

# Water Cycle Experiment

**Experiment Objective:** Watch as the water cycle takes place on a tiny scale inside a resealable bag. Then, compare it to the Earth's water cycle, which takes place on a much larger scale.

**Before your start:** Begin by listing what you know about the water cycle. How do clouds form? What role does the sun play in the water cycle? What causes a cloud to rain? Where does water collect after it rains? (Optional) Review the vocabulary words and water cycle graphic located on the last pages of the experiment.



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## Supplies:

- A large, clear bag that can be sealed tightly
- Permanent marker
- Water
- Food coloring (optional)
- A sunny window
- Tape

## Method:

- Step 1: Gather the supplies. At the top of the baggie, near where it seals, draw pictures of clouds using a permanent marker
- Step 2: Fill the large resealable baggie with about 1/2 cup of water



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## Method (continued):

- Step 3: Add a few drops of food coloring to the water, then seal the baggie tightly
- Step 4: Using the tape, hang the baggie up in a sunny window
- Step 5: Using the permanent marker, carefully draw a line on the outside of the baggie that marks the height of the water pooled at the bottom
- Step 6: Observe the baggie. It is important to take a look at the baggie right at the start of the experiment so you'll know how it changes over time. What do you think will happen to the water inside the baggie?



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## Method (continued):

- Step 7: Let the baggie sit in the window for a few hours. Check it every 30 minutes or so. This is the hardest step! You can write down your observations, but be careful not to move it around.
- Step 8: After waiting a few hours, check on the baggie and see if there are any changes you can see. Write down your observations again.



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**Conclusion:** Revisit your answer to the question in Step 6. Was your hypothesis correct? What changes did you observe? Do you notice any differences from when the experiment started? Is all the water still at the bottom of the baggie? Did the water level at the bottom of the baggie change? How might you relate this to the water on planet Earth?

**Continue the experiment:** What do you think would happen if you left the baggie in the window for a few days instead of a few hours? What would happen if you used soda or juice instead of water? What would happen if you used more or less water? What might change if you had a smaller or bigger baggie? How might this experiment change if you left the baggie in a dark place instead of a sunny window?



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**The science behind this experiment:** The water that's at the bottom of the baggie is heated by the sun to form water vapor. The vapor rises to the top of the baggie during the process of evaporation. Once at the top, the water vapor condenses (this is how clouds are formed). Eventually, there are enough water droplets at the top of the bag to form precipitation, whereby the water will begin to slide down the sides of the baggie and return to the pool of water at the bottom as though it is raining. This collection at the bottom represents the oceans, rivers, and lakes that are found on our planet. Once at the bottom of the baggie, the water can be reheated and evaporate again, thus continuing the water cycle.



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## Vocabulary words:

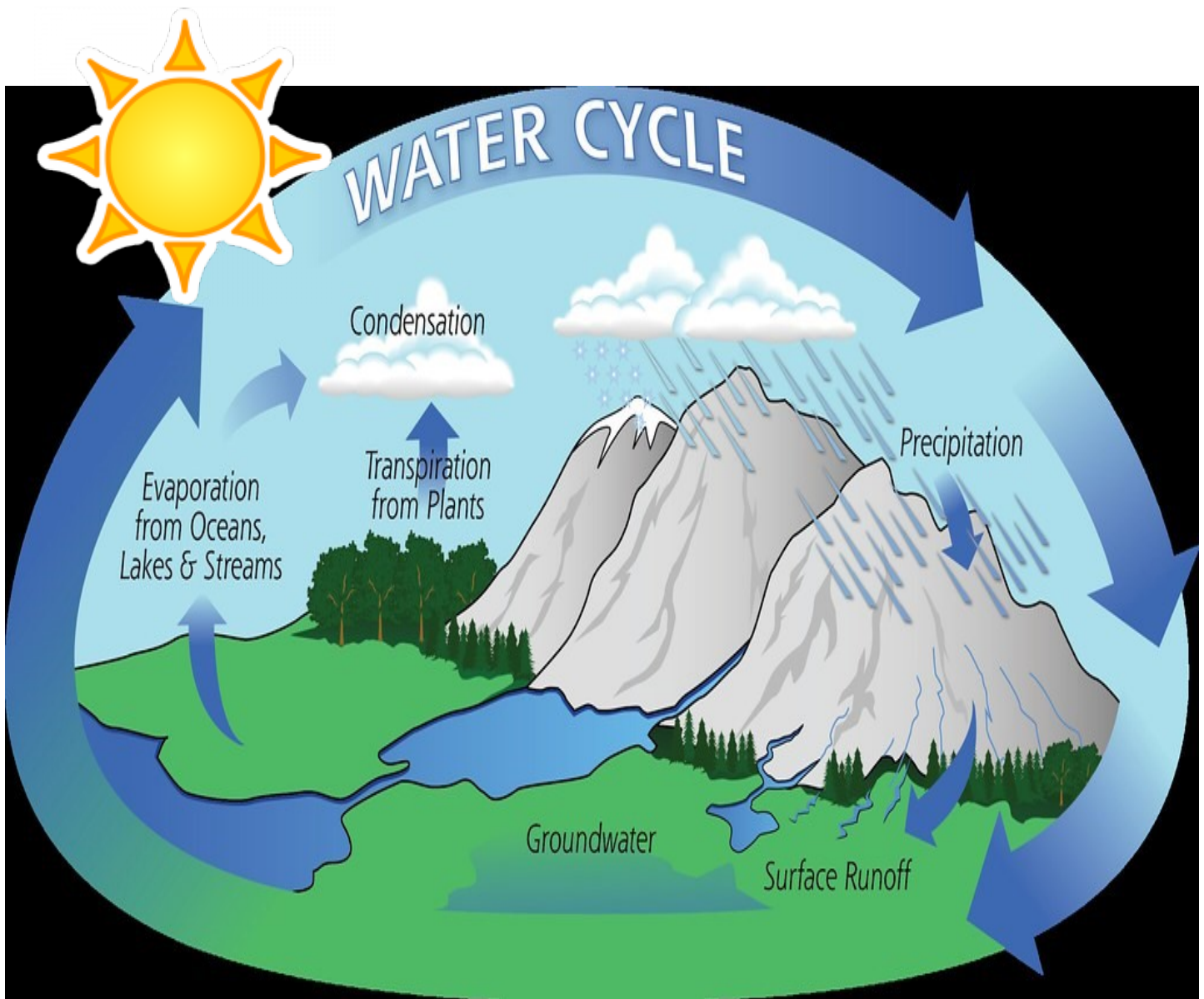
- Water cycle: The never-ending cycle of processes where the water on Earth moves between the ocean, the atmosphere, and the land. The amount of water on the planet and in the atmosphere remains the same over time, but can change form and become solid, liquid, or gas.
- Evaporation: When a liquid such as water is heated and becomes a gas (water vapor).
- Condensation: When a substance (water) changes from a gas to a liquid. In the water cycle, water vapor cools and condenses to form clouds and water droplets.
- Precipitation: Rainfall or snowfall, which moves water out of Earth's atmosphere and returns it to the ground.



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# The Water Cycle



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