

Ai Tong School
Primary 5
Level Worksheet 1: Water

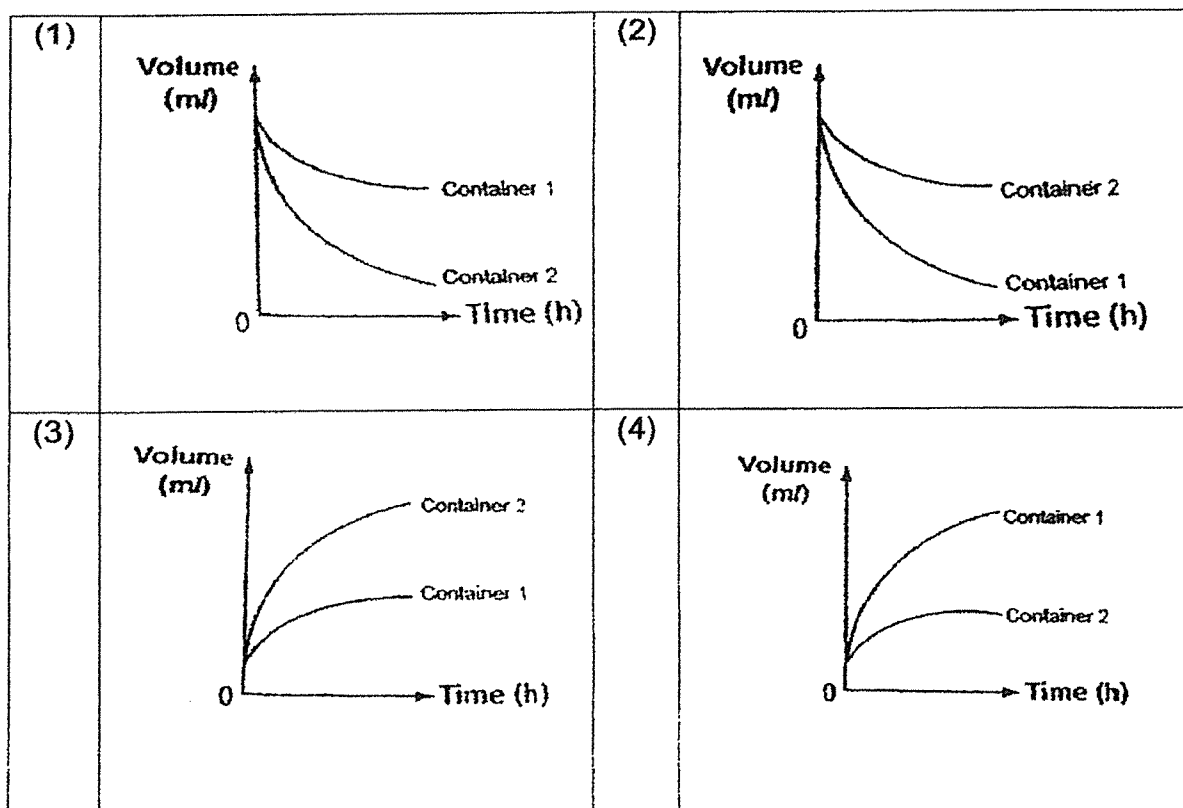
Name: _____ Class: _____ Date: _____

Section A

1. Christina conducted an experiment to investigate how the presence of wind affects the rate of evaporation of water. She obtained two containers and filled them with water. She then placed the containers in locations as described in the table below.

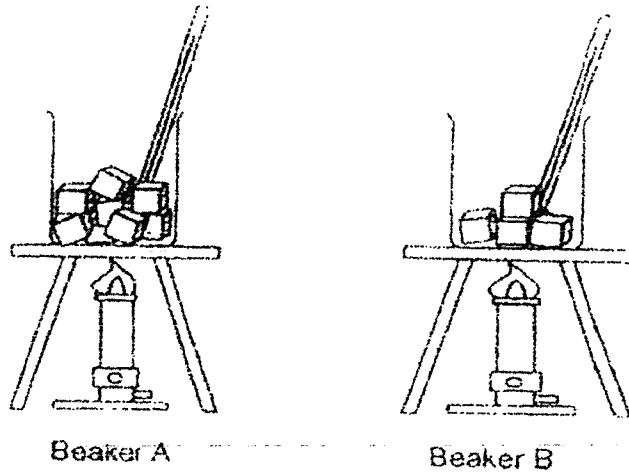
Container	Location
Container 1	Corridor outside her classroom on a windy day
Container 2	Inside the classroom where there was no wind

Assuming that she had conducted a fair test, which of the following graphs correctly represents the amount of water left in the container after 24 hours?

