



**HOUGANG PRIMARY SCHOOL
FIRST SEMESTRAL ASSESSMENT, 2010
SCIENCE
PRIMARY 4**

Name : _____ ()

Class : Primary 4 []

Date : 13 May 2010

BOOKLET A

There are 30 questions in this booklet. (60 marks)

Total time for Booklets A and B is 1h 45 min.

Follow all the instructions carefully:

- Use 2B pencils only.
- Select only one answer for each question.
- Shade the oval completely.
- Erase any answer you wish to change using an eraser.
- Do not make stray marks on the answer sheet.

Answer all the questions.

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

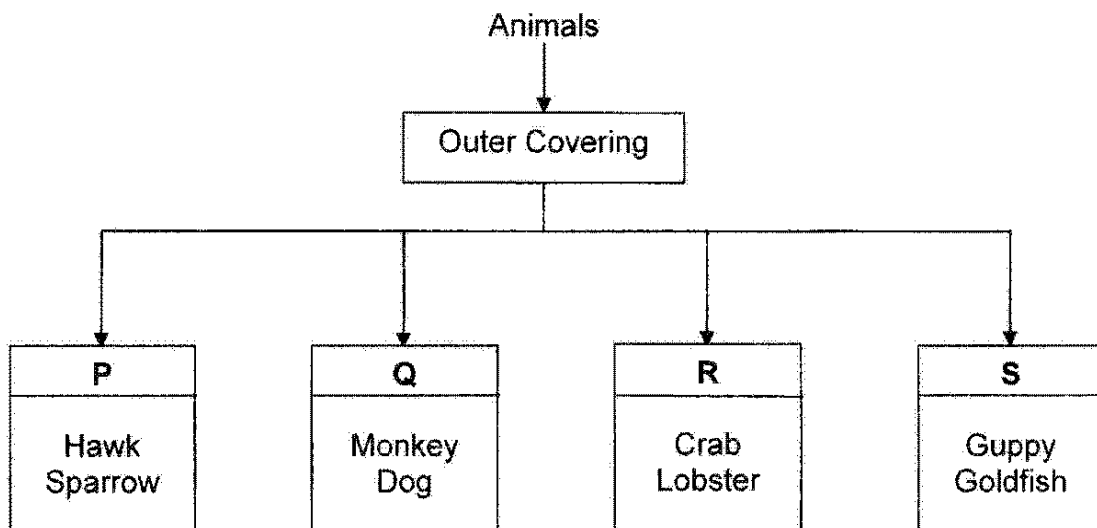
BOOKLET A (30 X 2 MARKS)

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. Which of the following statement is false about living things?

- (1) Living things need only air and water in order to survive.
- (2) Living things respond to changes according to their environment.
- (3) Living things reproduce to ensure that their kind continues to exist.
- (4) Living things grow in size due to the increase in the number of cells within them.

2. The classification chart shows how some animals can be grouped.



Suggest a suitable heading for each group.

	P	Q	R	S
(1)	Birds	Mammals	Insects	Fishes
(2)	Feathers	Hair	Hard Shell	Scales
(3)	Lay eggs	Do not lay eggs	Lay eggs	Lay eggs
(4)	Warm blooded	Warm blooded	Cold blooded	Cold blooded

3. The table below shows the characteristics of 3 organisms, A, B and C. A tick (✓) in the box indicates that the characteristic is present in the organism.

Thing	Can respond to changes	Can produce their Own food	Can reproduce	Can move freely from place to place
A	✓	✓	✓	
B	✓		✓	✓
C	✓		✓	

Which one of the following is correctly classified as plants, animals and fungi?

	Plants	Animals	Fungi
(1)	A	B	C
(2)	B	C	A
(3)	C	B	A
(4)	C	A	B

4. Three children were sharing what they know about the animals and these were the conversation between them.

Christina : Most animals will try to make copies of themselves before they die.

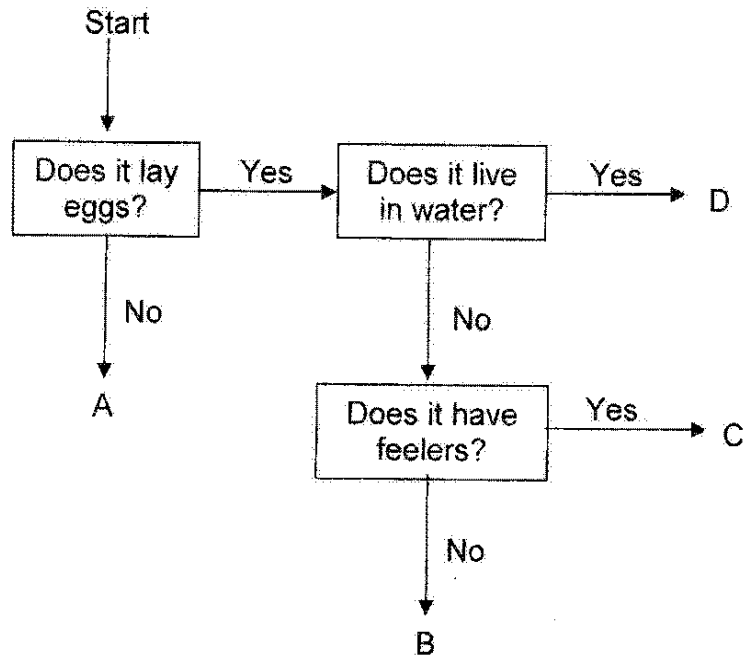
Bala : Some snakes, most fishes and all insects reproduce by laying eggs.

Siti : Mammals have their fertilized eggs inside the mother's womb until they have grown into baby animals before they are ready to be born.

Based on their above conversations, what could be the likely topic of discussion?

- (1) Animals move in different ways.
- (2) Animals reproduce in different ways.
- (3) Animals have different outer coverings.
- (4) Animals have different sizes, shapes and colours.

Study the flow chart below carefully and answer questions 5 and 6.



5. Which letter A, B, C or D best describes a whale?
- (1) A
 - (2) B
 - (3) C
 - (4) D
6. Which of the animals do not give birth to the young alive?
- (1) A and B only
 - (2) C and D only
 - (3) A, B and D only
 - (4) B, C and D only

7. Jerlyn did a scratch test on 4 different types of rock, P, Q, R and S to see which was the hardest. She used three different objects to scratch each of the rock. The table below shows her results.

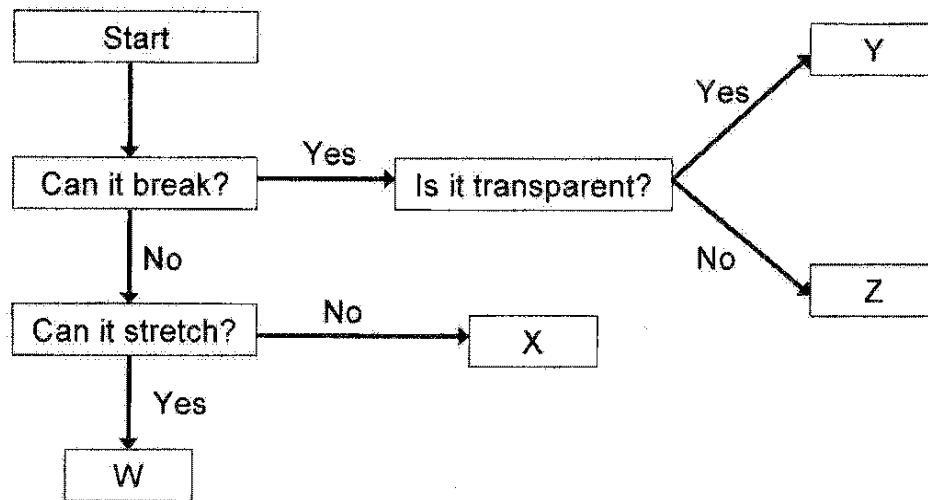
("√" denotes that a scratch mark is seen and "x" denotes that no scratch mark can be seen on the rock.)

