2019 PRIMARY 4 SEMESTRAL ASSESSMENT 1

Name : _____ ( )

Class : Primary 4 ( )

Parent's Signature: _____

Date: 14 May 2019

Time: 8.00 a.m. - 9.45 a.m.

Duration: 1 hour 45 minutes

Marks: _____/ 56

SCIENCE

BOOKLET A

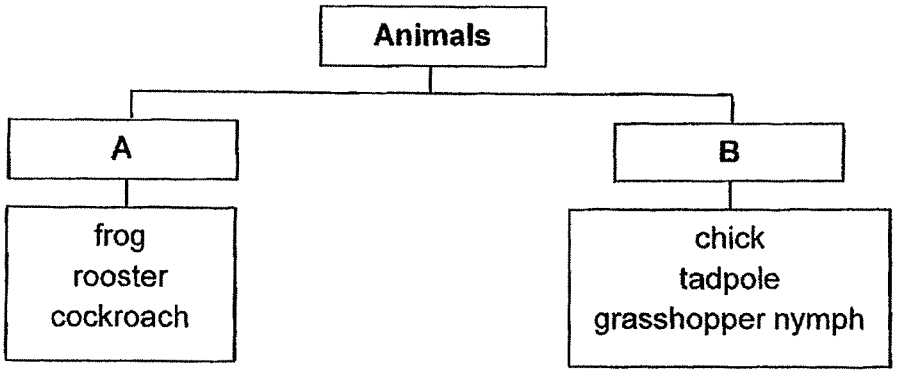
INSTRUCTIONS TO CANDIDATES

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 (28 x 2 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 your answer on the Optical Answer Sheet (OAS).

1. Study the classification chart below.



Which of the following pairs of headings is best represented by A and B?

	A	B
(1)	Has wings	Has no wings
(2)	Has body covering	Has no body covering
(3)	Useful	Harmful
(4)	Adult	Young

2. The table below shows the characteristics of animals, X, Y and Z.

Animals	Can fly	Has feathers	Lays eggs	Has 6 legs
X	✓		✓	✓
Y		✓	✓	
Z	✓	✓	✓	

Which one of the following statements about animals, X, Y and Z, is correct?

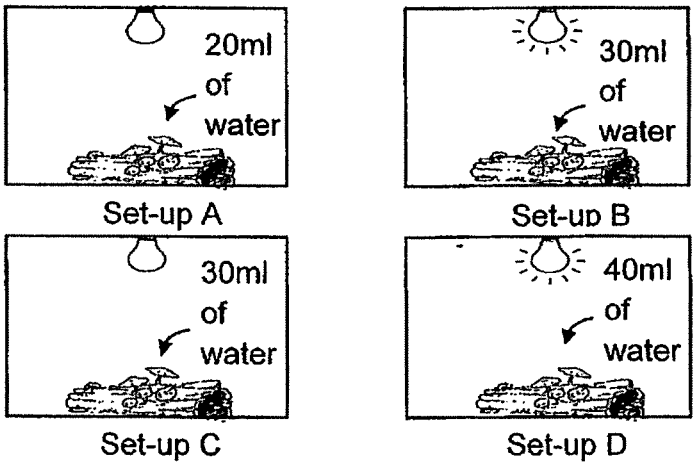
(1) X and Z are birds.

(2) Y and Z are birds.

(3) X and Y are insects.

(4) X and Z are insects.

3. Alan wants to find out if the growth of mushrooms on four identical logs are affected by the amount of light.



Which two set-ups should Alan use to carry out his experiment?

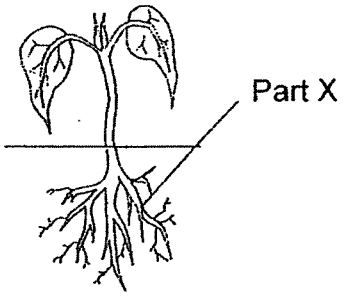
(1) A and B

(2) B and C

(3) C and D

(4) A and D

4. Part X shown below is part of a plant.



What is the function of Part X?

A: To make food for the plant
B: To hold the plant to the soil
C: To absorb food from the soil
D: To take in water for the plant

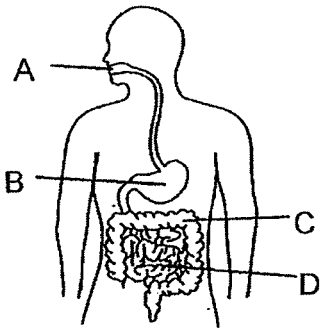
(1) A and B only

(2) B and C only

(3) B and D only

(4) C and D only

5. In the diagram below, A, B, C and D, are parts of the digestive system. Which parts of the system produces digestive juices?



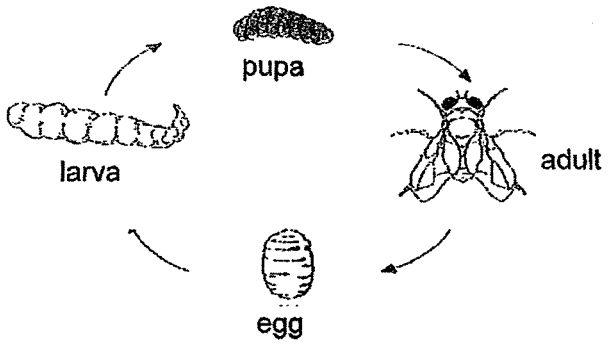
(1) A, B and C only

(2) B, C and D only

(3) A, C and D only

(4) A, B and D only

6. The diagram below shows the life cycle of organism A.



Which of the following animals has the same number of stages as the life cycle of organism A shown above?

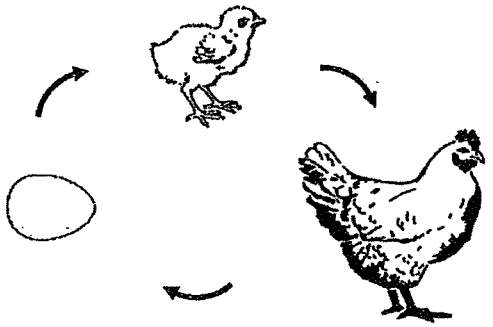
(1) Toad

(2) Goldfish

(3) Butterfly

(4) Grasshopper

7. The diagram shows the various stages in the life cycle of a chicken. Which of the following statements is correct?



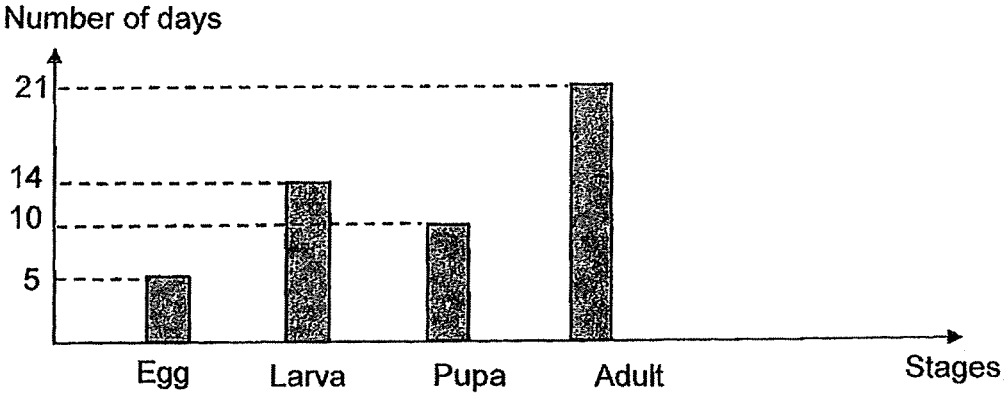
(1) The egg is laid in water.

(2) The chick resembles the chicken.

(3) The chick lives on land and in water.

(4) The chick has no feathers until it reaches adult stage.

Abdul saw a butterfly laying eggs on some leaves in his garden. He collected one of these leaves with an egg in a container and brought it home. He then recorded the length of time it took at each stage of the butterfly's life cycle.



8. Use the graph above to answer Questions 8 and 9.

At what stage was his butterfly on Day 21?

(1) egg

(2) larva

(3) pupa

(4) adult

9. How many days did it take his butterfly egg to become a pupa?

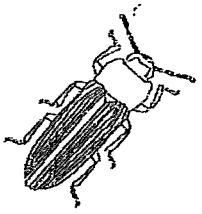
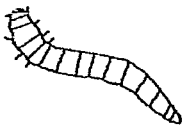
(1) 5 days

(2) 10 days

(3) 19 days

(4) 29 days

10. The following are stages, A, B, C and D in the life cycle of a mealworm. At which stages do the mealworm have to feed?

