



2018 PRIMARY 4 SEMESTRAL ASSESSMENT 2

Name : _____

Date: 22 October 2018

Class : Primary 4

Time: 8.00 a.m. - 9.30 a.m.

Parent's signature: _____

Duration: 1 hour 30 minutes

SCIENCE

BOOKLET A

INSTRUCTIONS TO CANDIDATES

1. Write your name, class and register number.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers on the Optical Answer Sheet (OAS) provided.

Booklet A (22 x 2 marks)

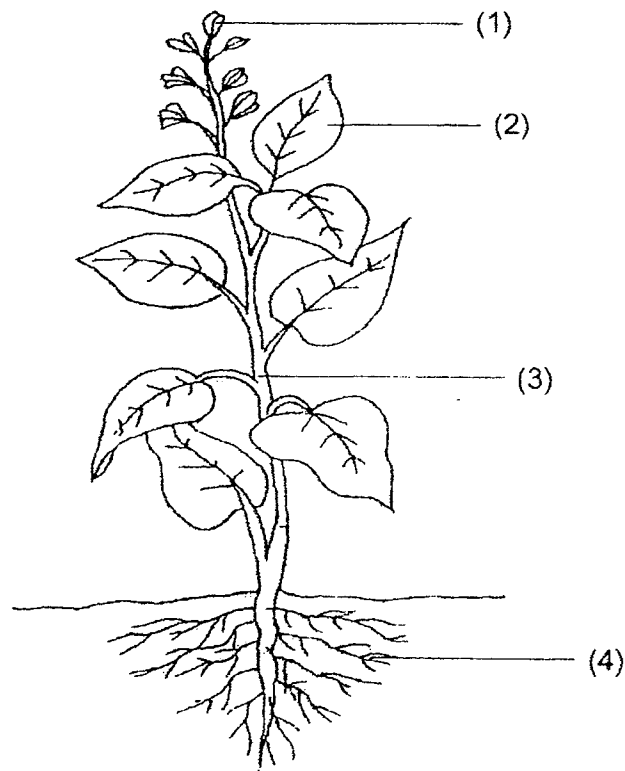
For each question from 1 to 22, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.

(44 marks)

1. Which one of the following substances has a fixed shape?

- (1) air
- (2) rock
- (3) milk
- (4) water

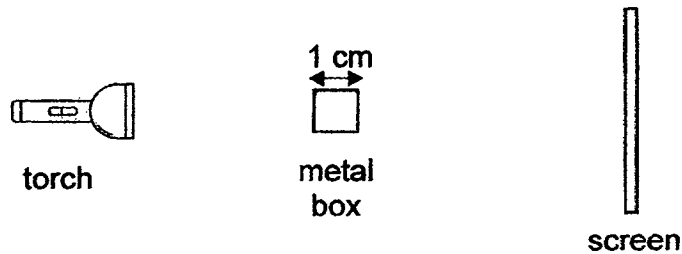
2. Which part, (1), (2), (3) or (4), helps to hold the plant upright?



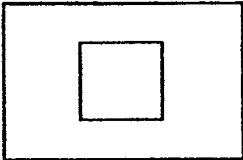

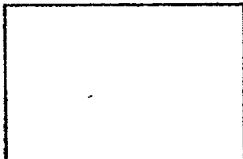

3. In which part of the digestive system is food absorbed into the blood?

- (1) mouth
- (2) stomach
- (3) small intestine
- (4) large intestine

4. The set-up below shows a torch shining on a metal box.



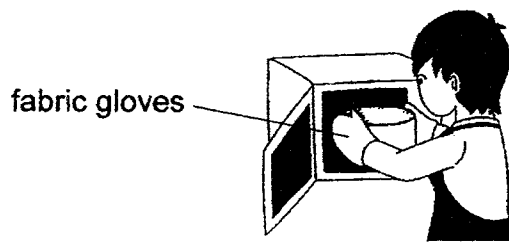
Which one of the following would likely be seen on the screen?

- (1) 
- (2) 
- (3) 
- (4) 

5. Which one of the following is **NOT** a source of heat?

- (1) the sun
- (2) a lit lamp
- (3) a candle flame
- (4) a woollen jacket

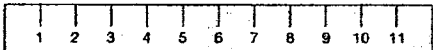

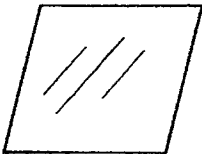

6. Ali is taking a pot of baked potato out from the oven as shown below.



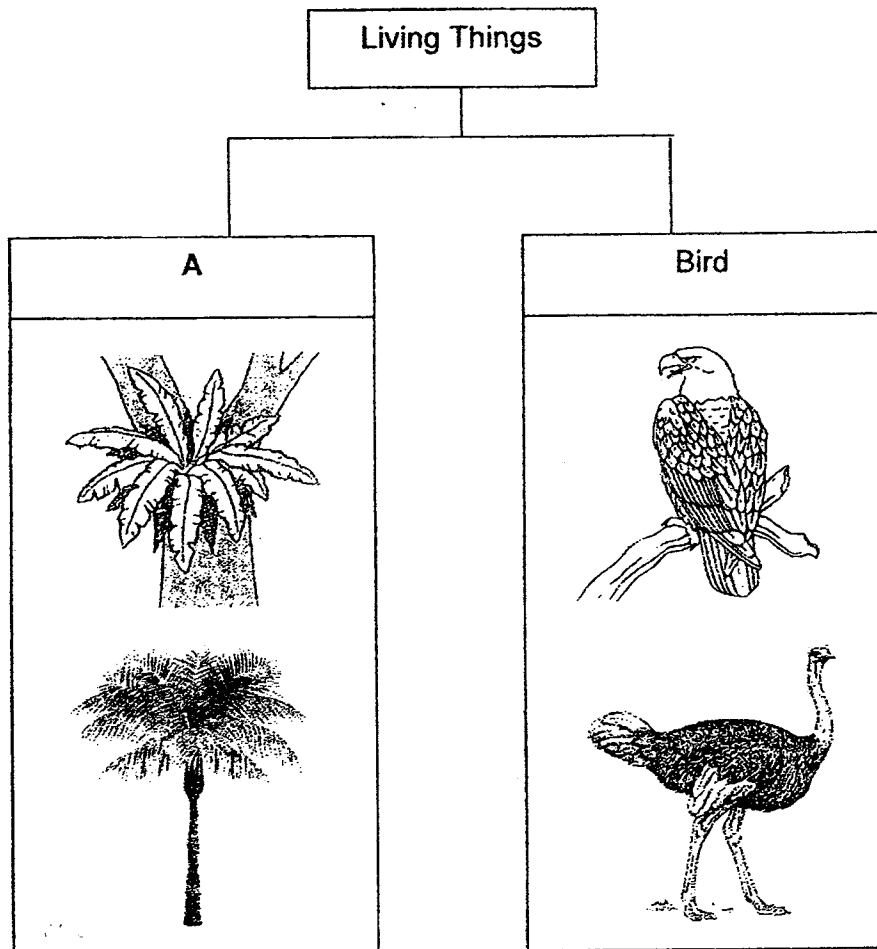
He is able to hold the pot using his fabric gloves. This is because fabric is a

