METHODIST GIRLS' SCHOOL

Founded in 1887

END-OF-YEAR EXAMINATION 2020
PRIMARY 4
SCIENCE

BOOKLET A

Total Time for Booklets A and B: 1 hour 30 minutes

INSTRUCTIONS TO CANDIDATES
Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answers in the Optical Answer Sheet (OAS) provided.

Name: _____( )

Class: Primary 4._____

Date : 27 October 2020

This booklet consists of 16 printed pages including this page.

For each question from 1 to 24, 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).
[48 marks]

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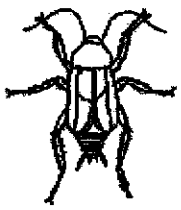
1 Which one of the animals shown below is **NOT** an insect?

(1)

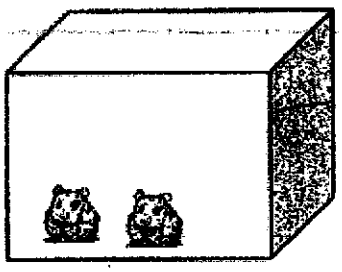


(2)

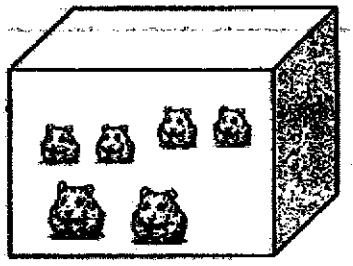
(3)

(4)

2 Karen kept 2 adult hamsters as pets in a cage. A month later, she noticed that there were 4 more baby hamsters.



Before



A month later

This shows that the hamster is a living thing because it can _____.

(1) grow
(2) breathe
(3) respond
(4) reproduce

3 The diagram below shows a young plant.

The leaf helps the plant to _____.

(1) make food
(2) grow upright
(3) absorb water
(4) absorb minerals

4 David made the following observations on the life cycle of an animal.

- There are four stages in the life cycle.
- The young does not look like the adult.

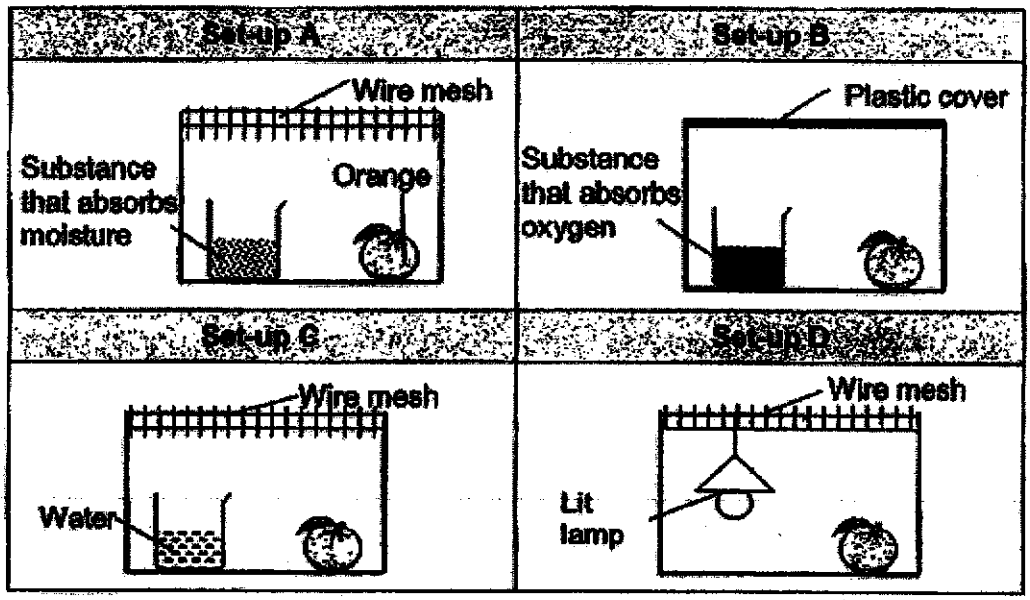
Which animal did David observe?

(1) chicken
(2) butterfly
(3) cockroach
(4) grasshopper

5 Which one of the following properties is true for both air and an ice cube?

(1) They can be seen.
(2) They take up space.
(3) They have fixed shapes.
(4) They have fixed volumes.

6 Mei placed four similar oranges in set-ups A, B, C and D at room temperature as shown below.



In which set-up, A, B, C or D would mould first appear on the orange?

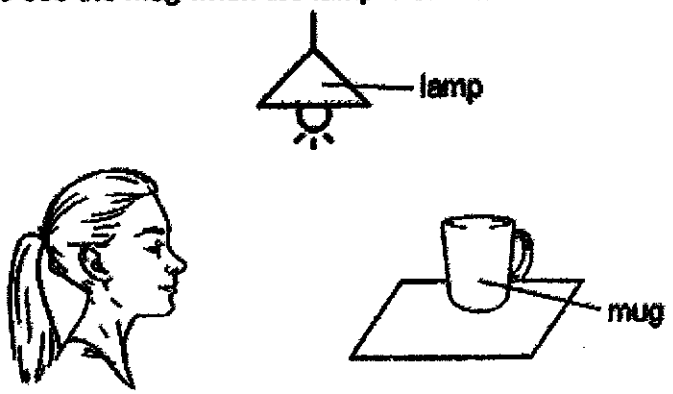
(1) Set-up A
(2) Set-up B
(3) Set-up C
(4) Set-up D

