



2020 PRIMARY 4 WEIGHTED ASSESSMENT (JAI)

Name : _____ ()

Time: 8.00 a.m. - 9.25 a.m.

Class : Primary 4 ()

Duration: 1 hour 25 minutes

Date: 2 July 2020

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 (20 x 2 marks)

For each question from 1 to 20, 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.

(40 marks)

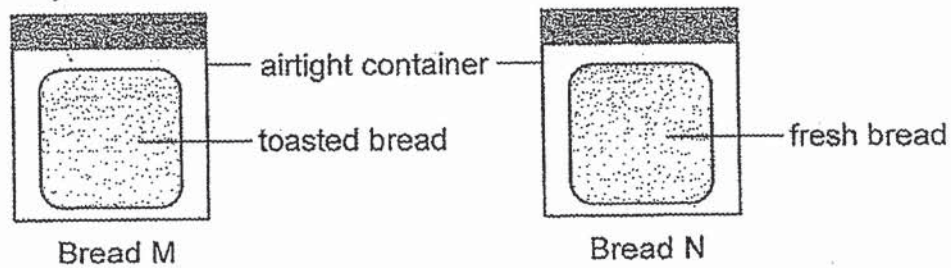
1. Justin approached a cat and it moved away once he got nearer to it as shown below. Based on the diagram, which characteristic of living things did the cat show?



Living things _____.

- (1) grow
- (2) can reproduce
- (3) need air, food and water to survive
- (4) respond to changes in its surrounding

2. Li Ming set up the following experiment to find out if mould needs water to grow on bread. Two slices of similar type of bread, M and N, were placed in an airtight container and left on a table for a week.



Which of the following shows the correct observation and explanation after a week?

	Amount of mould on Bread M compared to Bread N	Reason
(1)	Less	more moisture in the bread
(2)	Less	less moisture in the bread
(3)	More	more moisture in the bread
(4)	More	less moisture in the bread

3. John wants to get a new pair of reading spectacles. He would like one that allows him to bend part X easily so that it is more comfortable when wearing the spectacles.



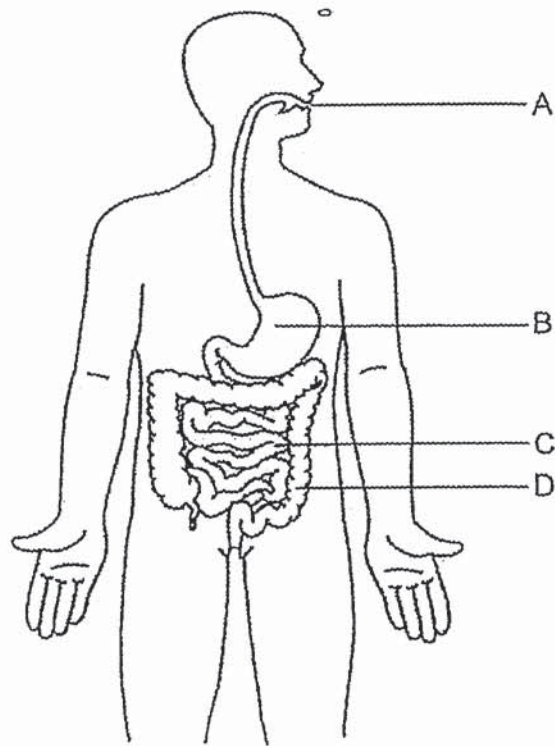
The table below shows four materials and their properties. A tick (✓) shows that the material has the property.

Material	Flexible	Waterproof	Allow most light to pass through
A		✓	
B	✓	✓	✓
C	✓	✓	
D		✓	✓

Based on the table above, which of the materials, A, B, C or D, are suitable to make the different parts of the spectacles?

	Lens	Part X
(1)	A	B
(2)	B	D
(3)	C	A
(4)	D	C

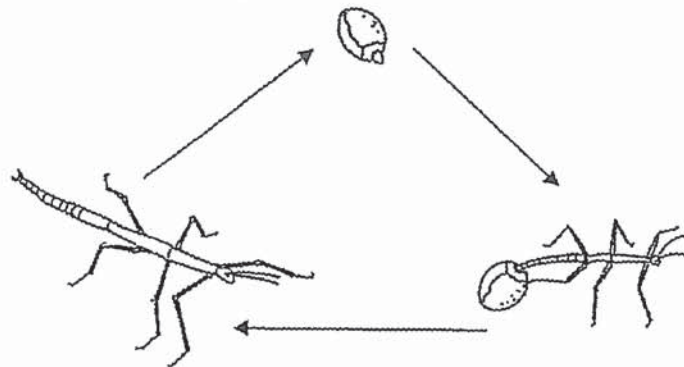
4. The diagram below shows the human digestive system.



Which of the above part(s) absorb(s) digested food?

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

5. Study the life cycle of Insect P shown below.

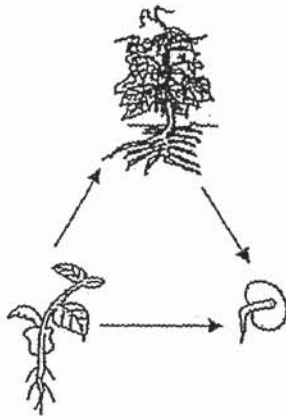


Which of the following statements can be concluded based on the diagram of the life cycle shown above?

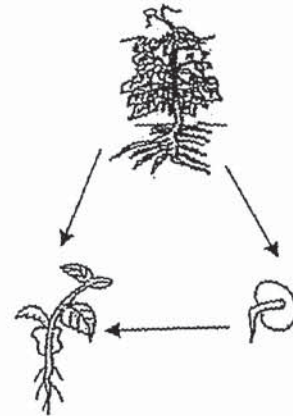
- (1) P feeds on plants.
- (2) P lays its eggs in water.
- (3) P has a four-stage life cycle.
- (4) P has a three-stage life cycle.