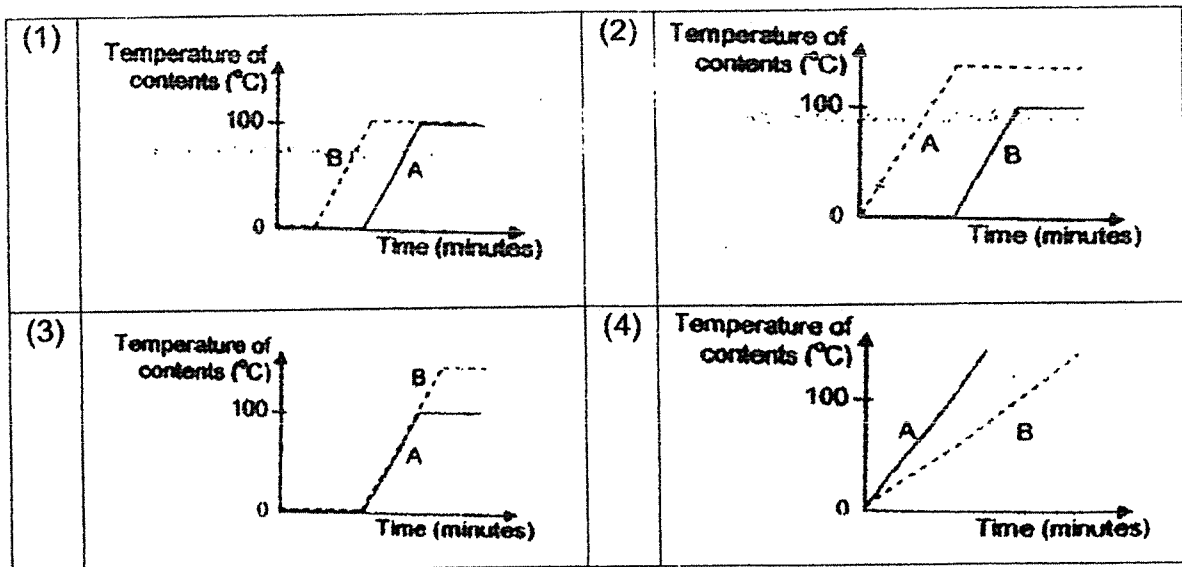


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2. Two beakers, A and B, containing ice cubes of the same size and shape were taken out of the freezer. Beaker A had more ice cubes than Beaker B. Both beakers were heated with the same amount of heat per unit until boiling happened. Temperature of the contents in each beaker were measured over time and the readings were plotted on a graph.



Which one of the following graphs correctly represents the temperature of contents in beaker A and B.



My Answer	My Level of Confidence				Correct Answer
	1	2	3	4	
	Wild guess	Not Sure	Have some ideas	Very sure	
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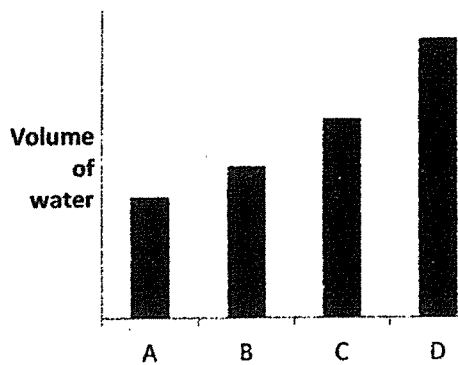
3. Four identical beakers, A, B, C and D were filled with the same volume of water. They were left in four places with different conditions for 3 hours as shown in the table below.

