



Nan Hua Primary School
Primary 6 Science
Term 1 Non-weighted Assessment 2023

Marks	
Section A:	/28
Section B:	/22
Total:	/50

Name: _____ ()

Class: Primary 6S _____

Date: _____

Duration: 1 hour

Parent's Signature

Answer all questions.

Section A: (14 x 2 marks = 28 marks)

For each question from 1 to 14, 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 bracket provided.

1 Which statement(s) about photosynthesis is/are correct?

- A Plants cannot photosynthesise at night even when there is light.
- B Plants convert light energy to potential energy through photosynthesis.
- C The rate of photosynthesis in plants increases with greater amount of light.

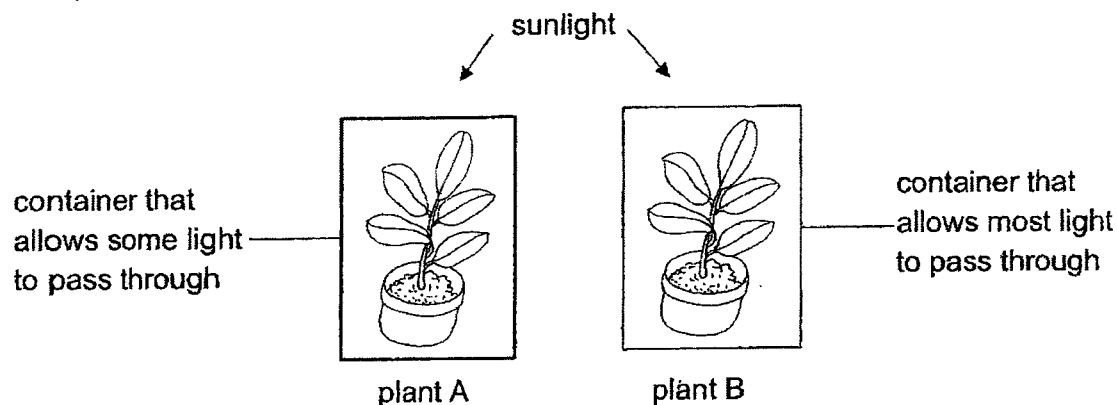
- (1) A only
- (2) B only
- (3) B and C only
- (4) A, B and C

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This booklet consists of 17 printed pages.

- 2 Mary placed two similar plants, A and B, at the same location in two different containers and gave both plants the same amount of water. After a few hours, she plucked a leaf from each plant to test for starch.

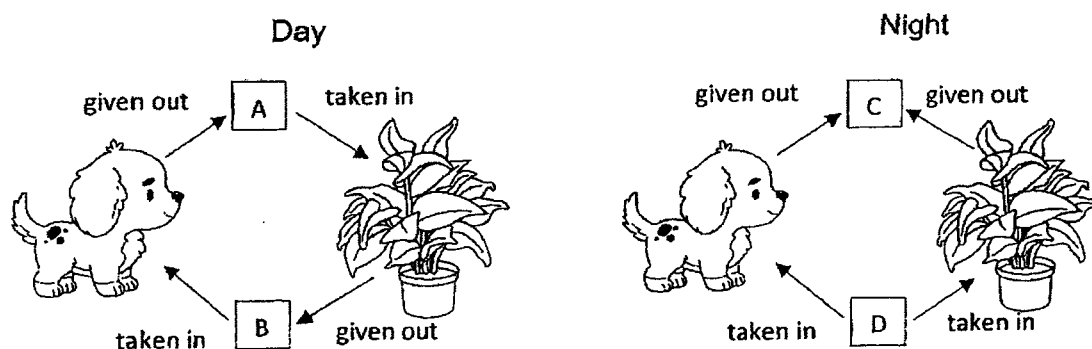


What is the aim of Mary's experiment ?

- (1) She wanted to find out if plants need food to survive.
- (2) She wanted to find out if plants need water to survive.
- (3) She wanted to find out if the amount of light affects the rate of photosynthesis.
- (4) She wanted to find out if the presence of light affects the rate of photosynthesis.

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- 3 The diagrams show the gases A, B, C and D, taken in and given out during the day and night by two living things below for survival.