- _____.
- (1) waterproof material
 - (2) non-magnetic material
 - (3) poor conductor of heat
 - (4) good conductor of heat

7. Which one of the following objects can be bent easily without breaking?

<p>(1) a metal ruler</p> 	<p>(2) a wooden ice cream stick</p> 
<p>(3) a piece of glass</p> 	<p>(4) a handkerchief</p> 

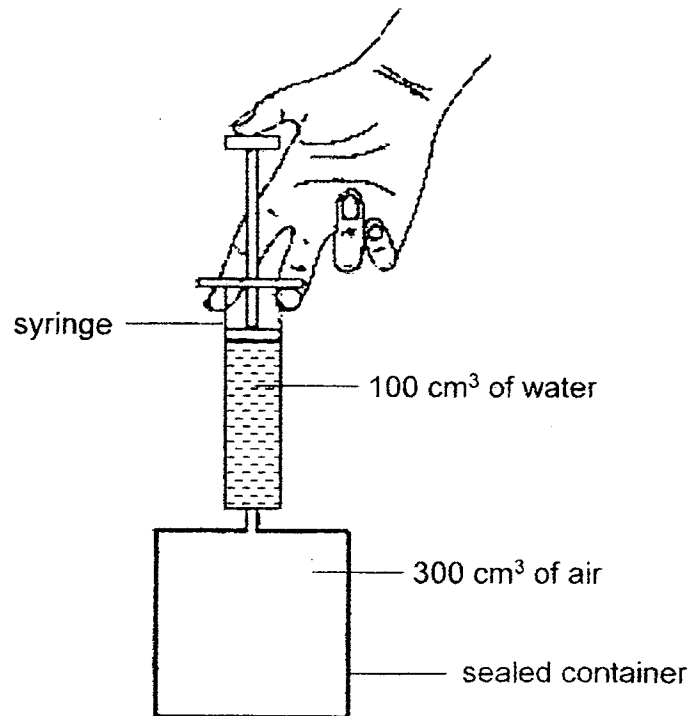
8. The table below shows how some living things can be grouped.



Which one of the following is the most suitable heading for group A?

- (1) bird
- (2) plant
- (3) fungi
- (4) insect

9. A sealed container was filled with 300 cm^3 of air and a syringe was filled with 100 cm^3 of water.

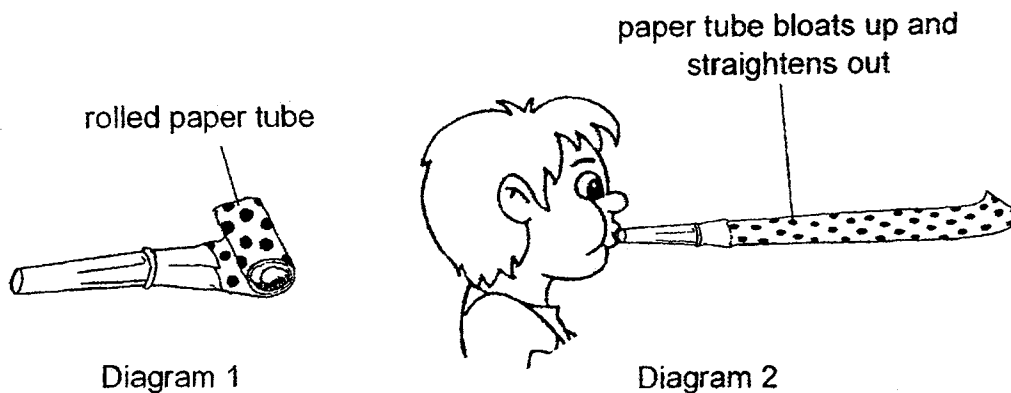


All the water in the syringe was pumped into the sealed container.

What would be the final volume of air in the container after all the water was pumped in?

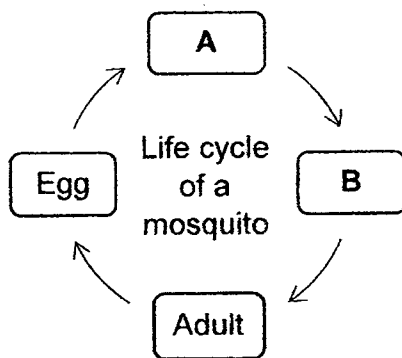
- (1) 100 cm^3
- (2) 200 cm^3
- (3) 300 cm^3
- (4) 400 cm^3

10. Diagram 1 shows a toy with a rolled paper tube. When air was blown into it, the paper tube straightened as shown in Diagram 2.



Which of the following best explains why the paper tube bloats up and straightens out?

- (1) Air has mass.
 - (2) Air occupies space.
 - (3) Air has a fixed shape.
 - (4) Air does not have a fixed volume.
11. The diagram below shows the life cycle of a mosquito.



Which of the following correctly describes the characteristic of the mosquito at stages A and B?

	Stage A	Stage B
(1)	feeds	does not feed
(2)	can reproduce	cannot reproduce
(3)	does not have wings	has wings
(4)	does not look like adult	looks like adult

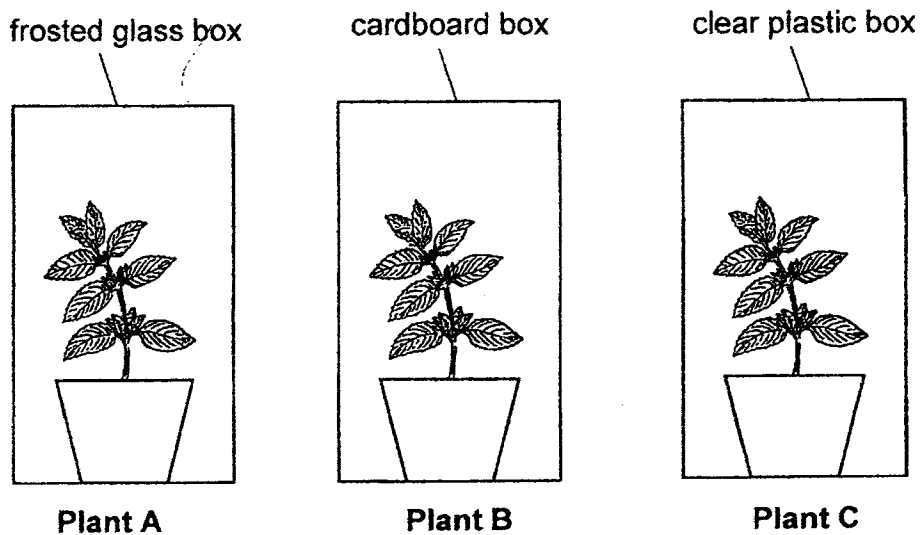
12. The characteristics of Animals X, Y and Z are shown in the table below. A tick "✓" shows that the animal has that characteristic.

