

Earth Science Investigation 3 Study Guide

Students in classrooms in four different locations wanted to know what happens to the water after it rains. They collected rainwater and then put the same amount of water in a container. Here is the data they organized in a table.

Location	Water Volume	Width of Container (surface area)	Water Temperature	Wind Speed
A	50mL	120cm	5° C	5km/hr
B	50mL	60cm	45°C	5km/hr
C	50mL	60cm	5° C	5km/hr
D	50mL	60cm	45°C	15km/hr

Use the data table to answer the following questions.

1. In which container will the water evaporate faster, container B or C? Explain why.

Container B will evaporate faster because more water will evaporate when the temperature is warmer.

2. In which container will the water evaporate faster, container A or C? Explain why.

Container A will evaporate faster because more water will evaporate when the surface area is larger.

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3. In which container will the water evaporate faster, container B or D? Explain why.

Container D will evaporate faster because more water will evaporate faster when the air is moving quicker.

4. Complete the table below with words from the word bank.

Wind direction	degrees Celsius	balance	centimeters
wind vane	degrees Fahrenheit	rain gauge	millimeters
Temperature			

Weather Instrument	Weather factor it measures	Unit Used
thermometer		
	precipitation	
		north, south, east, west

5. How do meteorologists predict weather a few days in advance? Write at least 3 sentences.

_____ Meteorologists collect data over long period of time. They collect data about all different kinds of weather. They look for patterns to predict what will happen next _____

6. Write Y or N to describe what fog is or isn't. If the sentence is true write Y. If it is not true write N.

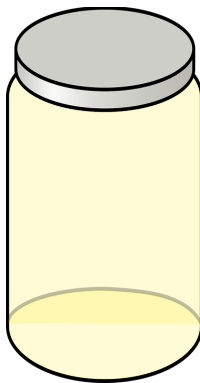
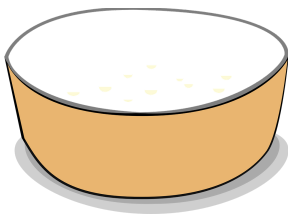
- a. Fog is a gas. N
- b. Fog is a solid. N
- c. Fog is a liquid. Y
- d. Fog is smoke. N
- e. Fog is water. Y

7. A student noticed drops of water on a cold can that she had left outside on a hot summer day. Where did the water drops come from?



The water drops came from _____ water vapor in the air that condensed onto the can _____.

8. A student asks the question: Will water evaporate faster in a container that has more surface area? She pours 35 mL of water into each container. Then she puts container X in a cold room and container Y in a warm room. The student wants some feedback so she can improve her plan. What is the most important thing _____ she can do to make sure this investigation is a fair test?



X

Y

To make this a **fair test** she should _____ **put both containers in the same room** _____

9. You go outside in the morning and notice there is frost on the grass. The air temperature is 5°C. Write Y next to each sentence that helps explain why this happened. Write N if it does not explain this.



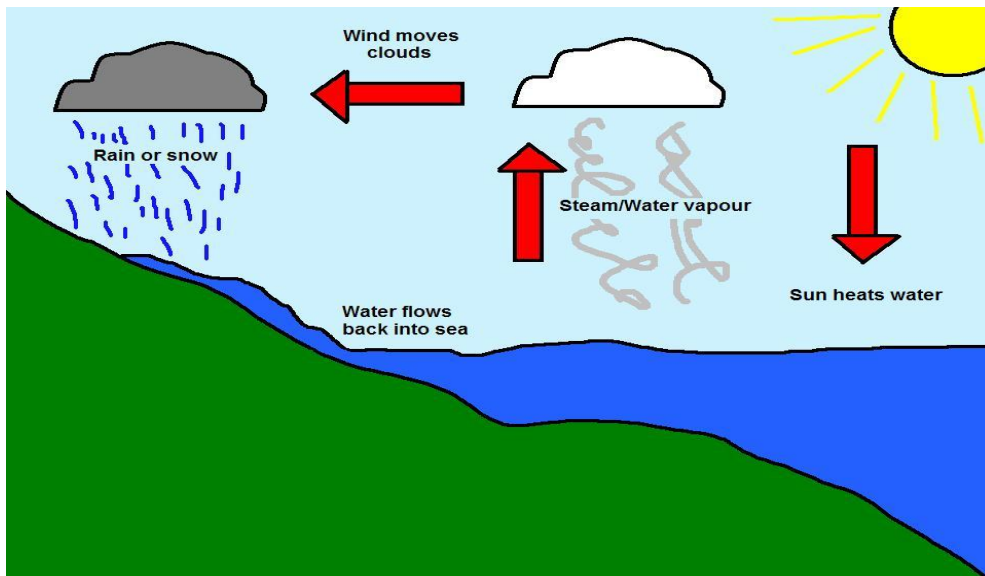
 Y Air heats up more quickly than grass when the air is shining.

 N The temperature of the grass is higher than the temperature of the air.

 Y During the night, the air temperature dropped below 0°C.

 Y The temperature of the grass is lower than the temperature of the air.

10. Draw arrows to show the steps in the water cycle and label the picture below using the words: **evaporation, condensation, precipitation, runoff**.



11. A student rides to the store with his father on a very cold night. His father turns on the heater in the car. After going a few blocks, the student notices that the inside of the windows are “fogging up.” The mirror inside the car, however, is not. Why do the windows fog up, but not the mirror? Write Y (yes) next to each sentence that helps explain why this happened. Write N (no) next to each sentence that does not help explain this.

- Y ___ The windows are cold.
- Y ___ The mirror inside the heated car is warm.
- Y ___ Water vapor condenses on cold surfaces.
- N ___ Water evaporates when the Sun warms it.

12. Complete the flow map by labeling the arrows with the following words: **evaporation**, **condensation**, **melting**, **freezing**