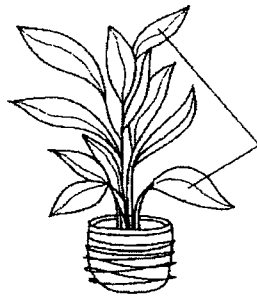


Which letters represent carbon dioxide?

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

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- 4 Tom applied a clear layer of oil on both the upper side and underside of all the leaves of a potted plant as shown in the diagram below. He then placed the plant in a garden and watered it daily.



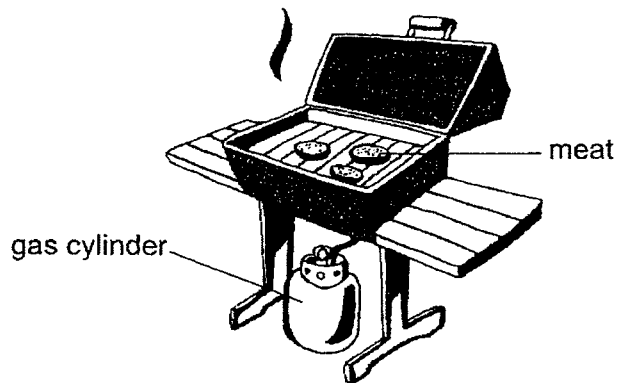
Both upper side and underside of all the leaves are coated with clear oil.

After a week, the plant wilted because the leaves cannot _____.

- (1) trap sunlight for photosynthesis
- (2) take in water for photosynthesis
- (3) take in oxygen for photosynthesis
- (4) take in carbon dioxide for photosynthesis

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- 5 The gas in the gas cylinder was burned to produce fire to cook the meat on the stove.



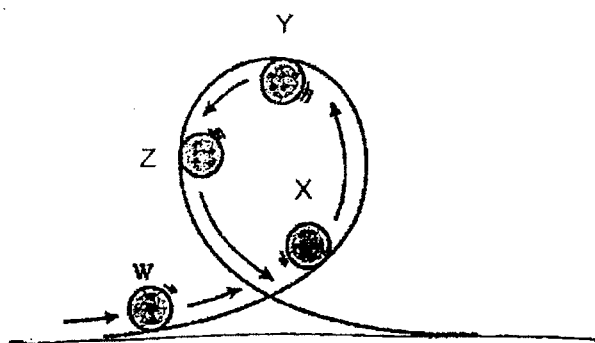
Which energy possessed by the gas is converted to heat energy of the fire?

- (1) heat energy
- (2) sound energy
- (3) kinetic energy
- (4) potential energy

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- 6 Study the diagram below which shows a ball travelling along a circular track. W, X, Y and Z are four positions along the track.



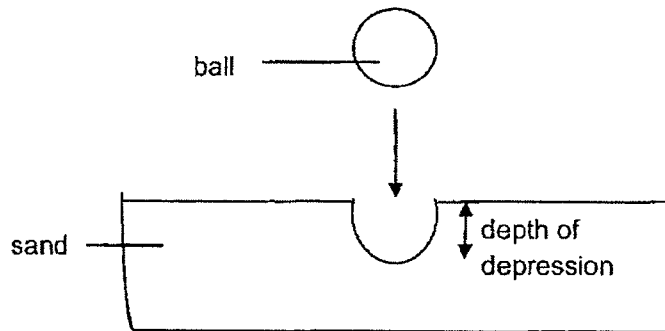
Which of the following statements is correct?

- (1) The ball has the least kinetic energy at W.
- (2) The total energy of the ball at Y is less than that at Z.
- (3) The ball has more potential energy than kinetic energy at Y.
- (4) At X, kinetic energy is increasing while potential energy is decreasing.

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- 7 Joel dropped four identical balls, A, B, C and D, into a tray of sand from different heights.



He then measured and recorded the depth of the depression made by the balls in the table below.

Ball	Depth of depression (mm)
A	8
B	4
C	15
D	10

Which one of the balls was dropped from the lowest height above the sand?

- (1) A
- (2) B
- (3) C
- (4) D

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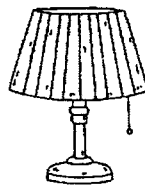
- 8 Which of the following is a source of light?