A	B	C	D
			

(1) A and B only

(2) A and C only

(3) B and C only

(4) C and D only

11. When does a young plant become an adult plant?

(1) When the plant bears fruits.

(2) When the plant starts to flower.

(3) When the roots of the plant grow into the soil.

(4) When the leaves start to make food for the plant.

12. Zhi Ming's window is made from material X that allows him to see the view outside and also to block off the strong wind without breaking. What properties should material X have?

(1) Strong and flexible

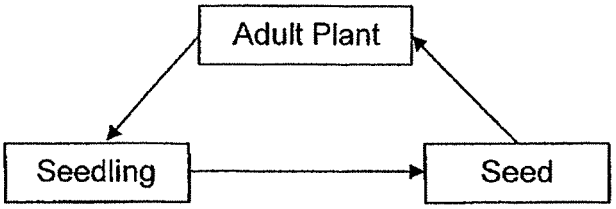
(2) Strong and transparent

(3) Flexible and transparent

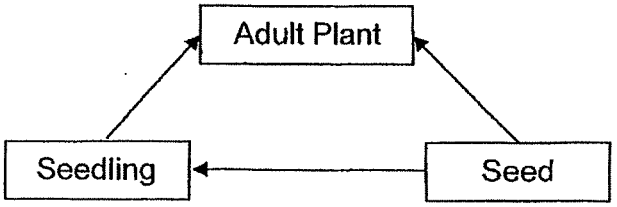
(4) Strong and not waterproof

13. Which one of the following diagrams shows the correct order of stages in the life cycle of flowering plants?

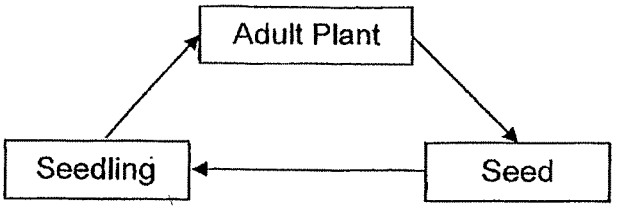
(1)



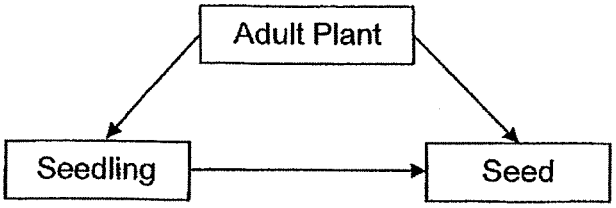
(2)



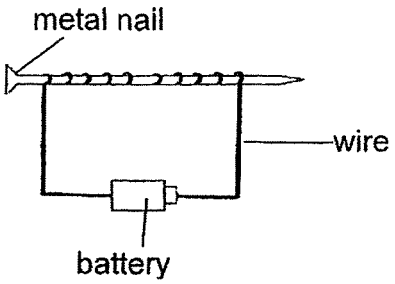
(3)



(4)



14. Andrea used the set-up below to find out the number of steel clips attracted by four nails, A , B, C and D, made of different materials. All of the nails were of the same length, size and shape.



She recorded the results in the table below.

Metal Nail	Number of steel clips attracted by the metal nail
A	6
B	16
C	10
D	0

Which metal nail is made of a non-magnetic material?

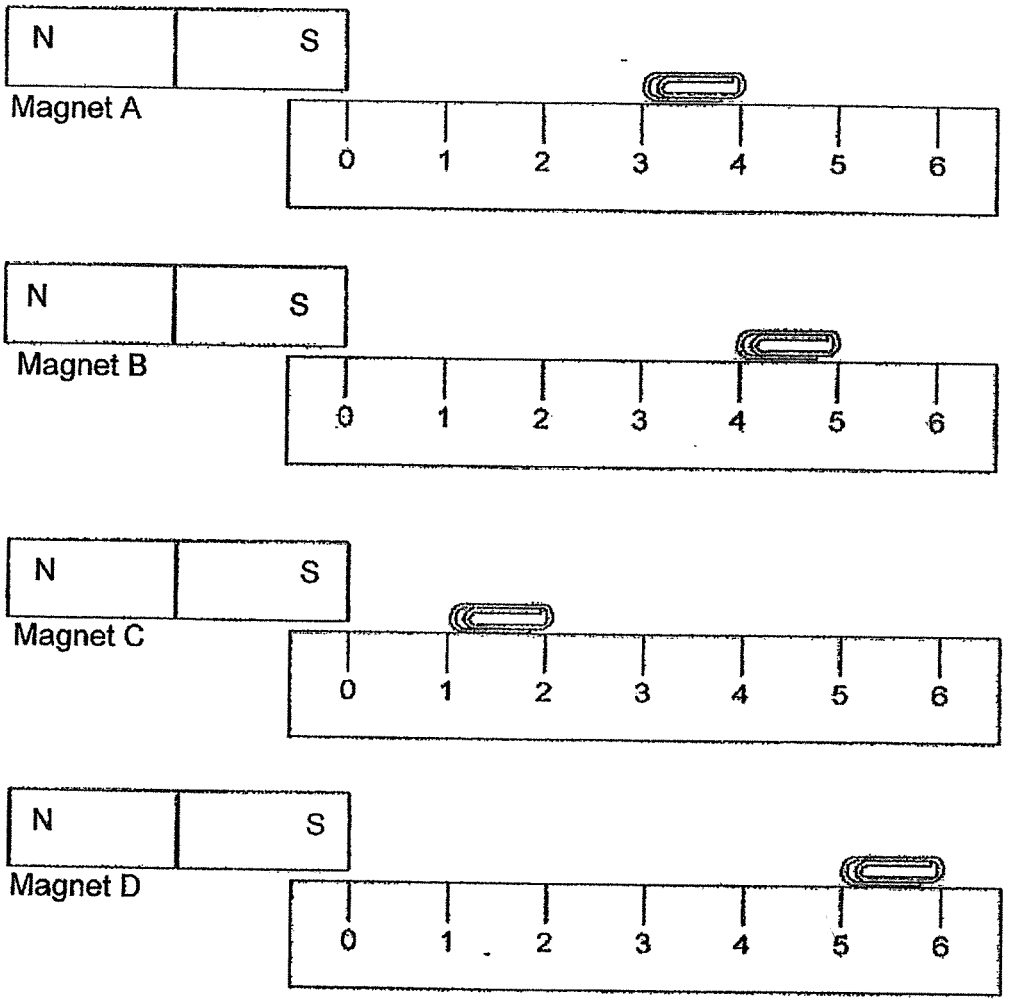
(1) A

(2) B

(3) C

(4) D

15. Ahmad wanted to find out the strength of four magnets, A, B, C and D using identical steel clips. The diagram below shows the greatest distance the magnets could still attract the steel paper clips.



Based on the diagram above, arrange the magnets, A, B, C and D, from the strongest magnetic force to the weakest magnetic force exerted on the steel clip.

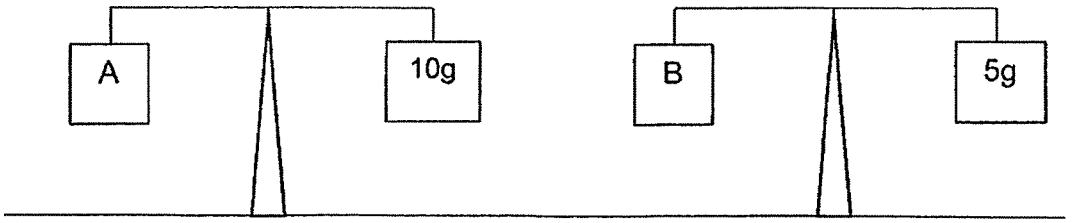
(1) D, B, C, A

(2) B, C, D, A

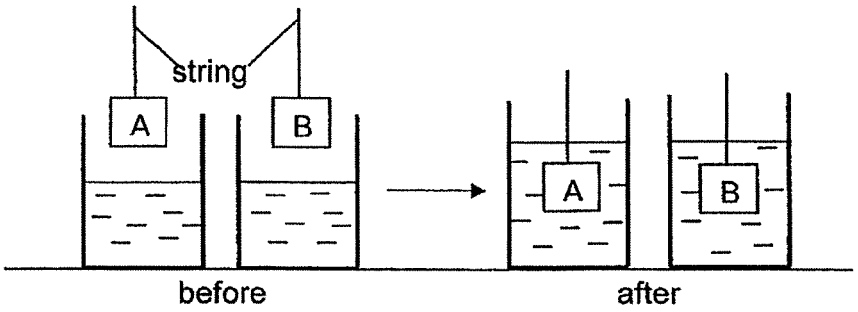
(3) C, A, B, D

(4) D, B, A, C

16. Muthu hung two objects, A and B, of the same size and shape on a weighing balance and observed the following.



He then dropped objects A and B each into identical beakers with equal amount of water and observed the following.



