Nan Hua Primary School
Primary 4 Science
Term 3 Weighted Assessment 2021

Marks	
Section A:	/10
Section B:	/10
Total:	**/20**

Name: _____ ( )

Class: Primary 4/_____

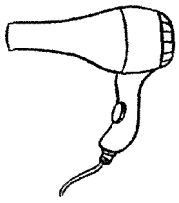
Date: _____

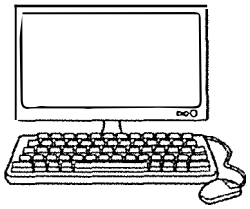
Duration: 30 minutes

Answer <u>all</u> questions.

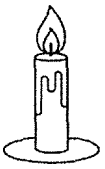
Section A: (5 x 2 marks = 10 marks)
For each question from 1 to 5, four options are given. One of them is the correct answer.
Make your choice (1, 2, 3 or 4) and write your answer in the brackets provided.

1 Which of the following is **not** a source of heat energy?

(1) 
hair dryer (switched on)

(2) 
computer (switched on)

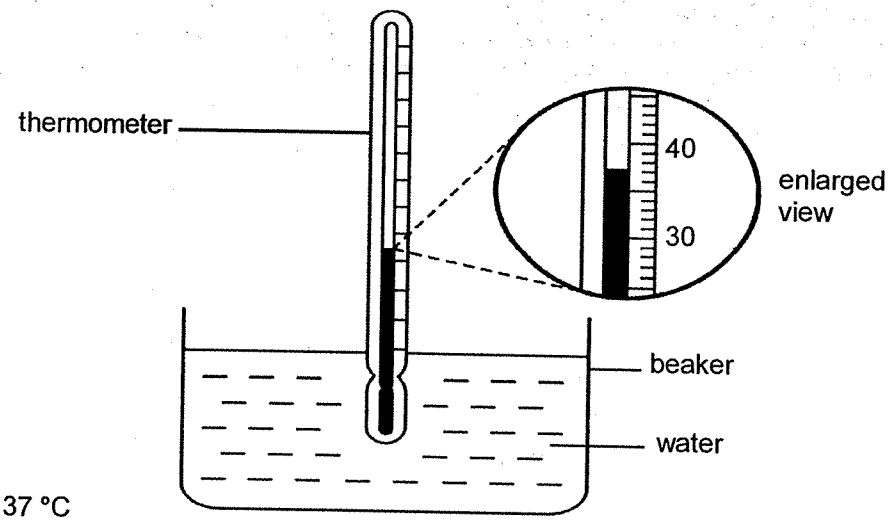
(3) 
jacket

(4) 
lit candle

( )

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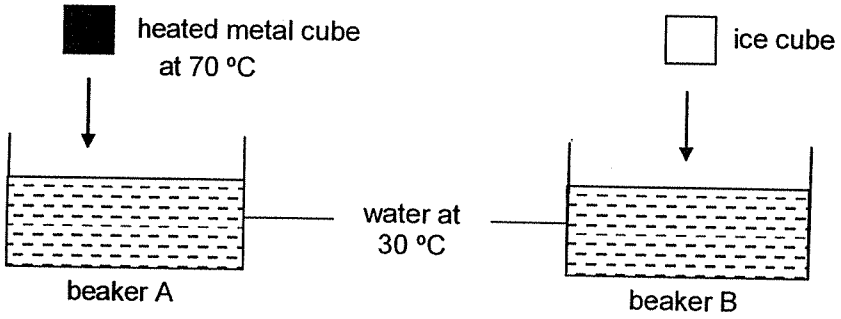
2 What is the temperature of the water shown in the thermometer below?



(1) 37 °C
(2) 39 °C
(3) 40 °C
(4) 43 °C

( )

3 A heated metal cube and an ice cube of the same size were put separately into two beakers of water at 30 °C at the same time as shown below.