6. Which of the following shows the correct life cycle of a plant?

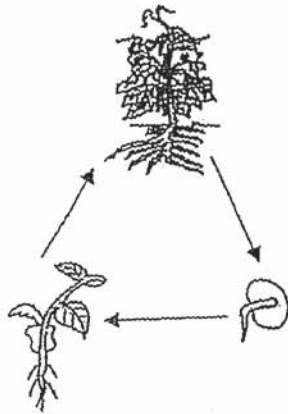
(1)



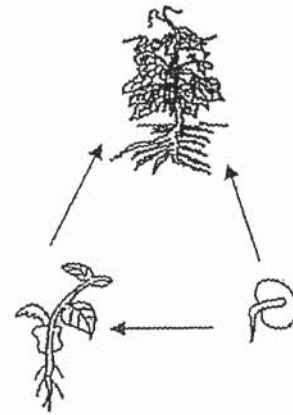
(2)



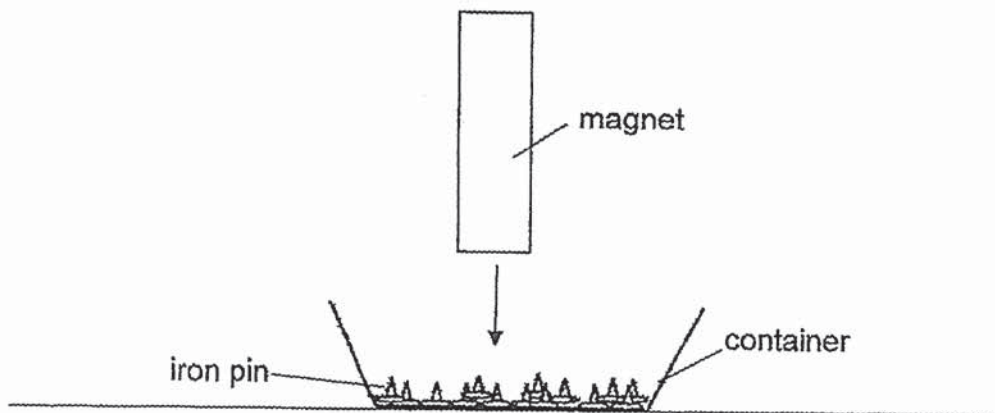
(3)



(4)



7. Michelle wanted to test the magnetic strength of four magnets, Q, R, S and T. She lowered each magnet into the container and recorded the number of identical iron pins attracted by each magnet.

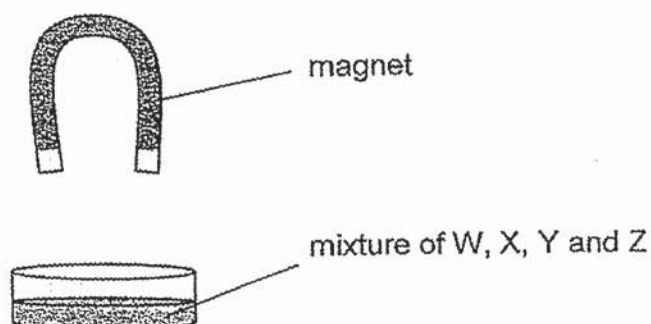


Magnet	Number of iron pins attracted to the magnet
Q	8
R	5
S	1
T	3

Which of the following statements is most likely to be correct?

- (1) Magnet Q is the weakest magnet.
- (2) Magnet S is the strongest magnet.
- (3) Magnet T is a weaker magnet than Magnet S.
- (4) Magnet R is a stronger magnet than Magnet T.

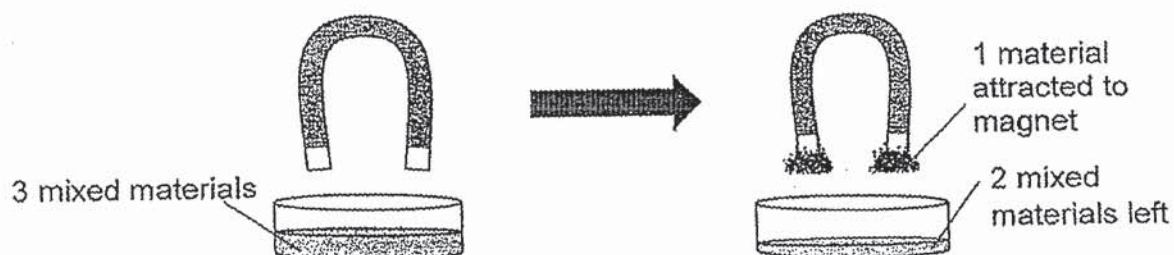
8. A magnet was brought near a mixture of four different materials, W, X, Y and Z, all placed inside a container as shown below.



The result was as shown in the table below.

Materials not attracted to the magnet	Materials attracted to the magnet
W and X	Y and Z

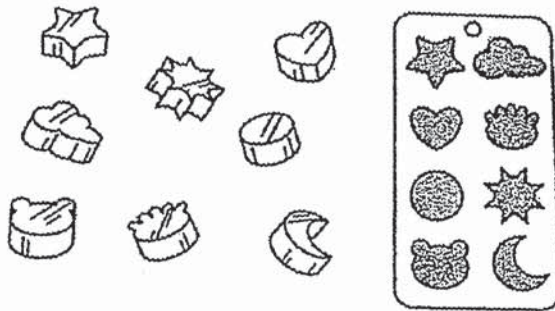
Next, Ken mixed three of the four materials in the container and brought the magnet near them. He observed that one material was separated out as shown.



Which of the following shows the correct material that could be separated from the following mixtures using a magnet?

	Mixture of materials	Material that was separated out
(1)	Y, W and X	W
(2)	Z, W and X	X
(3)	Y, Z and W	Y
(4)	Z, W and X	Z

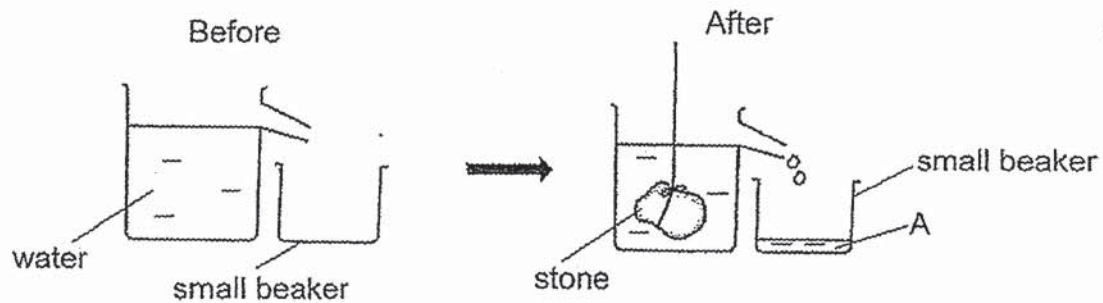
9. Which of the following has no mass and does not occupy space?
- (1) Air
 - (2) Oil
 - (3) Shadow
 - (4) Feather
10. Susan made ice of different shapes using the ice tray shown below. She filled the tray with water and then left it in the freezer.



Why was Susan able to make ice of different shapes with the ice tray?