7 The diagram below shows a magnet brought near to a plastic block.

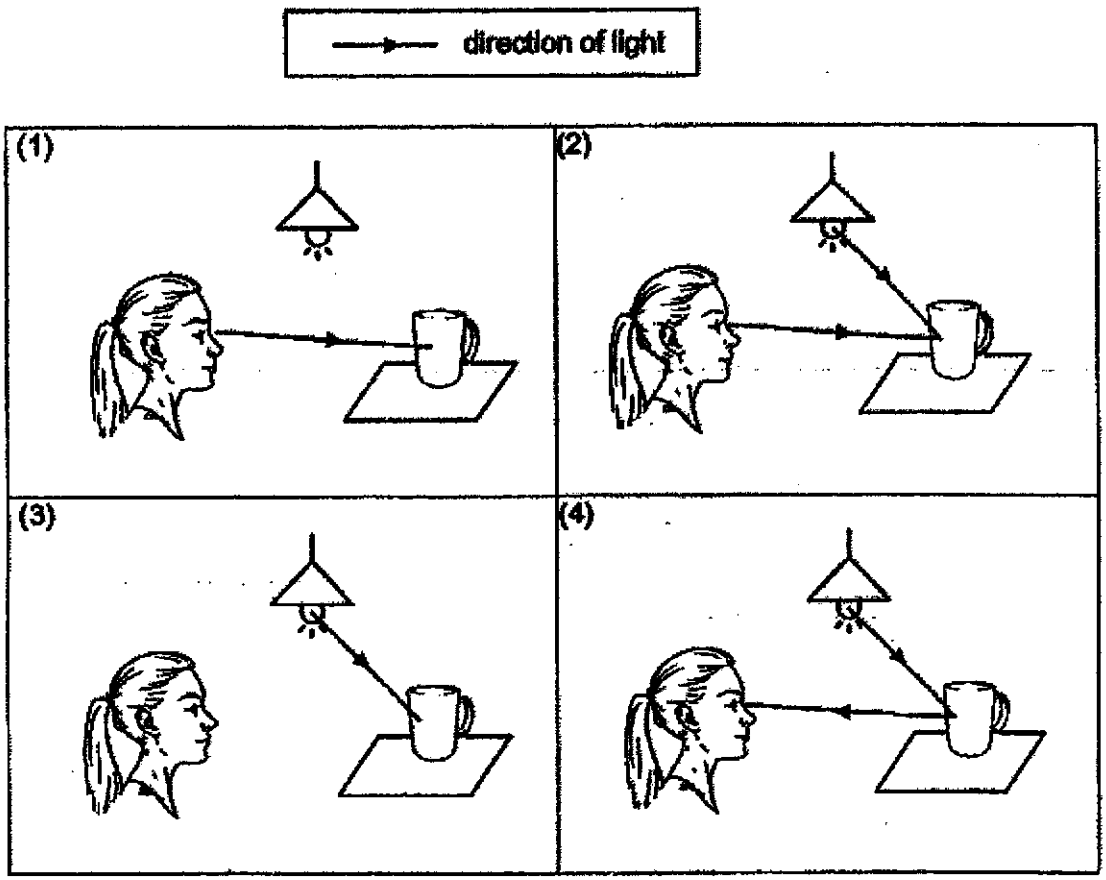
What will happen to the plastic block?

(1) It will move up.
(2) It will not move.
(3) It will move to the left.
(4) It will move to the right.

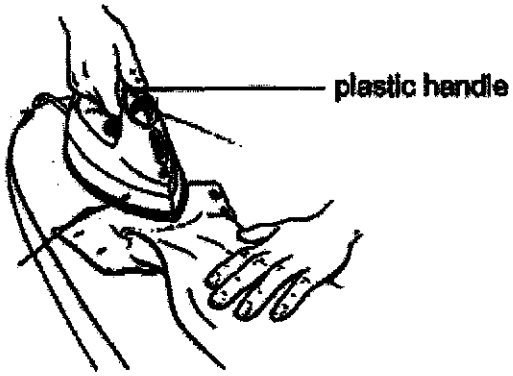
8 Diane is able to see the mug when the lamp is switched on.



Which one of the following diagrams correctly shows how light travels for Diane to see the mug?



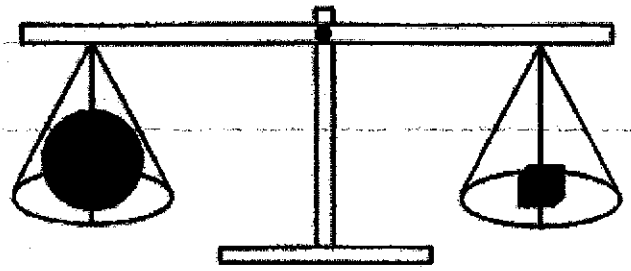
9 Nancy used an electric iron to iron her clothes as shown below.



She is able to hold the electric iron using the plastic handle because plastic is a _____.

(1) strong material
(2) flexible material
(3) poor conductor of heat
(4) good conductor of heat

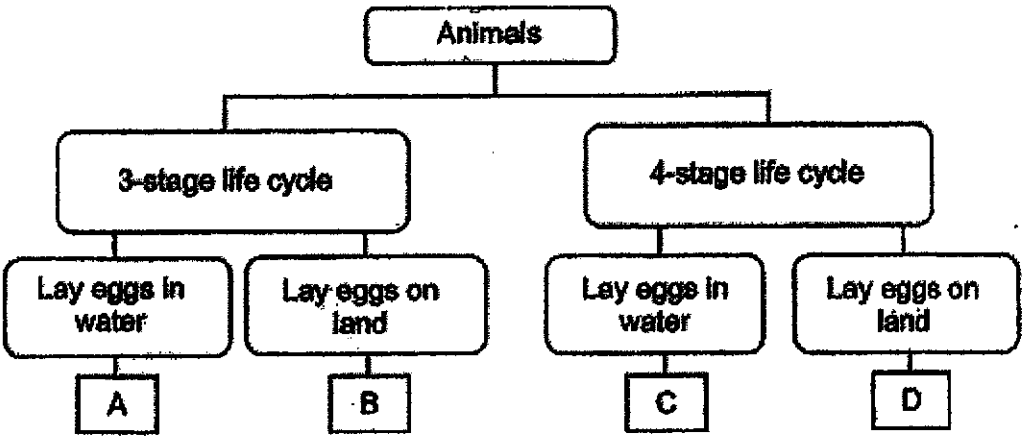
10 Study the diagram below.



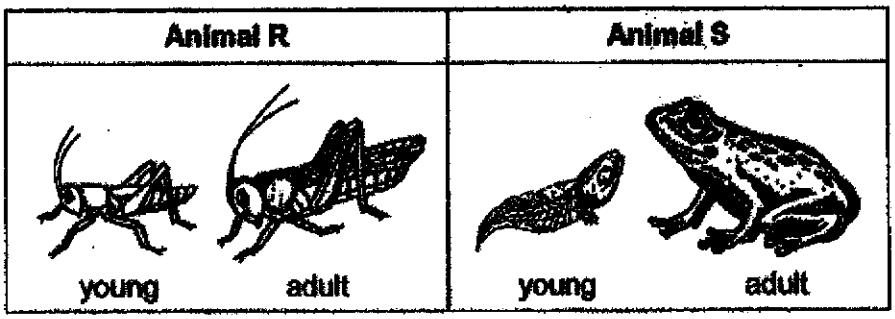
Both objects have the same _____ for the weighing scale to be balanced.

(1) size
(2) mass
(3) shape
(4) volume

11 Study the classification chart below.



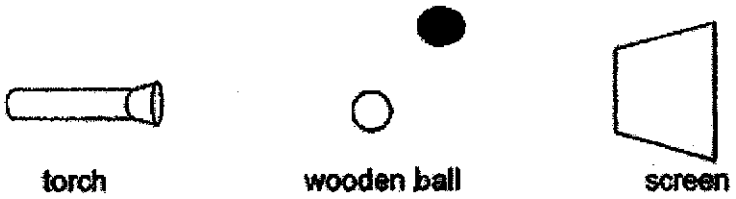
The diagram below shows animals R and S.