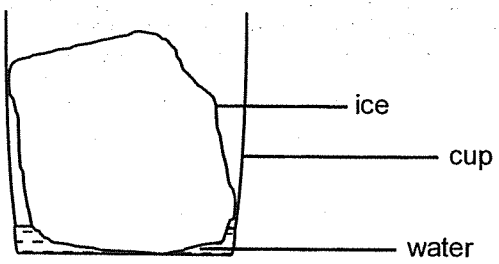
Which of the following shows the correct change in temperature of the water in the beakers after the heated metal cube and ice cube were put in?

	temperature of water in beaker A	temperature of water in beaker B
(1)	increased	increased
(2)	increased	decreased
(3)	decreased	increased
(4)	decreased	decreased

( )

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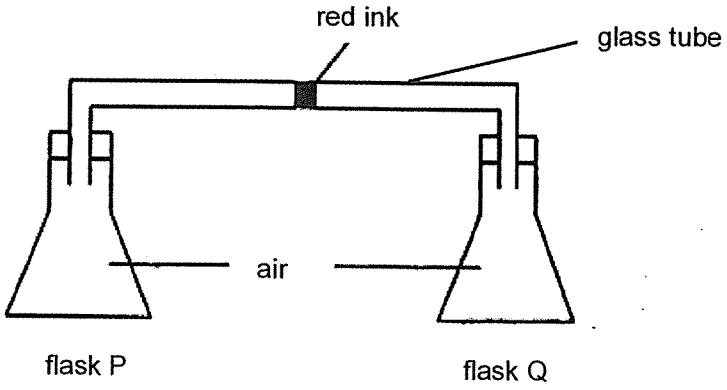
4 A block of ice was placed in an empty cup and left on the table.



Which of the following statements is correct?

(1) The temperature of the block of ice is 0°C.
(2) The temperature of the block of ice is 100°C.
(3) The water is gaining heat from the ice.
(4) The ice is losing heat to the surroundings. ( )

5 In the set up below, a drop of red ink is placed in the middle of a glass tube connecting two similar flasks, flask P and flask Q.



Which of the following set-ups will make the drop of red ink move nearer to flask P?

	put flask P in a basin of	**put flask Q in a basin of**
(1)	iced water	iced water
(2)	iced water	hot water at 95°C
(3)	hot water at 95°C	iced water
(4)	hot water at 95°C	hot water at 95°C

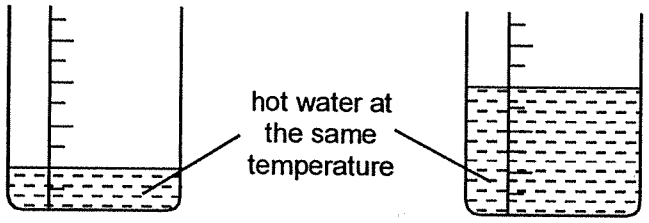
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Section B: Structured questions (10m)

For questions 6 to 8, write your answers in the space provided. The number of marks available is shown in brackets [ ] at the end of each question or part question.

6 Mrs Chan prepared two beakers, X and Y, each containing a different amount of hot water at the same temperature.



She placed an egg of the same size into each beaker at the same time. After 10 minutes, she observed that one egg was more cooked in one beaker than the other.

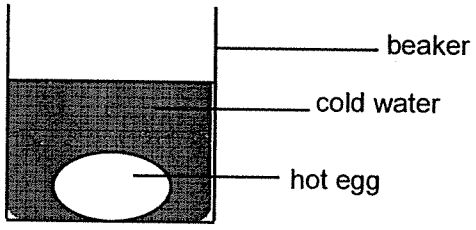
(a) In which beaker, X or Y, was the egg more cooked? Explain your answer. [2]

_____

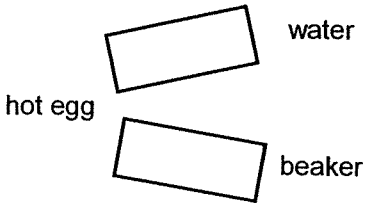
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(b) Mrs Chan then placed another hot boiled egg in a beaker of cold water as shown in the diagram below.