Containers	A	B	C	D
Conditions	Sunny Windy	Sunny Not windy	Cloudy Not windy	Cloudy Windy

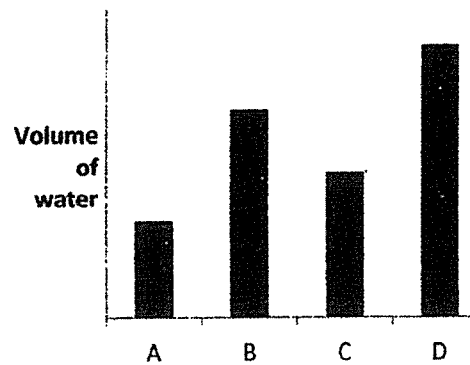
Which one of the following graphs correctly shows the volume of the water left in A, B, C and D after 3 hours?

C	Concept(s) tested:

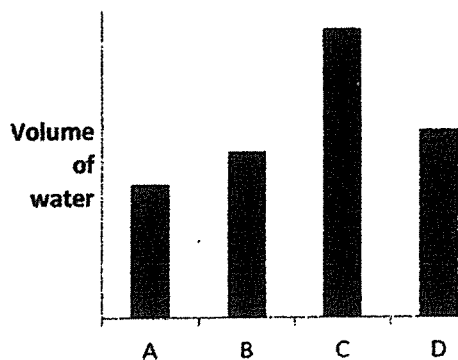
(1)



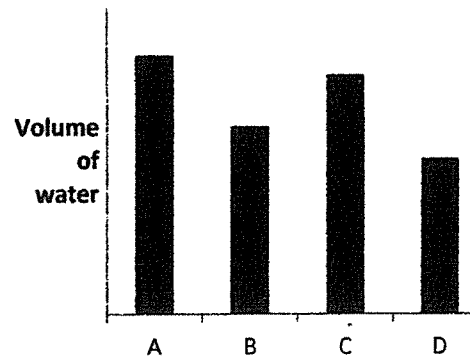
(2)



(3)

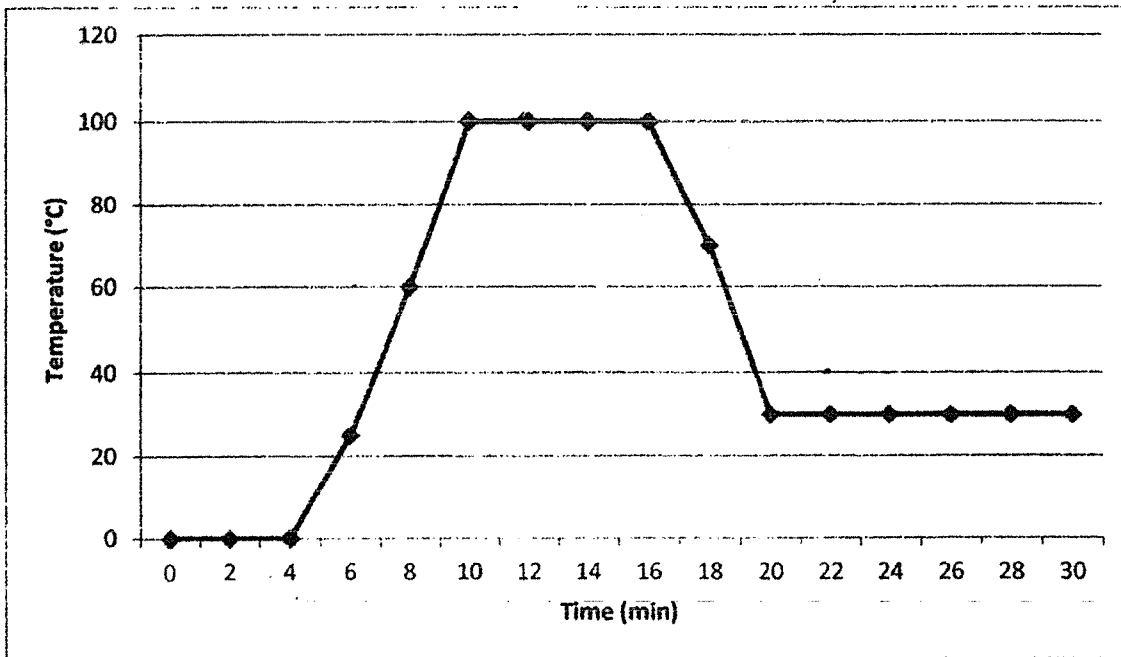


(4)



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4. Jimmy took out some ice cubes from the freezer. He heated the ice cubes in the beaker for some time. The graph below shows the temperature changes observed from the time ice cubes were taken out of the freezer.