Based on the results of his experiment, which of the following can he conclude?

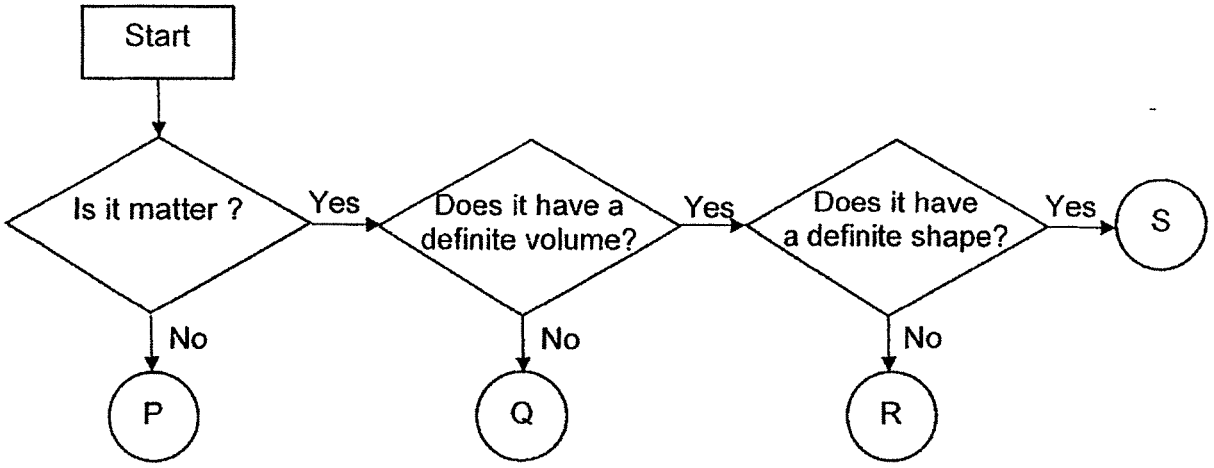
(1) A has the same mass and volume as B.

(2) A has a different mass and volume from B.

(3) A has a different mass from B but the same volume as B.

(4) A has the same mass as B but a different volume from B.

17. Study the flow chart below on P, Q, R and S.



Which one of the following correctly shows what P, Q, R and S are?

	P	Q	R	S
(1)	air	shadow	honey	stone
(2)	shadow	air	honey	stone
(3)	shadow	honey	air	stone
(4)	air	stone	shadow	honey

18. Carl has an object that can be compressed. Which of the following is not his object?

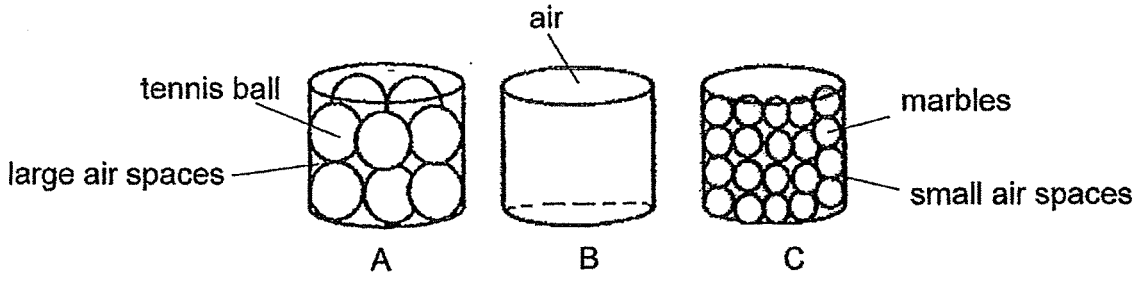
(1) pillow

(2) sponge

(3) blown-up balloon

(4) glass bottle filled with air

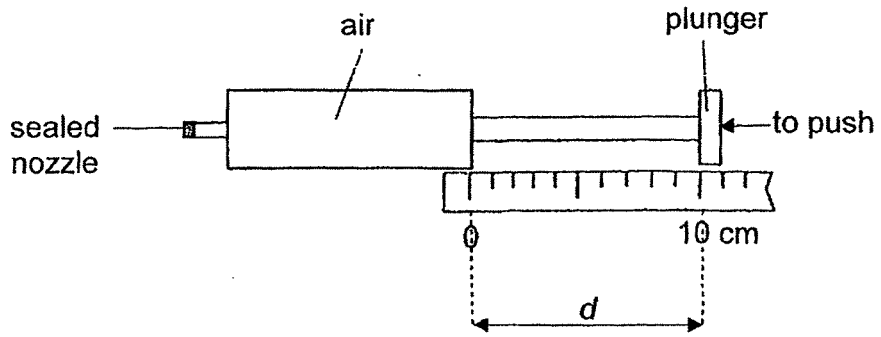
19. Three identical containers, A, B and C, containing different types of matter are shown below.



Equal volume of water is poured into each container at the same time and at the same speed. Arrange the containers in order, starting with the one where water in it will overflow first to the one that will have water overflow last.

	Overflow first ⟶		**Overflow last**
(1)	A	C	B
(2)	B	A	C
(3)	C	A	B
(4)	C	B	A

20. Macy filled a syringe completely with air as shown below.

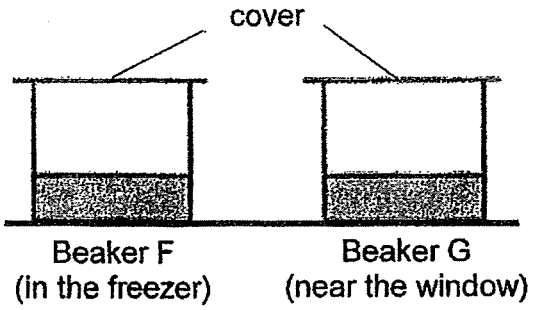


She sealed the nozzle tightly and pushed the plunger in as hard as she could. She then measured the distance, *d*. She repeated the experiment by filling the syringe completely with water.

Which of the following shows the correct value of *d*?

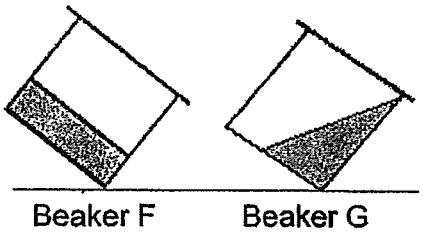
	***d* (cm)**	
	Syringe with air	**Syringe with water**
(1)	0	10
(2)	10	0
(3)	6	10
(4)	10	6

21. Nathan filled Beaker F and Beaker G with 100 cm^3 of oil each. He placed beaker F in a freezer and Beaker G in a room near the window.

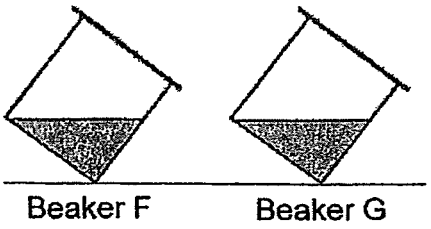


After one day, both beakers were collected and immediately tilted sideways. Which of the following showed the correct observation for both beakers when they were tilted?

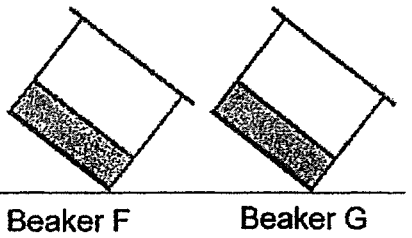
(1)



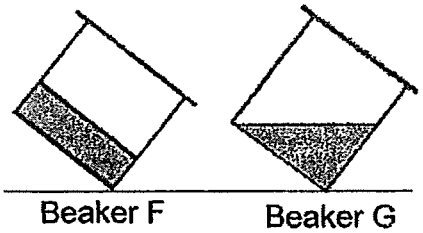
(2)



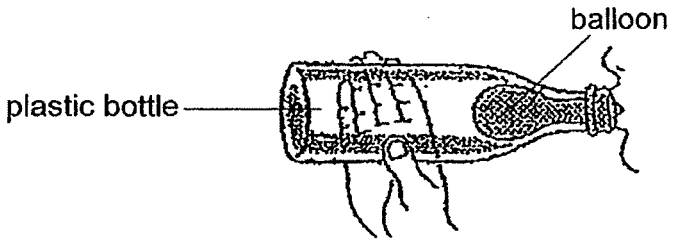
(3)



(4)



22. Grace pushed a balloon into a plastic bottle and stretched the balloon's mouthpiece over the opening of the bottle. Then, she blew into the bottle but the balloon could only inflate slightly as shown in the diagram below.



