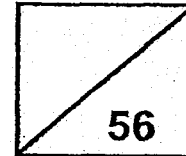




Rosyth School
Semestral Assessment 1 2018
SCIENCE
Primary 4

Total
Marks:



Name: _____

Class: Pr 4 _____

Register No. _____

Duration: 1 h 45 min

Date: 9 May 2018

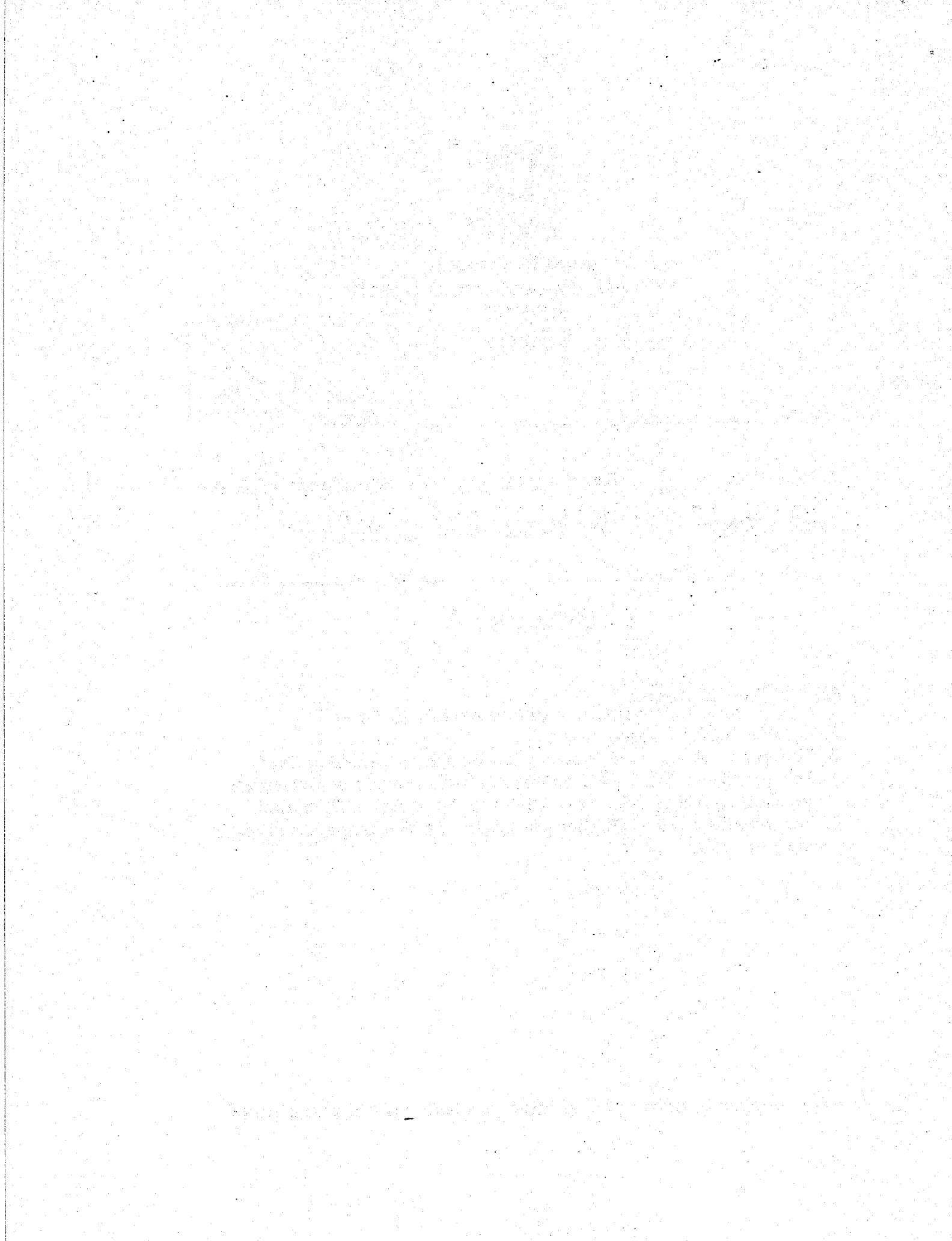
Parent's Signature: _____

Booklet A

Instructions to Pupils:

1. Do not open the booklets until you are told to do so.
2. Follow all instructions carefully.
3. This paper consists of 2 booklets - Booklet A and Booklet B
4. For questions 1 to 28 in Booklet A, shade the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.
5. For questions 29 to 40, give your answers in the spaces given in the Booklet B.

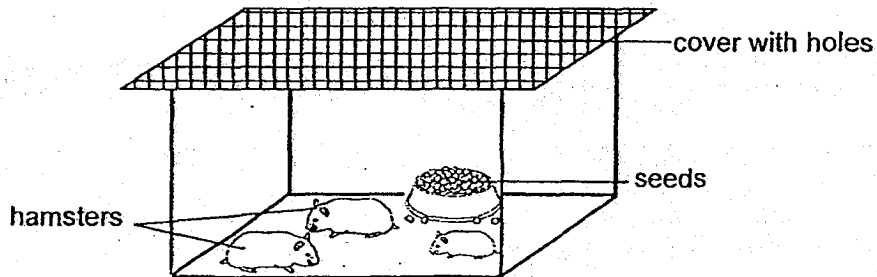
* This booklet consists of 17 printed pages (including cover page).



Booklet A (56 marks)

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet (OAS).

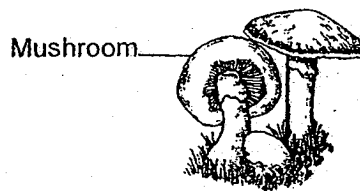
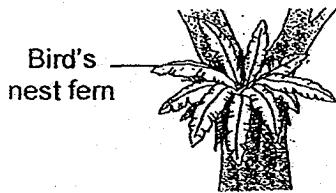
1. Jane observed some hamsters in the set-up shown below.



After one week, the hamsters were dead. Which one of the following is most likely to be the reason why the hamsters were dead?

- (1) There was no water.
- (2) There was not enough air.
- (3) There was not enough space.
- (4) There was not enough sunlight.

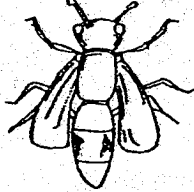
2. Study the pictures below.



How is the bird's nest fern different from the mushroom?