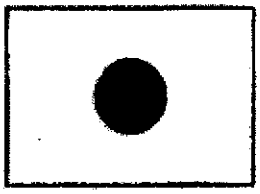
Which group, A, B, C or D, do animals R and S belong to?

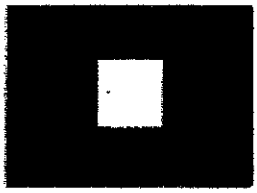
	Animal R	Animal S
(1)	A	C
(2)	B	A
(3)	C	D
(4)	D	A

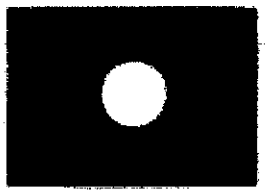
12 The set-up below shows light from a torch shining on a wooden ball.



Which shadow below is likely to be seen on the screen?

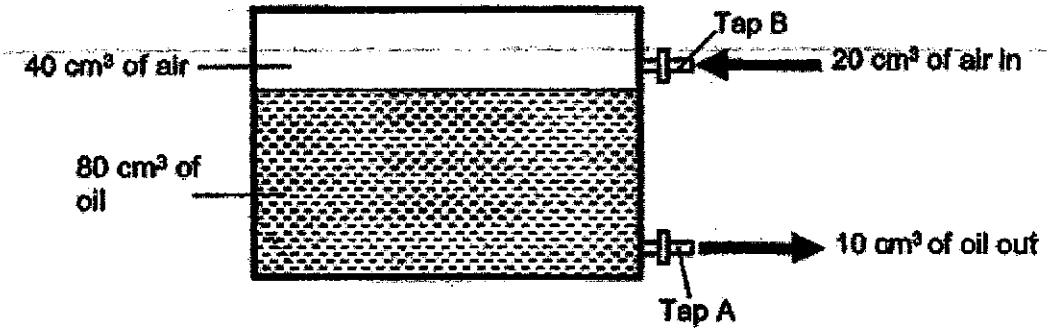
(1) 

(2) 

(3) 

(4) 

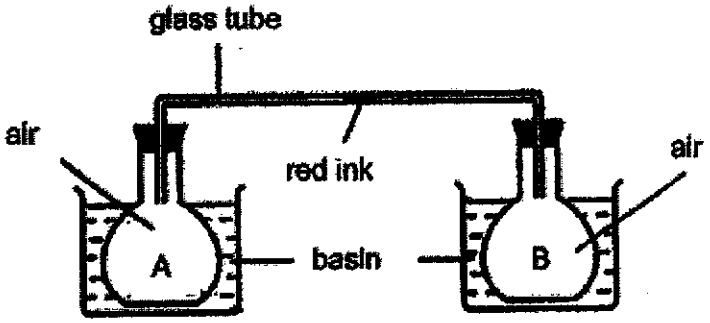
13 Alice filled up the container below with 80 cm^3 of oil and 40 cm^3 of air. She then removed 10 cm^3 of oil through Tap A and pumped in another 20 cm^3 of air through Tap B.



What is the volume of air in the container now?

(1) 30 cm^3
(2) 50 cm^3
(3) 60 cm^3
(4) 70 cm^3

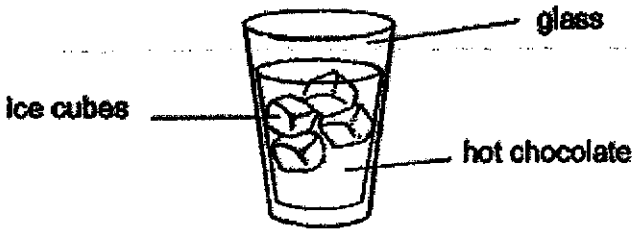
14 In the experiment below, a drop of red ink is placed in the glass tube connecting two flasks, A and B. Each flask is placed in a basin of water.



Which arrangement will make the drop of red ink move towards B the fastest?

	A is placed in a basin of	B is placed in a basin of
(1)	ice water	water at 90°C
(2)	water at 90°C	ice water
(3)	water at 90°C	water at room temperature
(4)	water at room temperature	ice water

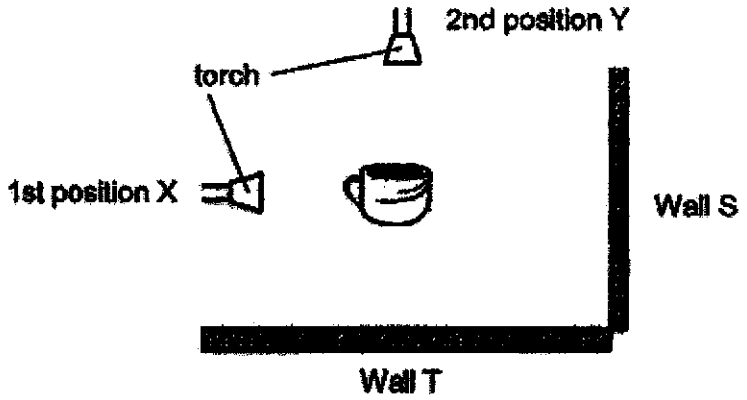
15 Tania dropped some ice cubes into a glass of hot chocolate and observed that the ice cubes started to melt.



Tania's observation showed that the _____.

(1) ice cubes had lost heat to the surroundings
(2) hot chocolate had lost heat to the ice cubes
(3) ice cubes had lost its coldness to the hot chocolate
(4) hot chocolate had gained heat from the surroundings

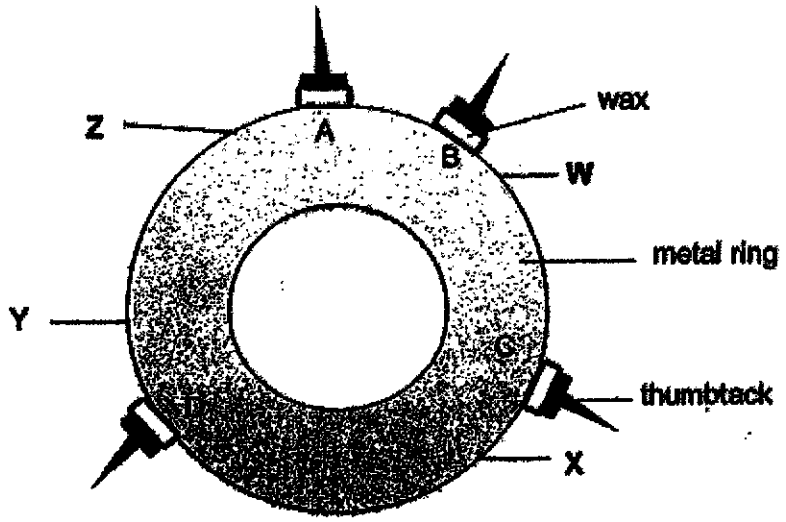
16 A cup is placed in the middle of a dark room. A torch is shone from position X first. Next, the torch is shone at position Y. The handle of the cup is facing the torch at position X. The shadows are cast onto the walls, S and T, one at a time.