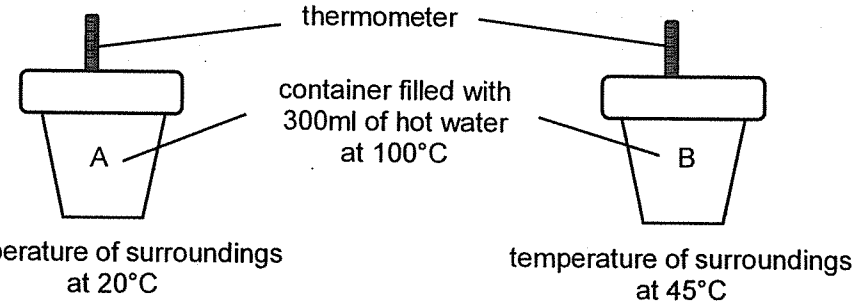
Draw 2 arrows in the boxes below to show the direction of heat flow in the beaker. [1]



Score	3

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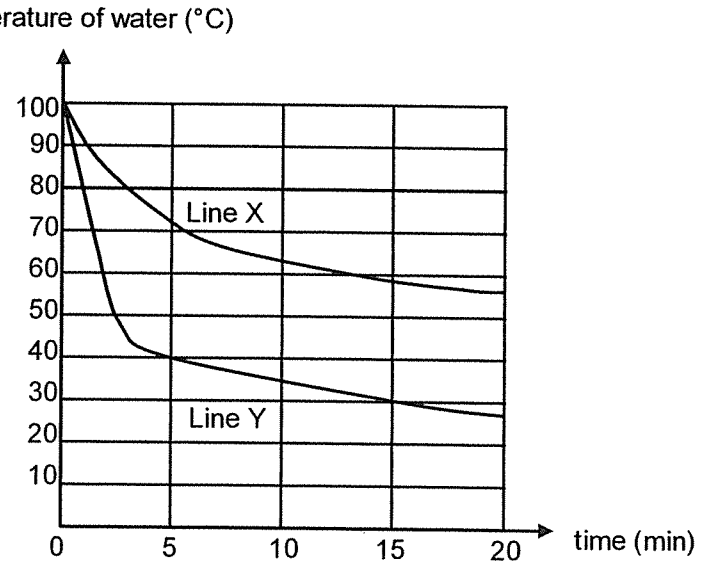
7 James wanted to find out whether the temperature of the surroundings affects how fast heat is lost from the water in the container to the surroundings.
He prepared two containers, A and B, with the same amount of water and placed them at two places as shown below.



(a) Tick (✓) the variable(s) that James must keep the same to ensure a fair test. [1]

Variable	Put a tick (✓)
the size of the container	
the material of the container	
the temperature of the surroundings	

James then recorded the results of his experiment in the graph shown below.



