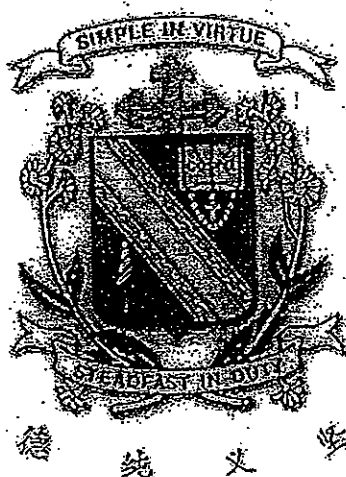


Name : _____ ()

Class : Primary 4 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL



Primary 4 Semestral Assessment 1 – 2012

SCIENCE

BOOKLET A

10th May 2012

Total Time for Booklets A and B: 1 hour 45 minutes

30 questions
60 marks

Do not open this booklet until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answers in the Optical Answer Sheet (OAS) provided.

This paper consists of 21 printed pages.

Section A : (30 x 2 marks)

For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

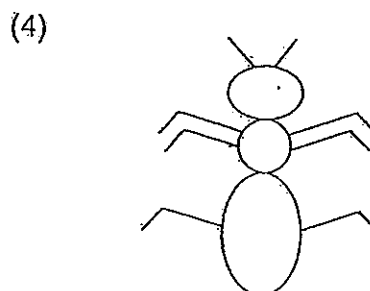
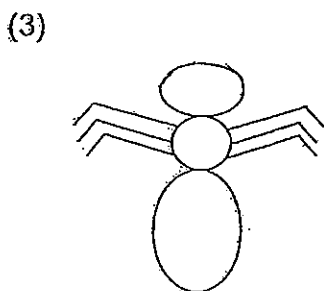
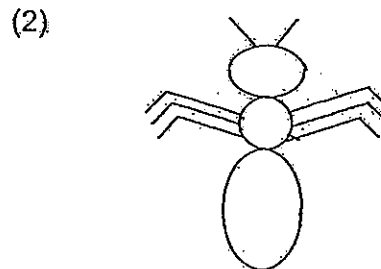
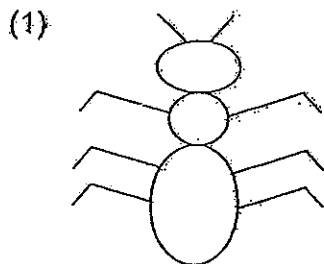
1. Study the classification table below.

Animals		
Group A	Group B	Group C
bear	ant	tuna
rabbit	bee	whale
dolphin	cockroach	goldfish

Which animal is grouped wrongly?

- (1) bee
- (2) whale
- (3) dolphin
- (4) cockroach

2. Which one of the following diagrams most accurately represents the body parts of an ant?



3. Alan draws up a classification table as shown below. Which one of the following sets is **not** correct?

	Living things	Non-living things
(1)	Deer	Paper
(2)	Breadmould	Plastic bottle
(3)	Wooden chair	Chalk
(4)	Rose plant	Pencil

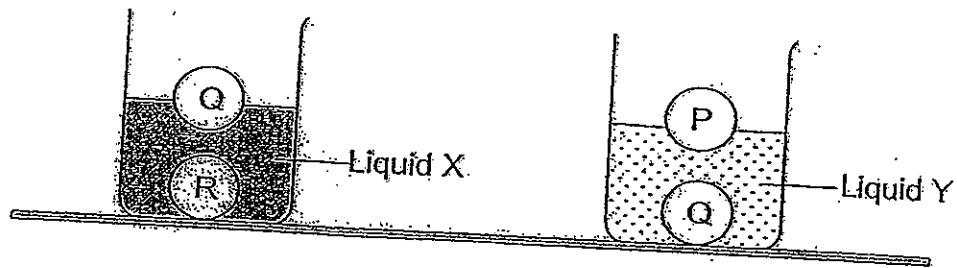
4. The table below shows the characteristics of four animals, W, X, Y and Z. A tick (✓) indicates the presence of the characteristic.

Animals	Number of legs			Gives birth to live young	Has wings	Has scales on its body
	0	2	4			
W			✓	✓		
X	✓			✓		✓
Y		✓			✓	
Z	✓					✓

Which one of the following animals is most likely to be a guppy?

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

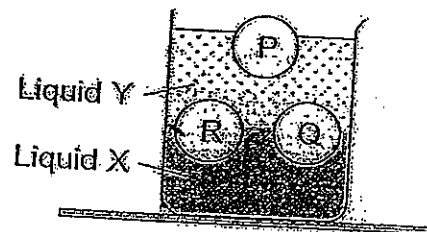
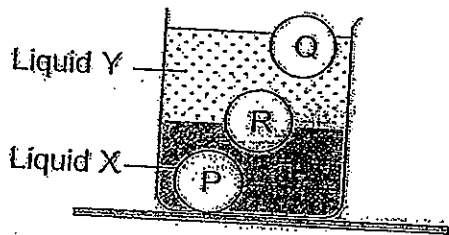
5. Three similar balls of different materials, P, Q and R, are placed in liquids X and Y. The balls stay at the position as shown below.



Liquid X and liquid Y do not mix together. When they are poured into a beaker, liquid Y floats on top of liquid X. If balls P, Q and R are added to this beaker, which one of the following diagrams would show their correct positions?

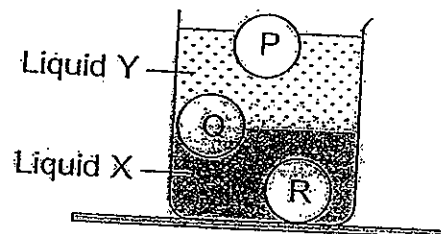
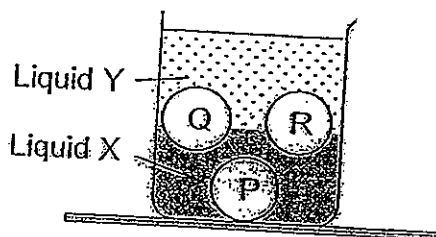
(1)

(2)



(3)

(4)



6. Susan conducted an experiment to study the hardness of four different materials, W, X, Y and Z. She used the sharp ends of a glass rod and a wooden rod to scratch each of these materials. She recorded her observations in the table below.

Rod used to scratch material	Scratch marks observed on materials?			
	W	X	Y	Z
glass	yes	no	yes	yes
wood	yes	no	yes	no

Based on the results in the above table, which one of the following statements is true?

- (1) X and Z are harder than wood.
- (2) X and Y are harder than glass.
- (3) W and Z are harder than glass.
- (4) W is the least hard among the materials.

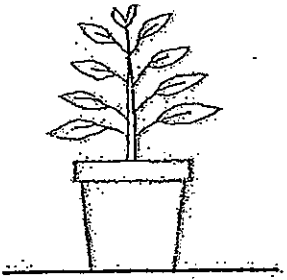
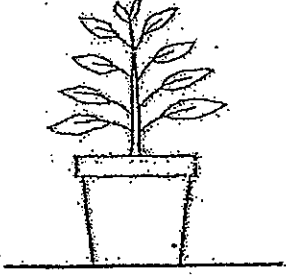
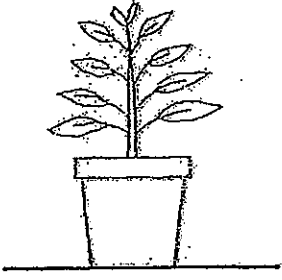
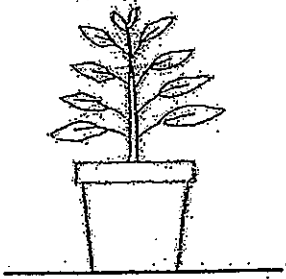
7. The diagram below shows a living plant.



Which one of the following is travelling along the path shown by the arrows in the diagram above?

- (1) Food
- (2) Water
- (3) Oxygen
- (4) Carbon Dioxide

8. Paul carried out an experiment with four set-ups, A, B, C and D as shown in the diagram below. At the end of the experiment, it was observed that some of the potted plants grew well but not the others.

<u>Set-up A</u> Well-lit room Plant is not watered Fertiliser Z added to the soil 	<u>Set-up B</u> Well-lit room Plant watered daily Fertiliser Z added to the soil 
<u>Set-up C</u> Dark room Plant is not watered Fertiliser Z added to the soil 	<u>Set-up D</u> Dark room Plant watered daily Fertiliser Z added to the soil 

What was the likely aim of Paul's experiment?

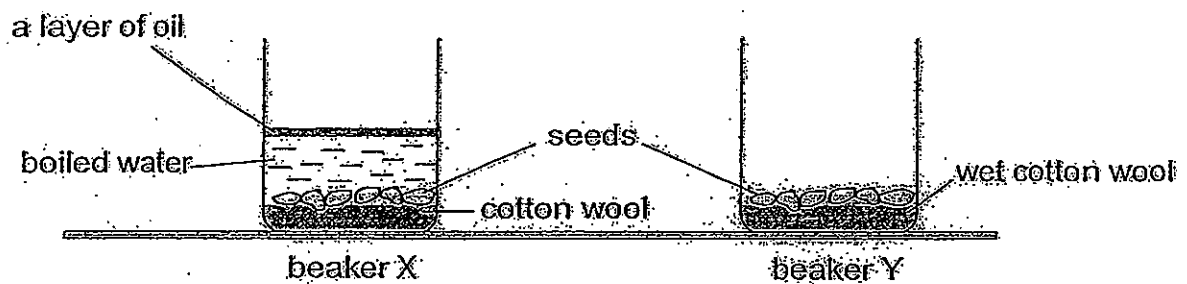
- (1) To find out whether the plants need light and water to grow well.
- (2) To find out the amount of light needed by the plants to grow well.
- (3) To find out whether the plants need light and fertiliser to grow well.
- (4) To find out whether the plants need light, water and fertiliser to grow well.

9. Which of the following statements about fungi is/are true?

- A Fungi can make their own food.
- B Some fungi grow on dead matter.
- C Bird's nest fern belongs to the fungi family.
- D Fungi need only water and warmth to grow.

