新加坡福建会馆属下五校小六统一考试
道南 • 爱同 • 崇福 • 南侨 • 光华

SINGAPORE HOKKIEN HUAY KUAN
5-SCHOOL COMBINED PRIMARY 6 PRELIMINARY EXAMINATION
TAO NAN • AI TONG • CHONGFU • NAN CHIAU • KONG HWA

2008
科学 SCIENCE
BOOKLET A

Date: 27 August 2008

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

INSTRUCTIONS TO CANDIDATES

1. Do not open this booklet until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.

This booklet consists of 22 printed pages.

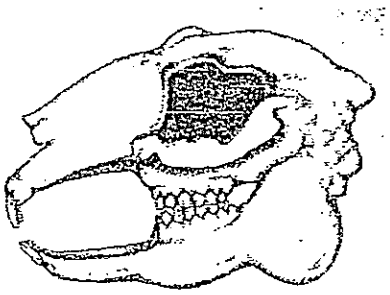
School : _____

Name : _____ ( )

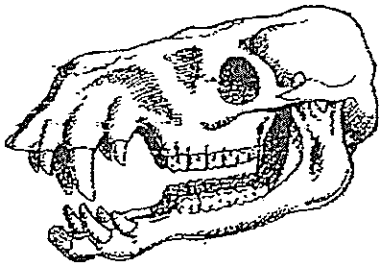
Class : _____

TOTAL	/ 60

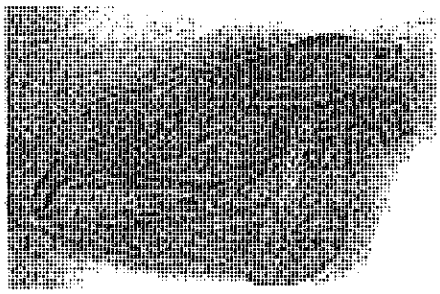
2. The following diagrams show the skulls of four animals, **P**, **Q**, **R** and **S**, with their jawbones intact.



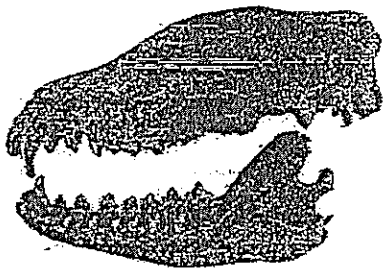
Animal **P**



Animal **Q**



Animal **R**

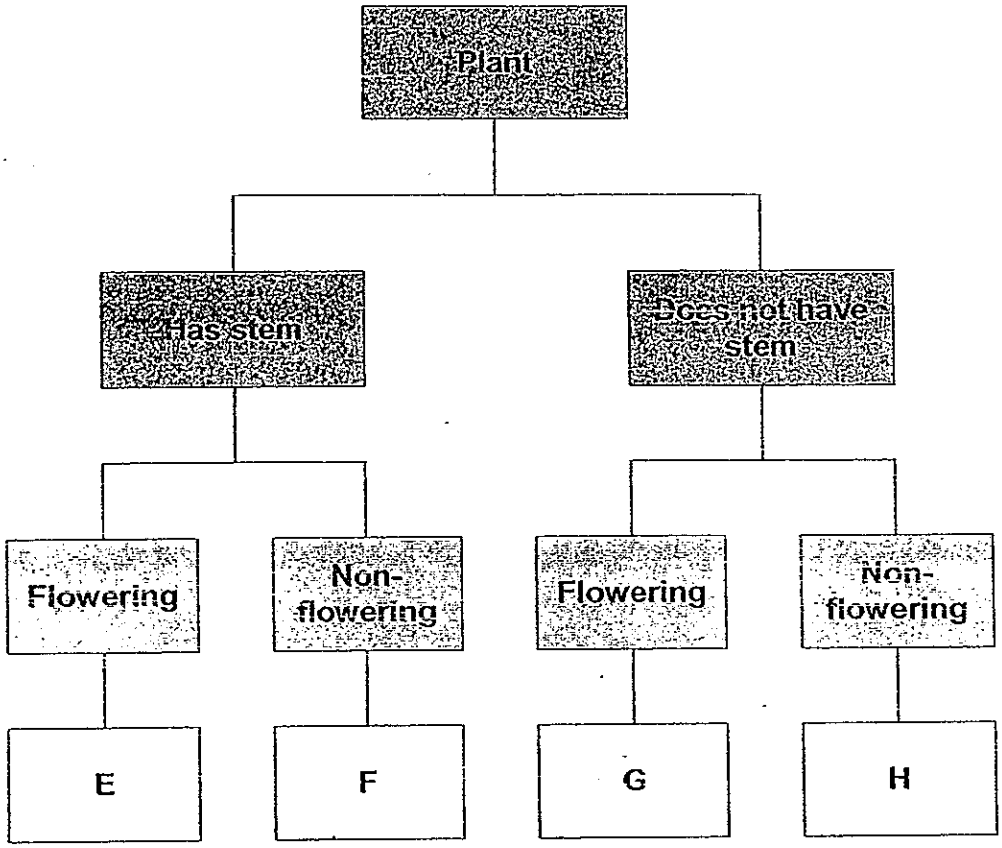


Animal **S**

Which of the following shows the correct inference about animals **P**, **Q**, **R** and **S**?

(1) Animal **P** and Animal **Q** are both plant-eaters.
(2) Animal **P** and Animal **S** are both plant-and-animal-eaters.
(3) Animal **Q** is a plant-eater but Animal **R** is a plant-and-animal-eater.
(4) Animal **Q** is a plant-and-animal-eater but Animal **S** is an animal-eater.