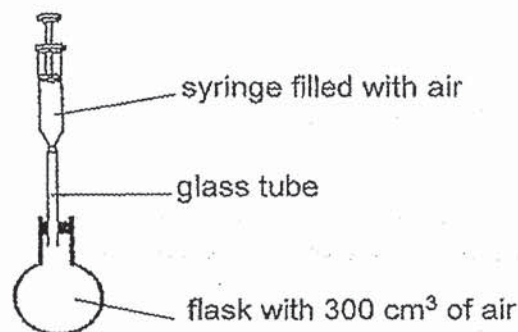
- (1) Ice does not have a definite shape.
- (2) Ice does not have a definite volume.
- (3) Water does not have a definite shape.
- (4) Water does not have a definite volume.

11. Study the experiment shown below.



The amount of water, A, which is collected in the small beaker, tells us the _____ of the stone.

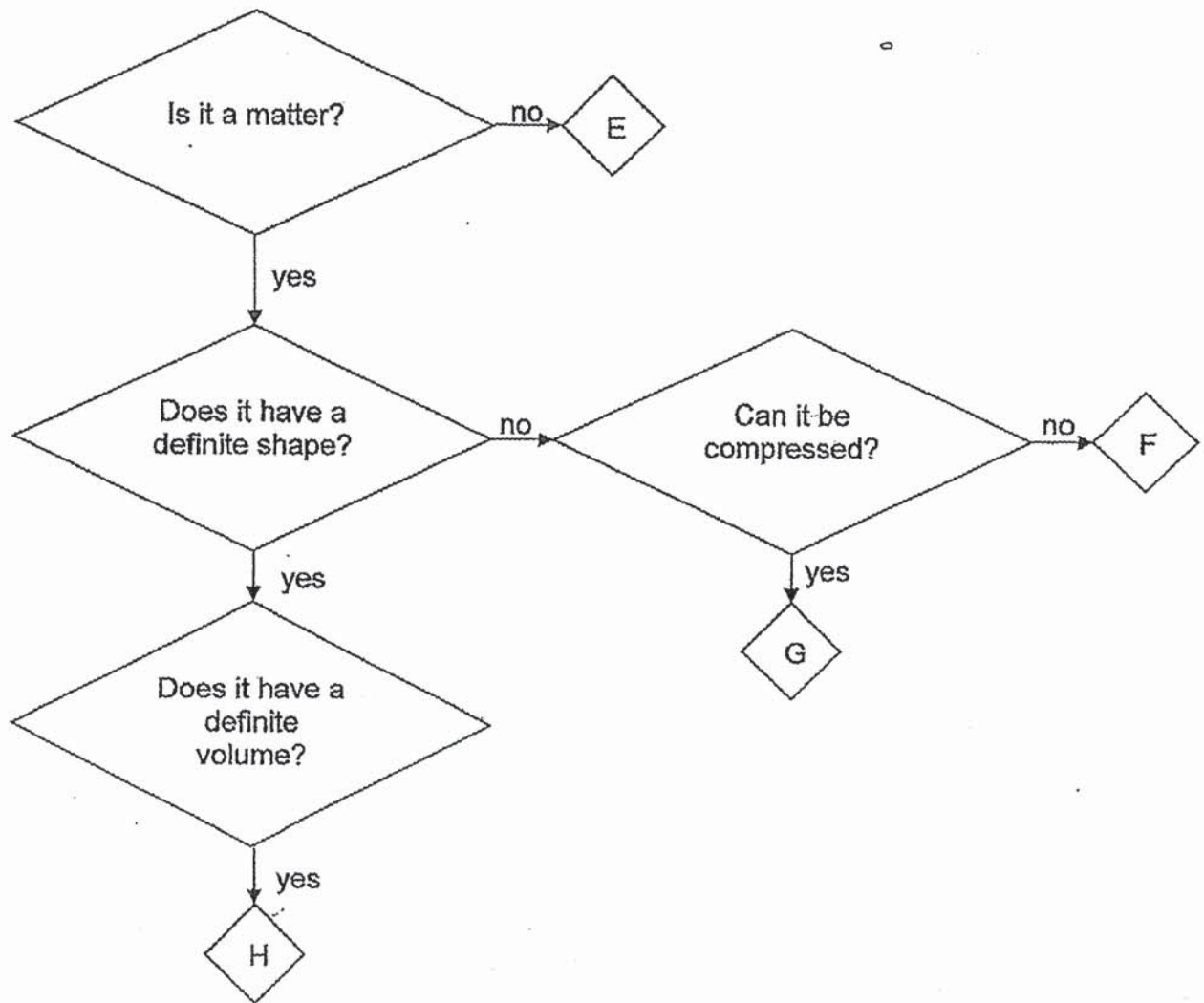
- (1) mass
 - (2) volume
 - (3) state of matter
 - (4) mass and volume
12. A glass flask of volume 300 cm^3 is connected to a syringe filled with air.



If additional 40 cm^3 of air is pumped into the flask, what would be the final volume of air in the glass flask?

- (1) 40 cm^3
- (2) 260 cm^3
- (3) 300 cm^3
- (4) 340 cm^3

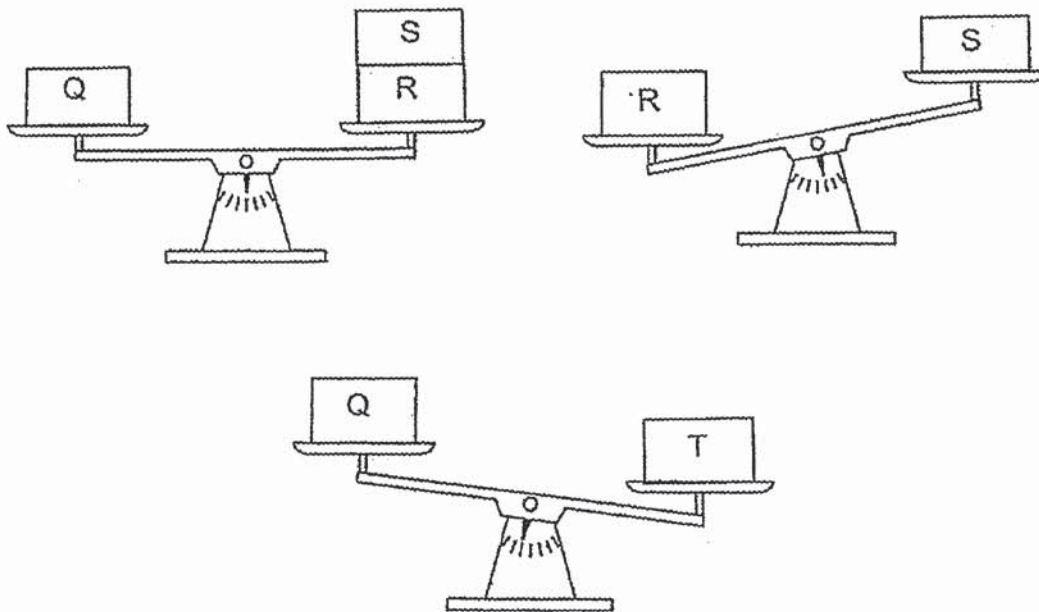
13. Study the chart below.