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

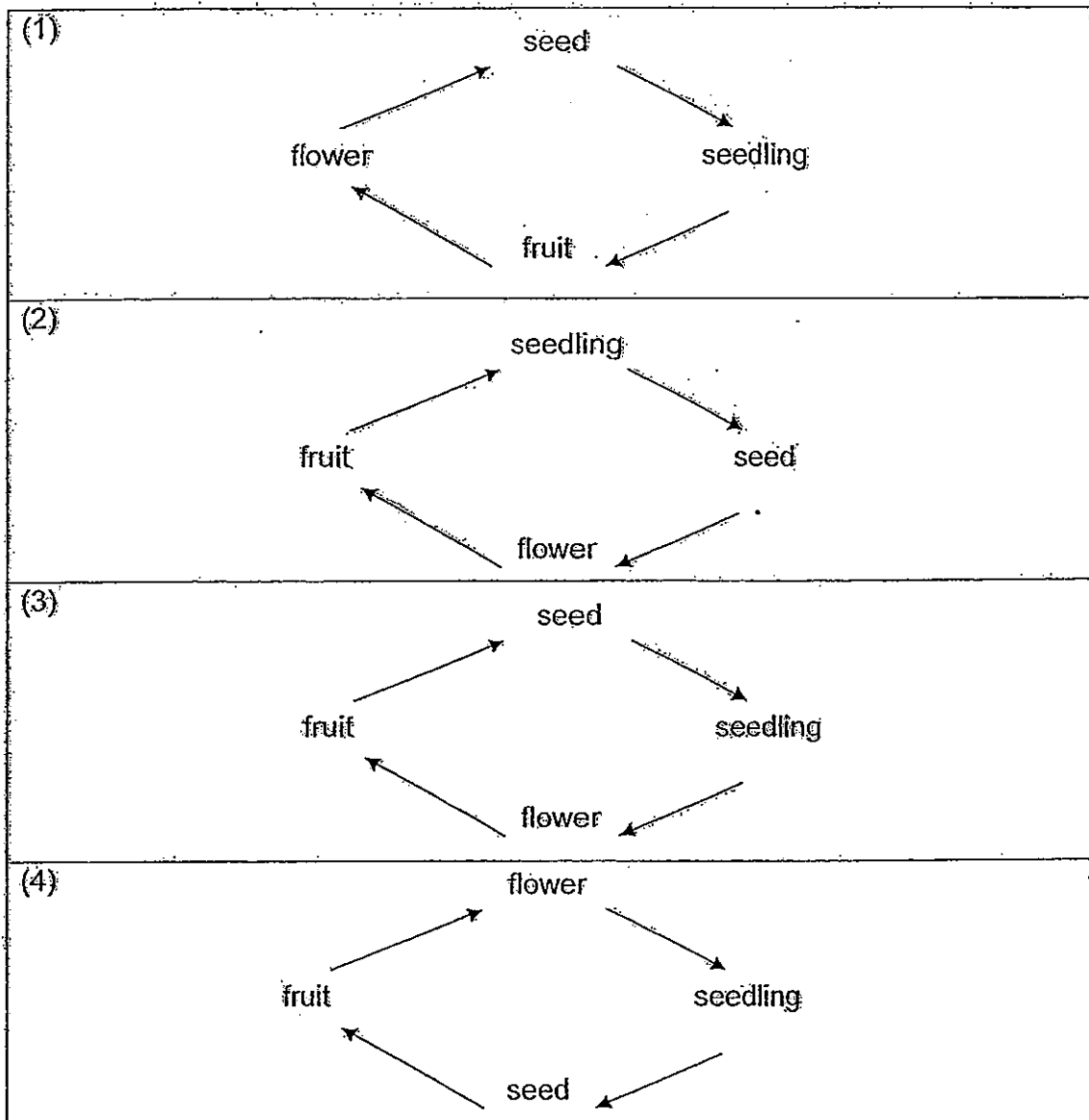
10. Roger carried out an experiment to investigate the conditions necessary for the germination of seeds. The diagram below shows the set-up of his experiment.



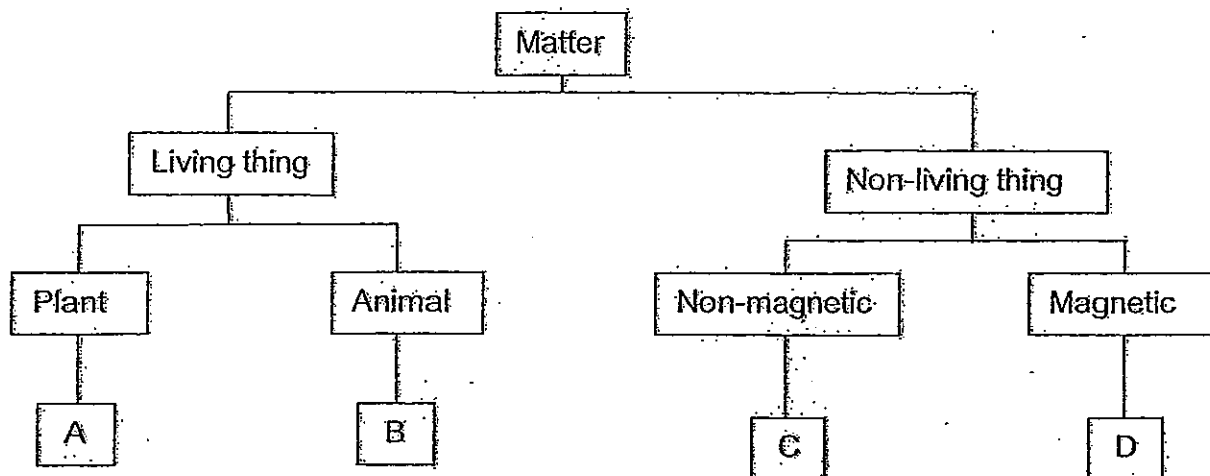
After two days, the seeds in beaker Y germinated but the seeds in beaker X did not. Why were the seeds in beaker X not germinating?

- (1) Lack of air
- (2) Lack of food
- (3) Lack of light
- (4) Lack of warmth

11. Which one of the following diagrams shows the correct life cycle of a flowering plant?



12. Study the classification chart below.



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

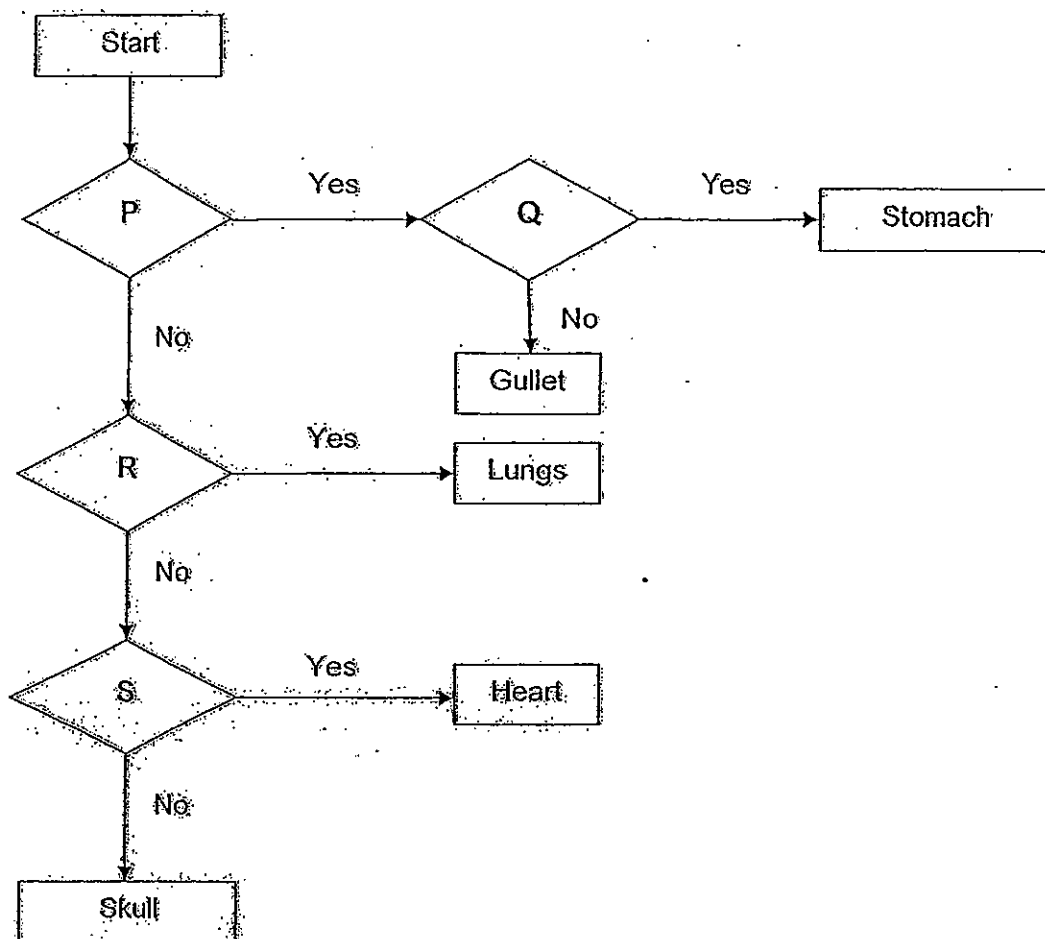
	A	B	C	D
(1)	moss	snail	steel	nickel
(2)	fern	rabbit	cobalt	steel
(3)	cactus	ant	aluminium	iron
(4)	mushroom	guppy	iron	copper

13. Which part of the human digestive system A, B, C or D produces digestive juice?

- A: Gullet
- B: Stomach
- C: Large intestine
- D: Small intestine

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

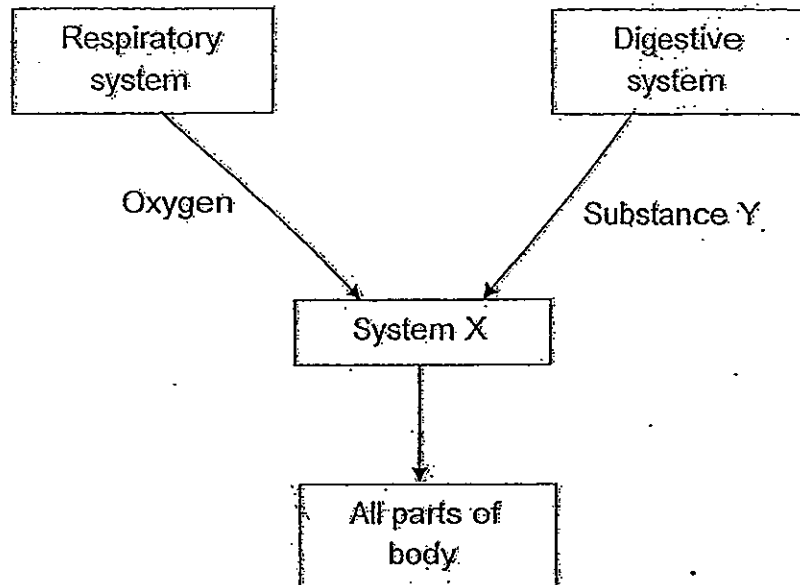
14. Study the flow diagram shown below carefully.