(1)



the moon

(2)



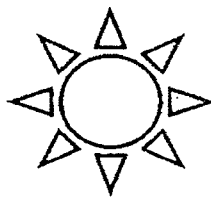
a lamp (switched off)

(3)



a mirror

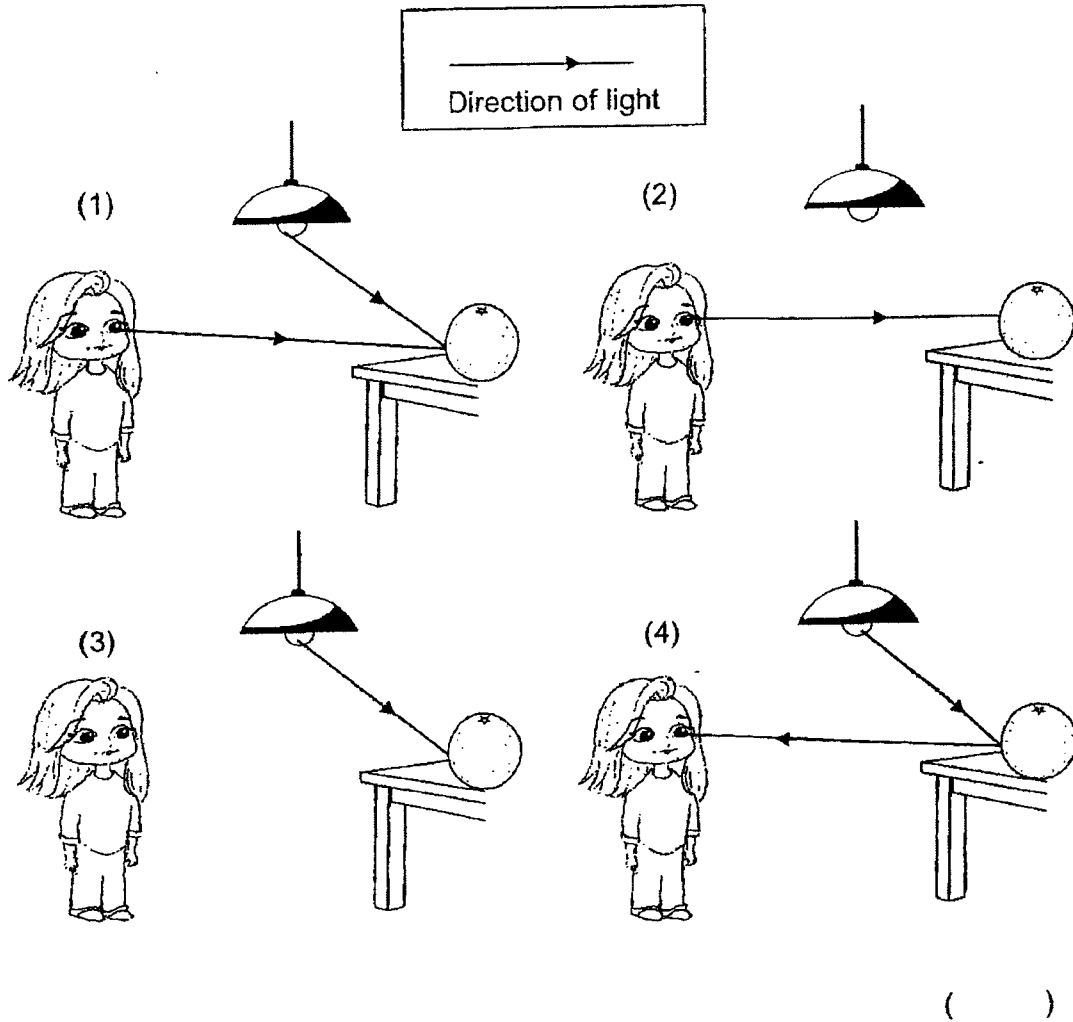
(4)