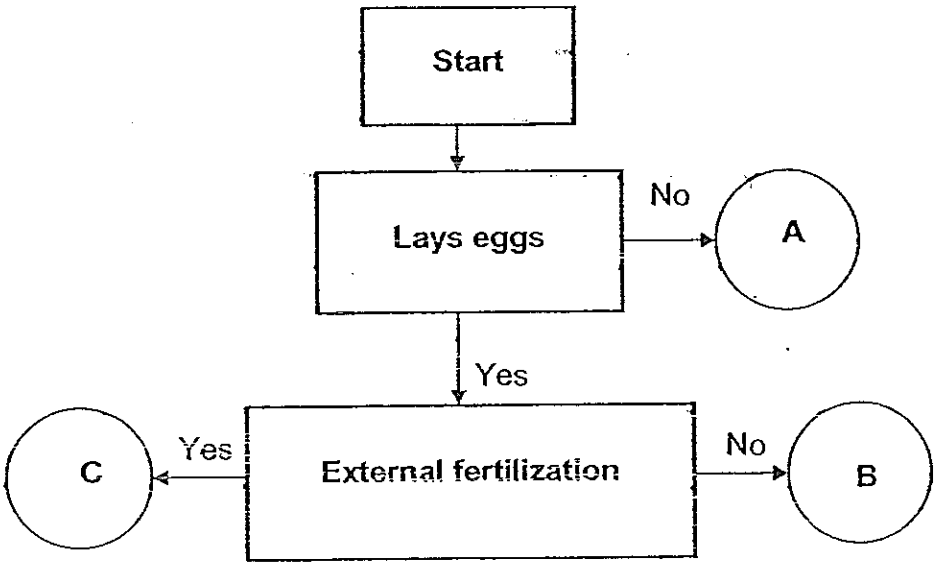
3. A group of P6 pupils had a Science lesson at the Botanic Gardens. Each pupil was given a classification chart as shown below.



Their Science teacher identified four plants for them to put in the chart. Which of the following shows the plants being classified correctly?

	Plant E	Plant F	Plant G	Plant H
(1)	Duckweed	Moss	Morning glory	Dragon's scales fern
(2)	Dragon's scales fern	Duckweed	Moss	Morning glory
(3)	Morning glory	Dragon's scales fern	Duckweed	Moss
(4)	Moss	Morning glory	Dragon's scales fern	Duckweed

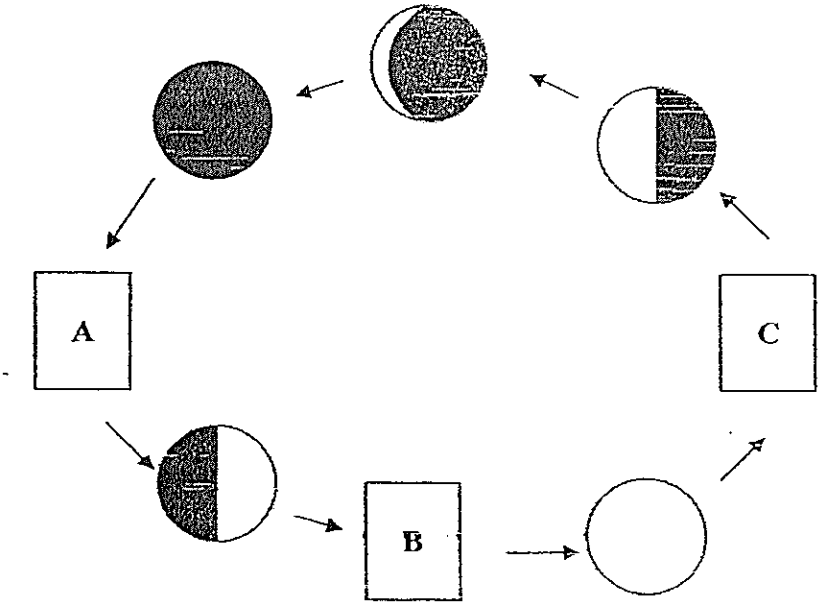
4. The flowchart below shows how some animals reproduce.



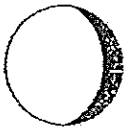
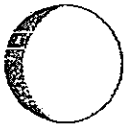
Which of the following organisms represent **A**, **B** and **C** respectively?

	A	B	C
(1)	lizard	turtle	snake
(2)	mouse	eagle	frog
(3)	angelfish	toad	chicken
(4)	spiny ant-eater	platypus	salmon

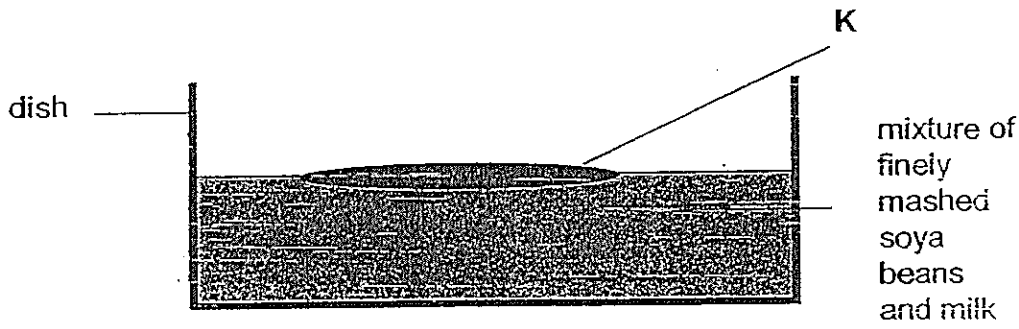
5. Study the phases of the Moon as shown in the diagram below.



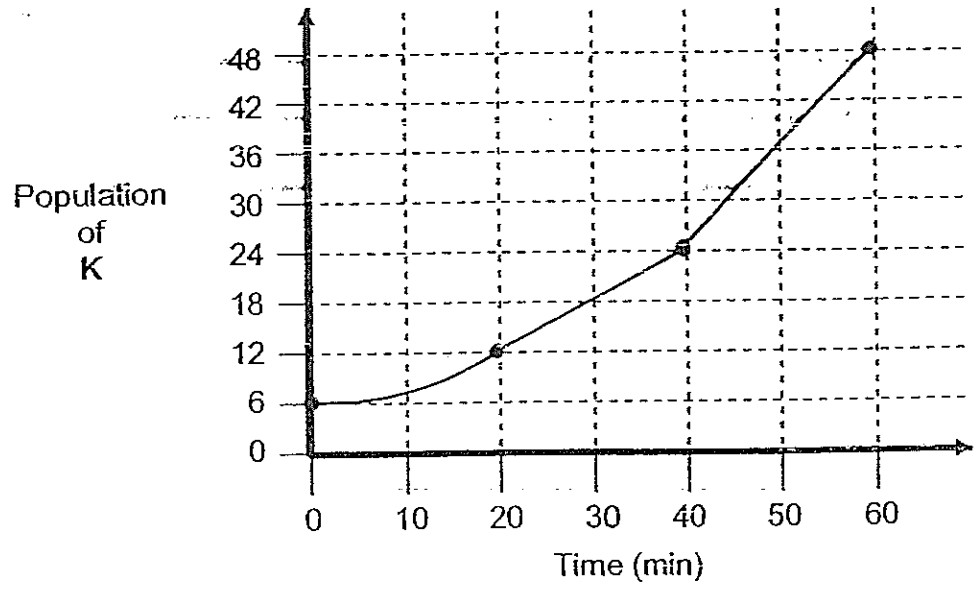
Which of the following correctly shows the missing phases of the Moon?

