

Water Cycle in a Bag

Week 22 — Wednesday | Hands-On Water Cycle Experiment

Reading Time

The **water cycle in a bag** is a simple experiment that lets you see the water cycle happening right on your wall. By creating a small model, you can watch evaporation, condensation, and precipitation all in action. This experiment uses everyday materials to show how water moves in nature.

Here is how it works: When you seal water inside a clear plastic bag and place it in the sun, the **sun** warms the water just like it warms oceans and lakes. The warm water turns into **water vapor** through evaporation. You cannot see the water vapor, but it is rising inside the bag. As the water vapor touches the cooler plastic at the top of the bag, it cools down and turns back into tiny liquid water droplets. This is **condensation**. You can see the droplets forming on the plastic, just like clouds form in the sky.

As more and more droplets collect at the top of the bag, they get bigger and heavier. Eventually they become too heavy to stay on the plastic, so they fall back down to the bottom of the bag. This is **precipitation**, just like rain falling from clouds. Once the water collects at the bottom again, the sun warms it once more, and the cycle repeats. This tiny bag shows the exact same process that moves water around our entire planet!

Reading Questions

1. What does the sun represent in the water cycle in a bag experiment?

2. Where do you see condensation in the bag?

3. What causes precipitation in the bag experiment?

4. Explain how the water cycle in a bag is similar to the water cycle on Earth. Name all three stages and how they match.

Vocabulary Grid

Write a definition or draw a picture for each word.



Experiment



Observation



Hypothesis



Data



Cycle



Temperature

Your Water Cycle Experiment

Materials needed: Clear plastic zip-top bag, blue food coloring, water, marker, tape.

Steps: 1) Draw the sun on one corner of the bag. 2) Fill the bag one-quarter full with water and blue food coloring. 3) Squeeze out the air and seal tightly. 4) Tape the bag to a sunny window. 5) Observe and record what happens each hour for at least three hours.

Before you start: Write your hypothesis. What do you predict will happen?

Time	What Do You See?	Water Cycle Stage
Start (0 min)		
30 minutes		
1 hour		
2 hours		
3 hours		

Draw Your Results

Draw a picture of what your bag looks like after three hours. Label where you see evaporation, condensation, and precipitation happening.

Experiment Conclusion

Answer each question about your experiment results.

Was your hypothesis correct? Explain why or why not.

Which water cycle stage was the easiest to see? Why?

What would happen if you taped the bag in a dark closet instead of a sunny window?

Act Out the Water Cycle

Gather at least five people (family members, friends, or stuffed animals). Assign each person a role: Sun, Water in Ocean, Water Vapor, Cloud, and Rain. Take turns acting out the complete water cycle, with each person describing what they are doing at their stage. Then draw your performance below.

Performance Roles

Fill in what each role says or does during the performance.

Role	What They Say or Do
 Sun	
 Water in Ocean	
 Water Vapor	
 Cloud	
 Rain	

True or False — Circle Your Answer

- ☐ 1. The water cycle in a bag shows all four stages of the water cycle.
- ☐ 2. In the bag experiment, the sun heats the water to cause evaporation.
- ☐ 3. Condensation forms on the bottom of the bag first.
- ☐ 4. Water droplets falling inside the bag represent precipitation.
- ☐ 5. A hypothesis is a prediction you make before an experiment.
- ☐ 6. The water cycle in a bag would work the same in a dark closet.
- ☐ 7. Blue food coloring helps you see the water better.
- ☐ 8. The water cycle in a bag repeats over and over, just like the real water cycle.

Fill in the Blanks

Word Bank: evaporation condensation precipitation collection hypothesis observation sun water vapor

- The _____ provides the energy that powers the water cycle.
- When water turns into invisible gas, it is called _____.
- A prediction you make before an experiment is called a _____.
- Water vapor cooling and forming droplets is called _____.
- Droplets falling from clouds is called _____.
- Information you gather during an experiment is called an _____.
- Water gathering at the bottom of the bag or in the ocean is _____.
- The invisible gas that rises from warm water is _____.

Think About It

If you put ice in the bag instead of room-temperature water, how do you think the experiment would change? Would the water cycle still happen? Explain your thinking.