Which of the following actions would allow the balloon to inflate more fully in the bottle?

(1) Use a smaller bottle

(2) Add water in the bottle

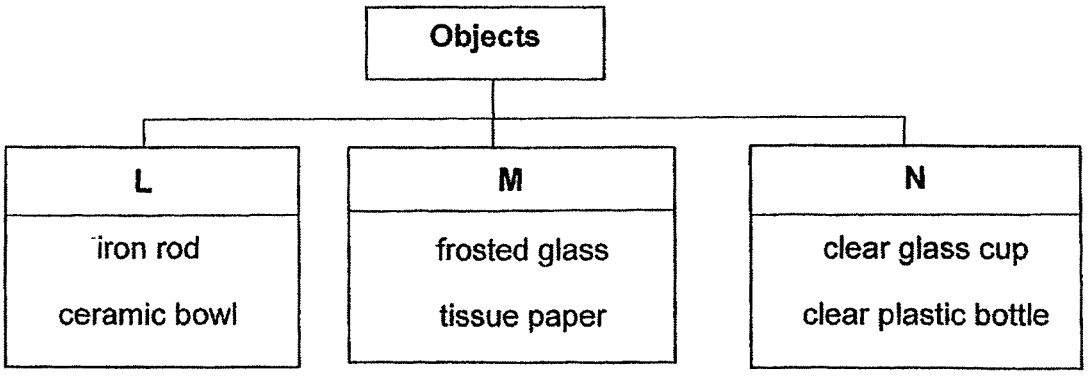
(3) Make a hole in the balloon

(4) Make a hole in the plastic bottle

23. Andrea could see her black dog's eyes in a dimly-lit room. Which one of the following explains why she could see the dog's eyes?

(1) Andrea's eyes were sources of light.
(2) The dog's eyes were sources of light.
(3) Light from the surrounding was reflected from Andrea's eyes to the dog's eyes.
(4) Light from the surrounding was reflected from the dog's eyes to Andrea's eyes.

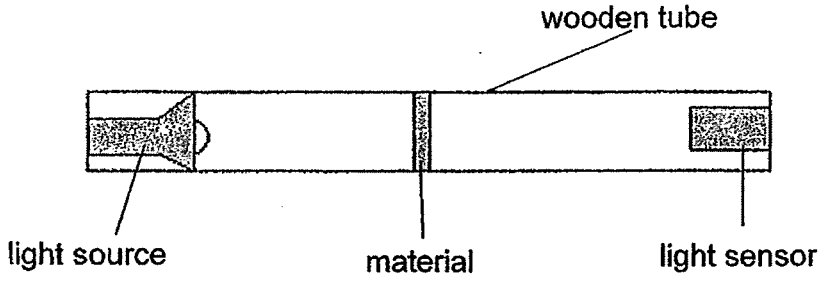
24. Chloe classified some objects according to the amount of light that passes through them in the chart below.



Which of the following objects are correctly classified under groups, L, M, and N?

	L	M	N
(1)	cardboard	tracing paper	magnifying glass
(2)	tracing paper	magnifying glass	cardboard
(3)	magnifying glass	tracing paper	cardboard
(4)	magnifying glass	cardboard	tracing paper

25. Siti set up the experiment below to measure the amount of light passing through three materials, X, Y and Z, using a light sensor at one end of a wooden tube. A light source was attached at the other end of the tube.



She recorded the results in the table below.

Material	Amount of light measured by light sensor (units)
W	400
X	153
Y	270
Z	80

Jane wanted to make curtains that would ensure her room is as dark as possible to do her experiments. Which of the material, X, Y or Z, is most suitable to make her curtains?

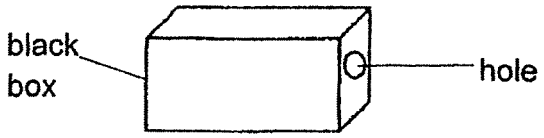
(1) W

(2) X

(3) Y

(4) Z

26. Jonathan placed object E in the centre of the black cardboard box. He peeped into the hole to look for the object. He then placed a lighted candle into the box and peeped to look for the object. The experiment is repeated for objects F and G.



The table below shows his observations. A tick (√) shows that Jonathan could see the object in the black box.

Objects	Without candle	With lighted candle
E		√
F		√
G	√	√

Which of the objects, E, F and/or G give(s) out light?

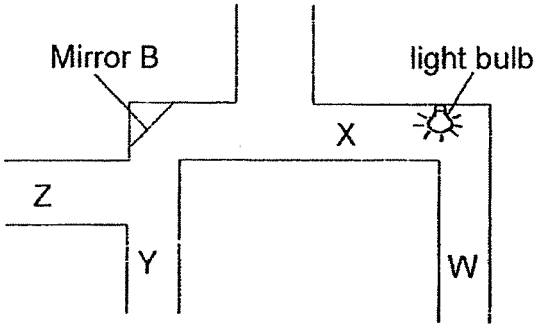
(1) E only

(2) G only

(3) E and F only

(4) E, F and G

27. The diagram below is the top view of a maze. Four girls, W, X, Y and Z, are standing at different parts of the maze.



Which two girls can see each other in Mirror B?

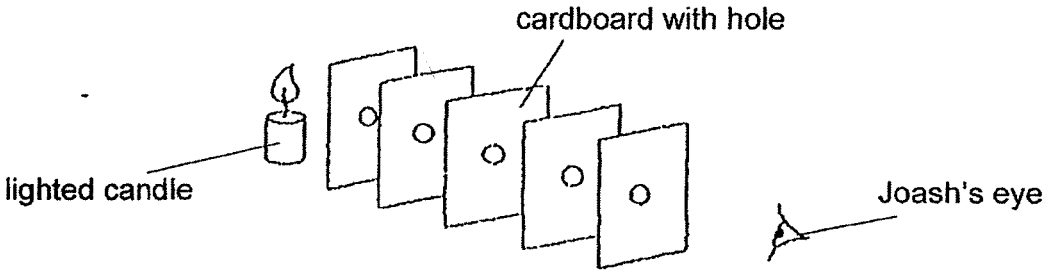
(1) W, X

(2) W, Z

(3) X, Y

(4) Y, Z

28. Joash set up an experiment as shown below. He placed five identical cardboard with holes in front of a lighted candle. He then lined up the holes and looked through them to make some observations. He also shifted one cardboard slightly to the right and looked through the holes again.



What was the aim of Joash's experiment?

(1) To find out if light can be reflected.

(2) To find out if light travels in a straight line.

(3) To find out the brightness of the candle flame.

(4) To find out if a lighted candle is a light source.

End of Booklet A

TAO NAN SCHOOL 道南學校

SINCERITY & PERSEVERANCE

2019 PRIMARY 4 SEMESTRAL ASSESSMENT 1

Name : _____ ( )

Class : Primary 4 ( )

Parent's Signature : _____

Date: 14 May 2019

Time: 8.00 a.m. – 9.45 a.m.

Duration: 1 hour 45 minutes

SCIENCE

BOOKLET B

INSTRUCTIONS TO CANDIDATES

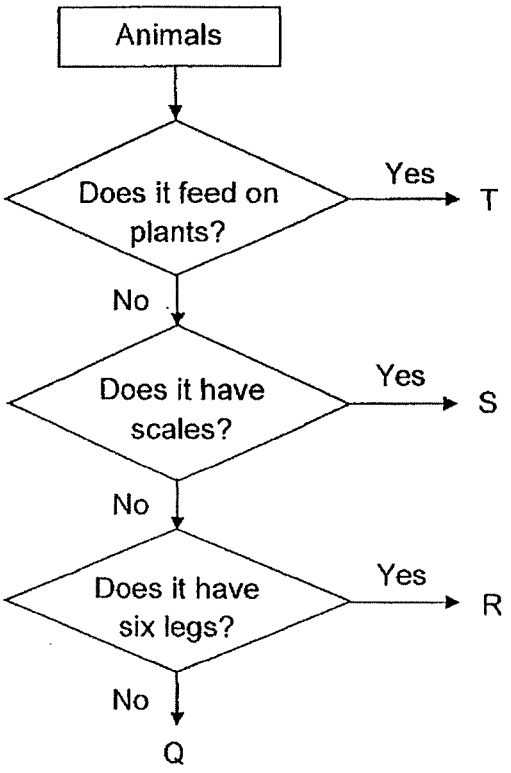
1. Write your name, class and register number.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in the booklet.