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

6. Melvin carried out a study on a population of unicellular organisms, K. He introduced a very small population of K in a dish containing a mixture of finely mashed soya beans and milk that had turned bad as shown in the diagram below.



He studied the growth pattern of the population of K over a period of 60 minutes using a powerful microscope and plotted a graph to show how the population of K increased in number over the one hour period.

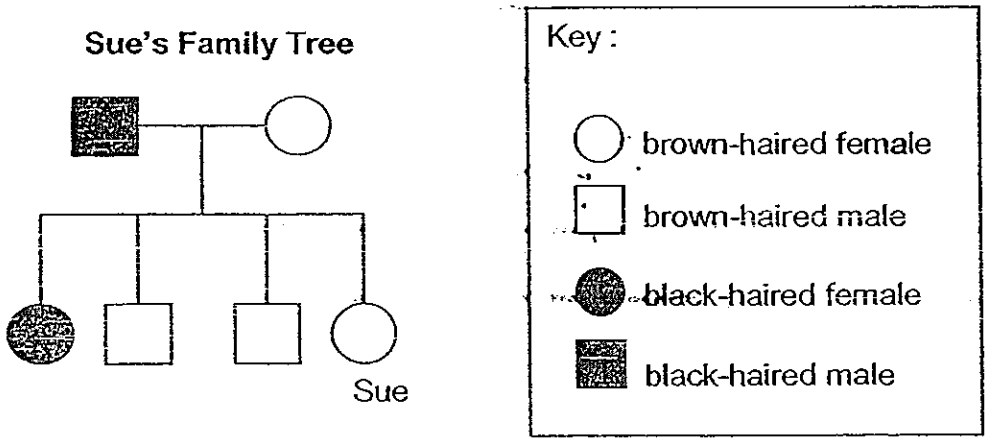


He recorded his findings in the table shown below. However, his teacher told him that only one of his findings was correct.

Based on the data presented in the graph only, which one of his findings was correct?

	Description	True	False	Not possible to tell
(1)	The population of K multiplied by six folds at the start of the experiment.		✓	
(2)	The size of the population of K doubled every 10 minutes.	✓		
(3)	There was an obvious pattern between the length of time and the population size of K.			✓
(4)	The population of K went through 4 generations of cell divisions.	✓		

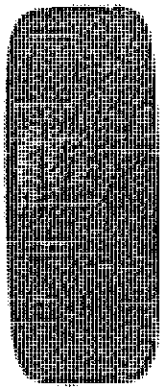
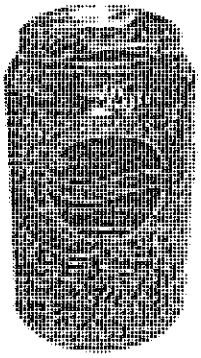
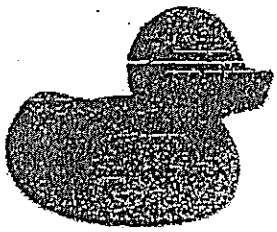
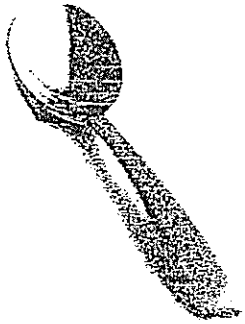
7. The diagram below shows Sue's family tree.



Which of the following statements about Sue or her family is correct?

(1) Sue has brownish black hair.
(2) Sue has three brothers and two sisters.
(3) Three people in the family have brown hair.
(4) Sue's sister has the same hair colour as her father.

8. Four objects are classified into two groups as shown below.

A	B
 a tyre	 an aluminium can
 a rubber duck	 an iron spoon

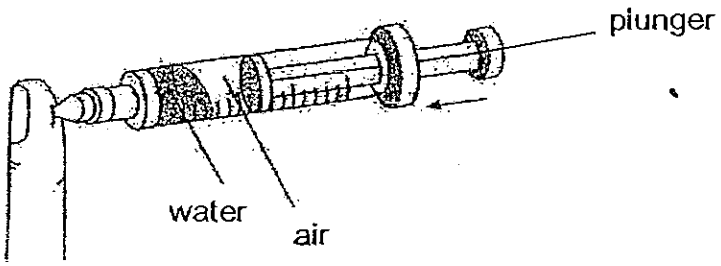
A Science Club member suggested that the objects could be grouped in the following ways :

A : how hard they are
B : whether they are waterproof
C : what materials they are made of
D : whether they can conduct electricity
E : whether they can be attracted by a magnet

Based on the above diagram, the objects are grouped according to _____ .

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

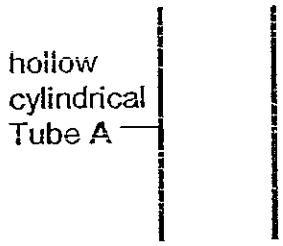
9. Ali fills a syringe with some tap water. He pushes the plunger of the syringe inwards as shown in the diagram below.



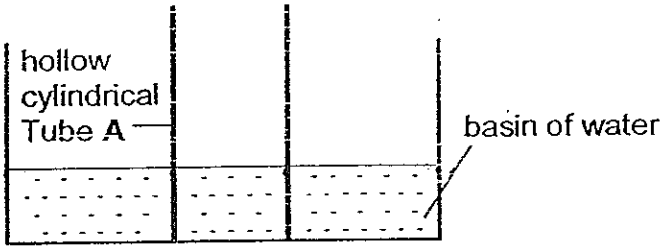
Which of the following correctly describes what will happen to the volume of air and water in the syringe respectively?