Rock	Scratched by		
	Fingernail	Coin	Plastic Knife
P	x	√	x
Q	x	√	√
R	√	√	√
S	x	x	x

Which of the following shows the correct arrangement of the rocks from the least hard to the hardest?

- (1) P, Q, R, S
- (2) S, P, Q, R
- (3) R, Q, P, S
- (4) S, R, Q, P

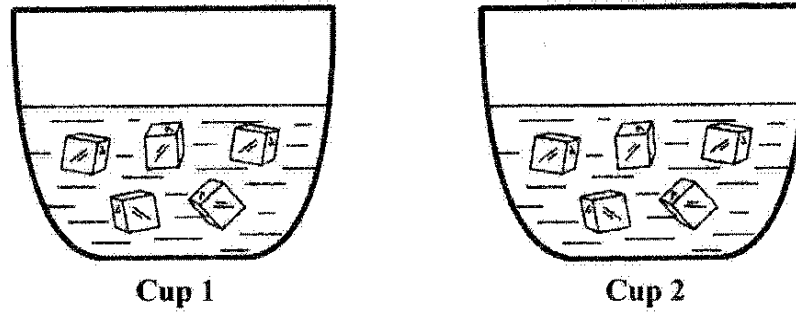
8. Study the flow chart below.



Classify the following objects into the relevant description as stated above.

	Rubber band	Glass door	Ceramic vase	Iron nail
(1)	W	Z	Y	X
(2)	X	Z	Y	W
(3)	W	Y	Z	X
(4)	X	Y	Z	W

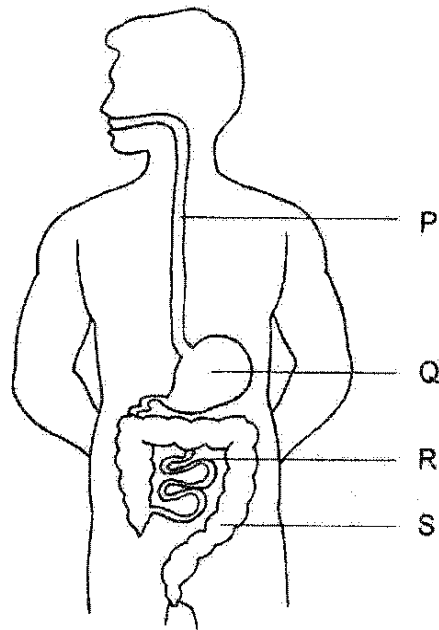
9. Two cups of the same size made of different materials were first heated using the same amount of heat for the same amount of time. The same amount of water and the same number of ice cubes were then put into each cup as shown below. Julian observed both cups after 1 minute.



What is the aim of the experiment?

- (1) It is to find out if ice cubes will melt faster using different amount of water.
- (2) It is to find out if ice cubes will melt faster using cups of different materials.
- (3) It is to find out if water will evaporate faster with different number of ice cubes.
- (4) It is to find out if water will evaporate faster when different temperature is provided.

10. Refer to the diagram below. In which organ is the process of digestion completed?



- (1) P
- (2) Q
- (3) R
- (4) S

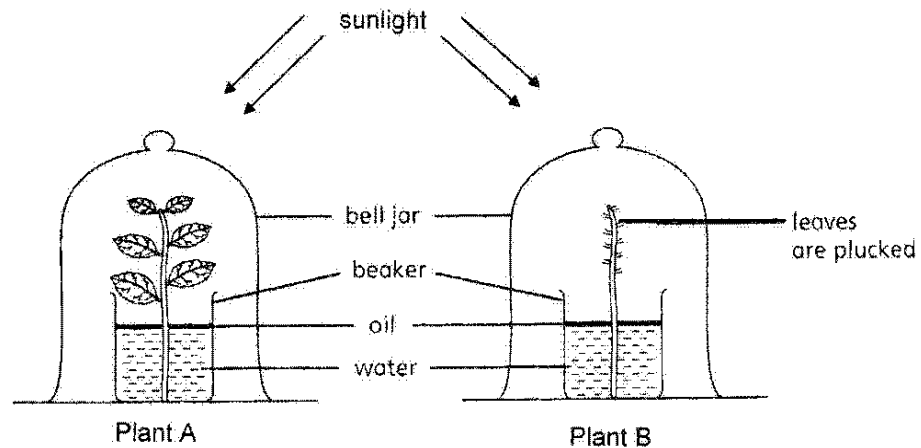
11. Jie Kai wanted to find out if water lettuce plants can survive without roots. He cuts off the roots of some water lettuce plants and set up an experiment as shown in the table below.

Set-up	Water lettuce plant	Amount of water (ml)	Source of water
P	With roots	400	Pond water
Q	With roots	200	Pond water
R	Without roots	200	Tap water
S	Without roots	400	Tap water
T	Without roots	400	Pond water

Which two set-ups will give him a fair comparison?

- (1) P and Q
- (2) P and T
- (3) S and T
- (4) Q and R

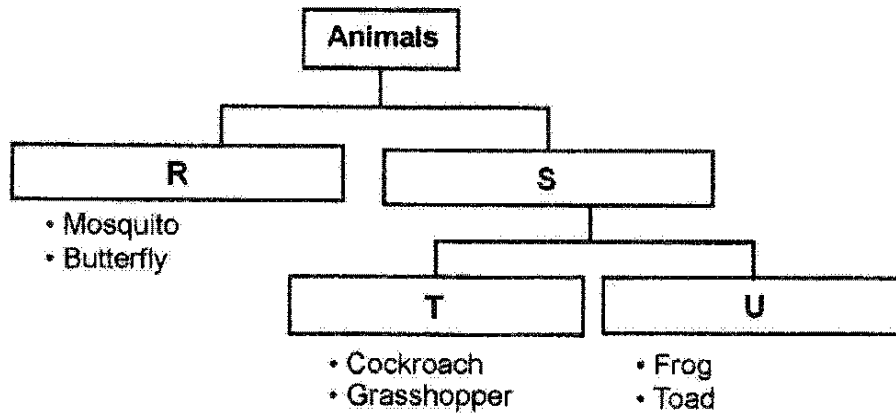
12. Lily used two leafy branches of about the same size from the same plant in the set-ups below. Each branch was exposed to the same amount of sunlight for a few days.



After a few days, she observed that Plant B died but Plant A was still alive. This experiment shows that plants need _____ to live.

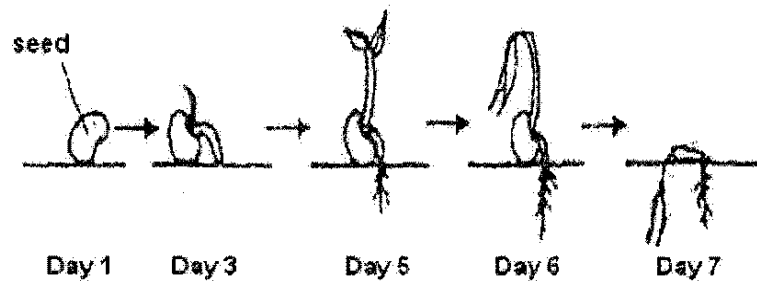
- (1) water
 - (2) roots
 - (3) leaves
 - (4) sunlight
13. Which of the following statements best describe the life cycle of insects?
- A. There are 4 stages in the life cycle of a moth.
 - B. Insects have a pair of wings and 3 pairs of legs.
 - C. Some insects have 3 stages in their life cycle while others have 4.
 - D. Nymph and larva are found in the next stage after the egg stage of the life cycle.
- (1) A and B only
 - (2) C and D only
 - (3) B, C and D only
 - (4) A, C and D only

14. Muthu drew the classification table below based on the life cycle of animals. What could the suitable headings for R, S, T and U be?