Which of the following best represents E, F, G and H?

	E	F	G	H
(1)	air	light	water	paper
(2)	paper	air	light	water
(3)	light	water	air	paper
(4)	light	air	water	paper

14. Study the diagrams below carefully.



Which of the following correctly arranges the objects' masses from the smallest to the greatest?

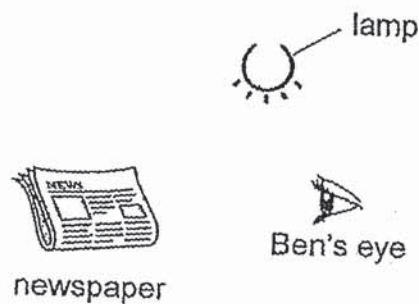
- (1) $T \rightarrow Q \rightarrow R \rightarrow S$
- (2) $Q \rightarrow R \rightarrow S \rightarrow T$
- (3) $R \rightarrow S \rightarrow T \rightarrow Q$
- (4) $S \rightarrow R \rightarrow Q \rightarrow T$

15. Which of the following is/are sources of light?

- A Sun
- B Moon
- C Mirror
- D Lit torch

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

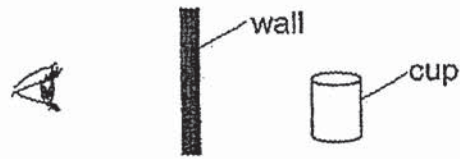
16. Study the diagram below.



Which of the following explains how Ben is able to see the newspaper?

- (1) Ben's eyes gives out light.
- (2) Light travels in a straight line.
- (3) The lamp is the source of light.
- (4) The newspaper reflects light from the lamp into Ben's eyes.

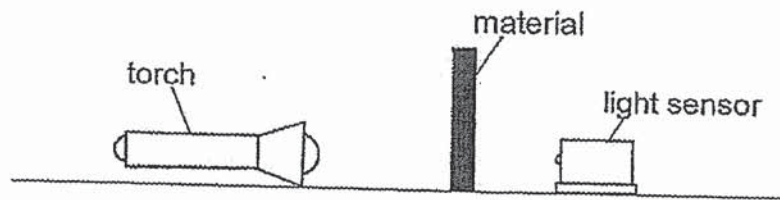
17. Jane wants to use a mirror to see a cup which was placed behind the wall.



Which of the following diagrams shows the correct position of the mirror?

(1)	Diagram (1) shows an eye on the left, a vertical wall in the center, and a cup on the right. A horizontal mirror is positioned above the wall, labeled 'mirror'.
(2)	Diagram (2) shows an eye on the left, a vertical wall in the center, and a cup on the right. An L-shaped mirror is positioned on the wall and above it, labeled 'mirror'.
(3)	Diagram (3) shows an eye on the left, a vertical wall in the center, and a cup on the right. A vertical mirror is positioned to the left of the wall, labeled 'mirror'.
(4)	Diagram (4) shows an eye on the left, a vertical wall in the center, and a cup on the right. A vertical mirror is positioned to the right of the wall, labeled 'mirror'.

18. An experiment shown below was conducted to compare the amount of light that passes through four different materials, W, X, Y and Z. A light sensor was used to detect how much light passes through each material.



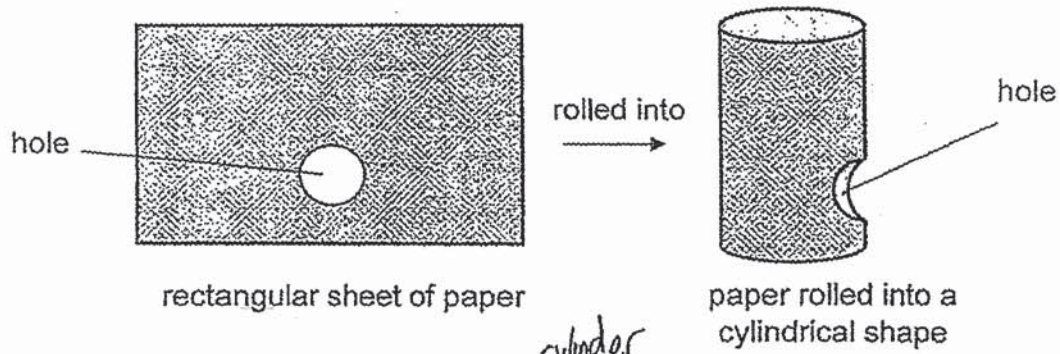
The readings were recorded in the table below.

Material	Amount of light detected (units)
none	5000
W	4800
X	2900
Y	110
Z	600

Based on the table above, which of the materials, W, X, Y or Z, will cast the darkest shadow on a screen?

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

19. Bala cut out a circular hole from a thick piece of rectangular-shaped paper and rolled it into a cylinder as shown below.



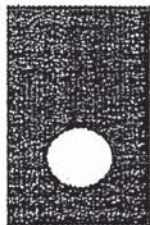
He then used a torch to shine on the ~~cone~~ *cylinder* to form some shadows on a wall. Which of the following shadows ~~cannot~~ be formed by the ~~cone~~ *cylinder*?



(1)



(2)

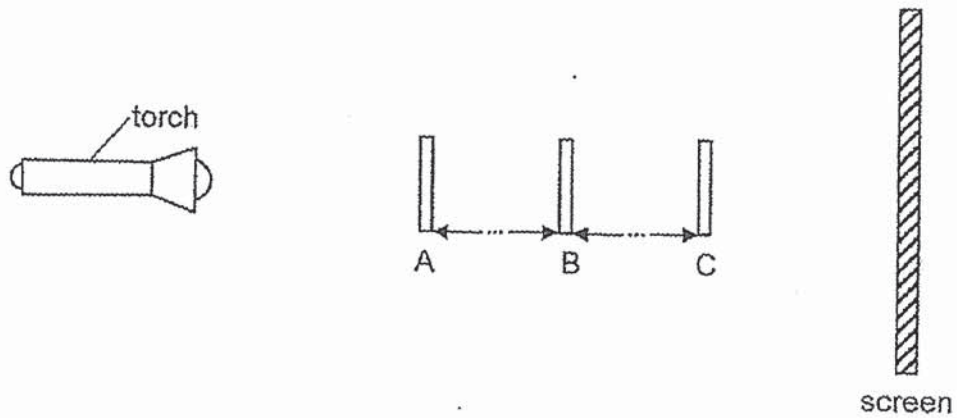


(3)



(4)

20. Three cardboard pieces, A, B and C are arranged in a straight line at a certain distance apart as shown below. The three cardboard pieces have the same height.