	Volume of air	Volume of water
(1)	decreases	remains the same
(2)	decreases	decreases
(3)	remains the same	decreases
(4)	remains the same	remains the same

10. Paul carried out an experiment using a hollow cylindrical Tube **A** as shown in the diagram below.

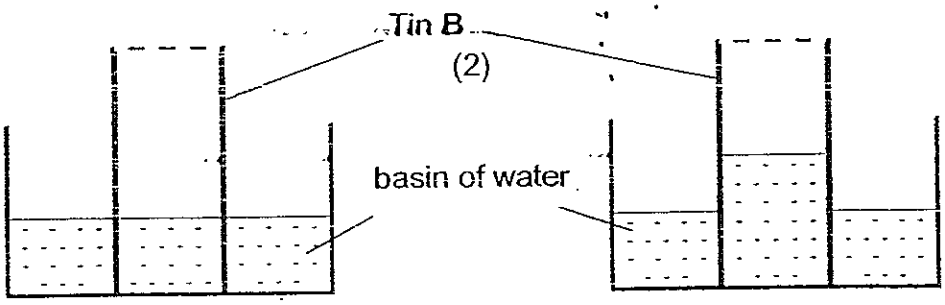


He lowered Tube **A** into a basin of water as shown in the diagram below.

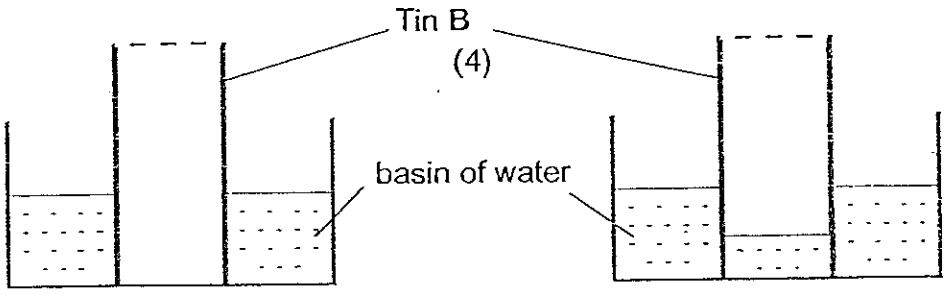


He then pushed a similar-sized empty inverted cylindrical Tin **B** with holes punched at its base slowly into the basin of water. Which one of the following diagrams shows the correct result?

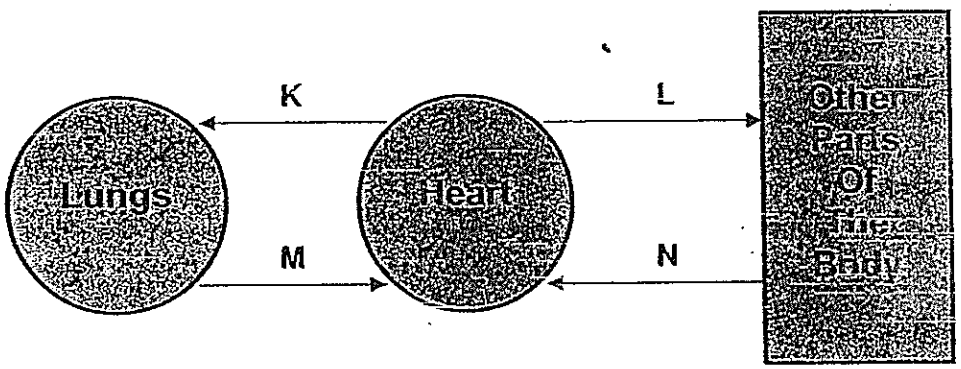
(1)



(3)



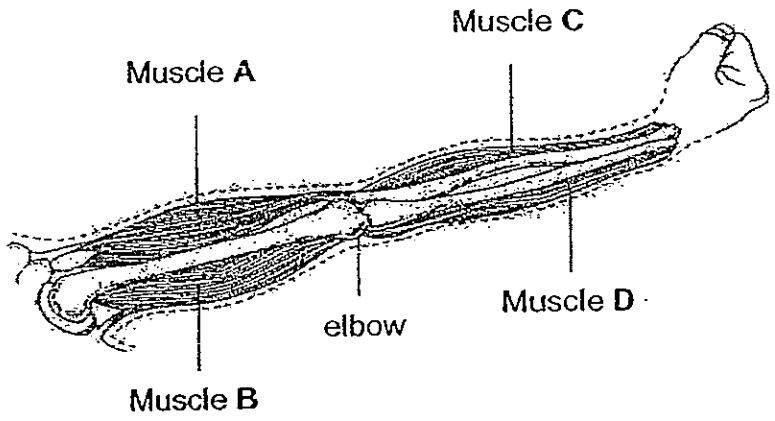
11. The diagram below shows the flow of blood in our body. The arrows K, L, M and N, represent blood vessels carrying blood to and from the lungs, heart and other parts of our body.



Which two arrows correctly represent the vessels carrying de-oxygenated blood?

(1) K and L
(2) K and N
(3) M and L
(4) M and N

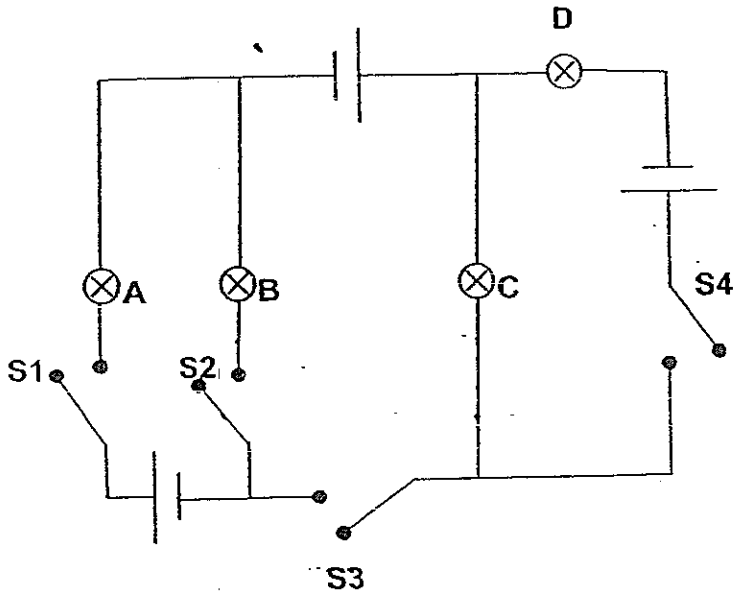
12. The diagram below shows a model of the human arm.



Which of the following shows correctly what will happen when the human arm bends at the elbow?

