIN CLOUD IN A JAR

### Supplies:

Small Jar (with a metal cap), Warm Water, Ice Cubes, Aerosol Hair Spray, Shaving Foam, Blue Food Coloring

1. Fill a small Mason jar with very warm water ~1 inch from the top.
2. Place the metal cap upside down on top of the jar.
3. Place 3-5 ice cubes inside the cap.
4. Lift the lid and gently spritz aerosol hairspray into the jar.
5. Wait 10-15 seconds.
6. Slowly lift the lid and observe the cloud that forms inside.
7. Set the cap aside.
8. On top of the water, fill the jar just to the rim with shaving foam.
9. Add drops of blue dye using a dropper bottle until it starts to “rain.”



Source: [LittleBinsForLittleHands.com](http://LittleBinsForLittleHands.com) & [Kidspot.com.au](http://Kidspot.com.au)



## BUILD AN ANEMOMETER

### Supplies:

Plastic Solo Cup (with lid & straw), 2 Paper Straws, Washi Tape, 4 Small Paper Cups (with 2 holes punched in opposite sides), Floral Pin, Water

1. Begin with a Solo cup or Tumbler (with a plastic lid & straw) as a base.
2. Lay the 2 paper straws down on the table in the shape of a plus (+) sign.
3. With the straws evenly spaced, press down in the center to flatten and tape the straws together using several strips of washi tape.
4. Next, you will need 4 small paper cups with holes punched on opposite sides for the straws to fit through.
5. Decorate one of the small paper cups to make it stand out from the others.
6. Slide the cups onto the straw ends, with the openings facing the same direction.
7. Add 2 small pieces of washi tape across the opening of the straw used as a base/stem (this helps in the next step).
8. With one hand, hold the taped straws on top of the stem and carefully poke a floral pin through the + straws & into the taped straw/stem opening.
9. Secure the + onto the stand using washi tape until the cups will stay level.
10. Add water to the base/cup to help weigh it down.
11. Find an outdoor (windy) location to begin using your anemometer.
12. For 1 minute, count the number of times the decorated cup passes by the same spot.
13. Record wind speed as the number of “rotations per minute,” or RPM.

Source: <https://inventorsof tomorrow.com/>



## CRUMPLED PAPER WATERSHED

### Supplies:

2 Pieces of Plain White Paper, Washable Markers (blue, black, red & brown), Spray Bottle of Water

1. Start with 2 plain white sheets of paper and 4 washable markers- blue, black, red, and brown.
2. Crumple up one piece of paper into a ball and then gently press it back down, leaving some of the bumps.
3. Use the blue marker to color on the high points of the crumpled paper. They represent hills and ridge lines.
4. Use a spray bottle to spritz water onto the paper and watch what happens. Where does the water (blue marker) go? (Set this paper aside.)
5. On a fresh piece of paper, draw houses with the black marker, a farm with the brown marker, and a factory with the red marker.
6. When you finish drawing, crumple up the paper and press it back down gently (like you did in step 2).
7. Color the blue “ridge lines” (like you did in step 3). Spray with water (like you did in step 4).
8. What do you see happening now? Are the colors mixing together? Think about different types of pollution that could come from these places and how it could impact the water quality in a watershed.

Source: Alice Ferguson Foundation, Hard Bargain Farm Environmental Center



## BUILD AN AQUIFER MODEL

### Supplies:

Clear Plastic Container, Light-colored Pebbles, Soil, Moss (or grass clippings), Paper Cup (punch holes in bottom), Pencil (sharpened), Blue Food Coloring, Water

1. Add light-colored pebbles to a rectangular container and mold the rocks into a hill against one side of the container at a 45 degree angle.
2. Add a layer of soil to cover the rocks and pat the soil down gently.
3. Use moss (or grass clippings) to form a layer of vegetation on the hill.
4. You will need two paper cups – poke 15-20 holes in the bottom of one cup using a sharpened pencil (to create a “rain can”); fill the other cup with water and add a few drops of blue food coloring to make “rain.”
5. Hold the cup with holes in the bottom over your container & pour the blue water in to make it rain.
6. Watch what happens as the water flows over the land, seeps through the soil, and flows between the rocks.
7. Do you see surface water on one side and groundwater (“an aquifer”) on the other side?
8. Now, take the spray nozzle from a spray bottle and push it down into the rocks to meet the water.
9. Pump the nozzle until water starts to spray out. This represents groundwater use or “withdrawl.”

Source: The University of Waikato

# 6 UNDERWATER FOUNTAIN

## Supplies:

Clear Plastic Container, Food Coloring (in 2 colors, like blue & green), 2 Small Glass Jars, Water

1. Fill a tall, wide, clear container with cold water. Leave ~1 inch at the top.
2. Fill two small glass jars with warm water.
3. Add 1-2 drops of food coloring to make each bottle a different color of water (like one blue and one green).
4. Gently place the two small glass bottles into the cool water container and watch what happens.
5. Do you see colorful water rising to the surface? Why do you think the warm water rises to the surface?

6. For an extra activity, freeze the colored water overnight into ice cubes, and then place them in the clear container with warm water. Now, watch what happens!



Source: *Slimy Science and Awesome Experiments (Gruesome Series)* by Susan Martineau