Evaporation Marathon Lab Investigation

Question:
Will water evaporate at a faster rate from a flat dish or a deep jar?

Background Information:

Vaporization–the phase change from a liquid to a gas
Evaporation–vaporization that takes place at the surface of a liquid
Boiling–vaporization that takes places throughout a liquid

Hypothesis:
The flat dish/deep jar will have a faster rate of evaporation.

Materials: water source, 100mL graduated cylinder, 9-inch pie tin, 500mL glass beaker, funnel

Procedures:
Day 1

1. Fill the graduated cylinder with 100mL of water and pour it in the pie tin.
2. Fill the graduated cylinder with 100mL of water and pour it in the glass beaker.
3. Place the uncovered containers on a shelf to stand overnight.

Day 2

1. Carefully pour the water from the pie tin into the graduated cylinder using the funnel to prevent spills.
2. Read the water level on the graduated cylinder and subtract this new level from the original 100mL to derive the amount of the evaporated water. Record your findings on the data chart.
3. Pour the water back in the pie tin.
4. Repeat this process with the water from the glass jar.
5. Return samples to the shelf.

Day 3

1. Repeat the process from Day 2.
2. Complete the lab investigation sheet by using your data to draw a conclusion.
3. Answer the critical thinking questions at the end of the lab.

Data Chart:

Amount of Evaporation

	Start	Day 2	Day 3
Glass Beaker	0 mL		
Pie Tin	0 mL		

Conclusion:

The water evaporated faster from the flat dish/deep jar.

Critical Thinking:

1. Identify the independent variable in the experiment.

2. Identify the dependent variable in the experiment.

3. Why does the water evaporate faster from one of the containers?

4. If we wanted to find out the role the sun plays in the evaporation of water, what would be the independent variable and the dependent variable of the experiment?

Teacher Assessment Guide

Students must have selected a **hypothesis** and a **conclusion**. The student hypothesis cannot be correct or incorrect, but the conclusion should be that water evaporates faster from the flat dish.

Student **data charts** will vary but should provide reasonable measurements.

Critical Thinking:

1. Students should identify the type/size of container as the independent variable.

2. Students should identify the amount of evaporation as the dependent variable.

3. Water evaporates faster from the flat dish because it has a larger surface area.

4. In the experiment to find the sun's role in evaporation, the independent variable will be exposure to sun. (Sun or No Sun) The dependent variable will be the amount of evaporation.

Goal 3 Standards Checklist:

Name:	Yes	No
Demonstrated creative and critical thinking skills to solve a problem		
Worked cooperatively with others in an effective and productive manner		

(Note: A class checklist is on the next page.)

Evaporation Marathon
Goal 3 Standards Checklist

NAME	Demonstrated creative and critical thinking skills to solve a problem		Worked cooperatively with others in an effective and productive manner	
	YES	NO	YES	NO
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