	Muscle A	Muscle B	Muscle C	Muscle D
(1)	relaxes	contracts	contracts	relaxes
(2)	relaxes	contracts	relaxes	contracts
(3)	contracts	relaxes	contracts	relaxes
(4)	contracts	relaxes	relaxes	contracts

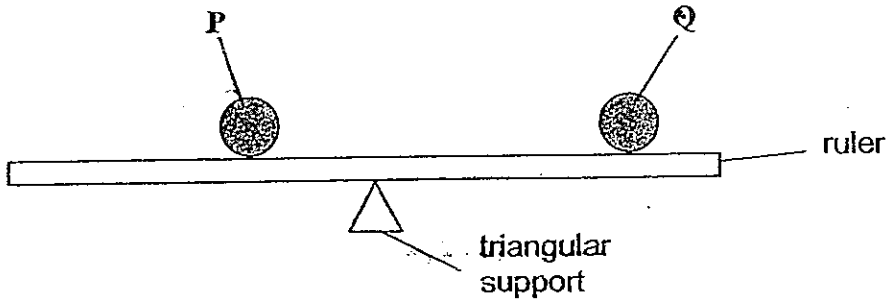
13. Gerard set up an electric circuit as shown in the circuit diagram below. The bulbs are labelled A, B, C and D and the switches are labelled S1, S2, S3 and S4.



Which of the following two switches when closed will produce the brightest light?

(1) S1 and S2
(2) S1 and S3
(3) S2 and S3
(4) S3 and S4

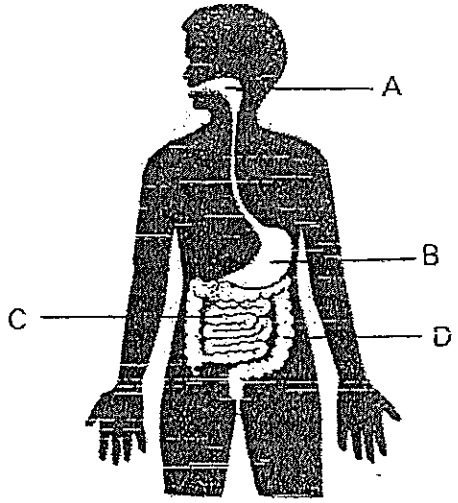
14. Kenneth carried out an experiment with two balls of cotton thread, P and Q, a ruler and a triangular support. P and Q balanced each other as shown in the diagram below.



P was then soaked in water until it was sufficiently wet without any water dripping off from it. The water from P was squeezed out and P was placed back at the same position on the ruler. The ruler tilted downwards on the side where P was. What could Kenneth infer from this experiment?

(1) Water has mass.
(2) Water occupies space.
(3) P absorbed water better than Q.
(4) P and Q had to absorb water to balance on the ruler.

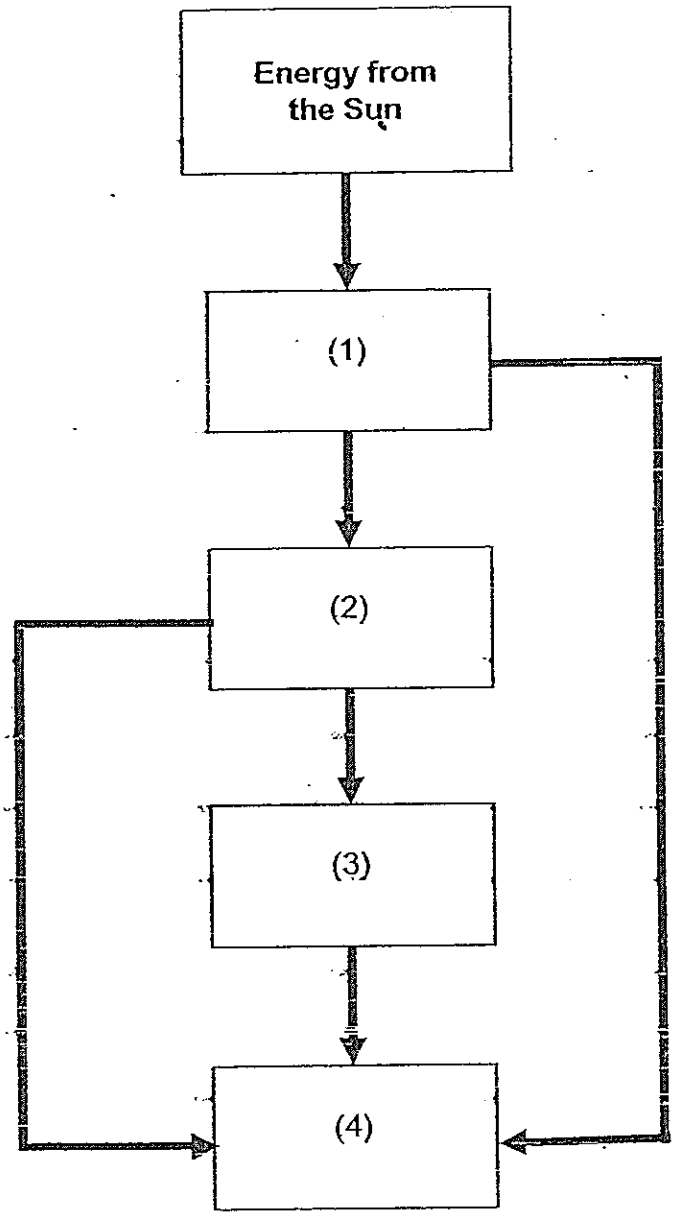
15. The diagram below shows the human digestive system.



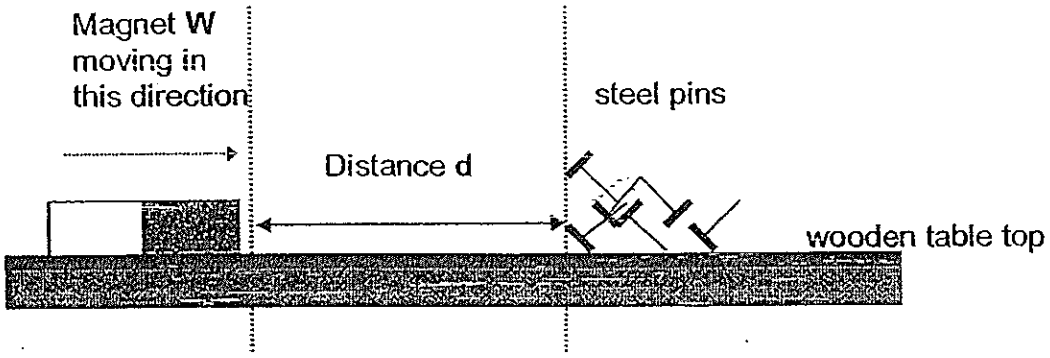
Which of the following correctly describes the processes of digestion at **A**, **B**, **C** and **D**?