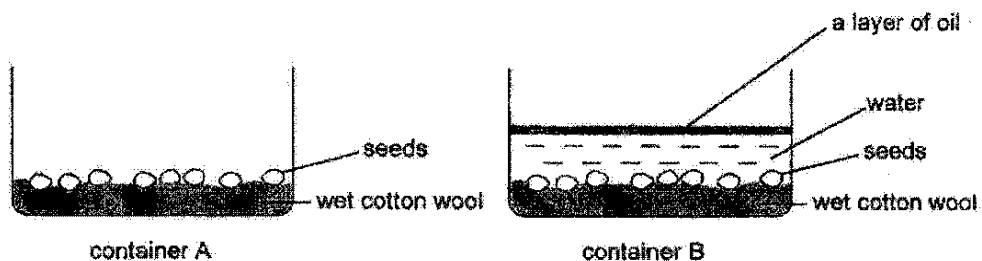
	R	S	T	U
(1)	Three stages life cycle	Four stages life cycle	The young is called nymph	The young is called larva
(2)	Four stages life cycle	Three stages life cycle	The young is called larva	The young is called nymph
(3)	Four stages life cycle	Three stages life cycle	The young looks like the adult	The young does not look like the adult
(4)	Three stages life cycle	Four stages life cycle	The young looks like the adult	The young does not look like the adult

15. The diagram below shows the development of a seed that is growing on a piece of moist cotton wool in a dark cupboard. The seed grows into a seedling and then withers.



Based on the above diagram, which one of the following statements is true?

- (1) The seed needs soil to germinate.
 - (2) The seed can germinate without air.
 - (3) The seedling needs sunlight to grow.
 - (4) The seedling can grow without nutrients.
16. Jason set up an experiment using two transparent containers, A and B with seeds as shown below. They are placed near to the window. After 2 days, the seeds in container A germinated but the seeds in container B did not.



Which of the following could be the likely reason why seeds in container B do not germinate?

- (1) There are no nutrients added to container B.
- (2) There is insufficient air in container B due to the layer of oil.
- (3) The seeds are unable to germinate due to low temperature.
- (4) Light cannot penetrate through the layer of oil in container B.

17. A shadow is not matter because _____.

- A. it does not have mass
- B. it does not occupy space
- C. it has no definite shape

- (1) A only
- (2) A and B only
- (3) B and C only
- (4) All of the above

18. Study the diagrams below.

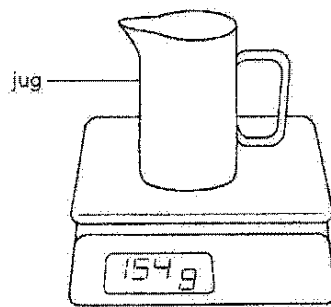


Diagram A

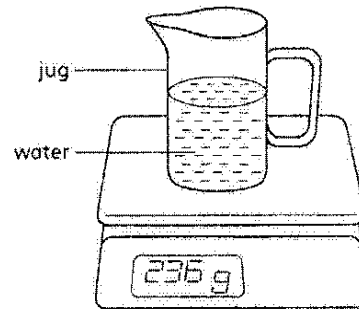
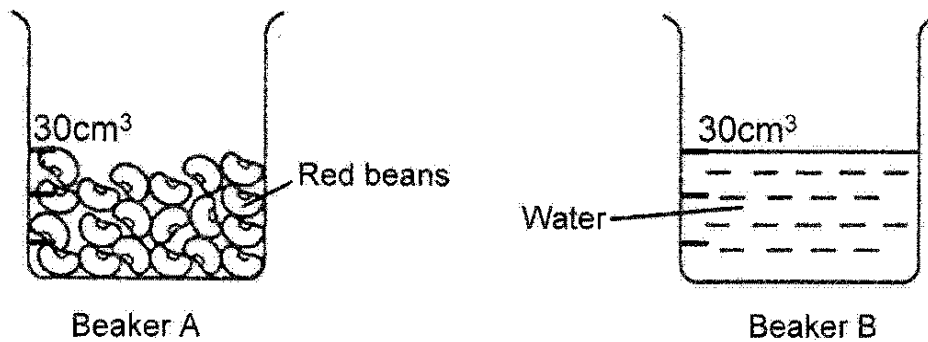


Diagram B

What does this experiment show?

- (1) Water has mass.
- (2) Water occupies space.
- (3) Water has a fixed volume.
- (4) Water has no fixed shape.

19. Beaker A is filled up with red beans up to the 30 cm³ mark.



Where will the new water level of Beaker B be if the red beans from Beaker A are poured into Beaker B which contains 30 cm³ of water?

- (1) 30 cm³
- (2) 50 cm³
- (3) 60 cm³
- (4) 70 cm³

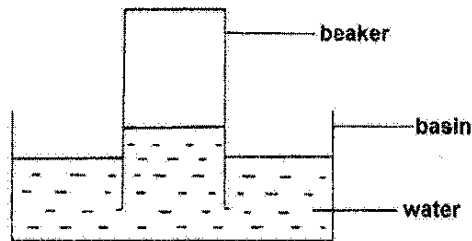
20. Brandon broke a magnet into three pieces as shown below.



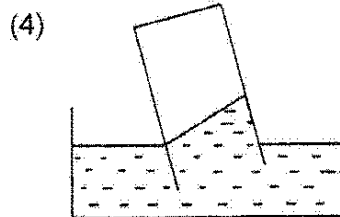
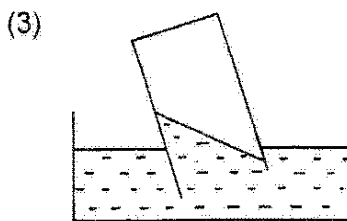
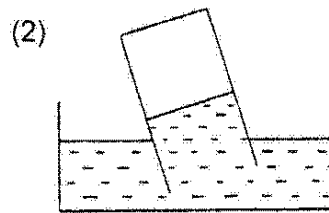
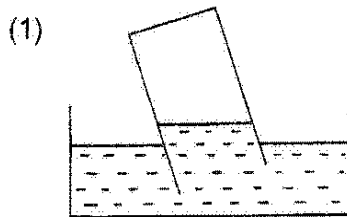
How many N-poles would there be altogether?

- (1) 1
- (2) 3
- (3) 6
- (4) 9

21. Ahmad placed a beaker into a basin of water. The water level in the beaker is shown in the diagram below.



When Ahmad tilted the beaker to one side, which one of the following drawings correctly shows the water level in the beaker?



22. Alison compared two objects, K and L. Study the information in the box carefully.

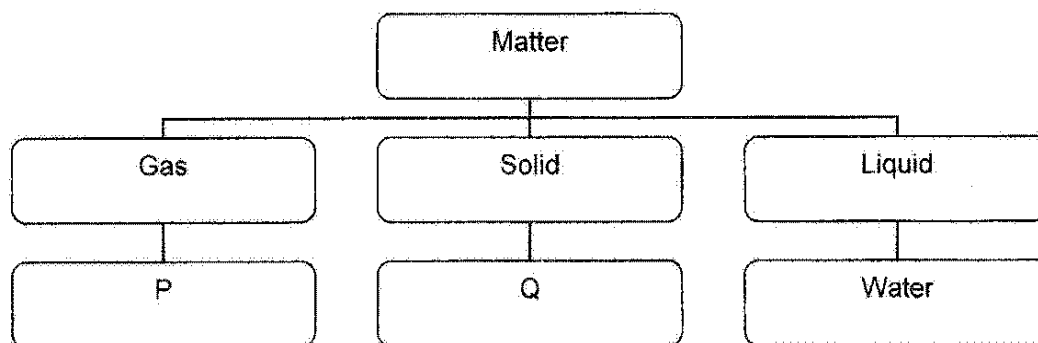
- The amount of matter in K is more than the amount of matter in L.
- L occupies more space than K.