Which diagram below correctly shows the shadows cast onto each wall?

	Wall S	Wall T
(1)		
(2)		
(3)		
(4)		

17 Four thumbtacks were fixed at positions A, B, C and D on a metal ring using the same amount of wax.



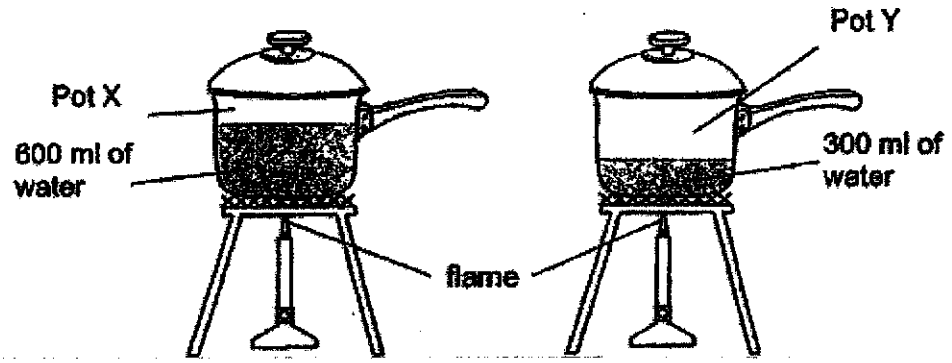
The metal ring was heated at one of the positions, W, X, Y or Z and the time taken for each thumbtack to drop was recorded in the table below.

Position of thumbtack	Time taken for the thumbtack to drop (minutes)
A	1
B	2
C	4
D	3

At which position was the metal ring heated?

(1) W
(2) X
(3) Y
(4) Z

18 Shatiqah poured some water into two pots, X and Y. The pots were of the same size but made of different materials. Pot X contained 600 ml of water and pot Y contained 300 ml of water. Both pots were heated over a flame until the water boiled.

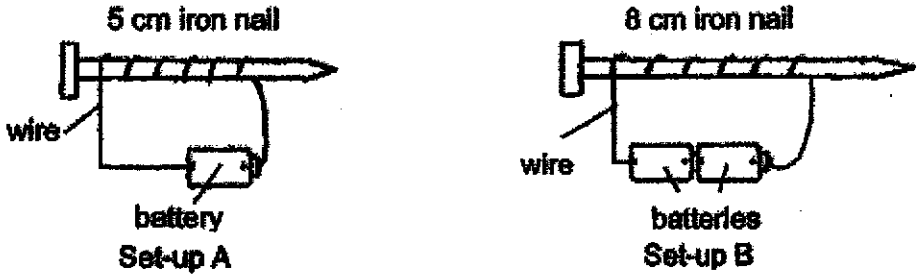


Shatiqah observed that the water in both pots took the same amount of time to reach 100°C. Which of the statements below could be possible explanations for her observation?

A The flame used for pot Y was stronger.
B Pot X is made of a material that conducts heat faster.
C The temperature of the water in pot X was higher at the start of the experiment.

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

19 Alex wanted to find out if the type of nails used would affect the strength of an electromagnet. He prepared two set-ups as shown below but made some mistakes.



Which of the following actions would help Alex correct the mistakes made in his set-ups?

P Use a 5 cm steel nail in set-up B.
Q Add one more battery to each set-up.
R Increase the number of coils of wire in both set-ups.
S Use the same number of batteries for both set-up A and set-up B.

(1) P only
(2) P and S only
(3) Q and R only
(4) P, Q, R and S

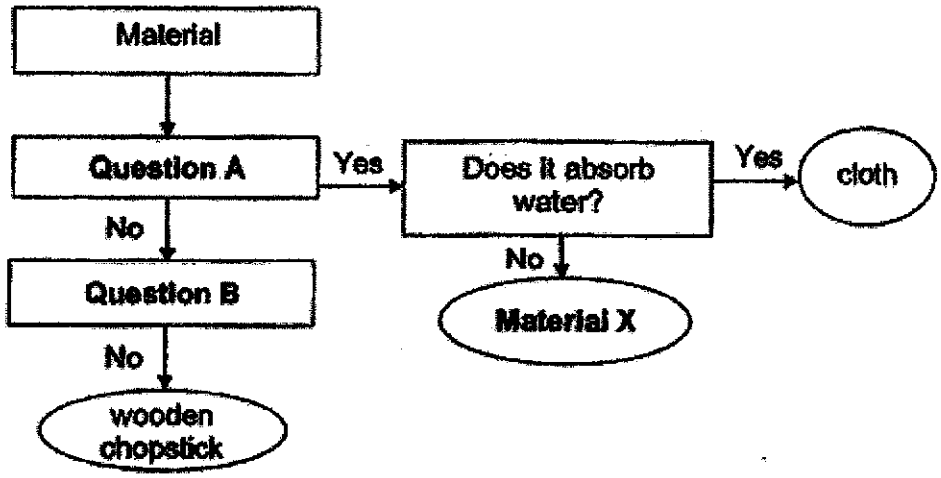
20 Devi conducted several tests on four materials, A, B, C and D. Her results are shown in the table below.

Property	Material			
	A	B	C	D
Bends easily	Yes	Yes	No	No
Absorbs water	No	Yes	No	No
Breaks when dropped	No	No	Yes	No
Allows most light to pass through	No	No	No	No

Based on Devi's results, which of the following correctly identify materials A, B, C and D?

	A	B	C	D
(1)	Wood	Ceramic	Rubber	Plastic
(2)	Paper	Plastic	Steel	Ceramic
(3)	Rubber	Paper	Ceramic	Steel
(4)	Ceramic	Wood	Steel	Rubber

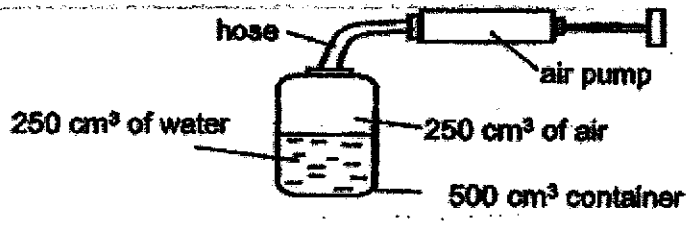
21 Study the flow chart below.



Which of the following is correct?