The diagram below shows the shadow that is cast on the screen.



What are the shapes of A, B and C?

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

End of Booklet A



2020 PRIMARY 4 WEIGHTED ASSESSMENT

Name : _____ ()

Time: 8.00 a.m. – 9.25 a.m.

Class : Primary 4 ()

Duration: 1 hour 25 minutes

Parent's Signature : _____

Date: 2 July 2020

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	40
Booklet B	30
Total	70

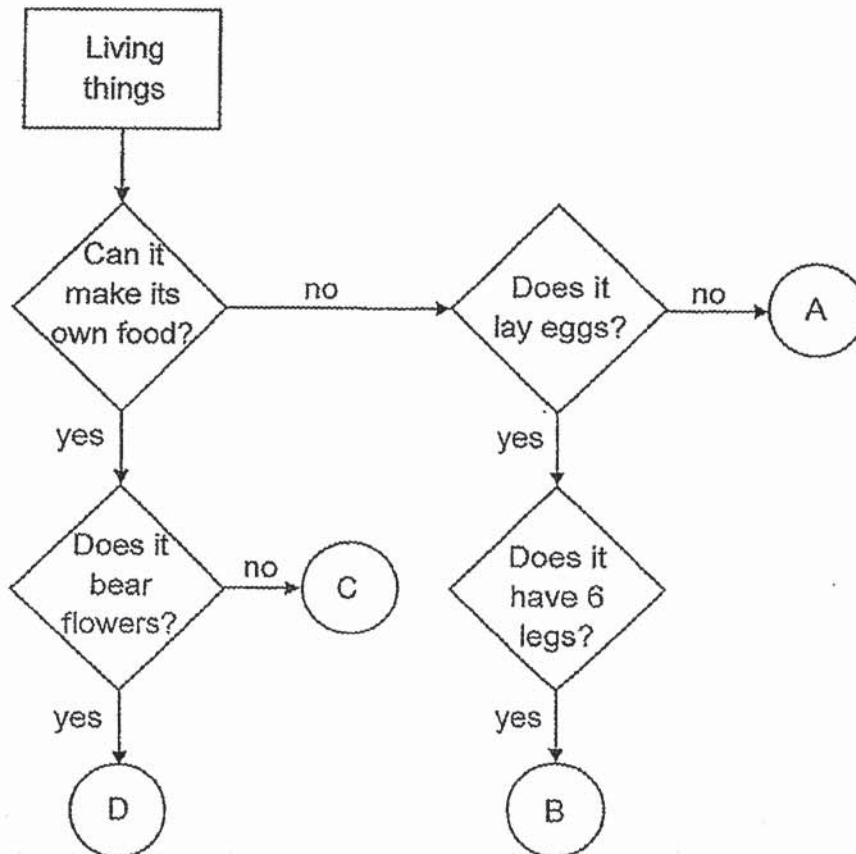
Booklet B (30 marks)

For questions 21 to 31, 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.

(30 marks)

21. Study the chart below.



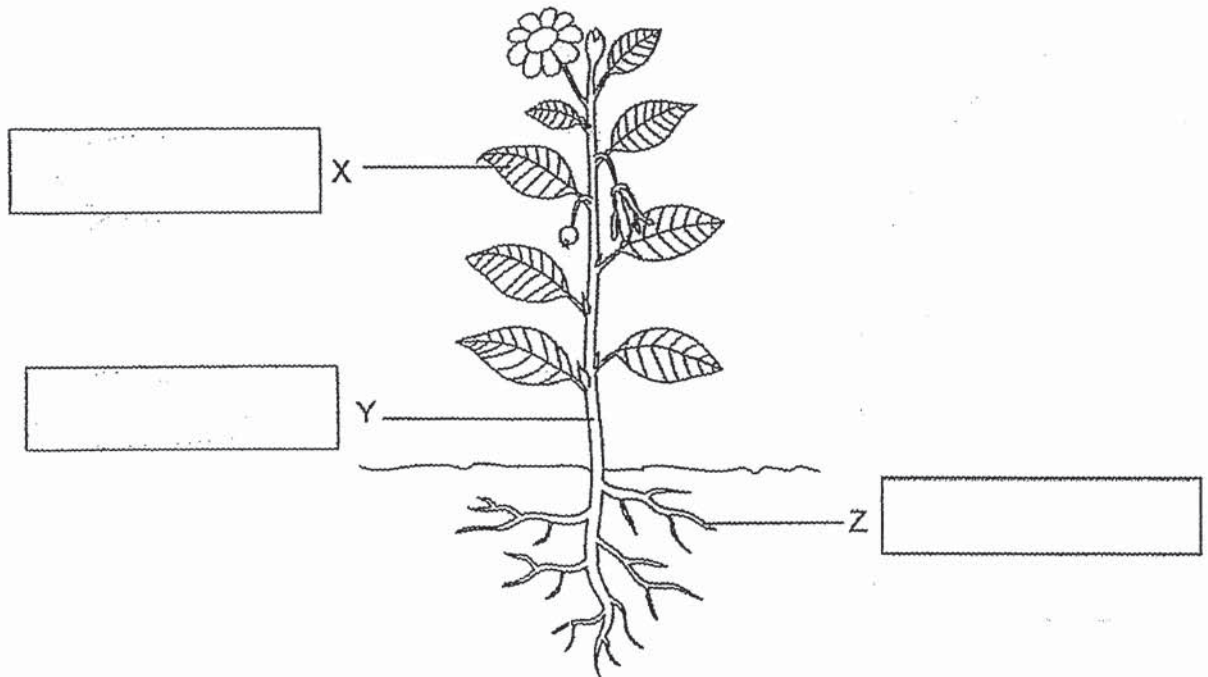
Based on the above chart, write down the letters, A, B, C or D, that best represent the living things below. [2]

Living Thing	Letter
Horse	
Papaya plant	
Moss	
Dragonfly	

22. The diagram below shows the different parts of a plant.

(a) Fill in the blanks below with the names of each plant part.