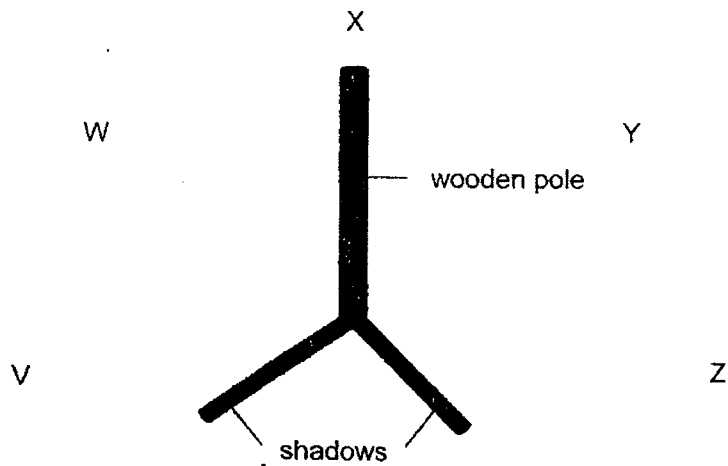
the sun

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- 9 Which diagram below shows the correct path of light that enabled Suzy to see the fruit?



- 10 Study the diagram below.



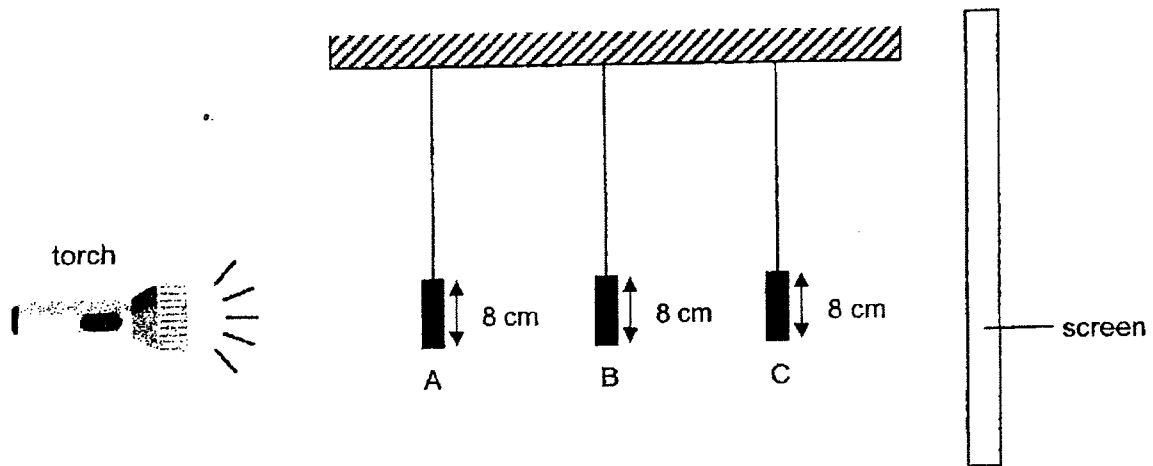
Two shadows of the wooden pole are formed. Which of the following statements provides the best explanation for the above observation?

- (1) The pole allows some light to pass through.
- (2) There are two light sources both positioned at X.
- (3) There are two light sources positioned at V and Z.
- (4) There are two light sources positioned at W and Y.

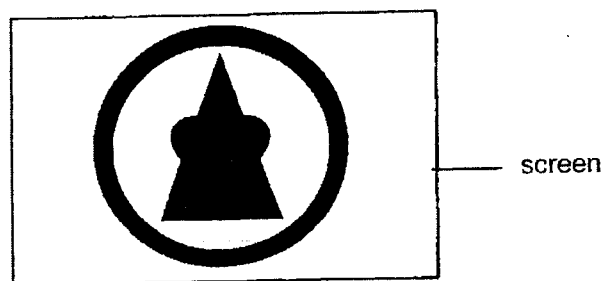
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- 11 The set-up below shows light shining on three hanging cardboard objects, A, B and C. They are placed at different distances from the torch as shown below.



The diagram below shows the shadow of the objects seen on the screen.



Which of the following represents correctly shapes A, B and C respectively?

	A	B	C
(1)	♥	▲	○
(2)	▲	♥	○
(3)	○	▲	♥
(4)	○	♥	▲

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12 What does the temperature of an object measure?

- (1) It measures the amount of ~~heat~~, an object has.
- (2) It measures the degree of hotness of an object.
- (3) It measures ~~how fast heat flows~~, from one object to another.
- (4) It measures how coldness flows from one object to another.