	Question A	Question B	Material X
(1)	Does it bend easily?	Does it allow light to pass through?	Towel
(2)	Does it float in water?	Does it allow light to pass through?	Glass cup
(3)	Does it bend easily?	Does it attract a magnet?	Rubber hose
(4)	Does it float in water?	Does it attract a magnet?	Ceramic cup

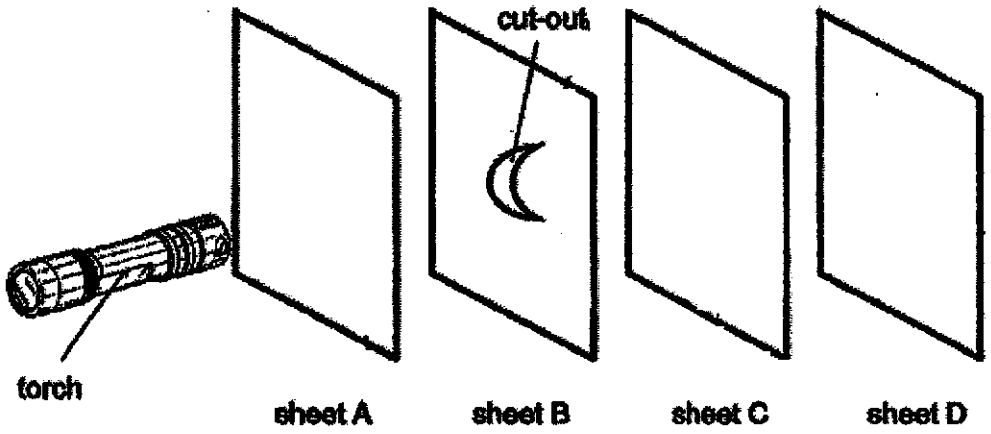
22 Rahim filled a 500 cm^3 container with some water. The amount of water and air in the container was both at 250 cm^3. He then pumped 100 cm^3 more air into the container as shown in the diagram below.



Which of the following correctly describes what would happen to the volume of air and water in the container?

	Volume of water	Volume of air
(1)	Decreases	Increases
(2)	Decreases	Remains the same
(3)	Remains the same	Increases
(4)	Remains the same	Remains the same

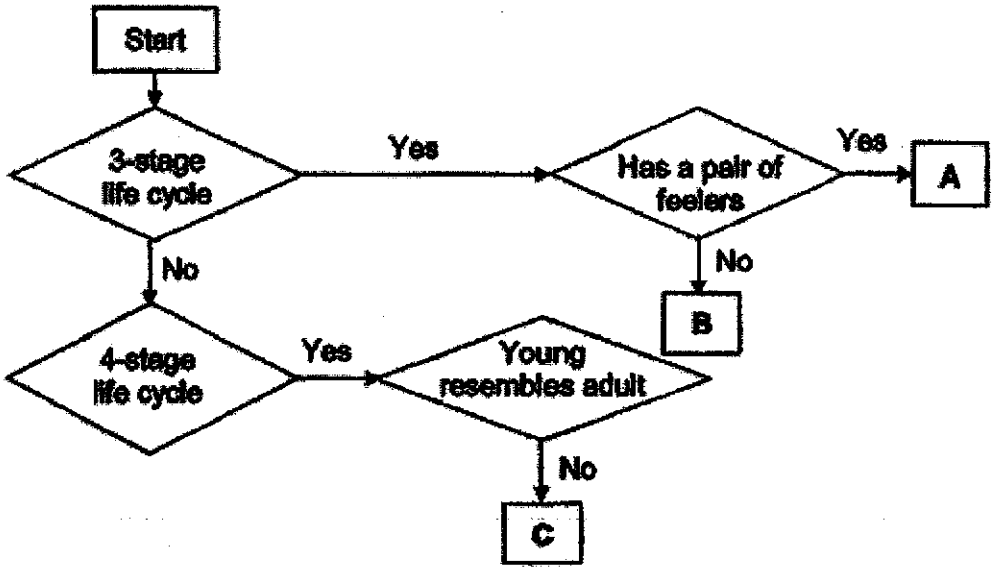
23 Sonya carried out an experiment in a dark room. Sheets A, B, C and D are arranged in a straight line. Sheet B has a shape cut out from its center.



When the torch was switched on, a bright moon-shaped patch of light could be seen on sheet C. Which of the following correctly describes the properties of the materials used to make sheets A, B, C and D?

	does not allow light to pass through	allows light to pass through	not possible to tell
(1)	C	A and D	B
(2)	A and D	C	B
(3)	B and C	A	D
(4)	C	A and B	D

24 Study the flow chart below.



Which of the following animals can be represented by A, B and C?

	A	B	C
(1)	cockroach	chicken	mosquito
(2)	chicken	cockroach	mealworm
(3)	grasshopper	rabbit	frog
(4)	mosquito	cockroach	rabbit

End of Booklet A

METHODIST GIRLS' SCHOOL

Founded in 1887

END-OF-YEAR EXAMINATION 2020
PRIMARY 4
SCIENCE

BOOKLET B

Total Time for Booklets A and B: 1 hour 30 minutes

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 : 27 October 2020

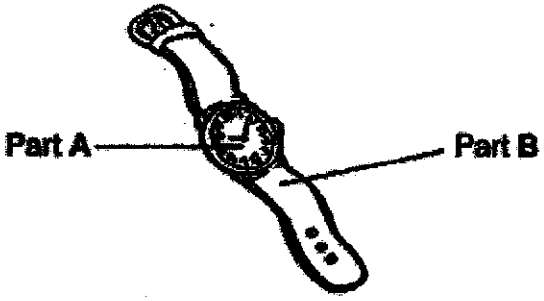
Booklet A	48
Booklet B	32
Total	80
Parent's Signature	

This booklet consists of 12 printed pages including this page.

For questions 25 to 36, write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part question.

[32 marks]

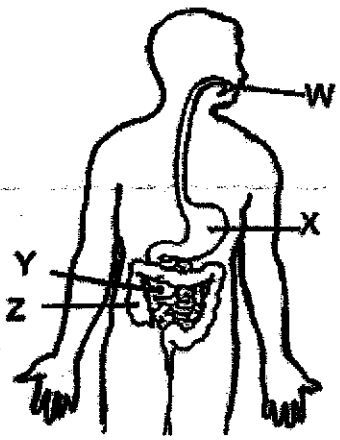
25 Look at the watch as shown below.