With reference to the above table, which of the following represents the most suitable headings for P, Q, R and S?

	P	Q	R	S
(1)	Is it part of the circulatory system?	Does it break down food?	Is it part of the human body system?	Is it part of the respiratory system?
(2)	Is it part of the human body system?	Is it part of the digestive system?	Is it part of the circulatory system?	Is it part of the respiratory system?
(3)	Does it break down food?	Is it part of the digestive system?	Is it part of the respiratory system?	Is it part of the circulatory system?
(4)	Is it part of the digestive system?	Does it break down food?	Is it part of the respiratory system?	Is it part of the circulatory system?

15. Study the diagram below:



Which one of the following best represents System X and Substance Y in the diagram above?

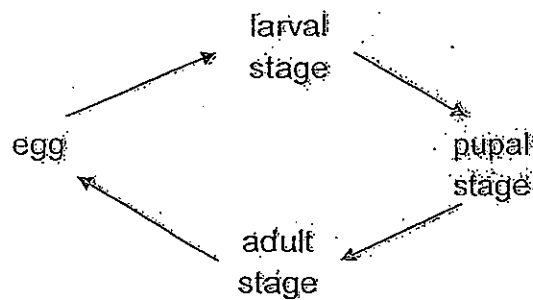
	System X	Substance Y
(1)	Muscular	Digested food
(2)	Circulatory	Digested food
(3)	Muscular	Undigested food
(4)	Circulatory	Undigested food

16. Which of the following statements describe(s) the life cycles of a frog and a dragonfly?

- A They have a 3-stage life cycle.
- B The young resembles the adult.
- C The young moults a few times before becoming an adult.

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

17. The diagram below shows the different stages in the life cycle of an animal.

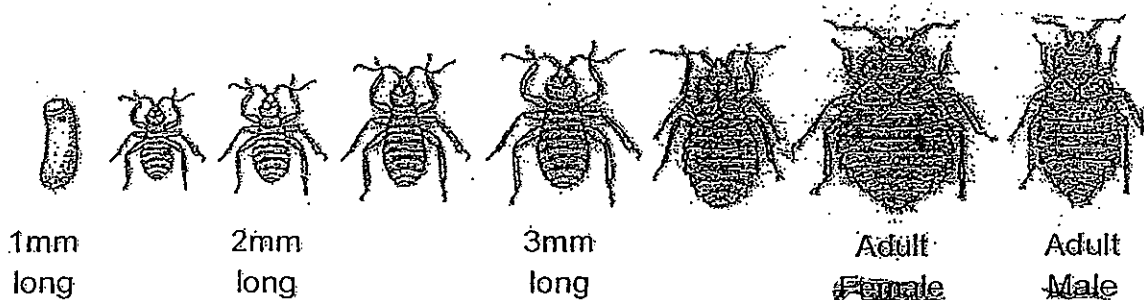


Which of the following animals go through the life cycle as shown above?

- A Chicken
- B Butterfly
- C Mosquito
- D Cockroach

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

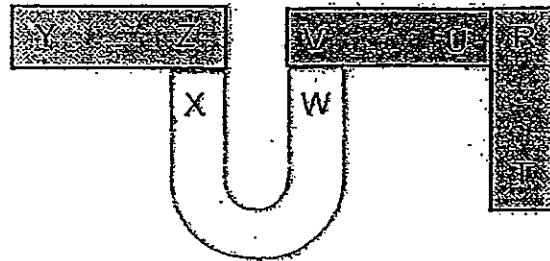
18. The diagram below shows the development of a bed bug from an egg to an adult.



Based on the development shown above, what can you infer about the number of stages in the life cycle of a bed bug?

- (1) 3
- (2) 5
- (3) 7
- (4) 8

19. The diagram below shows three bar magnets and a U-shaped magnet.



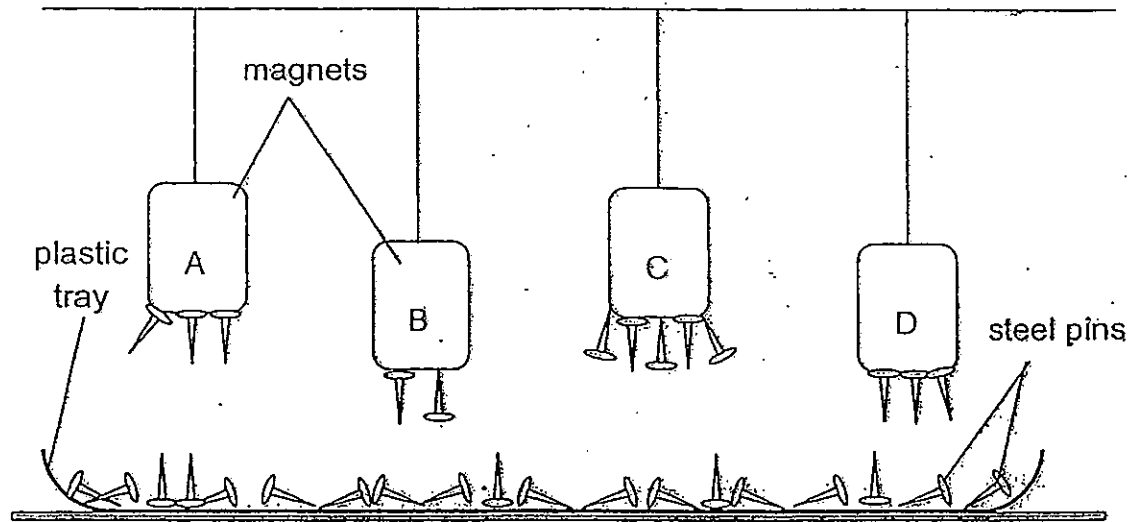
Based on the diagram above, which of the following statement(s) about the poles of the magnets is/are true?

- A Poles R and Y are like poles.
- B Pole U will repel poles W and R.
- C Pole Z will repel pole U and be attracted to pole R.
- D Pole X will repel pole T and be attracted to pole V.

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

45

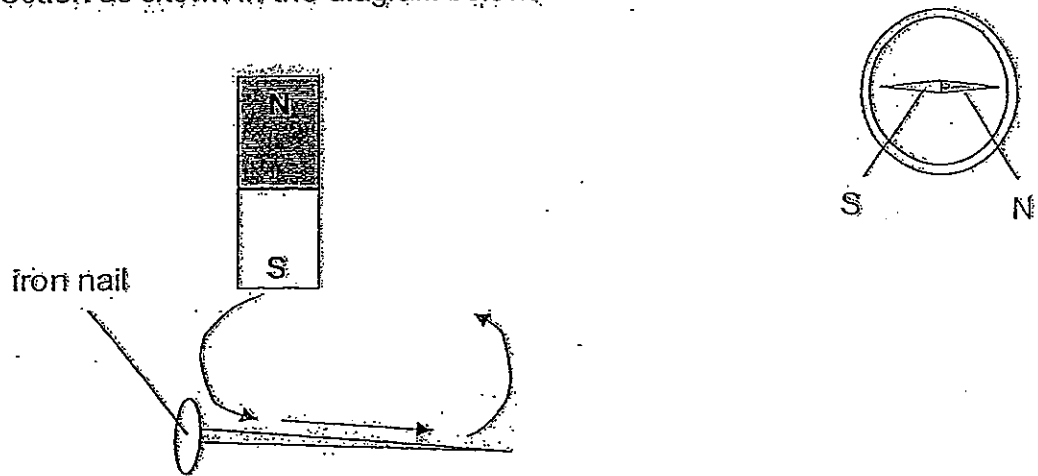
20. A, B, C and D are magnets hanging from strings of two different lengths as shown in the diagram below. A plastic tray of steel pins is placed below the magnets and different numbers of pins are attracted to the magnets.



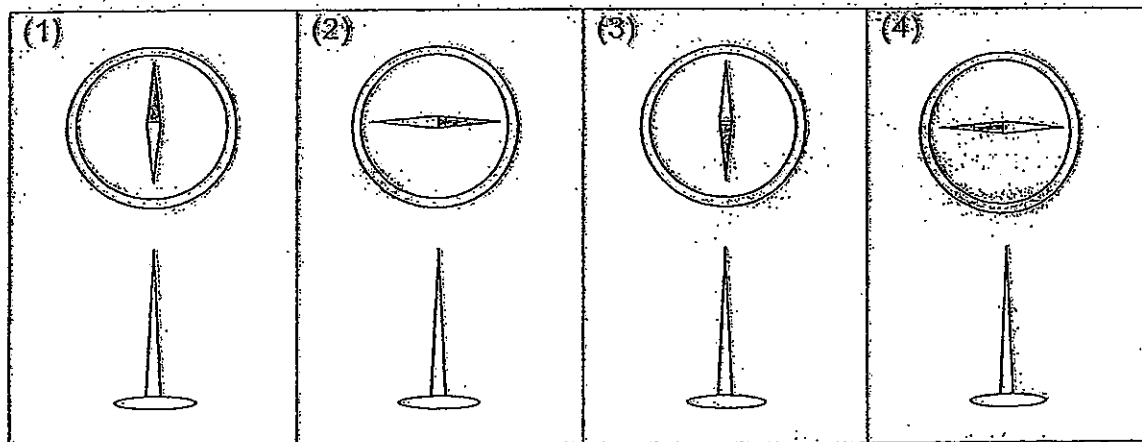
Based on the diagram above, arrange the magnets A, B, C and D in descending order of their strength.