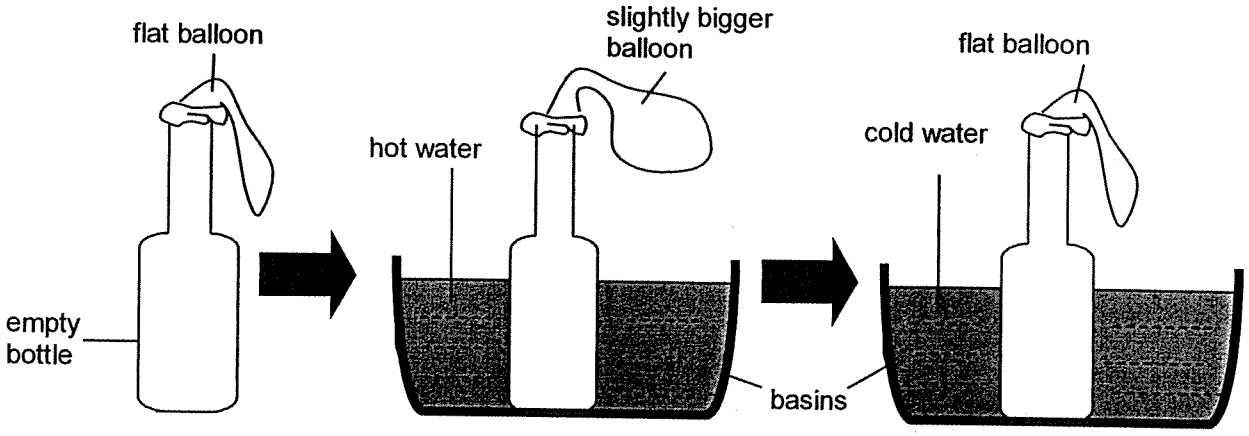
(b) Which line, X or Y, represents the temperature of water in container B? Give a reason for your answer. [2]

Score 3

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8 Ken placed a balloon over the mouth of an empty bottle as shown below. Next, he put the bottle in a basin of hot water. The balloon became slightly bigger after some time.

Next, Ken put the bottle in a basin of cold water. The balloon became smaller and was flat after a while as shown below.



(a) Explain why the balloon became bigger when the bottle was placed in hot water. [1]

_____

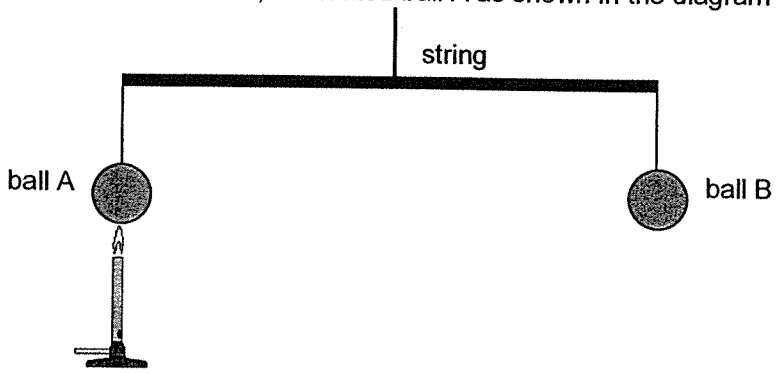
_____

(b) Explain why the balloon became flat when the bottle was placed in cold water. [1]

_____

_____

(c) In the next experiment, Ken hung two identical metal balls, A and B, on a rod such that the rod was balanced. Then, he heated ball A as shown in the diagram below.



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Ken predicted that the balance will tilt with ball A moving upwards after ball A was heated. Do you agree with him? Explain your answer in terms of the volume and mass of ball A. [2]

_____

_____

_____

End of paper

Score	/ 4

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NHPS
P4 Science WA3 ANSWERS

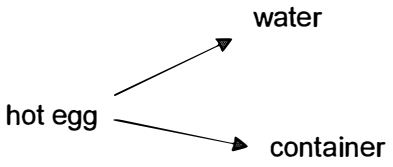
Section A

1.	**3**
2.	**1**
3.	**2**
4.	**1**
5.	**2**

Section B

6a Y. There is **more hot water** in beaker Y which has **more heat** to cook the egg more quickly.

6b



7a

the size of the container	✓
the material of the container	✓
the temperature of the surroundings	

7b **Line X.**

From the graph, the temperature of water (for line X) at the end of the experiment is **higher**.

Thus, the water in container B **loses heat more slowly** than the water in container A.

8a The **air in the bottle expanded** as it **gained heat from** the hot water.

8b The **air in the** bottle/balloon **contracted** when **it loses heat to** the cold water.

8c No. The balance will not tilt with ball A moving upwards. When Ball A is heated, it **expanded/ increased its volume** while its **mass remained the same.**

1

END

water

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