(a) Part A is made of glass because it allows _____ to pass through so that the user can read the time. [1]

(b) The material used to make part B has to be _____ so that the user can wear the watch around his wrist. [1]

26 The diagram below shows the human digestive system with parts labelled W, X, Y and Z.



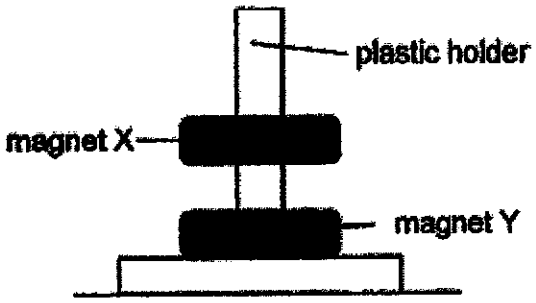
Identify the part where

(a) digestion first takes place : _____ [1]

(b) there is no digestion : _____ [1]

(Go on to the next page)

27 Ben placed two ring magnets, X and Y, through a holder as shown below.



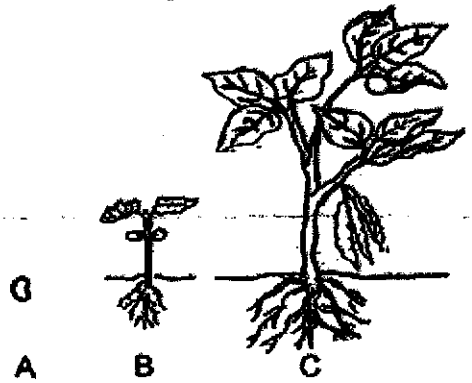
(a) The holder was made of plastic and did not attract the magnets.

Plastic is a _____ material. [1]

(b) Why was magnet X floating above magnet Y?

Magnet Y was _____ magnet X. [1]

28 The diagram below shows the stages in the life cycle of a plant.



Choose the correct words from the box to answer the question below.

egg	seed	young plant	adult plant

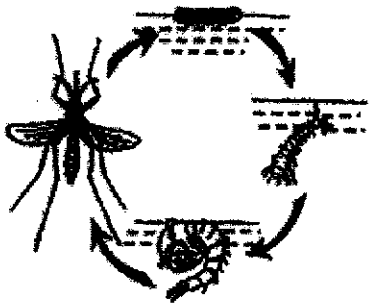
Name stages A and C in the life cycle of the plant.

A: _____ [1]

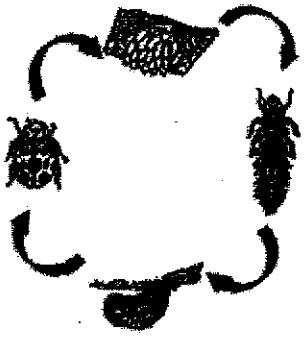
C: _____ [1]

4

29 The diagram below shows the life cycle of a mosquito and a ladybird beetle.



Mosquito



Ladybird beetle

(a) State one difference between the life cycles of a mosquito and a ladybird beetle. [1]

_____

_____

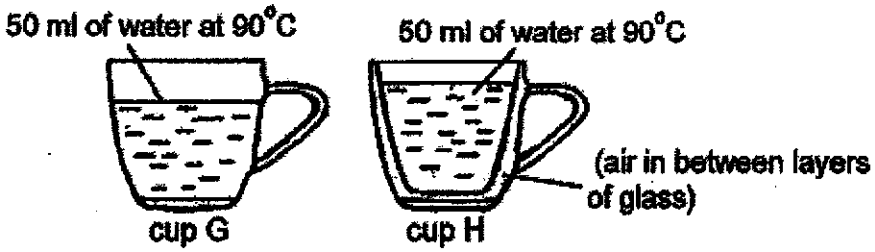
(b) Why does the ladybird beetle lay its eggs on the leaves? [1]

_____

_____

2

30 Nancy poured equal amounts of hot water into two glass cups, G and H. They were left at room temperature of 30°C.



Nancy recorded the temperature of the water in both glass cups at the start of the experiment and after 15 minutes in the table below.

Glass cups	Temperature of water (°C)	
	At the start	After 15 minutes
G	90	45
H	90	64

(a) Why did the temperature of the hot water decrease in both glass cups G and H after 15 minutes? [1]

_____

_____

(b) Nancy observed that the temperatures of water in both glass cups G and H were different after 15 minutes. Explain her observation. [2]

_____

_____

_____

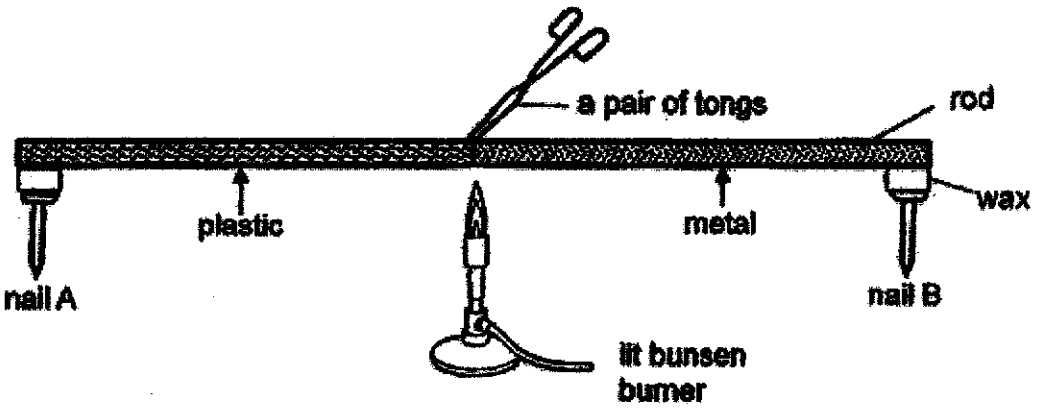
(c) If Nancy used metal cups instead of the glass cups for the experiment, would the decrease in temperature be faster, slower, or the same? Explain your answer. [1]

_____

_____

4

31 Rajan used a pair of tongs to hold a rod made of two different types of materials over a bunsen burner. Two identical nails, A and B, were attached to the ends of the rod with the same amount of wax as shown below.



Rajan heated the rod with a lit bunsen burner. He recorded the time taken for each nail to drop off from the rod.

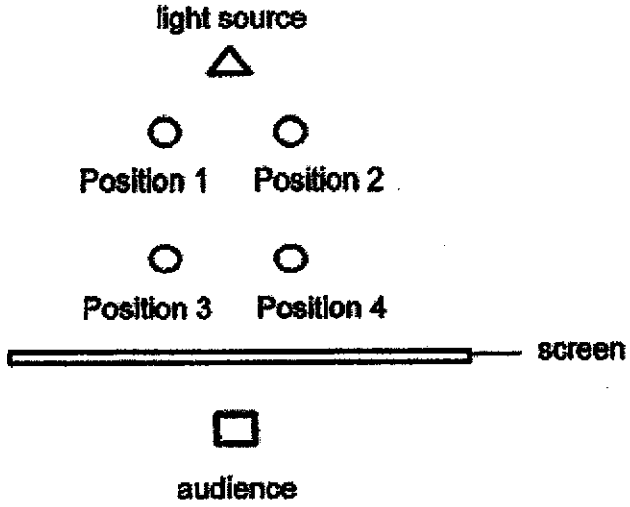
Nail	Time taken for each nail to drop (minutes)
A	5
B	2

(a) Explain why the time taken for nail A to drop is longer than nail B. [2]

(b) Based on the results from the table, is plastic or metal a better choice for making the base of a frying pan? Explain your answer. [2]

4

32 The diagram below shows the layout for a shadow performance.



Suyash had two toys of the same height. He created the following shadows with his toys as shown below.