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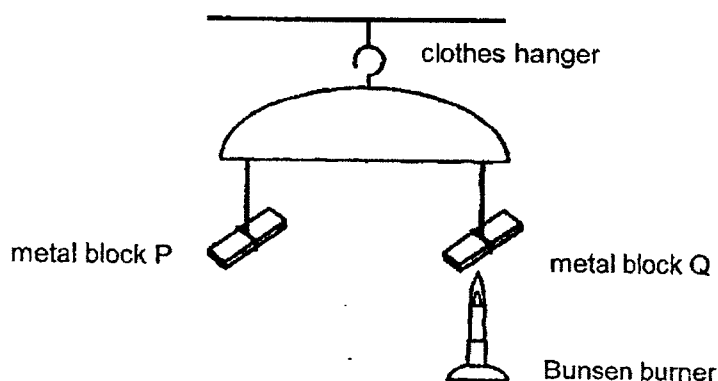
13 A metal ruler and a wooden ruler are placed in an air-conditioned room. The metal ruler feels colder when touched compared to the wooden ruler after some time.

Which of the following statements is true?

- (1) Metal is a better conductor of heat than wood.
- (2) Metal is a poorer conductor of heat than wood.
- (3) The metal ruler has a lower temperature than the wooden ruler.
- (4) The metal ruler has a higher temperature than the wooden ruler.

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14 A cloth hanger is balanced with two identical metal blocks hang one at each end as shown in the diagram below.



What will happen when metal block Q is heated?

- A Metal block Q will expand.
- B Metal block Q will become warmer.
- C The clothes hanger will tilt towards the metal block Q.

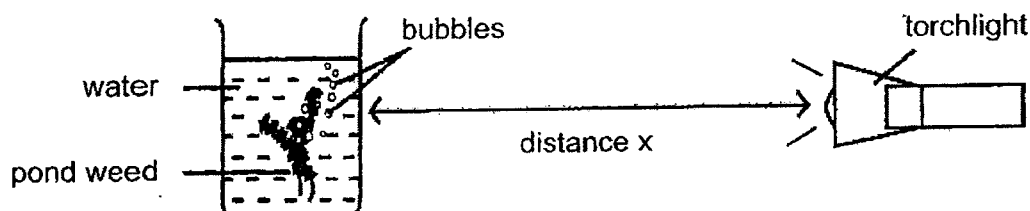
- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

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Section B: Structured questions (22m)

For questions 15 to 20, 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.

- 15 Tom set up an experiment in a dark room as shown below. He kept all the variables constant and repeated the experiment with different distance x .

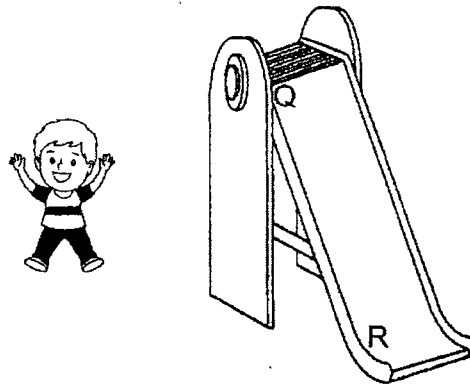


- (a) After 30 minutes, there were bubbles produced by the pond weed. Name the gas in the bubbles. [1]
- _____
- (b) What could Tom do to distance x to increase the number of bubbles in the beaker? [1]
- _____
- (c) Explain your answer given in part (b). [1]
- _____
- _____
- (d) How can Tom increase the reliability of the results obtained? [1]
- _____

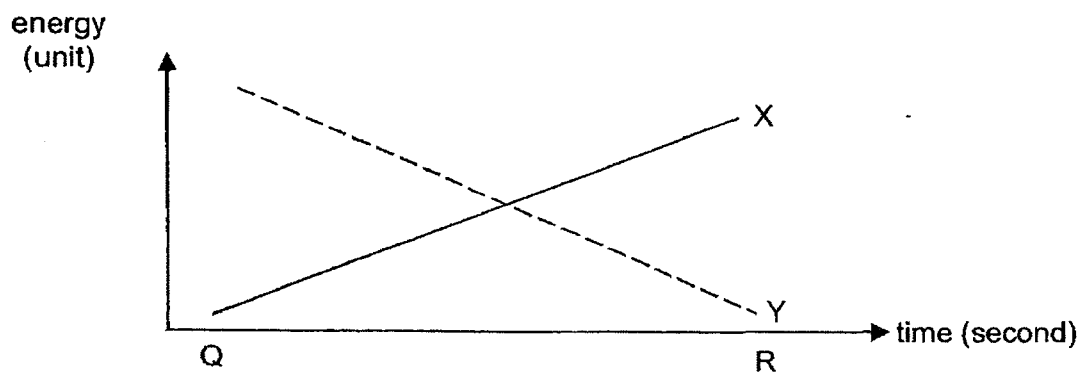
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Score	4
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- 16 Sid climbed up a slide and slid down from point Q to R.