What can you infer from the information given above?

- A Both K and L have mass.
- B K has a larger mass than L.
- C K has a larger volume than L.

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

23. The figure shows the classification of matter.



Which of the following is a characteristic of P and Q?

- (1) Both have mass.
- (2) Both have a fixed volume.
- (3) Both have a definite shape.
- (4) Both cannot be compressed.

24. Study the table below.

	Definite shape	Definite volume	Can be compressed
A	X	X	X
B	√	√	X
C	X	√	X
D	X	X	√

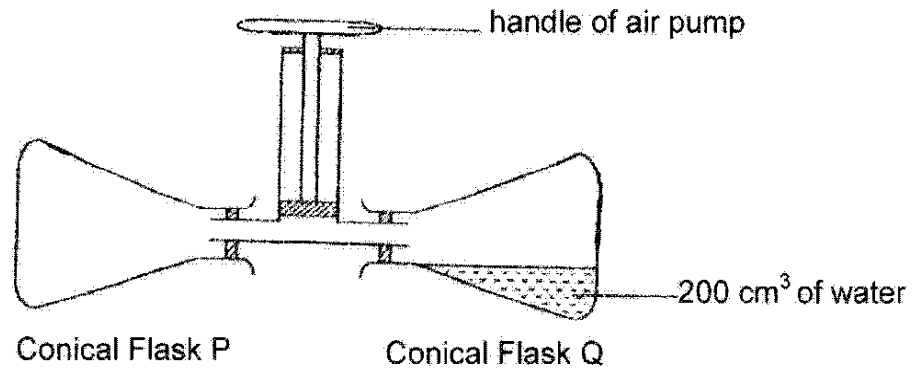
Key:

√ present
X absent

Identify A, B, C and D.

	A	B	C	D
(1)	Music	Water	Coin	Oxygen
(2)	Music	Coin	Water	Oxygen
(3)	Wind	Coin	Water	Oxygen
(4)	Wind	Coin	Oxygen	Water

25. Two identical conical flasks P and Q are joined to an air pump as shown in the diagram below. Each flask can hold 600 cm^3 of matter.

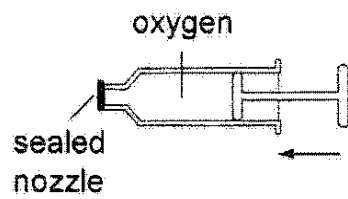


The handle is raised and pushed down twice, pushing 200 cm^3 of air with each pumping action.

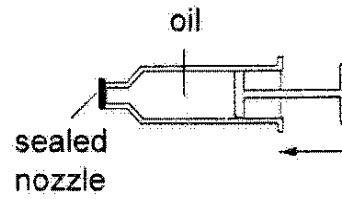
What is the final volume of air in each flask at the end of the experiment?

	Conical Flask P	Conical Flask Q
(1)	400 cm^3	600 cm^3
(2)	600 cm^3	400 cm^3
(3)	600 cm^3	600 cm^3
(4)	1000 cm^3	800 cm^3

26. Syringe A and B contain 100cm^3 of oxygen and oil respectively as shown below. Both syringes have sealed nozzles.



Syringe A

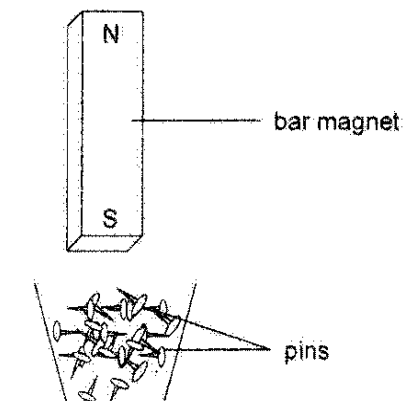


Syringe B

Warren pushes the plunger down. Which of the following shows the new volume of the oxygen and oil in the syringe?

	Oxygen (Syringe A)	Oil (Syringe B)
(1)	0 cm^3	75 cm^3
(2)	0 cm^3	100 cm^3
(3)	75 cm^3	100 cm^3
(4)	100 cm^3	75 cm^3

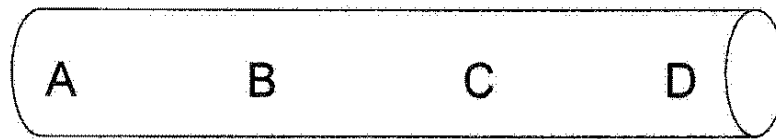
27. Siti placed a magnet near some pins as shown below.



She found that the pins were not attracted to the magnet. What material are the pins made of?

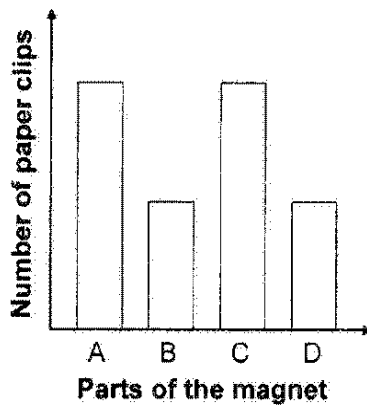
- (1) Iron
- (2) Steel
- (3) Nickel
- (4) Copper

28. Hazmi wanted to find out the number of paper clips attracted to different parts of a rod magnet as shown below.

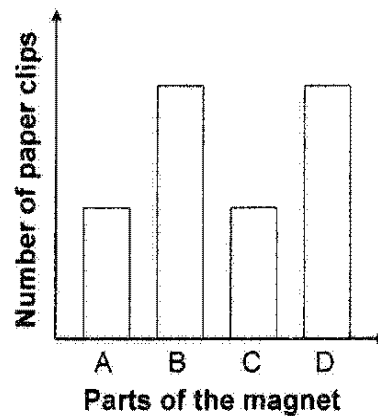


He placed the magnet near some paper clips and recorded the number of paper clips attracted by the different parts of the magnet. Which of the following graph most likely shows his results?

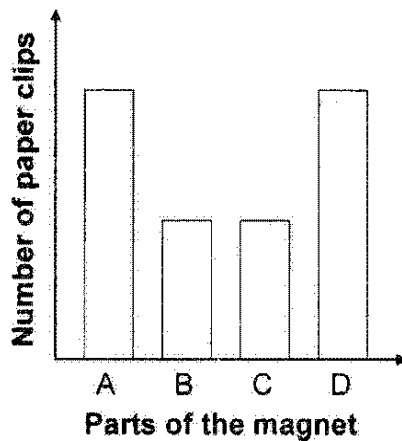
(1)



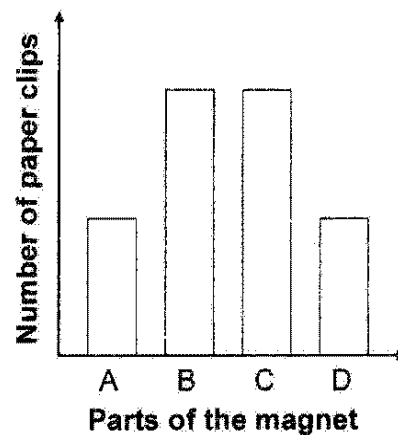
(2)



