METHODIST GIRLS' SCHOOL

Founded in 1887

PRIMARY 4
SCIENCE
WEIGHTED ASSESSMENT 3 2024

Total Time for Paper: 45 min

INSTRUCTIONS TO CANDIDATES
Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.

Name: _____ ( )

Class: Primary 4._____

Date : _____

Parent's signature: _____

Section A	18
Section B	12
Total	30

This paper consists of 10 printed pages including this page.

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Section A
For each question from 1 to 9, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet (OAS).
[18 marks]

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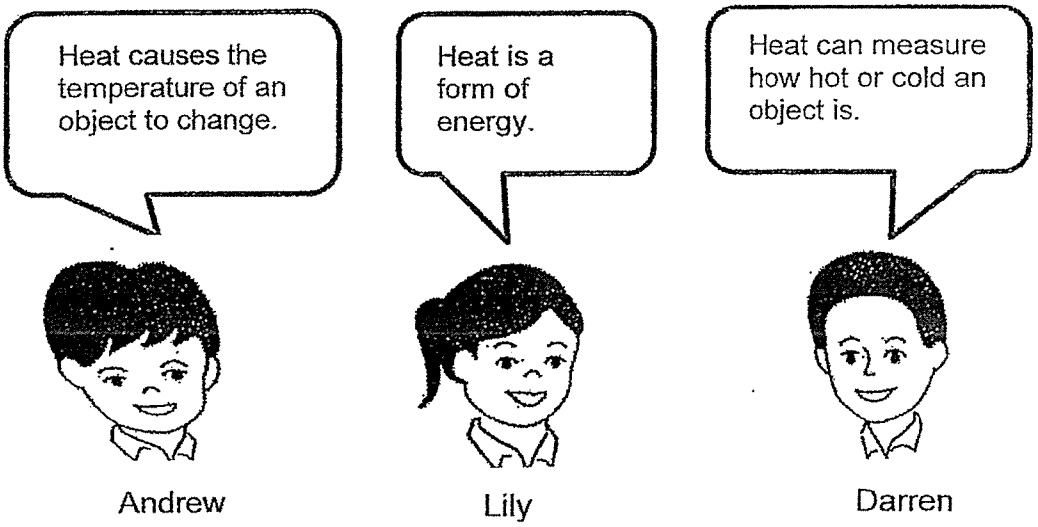
1 Three students shared what they had learnt about heat.



Whose statements are correct?

(1) Andrew and Lily
(2) Lily and Darren
(3) Andrew and Darren
(4) Andrew, Lily and Darren

2 Which property will identify a substance as a solid?

(1) It has mass.
(2) It occupies space.
(3) It has a definite shape.
(4) It has no definite volume.

(Go on to the next page)

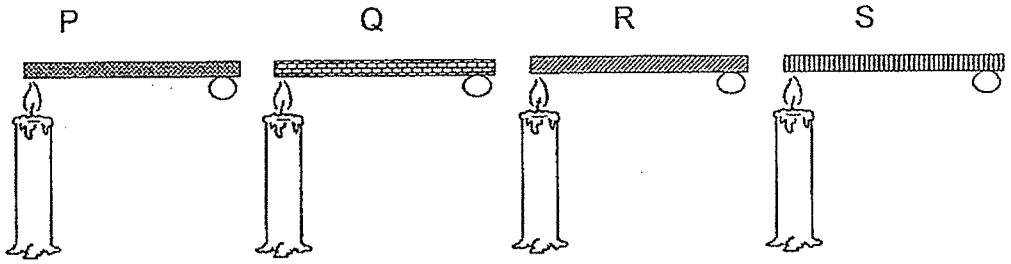
3 Alan has two cups, A and B, made of material X. He poured an equal amount of hot water into each cup. Cup A was too hot to hold but he can hold cup B easily as shown.

Cup A Cup B

Which of the following best explains why Alan can hold cup B easily but not cup A?

(1) Cup A is a good conductor of heat.
(2) Cup B is a poor conductor of heat.
(3) Distance from the heat source is further in cup B.
(4) Cup A is a good conductor of heat but the handle of cup B is not.

4 Meng stuck 4 pieces of wax of the same size at the end of 4 rods made of different materials, P, Q, R and S. He lit a candle near the other end of each rod.



He recorded the time taken for each piece of wax to drop off in the table shown below.

Rod	Time taken for wax to drop off (mins)
P	15
Q	20
R	9
S	11

Which statement is correct?

(1) Rod R conducts heat the fastest.
(2) Rod S conducts heat slower than Rod P.
(3) Rod Q allows heat to pass through the fastest.
(4) Only P, Q and S allow heat to pass through.