[1½]



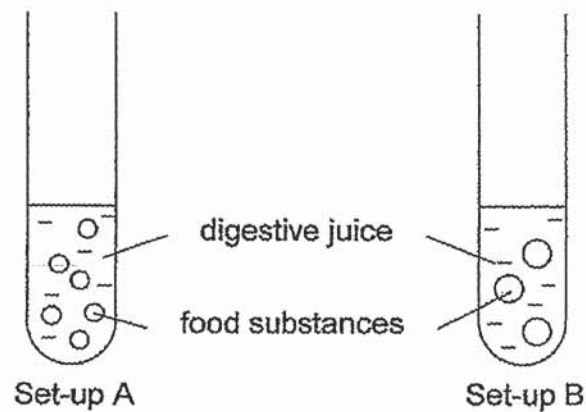
(b) State a function of X, Y and Z.

[1½]

	Function
X	_____
Y	_____
Z	_____

Score	3
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23. Jessica set up the following experiment to find out if the size of food particles affects the rate of digestion. She used the same amount of food substances and digestive juice in both test tubes but the food substances are cut into different sizes as shown below.



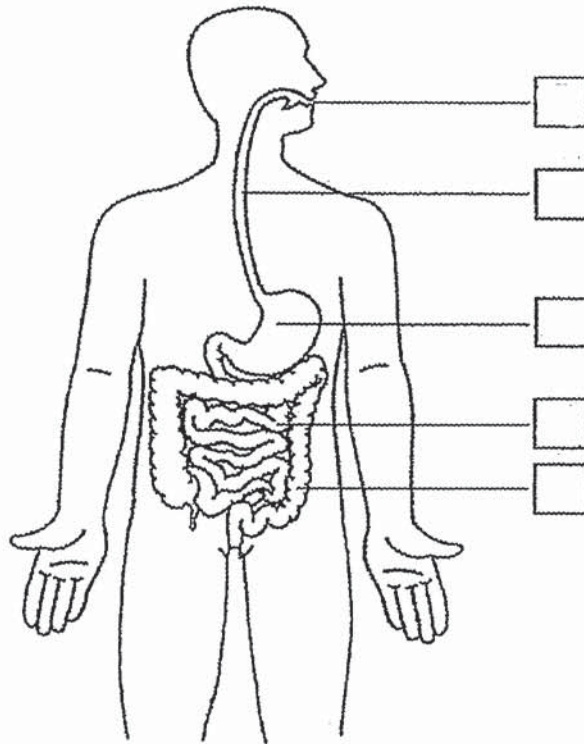
She repeated the experiment and recorded her results in the table below.

Time taken for food substances to be digested completely (min)		
Result	1 st try	2 nd try
X	3	4
Y	10	9

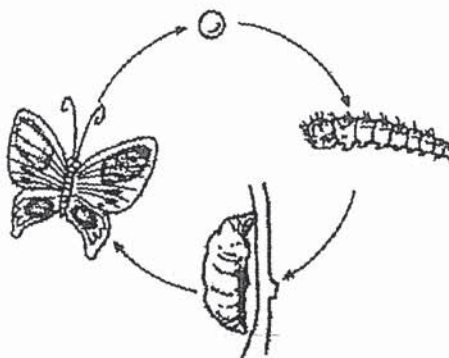
- (a) Based on the information above, which set of test results, X or Y, most likely belongs to set-up A? Give a reason for your answer. [2]

The diagram below shows a human digestive system.

(b) Tick (✓) in the boxes below to show the part(s) which produce(s) digestive juices.



24. Ali wants to find out the effect of the surrounding temperature on the development of Insect A.



Life cycle of Insect A

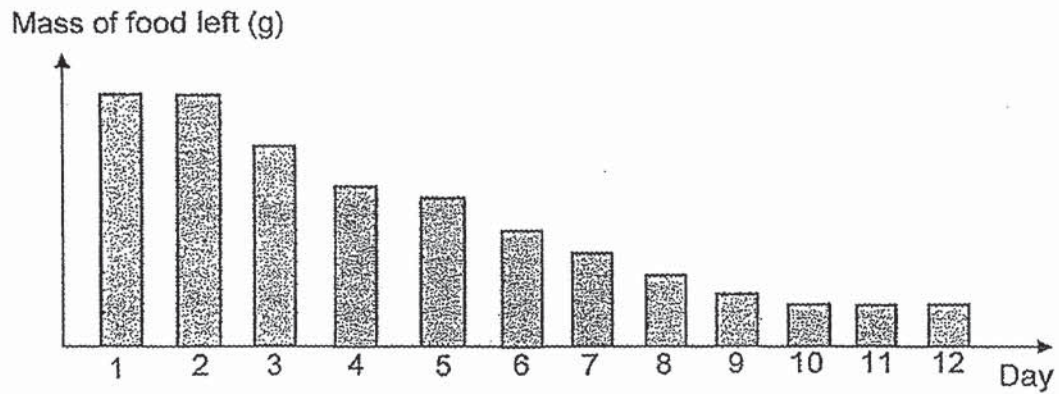
The table below shows the effect of the surrounding temperature on the duration of the egg, larval and pupal stage of Insect A.

Surrounding temperature (°C)	Number of days an egg takes to hatch	Number of days as a larva	Number of days as a pupa	Total number of days to develop into an adult after the egg is laid
25	3	12	5	20
27	2	10	4	16
29	2	7	3	12

- (a) Based on the results, what is the relationship between the total number of days for the eggs to develop into adult and the surrounding temperature when it rises from 25°C to 29°C? [1]

Score	1
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With the surrounding temperature at 29°C, Ali added food into the container where he kept Insect A's eggs. The graph below shows his results which he recorded the mass of food in the container daily for a period of 12 days.

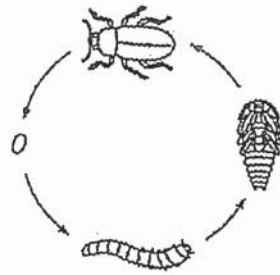


(b) Explain why the amount of food in the container decreases from Day 3 to Day 9. [1]

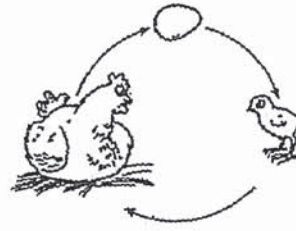
(c) Explain why the amount of food in the container remains unchanged from Day 10 to Day 12. [1]

Score	2
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25. Study the life cycles of X and Y.



Life cycle of X



Life cycle of Y

(a) State one similarity between the life cycles of X and Y. [1]

(b) State two differences between the life cycles of X and Y. [2]

Score	3
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26. Sam carried out an experiment to find out how the amount of water given to a seedling affects its growth. He planted three identical seedlings in three identical pots of soil. He gave different amounts of water to the three seedlings every day for one week. He measured the height of the seedling daily. His results are shown in the table.