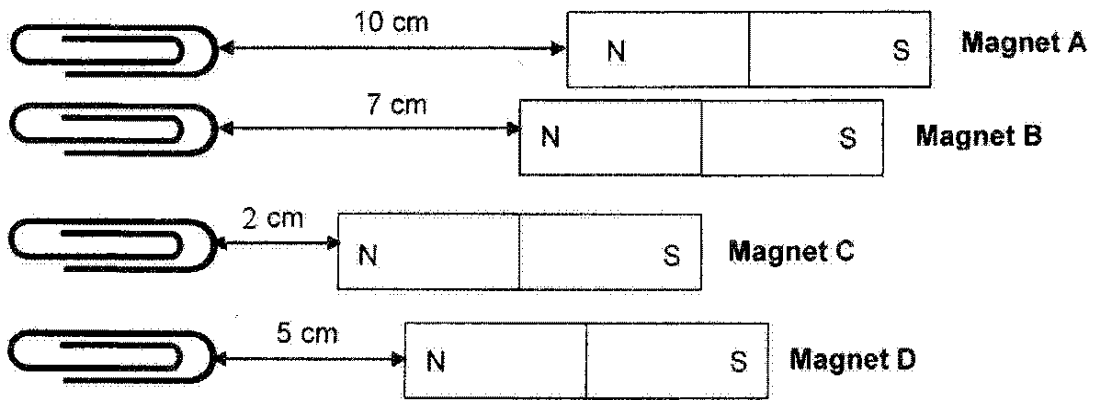
(3)



(4)



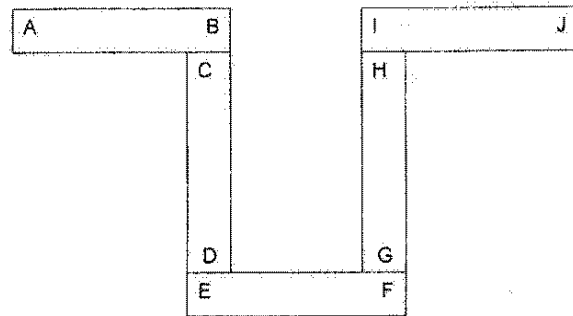
29. The diagram below shows the greatest distance at which Magnet A, B, C and D will attract the paper clip.



Which one of the above magnets is the weakest?

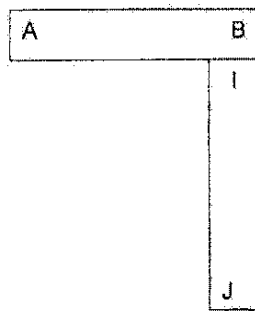
- (1) Magnet A
- (2) Magnet B
- (3) Magnet C
- (4) Magnet D

30. Five bar magnets with their ends marked A to J can be arranged as shown below.

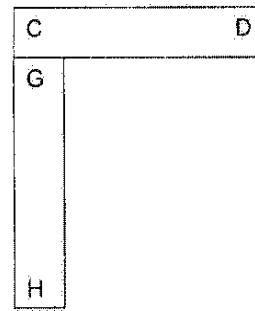


Which one of the following diagrams shows a possible arrangement of two of the magnets?

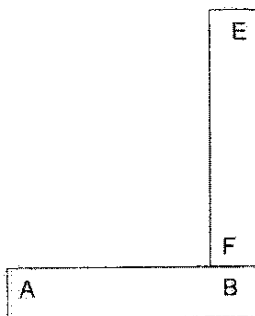
(1)



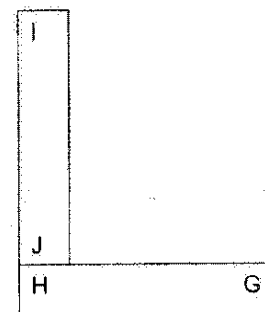
(2)



(3)



(4)





**HOUGANG PRIMARY SCHOOL
FIRST SEMESTRAL ASSESSMENT, 2010
SCIENCE
PRIMARY 4**

Name : _____ ()

Class : Primary 4 []

Date : 13 May 2010

BOOKLET B

There are 14 questions in this booklet. (40 marks)

Total time for Booklets A and B is 1h 45 min.

Follow all the instructions carefully:

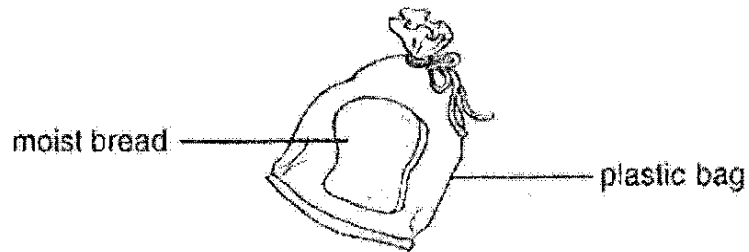
Section	Max. Marks	Marks Obtained
Booklet B	40	
Booklet A	60	
TOTAL	100	

Parent's Signature : _____

BOOKLET B (40 MARKS)

Write your answers in the spaces provided.

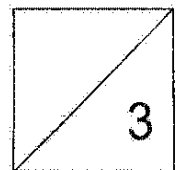
31. Mei Yi put a piece of moist bread in a plastic bag and tied it up tightly with air inside. She left it on the kitchen table.



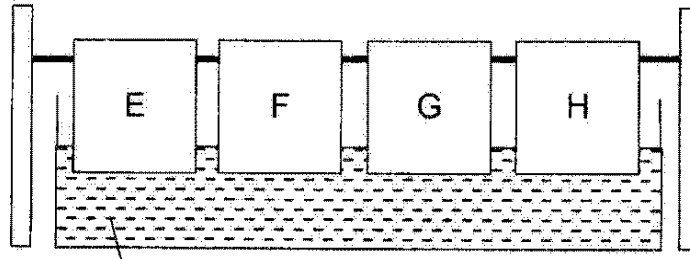
- (a) What happened to the bread after 14 days? (1m)

- (b) A second piece of bread was heated in the oven. If this bread was put into another plastic bag and tied up tightly with air sucked out and left at the same place as above, nothing happened to the bread after 14 days.

Explain why nothing happened to this second piece of bread. (2m)



32. John wanted to find out which material makes a good hand towel that dries wet hands well. Four different materials E, F, G and H of the same size and shape were used and the experiment was set up as shown below.



Plastic container
with coloured water

He measured the height at which the coloured water rose up the materials in 1 minute. The results are shown in the table below.

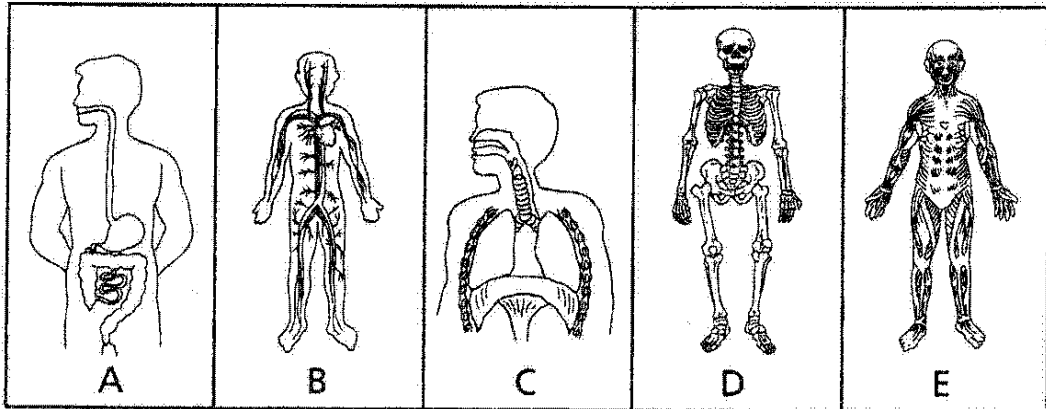
Material	Height to which the coloured water rose (cm)
E	0
F	12
G	20
H	7

- (a) Which material (E, F, G or H) would be the best material to make a hand towel?
(1m)

- (b) What is the reason for your choice in (a)? (1m)

- (c) If John needs to wrap something around his hand phone to prevent his hand phone from getting wet, which material (E, F, G or H) would be the best material? (1m)

33. Some human systems are shown below.



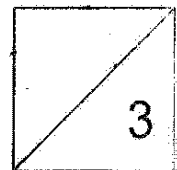
A, B, C, D or E

(a) From the diagrams above, state the two systems that work together to enable us to move some of our body parts. (1m)

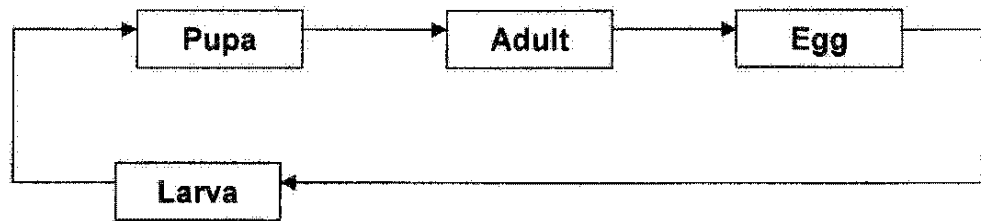
(b) (i) Name System B and C. (1m)

Diagram	System
B	
C	

(ii) How do the other parts of the body receive the digested food? (1m)



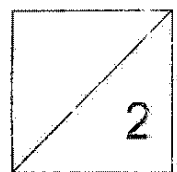
34. Ya Jin reared some caterpillars and observed the life cycle of butterfly. He drew the life cycle of a butterfly as shown below.