Characteristics	Animals		
	X	Y	Z
Has a 3-stage life cycle.	✓	✓	
Lays eggs.		✓	✓
The young looks like the adult.	✓		

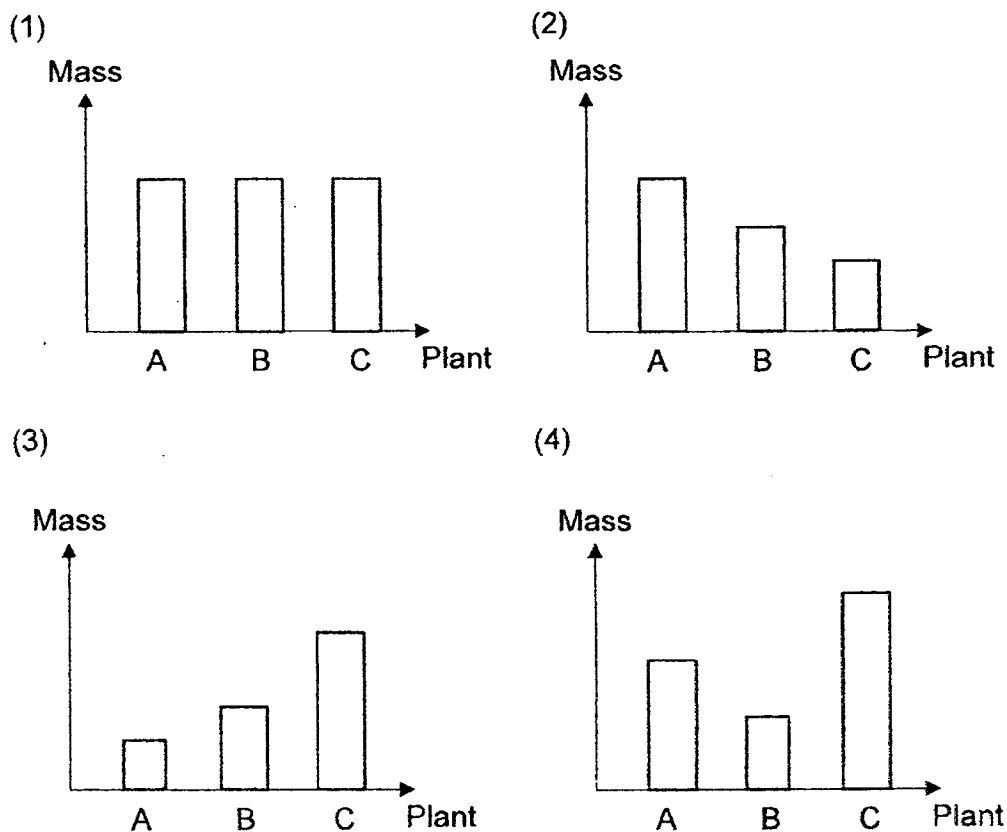
What can animals X, Y and Z be?

	X	Y	Z
(1)	beetle	human	frog
(2)	frog	beetle	human
(3)	human	beetle	frog
(4)	human	frog	beetle

13. Three similar plants A, B and C of equal mass were given different conditions as shown below. The plants were placed near a window and watered with the same amount of water daily.



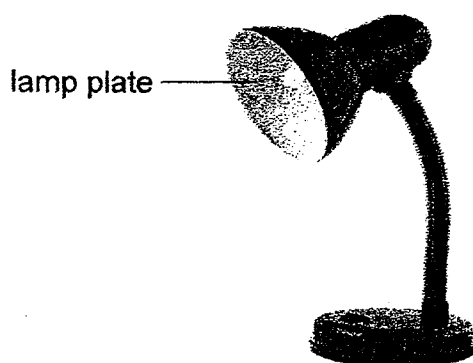
After four months, the mass of the plants were measured. Which graph shows the correct mass of the plants?



14. Sarah tested the amount of light reflected by 4 different materials, A, B, C and D, using a light sensor and recorded the results in the table below.

Material	Amount of light detected by the light sensor (units)
A	320 ₁
B	120 ₃
C	270 ₂
D	80 ₄

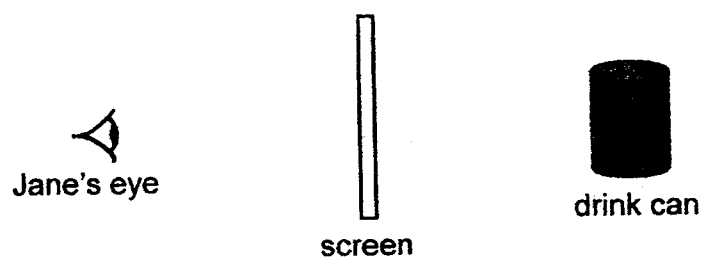
Sarah wanted to make a lamp plate as shown in the diagram below.



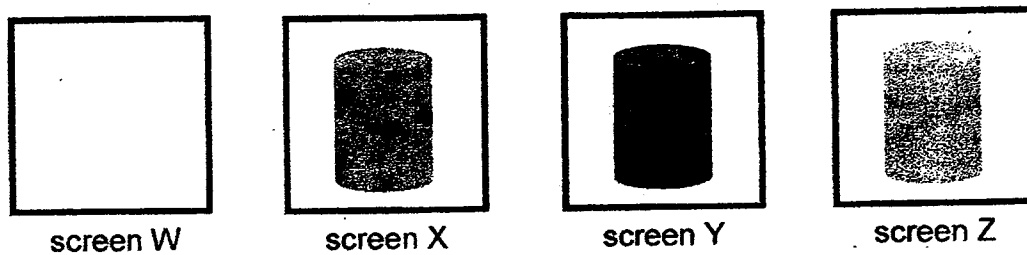
Which material, A, B, C or D, is most suitable for the lamp plate?

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

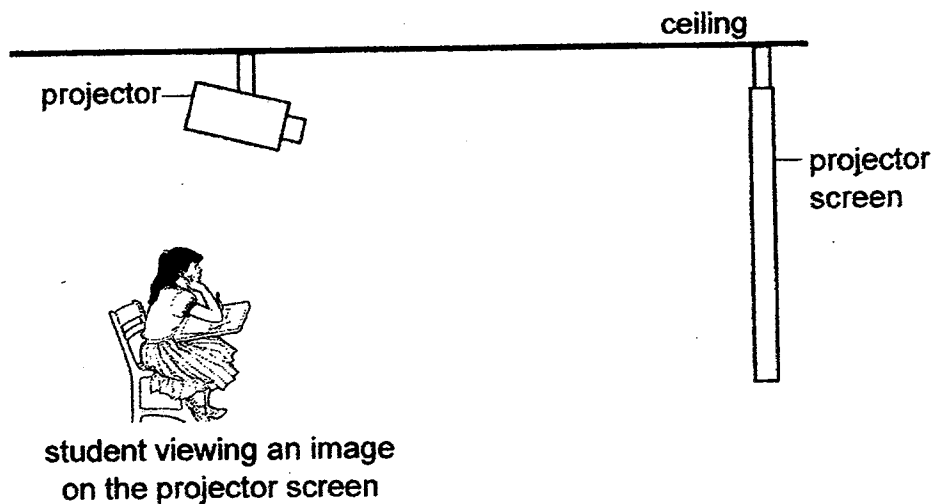
15. Jane looked at a drink can as shown in the diagram below.



She drew what she saw through four different types of screens, W, X, Y and Z, which are as shown in the diagrams below.