The graph below shows how energy changed. X and Y represent different forms of energy possessed by Sid as he was sliding down the slide from point Q to R.

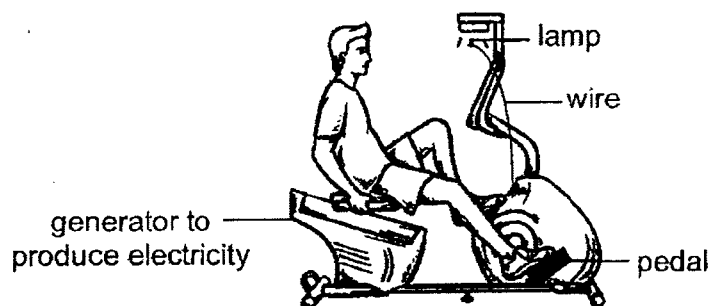


- (a) Fill in the blanks with the correct forms of energy. [2]
- (i) X: _____ energy
- (ii) Y: _____ energy
- (b) Name the form of energy when Sid landed with a loud thud at point R. [1]

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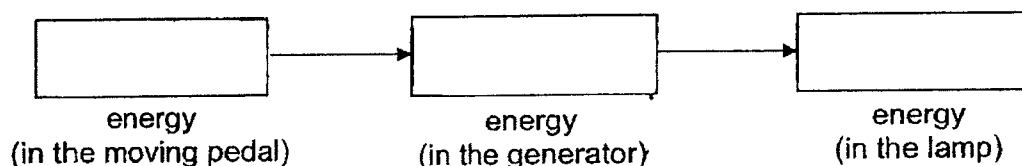
Score	
	3

- 17 John carried out an investigation by pedalling on a stationary bicycle at night to light up a lamp for reading. He then recorded his results in the table as shown below.



Number of times John pedalled on the bicycle per minute	Brightness of the lamp
20	dim
40	bright
55	brightest

- (a) Fill in the boxes to show the energy conversion as John pedalled the bicycle to light up the lamp. [1]



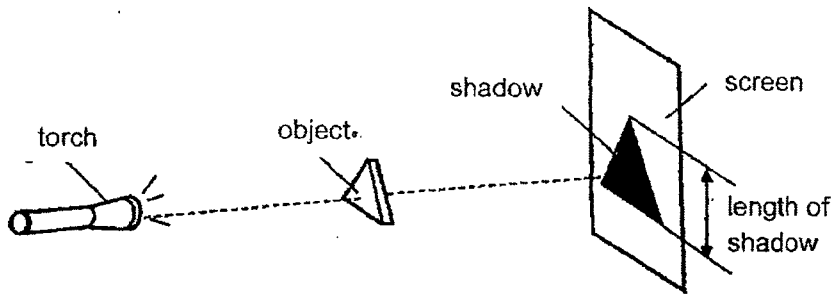
- (b) Based on the table of results, how was the brightness of the lamp affected when the number of times John pedalled on the bicycle per minute increased? [1]

- (c) Explain, in terms of energy conversion, your answer given in **part (b)**. [2]

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Score	4
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- 18 Sunarti used the set-up below to conduct an experiment.



She changed the position of the torch in the set-up and recorded her observations as shown in the table below.

