MAKE IT RAIN EXPERIMENT

SPRINGFIELD MUSEUMS
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SUPPLIES

- CLEAR JAR OR GLASS
- SHAVING CREAM
- FOOD COLORING
- WATER
- SMALL CONTAINER/BOWL
- EYE DROPPER, SYRINGE, OR 1/4 TEASPOON MEASURING SPOON

KEY CONCEPTS

- WATER CYCLE
- EVAPORATION
- CONDENSATION
- PERCIPITATION
- COLLECTION
- WATER VAPOR

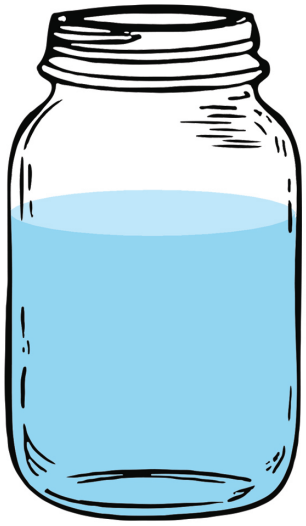
STEP ONE:

Start by diluting the food coloring. Do this by filling the small container with water.

*The less water you use (the more concentrated the food coloring), the faster your "rain" will drop. But on the other hand, the more water you use, the more rain you'll be able to make. So keep that in mind as you fill your container.

STEP TWO:

Fill a clear glass with water about 2/3 full. The water will represent the air.



STEP THREE:

Fill the top 1-3 inches of the jar with shaving cream; this will represent a cloud or water vapor.

STEP FOUR:

Add the colored water to the shaving cream drop by drop using the eye dropper (or syringe, or measuring spoon).

*The closer you squirt to the edges, the faster it will go through the shaving cream and come down as rain.

STEP FIVE:

Continue to add drops on top of the shaving cream. Wait and see what happens!

Created and designed by Sarah Gogal, Springfield Museums Exhibition Preparator

MAKE IT RAIN
THE SCIENCE BEHIND

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This experiment demonstrates what happens in the clouds during the water cycle. In the experiment, after a certain point the shaving cream "cloud" can no longer absorb the water drops and gravity pulls them down into the water. When an actual cloud accumulates too many water droplets they fall in the form of precipitation.

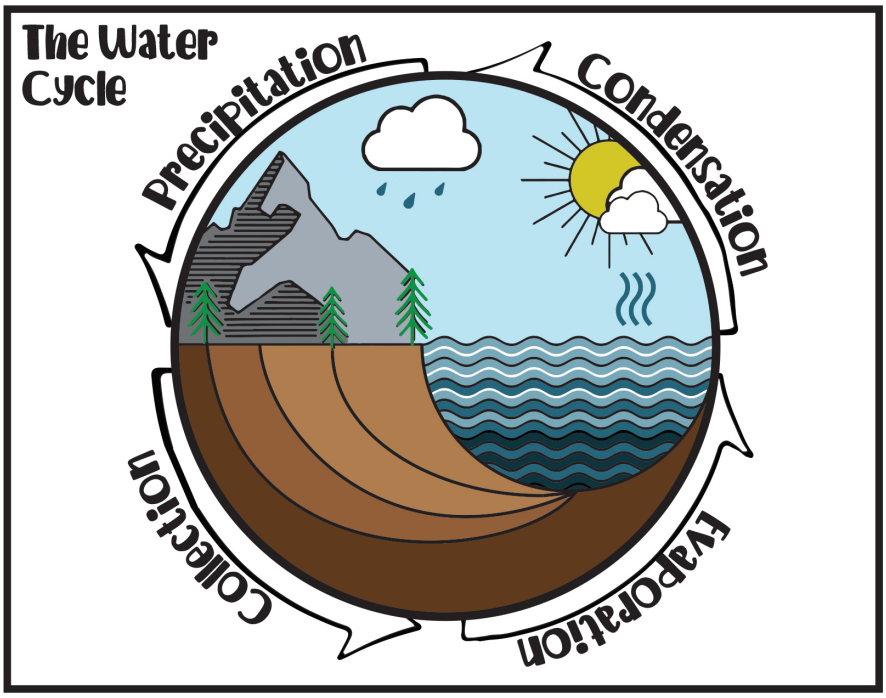
The Water Cycle

The Earth has a limited amount of water. This water keeps going around and around in what we call the water cycle. When the sun heats the water in the lakes, streams, oceans, etc., some of it turns to a gas (water vapor). This is called **evaporation**. This invisible water vapor is lightweight and rises into the air.

When the water vapor hits the cold air high up in the atmosphere it turns back to water droplets and collects in clouds. This is called **condensation.**

When too many water droplets form in a cloud, the cloud gets heavy and the water falls back to the Earth in the form of rain, hail, sleet, or snow. This is called **precipitation**.

When the water falls back to the Earth, it may fall back in the streams, lakes, ocean, etc., or it may fall on the land. This is called **collection**. When it falls on the land, it either soaks into the dirt for plants to drink or runs over the soil and back into the streams, lakes, oceans, etc. and the cycle begins all over again.



What are clouds?

A cloud is a large collection of very tiny droplets of water or ice crystals. The droplets are so small and light that they can float in the air.

How are clouds formed?

All air contains water, but most of the time you can't see the water. The drops of water are too small to see. Near the ground water is usually in the form of an invisible gas called water vapor. As the water vapor goes higher in the sky, it expands and cools. Cool air can't hold as much water vapor as warm air, which causes the water droplets to start to stick to things like bits of dust, ice or sea salt. When billions of these droplets come together they become a visible cloud.

How do clouds make rain?

When water droplets and ice crystals continue to collect in a cloud, they get heavier and heavier. Most of the water in clouds is in very small droplets. The droplets are so light they float in the air. Sometimes those droplets join with other droplets. Then they turn into larger drops. They will eventually become too heavy to float on the air. When that happens, gravity causes them to fall to Earth. We call the falling water drops "rain." When the air is colder, the water may form snowflakes, freezing rain, sleet, or even hail.

Sources: www.weatherwizkids.com; www.nasa.gov

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The Water Cycle