	A	B	C	D
(1)	Saliva mixes with the food in the mouth	Digestive juices soften the food	Food is moved into **D** to be absorbed into the bloodstream	Digested food is absorbed into the bloodstream
(2)	Digestion begins with the help of saliva	Food is broken down into simpler substances	Digestion ends with food being absorbed into the bloodstream	Water and some mineral salts are absorbed
(3)	Saliva is produced to soften the food	Digested food is absorbed into the bloodstream	Food is further broken down into simpler substances	Waste materials are passed out of the body
(4)	Chewed food is swallowed	Food is mixed with the blood	Food is moved into **D** to be absorbed into the bloodstream	Digested food is absorbed into the body

16. The diagram below shows the flow of energy in a typical ecosystem. Which box represents the largest number of living organisms?



17. Magnet **W** is slowly moved towards some steel pins placed on a wooden table until it attracts the steel pins from a distance, **d**.



The same procedure is repeated thrice.

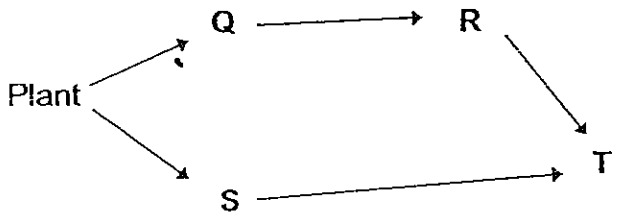
The experiment is repeated with three other magnets, **X**, **Y** and **Z**, and the results are tabulated as shown below.

	Distance d (cm)			
	First try	Second try	Third try	Average
Magnet W	2.2	2.0	2.1	2.1
Magnet X	2.4	2.2	2.3	2.3
Magnet Y	1.6	1.7	1.5	1.6
Magnet Z	1.9	1.8	1.7	1.8

Which magnet is the weakest?

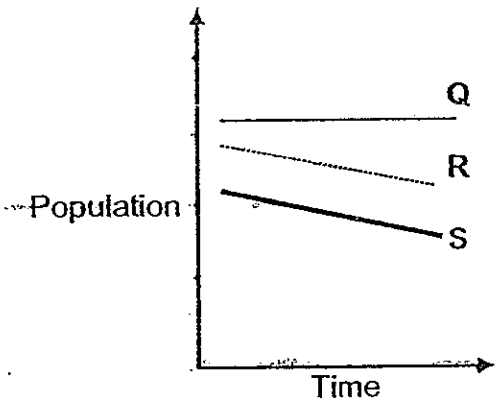
(1) Magnet **W**
(2) Magnet **X**
(3) Magnet **Y**
(4) Magnet **Z**

18. Study the food web below carefully. **Q**, **R**, **S** and **T** represent four different animals living together in a certain community.

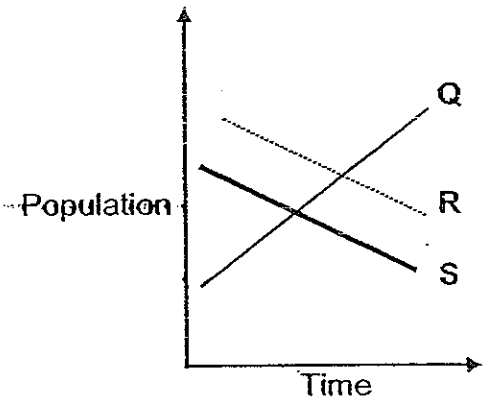


Based ONLY on the above food web, which of these graphs correctly shows the changes in the population size of **Q**, **R** and **S** if there is a sudden drop in the population size of **T**?

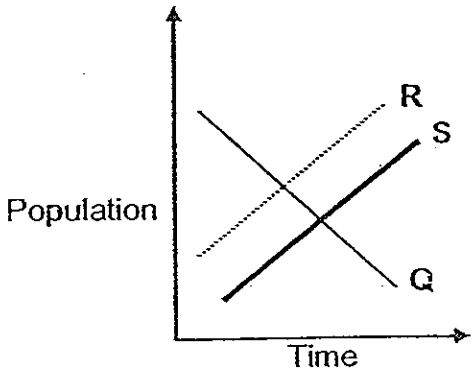
(1)



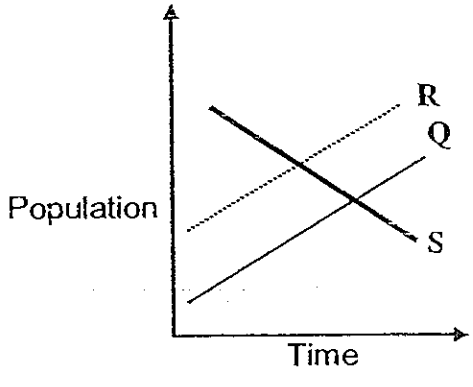
(2)