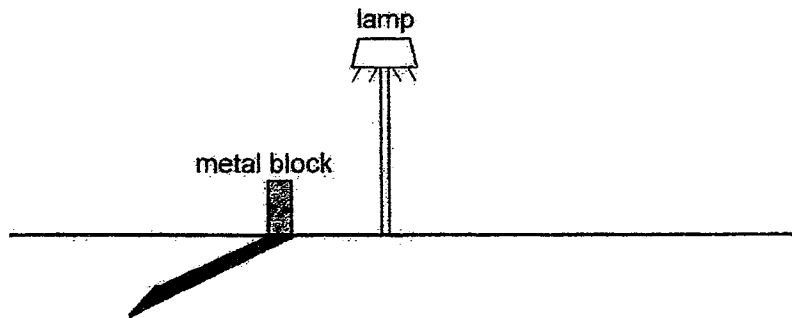


Which screen should Jane use for a projector screen in a classroom?



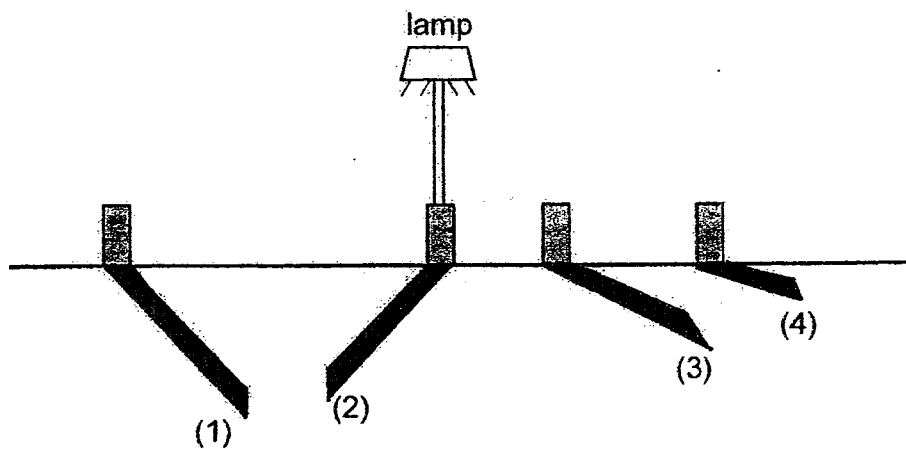
- (1) screen W
- (2) screen X
- (3) screen Y
- (4) screen Z

16. Ali conducted an experiment in a dark room to find out how the length of the shadow changed when the metal block changed position.

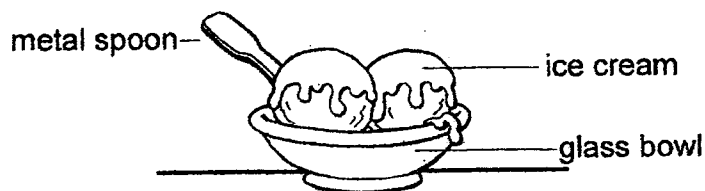


When the lamp was switched on, Ali observed that the length of the shadow as shown above.

He then changed the positions of the metal block. Which one of the following correctly showed the length of the shadow?



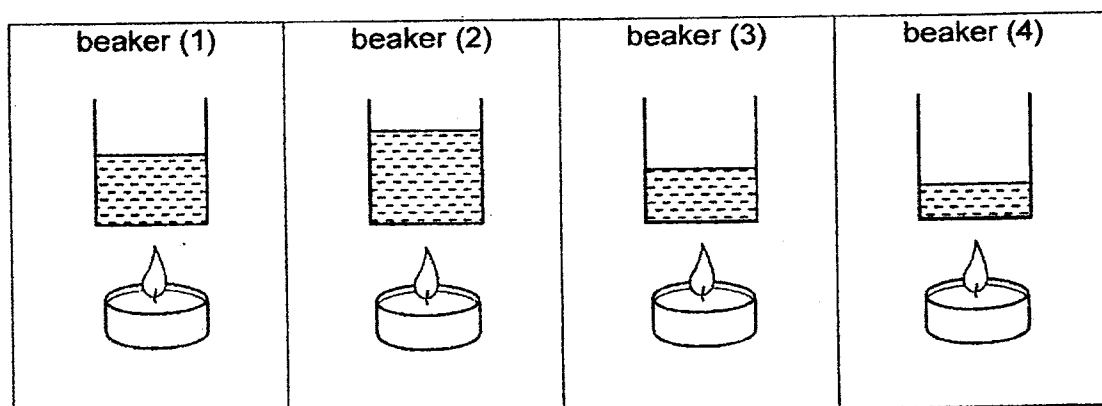
17. Mingxin left a bowl of ice cream on a table in the kitchen that was at room temperature.



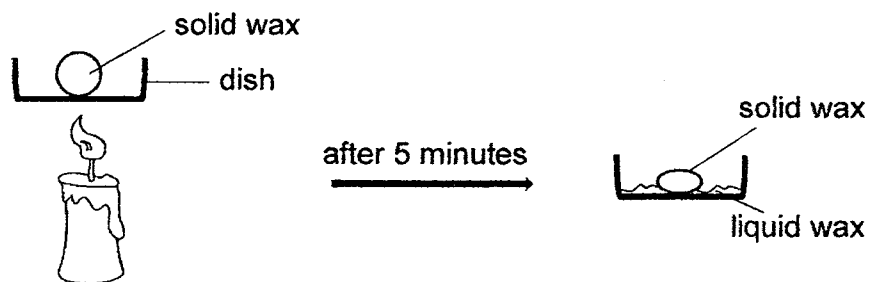
Which one of the following would Mingxin observe after 5 minutes?

- (1) The temperature of the glass bowl increased.
 - (2) The temperature of the ice cream decreased.
 - (3) The temperature of the metal spoon decreased.
 - (4) The temperature of the surrounding air increased.
18. Four similar beakers, (1), (2), (3) and (4), contain different amount of water. Each of them is placed at the same height above a flame as shown below.

Which beaker would take the longest time to reach 100°C?



19. 4 dishes are made of different materials, P, Q, R and S. Siti heated a piece of wax for 5 minutes on each of the dishes as shown in the diagram below.



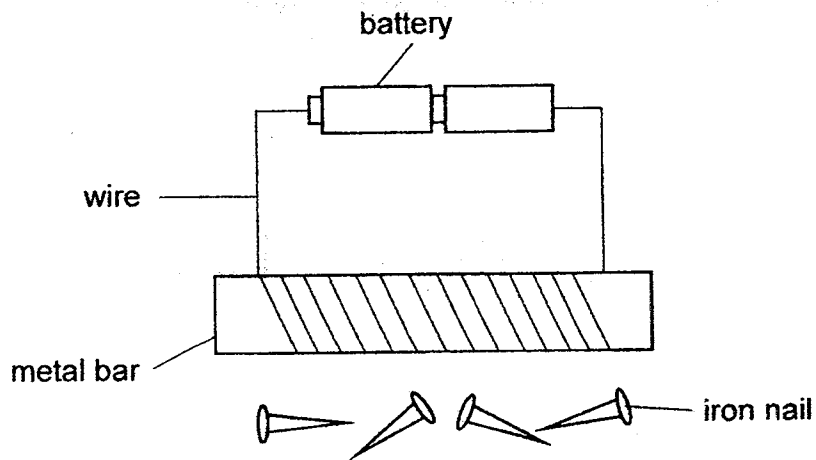
She then separated the solid wax from the liquid wax and measured the mass of the solid wax left. Her results were recorded in the table below.