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

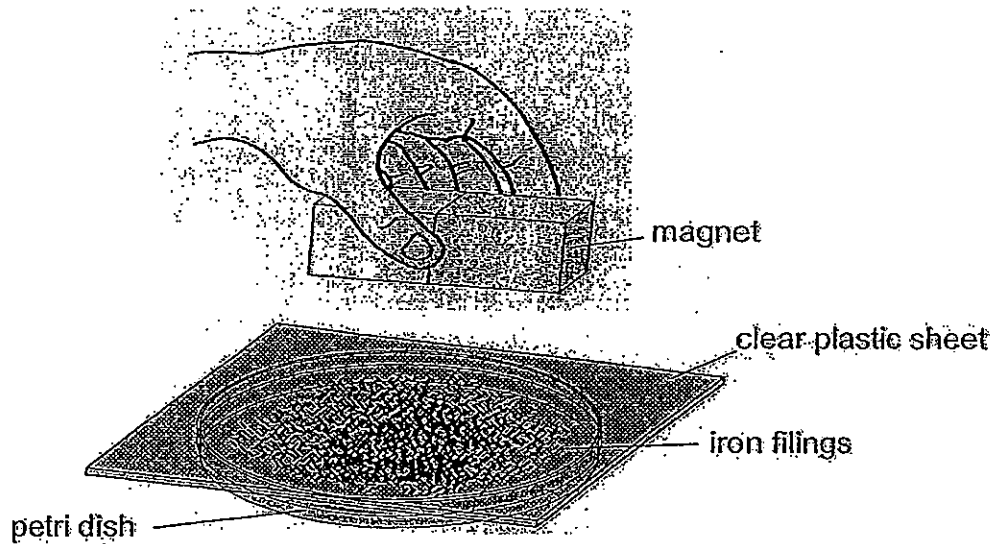
21. An iron nail is made into a temporary magnet by stroking it with a bar magnet in the direction as shown in the diagram below.



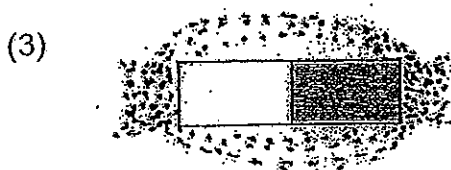
When a compass is brought near the tip of the iron nail, which one of the following diagrams shows the correct position of the compass needle?



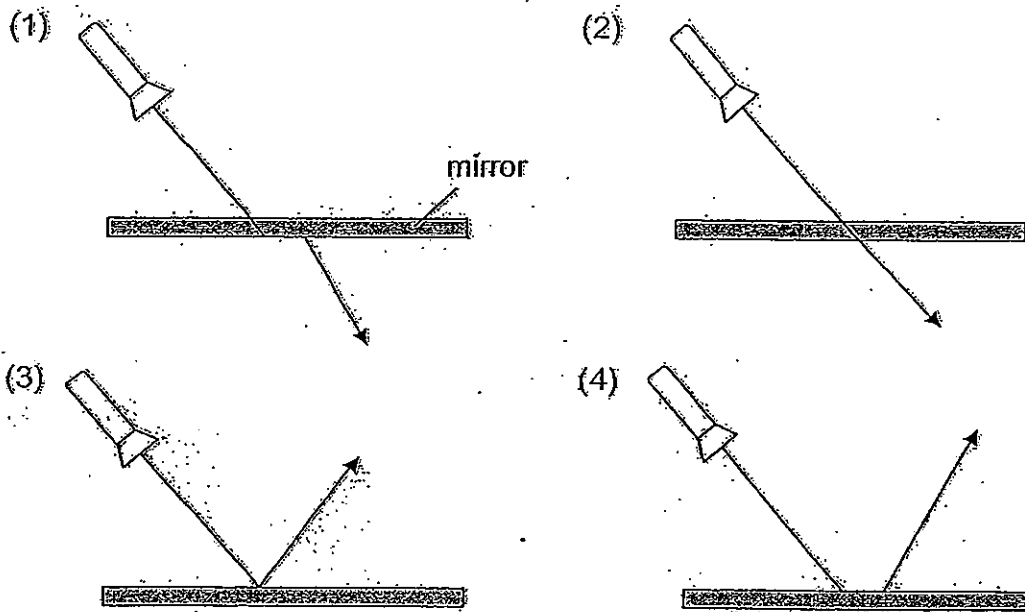
22. Eleanor poured some iron filings into a petri dish and placed a clear plastic sheet over the petri dish as shown below. She then placed a bar magnet on the clear plastic sheet and observed that the iron filings were attracted to the magnet.



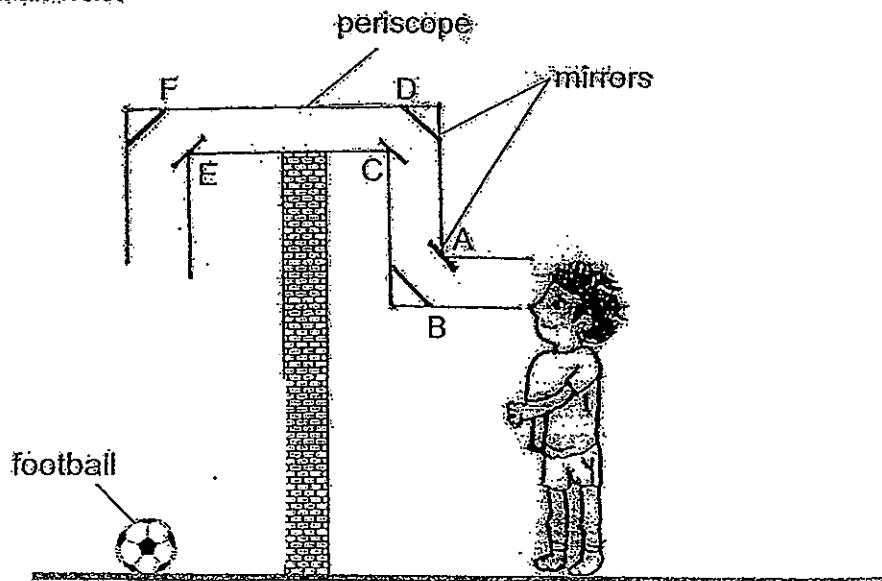
Which one of the following diagrams best shows what Eleanor would observe?



23. Which one of the following correctly shows the path of light when a torch is shone onto a mirror?



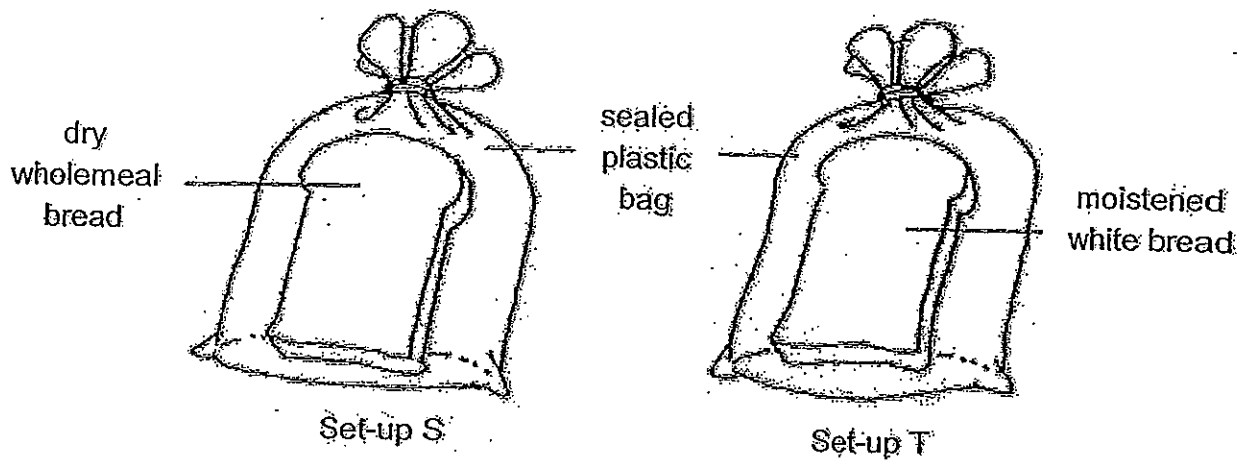
24. John accidentally kicked his football over to his neighbour's garden which was separated by a wall. He decided to make a periscope to enable him to see where his football was.



He used six mirrors, A, B, C, D, E and F, in the periscope tube as shown above. Which mirrors would enable him to see the football?

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

25. Nora wanted to find out if moisture was needed for mould to grow. She placed one piece of bread each into a plastic bag as shown below.



The table below shows the variables in Nora's experiment.

Variable	Set-up S	Set-up T
Type of bread	Wholemeal bread	White bread
Amount of water poured on bread	0 ml	5 ml
Location set-up is placed	Dark cupboard	Dark cupboard
Type of plastic bag	Transparent	Transparent

Why was the experiment **not** a fair one?

- (1) The type of bread used was different.
- (2) The type of plastic bag used was the same.
- (3) Water was not added to the bread in set-up S.
- (4) Both set-ups were placed in the same place.

26. The diagram below shows a cat catching a butterfly in the garden on a sunny day.



Which one of the following correctly shows the path of light that makes it possible for the cat to see the butterfly?

- (1) From the sun to the cat to the butterfly
- (2) From the sun to the butterfly to the cat
- (3) From the butterfly to the sun to the cat
- (4) From the butterfly to the cat to the sun

27. Hui Juan, Sharon, Denise and Suzani each made a statement about the three bags shown below.



1kg flour



1kg rice



1kg coins

Hui Juan: The items in the three bags have different mass.

