



STAY CONNECTED.

STAY CURIOUS.

Wonderful Water

Water has so many amazing qualities! It can form raindrops, soak into soil, wear away rocks, and even keep Earth's temperature stable by absorbing heat into the oceans.

Try out these fun experiments using items you can find around your house. But first, find out why water is so important to life on Earth!

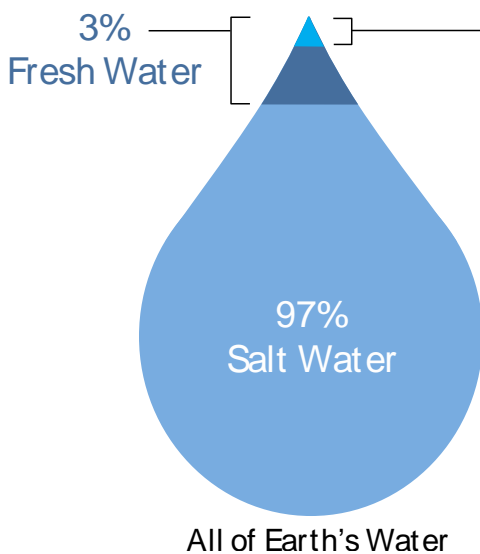
We Live on a Water World



Earth is the only world known to have liquid water on its surface. In fact, most of Earth's surface is covered by water!

Water is essential to all life on Earth—plants, animals and people need it to survive! We drink it, bathe in it, cook with it, farm with it and even play in it. Oceans, lakes and rivers provide food, medicines, minerals, and even energy resources.

Only a tiny fraction of all the water on Earth is fresh water that is accessible to people.



1% Lakes, Rivers, and Ground Water

Only 1% of Earth's water is fresh surface water that is accessible for use by people. Much of the world's fresh water is frozen in glaciers and icecaps.



It is important to protect Earth's water and keep it clean—our lives depend on it!

Drops on a Penny

Materials Needed:

- Penny
- Water
- Eye dropper
- Towel or napkin



What to Do:

1. Start with a dry penny on a dry surface.
2. Place drops of water on the penny, one at a time, counting as you go.
3. How many drops can you fit on the penny before the water falls off?
4. Be sure to lean down and take a look at the penny and water from the side.
5. What if you used a dime, nickel or quarter? Give it a try!

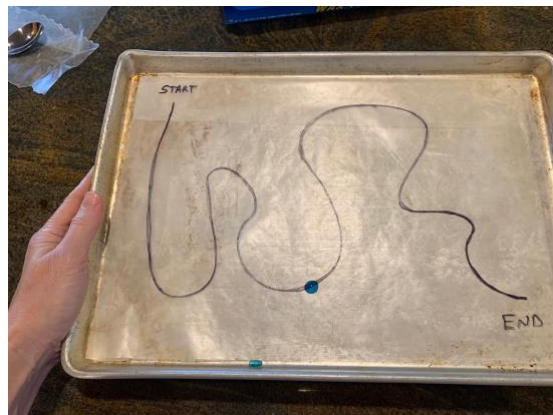
What's Happening?

Water likes to stick together, making its surface shrink to “wrap around” itself. This is called surface tension. You can see the surface tension when the drops of water reach the penny's edge. The bubble shape is a result of the water molecules clinging to each other.

Water Drop Maze

Materials Needed:

- Eye dropper (or small spoon works too)
- Permanent marker
- Cookie sheet or shoebox lid
- Wax paper
- Tape
- Food coloring (optional)



What to Do:

1. Tape a piece of wax paper into a cookie sheet or shoebox lid.
2. Draw a maze on the wax paper with marker (crayon works okay if no marker available).
3. Make some colored water by adding a few drops of food coloring.
4. Place a large drop of water at the start of maze.
5. Guide the water drop through maze by tilting it in different directions.
6. Experiment with small and large water drops. Or try blowing the water along using a straw.

What's Happening?

Just like in the Drops on a Penny activity, the water is trying to stick together. This helps it to stay in one drop as it moves through your maze.

Raincoats and Sponges

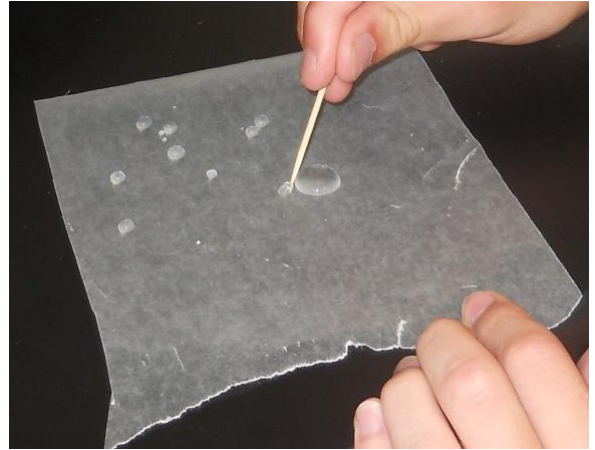
Materials Needed:

- Eye dropper
- Water
- Wax paper
- Paper towel
- Plate or cookie sheet
- Sponge and raincoat (optional)



What to do:

1. Place a piece of wax paper and a paper towel on a plate or cookie sheet.
2. Place drops of water on both kinds of paper. What happens?
3. Some materials soak up water (like a sponge) and some materials push away water (like a raincoat). Is the paper towel like a sponge or a raincoat? How about the wax paper?
4. Try this on other objects and surfaces inside your home and outside too. Start with a sponge and a raincoat if you have them handy.
5. What do all raincoat items have in common? How about the sponge-like items? Did you find anything that did was a little bit of sponge and a little bit of raincoat?



What's Happening?

Water is attracted to other water and that is called cohesion. But water is also attracted to other materials and this is called adhesion. When water is absorbed, or drawn into a material, like a sponge, adhesion and cohesion work together to move the water from one place to another. When you place a paper towel on top of spilled water, the water molecules attach to the paper fibers and “creep” into the paper towel, pulling other water molecules along with them. Some materials will absorb water and others will shed, or repel, water.

More to Explore



Try holding a strip of paper towel in a cup of colored water. What happens?

Ready for a longer experiment? Place a piece of celery or a white (or light colored) flower into the colored water and observe what happens over the next couple days.



Water Cycle in a Bag

Materials Needed:

- Plastic resealable baggie (quart or sandwich size)
- Permanent marker (to draw on bag)
- Water (about $\frac{1}{4}$ cup) in a cup
- Blue food coloring (optional)
- Tape
- Sunny window

What to do:

6. Using the permanent marker, draw clouds and the sun at the top of the plastic bag and water along the bottom of the baggie.
7. Place 1-2 drops of food coloring in the water.
8. Gently pour the blue water into the baggie and seal tightly.
9. Tape the baggie in a sunny window and leave it for 1-2 hours.
10. Observe!



What's Happening?

In nature, the sun's heat causes water to evaporate from streams, lakes, rivers, and oceans. As the water vapor rises, it condenses to form clouds when it reaches cooler air. When the clouds are full of water, or saturated, they release some of the water as rain. Then the cycle starts over again.

The same principle can be applied to your experiment. Over the next few days, you will see that the water has warmed in the sunlight and evaporated into vapor. As that vapor cooled it began changing back into liquid, just like a cloud. When enough water condensed, the air couldn't hold it anymore and the water fell down in the form of precipitation.
