

## EXPERIMENT 3: Water Cycle Terrarium

Challenge: Build your own terrarium and see the water cycle come to life!



### WHAT YOU NEED:

- Plastic salad container (or sealable baggie)
- Soil
- Water
- Spray bottle
- Large sunny window or grow light
- Fast and reliably germinating seeds (marigolds, herbs, lima beans, etc.)

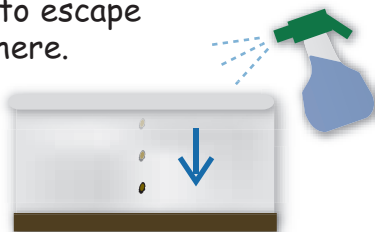


### STEP-BY-STEP:

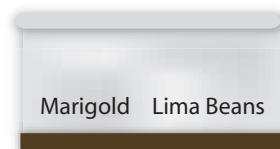
1. Put about an inch of soil in the bottom of the plastic container.



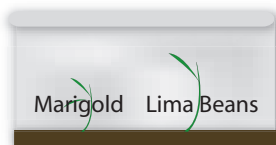
2. Plant a seed according to the package instructions, and give it a thorough soaking of water. An initial watering should be all that is necessary since the plastic container will create a closed environment that will not allow the water to escape into the atmosphere.



3. Label the terrariums and put them in a sunny window or under a grow light.



4. Let your terrarium sit and observe what happens over time.



5. Make a weather journal that you record your observations in every day. Write down how tall the seedling is, whether there are droplets on the lid side of the terrarium, and whether it was sunny or cloudy outside. Try to do the observations at different times each day. Record what you see in writing and in pictures.



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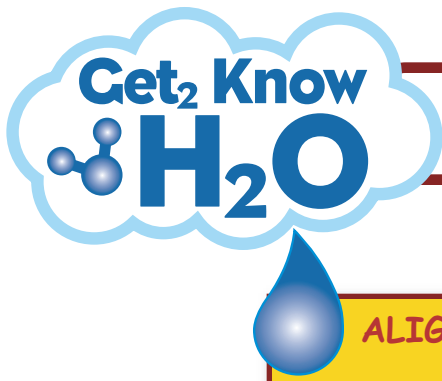
- 6.** Make a picture model in your weather journal that represents your terrarium. Include all parts of the terrarium including the container, soil, water, lid, plants, etc. Draw and label the processes (evaporation, condensation, precipitation) you see happening and their locations in the terrarium.



### QUESTIONS:



- You only watered the soil in your terrarium once, so how did the water get on the lid?
- Take the lid off the terrarium and feel the soil. Why is the soil still wet? Do you think any water evaporated from the soil? Why? If water evaporated, where did the evaporated water go?
- Did it ever rain in your terrarium? How do you know? Where did the rain come from? Is there anything in your terrarium that reminds you of a cloud or cloud drops?
- If the terrarium is a model of the real world, what do you see outside that reminds you of the plant in your terrarium? What reminds you of the soil in your terrarium? What reminds you of the small water droplets on the lid?
- The soil in your terrarium stays moist, the ground outside never dries out completely. Why? What keeps it moist? Water collects on the lid of the terrarium; water also collects in the sky as clouds. Where does the water in the clouds come from?



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## Instructor's Guide

**ALIGNMENT WITH ILLINOIS STATE BOARD OF EDUCATION GOALS**

<b>State Goal 11:</b> Section A: 2a, 2b, 2c, 2d and 2e	<b>State Goal 12:</b> Section B: 2a Section E: 2a
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**WHAT'S HAPPENING?**  
Through observing their terrariums and discussing their observations as a class, students will be able to connect the concepts of precipitation, condensation and evaporation into a unified water cycle concept.

**WHAT COULD GO WRONG?**  
Do not break the seal. Be sure seeds are the easy-to-grow kind from a reliable source (marigolds, herbs, lima beans, etc.).

**YOUR FEEDBACK**  
Were the instructions clear?  
Did the class stay interested?  
Email us at [feedback@Get2KnowH2O.org](mailto:feedback@Get2KnowH2O.org) and let us know what you think. We would like to share your suggestions with other teachers and give you credit for your great ideas!

**LINKS**  
[www.faldo.atmos.uiuc.edu/w\\_unit/LESSONS/water.cycle.html](http://www.faldo.atmos.uiuc.edu/w_unit/LESSONS/water.cycle.html)

**WHAT ELSE CAN KIDS LEARN?**

**See what happens when you don't keep a lid on it**  
Have kids build 2 terrariums with no lids to compare results. Have them water one of the open lid versions every day. Have them water the other open lid version just once (like the closed lid versions). What effect does it have on the seedlings? Why?

**Science lab as big as all outdoors**  
What are clouds? What are they made of? What is rain? What does the sky look like when it rains? Why does it rain? Where does the rain go after it falls? What happens to puddles after it rains?

**The never ending story**  
Get a discussion going about the different parts of the water cycle: evaporation, precipitation and condensation. Use as many questions as possible to determine which concepts the students may understand and where any misconceptions may be.



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### CREDITS

**Dawn Novak** is a graduate of the University of Iowa and is currently a 6th grade Math teacher at Edison Middle School in Champaign, Illinois.

**Dee Chapman** is a senior industrial consultant for Caterpillar, Inc. at the National Center for Supercomputing Applications. She is currently working on a virtual reality wheel loader simulator.

**William Chapman** is a research programmer in the Department of Atmospheric Sciences at the University of Illinois, Urbana-Champaign. His current research interests include sea ice modeling and forecasting.