Material	Mass of wax at the start of the experiment (grams)	Mass of solid wax left after 5 minutes (grams)
P	20	18
Q	20	10
R	20	15
S	20	12

Based on the results of her experiment, which one of the following statements is correct?

- (1) Material P is the best conductor of heat.
- (2) Material Q is the poorest conductor of heat.
- (3) Material R is a better conductor of heat than material S.
- (4) Material R is a poorer conductor of heat than material Q.

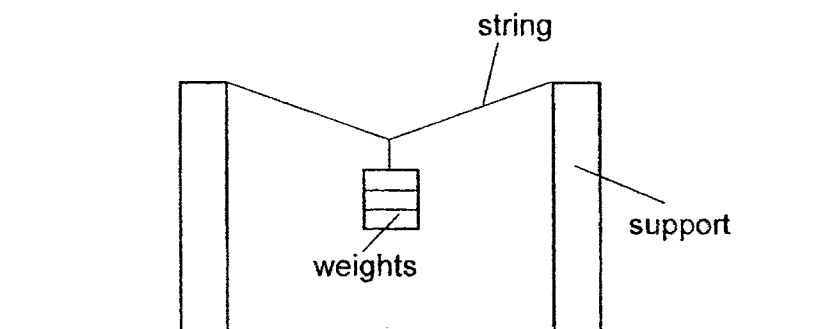
20. Joe wanted to set up an electromagnet as shown below.



However, the metal bar did not attract any iron nails. Why?

- (1) The metal bar is made of iron.
- (2) The nails are made of magnetic material.
- (3) The metal bar is made of non-magnetic material.
- (4) There are too many coils of wire around the metal bar.

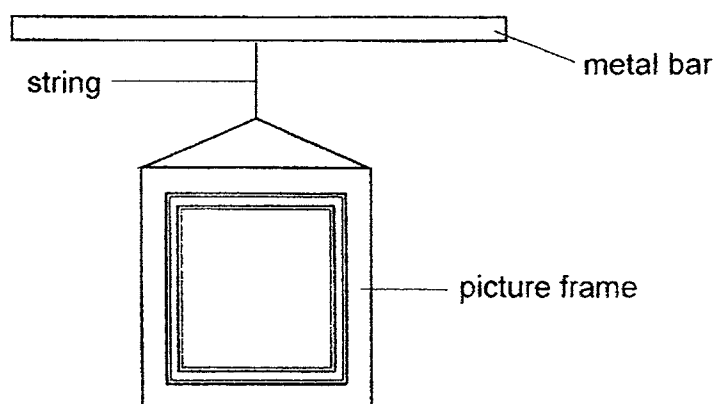
21. A string was attached to two supports as shown below. Identical weights of 1 kg each were added until it broke. Four strings, A, B, C and D were tested. The strings were of the same thickness and length.



The results of the experiment were shown in the table below.

String	Number of weights hung just before the string broke
A	20
B	15
C	5
D	10

Which string can hold a hanging picture frame of 15 kg without the string breaking as shown below?



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

22. Diagram 1 shows a balance with two objects, X and Y, hung at both ends with the same distance from the centre.

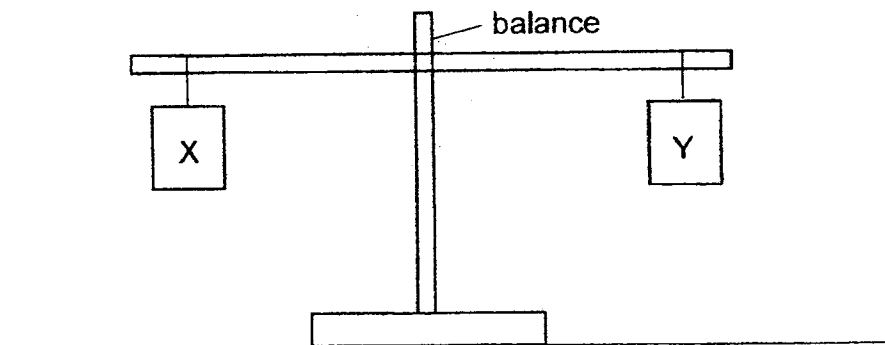


Diagram 1

Diagram 2 shows what happens to the balance when a magnet is placed under object Y.

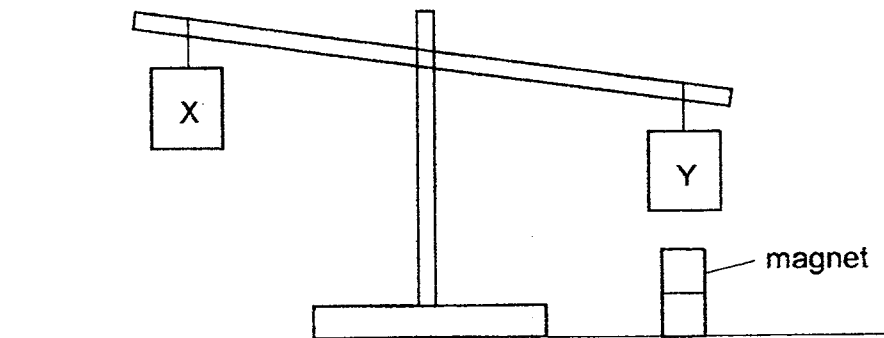


Diagram 2

Which one of the following statements is correct?

- (1) X is lighter than Y.
- (2) Mass of Y increased.
- (3) Y has a greater mass than X.
- (4) Y is made of magnetic material.

End of Booklet A



2018 PRIMARY 4 SEMESTRAL ASSESSMENT 2

Name : _____

Date: 22 October 2018

Class : Primary 4

Time: 8.00 a.m. – 9.30 a.m.

Parent's Signature : _____

Duration: 1 hour 30 minutes

SCIENCE

BOOKLET B

INSTRUCTIONS TO CANDIDATES

1. Write your name, class and register number.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in the booklet.

Booklet A	44
Booklet B	36
Total	80

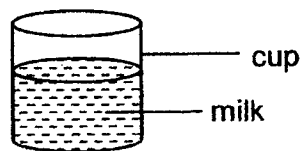
Booklet B (36 marks)

For questions 23 to 34, write your answers clearly in this booklet.

The number of marks available is shown in brackets [] at the end of each question or part question.

(36 marks)

23. The picture below shows a cup of milk.

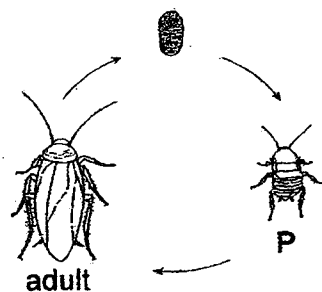


Complete the sentences to state if the parts are solid, liquid or gas.

(a) The cup is a _____ [1]

(b) Milk is a _____ [1]

24. The diagram below shows the stages in the life cycle of a cockroach.



(a) Name stage P. [1]

(b) State another animal that has a similar life cycle as a cockroach. [1]

Score	4
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25. Look at the diagram below.



Tick (✓) the characteristics in the table below that help to identify that it is an insect.

It is an insect because it _____. [2]

can fly	
has wings	
has 3 pairs of legs	
has three body parts	

26. Amy placed a magnet near a steel rod as shown in the diagram below.



The steel rod moves towards the magnet.