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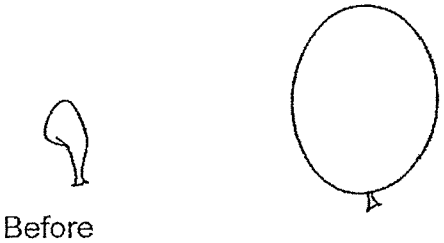
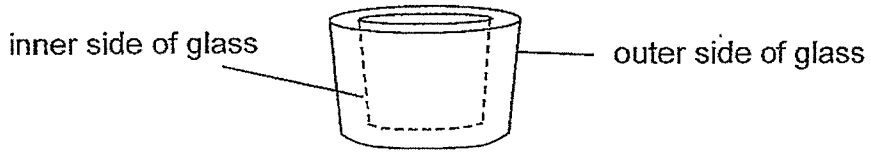
5 Li Min blew air into a balloon.



The balloon became bigger because air _____.

(1) occupies space.
(2) has a fixed mass.
(3) has no definite shape.
(4) does not have definite volume.

6 Susan took a glass of cold fruit juice from the refrigerator and drank it. She immediately filled the same empty glass with hot boiling water. She observed cracks in the inner side of the glass after she had poured the boiling water into the glass.



Which of the following explains why the thick glass cracked?

(1) Heat caused the air inside the glass to expand.
(2) The inner side of the glass expanded faster than the outer side of the glass.
(3) The outer side of the glass expanded faster than the inner side of the glass.
(4) The outer side of the glass contracted slower than the inner side of the glass.

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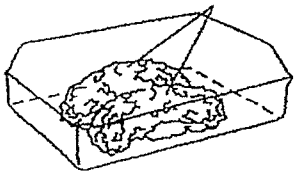
7 Hot fried bananas are placed in a paper box Q.

hot fried bananas



Paper box Q

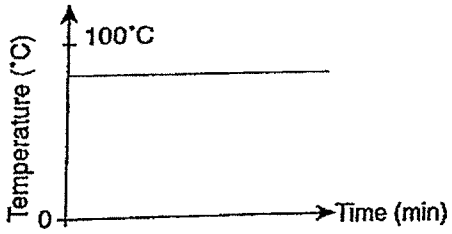
Which of the following steps will cause the bananas to cool down faster?

A Replace the paper box with a metal box.
B Replace the paper box with a glass box.
C Poke holes on the lid of box Q.
D Wrap the bananas before packing them in the box.

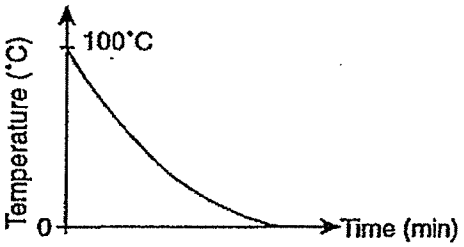
(1) A and C only
(2) A and D only
(3) B and C only
(4) B and D only

8 A bowl of hot soup was left in a room for 40 minutes. Which one of the graphs represents the changes in temperature that took place in the bowl of hot soup?

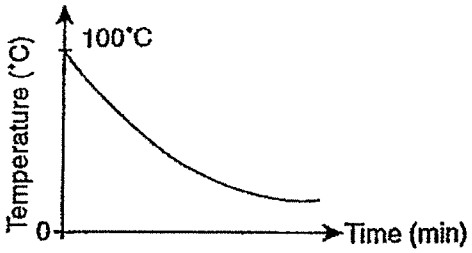
(1)



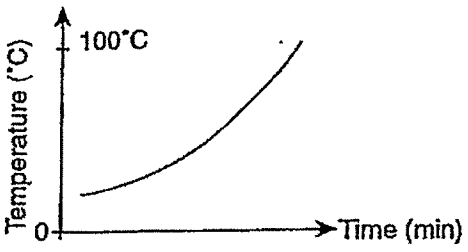
(2)



(3)



(4)



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9 Gerald pasted a sticker on his car. Some air bubbles were trapped under the sticker as shown in Diagram 1.

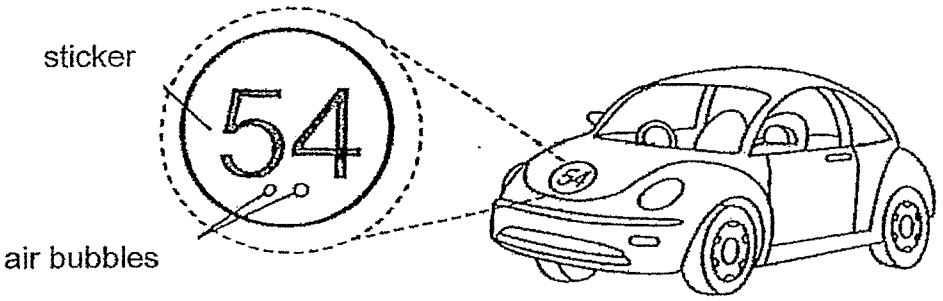

Diagram 1

The car was parked under the sun and a few days later, the air bubbles became larger as shown in Diagram 2.

