

Water Cycle in a Jar

Can we recreate the water cycle indoors?



INTRODUCTION

The water cycle describes the continuous way that water moves throughout the Earth and its atmosphere. Before completing this activity, children should have found out about the water cycle. The activity encourages pupils to think about the properties of a clear glass jar compared to containers made from different materials.

It also provides an opportunity to consider other properties, in particular whether glass is a transparent, translucent or opaque material, and the impact this has on light travelling through to the water.

LEARNING INTENTIONS



- ☑ To observe the stages of the water cycle
- ☑ To understand that temperature affects the rate of evaporation
- ☑ To observe changes over time and draw conclusions

KEY QUESTIONS

1. What are the stages of the water cycle and can you explain the changes?
2. Where can you see liquid water in the jar?
3. What happened to the water in the uncovered jar?
4. How does the temperature affect the rate of evaporation?
5. Why is transparent glass better than a translucent or opaque material for demonstrating the water cycle?

KEY VOCABULARY



- | | |
|-------------|---------------|
| Glass | Light |
| Plastic | Condensation |
| Water | Evaporation |
| Cycle | Precipitation |
| Transparent | Collection |
| Opaque | |



RESOURCES (PER GROUP)



- Glass jar with lid
- Water
- Marker pen
- Sticky labels (optional)
- Measuring jug
- Blue food colouring (optional)
- A 'control' jar with no cover for the class
- Other containers for comparison (plastic or cardboard)

EXTENSION / FOLLOW UP ACTIVITIES

Children could investigate how temperature affects the rate of evaporation further, by leaving uncovered jars in different locations at different temperatures, and comparing the difference that temperature makes by measuring how much water is left in the jars.

Children could write an explanation text to show their understanding of how the water cycle works.

Children could create a story map or comic strip to explain the journey of a rain drop through the water cycle.

ADDITIONAL RESOURCES (IF REQUIRED):

- Thermometers

WHAT TO DO:

Today we are going to be hydrologists

1. Discuss the stages of the water cycle with the children, encouraging them to think about how the water cycle works by focusing on the changes of state that take place.
2. Ask the children to think about what will happen if we place a container with water in a warm place.
3. Compare a transparent glass jar, an opaque plastic container and a cardboard box and consider the properties and potential benefits/issues with using each material.
4. Ask the children to think how they could recreate the water cycle using a glass jar and provide a range of materials to set up the investigation.
5. Use the marker to write the stages of the water cycle activity onto the side of a bottle. Draw arrows to show how the water rises as evaporation and descends as precipitation.
6. Set up a 'control' jar, with no cover.
7. Discuss the amount of water needed to represent ground water/collection. Children could investigate differing amounts and compare their results.
8. Add the same amount of water as at least one group to the control jar and leave each group's jar next to the window. Discuss the importance of leaving the jar by the window.
9. Observe jars over time, taking notes, photographs and measurements of progress, as appropriate.

ANTICIPATED ACTIVITY TIME: 30 – 40 MINS. Observe over several days.