- (a) The magnet exerts a _____ force on the steel rod. [1]

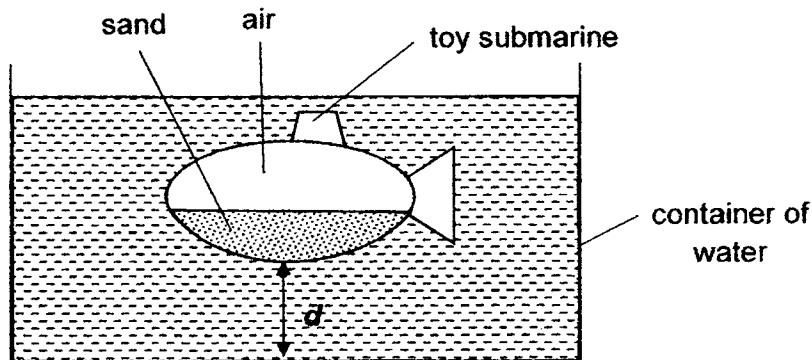
Choose the correct word from the box below to complete the sentence in (b).

strong	waterproof	magnetic
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- (b) Amy's observation shows that steel is a _____ material. [1]

Score	4
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27. Victor poured sand into a toy submarine and dropped it into a container of water as shown in the diagram below. He measured the distance, d , from the bottom of the container to the base of the toy submarine. He repeated the experiment by pouring different amounts of sand into the toy submarine.



The result of his experiment is shown in the table below.

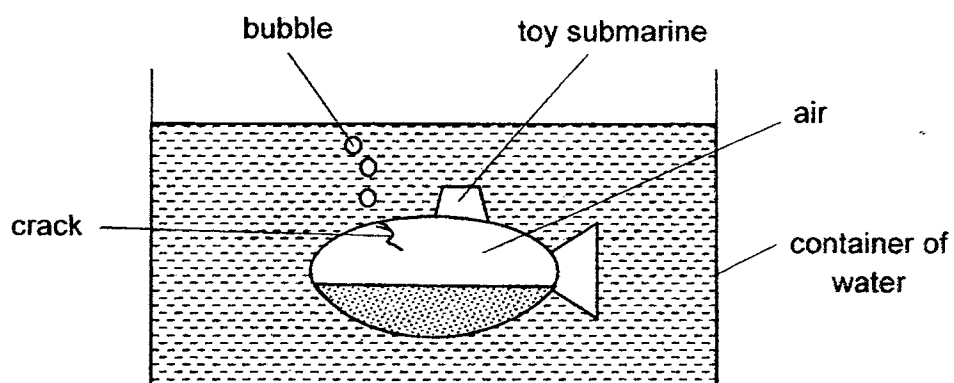
- a) Complete the table below.

[1]

Mass of sand in the toy submarine (g)	Distance d (cm)
10	25
20	<input type="text"/>
30	15
40	10

- b) What is the relationship between the mass of the sand and distance d ? [1]

Victor dropped the toy submarine on the floor and it cracked.



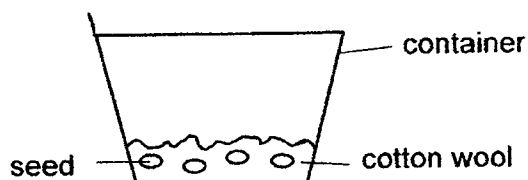
When he placed the toy submarine back into the water, he observed bubbles came out from the crack. After a while, the toy submarine sank deeper.

c) Explain why these happened.

[2]

Score	2
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28. Azman placed four seeds into five identical containers A, B, C, D and E. He provided different conditions for each of the containers of seeds as shown in the table below. The five set-ups contained the same amount of cotton wool.



Container	Conditions	
	Where is it placed?	Is it watered?
A	Near window	Watered daily
B	Near window	Not watered
C	In a refrigerator	Watered daily
D	In a refrigerator	Not watered
E	In a cupboard	Watered daily

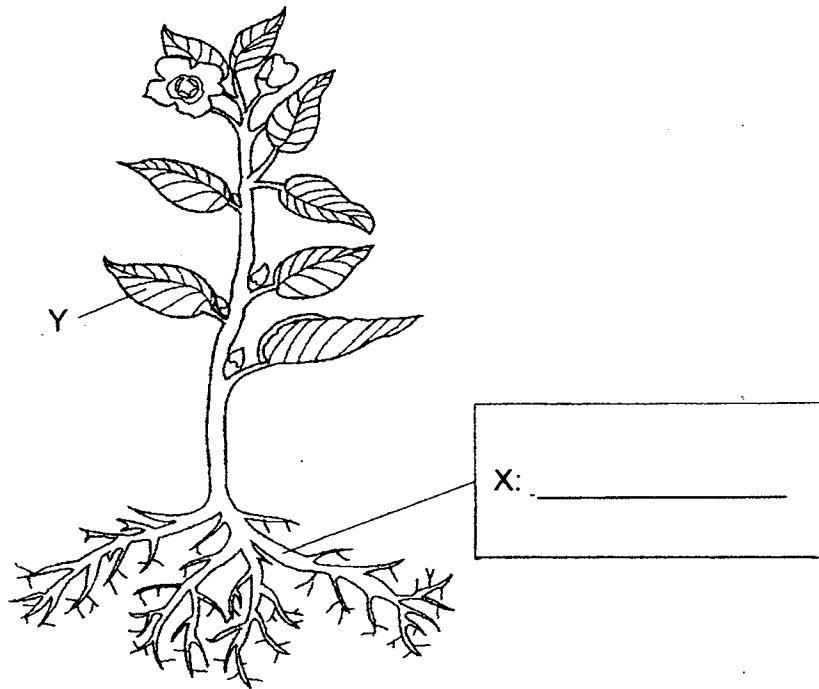
- a) In which container(s) would the seeds germinate? [1]

- b) Azman wants to find out if seeds need water to germinate.

- i) Which two containers can Azman use? [1]

- ii) State another variable that must be kept constant to ensure a fair test. [1]

29. Study the picture of a plant below.



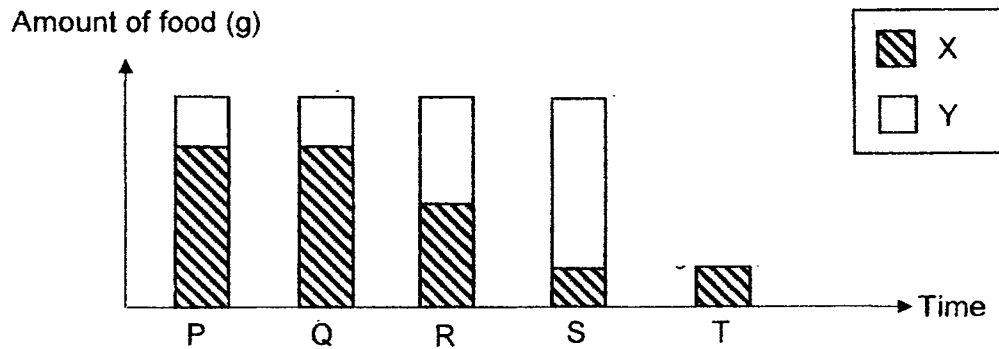
a) Label Part X. [1]

b) Describe the function of Y. [1]

c) Part X absorbs water and mineral salts from the ground. Give another function of Part X. [1]