	Bird's nest fern	Mushroom
(1)	Fungi	Plant
(2)	No flowers	Has flowers
(3)	Reproduces by seeds	Reproduces by spores
(4)	Needs sunlight to grow	Does not need sunlight to grow

3. Samy found an unknown organism X in his garden.



Organism X

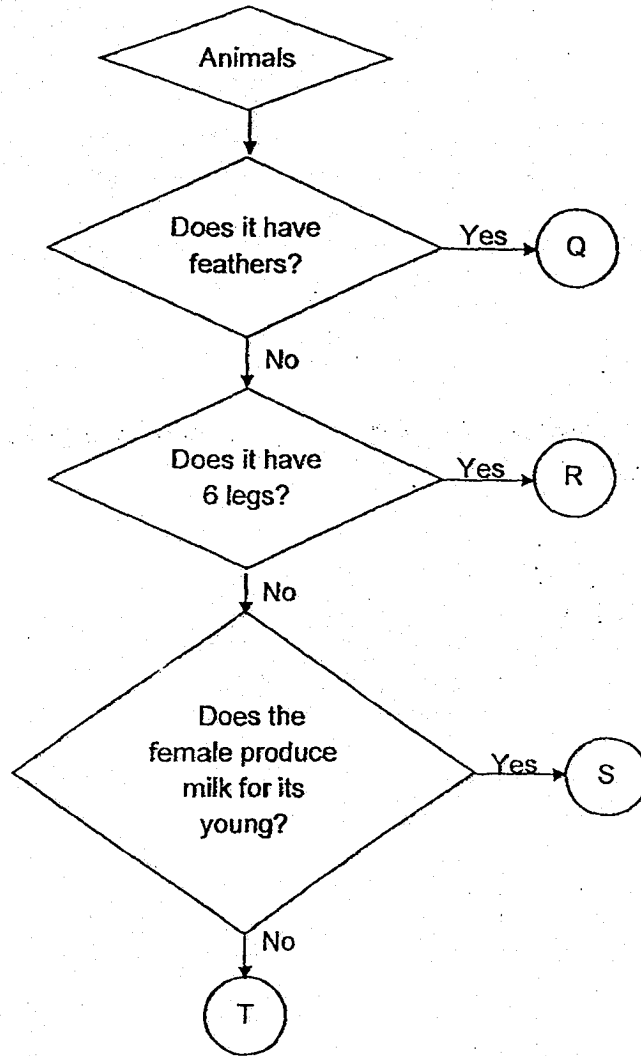
His mother said that the organism was an insect. In order to find out if Organism X is an insect, which one of the following should he carry out?

- A : Measure the length of its body.
- B : Look for the presence of wings.
- C : Count the number of legs it has.
- D : Count the number of body parts it has.

- (1) A and B only
- (3) B and C only

- (2) A and D only
- (4) C and D only

4. Study the flowchart below.

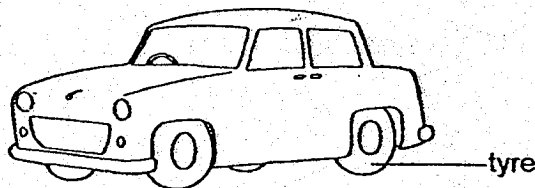


Based on the flowchart above, which of the following best describes a cat?

- (1) Q
- (3) S

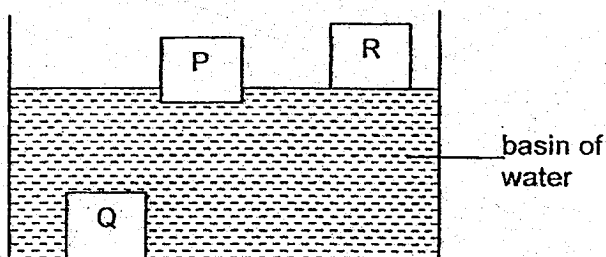
- (2) R
- (4) T

5. A car manufacturer had to decide on the best material to make the different parts of the car.

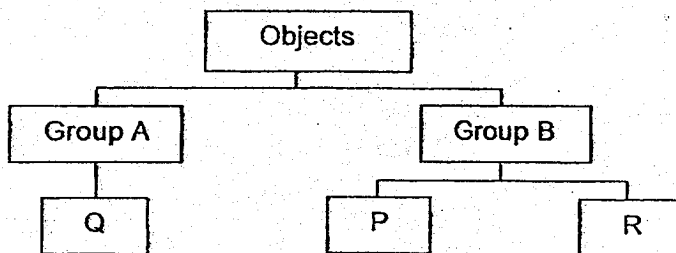


Which one of the following is the best material to make the tyres of the car?

- (1) glass (2) metal
 (3) rubber (4) plastic
6. Xinyi conducted a test using 3 objects, P, Q and R that were made of different materials. The result was shown below.



Based on the result, she classified the objects in the classification chart below.



Which one of the following best describes the property represented by Group A and B respectively?

	Group A	Group B
(1)	weak	strong
(2)	waterproof	not waterproof
(3)	flexible	stiff
(4)	sinks in water	floats on water

7. The table below describes the stages of life cycles of four animals.

Description	Animal A	Animal B	Animal C	Animal D
There are 4 stages in its life cycle.	No	No	Yes	Yes
The adult lays eggs on land.	Yes	No	Yes	No
The young resembles the adult.	Yes	No	No	No

Based on the information in the table above, which of the animals best describes a mealworm beetle?

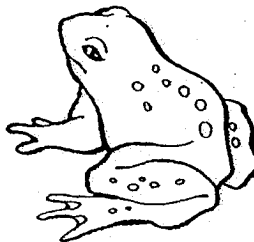
- (1) Animal A
(3) Animal C

- (2) Animal B
(4) Animal D

8. The pictures below show the adult frog and its young.



Young



Adult

The statements below describe the young and adult of the frog.

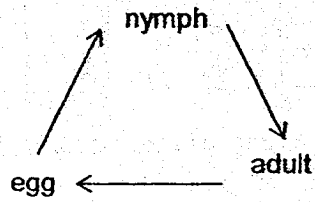
- A : The young does not resemble the adult.
 B : Both the young and the adult have a tail.
 C : The adult has legs but the young does not.

Which of the above statements are correct?

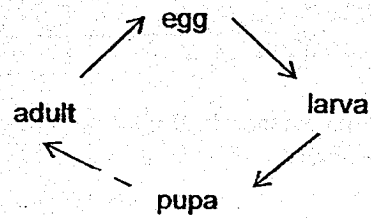
- (1) A and C only (2) B and C only
 (3) A and B only (4) A, B and C