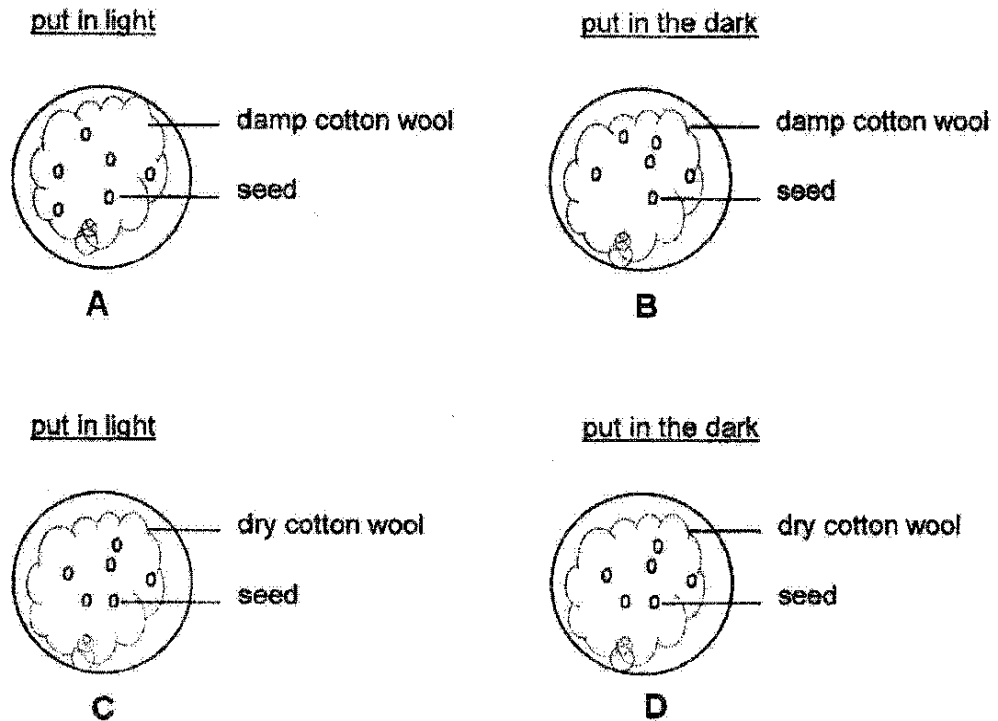
(a) (i) Is the life cycle drawn by Ya Jin correct? (1/2m)

(ii) At which stage of the butterfly's life cycle will it stop eating? (1/2m)

(b) Why is life cycle important to butterflies? (1m)

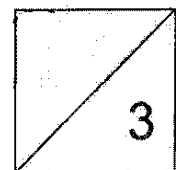


35. Xinyu set up an experiment as shown in the diagram. At the end of the experiment, it was observed that the seeds germinated in some of the petri-dishes but not in others.

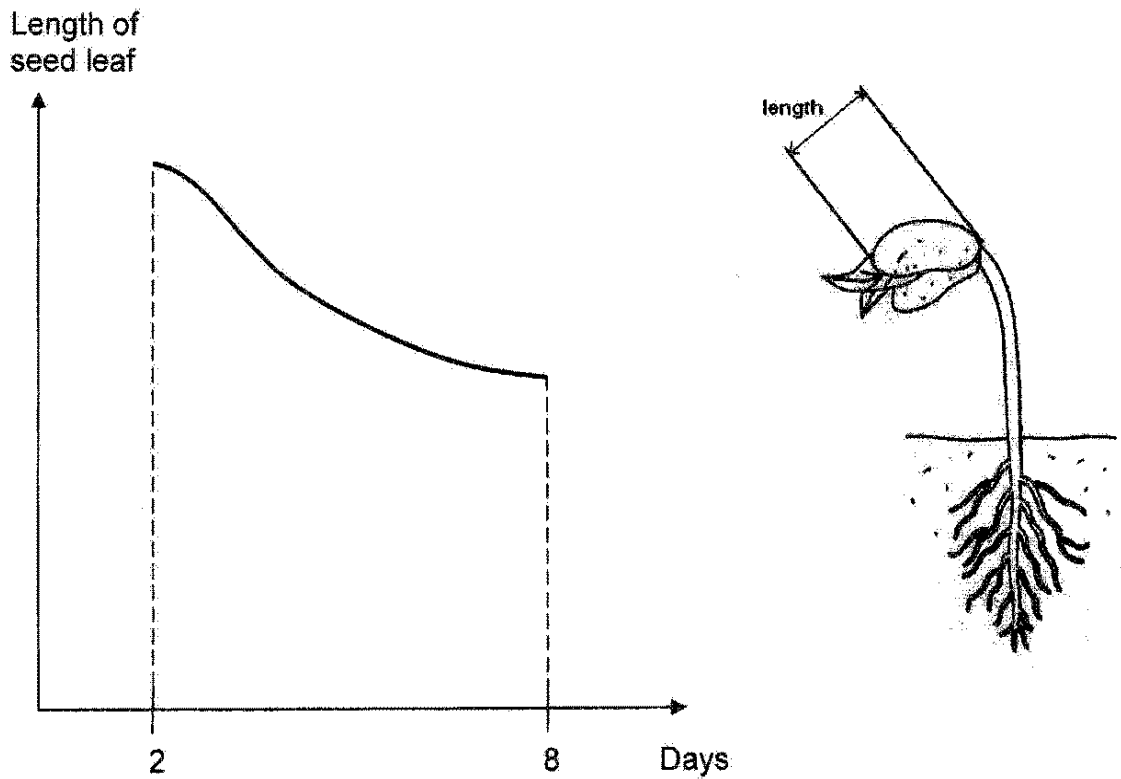


(a) Which seeds in the petri-dishes will germinate? (1m)

(b) (c) If the aim of the experiment is to find out if light is important for the germination of seeds, which pair of petri-dishes should Xinyu use in order to have a fair test? Explain your answer. (2m)



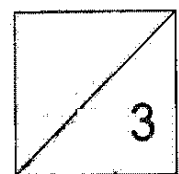
36. Sean planted a green bean seed and it took 2 days to germinate. He then measured the length of the seed leaf daily and plotted a graph as shown below.



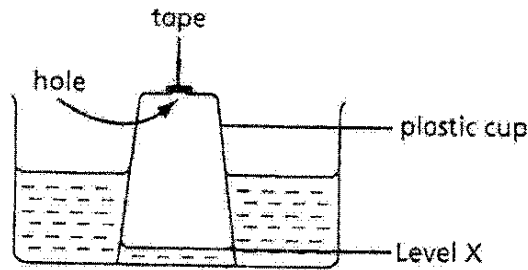
(a) What happened to the length of the seed leaf from day 2 to day 8? (1m)

(b) What is the reason for your answer as stated in (a)? (1m)

(c) Where did the plant get its food after the 8th day? (1m)



37. Jie Feng poked a hole in a transparent plastic cup and taped up the hole such that air is not able to escape. He then set up an experiment as shown below.