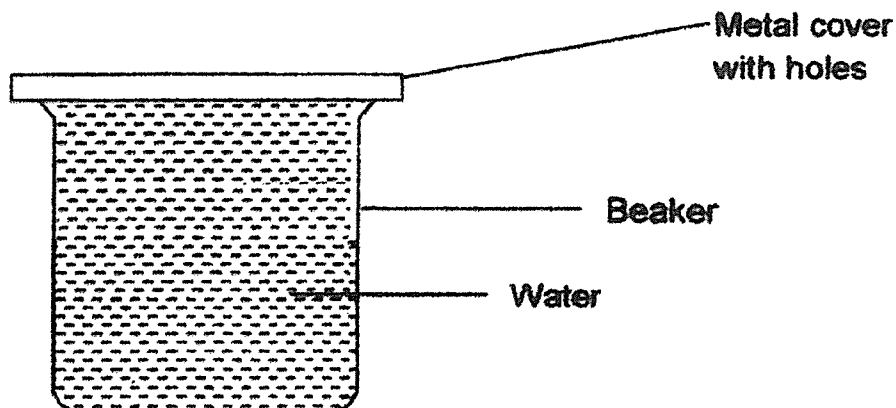
Which of the following best represents the states of water in the beaker at different parts of the graph (exclude water vapour and steam)?

	0 th to 4 th min	5 th to 10 th min	11 th to 16 th min	21 st to 28 th min
(1)	Solid and liquid water	Liquid water	Solid and liquid water	Liquid water
(2)	Solid and liquid water	Liquid water	Liquid water	Liquid water
(3)	Ice	Liquid water	Liquid water	Liquid water
(4)	Ice	Ice and liquid water	Liquid water	Liquid water

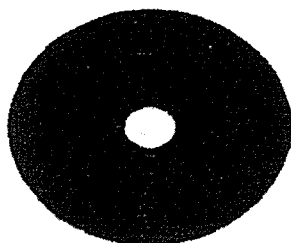
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Section B

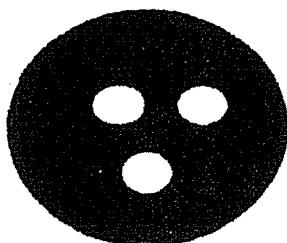
5. Rita prepared the following experimental set-up to determine how one factor affects the rate of evaporation.



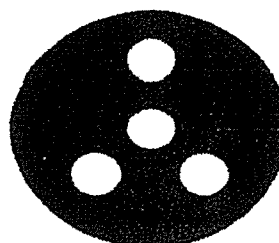
She had 3 similar beakers filled to the brim with water. She prepared 3 similar metal covers, X, Y and Z, with different number of holes on it. The 3 covers are shown below.