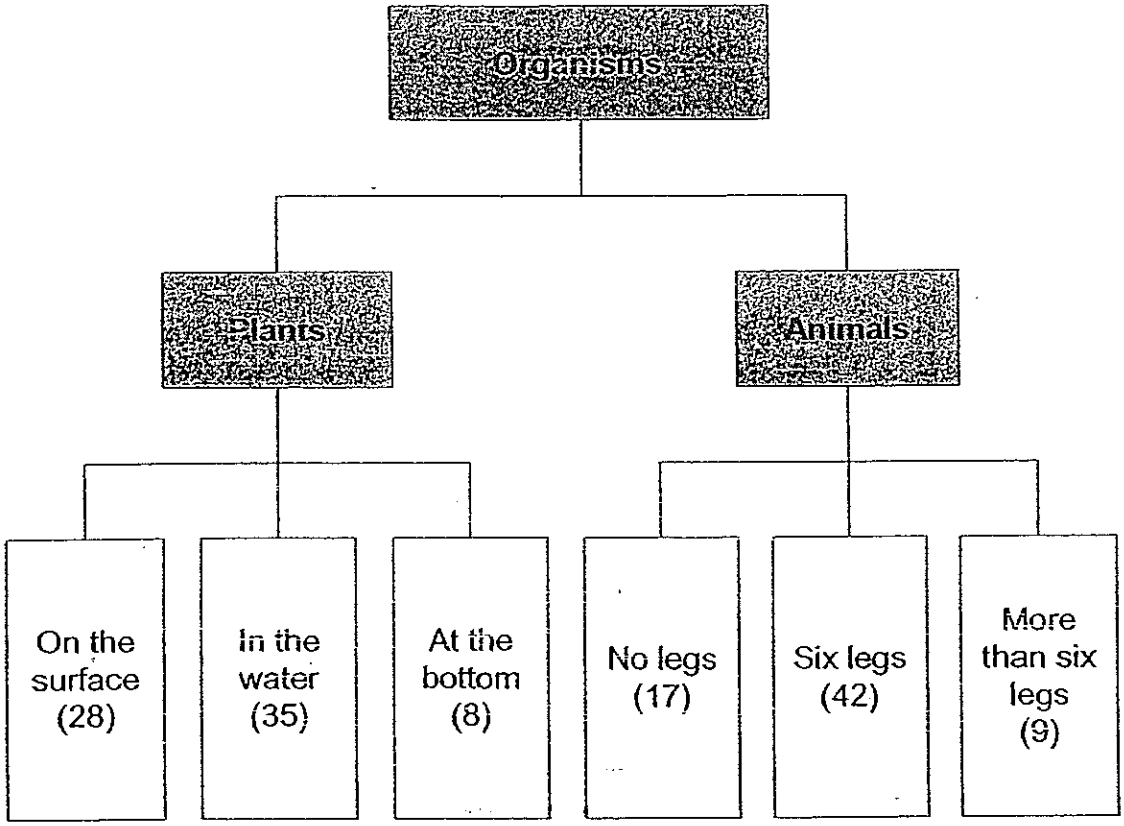
(3)



(4)



19. A group of Primary 6 pupils counted the number of plants and animals found in a pond in Sungei Buloh Wetland Reserve. They recorded their findings in the chart shown below.



Based on the information recorded in the above chart only, which of the following statements about the plants and animals can be correct?

A : There was only one community.
B : There were at least 139 populations in the pond.
C : All the animals found in the pond had legs.
D : There were only three populations of plants and three populations of animals in the pond.

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

20. Jayme conducted an experiment to find out how overcrowding would affect the growth of balsam plants. She selected four pots, **A**, **B**, **C** and **D**, for her experiment and put them in a sunny place close to one another.

She then placed similar healthy balsam plants in the four pots containing the same amount of rich garden soil.

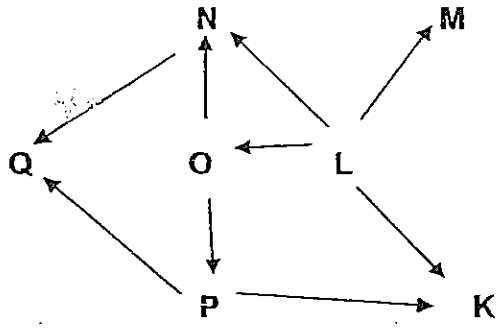
The table below gives details of her four experimental set-ups.

	Pot A	Pot B	Pot C	Pot D
Volume of pot	2 500 cm^3	5 000 cm^3	2 500 cm^3	5 000 cm^3
Number of balsam plants	6	6	12	12
Amount of water (given daily)	500 ml	600 ml	500 ml	600 ml
Height of plant	6 cm	6 cm	6 cm	6 cm

Which two set-ups should Jayme compare to find out how overcrowding would affect the growth of the plants?

(1) Set-ups **A** and **B**
(2) Set-ups **A** and **D**
(3) Set-ups **B** and **C**
(4) Set-ups **B** and **D**

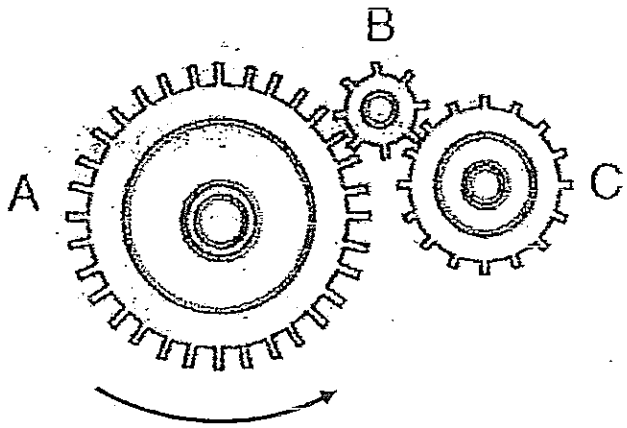
21. The food web below shows the food relationship among various organisms in a particular community.



Farren made the following observations about the above organisms, K, L, M, N, O, P and Q. Based on the above information, which of the following statements is correct?

	Statement	True	False	Not Possible to Tell
(1)	L is a green plant.			✓
(2)	M is a food consumer.			✓
(3)	There are 2 animals which eat both plants and animals.	✓		
(4)	K and Q do not have any predators feeding on them.		✓	