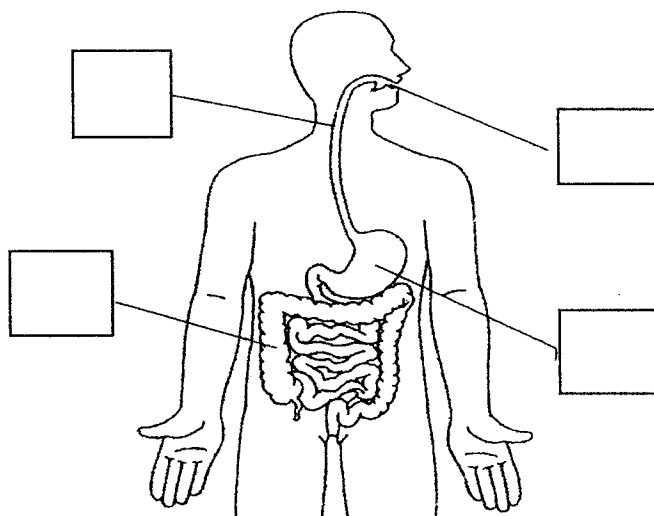
Score	3
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30. The graph below shows the amount of food at the different parts of a human digestive system.



- a) Which part, X or Y, in the graph represents the amount of food that is undigested? Give a reason for your answer. [1]

- b) Fill in P, Q, R, S and/or T in the boxes of the diagram below to match the parts in a human digestive system shown in the above graph. You do not need to use all the letters provided. [2]



Mel made a statement below:

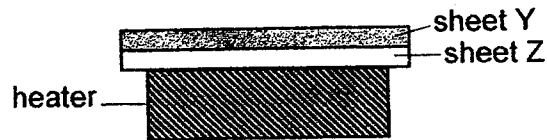
"There are two parts in the human digestive system that carries out digestion."

c) Explain why Mel's statement is incorrect.

[1]

Score	1
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31. Nurul had two similar sheets, Y and Z, made of the same material. She placed the sheets on a heater as shown below.



At the start, sheets Y and Z were of the same length. After 20 minutes, sheet Z became longer than sheet Y.

- (a) Explain why sheet Z became longer than sheet Y. [1]

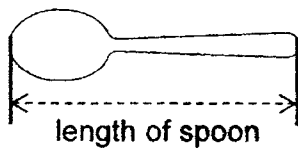
Study the scenarios below. Write down your explanation why the tiles at location P cracked but not the tiles at location Q.

Location	P	Q
Before 10 hours of high heat		
After 10 hours of high heat		

- (b) Explain why tiles at Q did not crack unlike tiles at P [2]

Score	3
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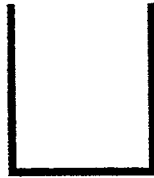
The length of a metal spoon was measured before placing into the refrigerator for 12 hours as shown in the diagram below.



(c) Do you think the length of the spoon will be shorter, longer or the same after 12 hours in the refrigerator? Explain why. [1]

Score	1
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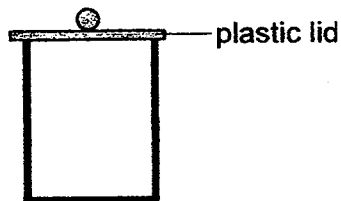
32. Tom has a glass cup with thick walls as shown below.



glass cup

- (a) Tom pours some hot tea into the glass cup. He touches the outer side of the cup with his hand and it feels warmer with time. Explain why. [1]

Tom places a plastic lid over the glass cup as shown in the diagram below.

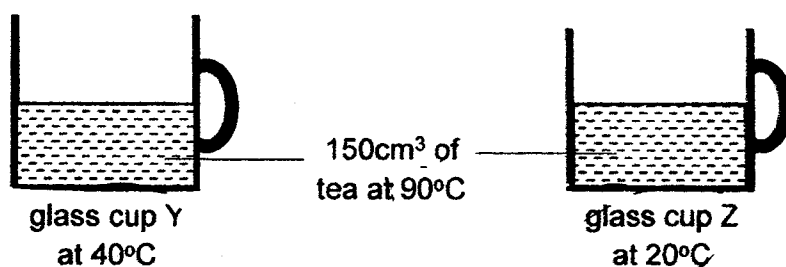


glass cup

- (b) Explain how the plastic lid helps to keep the tea warm for a longer period of time. [1]

Score	2
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The diagram below shows two similar glass cups at different temperatures after 150 cm^3 of tea at 90°C was poured into them at the same time.



(c) Which cup of tea will remain warm longer? Explain why.

[1]

Air is a poor conductor of heat. Tom poured hot tea into a double-walled glass cup with air between the walls.

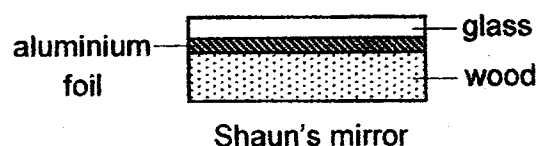


(d) Tom is able to hold the cup containing hot tea without burning his hand. Explain why he is able to do so.

[1]

Score	2
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33. Shaun wants to make a mirror. He needs to place three materials as shown in the diagram below.

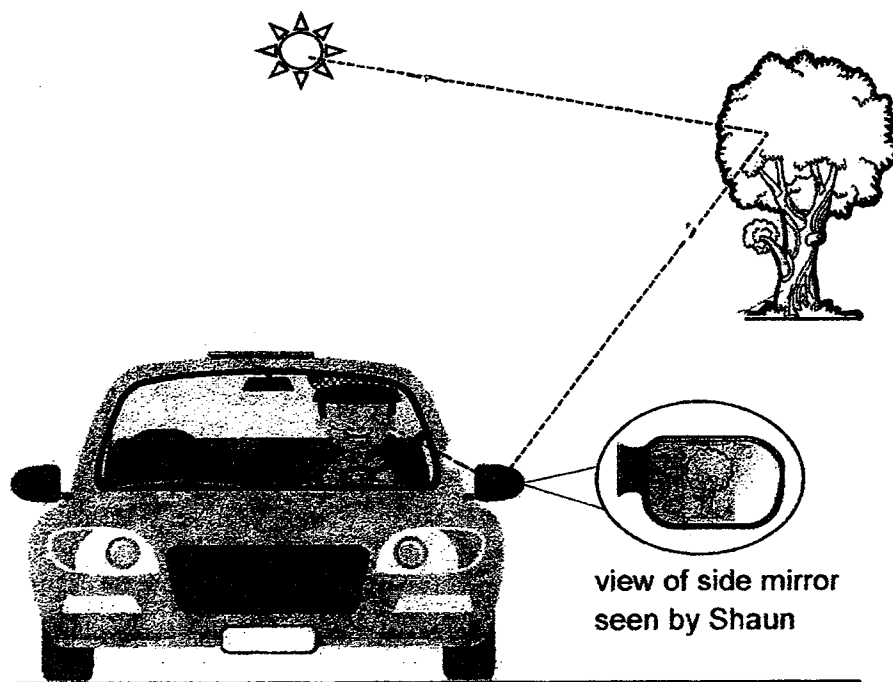


Shaun has conducted an experiment to find out the amount of light that can pass through the type of glasses, A, B and C. The table below shows his results.