Booklet A	**56**
Booklet B	**44**
Total	**100**

Booklet B (44 marks)

For questions 29 to 41, write your answers clearly in this booklet.

29. Study the flowchart on animals, Q, R, S and T.



(a) Based on the chart above, state one difference between the animals, S and T. [1]

_____

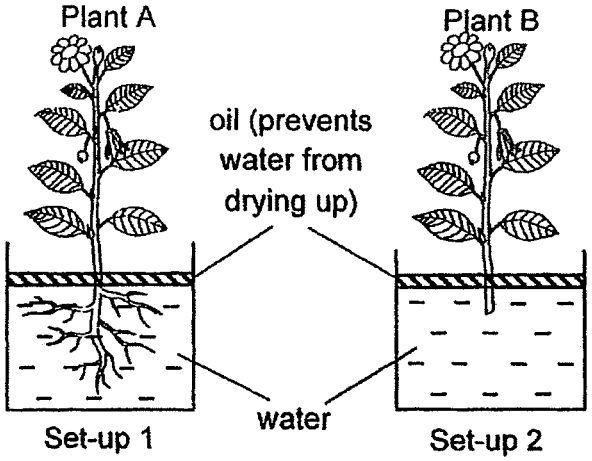
(b) Based on the chart above, describe all the characteristics of the animal, R. [2]

_____

_____

Score	3

30. Rashid carried out the following experiment in a lit room.



After one day, Rashid measured the amount of water left in each set-up and recorded his results below.

Set-up	Amount of water given	Amount of water left
1	800ml	590ml
2	800ml	740ml

(a) From the results, compare between the amount of water taken in by Plant A and B? [1]

_____

_____

(b) State one characteristic of living things shown in the above experiment. [1]

_____

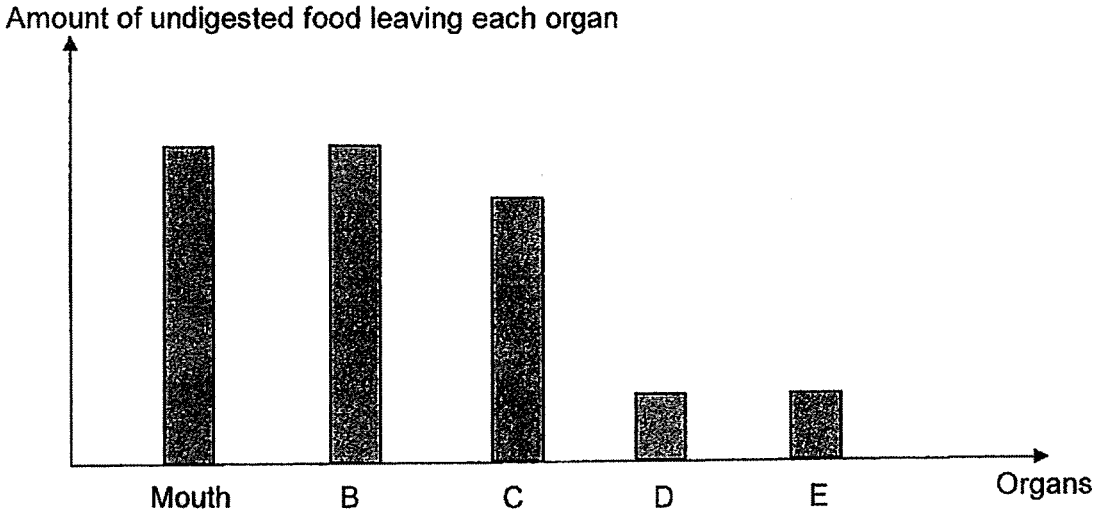
(c) Rashid planted Plant B in the soil of his garden. After a round of heavy rain, Plant B was washed away. Explain why. [1]

_____

_____

Score	3

31. The graph below shows the amount of undigested food just before they leave the different parts of the human digestive system. Food moves from the mouth to Organ E.



(a) Identify Organ B and Organ D. [1]

B: _____

D: _____

(b) Based on the graph, what is the difference between the amount of undigested food in Organ C and Organ D? [1]

_____

_____

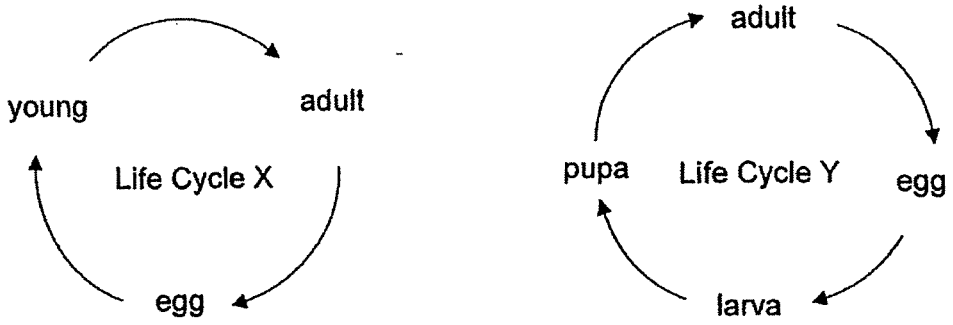
(c) What happened to the digested food at Organ D? [1]

_____

_____

Score	/ 3

32. Study the life cycles below.

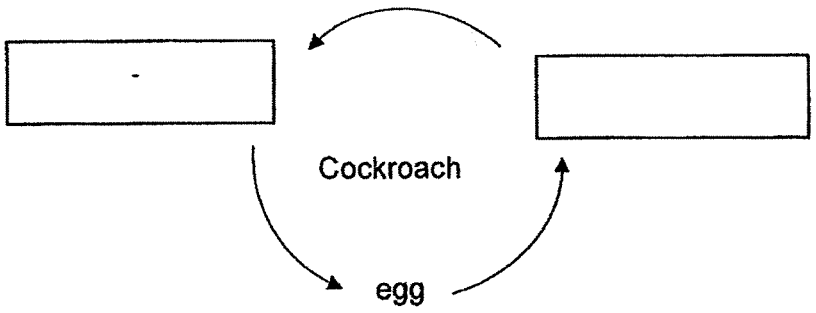


(a) Give one similarity between the above life cycles. [1]

_____

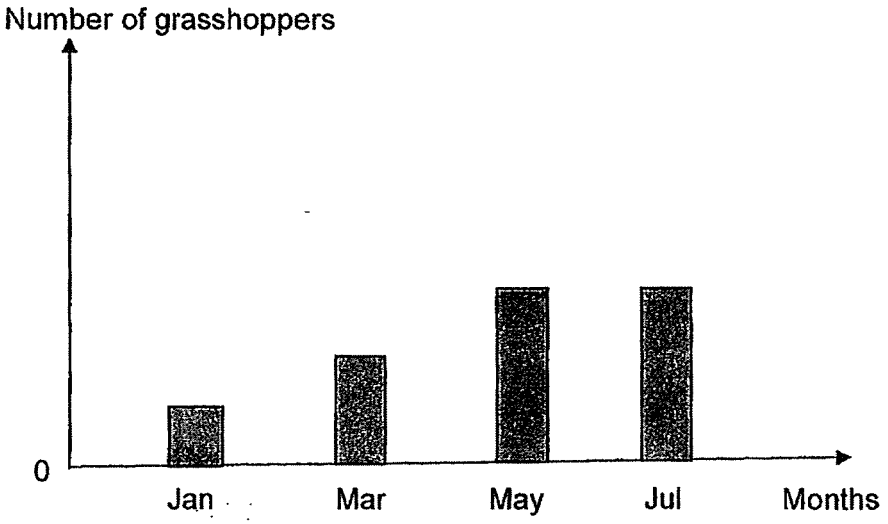
_____

(b) Complete the stages of the life cycle of a cockroach. [1]



Score	2

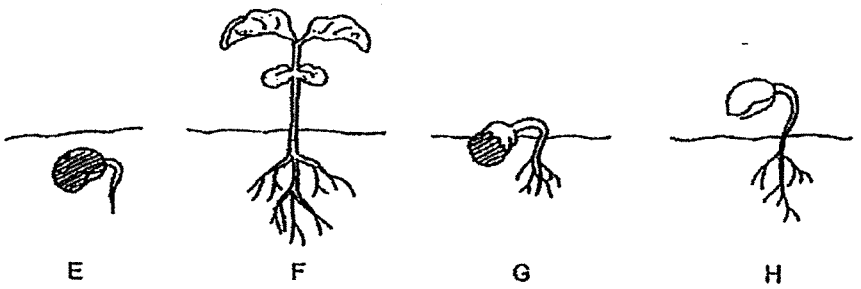
Siti kept some grasshoppers in a tank in January. Without adding new grasshoppers into the tank, she recorded the number of grasshoppers over a few months in the graph below.