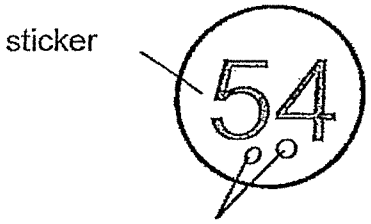

Diagram 2

Which of the following explains why the air bubbles became larger?

(1) More air entered the sticker.
(2) Air expands when heated.
(3) The sticker became larger.
(4) Air contracts when heated.

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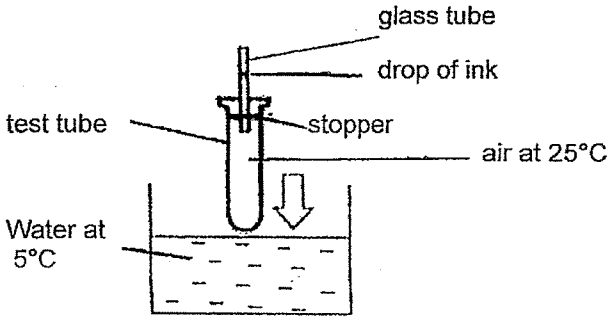
Section B

For questions 10 to 12, write your answers in the space provided. [12 marks]

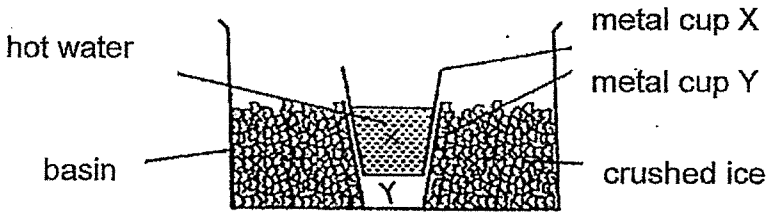
10 Lisa placed set-up X in the classroom. The temperature of the air was 25°C.



set-up X

(a) What would Lisa observe about the drop of ink when the test-tube is placed in the basin of water? Explain why. [2]

Lisa tried to separate two metal cups that are stuck together. She prepared the set-up shown below.



(b) Lisa's brother told her that her set-up would not work. Using the same apparatus, describe what should Lisa change in her set-up to separate the metal cups? [1]

(c) Explain your answer in (b). [1]

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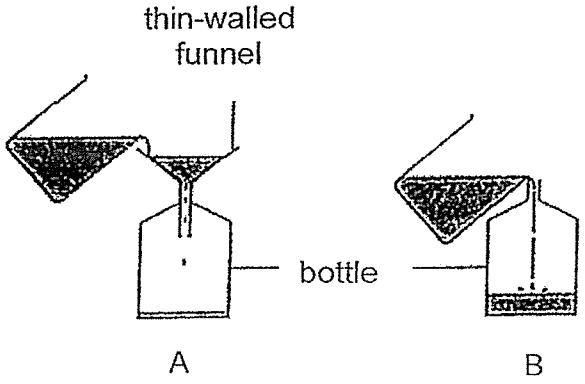
11 Meng poured oil into two similar bottles using two set-ups, A and B, as shown in the diagram below.

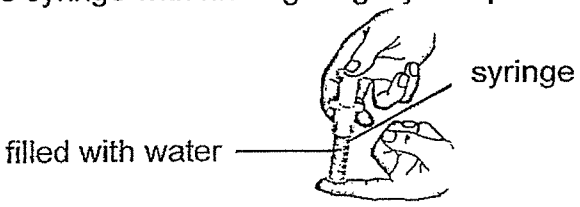


Meng noticed that the bottle in set-up B filled up faster than that in set-up A.

(a) Explain why the bottle in set-up B always filled up faster than that in set-up A. [1]

(b) Based on your answer in (a) and using the same apparatus, suggest how he could improve the set-up A so that the bottle would fill up more quickly? [1]

Meng took out a syringe filled with water. He then covered the nozzle of the syringe with his finger tightly and pushed the plunger with the other hand.