9. Look at the diagrams below.
Which life cycle is not correct?

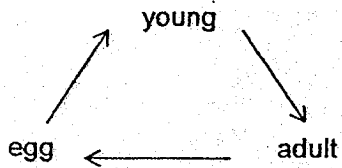
(1) Life Cycle of Cockroach



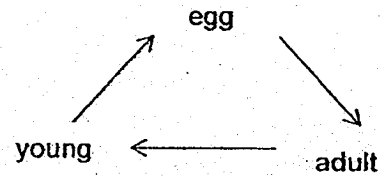
(2) Life Cycle of Mosquito



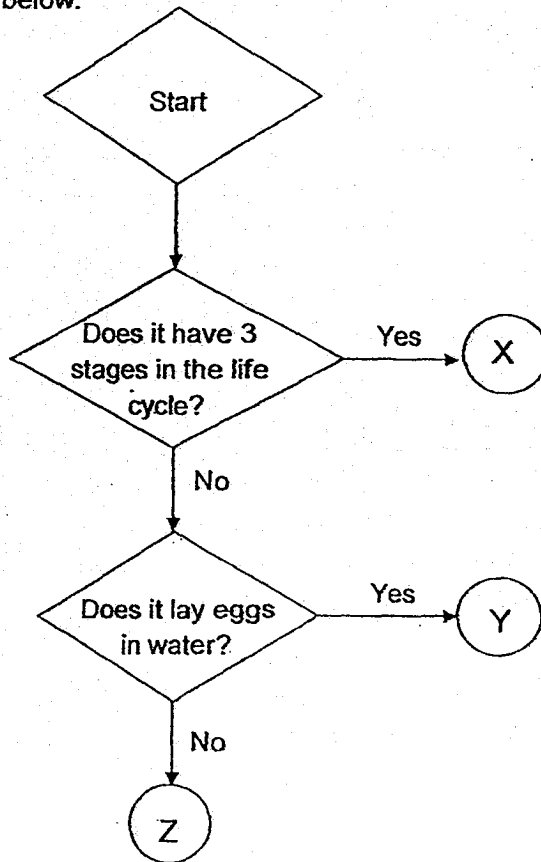
(3) Life Cycle of Frog



(4) Life Cycle of Fish



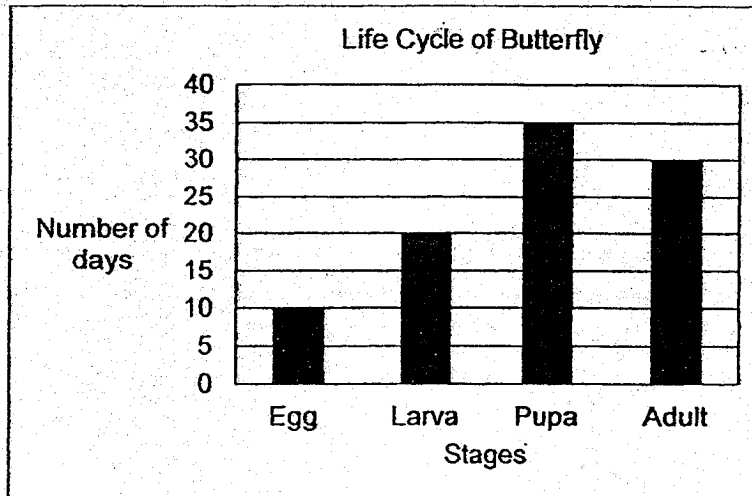
10. Study the flowchart below.



Based on the flowchart, which of the above letters best represents the mealworm beetle and mosquito?

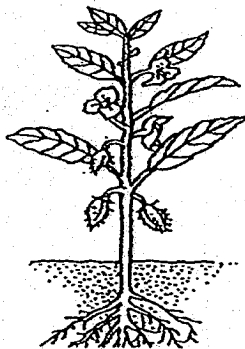
	Mealworm beetle	Mosquito
(1)	Z	X
(2)	Y	X
(3)	X	Z
(4)	Z	Y

11. Kelly observed the different stages of the life cycle of a butterfly. She then plotted her observation in the chart below.



How many days would it take for the young to become an adult butterfly after the egg has hatched?

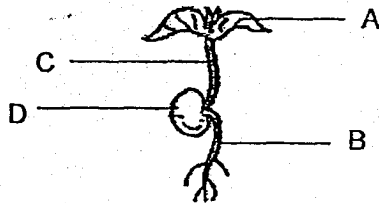
- (1) 10 days
 - (2) 20 days
 - (3) 35 days
 - (4) 55 days
12. The diagram shows a plant.



Some students made some comments on the plant after observing it. Which statement is not correct?

- (1) It is an adult plant as it has flowers and fruits.
- (2) The plant gets food from its seed leaves at this stage.
- (3) The roots grow downwards so that the plant can get water.
- (4) The stem grows upwards for the plant to get as much sunlight as possible.

The diagram below shows a seedling. The parts A, B, C and D have been labelled. Refer to the diagram to answer both questions 13 and 14.



13. Which part of the seedling grows first during germination?

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

14. Which of the following describes the function of the parts of the seedling correctly?

	Absorbs water	Makes food
(1)	A	B
(2)	D	C
(3)	C	D
(4)	B	A

15. Jansen wants to carry out an experiment to find out if more water causes a plant to grow taller. Some of the variables of the experiment are listed below.

- A : type of plant
 B : amount of water
 C : location where the plants are placed
 D : height of the plants before the experiment

Which of the variables should he keep the same to ensure that the experiment is fair?

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

16. The table below describes the properties of P and Q.

P	Q
Has mass	Has no mass
Occupies space	Does not occupy space

Which of the following could Q be?

- (1) air
- (2) milk
- (3) marble
- (4) sound

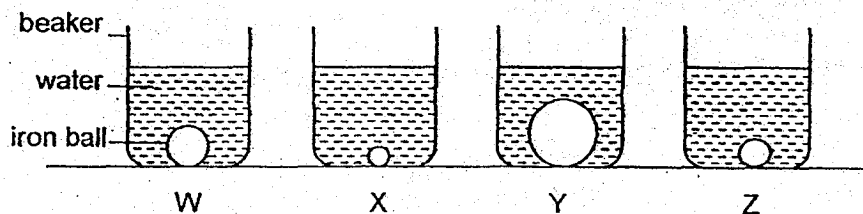
17. The picture below shows a bag of flour and a bag of sugar.



Which one of the following statements is true?

- (1) The bag of sugar is lighter than the bag of flour.
- (2) The bag of sugar is heavier than the bag of flour.
- (3) The bag of sugar has the same mass as the bag of flour.
- (4) The bag of sugar has the same volume as the bag of flour.

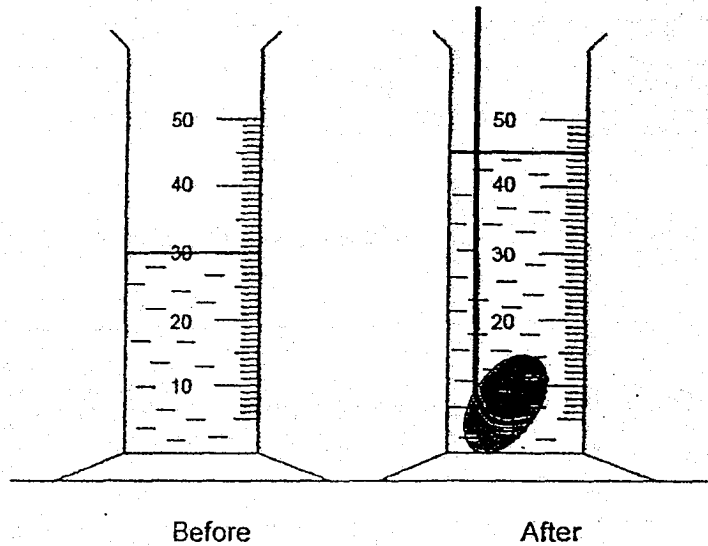
18. Zul placed iron balls of different sizes in each of the 4 glass containers, W, X, Y and Z. Then, he poured water into each container until the water level in all the containers has reached the same height, as shown below.



