



May 2012 – The Water Cycle

Did you know that all the water on earth gets recycled over and over again? Water moves from the ocean to the clouds, and then comes back again as rain. This is called the water cycle.

Water Cycle Science Projects

Disappearing Water

To see for yourself what happens when water evaporates you will need a glass beaker and a sunny window. Evaporation is an important part of the water cycle.

What You Will Need:

- Clear glass beaker ([150 ml](#) or [250 ml](#) will work well)*
- Water
- Window with lots of sunlight coming through
- [Wax pencil](#) or masking tape and markers

*You could also use a tall glass if you don't have a beaker.

What To Do:

1. Fill the beaker with water up to the 150 ml mark. If you like, you can use the wax pencil to draw a line at the water level, and write "start."
2. Set the beaker in a spot that is getting a lot of sunlight through a window. Try to set it as close to the window as you can, using the windowsill if possible.
3. Leave the water there for the whole day. Check on the water level every hour, and mark with the wax pencil (or use tape) where the level is at, and how many hours it has been.
4. If you like, you can keep the beaker of water in the sun for several more days to see what happens.

What Happened?

The water in the beaker seems to disappear the longer you leave it in the sun. This is not a magic trick. It's science! As the sun heated up the water in the cup, some of the water evaporated into a gas called *water vapor*. You can't see water vapor, but you can tell that the water has changed from a liquid to a gas because there is less liquid in the cup. Right

before it rains there is water vapor inside clouds. When the weather is right the water vapor will come together and form raindrops. When the water vapor starts forming tiny drops of water we



call it condensation. When condensation starts coming to earth as rain we call it precipitation. Sometimes the droplets freeze before they get to the ground and become hail, sleet, or snow!

Make a Water Reservoir

Have you ever heard of groundwater? You can find out what it is by making your own with this project. We used the bottom of a [terrarium](#), but any clear plastic container will work well.

What You Will Need:

- Large clear plastic container
- [Pebbles](#)
- [Sand](#)
- [Soil](#)
- Dead leaves or dry grass
- Water spray bottle

What To Do:

1. Line the bottom of your clear container with pebbles. Make sure that the pebbles you use are close to the same size. If some are large and some are small the project won't work as well. The layer of pebbles should just cover the bottom of the container so you cannot see the plastic when you look down.
2. Add a layer of sand on top of the pebbles. The sand layer should be about an inch thick.
3. Put soil on top of the sand. The soil layer should be between 2-3 inches thick.
4. Crush up some of the leaves or grass you found with your hands, and sprinkle it over the soil.
5. Use the spray bottle to slowly add water to your reservoir. Spray each corner until the soil is wet through (it will turn a darker color). Watch as the water slowly spreads through the soil and sand, until it comes to the open spaces between the pebbles. Add more water at each corner if you like.

What Happened?

The way you layered pebbles, sand, and soil made it possible for water to be held underground. As you learned in the previous experiment water can evaporate quickly. When it is stored underground water stays put. A reservoir is like a big container for water. Some reservoirs are man-made and the water might be kept there by a dam. Other reservoirs are natural. Water that is contained underground is called *groundwater*. Groundwater can provide water for a community by using wells. Groundwater might also slowly move through the ground, until it eventually ends up in a lake or river.

Fun Facts

- Only about 2.5% of all the water on earth is fresh water - the rest is found in the ocean.
- The Pacific Ocean is the biggest and deepest of the world's oceans. It covers 1/3 of the earth's surface and has an average depth of over 15,000 feet.

- Water makes up about 2/3 of the weight of our bodies. We need lots of water in order to live!

Silly Science

- What did the ocean do when it saw the dolphin?
 - It waved.
- What did the hot water say to the cold water?
 - You look ice today!
- Knock knock.
Who's there?
Water.
Water who?
Water you want?

Way Cool Websites

- Play several jigsaw puzzles online that feature spectacular pictures of the water cycle: <http://www.neok12.com/jigsaw-puzzles/Water-Cycle.htm>
- Learn about ways to save water and test your knowledge of the water cycle with this fun game: http://www.epa.gov/watersense/quiz/game_kids.html
- Print out a colorful water cycle placemat from this USGS site: <http://ga.water.usgs.gov/edu/watercycle-kids.html>

Teaching Tips

The Water Cycle

You've probably heard that it's good for the earth to recycle, and may have even helped in recycling paper or plastic before. Did you know that the earth recycles too? Water that starts in a river or the ocean gets recycled by forming clouds in the sky then coming down as rain. Scientists guess that there is about the same amount of water on Earth today as when it was formed. The way water is continually reused is called the water cycle. The water cycle moves water between the earth and the air in constant circle or cycle. When water moves from the earth to the sky it is called **evaporation**. As the sun warms water, some of it will turn into a gas called *water vapor*. You can't see water vapor because it is too small.



Before it rains, there is water vapor inside clouds. The vapor collects inside the cloud and forms a raindrop. This is called **condensation**. You can sometimes see condensation on the top of a glass of ice water. When the weather is right, water drops will fall from the sky as rain. When water comes back to the earth like this it is called **precipitation**. Precipitation can also mean snow, sleet, or hail. The last step of the water cycle is **transpiration**, where water vapor is put into the air by humans that breathe it out, or by plants. Plants and animals give water back to the air. So do rivers, lakes, and oceans. Even though we can't see water vapor, there is always a little

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bit in the air around us. Every stream runs into a bigger stream, which runs into a river, which will eventually run to the ocean. All of these different bodies of water evaporate slowly, just like water in a cup that you've set out in the sun. Most water vapor comes from the ocean, since oceans cover so much of Earth.

What is Groundwater?

How do you think water gets from the ground after its rained to the rivers and oceans? Water that is stored in the ground is called groundwater. Have you ever heard of someone digging a well very deep in the ground until they get water? This is groundwater. Groundwater flows through the earth very slowly until it runs into a stream or other type of water (ponds, lakes, rivers). Because the water cycle is always moving water from one place to another, it can even carry water from one side of the world to the other. The water you drank today could have fallen as rain on China last year!

Water Cycle Worksheet

Color this page and then draw arrows from the ground to the air, and the air to the ground. Write the name of each part of the water cycle by the arrows you drew. Choose from these words: Condensation, Precipitation, Evaporation, Transpiration.