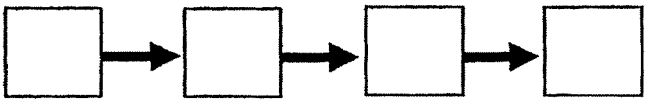
(c) Explain why the number of grasshoppers Siti observed from January to May is different each month? [1]

Score	1

33. E, F, G and H are different stages of the growth of a bean plant.

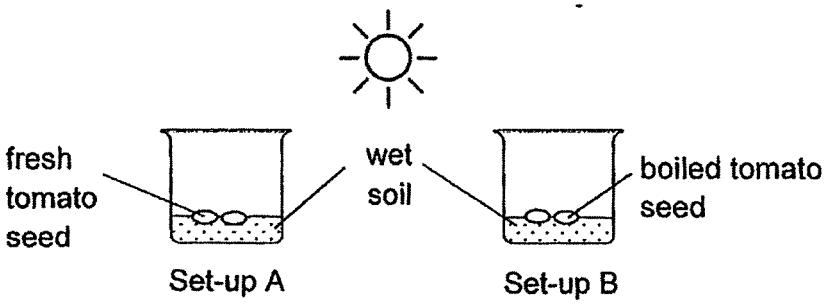


(a) Fill in the blanks below with the correct stages, E, F, G and H, in order to show the correct order of growth for the bean plant. [1]



(b) At which stage is the plant able to make food? Explain why. [2]

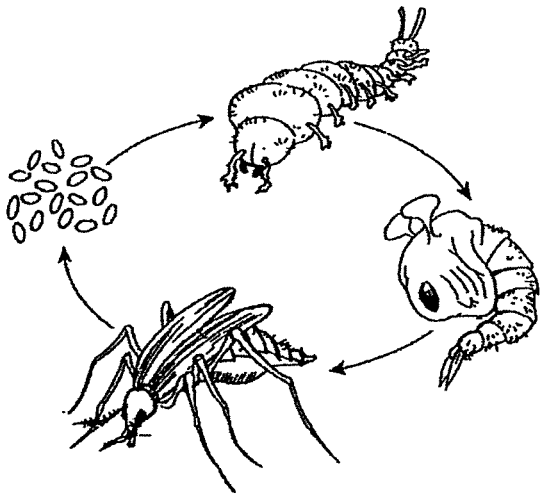
An experiment was set up as shown below.



(c) In which set-up will the seeds grow into a young plant? Why? [1]

Score	
	4

34. The diagram below shows the life cycle of a mosquito.



(a) Compare the amount of food consumed by a larva and a pupa. [1]

_____

_____

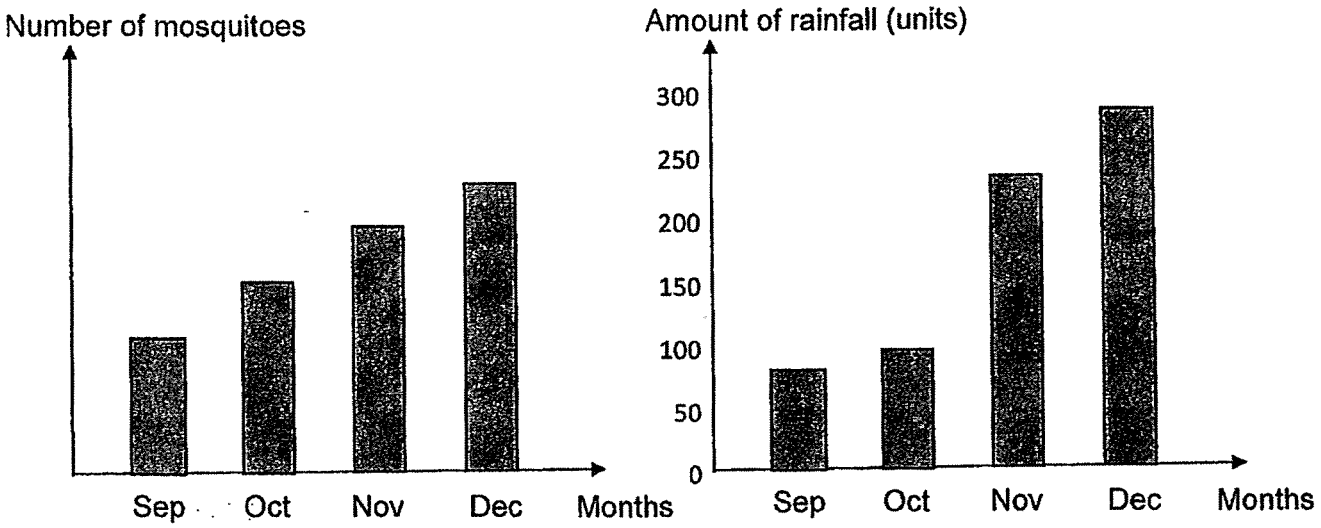
(b) Jill's house has a pond that has many water plants. One day she found many mosquito larvae in her pond. Suggest one way Jill can get rid of the mosquito larvae without harming her plants. [1]

_____

_____

Score	/ 2

Jill plotted two graphs on the amount of rainfall and the number of mosquitoes found from September to December.



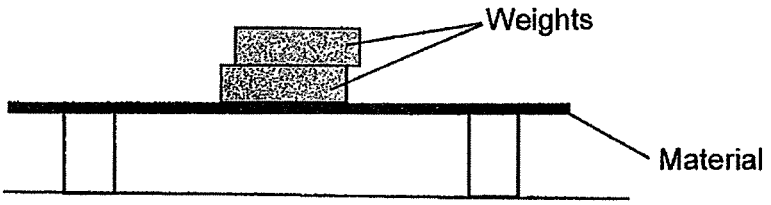
(c) Based on the graphs, how does the amount of rainfall affect the number of mosquitoes? [1]

_____

_____

Score	/ 1

35. Betty set up an experiment to find out a property of three different materials, F, G and H. All the materials were of the same length and thickness. Weights of different mass were added to each material in turn until it started to break.



The results were recorded down in the table below.

Material	**Mass at which the material started to break**
F	70 kg
G	60 kg
H	100 kg

(a) Identify the property of the materials that Betty was testing for in the above experiment. [1]

_____

(b) Betty has a mass of 75 kg. Betty wants to buy a chair for her study room. The chair is to be made of the same thickness of material as those in the experiment. Which material, F, G or H, should her chair be made of? Explain why. [2]

_____

_____

Score	/ 3

36. Alan brought the south pole of a magnet near Rod Y. He noticed that Rod Y was attracted to the magnet, as shown in Diagram 1.

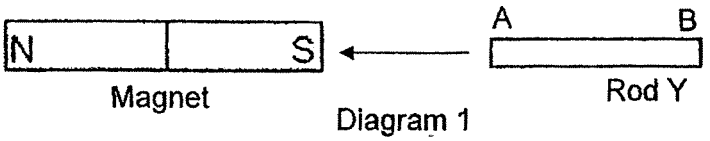


Diagram 1

Next, he brought the north pole of the magnet near the same end of Rod Y. He observed that Rod Y was also attracted to the magnet, as shown in Diagram 2.