In which of the following glass containers did Zul pour the most amount of water?

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

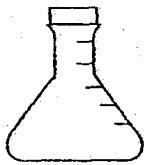
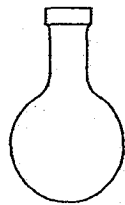
19. Zi Ting added a pebble into a measuring cylinder containing 30ml of water as shown below.



What is the volume of the pebble?

- (1) 5cm^3 (2) 10cm^3
(3) 15cm^3 (4) 20cm^3

20. The following apparatus are found in the laboratory.



Container A
with capacity
of 100cm^3

Container B
with capacity
of 120cm^3

Container C
with capacity
of 150cm^3

Which container can contain 130cm^3 of air?

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

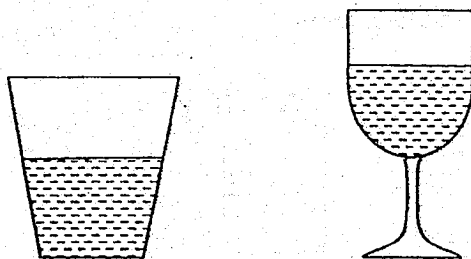
21. The table shows some matter classified into 2 groups.

Group X	Group Y
Smoke	Flag
Oxygen	Table
Carbon dioxide	Computer

Which of the following correctly identifies the different properties of matter in the table above?

Group X		Group Y	
Definite shape	Definite volume	Definite shape	Definite volume
(1) No	No	Yes	Yes
(2) Yes	No	No	No
(3) Yes	Yes	No	Yes
(4) No	No	Yes	No

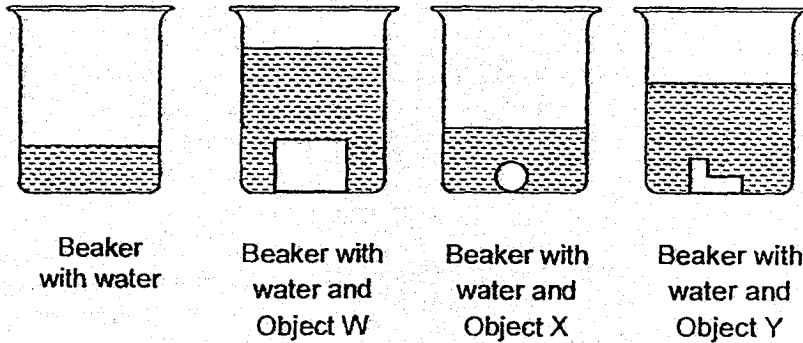
22. The diagram shows two different glasses with 500ml of water.



Which property of water does this show?

- (1) Water has mass.
- (2) Water has a definite volume.
- (3) Water cannot be compressed.
- (4) Water does not have a definite shape.

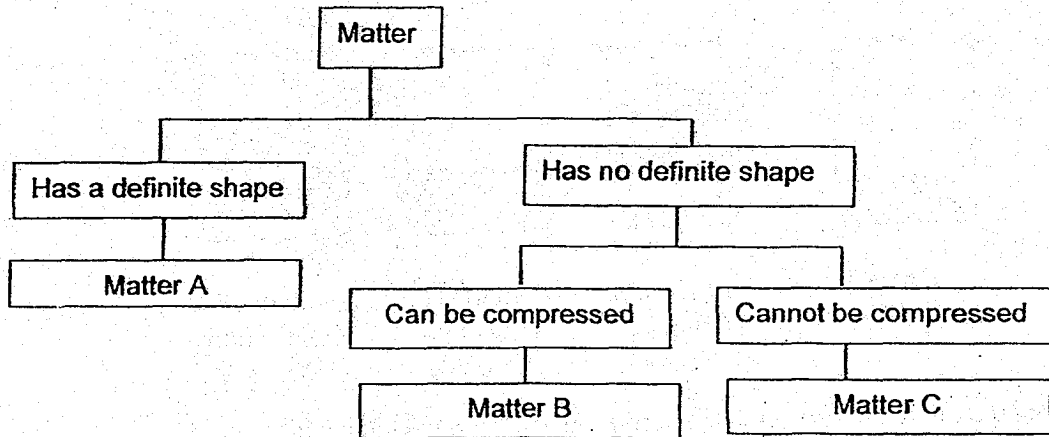
23. Charis placed 3 objects, one at a time into a beaker of water as shown in the diagram below.



Based on her observations, she made the following conclusions.
Which statement is correct?

- (1) Object X has the smallest mass.
- (2) Object W has the biggest volume.
- (3) Object W has a bigger mass than Object Y.
- (4) Object Y has a smaller volume than Object X.

24. Study the classification table below.

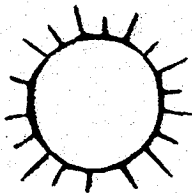


Which of the following correctly represents Matter A, B and C?

	Matter A	Matter B	Matter C
(1)	syrup	juice	television
(2)	television	smoke	blood
(3)	television	light	syrup
(4)	juice	syrup	light

25. Which one of the following is a source of light?

(1)



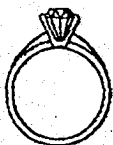
The sun

(2)



The moon

(3)



A diamond ring

(4)



A mirror

26. A datalogger was placed on a table facing the window. The table below shows how the intensity of light changes with time.

Time (minutes)	Intensity of light (lux)
0	240
1	242
2	245
3	560
4	573

Which of the following statements is/are possible explanation(s) for the sudden change in light intensity after 2 minutes?

P : Light was turned on

Q : Light was turned off

R : Sunlight came into the room

S : The curtains were fully closed

(1) P only

(3) Q and S only

(2) P and R only

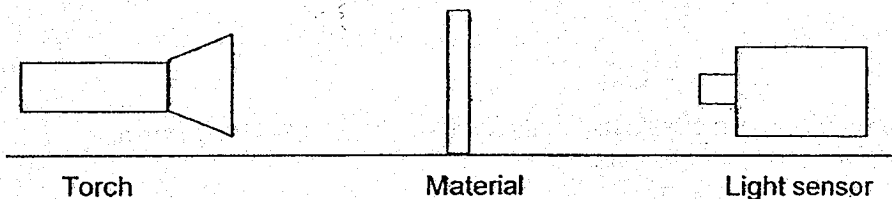
(4) P, R and S only

27. Mala used some materials to conduct an experiment to find the amount of light that passed through the materials. She classified the materials in the table below.