Cover X



Cover Y

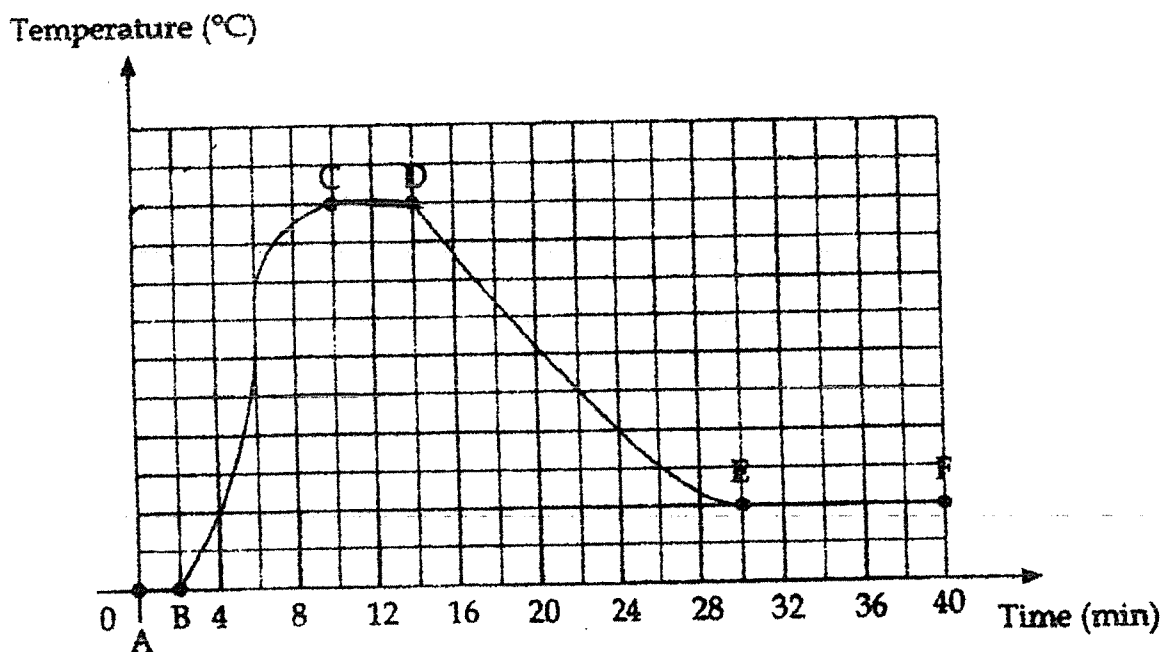


Cover Z

- (a) State the factor that affects the rate of evaporation of water that was being investigated in the above experiment.

- (b) What is the relationship between the number of holes and the amount of water left in the beaker?

6. A container of ice cubes were heated until boiling occurs. The flame was then turned off and the contents in the container were left to cool at room temperature. The graph below shows the temperature in the container taken at regular intervals for 40 minutes.



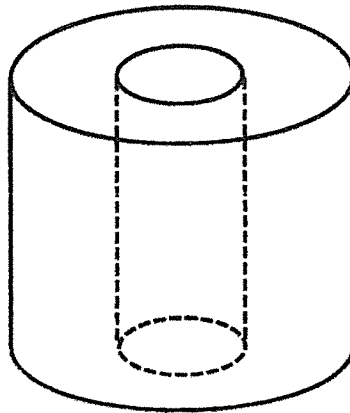
(a) Mark 100°C on the axis of the graph.

(b) Why does the temperature remain constant at EF?

(c) Put a tick (✓) in the appropriate boxes in the table below to identify whether there is heat gain, heat lost or neither by the water at the following sections of the graph indicated.

Section on the graph	Heat lost	Heat gained	Heat is neither lost nor gained
AB			
BC			
CD			
DE			
EF			

7. Mr Ong made special shaped ice cubes for use at his drink stall. Each ice cube was shaped like a cylinder with a hollow in the middle as shown below.



Explain how ice cubes with a hollow in the middle helps make drinks colder.

Time to think!

- Describe how heat is transferred between the ice cubes and the drink?
- What measurement of the ice cube changes when there is a hollow in the middle?
- How does this change, affect the heat transfer?

C	Concept(s) tested:

Self-checklist

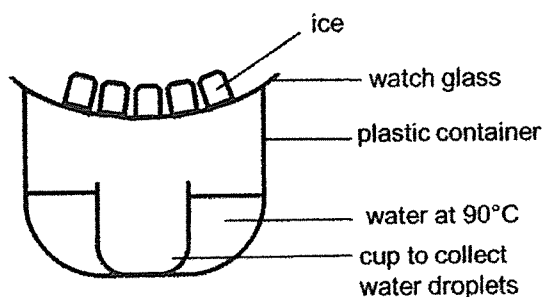
No.	I can...
1.	Understand that water can exist in three interchangeable states of matter.
2.	<p>Explain how water changes from one state to another.</p> <ul style="list-style-type: none">• Melting (solid to liquid) - when ice gains heat, it melts and changes to water at 0°C.• Evaporation/Boiling (liquid to gas) - when water gains heat it evaporates to form water vapour. At 100°C water boils to form steam.• Condensation (gas to liquid) - when steam or water vapour loses heat, it condenses to form water droplets. Condensation can happen at any temperature.• Freezing (liquid to solid) - when water loses heat, it freezes and changes to ice at 0°C
3.	Explain the role of evaporation and condensation in the water cycle.
4.	<p>State how the following factors affect the rate of evaporation</p> <ul style="list-style-type: none">• Temperature of liquid• Temperature of surroundings• Presence of wind• Speed of wind• Amount of exposed surface area