Sharon : The items in the three bags have the same mass.

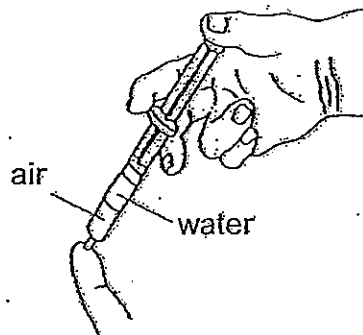
Denise : The three bags of substances have different volume.

Suzani : The three bags of substances have the same volume.

Who has made a correct statement?

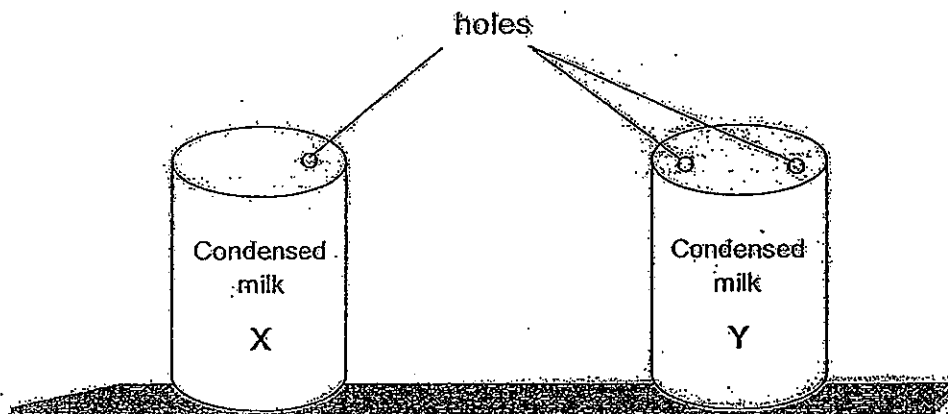
- (1) Sharon only
- (2) Sharon and Denise only
- (3) Denise and Hui Juan only
- (4) Hui Juan and Suzani only

28. A syringe is filled with equal volume of air and water. The nozzle of the syringe is covered tightly as shown below.



Which one of the following is observed when the plunger is pushed in?

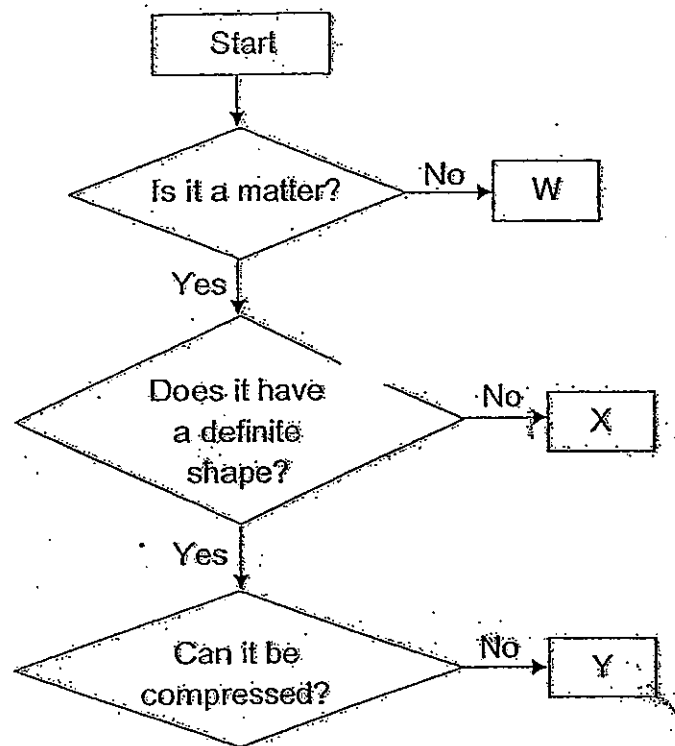
- (1) The volume of both the air and water remains the same.
 - (2) The volume of water increases while the volume of air decreases.
 - (3) The volume of water decreases while the volume of air remains the same.
 - (4) The volume of water remains the same while the volume of air decreases.
29. Small holes were made in the two cans of condensed milk, X and Y, as shown below.



Milk would flow out more easily from _____.

- (1) can X because air inside the can pushes the milk out.
- (2) can Y because there are two holes for the milk to flow out.
- (3) can X because air enters through the hole to push the milk out.
- (4) can Y because milk can flow out through one hole and air can enter from the other hole to take up the space.

30. Study the flowchart below.



Which one of the following best represents W, X and Y?

	W	X	Y
(1)	Shadow	Oil	Book
(2)	Light	Sponge	Key
(3)	Wind	Air	Coin
(4)	Heat	Water	Oxygen

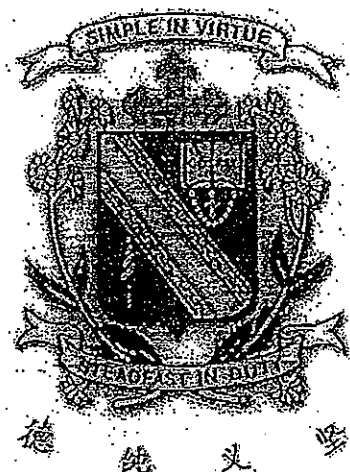
End of Booklet A

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Name : _____ ()

Class : Primary 4 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL



Primary 4

Semestral Assessment 1 – 2012

SCIENCE

BOOKLET B

10th May 2012

Total Time for Booklets A and B: 1 hour 45 minutes

14 questions

40 marks

Do not open this booklet until you are told to do so.

Follow all instructions carefully.

Answer all questions.

This paper consists of 15 printed pages.

Booklet A	60
Booklet B	40
Total	100

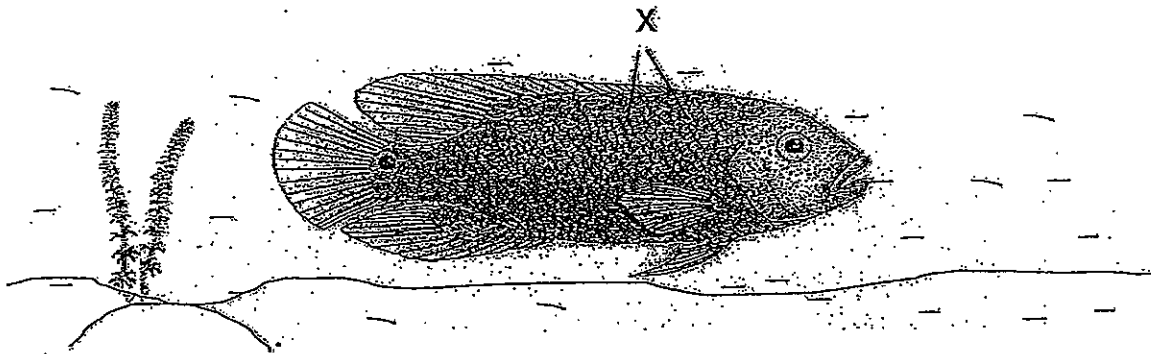
Parent's Signature/Date

Section B: 40 marks

For questions 31 to 44, write your answers in this booklet.

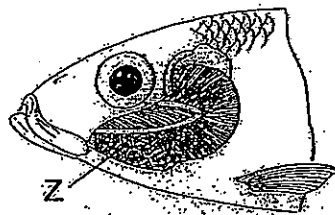
The number of marks available is shown in the brackets [] at the end of each question or part question.

31. The diagram below shows a fish swimming in the water.



(a) Why is part X important to the fish? [1]

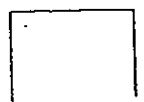
The diagram below shows another body part of the fish.



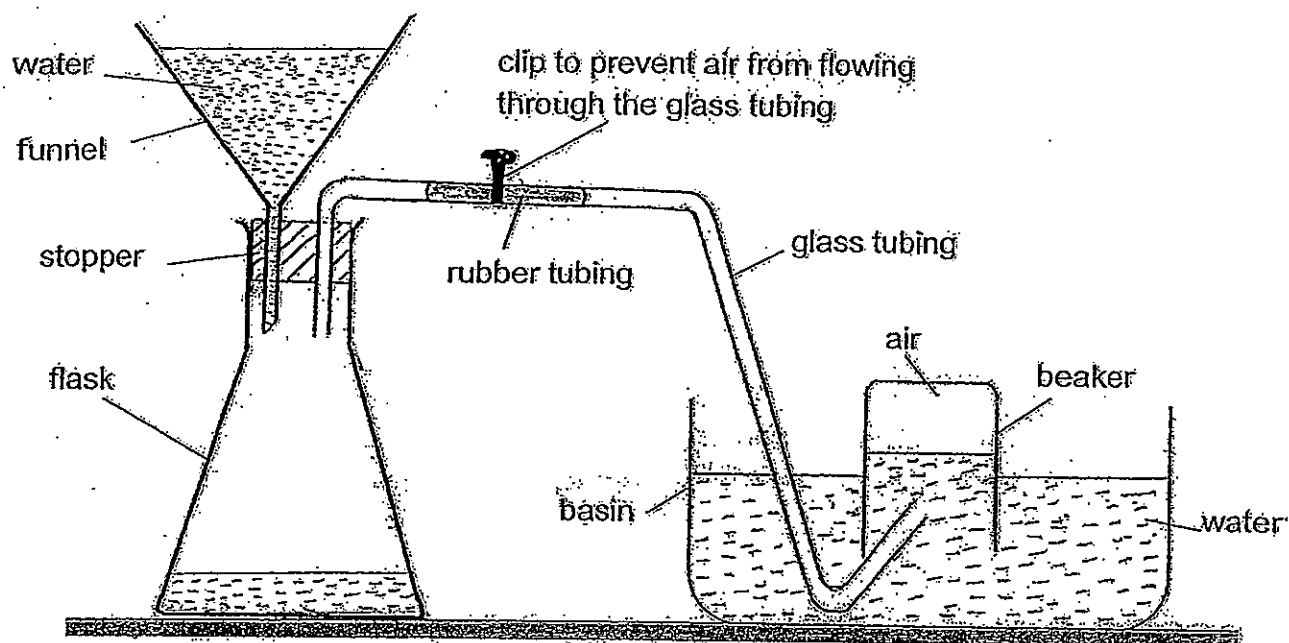
(b) What is the name of the part labelled Z? [1]

(c) What is the function of part Z? [1]

55



32. Hashim set up an experiment as shown below.



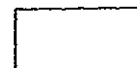
The funnel was fixed tightly to the flask with a stopper. When water was poured into the funnel, only some water entered the flask while the rest stopped flowing and remained in the funnel.