A	B	C
Clear glass	Tracing paper	Book
Clear plastic	Mirror	Cardboard

Based on the table above, which of the following materials was classified wrongly?

- (1) book
 (2) mirror
 (3) cardboard
 (4) clear plastic
28. Amy set up an experiment as shown below. She wanted to find out the amount of light that can pass through different materials.



She recorded the results as shown in the table below.

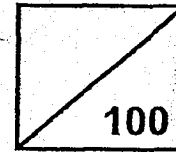
Material	Amount of light measured by light sensor
A	8
B	10
C	2
D	6

Which material should be used to make a curtain that can keep the room the darkest?

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



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Primary 4



Name: _____

Total
Marks:

Class: Pr 4 _____

Register No. _____

Duration: 1 h 45 min

Date: 9 May 2018

Parent's Signature: _____

Booklet B

Instructions to Pupils:

1. For questions 29 to 40, give your answers in the spaces given in Booklet B.

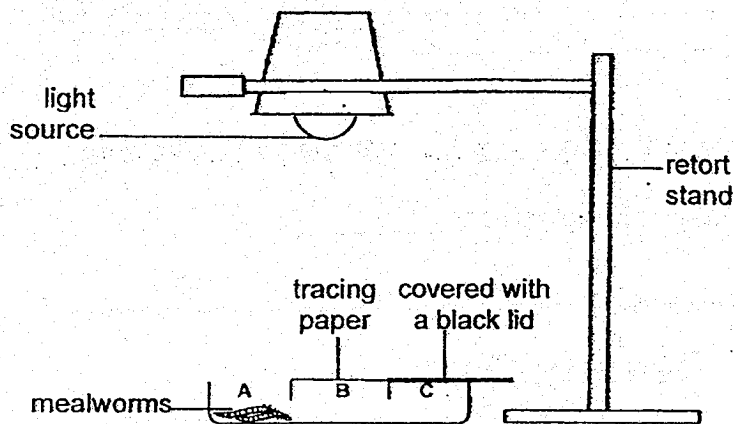
	Maximum	Marks Obtained
Booklet A	56 marks	
Booklet B	44 marks	
Total	100 marks	

* This booklet consists of 14 printed pages (including cover page).

Booklet B (44 marks)

For questions 29 to 40, write your answers in this booklet. The number of marks available is shown in brackets () at the end of each question or part question.

29. Weiming learnt that mealworms prefer dark places. He decided to carry out an experiment as shown below. He placed some mealworms in a partially covered box. He then switched on the light source and observed the mealworms for 30 minutes.



- (a) In which position, A, B or C, will the mealworms most likely be in after 30 minutes? [1]

- (b) Based on Weiming's observation, state 2 characteristics of living things that the mealworms showed? [1]

(i) _____

(ii) _____

30. The table below shows the characteristics of four plants, P, Q, R and S.

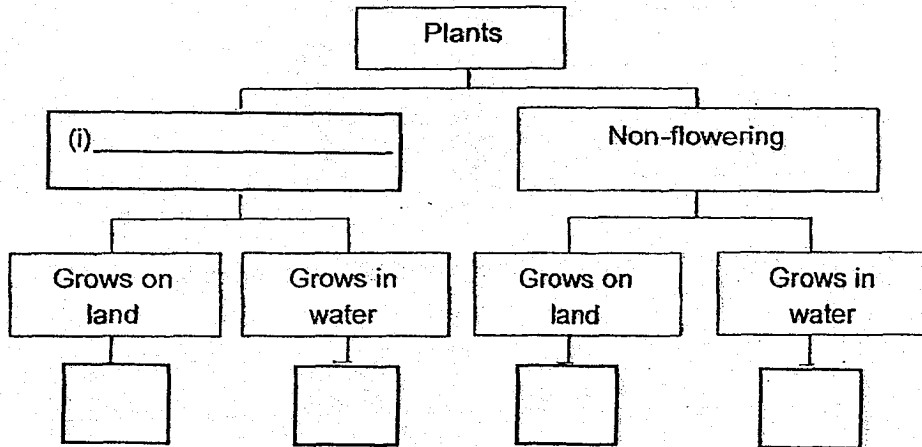
Characteristics	P	Q	R	S
Bear fruits		✓		✓
Grows on land			✓	✓
Grows in water	✓	✓		

(a) The heading for part (i) in the classification chart below is missing. Fill in the blank with the correct heading.

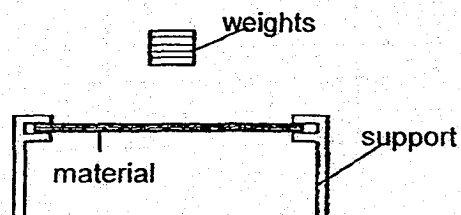
[1]

(b) Classify the four plants in the chart below by writing P, Q, R and S in the correct boxes.

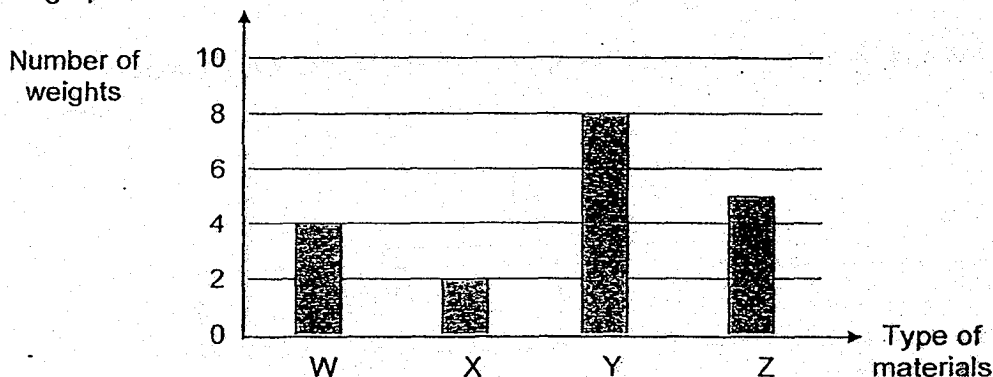
[2]



31. An experiment was conducted to test the strength of four different materials, W, X, Y, and Z. These materials were of the same thickness and length. Weights were released from the same height onto each material as shown below.



The number of weights used before each material broke was recorded in the graph below.