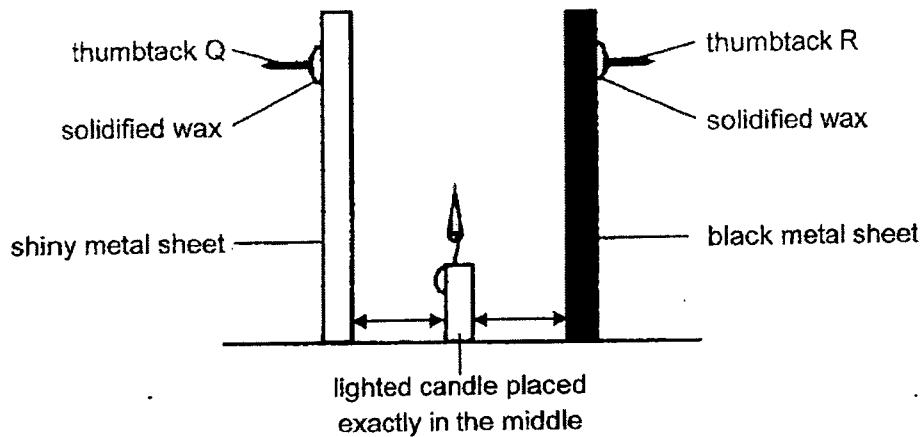
Attempt	Length of shadow (cm)
1 st	5
2 nd	8
3 rd	12
4 th	16

- (a) How is the shadow formed? [1]
- _____
- _____
- (b) Based on the results, how was the position of the torch changed after each attempt? [1]
- _____
- _____
- (c) Using the ~~same set-up~~ and ~~without moving the screen and the torch~~, describe how Sunarti could decrease the length of the shadow formed on the screen. [1]
- _____
- _____

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Score	3
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- 19 Calvin conducted an experiment with two sheets of the same metal and size. One metal sheet had a shiny surface while the other was painted black. A thumbtack was stuck on each metal sheet using wax at the same height. A lighted candle was then placed between the sheets as shown below.



Calvin observed that thumbtack R dropped before thumbtack Q.

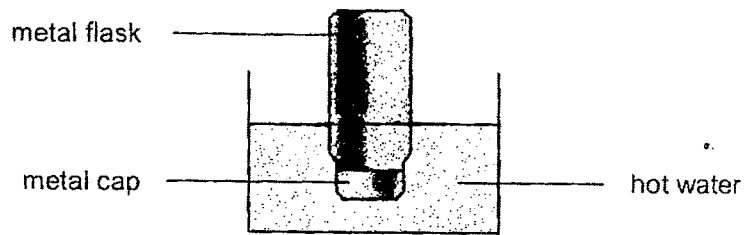
- (a) What could Calvin conclude from this observation? Explain your answer. [1]

- (b) Explain why it is important for the two metal sheets to be placed at equal distances from the candle flame. [1]

- (c) Explain why it is important for the two metal sheets to be of the same thickness to ensure a fair test. [1]

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- (d) A metal cap was fitted tightly onto a metal flask. Calvin wanted to remove the cap from the flask easily by placing the cap in a basin of hot water as shown.

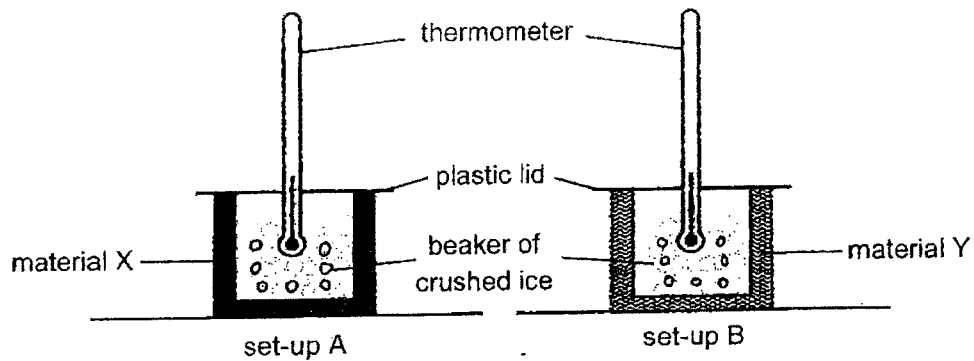


Explain why the cap could not be removed easily from the flask. [1]