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Level Worksheet 2: Water

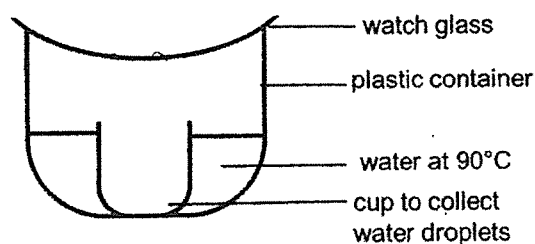
Name: _____ Class: _____ Date: _____

Section B

1. Study the set-ups of the experiment as shown below.



Set up A

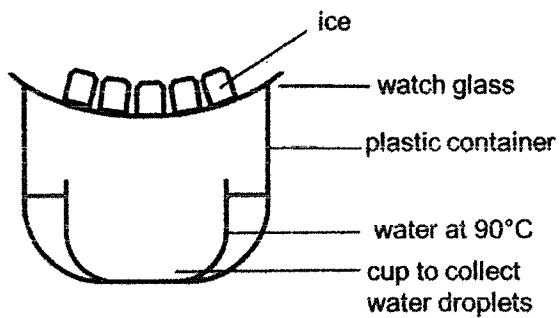


Set up B

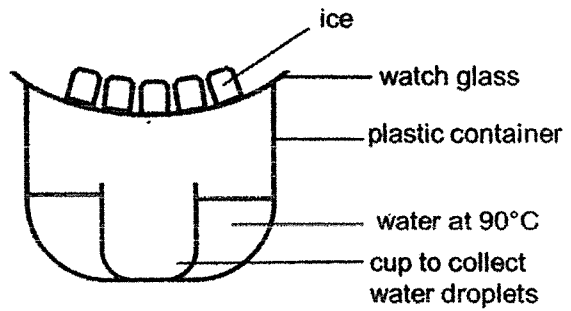
(a) If the room temperature is 30°C, in which set-up will there be most amount of water collected at the end of 15 minutes? Explain your answer.

Time to think!

- Identify the source of water vapour and the cooler surface.
- How does adding ice affect the rate of condensation?
- Why does it affect the rate of condensation?



Set up C



Set up D

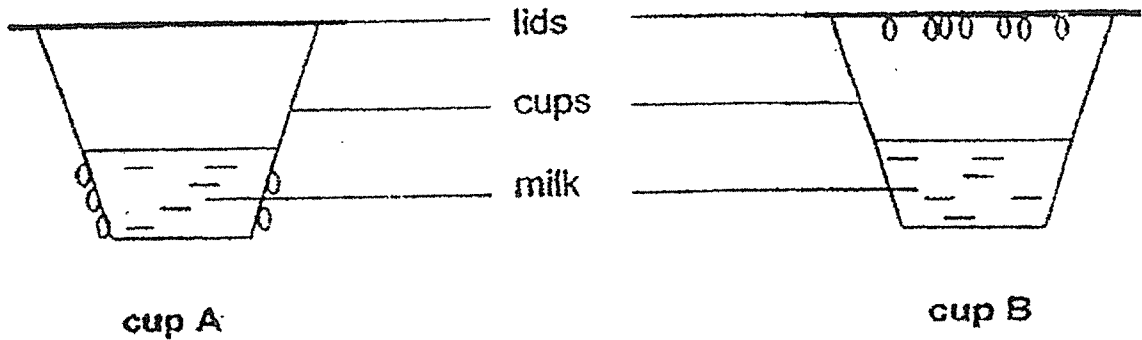
Time to think!