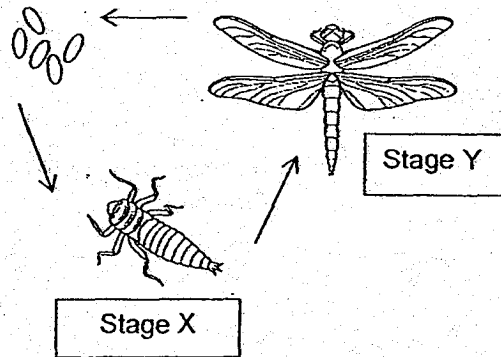


- (a) Identify the correct variables and put a '✓' in the correct boxes to make the experiment a fair one. [2]

	Same variable	Changed variable	Measured variable
(i) Type of material			
(ii) Length of material			
(iii) Number of weights			
(iv) Height from where the weights were released			

- (b) Based on the result above, which one of the material (W, X, Y, or Z) is the most suitable material to make a table? Give a reason to support your answer. [1]

32. The diagram shows the life cycle of animal D.



(a) Name stages X and Y.

[1]

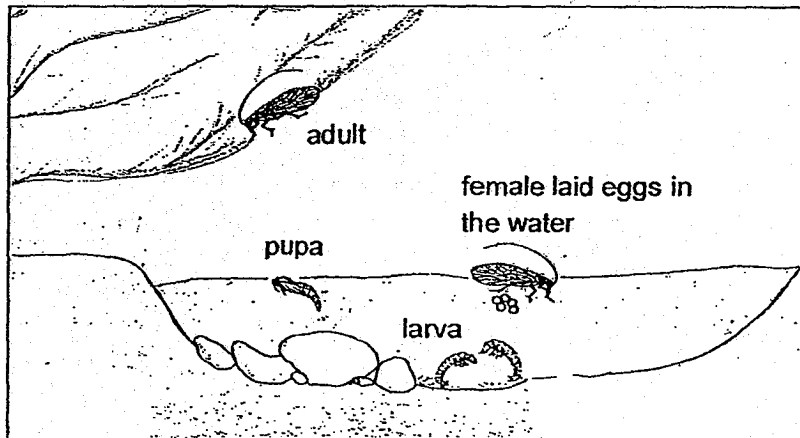
Stage X: _____

Stage Y: _____

(b) State a difference between Stage X and Y.

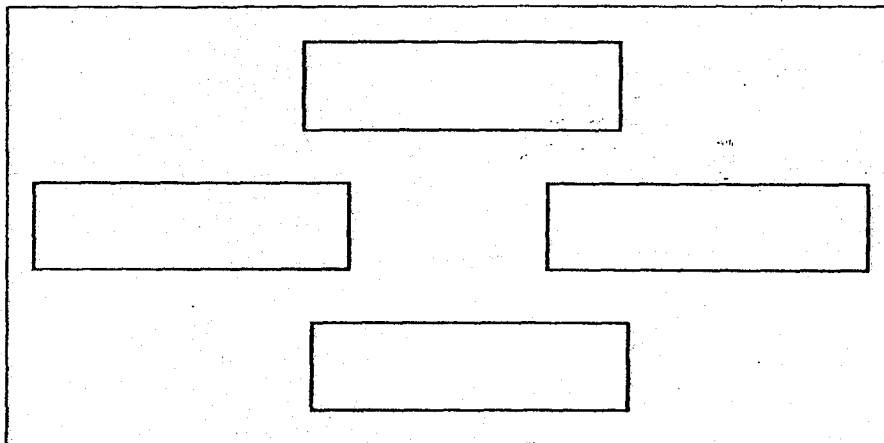
[1]

33. A diagram of the life cycle of animal C is shown below.



(a) Draw the life cycle of the animal C in the space below.

[1]



(b) Name another animal which has a similar life cycle to animal C.

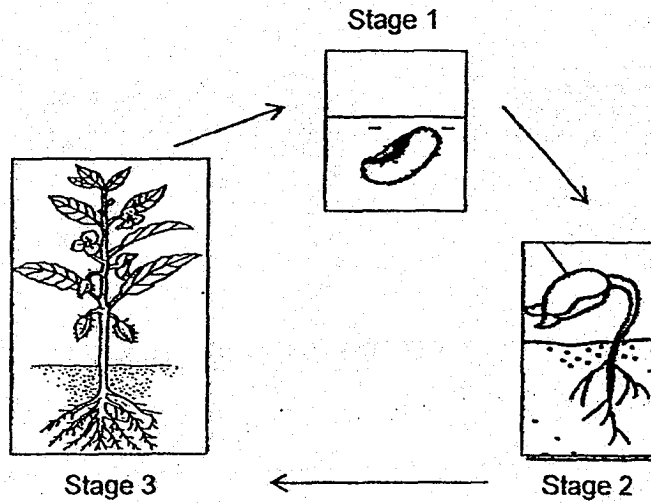
[1]

(c) The female of animal C often lays many eggs at one time.
Give a reason for this.

[1]

Question 33 is continued on page 7

The life cycle of a bean plant is shown below.



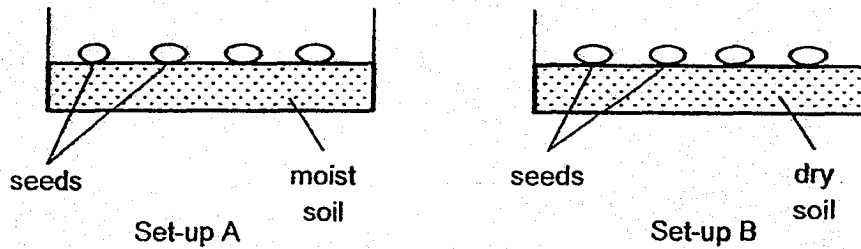
(d) State two differences between the life cycle of animal C and the bean plant.
(Do not compare the size and shape.)

[2]

(i)

(ii)

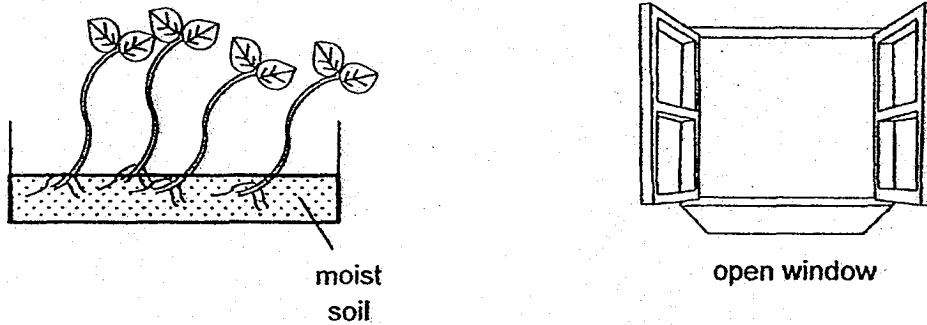
34. Jun Jie set up the following to find out how seeds germinate.



- (a) In which set-up would the seeds most likely germinate after a few days?
(i) Explain why. [1]

- (ii) Name two other conditions required for germination to occur. [1]

After a few weeks, the germinated seeds were seen growing towards an open window as shown in the diagram below.