(a) Write the number to show the position of each toy. [1]

(i) Position of toy A: _____

(ii) Position of toy B: _____

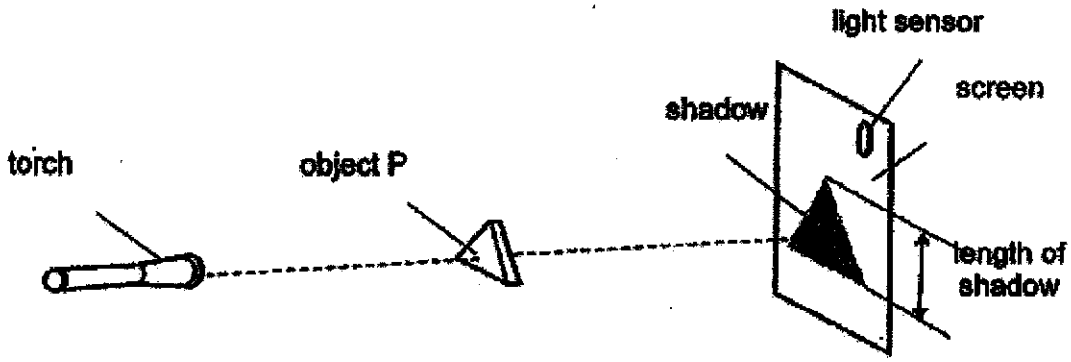
(b) Explain your answer in (a)(i). [1]

_____

_____

2

33 Sulynn used object P in the set-up below to conduct an experiment. She used a light sensor to measure the amount of light on a fixed screen.



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

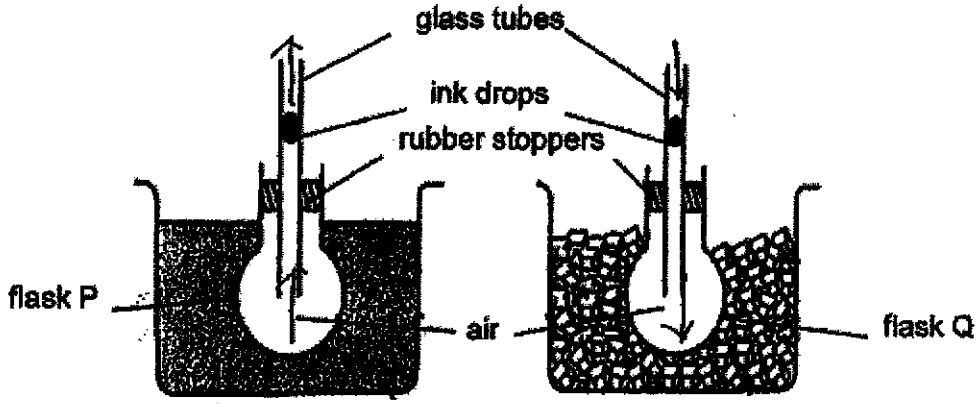
Light sensor reading (units)	Length of shadow (cm)
70	4
130	9
200	16
270	19

(a) Based on the table above, what did Sulynn do to achieve the above results? [1]

(b) Explain how the change Sulynn had made in (a) would cause the light sensor reading to increase.

2

34 James set up an experiment as shown below. He placed ink drops in the same position in two identical glass tubes, and inserted them into identical flasks, P and Q, containing only air. He then placed flask P into a container of hot water, and flask Q into a container of ice cubes.



(a) What would he observe about the ink drops in both flasks? [1]

Flask P: _____

Flask Q: _____

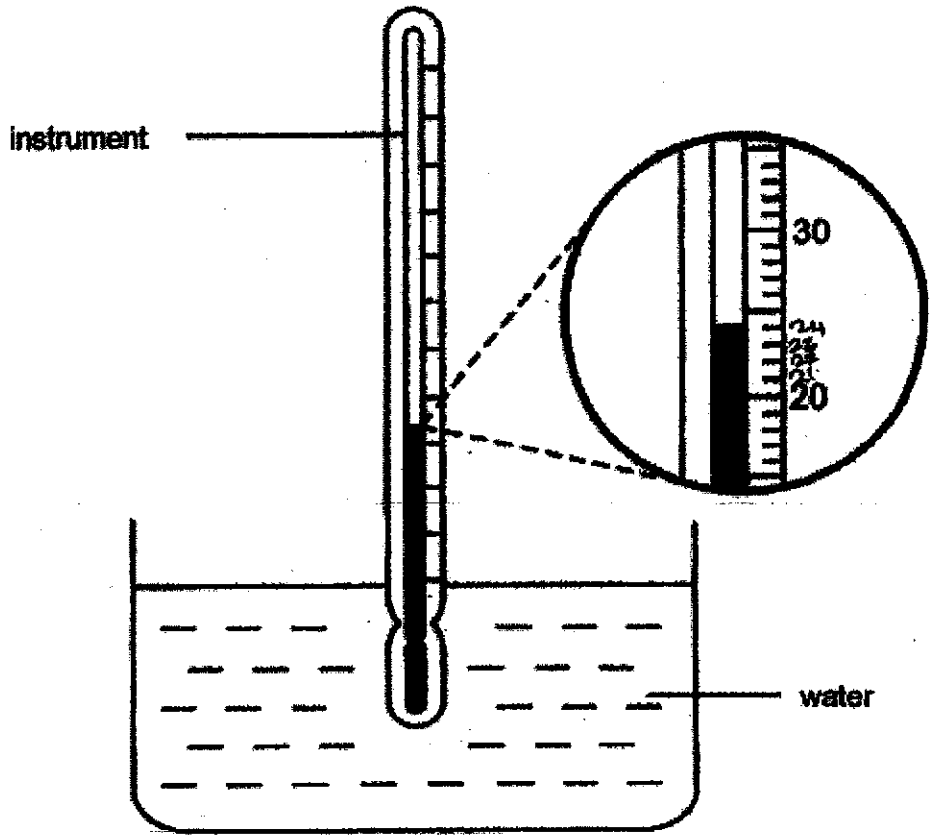
(b) Explain his observation of the ink drop in flask Q. [1]

_____

_____

2

After three hours, James used an instrument to measure the temperature of water in the container with flask P.