- What are the factors that affect the rate of evaporation?
- How does the change in cup size affect the rate of evaporation?

(b) The experiment is repeated with different size cups. If the room temperature is 30°C , in which set-up will there be most amount of water collected at the end of 15 minutes? Explain your answer.

2. Mrs Liew had 2 identical cups. She poured cold milk into one of the cup and hot milk in another cup. She covered the mouth of each cup with a lid and left both cups to stand for a while.

She noticed that water droplets were found in different parts of the cups as shown in the diagram below.

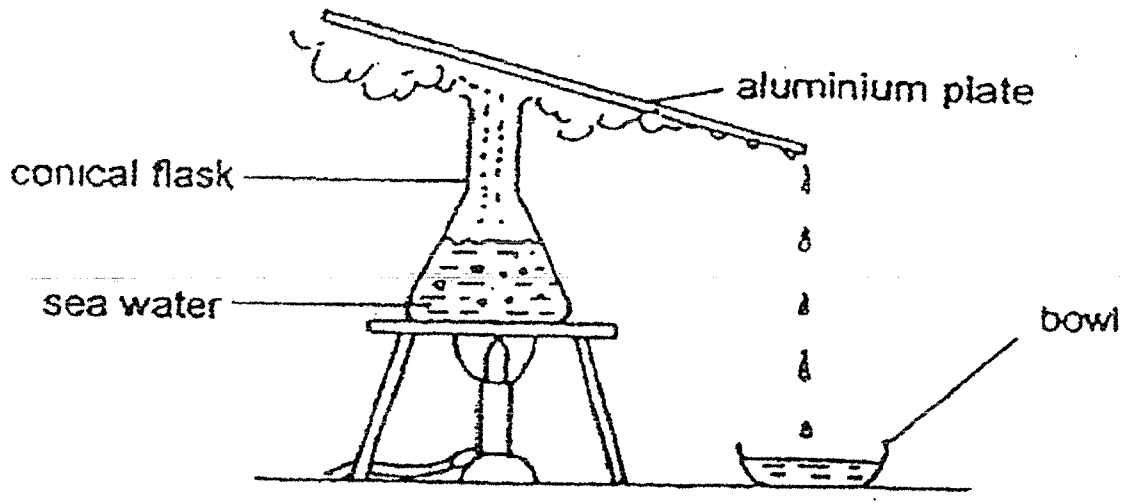


Based on the information above, answer the following questions.

(a) Which of these cups, A or B, contained cold milk? _____

(b) Explain your choice in (a).

3. Siti set up the experiment as shown below. She heated the seawater for about ten minutes and she observed some changes.

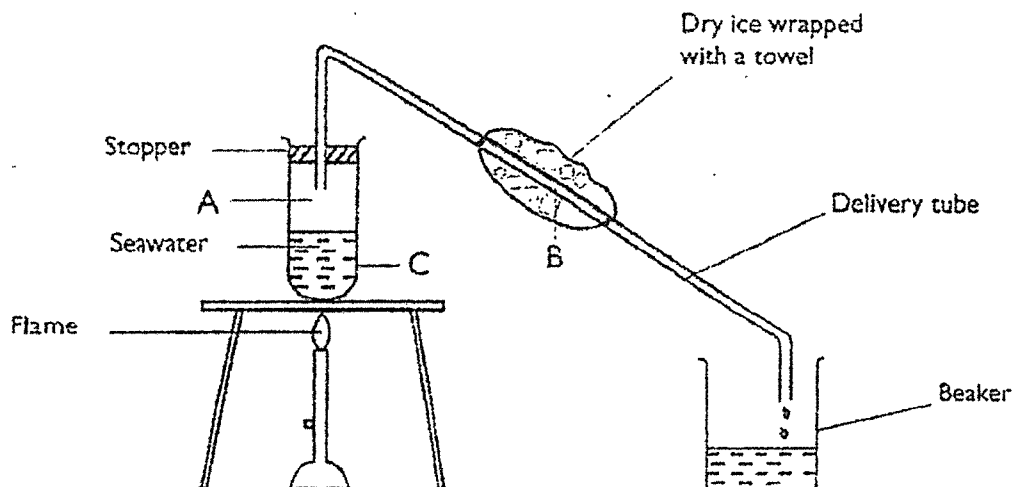


- (a) What is the liquid collected in the bowl?