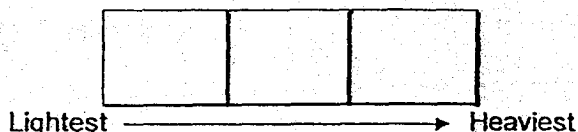


- (b) Why were the seedlings growing in the direction shown? [1]

35. Siti weighed three similar sized balls on a beam balance as shown below.

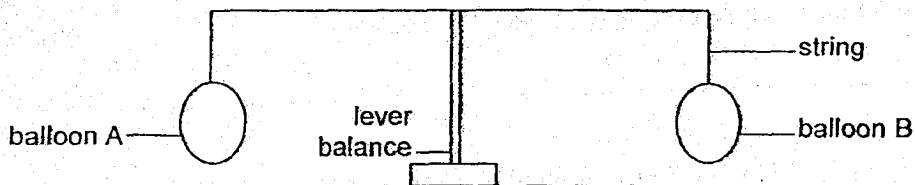


(a) Arrange the balls in order from the lightest to the heaviest. [1]



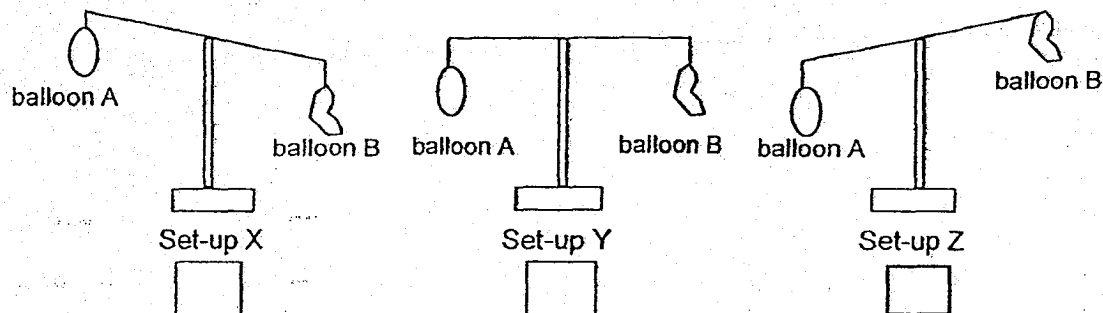
(b) The balls were made of different materials, wood, metal and plastic. Which ball, A, B or C, is made of plastic? [1]

Siti then decided to test the mass of two similar balloons, A and B by hanging them on a lever balance as shown below. Both balloons were hanged at an equal distance from the centre and the lever was balanced.



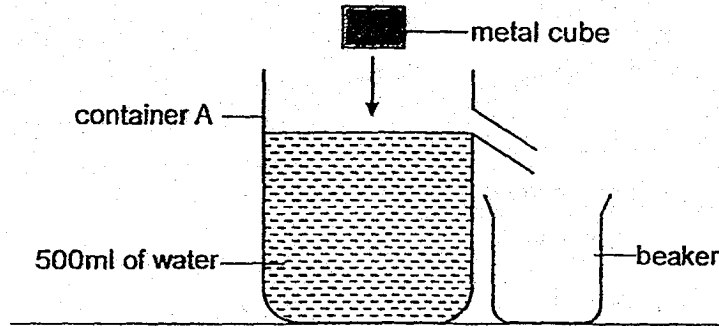
Siti then poked balloon B to let the air out.

(c) Tick the correct box below to show how the lever balance would look like after balloon B was poked. [1]



(d) What can you conclude about air from the above experiment?

36. Kumar filled up container A with 500ml of water as shown below. He then gently lowered a metal cube to the bottom of the container.

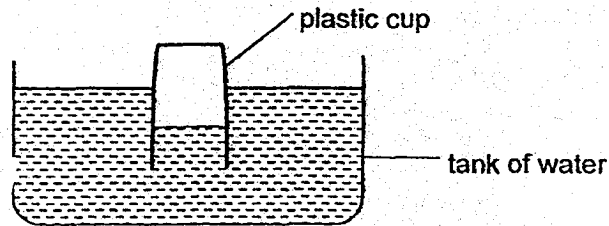


- (a) Kumar observed that some water flowed out of container A into the beaker when the metal cube sank in completely. Explain why. [2]

- (b) Kumar was told to measure the amount of water that was collected in the beaker accurately. Which other apparatus could he use to replace the beaker? [1]

- (c) Kumar then decided to use the same method above to measure the volume of a styrofoam cube. Do you think it is possible? Support your answer with a reason. [2]

37. Fauwaz inverted a plastic cup and lowered it into a tank of water. The water level increased in the plastic cup as shown in the diagram.

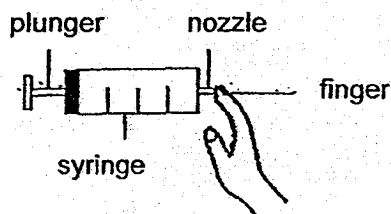


- (a) Explain why the water level in the plastic cup was lower than the water level in the tank of water. [2]

- (b) If Fauwaz pokes a few holes at the bottom of the plastic cup and lowers it into the same tank of water, what will happen to the water level in the plastic cup?

- (c) Give a reason for your answer in (b)

38. Jamie had substances X and Y. She drew substance X into the syringe and observed whether the plunger could be pushed in when one end of the syringe is covered with her finger, as seen in the diagram below. She then repeated the experiment with substance Y.



The plunger could be pushed in easily for substance X but could not be pushed in at all for substance Y.

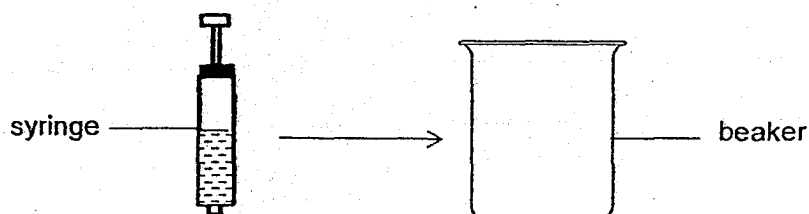
- (a) Identify the states of matter of substance X and Y. [1]

Substance X: _____

Substance Y: _____

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

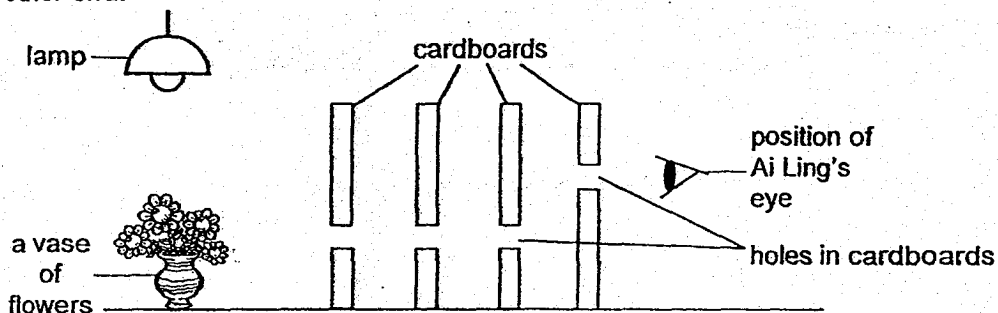
Jamie then drew 50ml of water with the syringe and transferred all the water into an empty beaker as shown in the diagram below.