Seedling	Amount of water given every day (ml)	Height of seedling (cm)		
		Day 0	Day 5	Day 7
A	1	1	2	3
B	3	1	3	5
C	5	1	5	9

- (a) How did Sam know that the seedlings were growing?

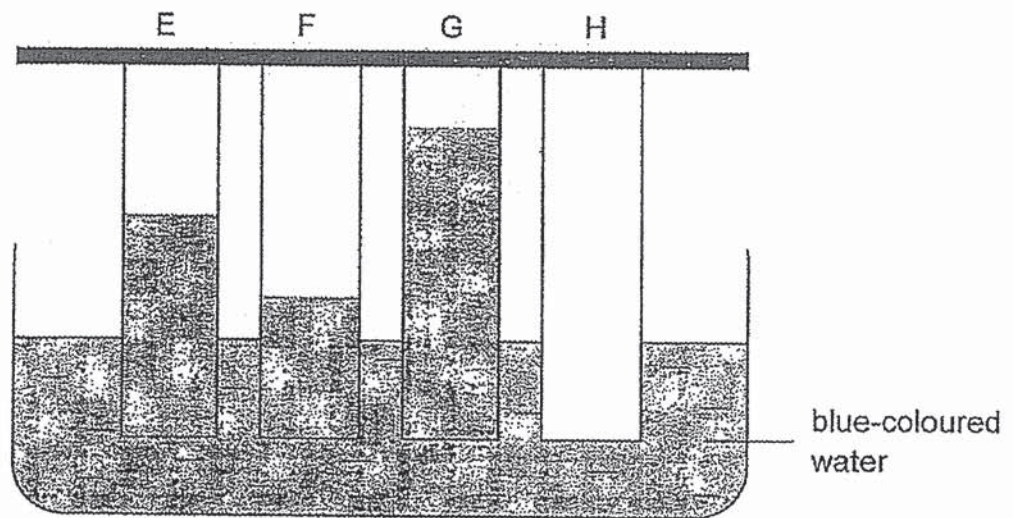
[1]

- (b) Sam's teacher suggested that Sam repeats his experiment three more times. How will doing this help in the results of his experiment?

[1]

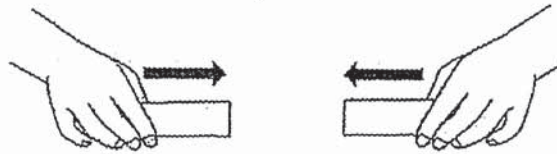
Score	2
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27. Four strips made of different materials, E, F, G and H, were dipped into a container of blue-coloured water for five minutes as shown below.



Based on the results, which material, E, F, G or H, is most suitable for making a bath towel? Explain your answer. [2]

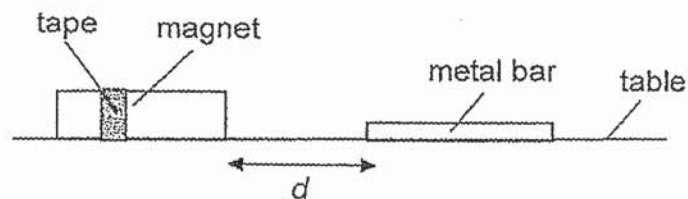
28. Vashti pushed two magnets towards each other as shown below. She observed that as the magnets were brought near to each other, she had to push harder to keep them in place.



- (a) Explain why Vashti had to push the magnets harder to keep them in place.

[1]

Vashti taped a magnet on a table. Metal bar, P, was brought to a distance 'd' from the magnet as shown below.



She then let go of P and recorded the change in distance 'd' in the table below. She then repeated the same steps for metal bars, Q and R.

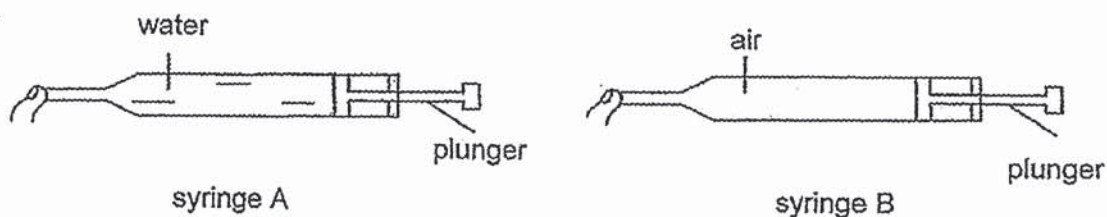
Bar	P	Q	R
Distance d	increased	decreased	no change

- (b) Which bar(s), P, Q, or R is/are made of magnetic material? Explain your answer.

[1]

Score	2
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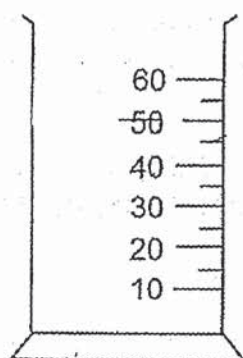
29. The diagram below shows two syringes, A and B. Each syringe has a capacity of 50 ml.



- (a) What would the observations be if the plungers for both syringes, A and B, are given the same amount of push? [1]

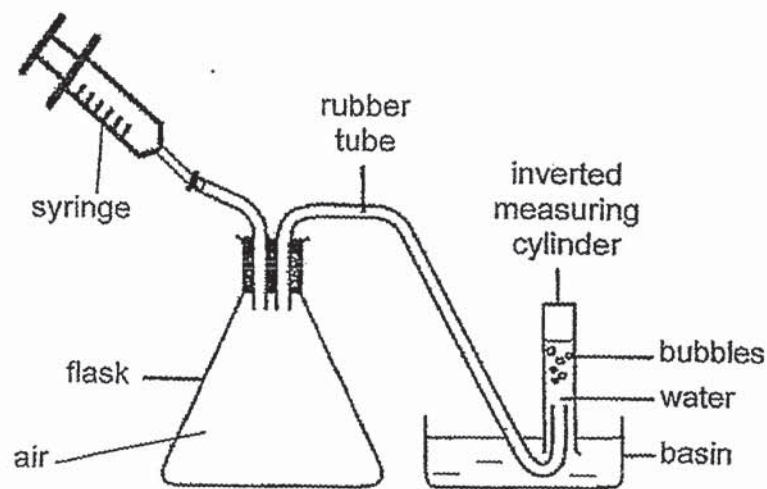
- (b) Explain your observation in (a) for Syringe [1]

- (c) The water in Syringe ^A~~B~~ was emptied into the measuring cylinder. Draw the water level in the measuring cylinder. [1]



Score	3
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30. David used a syringe to pump air into the flask. After a few pumps, bubbles were observed coming out from the other end of the rubber tube and entering the measuring cylinder.