- (a) Other than loosening the stopper, what could Hashim do to the set-up to make all the water in the funnel flow into the flask? Explain your answer. [2]

- (b) What will he observe in the beaker of water and the water level in the basin as the water in the funnel enters the flask? [2]

Beaker of water:

Water level in the basin:



33. Jolene wanted to magnetise a steel bar. She used two magnets to stroke the steel bar as shown in diagram 1 below.

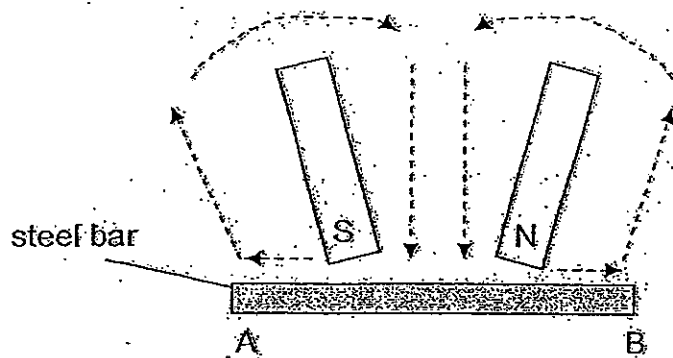


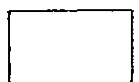
Diagram 1

- a) State the poles of the magnetised steel bar. [1]

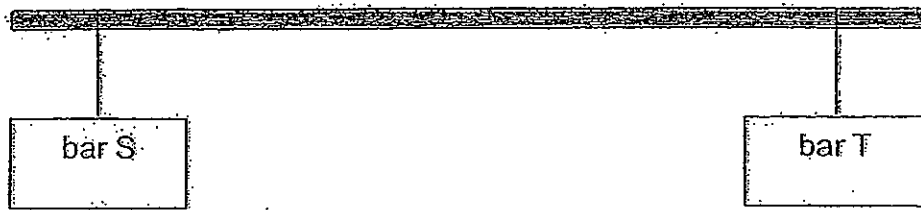
(i) At A: _____

(ii) At B: _____

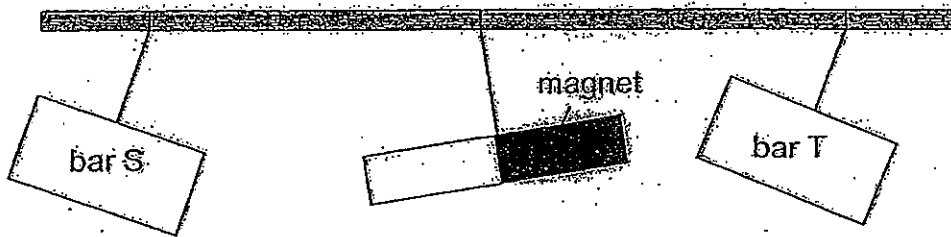
- b) State two ways in which Jolene is able to demagnetise the magnet she has created? [1]



34. Bar S and bar T are hung from a wooden bar as shown below.

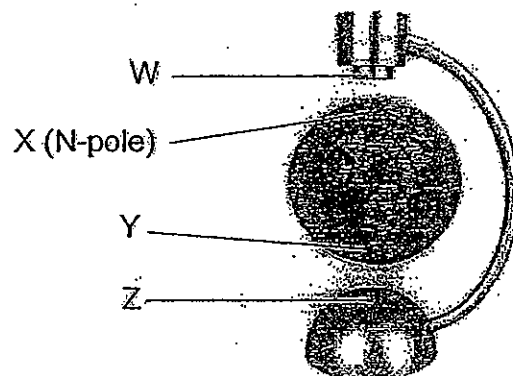


A magnet is then hung at equal distance between the two bars. The diagram below shows how bar S and bar T react to the magnet.



- (a) From the result shown above, which bar, S or T, is definitely a magnet? Explain your answer. [1]

The diagram below shows a floating globe which uses the properties of magnet.

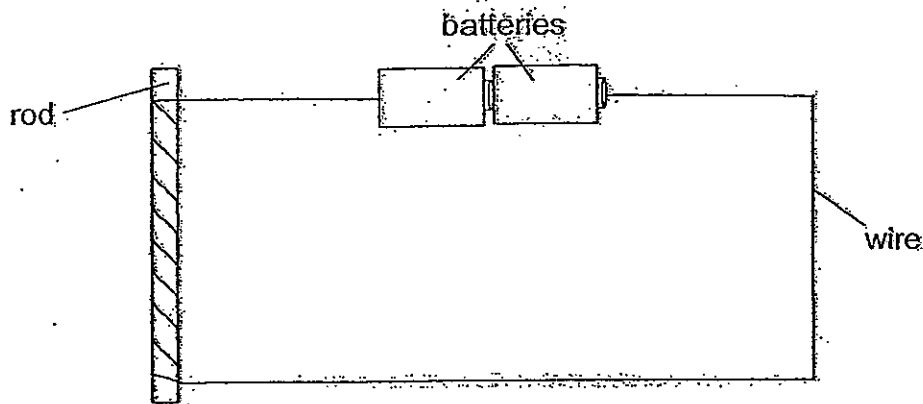


- (b) If point X of the globe is the N-pole of the magnet inside the globe, what is the magnetic pole of points W, Y and Z? [1 ½]

points on the floating globe	poles
W	
Y	
Z	



35. Jane and Jie Hui set up an experiment as shown below. They wanted to investigate how the material of the rod affects the number of paper clips attracted. Four similar rods A, B, C and D, each made of a different material, are used.



The two girls lowered the rods, one at a time, into a box of paper clips and recorded the number of paper clips attracted. The table below shows the result of the experiment.

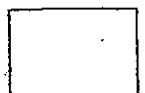
rod	number of turns of wire on the rod	number of paper clips attracted
A	9	6
B	15	10
C	9	6
D	9	0

- (a) The girls' teacher told them that they did not conduct a fair test. Why is this so? [1]

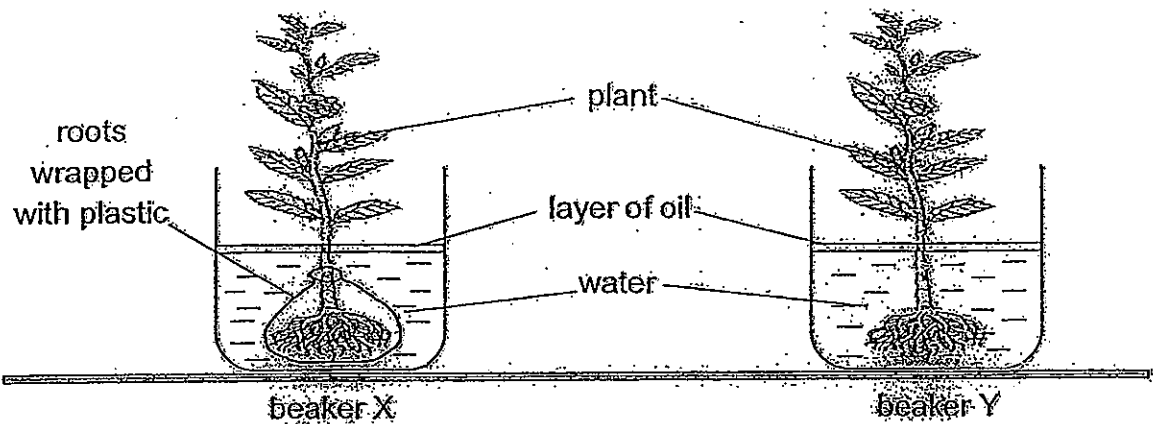
- (b) Name two other variables that should be kept the same for the test to be fair. [1]

- (c) The girls observed that rod D did not attract any paper clips. Suggest a reason why. [1]

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36. Jun Jie carried out a series of experiments to investigate the function of different parts of a plant. Below is one of the experiments he had set up.



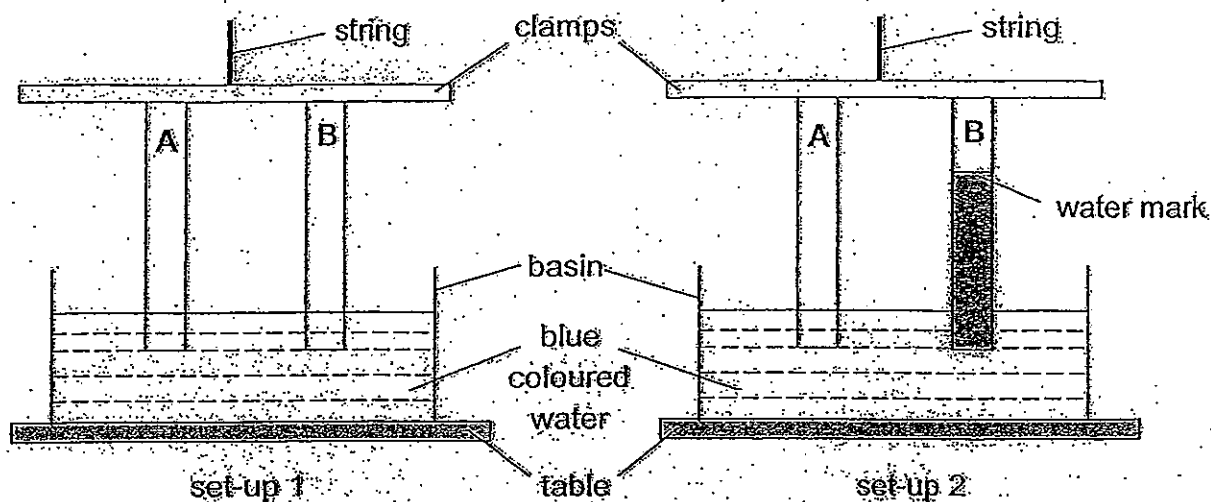
He poured 50 ml of water into each of the two beakers, X and Y. He then placed two similar plants into the beakers before adding a layer of oil to prevent water from evaporating. He recorded the volume of water in the two beakers three days later. The results were shown in the table below.

	volume of water on the first day	volume of water on the third day
beaker X	50 ml	50 ml
beaker Y	50 ml	39 ml

- (a) Why did the volume of water decreased in beaker Y but not in X? [2]

- (b) Based on the results, what can he conclude from this experiment? [1]

37. Leny set up an experiment using the apparatus shown below.



Two strips, made of materials A and B, were held with a clamp and hung from a retort stand. They were partially lowered into a basin of water with blue ink as shown in set-up 1.