- (c) Did the volume of water in the beaker increase, decrease or remain the same? [1]

- (d) Give a reason for your answer in (c). [1]

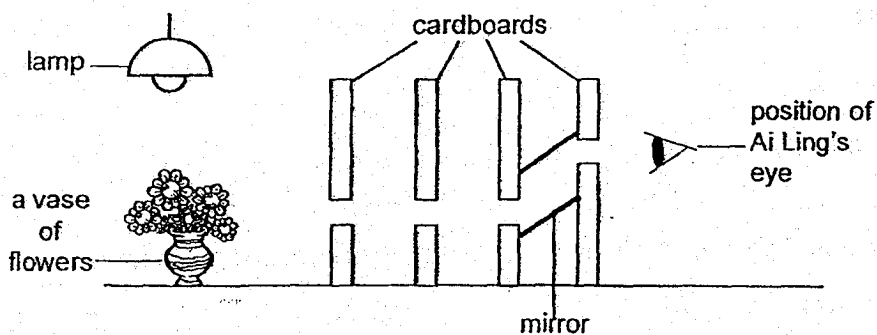
39. Ai Ling placed four cardboards in a straight line in a well-lit room as shown below. She punched a hole in each of the cardboards. She then placed a vase of flowers at the end of the cardboards and tried to see the vase through the holes from the other end.



- (a) Why was Ai Ling not able to see the vase from the position as shown in the diagram above?

[1]

Ai Ling decided to use 2 mirrors in the same set-up to enable her to see the vase as shown below.

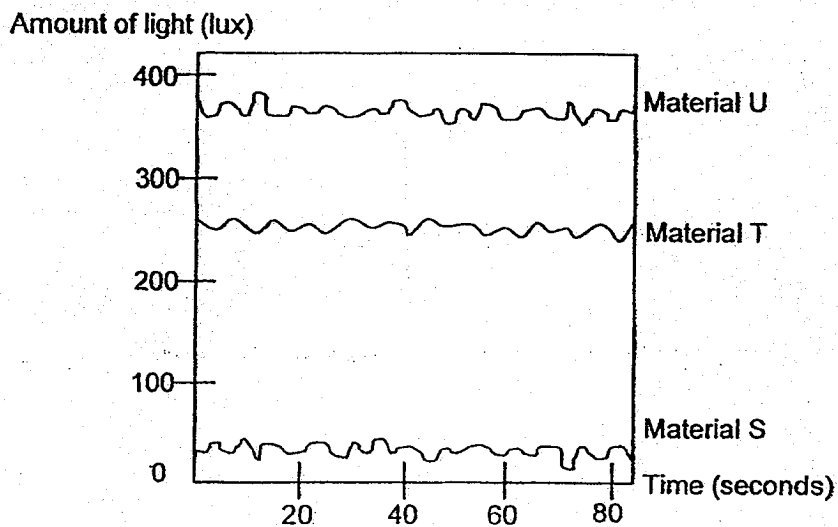


- (b) Describe how Ai Ling is able to see the vase.

[2]

- (c) What property of light was Ai Ling trying to show in this experiment?

40. A datalogger was used to measure the amount of light passing through three different materials, S, T and U. The result was recorded as shown below.



- (a) Based on the result above, identify the following materials by writing S, T or U accordingly. [3]
- (i) Clear glass : Material _____
- (ii) Cardboard : Material _____
- (iii) Writing paper: Material _____
- (b) Based on the experiment above, which material, S, T or U, is suitable to be made into a fish tank? Support your choice with a reason. [2]

End of Paper

ANSWER KEY

YEAR : 2018
LEVEL : PRIMARY 4
SCHOOL : ROSYTH PRIMARY SCHOOL
SUBJECT : SCIENCE
TERM : SA1

BOOKLET A (56 marks)

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
1	4	4	3	3	4	3	1	4	4
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
4	2	2	4	4	4	3	2	3	4
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
1	4	2	2	1	2	2	3		

BOOKLET B (44 marks)

Q29a) C

Q29bi) Living things respond to changes.

Q29bii) Living things move by themselves.

Q30a) Flowering

Q30b) S, Q, R, P

Q31a)

	Same variable	Changed variable	Measured variable
(i) Type of material		✓	
(ii) Length of material	✓		
(iii) Number of weights			✓
(iv) Height from where the weights were released	✓		

Q31b) Material Y, it has the most amount of weights making it the strongest material to make a table.

Q32a) stage X: Young

stage Y: Adult

Q32b) Stage Y has wings while stage x does not have wings.

Q33a) egg, larva, pupa, adult

Q33b) Butterfly

Q33c) If an egg is to be eaten by a predator, the rest of the eggs can still hatch and grow into adulthood.

Q33di) Animal C's lifecycle has 4 stages while the bean plant's lifecycle has 3 stages.

Q33dii) Animal C's lifecycle starts with many eggs while the bean plant's lifecycle starts with one seed.

Q34ai) The seeds in set-up A will germinate after a few days because it has moist soil and a seed needs water to germinate.

Q34aii) A seed also needs air and warmth to germinate.

Q34b) It is growing toward s the window because it needs sunlight to photosynthesis

Q35a) C B A

Q35b) C

Q35c) Set-up Z

Q35d) Air has mass

Q36a) The metal cube occupied the space which was occupied by the water hence the water had to go into the beaker because the water level increased.

Q36b) He could use a measuring cylinder.

Q36c) No, it is not possible because Styrofoam floats on water so it is not able to occupy space in the water.

Q37a) The water level in the plastic cup was lower than the water level in the container because there was air trapped inside the plastic cup. Air in the cup occupies space and there is no opening for air to escape hence only some water can enter to fill the cup.

Q37b) It will increase.

Q37c) Air can escape hence water can occupy the space that was occupied by air.

Q38a) Gas, liquid

Q38b) Gases can be compressed while liquids cannot be compressed.

Q38c) liquids have a definite volume.

Q39a) She could not see it because the holes were not aligned.

Q39b) Light from the lamp shines on the vase. The vase reflects the light onto the mirror and into Ai Ling's eyes.

Q39c) Light travels in a straight line.

Q40ai) U

Q40aii) S

Q40aiii) T

Q40b) Material U. It allows the most amount of light to pass through.

THE END