Glass	Amount of light that can pass through the glass (units)
A	1250
B	2500
C	1000

- (a) Based on the results, which glass, A, B or C, is most suitable for making the glass layer of the mirror as shown above? Explain your choice [1]

As Shaun drives his car on the road, he is able to see the tree behind using the side mirrors of the car.



(b) Draw the arrow(s) (\longrightarrow) on the three dotted lines in the diagram above to show the path of light. [1]

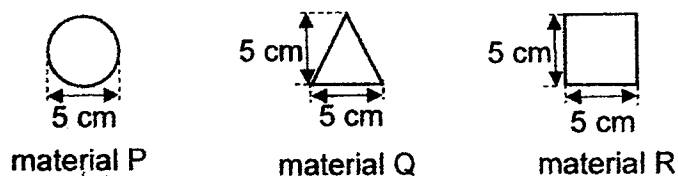
(c) Using the diagram shown above, complete the explanation below on how Shaun can see the tree in his side mirror. (You may use more than one word for each blank.) [1]

_____ from the Sun is _____ from the
tree to the side mirror then into _____

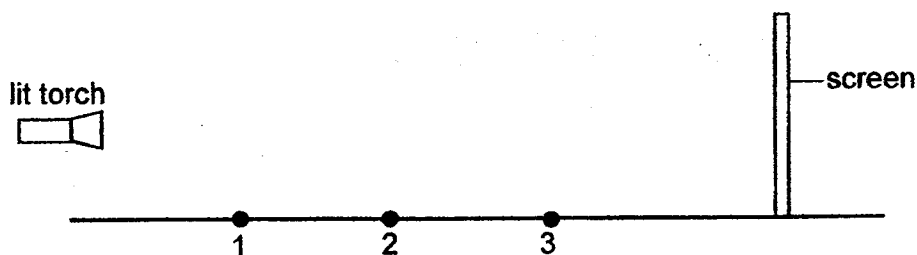
(d) Give one property of light needed for Shaun to see the tree using his side mirrors. [1]

Score	3
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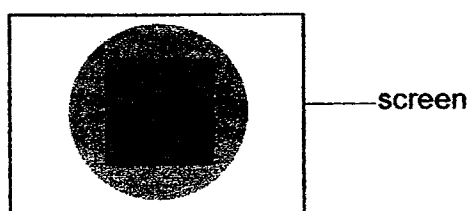
34. Minghan conducted an experiment using three different materials cut into different shapes, P, Q and R. One of the materials allows some light to pass through while the other two do not allow light to pass through.



P, Q and R were placed at positions, 1, 2 and 3, in a line, away from the torch. The experiment was conducted in a dark room.



The diagram below shows what was seen on the screen.

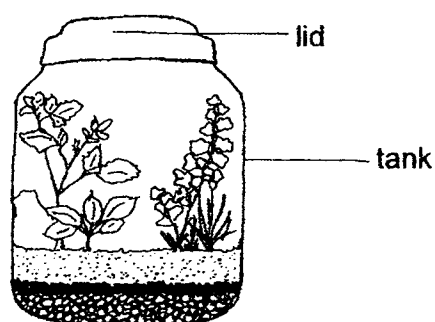


- (a) Based on the result above, fill in the blanks with 1, 2 and 3 to show where materials P, Q and R, had been placed. [1]

Material	Position
P	
Q	
R	

Score	1
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The diagram below shows a tank with a lid and some plants in it.



- (b) Material P is more suitable than material Q and R to make the tank and its lid so that the plants can grow. Explain why. [1]

End of Paper

Score	1
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[illegible]

ANSWER KEY

YEAR : 2018
LEVEL : PRIMARY 4
SCHOOL : TAO NAN SCHOOL
SUBJECT : SCIENCE
TERM : SA2
BOOKLET A

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
2	3	3	2	4	3	4	2	2	2
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
1	4	4	1	1	3	3	2	4	3
Q21	Q22								
1	4								

BOOKLET B

Q23a) The cup is a solid.
b) Milk is a liquid.

Q24)a) Nymph
b) Chicken

Q25)

has 3 pairs of legs	✓
has three body parts	✓

Q26)a) The magnet exerts a magnetic force on the steel rod.
b) Amy's observation shows that steel is a magnetic material.

Q27a)

Mass of sand in the toy submarine (g)	Distance d (cm)
10	25
20	20
30	15
40	10

b) As the mass of the sand increases, distance (d) decreases.
c) The crack allowed air to escape and the water from the container could occupy the space in the toy submarine that was previously occupied by air. Water in the toy submarine has mass, so the toy submarine sank deeper after a while.

Q28a) Container A and E

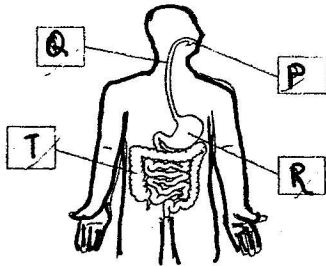
b)i) Azman can use the containers A and B.
ii) The presence of oxygen.

Q29)a) X: Roots

b) Part Y helps the plant trap sunlight to make food for the plant.
c) Part X helps to anchor the plant firmly to the ground.

Q30a) Part X. In T , there was only undigested food as it was the large intestine.

b)



c) The mouth , stomach and small intestine all carry out digestion , so there are three parts in the human digestive system that carries out digestion.

Q31a) Sheet Z gained more heat than Sheet Y as it was closer to the heater , so it expanded more than Sheet Y and became longer than Sheet Y.

b) The tiles at Q had gaps between each tile for expansion when the tiles gained heat and expand on a hot day. However at P , there is no gaps for the tiles to expand so the tiles at P cracked.

c) The length of the spoon will become shorter. The spoon will lose heat to the surrounding air in the refrigerator and contract , causing the spoon length to be shorter.

Q32a) The glass cup gained heat from the hot tea. The heat is then lost to Tom's hand .Hence , Tom's hand will feel warmer with time.

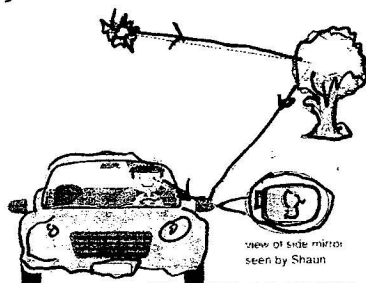
b) It slows down hot tea from losing heat to the surrounding , as plastic is a poor conductor of heat.

c) Glass cup Y . Cup Y has a warmer temperature than glass cup Z , so the hot tea will not lose heat to the cup quickly.

d) The cup has double walls and would not gain heat from the hot tea quickly as the air between the inner and outer wall is a poor conductor of heat .

Q33a) Glass B , it is the most transparent thus more light will be reflected for a clearer image.

b)



c) Light from the sun is reflected from the tree to the side mirror then into Shaun's eyes.

d) Light travels in a straight line.

Q34)

Material	Position
P	1
Q	3
R	2

b) Material P was made of a translucent material , so the leaves of the plant could receive sunlight to make for the plant.

THE END

