

Make a Water Cycle Model

Name: _____

Date: _____

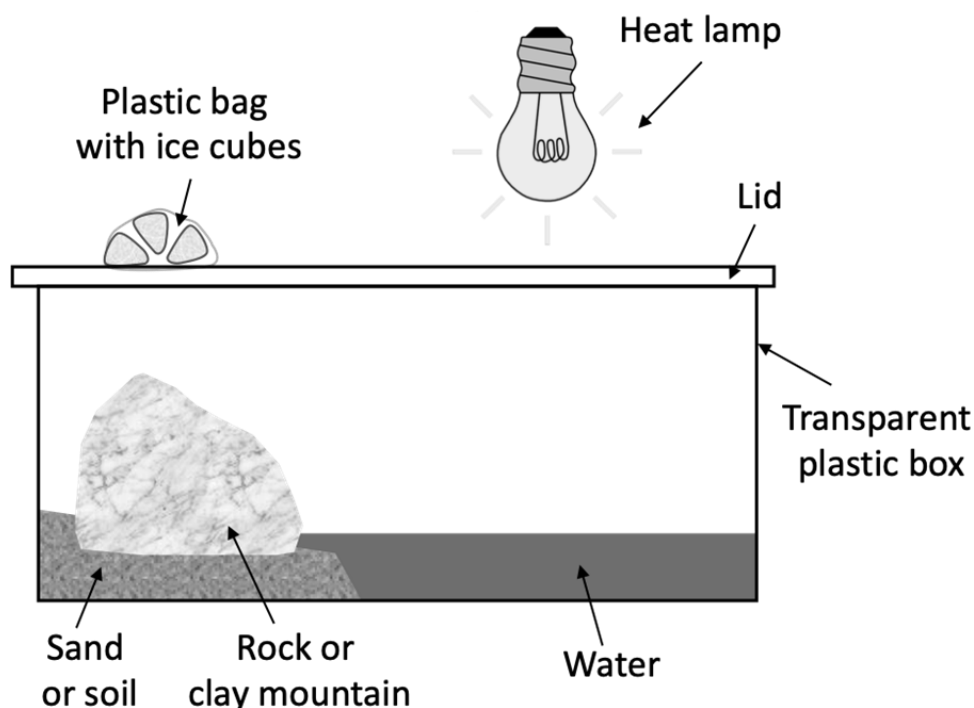
Student worksheet

1. Water Cycle Model

Setup

- a. Set up your experiment inside the transparent plastic box. Your model needs:
- A water body (ocean) with a large surface area (at least half of the box)
 - A rock, or a mountain made from clay (mountain height at least half of the box height)
 - A patch of soil or sand. Some of the sand or soil will get wet from the water, but the surface should stay dry.

An example setup is shown in the figure below.



- b. Close the lid of the box and place the (heat) lamp about 30 cm above the water body. Do not touch the heat lamp during the experiment, as the heat lamp will get hot! Then place the bag with the ice cubes on top of the lid. You can choose the ice cube bag location yourself, but avoid placing the ice cubes directly underneath the heat lamp.

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Observations

- a. Start your timer or watch a clock. Every 10 minutes, check on your model and write down your observations below. You can lift up the ice cubes temporarily to see what happens underneath or touch the box from the outside, but leave the box closed.

Time [min]	Observations
10	
20	
30	

- b. During the first 10 minutes of waiting, draft a hypothesis (educated guess) of what you think will happen below.

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Also, discuss the following questions within your group.

? *How does your model landscape reflect the real world?*

? *In your model, what does the lamp represent?*

? *In your model, what do the ice cubes represent?*

- c. During the second 10 minutes of waiting, briefly check in with other student groups to see how they set up their experiments. Write down below how other models differ from yours and how their observations differ because of these differences.

- d. During the third 10 minutes of waiting, use the model setup image on page 1 of your worksheet to draw what you observe happening with the water in your model. Use arrows to indicate water movement. Use one color for processes that you observe directly and a second color for processes that you can infer from your observations and think are happening, although you cannot see them directly. As you label your water diagram, discuss these questions within your group.

? *What changes do you see occurring within your model?*

? *Where do you see water appear or disappear within your model?*

? *Name or describe some of the processes you think are happening.*

? *Why do you think these processes are happening?*

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2. Water Cycle Processes

Follow the instructions or answer the questions below.

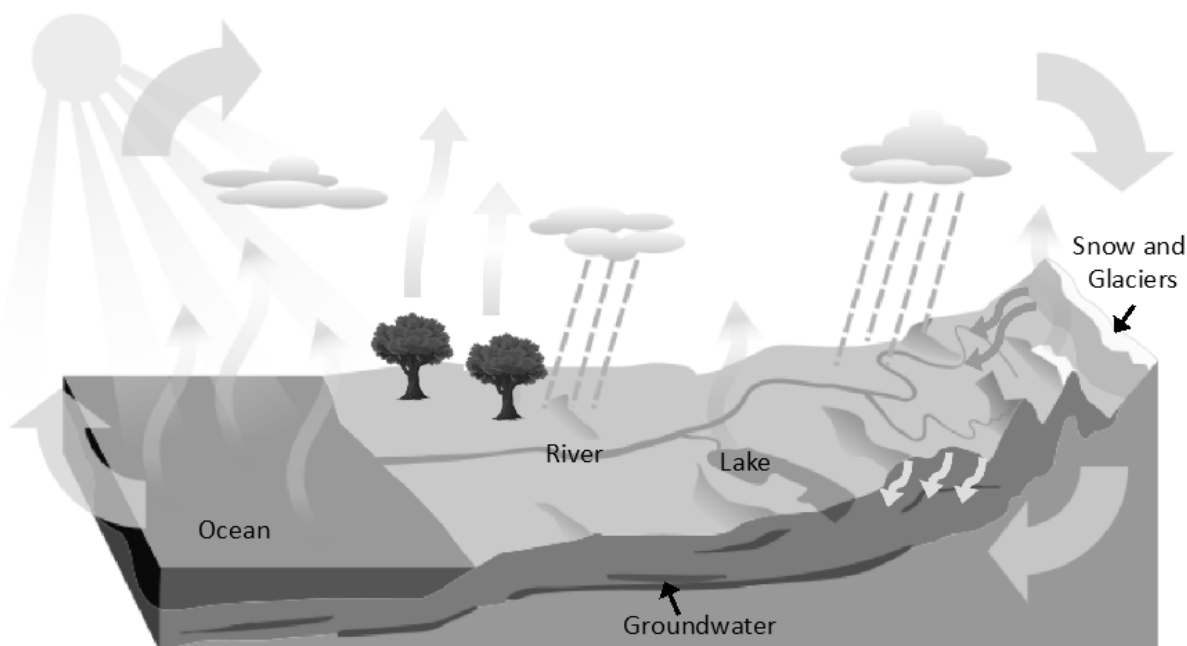
- a. In the table below, write down which water cycle process you observed in your model.

Process Name	Process Description	Where did it happen?	Why did it happen?

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- b. In your group, match the definition, description, and picture of the different water cycle processes. Then label as many water cycle processes as possible in the diagram below.



- c. In the table below, write down what drives each of the listed water cycle processes. For example, the Sun provides heat, and heat makes water evaporate. This makes sunlight the driving force of evaporation.

Water Cycle Process	Driving Force
Evaporation	Sunlight or solar energy
Sublimation	
Transpiration	
Condensation	
Precipitation	
Surface Runoff	
Infiltration	

- d. Why is the water cycle an extremely important process for our planet?

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