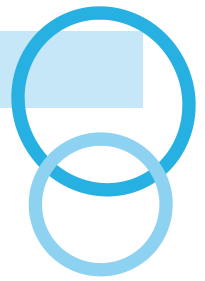


Coming back to you



Drain a sink. Flush a toilet. Water a lawn. Okay – so where does the used water go? Would you be surprised to learn that eventually it returns in its clean original form? Although it might take some time to complete the journey, it will sooner or later return as pure water. Just think about it. Water that the dinosaurs bathed in millions of years ago, might be quenching your thirst this afternoon!

The return of water to its pure and clean state is part of a process called the **water cycle**. During the water cycle, water changes form as it moves between solid, liquid and gas phases. Liquid water in our oceans and lakes absorbs solar energy and evaporates. During this change, water turns from a liquid to a gas. This gaseous form of water is called water vapour.

Water vapour rises into the atmosphere and cools. When the conditions are right, it turns back into liquid and collects in clouds. Eventually, the droplets fall back to Earth's surface as rain. That's called precipitation. On the surface the water collects and flows into lakes and oceans. Once again, the liquid water evaporates and the cycle continues.

In this activity, you'll get a chance to build a model of the water cycle - in a jar! Just like the cycle at work on a global scale, your smaller model will include the change of phase from liquid to gas and then back to liquid.

Materials

- ⇒ A clear plastic jar (peanut butter containers work well)
- ⇒ Plastic wrap
- ⇒ Rubber band
- ⇒ Potting soil
- ⇒ Birdseed
- ⇒ Spoon
- ⇒ Measuring cup
- ⇒ Clean water



Steps

1. Make sure that the plastic container is clean and dry. Don't worry if it doesn't have a lid. You don't need one.
2. Use a clean spoon to add a layer of soil to the bottom of this jar. The layer should be about 3/4 inch (about 2 cm) deep.
3. Sprinkle about 1/2 teaspoon of birdseed over the soil surface.
4. Use the spoon to cover the bird seed with another layer of soil that is also about 3/4 inch (about 2 cm) deep.
5. Measure about 1/4 cup (about 60 ml) of water using the measuring cup. Slowly pour this over the soil. Make sure you spread out the water evenly over the soil's surface.
6. Cover the mouth of the jar with a piece of plastic wrap.
7. Carefully place a rubber band over the plastic to secure it to the top of the jar.
8. Put the jar on a window sill or other place in which it remains in direct sunlight.
9. Each day, examine the jar. Write down what you see.



Coming back to you: Questions

Name:

1. How did the appearance of the jar and plastic cover change?

2. Did the droplets appear on the inside or outside of the jar?

3. Where do you think the water droplets came from?

4. What happened to the birdseed?

5. What role did sunlight play in the change from liquid water to water vapour?

Water facts

⇒ **844 million people** in the world – one in ten – do not have clean water. (WHO/Unicef)

⇒ Around **289,000 children** die every year from diarrhoeal diseases caused by poor water and sanitation. That's almost 800 children per day. (WASHwatch)

Find out more about the water and sanitation crisis and download more educational resources at www.wateraid.org/schools.



Teacher notes

This activity offers students the opportunity to construct a working model of the water cycle. They can use this model to better understand both the natural cycle and its role in recycling water for human use.

When selecting containers for this activity, use ones that are readily at hand. Make sure that all containers are made of plastic and have been thoroughly washed. In addition to using mayonnaise and peanut butter jars, consider deli containers as an inexpensive and readily available alternative.

Adding seeds to the setup increases the students' awareness that the cycle also includes biological elements. You might wish to extend their understanding by describing the impact of roots and leaves as structures that absorb liquid water and release water vapour, respectively.

Answers

1. Small water droplets collected on the inner surface of the jar and cover.
2. They appeared on the inside of the container.
3. They came from the water vapour trapped within the jar that changed phase from gas to liquid.
4. The birdseed sprouted.
5. It was the energy source that heated the water, causing it to evaporate.



Photos: WaterAid/Jon Spaul