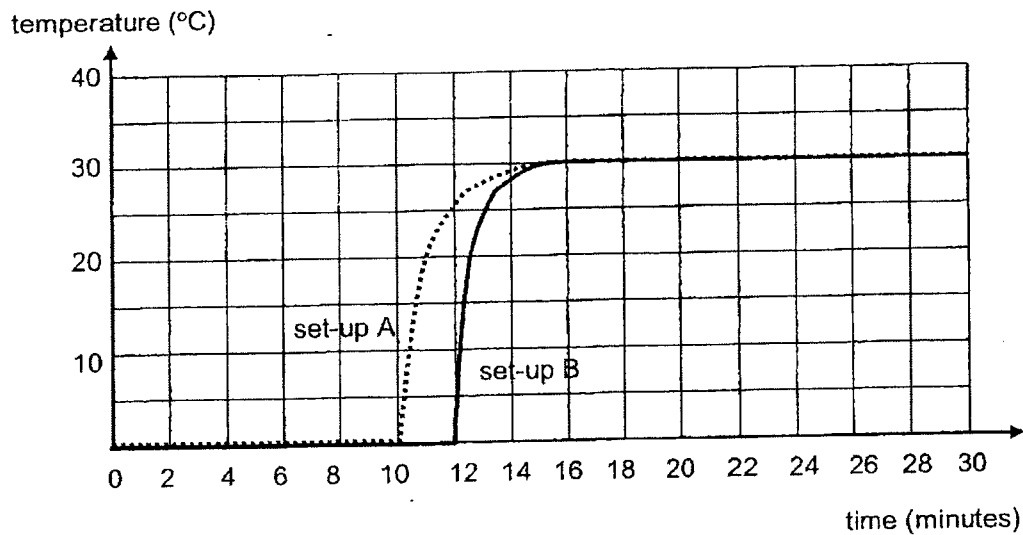
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Score	
	4

- 20 Jann conducted an experiment using set-ups A and B as shown below. She wrapped a beaker with material X and another identical beaker with material Y. She filled both beakers with the same amount of crushed ice.



Jann measured the temperature of the crushed ice in the beakers every two minutes. The results are shown below.



- (a) Based on the graph, state the room temperature where the experiment was conducted. [1]

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- (b) Based on the graph, which material, X or Y, would be more suitable to keep a cold drink cooler for a longer time? Explain your answer. [2]

- (c) With reference to the graph for set-up A, explain why it will be more accurate to record the temperature every minute after the first 10 minutes of the experiment.[1]

Score	
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~ End of Paper ~

NAN HUA PRIMARY SCHOOL
NWA1 2023
PRIMARY SIX SCIENCE
Pupils' Answer Key

Section A (14x2) = 28marks

Qns	Ans	Qns	Ans
1	3	8	4
2	3	9	4
3	1	10	4
4	4	11	3
5	4	12	2
6	3	13	1
7	2	14	1

Section B (22 marks)

Qns	Answer
15(a)	Oxygen
15(b)	decrease distance x
15(c)	There will be more light to increase the rate of photosynthesis and more bubbles will be produced.
15(d)	Repeat the experiment and take average
16 (a)	(i) kinetic (ii) potential
16 (b)	Sound energy
17 (a)	Kinetic $\longrightarrow$ electrical $\longrightarrow$ light
17 (b)	The brightness increased.

17 (c)	More kinetic ^{energy} of the leg pedaling will be transferred to more kinetic energy of the moving pedal which will be converted to more electrical energy of the generator which in turn will be converted to more light energy of the lamp.
18 (a)	A shadow is formed when light is blocked by an object.
18 (b)	The torch was moved nearer/closer to the object/ screen.
18 (c)	Move the object further away from the torch. / Move the object closer towards the screen.
19 (a)	The black metal sheet absorbs more heat/ gained more heat ^{from the flame} than the shiny metal sheet causing the wax on the black metal sheet to melt first.
19 (b)	To ensure that the two surfaces receive the same amount of heat from the candle flame.
19 (c)	To ensure that the thickness of the metal sheets do not affect the rate at which the wax gains heat.
19 (d)	Both the cap and the flask were in hot water (Evidence) so they gained heat from it and expanded. (Concept) Hence, the cap did not expand more than the flask. (Link)
20 (a)	30 °C
20 (b)	Material Y. (Choice) The ice in set up B took a longer time to melt completely than the ice in set up A./ took a longer time to melt and reach room temperature compared to A. (Evidence) Ice in set up B gained heat slower from the surroundings compared to the ice in set up A, indicating that material Y is a poorer conductor of heat. (Concept)
20 (c)	The temperature of the water increased very quickly after the 10 th minute. One minute interval would allow one to measure and record more temperatures.