

Exploring the Water Cycle

Name: _____ Date: _____ Period: _____

LT: I can explore the cycling of water through the Earth's systems to help me develop a model for the water cycle.

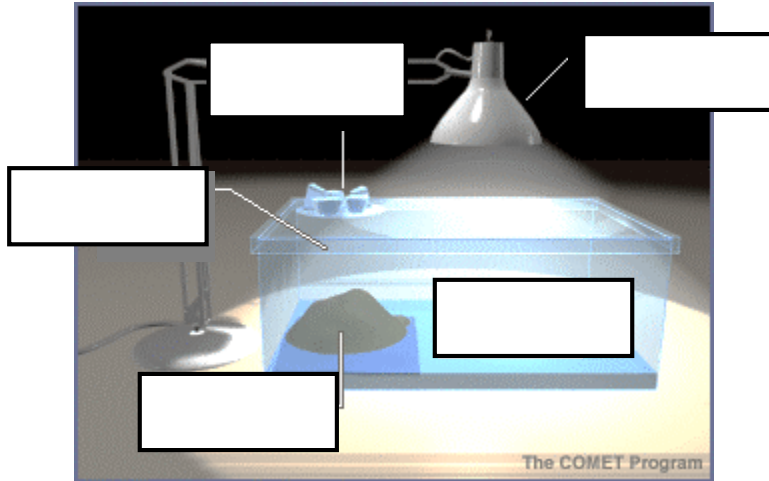
Background Information:

In *Exploring the Water Cycle*, Kim Castagna explains the water cycle as follows – “Water is found almost everywhere on Earth: from high in the atmosphere (as water vapor) to low in the atmosphere (precipitation, droplets in clouds) to mountain snow caps and glaciers (solid) to running liquid water on the land, ocean, and underground. Energy from the sun and the force of gravity drive the continual cycling of water among these reservoirs. Sunlight causes evaporation and propels oceanic and atmospheric circulation, which transports water around the globe. Gravity causes precipitation to fall from clouds and water to flow downward on the land through watersheds.”

You have used your background knowledge, the dictionary definition and a background reading from *newsela* to draw an initial model of what you think the water cycle looks like. You will explore four different activities that can be used to help gather additional information to help you refine your model of the water cycle.

Activity 1: Water Cycle in a Tank

The tank is set-up to mimic what happens during the water cycle. Take a few minutes to observe the tank. Notice the sides and the top of the tank. Use the word bank below to label what each item in the drawing of the tank set-up represents.



Word Bank: ocean sun cloud atmosphere land

Now answer the following questions:

1. How does this simulation show evaporation? _____

2. How does this simulation show condensation? _____

3. How does this simulation show precipitation? _____

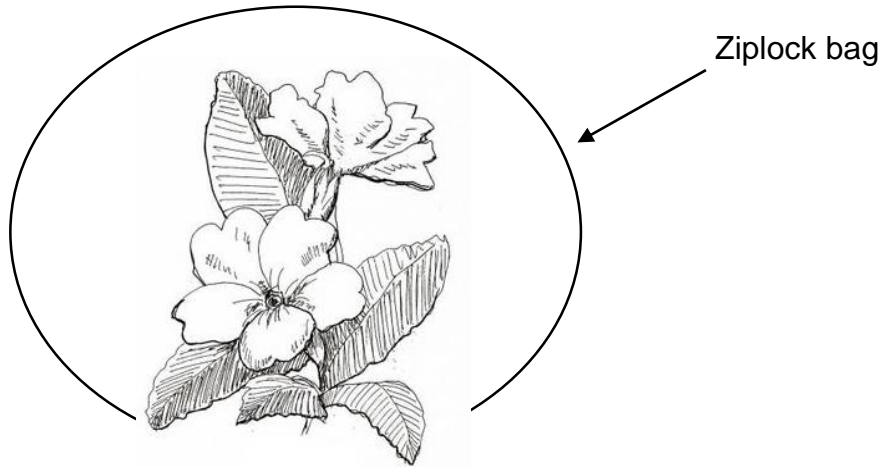
4. What is the energy source in this simulation? What does it represent in the water cycle?

5. Why might scientists use a model like this in their research into the water cycle in real life?

6. Update your model based on what you have learned in this activity.

Activity 2: Including Plants in the Water Cycle

The plant was placed in a dry Ziploc bag and placed under a lamp. Take a few minutes to observe the plant and the bag. Be gentle with the bag so that you do not damage the plant inside.



1. What did you notice about the outside of bag as compared to the inside? _____

2. Where did the water from inside the bag come from? Circle the correct answer.

- a. It came from the inside of the plant, because all plants need water.
- b. It came from the air inside the bag because air makes water.
- c. It was in the air outside the bag and it condensed on the bag.

3. Explain your choice for number 2 above. _____

4. Transpiration is the process by which plants release water vapor into the air through little holes (stomata) in their leaves. Does this explain where the water in the bag came from? Explain.

5. Do you think that you should include transpiration in your water cycle? Why or why not?

6. Update your model based on what you have learned in this activity.

Activity 3: Water Cycle Animation

You will need your computer. Go to your school email. I have emailed you a link to a Water Cycle Animation. Copy and paste the link into a browser other than Google (i.e. Firefox or Internet Explorer). Watch the animation several times. As you watch the animation, update your water cycle model to include processes that you might have missed.

Activity 4: Water Cycle Flash Cards

You will need your computer. Go to Google Classroom. You will find a set of flash cards with water cycle vocabulary. Practice the cards at least 5 times or until you feel comfortable with the vocabulary words. If needed, write down the definitions. If you have extra time you can play one of the other vocabulary games.

Vocabulary List:

Condensation	Earth System	Energy
Evaporation	Force	Gravity
Groundwater Runoff	Hydrologic Cycle	Percolation/Infiltration
Runoff	Solar Radiation	Water Cycle

Sources:

Castagna, Kim. "Lesson Plan: Exploring the Water Cycle." *South Coast Science Project*, UC Santa Barbara, scsp.chem.ucsb.edu/sites/secure.lsit.ucsb.edu.chem.d7_scsp/files/sitefiles/lessons/Water%20Cycle%20Lesson%20Plan%206th%20grade.pdf. Accessed 28 Jan. 2020.

Traina, Amanda. "Water Cycle." *Georgian Court University*, GCU Online, 2011, gcuonline.georgian.edu/wootton/water_cycle.htm.

This page can be used for notes and a rough draft for your model of the water cycle.