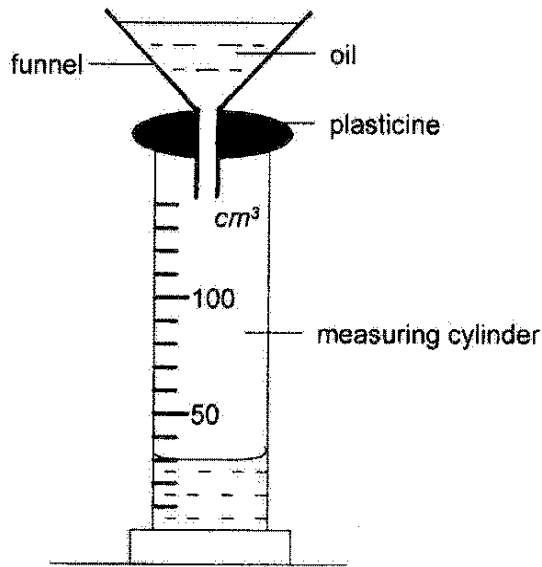
His teacher observed that Jie Feng has done the experiment correctly. However, Jie Feng did not expect any water to enter the cup at all but he noticed that the water level in the cup is at Level X.

- (a) Explain why water entered the cup. (1m)

- (b) With the set-up unchanged, suggest what Jie Feng can do in order for the water level X to increase. (1m)

- (c) Explain your answer in (b). (1m)

38. Look at the diagram below carefully. Edward pours some oil quickly into a measuring cylinder through a funnel.

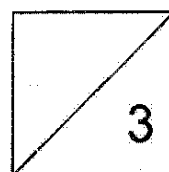


The oil stops flowing into the measuring cylinder although there is still a lot of empty space in it.

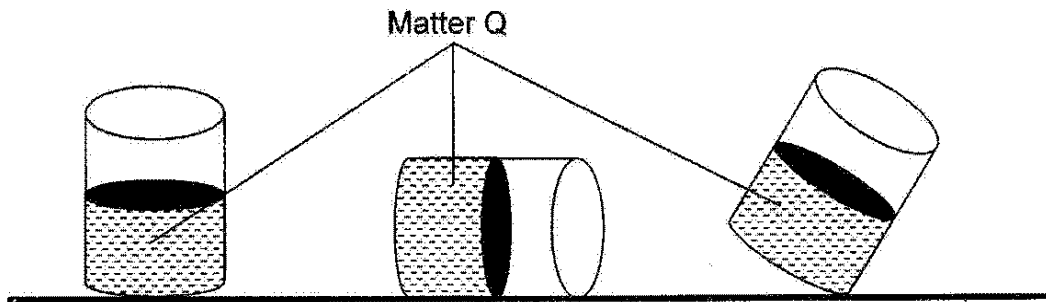
- (a) What is present in the 'empty space'? (1m)

- (b) What is the volume of oil in the measuring cylinder? (1m)

- (c) Without adding any apparatus, what can Edward do to the set-up above before the oil can continue to flow into the measuring cylinder? (1m)

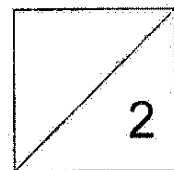


39. The diagram below shows Matter Q in a container. The container was placed in 3 different positions.



- (a) Based on what you observed, what state is Matter Q in? (1m)

- (b) Based on your answer in (a), state a property of Matter Q based on your observation above. (1m)



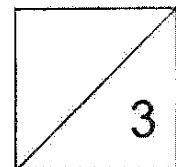
40. The table below shows the mass and volume of substance Z in a 50cm^3 container.

Mass (g)	10	20	30	40	50	60
Volume (cm^3)	50	50	50	50	50	50

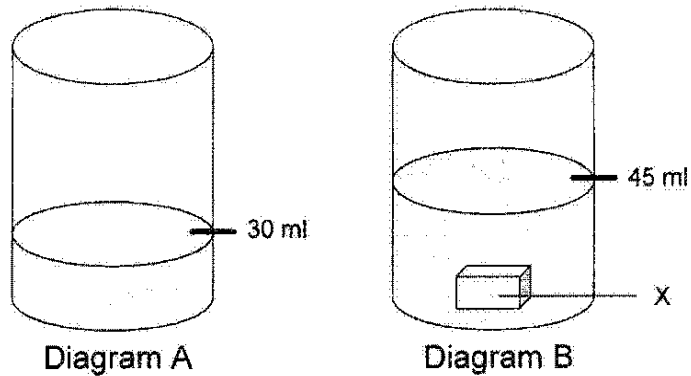
- (a) Based on the table above, state the relationship between the mass and volume of substance Z. (1m)

- (b) What is substance Z likely to be? (1m)

- (c) If 10cm^3 of water is added to the container, what is the volume of the air in the container now? Explain your answer. (1m)

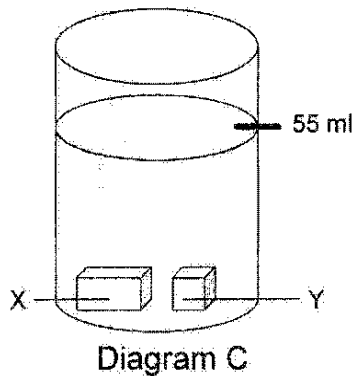


41. Nicole put 30 ml of water in a measuring cylinder as shown in Diagram A below. She then dropped a plastic block X into the same cylinder as shown in diagram B and measured the level of the water.



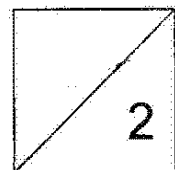
- (a) Explain why the water level increased after plastic block X is dropped into the measuring cylinder. (1m)

- (b) Nicole wanted to measure the volume of plastic block Y. She dropped Y into the same measuring cylinder. The measurement of the water level is shown in Diagram C below.



Fill in the table below to show her results. (1m)

Plastic Block	Volume
X	
Y	



(c) Nicole conducted a similar experiment with the same plastic block X now broken into two pieces as shown below.

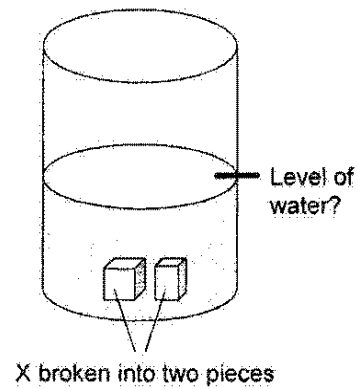
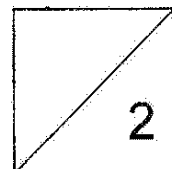


Diagram D

What is the reading of the level of water (ml), if no water has been removed from the measuring cylinder? Explain your answer. (2m)



42. Nuriyana hung two bars, P and Q, made of unknown materials with a thread as shown as in Figure 1.

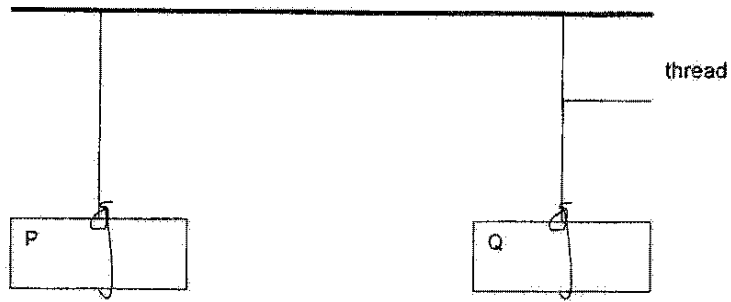


Figure 1

Then, she hung a magnet in between P and Q as shown in Figure 2.