(c) What is the instrument called? [1]

_____

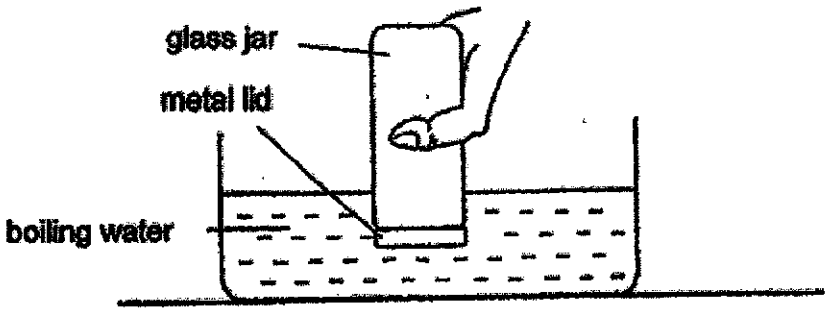
(d) What is the temperature of the water in the glass? [1]

_____°C

2

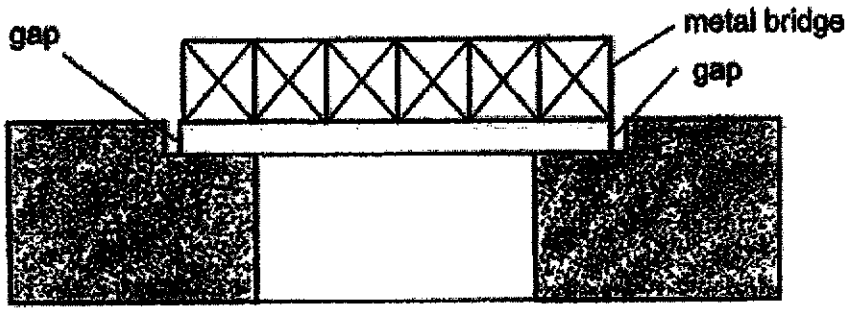
(Go on to the next page)

35 Shayna had an empty glass jar with a metal lid that was tightly fitted onto it. She placed the lid in boiling water for one minute.



(a) After a while, she found it easier to remove the lid. Explain why. [2]

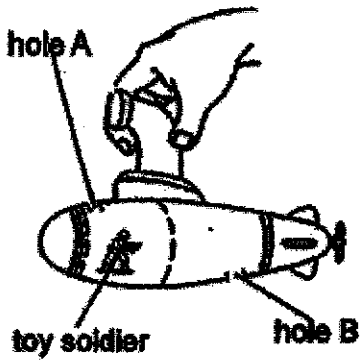
A metal bridge has gaps at both ends as shown below.

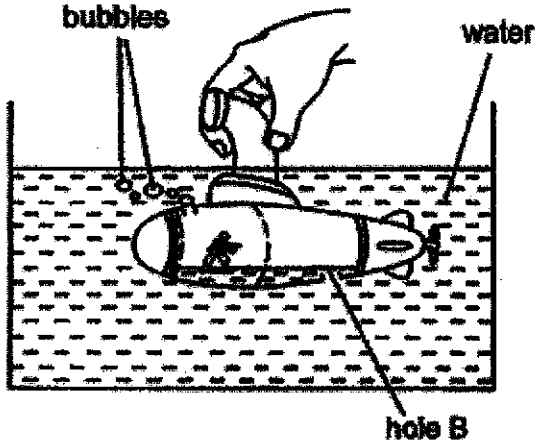


(b) Explain why there are gaps on the bridge. [1]

3

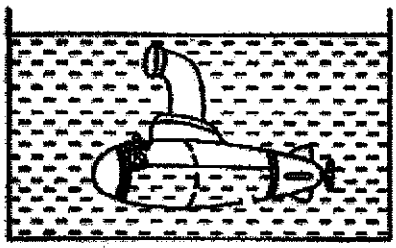
36 Jimmy put a toy soldier into a submarine made of clear plastic. There were two holes, A and B, on the submarine. When he pushed the submarine into a tank of water, the toy soldier floated upwards and bubbles were seen coming out from hole A.





(a) Explain why bubbles could be seen coming out from hole A when the submarine was pushed into the water. [1]

When the submarine was pushed deeper into the water, the toy soldier rose and blocked hole A completely. Jimmy observed that the water level in the submarine stopped rising.



(b) Give an explanation for Jimmy's observation. [2]

3

End of Booklet B

SCHOOL : METHODIST GIRLS' SCHOOL

LEVEL : PRIMARY 4
SUBJECT : SCIENCE
TERM : 2020 SA2

SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
3	4	1	2	2	3	2	4	3	2

Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	1	2	2	2	1	4	3	2	3

Q 21	Q22	Q23	Q24
3	4	3	1

SECTION B

Q25)	(a) Light (b) Flexible
Q26)	(a) W (b) Z
Q27)	(a) Non – magnetic (b) Repelling
Q28)	A: Seed C: adult plant
Q29)	(a) The adult mosquito lay its eggs in water, while the adult ladybird beetle lay its eggs on land. (b) When the eggs on the leaves hatch, they can already eat the

	leaves and grow faster.
Q30)	(a) The hot water lost heat to the surrounding air and the temperature dropped till it was room temperature. (b) Air was in between cup H. Air is a poor conductor of heat. Heat loss to the surroundings will be slower in cup H. (c) Cup G decrease in temperature faster, as metal is a good conductor of heat and will lose heat to the surrounding air faster.
Q31)	(a) Plastic is a poorer conductor of heat which slows down heat gained by the wax more than metal. (b) Metal, metal is a better conductor of heat, so food will be able to be cooked quicker. Thus, metal is a better choice for making the base of a frying pan.
Q32)	(a) (i) Position 1 (ii) Position 4 (b) The two toys are the same height. On the screen, toy A shadow is larger and bigger. Since the nearer an object is to the light source the bigger the shadow. Thus, toy A is at position 1 while toy B is at position 4.
Q33)	(a) Sulynn move ed the torch nearer to object P and the light sensor measured the light detected and Sulynn measured the length of the shadow. Since the nearer the light source the bigger the shadow the length of the shadow and light detected increased. (b) By moving the position of the torch forward and nearer to the object the screen, light from the torch will be able to shine more light, allowing the light sensor to detect more light.
Q34)	(a) Flask P: rise Flask Q: drop (b) The air in flask Q lost heat from the ice cubes and contracted, making the ink drop to drop. (c) Thermometer (d) 24

Q35)	(a) Metal is a better conductor of heat than glass. Metal gains heat faster. The lid expanded faster. (b) When it is a sunny and hot day, the metal bridge will gain heat and expand into the gaps, preventing the metal bridge to buckle or crack.
Q36)	(a) As water enters the submarine from hole B, the water occupies the space previously occupied by the air and displaced the air, making air bubbles to escape and submarine from hot A, as water pushes the air out. (b) The water could not enter as some air was still occupying some space in the submarine. The toy soldier blocked hole A completely, preventing air from escaping, not allowing water displace the air. Thus, the water level in the submarine stopped rising.