Set-up 2 shows Leny's observation 5 minutes later.

- (a) Based on the observation, what can you tell about the properties of materials A and B? [1]

- (b) Based on the observed properties, draw lines to match materials A and B to the items they can be made into. [2]

Material A ●

● Towel

● Toothbrush

Material B ●

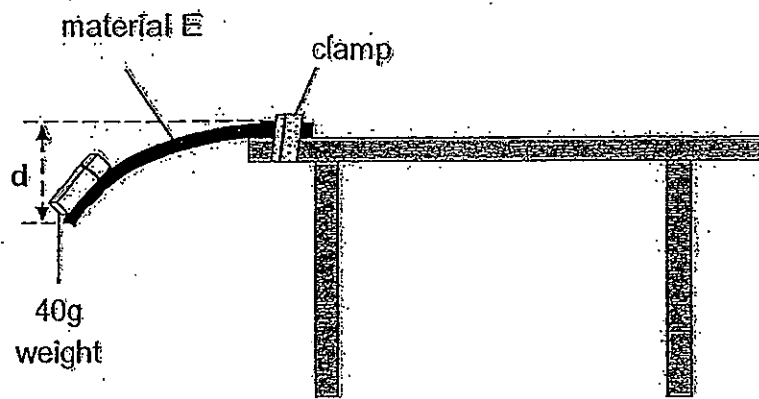
● Toilet seat

● Shower curtain

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38. Adrian conducted an investigation as shown in the diagram below.



He clamped a strip of material E at the edge of the table before taping a 40g weight to the end of the strip. As a result, material E bent as shown above. He measured the distance 'd', which was the extent to which the material bent. Using the same 40g weight, he repeated his investigation with materials, F, G and H and recorded his results in the table below.

Material	Distance 'd' (cm)
E	4
F	2
G	7
H	12

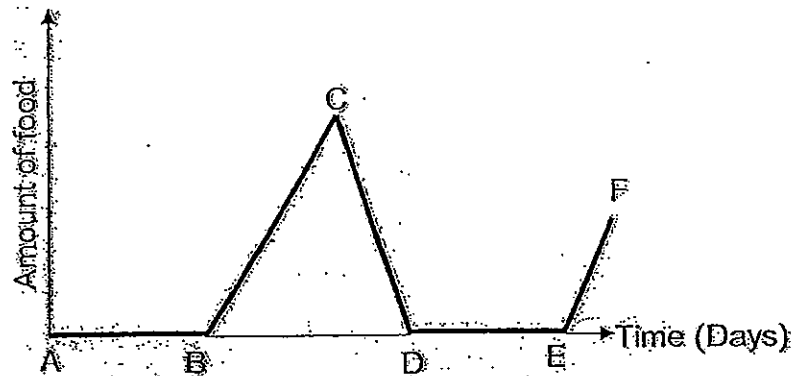
- (a) What property of the materials was Adrian investigating? [1]

- (b) Which of the following variables should Adrian keep constant for a fair test? Put a tick (✓) in the boxes provided to indicate your answer. [1]

Variable	Kept constant
Distance 'd'	
Material of the strip	
Position of the material on the table	
The mass of the weight used	

- (c) If Adrian were to keep distance 'd' constant at 2cm but allowed to change the amount of weights used, what should he observe in the experiment so that he could still investigate the same property of the four materials? [1]

39. The graph below shows the amount of food eaten by a moth throughout its life cycle.

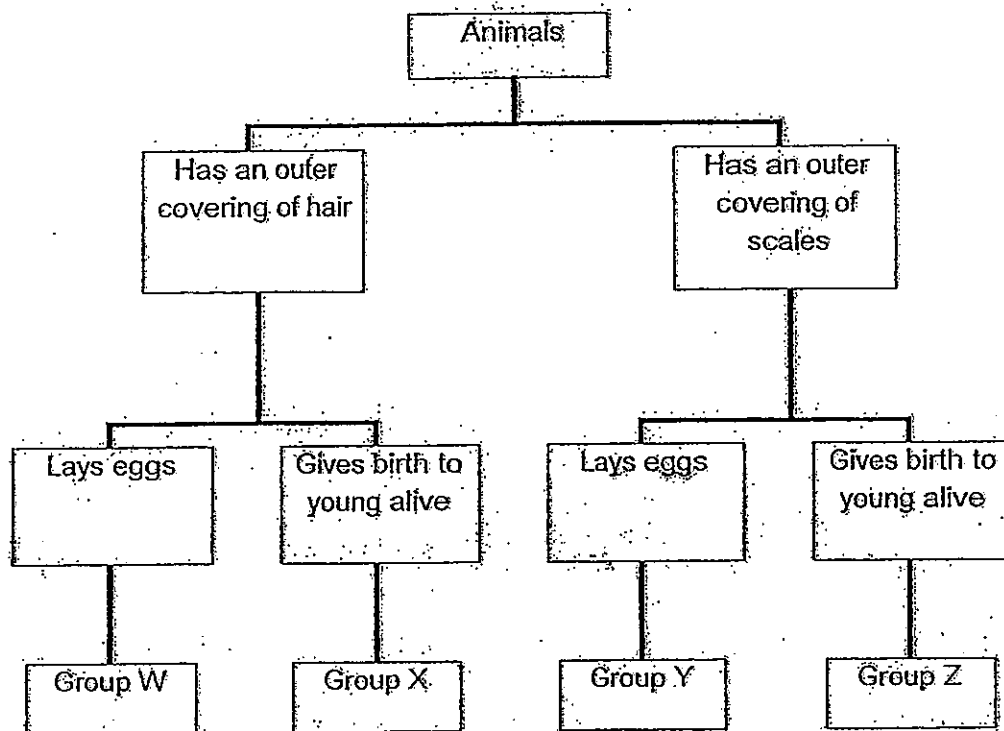


- (a) Which part of the graph, AB, BC, CD, DE or EF, represents the pupal stage of the moth? Explain your answer. [2]

- (b) Name another organism which has the same number of stages in its life cycle as a moth. [$\frac{1}{2}$]



40. Study the classification chart below.



The characteristics of animals A and B are shown in the table below.

Characteristics	Animal A	Animal B
Is cold-blooded		✓
Uses lungs to breathe	✓	✓
Has 4 limbs		✓
Lives in seawater only	✓	

- (a) Based on the chart above, in which group can you classify animal A and animal B? [2]

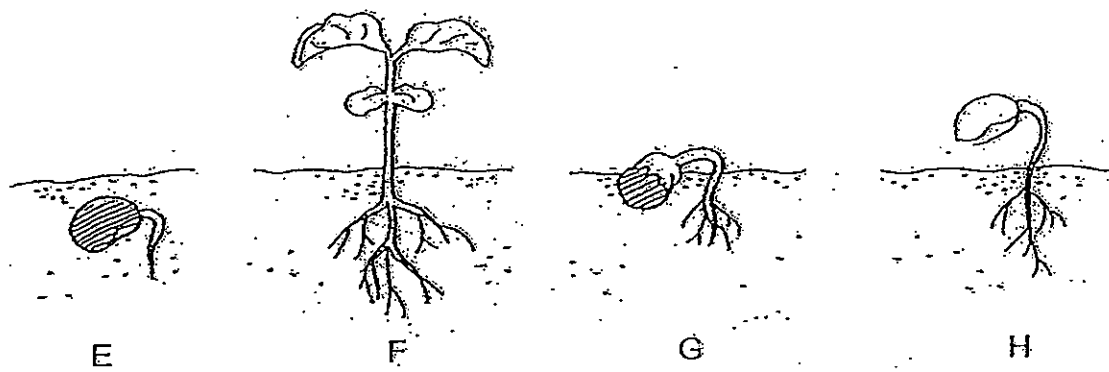
Animal A: _____

Animal B: _____

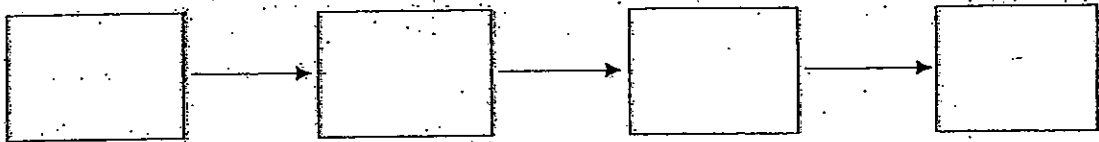
- (b) Animal C is from Group Z and uses gills to breathe. Suggest what animal C maybe. [1]

Animal C: _____

41. The diagram below shows the stages in the germination of a seed.

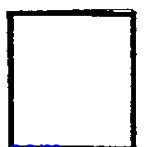


- (a) Rearrange the stages, E, F, G and H, in the correct order to show how a seed becomes a seedling. [1]