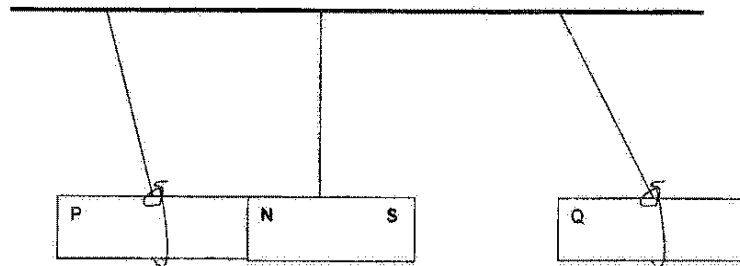


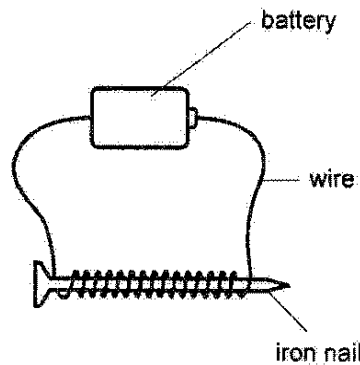
Figure 2

Based on her observations shown in Figure 2, answer the questions below.

- (a) What is Bar Q most likely to be? (1m)

- (b) Why is Bar P attracted to the magnet? (1m)

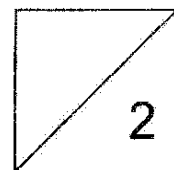
43. Jayne coiled a wire around an iron nail and connected the wire to a battery as shown below.



She then bring the iron nail close to some steel thumbtacks. She observed that the iron nail attracted one thumbtack.

- (a) Without adding any other apparatus, suggest what Jayne can do to increase the strength of the magnetism of the iron nail. (1m)

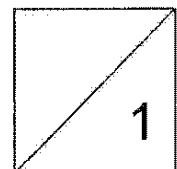
- (b) After 1 minute, Jayne removed the battery. She observed that the thumbtack is no longer attracted to the iron nail. Why is this so? (1m)



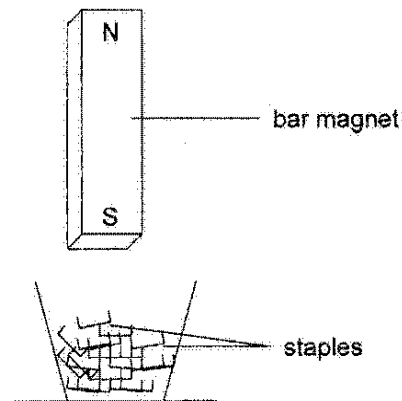
Jayne then repeated the same experiment by adding more batteries and recorded the number of thumbtacks that was attracted to the iron nail.

Number of batteries	Number of thumbtacks that was attracted to the iron nail
2	2
3	3
4	5

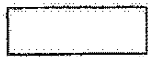


(c) Based on her results above, what conclusion can Jayne make about the strength of the magnet? (1m)



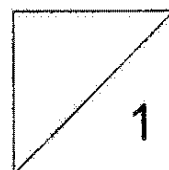
44. Bar magnet A is placed above some staples as shown below. The number of staples attracted by the magnet is recorded. The experiment is then repeated with Magnet B and C.



The results are recorded in the table below.

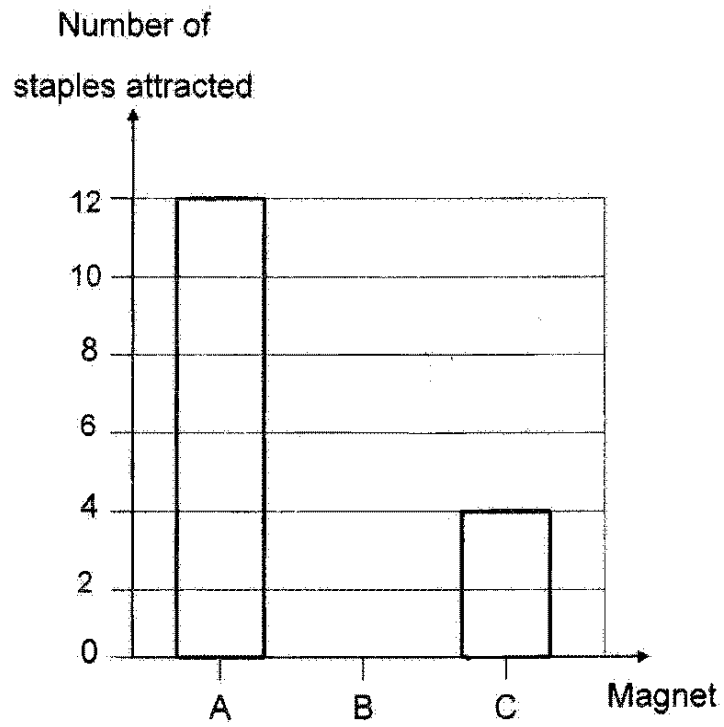
Magnet	Number of staples attracted by magnet
A 	12
B 	8
C 	4

- (a) What is the aim of the experiment? (1m)

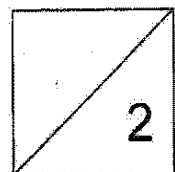


(b) Based on the results in the table given, complete the graph below for Magnet B.

(1m)



(c) Which is the strongest magnet? Explain your answer. (1m)



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1.	1	2.	2	3.	1	4.	2	5.	1
6.	4	7.	2	8.	3	9.	2	10.	3
11.	2	12.	3	13.	4	14.	3	15.	3
16.	2	17.	2	18.	1	19.	2	20.	2
21.	1	22.	1	23.	1	24.	2	25.	3
26.	3	27.	4	28.	3	29.	3	30.	1

31. (a) The bread will turn mouldy after 14 days.
 (b) Moisture has been removed from the bread after it was heated. Furthermore, there is no moisture in the plastic bag after air has been sucked out.
32. (a) Material G
 (b) Material G absorbs the most amount of water.
 (c) Material E
33. (a) D and E
 (b) i. Circulatory System, Respiratory System
 (b) ii. Digested food from the digestive system/small intestine is sent through the blood system to the rest of the body.
34. (a) i. Yes
 ii. Pupa
 (b) It is important to ensure they continue to reproduce so that they will not become extinct.
35. (a) A and B
 (b) Xinyu should use only Petri-dishes A and B. This is because seeds in these 2 petri-dishes will germinate due to the damp cotton wool and the only variable that should change is the location where the petri-dishes are placed.
36. (a) It's length decreases each day from day 2 to day 8
 (b) The seed leaf provides food for the shoot. Hence its length decreases over the days.
 (c) It made its own food.

37. (a) Water entered the cup because air can be compressed to allow some water to enter the cup.
- (b) Jie Feng can peel off the tape that covers the hole for water level X to increase.
- (c) Air can escape through the hole and allow water to displace some of the air in the plastic cup.
38. (a) Air
- (b) 30cm^3
- (c) Edward can peel off the plasticine to allow the oil to continue flowing into the measuring cylinder.
39. (a) Solid
- (b) Matter Q has a definite shape
40. (a) The mass is increasing but the volume remains the same.
- (b) Gas
- (c) 40cm^3 . The water takes up space, so air will fill up the remaining space in the container.
41. (a) Plastic block X occupies space so the water level increases.
- (b) X : 15ml, Y : 10ml
- (c) 45ml. The volume of X remains the same although it is broken into two pieces.
42. (a) Bar Q is mostly to be a magnet.
- (b) Bar P is a magnetic object.
43. (a) Increase the number of coils around the iron nail.
- (b) The iron nail becomes a temporary magnet which loses its magnetism without the battery.
- (c) The greater the number of batteries use, the stronger the magnet becomes.
44. (a) the aim of the experiment is to find out which magnet is the strongest.
- (b) Magnet A. It attracted the most amounts of staples.