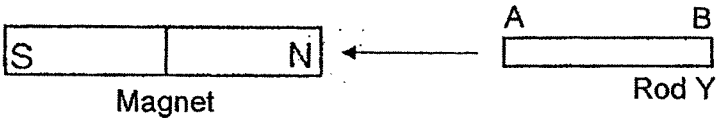


Diagram 2

(a) Based on his observation, is Rod Y a magnet? Give a reason. [1]

_____

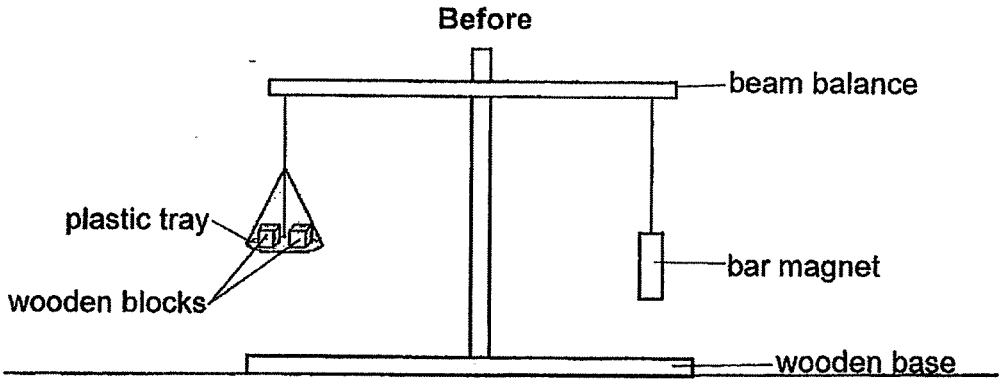
_____

(b) Name an example of a metal Rod Y is made of. [1]

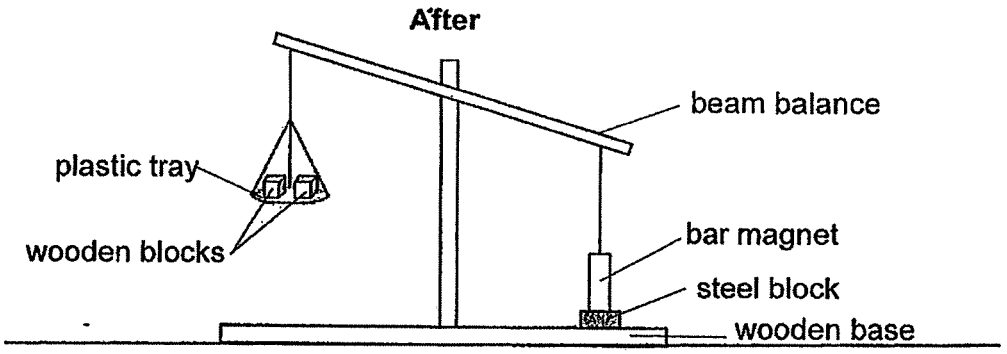
_____

Score / 2

Next, Alan placed two wooden blocks onto a plastic tray hung on one end of a beam balance shown below until it was balanced with the bar magnet.



After that, he placed a heavy steel block on the wooden base. The beam balance tilted downwards as shown below.

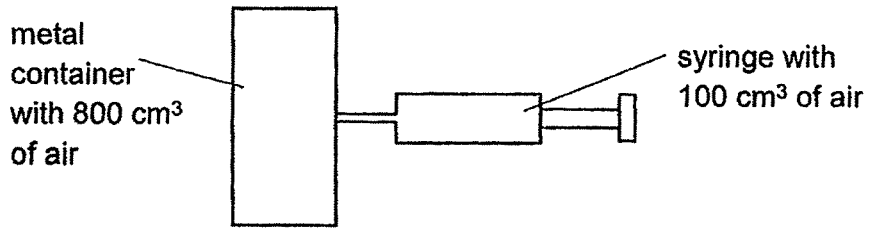


(c) Give a reason why the beam balance tilted downwards. [1]

_____

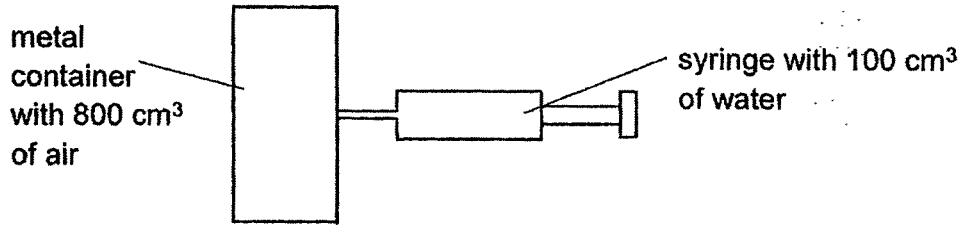
Score	/ 1

37. The diagram below shows a metal container with 800 cm^3 of air.



(a) What will the volume of air in the metal container be when 100 cm^3 of air is pushed in from the syringe? [1]

Next, 100 cm^3 of water is pushed into the container.



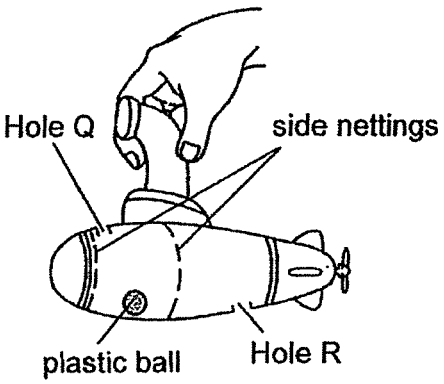
(b) What is the volume of air in the metal container after 100 cm^3 of water is pushed in? [1]

(c) Explain your answer in (b). [1]

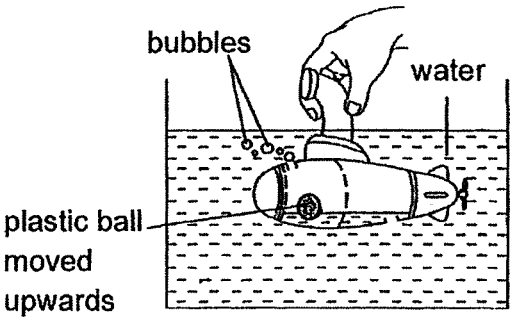
Score / 3

38. Jason put a small plastic ball in his submarine. There are two holes, Q and R, and two nettings in the submarine. When he pushed the submarine into the water, bubbles were seen coming out from the submarine and the small plastic ball floated.

Before putting into the tank

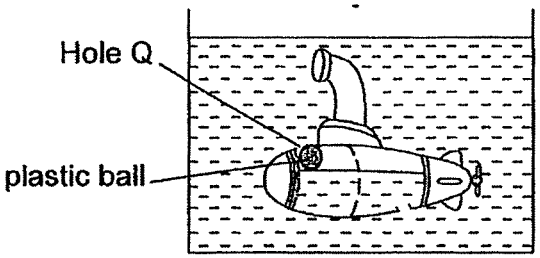


After putting into the tank



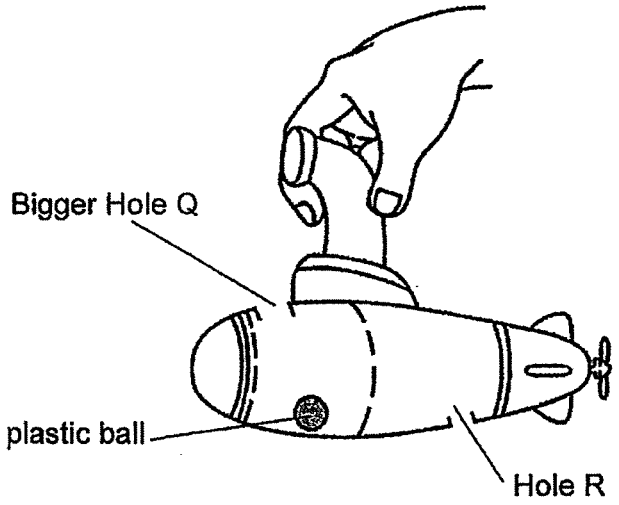
(a) Explain why the plastic ball floated when the submarine was pushed into the water. [2]

When the submarine was pushed deeper into the water, the small plastic ball rose and blocked Hole Q completely.



(b) What do you think would happen to the water level in the submarine when the plastic ball blocked Hole Q? [1]

Score	
	3



(c) If Hole Q is enlarged, explain how this affects how fast the water level rises in the submarine?

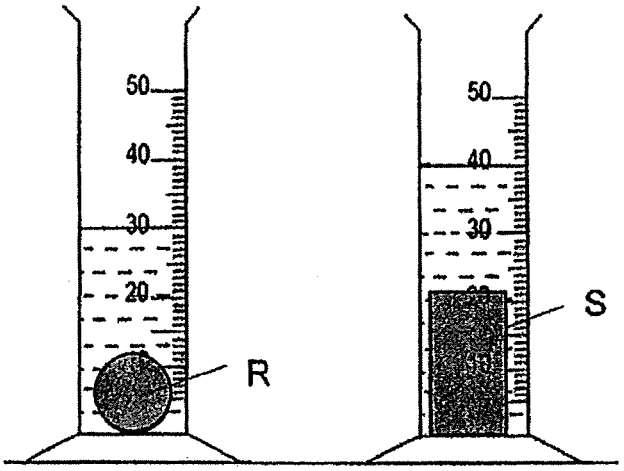
[2]

_____

_____

Score	2

39. Devi poured 25 cm^3 of water into each of the two measuring cylinders. She then placed two different objects, R and S, into the cylinders as shown in the diagram below.