- (b) Explain how the liquid is formed in the bowl.

- (c) What can Siti do to the set-up to increase the amount of liquid formed in the bowl throughout the heating process.

4. The set-up below is usually used to get pure water from seawater. Dry ice is colder than region B.



- (a) What is the purpose of wrapping dry ice at the centre of the delivery tube?

- (b) Explain how pure water is obtained from the above set-up?

(c) Would the following action help to increase the rate of pure water collection in the beaker? Explain your answer for each action.

Action	Explanation
Adding salt to the ice wrapped in the towel	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
Increasing the flame	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>

ANSWER KEY

YEAR : 2021
LEVEL : PRIMARY 5
SCHOOL : AI TONG SCHOOL
SUBJECT : SCIENCE
TERM : LEVEL WORKSHEET 1: WATER

SECTION A

Q1	2
Q2	1
Q3	3, increase in temperature and presence of wind, increase the rate of evaporation
Q4	2

SECTION B

Q5	a) Exposed surface area of the water																								
	b) As the number of holes increase, the amount of water left in the beaker decreases.																								
Q6	<p>a)</p> <p>b) Heat transfer from hotter region to colder region. When the water has reached room temperature, there is no more heat transferred between the surrounding and water.</p> <p>c)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Section on the graph</th> <th>Heat lost</th> <th>Heat gained</th> <th>Heat is neither nor gained</th> </tr> </thead> <tbody> <tr> <td>AB</td> <td></td> <td style="text-align: center;">✓</td> <td></td> </tr> <tr> <td>BC</td> <td></td> <td style="text-align: center;">✓</td> <td></td> </tr> <tr> <td>CD</td> <td></td> <td style="text-align: center;">✓</td> <td></td> </tr> <tr> <td>DE</td> <td style="text-align: center;">✓</td> <td></td> <td></td> </tr> <tr> <td>EF</td> <td></td> <td></td> <td style="text-align: center;">✓</td> </tr> </tbody> </table>	Section on the graph	Heat lost	Heat gained	Heat is neither nor gained	AB		✓		BC		✓		CD		✓		DE	✓			EF			✓
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BC		✓																							
CD		✓																							
DE	✓																								
EF			✓																						
Q7	<p>Concept tested: The greater contact surface area, the faster the heat transfer from drink to the ice.</p> <p>The ice have a greater contact surface with the drinks, so the drinks, the drink will lose more heat to the ice and become colder.</p>																								

ANSWER KEY

YEAR : 2021
LEVEL : PRIMARY 5
SCHOOL : AI TONG SCHOOL
SUBJECT : SCIENCE
TERM : LEVEL WORKSHEET 2: WATER

SECTION B

Q1	a)	Set-up A. The temperature difference between the warm water vapour and watch glass is greater hence the rate of condensation is higher. The hot water vapour lose heat and condenses into condense into more water droplets on the watch glass, so more water is collected in A
	b)	Set-up D. The unexpected surface area of the water in D is greater than C. the rate of evaporation is higher. More water gain heat and evaporates into water vapour which loses heat and condenses into water droplets more water is collected in D
Q2	a)	Cup A
	b)	The water droplets are formed on the outer surface of Cup A and is as the same level as the milk. The milk causes the cup to become cold. The warmer water vapour from the surrounding air lose heat and condenses into water droplets on the outer surface of cup.
Q3	a)	distilled water
	b)	Condensation occurs. Therefore, the water vapour turns becomes liquid as the air is cooled by the aluminium plate.
	c)	increase the size of the conical flask
Q4	a)	It condenses the water vapour as it turns into liquid.
	b)	the seawater is boiled, then the pure water turns into steam and is captured and cooled and thus become distilled water.
	c)	<p>Yes. To allow it to condense, liquid form and be collected</p> <p>No. If you heat to fast, vapours may not condense as quickly as desired, and may waste some of the seawater.</p>

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END