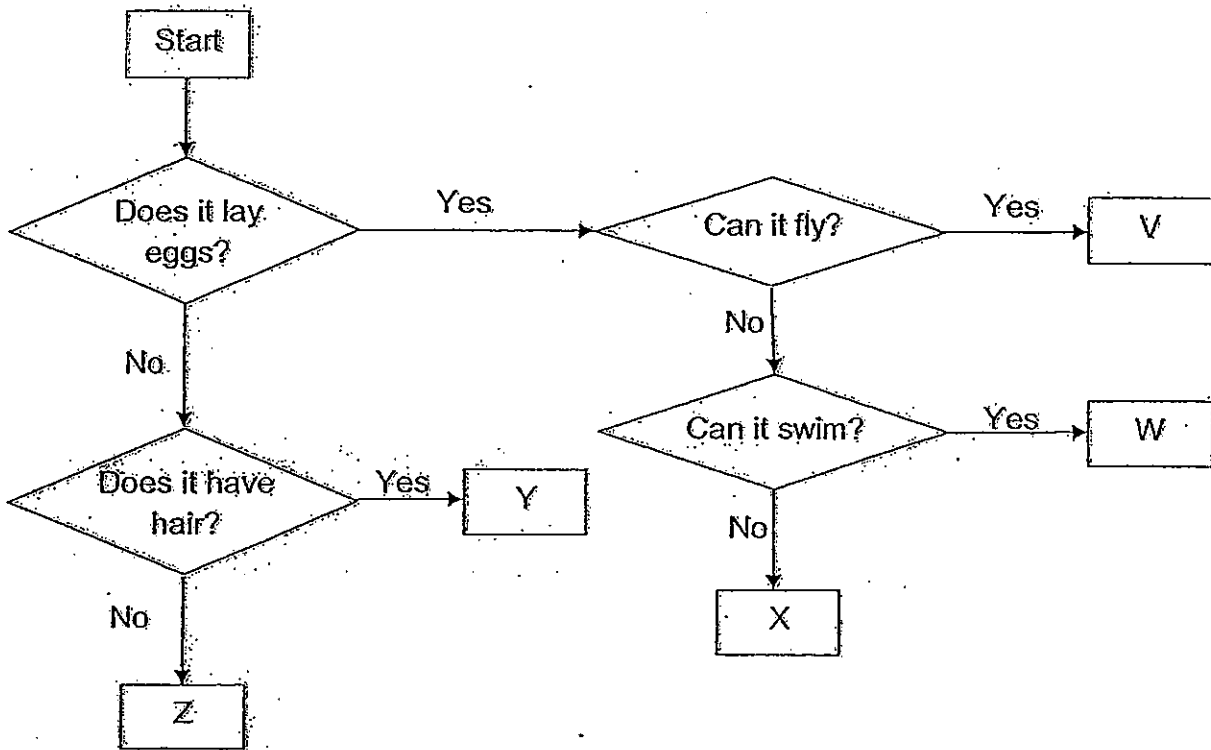


- (b) What would happen to the development of the seed if there were no sunlight at stages E, G and H? Explain your answer. [2]

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42. Study the flowchart below.



(a) From the flowchart above, identify the letter that represents each of the following animals. [1]

i. Penguin : _____

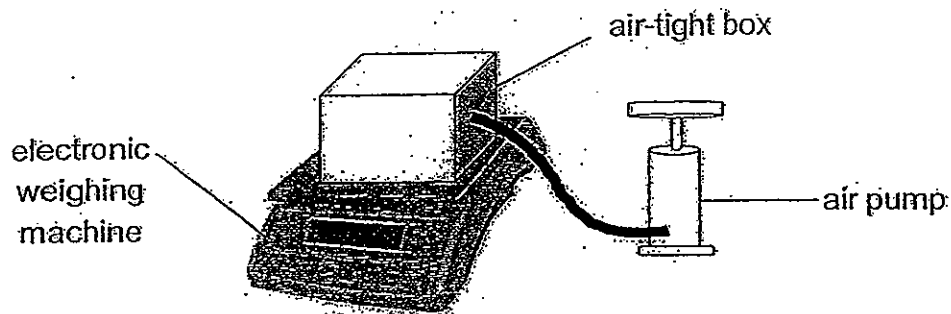
ii. Ostrich : _____

(b) From the flowchart above, state the characteristics of animal Y. [1]

(c) State the similarities between animals W and X. [1]



43. Sarah filled up a 1000cm^3 air-tight box with air and placed it on an electronic weighing machine as shown in the diagram below.



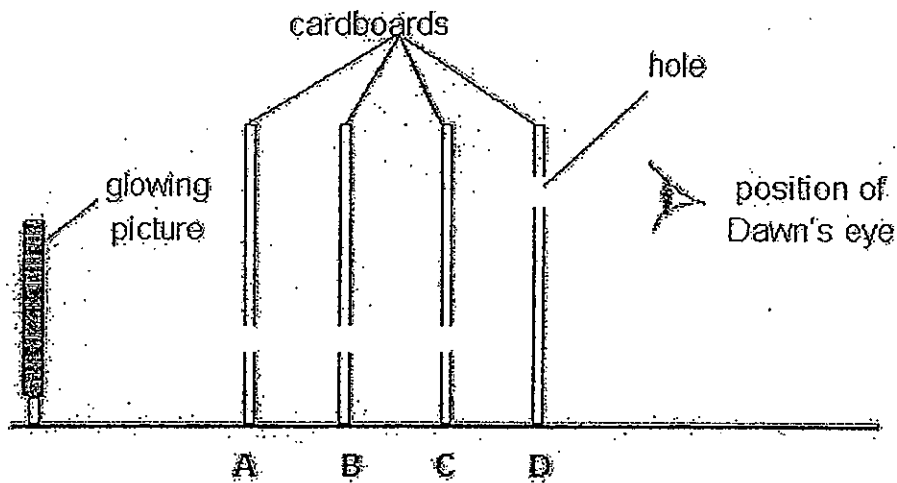
Mass of the air-tight box with 1000cm^3 of air = 201.3g

- (a) Would the reading on the electronic weighing machine increase, decrease or remain the same if Sarah pumped in another 500cm^3 of air into the air-tight box? [1]

- (b) Would the volume of air in the container increase, decrease or remain the same after Sarah had pumped in the 500cm^3 of air into the air-tight box? [1]

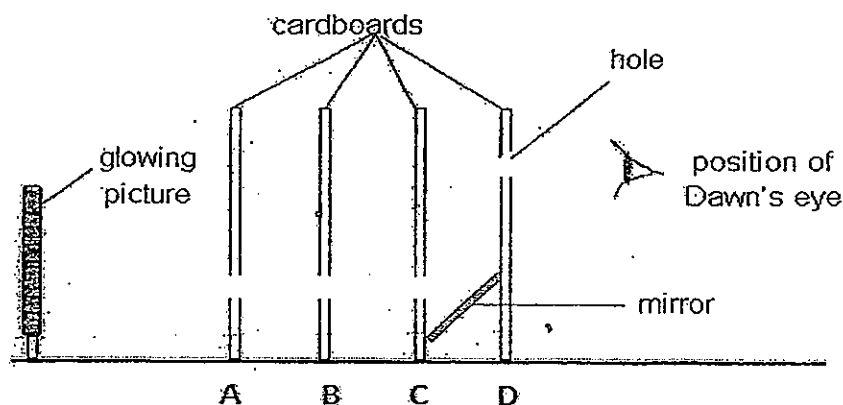
- (c) Explain your answer in part (b). [1]

44. Dawn placed four cardboards, A, B, C and D, in a straight line as shown below. She punched a hole in each of the cardboards. She then placed a glowing picture at the end of the cardboards and tried to view the picture through the holes from the other end.



- (a) Why will Dawn not be able to see the picture from the position as shown in the diagram above? [1]

- (b) Dawn placed 2 mirrors in the same set-up to enable her to see the picture. Complete the diagram below to show the positions of the two mirrors. (One of the mirrors has been drawn for you.) [1]



END OF PAPER

ANSWER SHEET

EXAM PAPER 2012

SCHOOL : CHIJ

SUBJECT : PRIMARY 4 SCIENCE

TERM : SA1

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

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
1	2	3	1	3	3	3	1	2	2	4	4	2

31)a)It protects the fish from the surroundings.

b)Gills.

c)It enables fishes to breathe in water.

32)a)He should unclip the clip. Air in the flask will be able to escape through the glass tube so that it creates space for the water from the funnel to enter.

b)Beaker of water : He would bubbles forming.

Water level in the basin : Water level in the basin rose.

33)a)i)North-seeking pole. ii)South-seeking pole.

b)She can heat the magnet/hammer or hit the magnet/drop the magnet several times/pass it through an A. C current solenoid quickly to remove the magnet.

34)a)Bar S. Only magnet repel each other and the diagram shows that Bar S and the magnet are repelling each other.

b)W→N-pole

Y→S-pole

Z→S-pole

35)a)The number of turns of wire on rod B is different from that of other rods.
Thus, more than one variable is changed making it not a fair test.

b)Distance of the box of paperclip and rod and the type of wire.

c)It is not made of a magnetic material so it cannot be magnetized.

36)a)The roots of the plant in beaker X is wrapped with plastic therefore it is unable to absorb water the roots of the plant in beaker Y is not wrapped with plastic, therefore it is able to absorb water.

b)The roots help plant to absorb water.

37)a)Material A is waterproof but material B is not.

b)Material A : Towel , Toothbrush , Toilet seat , Shower curtain

Material B : Towel

38)a)Andy is trying to find out the flexibility of the materials/how far it can bend/ability to bend breaking.

b)Position of the material on the table

The mass of the weight used

c)Observe (amount of) weight need to bend each material by 2cm.

39)a)DE. At the pupal stage, the pupae will not eat any food.

b)Mosquito/butterfly/mealworm beetles/ants/bee

40)a)A : group X

B : group Y

b)swordtail/guppy/mollies

41)a)E→G→H→F

b)It will continue to germinate as it does not need sunlight for photosynthesis/to make food. The seed leaves would have provided the seedling with food during germination.

42)a)i)W ii)X

b)It does not lay eggs and it has hair.

c)They lay eggs and cannot fly.

43)a)It would increase.

b)It would stay the same.

c)Air can be compressed as it has no definite volume.

44)a)Last hole is too high and light travels in as trait line so light does not