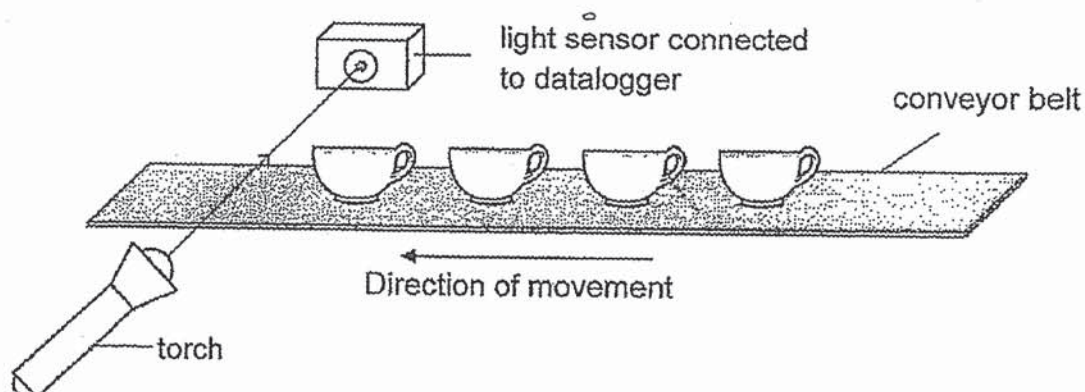
- (a) Explain why bubbles are seen coming out from the other end of the rubber tube. [2]

- (b) Describe what would happen to the water level in the inverted measuring cylinder when bubbles are seen escaping from the rubber tube. [1]

- (c) Give an explanation for your answer in (b). [1]

Score	4
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31. A factory that manufactures ceramic cups uses a light sensor connected to a datalogger to count the number of ceramic cups on a moving conveyor belt as shown in the diagram below.



- (a) State a property of light which enables the set-up to count the number of cups. [1]

- (b) The above set-up cannot be used to count the number of clear glass cups. Explain why. [1]

- (c) Suggest one change to the above set-up so that it can now be used to count the number of clear glass cups. [1]

Score	3
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End of Paper

ANSWER KEY

YEAR: 2020

LEVEL: PRIMARY 4

SCHOOL: TAO NAN SCHOOL

SUBJECT: SCIENCE

TERM: 4

BOOKLET A

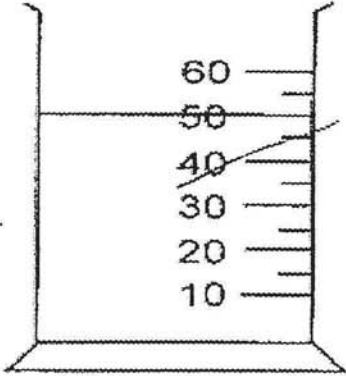
Q1	4	Q2	2	Q3	4	Q4	1	Q5	4
Q6	3	Q7	4	Q8	4	Q9	3	Q10	3
Q11	2	Q12	3	Q13	3	Q14	4	Q15	2
Q16	4	Q17	1	Q18	3	Q19	3	Q20	3

BOOKLET B

Q21	Horse- A Papaya plant- D Moss- C Dragonfly- B
Q22	a) X: Leaf Y: Stem Z: Root b) X: Allows gaseous exchange. / Make food for the plant. Y: Support and keeps plant upright. / Transport water and minerals to other parts of the plant. Z: Hold the plant firmly to the soil / Absorbs water from the soil.
Q23	a)The food has a greater (exposed) surface area to the digestive juices and this increases the rate of digestion. b)Mouth, stomach, small intestine.
Q24	a)As the surrounding temperature from 25°C to 29°C increases, the total number of days for the eggs to develop into an adult decreases. b)Insect A, at its larval stage and it does not eat at this stage. c)Insect A is at the pupal stage and it does not eat at this stage.
Q25	a)Both life cycles have an egg/ young / adult stage. b)Y's young looks like its adult while X's young does not.
Q26	a)The height of the seedlings increases. b)This is to ensure the results/ readings are reliable.

Primary 4 Science Weighted Assessment Booklet B
Suggested answers for students

Qn	Suggested answer	Checked
21	Horse - A Papaya plant- D Moss- C Dragonfly- B	
22a	X: leaf Y: stem Z: root	
22b	Function X: Allows gaseous exchange / Makes food for the plant Y: Support and keeps plant upright/ Transport water and minerals to other parts of the plant Z: Hold the plant firmly to the soil / Absorbs water from the soil	
23a	The food has a greater (exposed) surface area to the digestive juices and this increases the rate of digestion.	
23b	Mouth, stomach, small intestine	
24a	As the surrounding temperature from 25°C to 29°C increases, the total number of days for the eggs to develop into an adult decreases.	
24b	Insect A, at its larval stage, has eaten the food.	
24c	Insect A is at the pupal stage and it does not eat at this stage.	
25a	Both life cycles have an egg stage/young stage/adult stage. (on life cycle)	
25b	Y's young looks like its adult while X's young does not. X has a 4-stage life cycle while Y has a 3-stage life cycle.	
26a	The height of the seedlings increases.	
26b	This is to ensure the results/readings are reliable.	
27	Material G. Material G absorbs the most amount of water so the towel can be used to dry a person up the most.	
28a	The like poles of the two magnets are facing each other and so they are repelling each other.	
28b	Bar P and Q. Bar Q, only a magnetic material, was attracted to the magnet so d decreased. Bar P, also a magnet, was repelled by the magnet as the like poles of P and the magnet are facing each other.	
29a	Plunger of syringe B can be pushed in but not plunger of syringe A.	

Q27	Material G. It absorbs the most amount of water so the towel can be used to dry a person up the most.
Q28	a)The like poles of two magnet are facing each other and so they are repelling each other. b)Bar P and Bar Q. Bar Q only a magnetic material, was attracted so d decreased. Bar P, also a magnet, was repelled by the magnet as the like poles of P and the magnet are facing each other.
Q29	a)Plunger of syringe B can be pushed in but not plunger of syringe A. b)Air in syringe B can be compressed c) 
Q30	a)Air in the flask occupies space. When air in the flask can no longer be compressed, the air escapes out of the tube occupying the space previously occupied by the water. b)The water level would decrease c)Air in the measuring cylinder takes the place previously occupied by the water.
Q31	a)Light travels in a straight line. b)The clear glass cups allow most light to pass through and would be able to detect light from the torch when a clear glass cup is between them. c)Place the clear glass cups in opaque cardboard boxes.

3

END.