(a) i) Complete the table below with the volume of objects, R and S. [1]

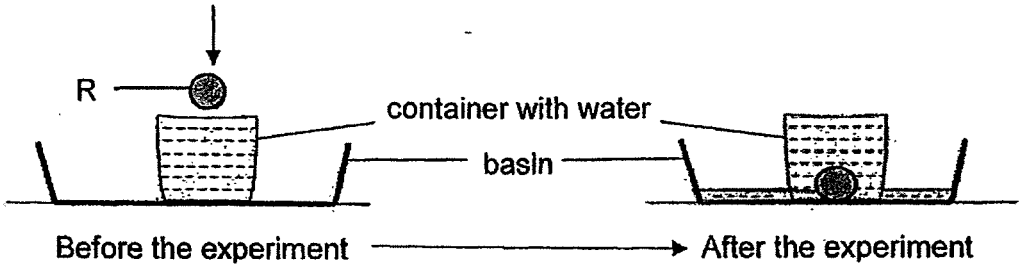
Object	Volume (cm^3)
R	
S	

(ii) Which object has a greater volume? [1]

Object _____

Score	/ 2

Next, Devi lowered R carefully into a container with water but some water overflowed into the basin as shown below.

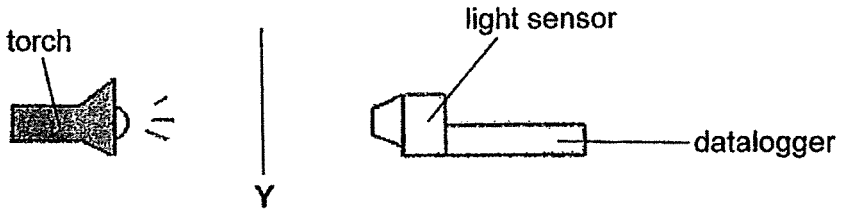


(b) Give a reason why some water was collected in the basin. [1]

(c) Devi repeated the experiment with an iron ball of the same size and shape. Would the amount of water collected in the basin be the same or different. Explain your answer. [1]

Score	/2

40. Rachel set up an experiment to investigate how the number of sheets of paper placed between a torch and a light sensor affects the amount of light sensed by the light sensor. The papers were placed at position Y.



Number of sheets of paper	Amount of light detected (unit)
0	200
1	140
2	100
3	
4	10
5	0

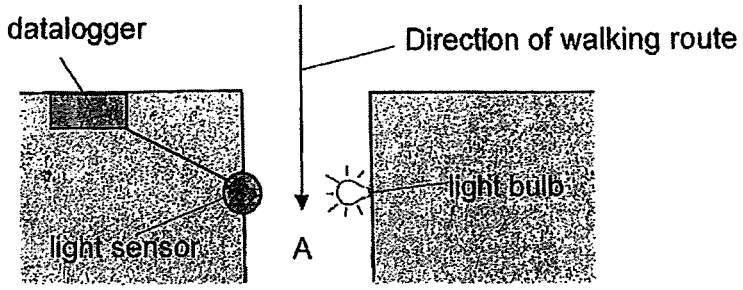
(a) State the amount of light detected by the light sensor when 3 sheets of paper were used in the box in the table above. [1]

(b) How does the number of sheets of paper affect the amount of light detected by the light sensor? [1]

(c) What is the amount of light detected by the light sensor if Rachel replaced the sheet of paper with one sheet of aluminium foil at Y. Give a reason for your answer. [1]

Score / 3

41. A shopping mall uses a light sensor to detect people walking through a dim passage A with one light bulb.

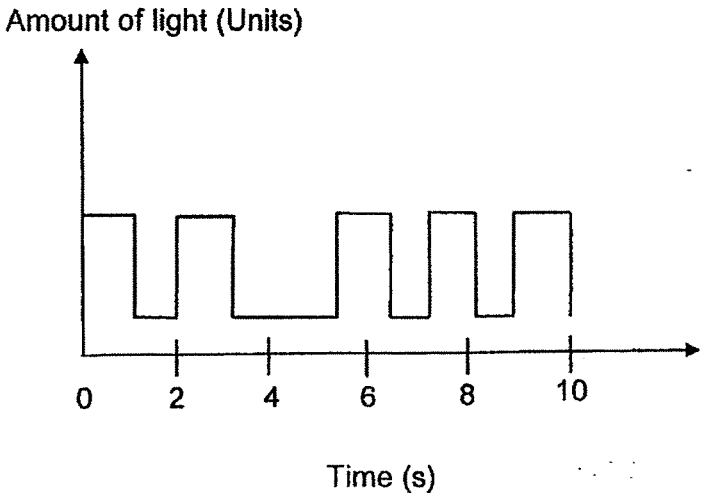


(a) Explain how when a person walks between the light sensor and the light bulb, the datalogger can count this person who has walked past? [1]

(b) What property of light is used in the above set-up? [1]

Score	2

When a person is between the light sensor and light bulb, less light was sensed by the light sensor. The data recorded is shown in the line graph below recording the number of people walking one person at a time along passage A.



(c) Based on the line graph, how many people had walked along passage A within 10 seconds? [1]

(d) The manager told his staff that the above set-up is faulty as it cannot count the number of people if a group of people walked too closely to one another at the same time. Explain why. [1]

Score	2

End of Booklet B

SCHOOL : TAO NAN PRIMARY SCHOOL

LEVEL : PRIMARY 4
SUBJECT : SCIENCE
TERM : 2019 SA1

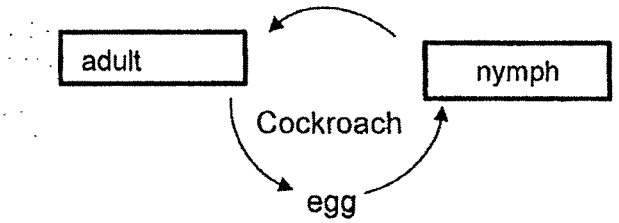
SECTION A

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

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

Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28
4	4	4	1	4	2	3	2

2019 **P4 Science SA1 Answer Key**

	Model answer
29a	Animal T feeds on plants while Animal S does not feed on plants. (Compare)
29b	R is an animal that has six legs, does not have scales and does not feed on plants.
30a	Plant A takes in more water than Plant B. (Compare)
30b	Living things need water to survive/live.
30c	Plant B has no roots to hold onto the ground firmly.
31a	Organ B: gullet Organ D: small intestine
31b	There is more undigested food in Organ C than in Organ D. (Compare)
31c	The digested food in Organ D has been absorbed into the bloodstream.
32a	Both life cycles have an egg/adult stage
32b	
32c	The grasshoppers had reproduced.
33a	E, G, H, F
33b	Stage F. The plant has grown leaves to trap sunlight.
33c	Set-up A. The seeds are still alive/not dead.
34a	The larva eats a lot of food while the pupa does not. (compare)
34b	Jill can introduce fish into the pond to eat the mosquito larvae.
34c	As the amount of rainfall increases, the number of mosquitoes increases.
35a	Strength (General term)
35b	Material H. Material H is the strongest material and it can hold a mass that is more than Betty's mass. (cause- property with evidence from the table) Hence, it will be able to bear Betty's mass without breaking. (effect- application to scenario).

36a	Rod Y is not a magnet. Rod Y did not repel the bar magnet/ was only attracted to the bar magnet. Magnetic material will be attracted to a magnet (incorrect -> general statement)
36b	Iron, steel, nickel and cobalt
36c	The magnet attracted the steel bar.
37a	800 cm^3
37b	700 cm^3
37c	Water has a definite volume but air has no definite volume and so it can be compressed.
38a	Air in the submarine escaped through hole Q and water entered the submarine through hole R, occupying the space previously occupied by the air. The water level in the submarine rises causing the plastic ball to rise.
38b	The water level in the submarine stopped rising.
38c	An enlarged Hole Q allows more air to escape, allowing more water to enter the submarine to occupy the space previously occupied by the air. Hence, water level rises faster.
39ai)	R- 5cm^3 S- 15cm^3
aii)	Object S
39b	R has a definite volume and so it occupies the space previously occupied by some of the water in the container.
39c	It will be the same. The iron ball would have the same volume as R.
40a	Eg. 55
40b	As the number of sheets of paper increases, the amount of light detected by the light sensor decreases.
40c	0 unit. Aluminium foil is opaque/does not allow light to pass through (cause). Hence, no light will be detected (effect).
41a	A person who is opaque blocks the light as he passes by (cause) so the light sensor (cause) will not detect any light (effect).
41b	Light travels in a straight line.
41c	4
41d	If more than one person blocked the light at the same time (cause), the light sensor would detect less light once and so the counter counts it as one person (effect).