(c) Was Meng able to push the plunger inwards when the syringe is completely filled with water? Explain your answer. [1]

3

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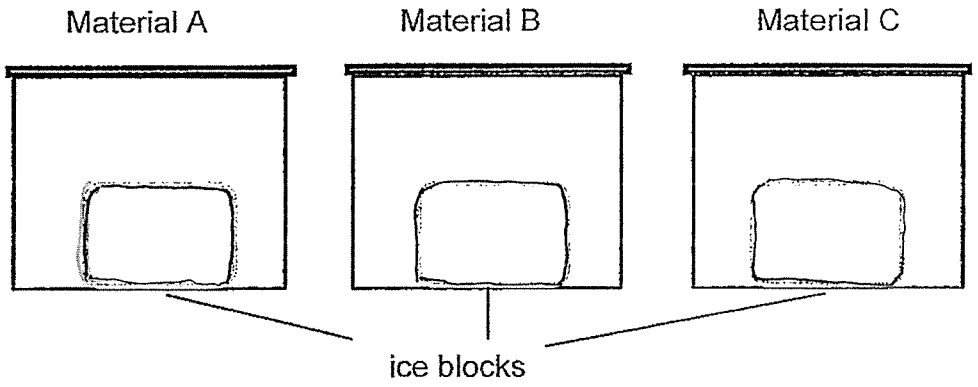
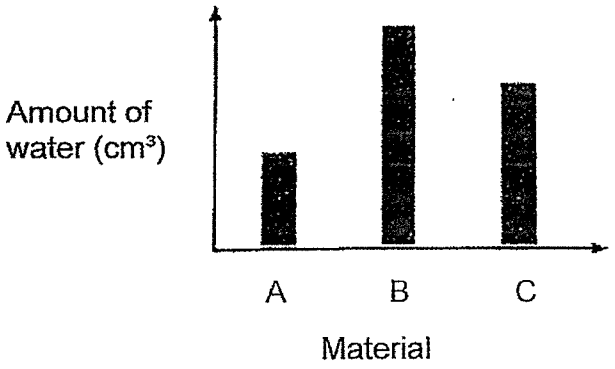
12 Amy wanted to find out find out which of the three types of materials, A, B and C, is most effective to slow down the melting of ice. She placed a block of ice in each of the three boxes and left them in a room as shown below. Each box is made of a different type of material.



(a) What is the change of state when ice melts? [1]

(b) State a variable that must be kept the same in the experiment. [1]

The graph below shows the amount of water collected in each box after some time.



(c) Based on the results in the experiment, which material A, B or C would be most suitable to keep a bowl of soup hot for the longest time? Explain your answer. [2]

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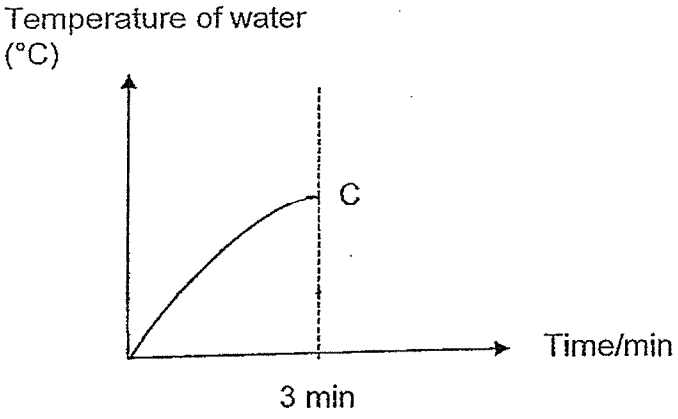
Amy measured the temperature of water in the three boxes immediately after all the ice has completely melted. The graph below shows the changes in the temperature of water in the box made of material C over 3 minutes.

(d) Draw in the graph below to show the change in temperature of water in box made of material B. [1]



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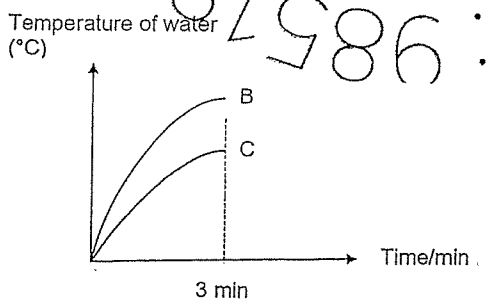
Methodist Girls' School (Primary)
2024 P4 Science WA3 Suggested Answers

Section A:

1.	1	3.	3	5.	1	7.	1	9.	2
2.	3	4.	1	6.	2	8.	3		

Section B:

10a	The drop of ink will move downwards as the air in the test tube will lose heat to the cold water and contract.
10b	Pour the crushed ice in the metal cup X and hot water in the basin.
10c	Metal cup X will lose heat to ice and contract and Metal cup Y will gain heat from hot water and expand.
11a	In set-up B, air is able to escape from the opening for water to enter to take its space in the bottle.
11b	Tilt the funnel.
11c	No. The plunger cannot be pushed further. Water cannot be compressed. / Water has a definite volume.
12a	From solid to liquid.
12b	Size of the box / size of the ice block Location of experiment / Surrounding temperature
12c	Material A. Material A has the least amount of water collected so it would allow heat from the hot soup to flow through the slowest to the surrounding air.
12d	

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