22. The diagram below shows three gears, A, B and C. Gear A moves in the direction shown.



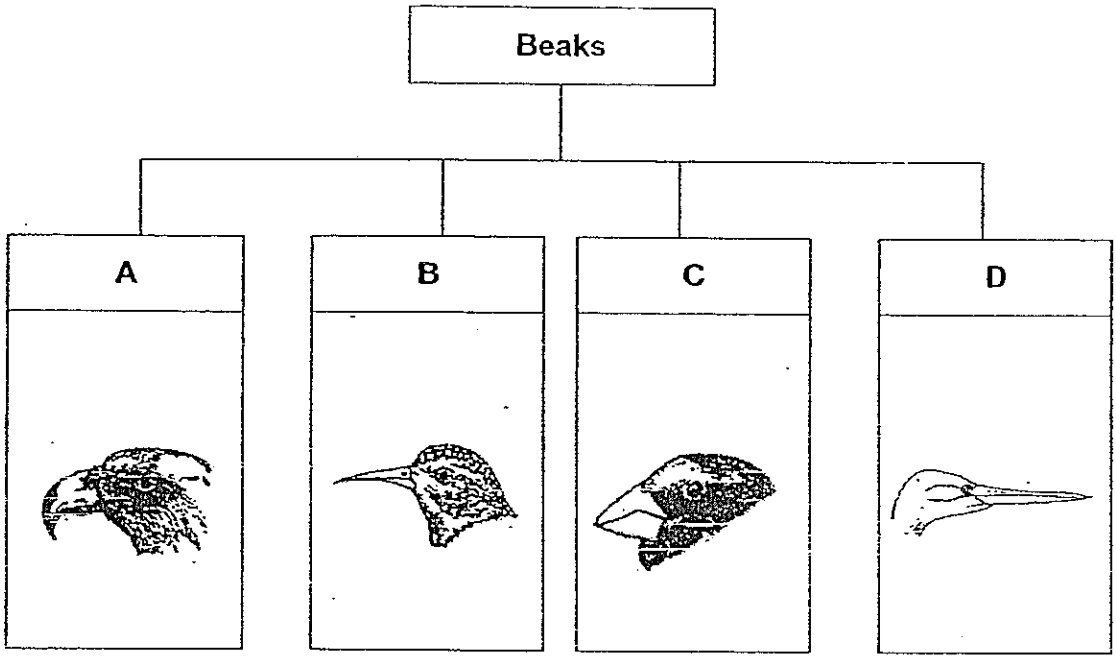
The number of teeth in each of the gears is shown in the table below.

Gear	Number of teeth
A	32
B	8
C	16

Which of the following shows the correct number of turns and direction of turn for Gears **A**, **B** and **C**?

	Gear A	Gear B	Gear C
(1)	16 turns, clockwise	4 turns, anticlockwise	8 turns, clockwise
(2)	8 turns, clockwise	32 turns, anticlockwise	16 turns, clockwise
(3)	16 turns, anticlockwise	4 turns, clockwise	8 turns, anticlockwise
(4)	8 turns, anticlockwise	32 turns, clockwise	16 turns, anticlockwise

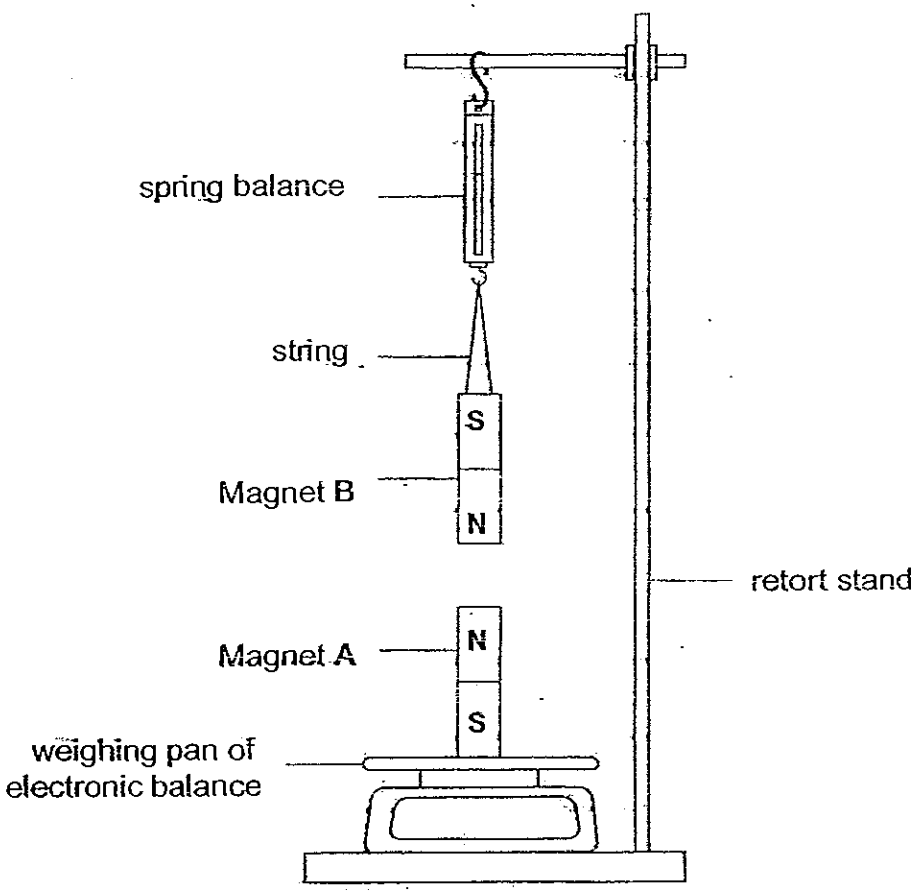
23. Study the diagrams of four birds, **A**, **B**, **C** and **D**.



Which of the following correctly shows the food most likely eaten by Birds **A**, **B**, **C** and **D**?

	Bird **A**	Bird **B**	Bird **C**	Bird **D**
(1)	nectar	seeds	fish	rat
(2)	rat	nectar	seeds	fish
(3)	fish	rat	nectar	seeds
(4)	seeds	fish	rat	nectar

24. Angeline set up an experiment using two magnets as shown in the diagram below. Magnet **A** was placed on a very sensitive electronic balance while Magnet **B** was suspended from a spring balance.



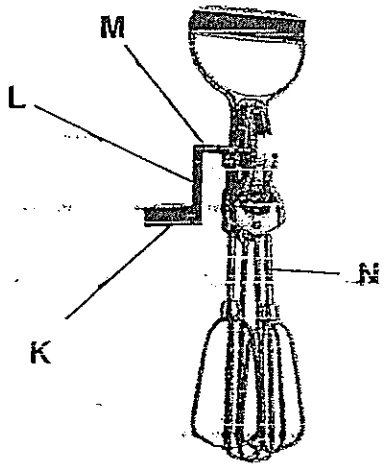
Which of the following predictions about the readings on the electronic balance and spring balance is correct?

	Spring balance	Electronic balance
(1)	decrease	decrease
(2)	decrease	increase
(3)	increase	decrease
(4)	increase	increase

43

25. Mrs Tan wants to bake a few cakes to celebrate a school function. She wants to buy an egg beater that will enable her to use as little effort as possible to beat all the eggs to bake the cakes.

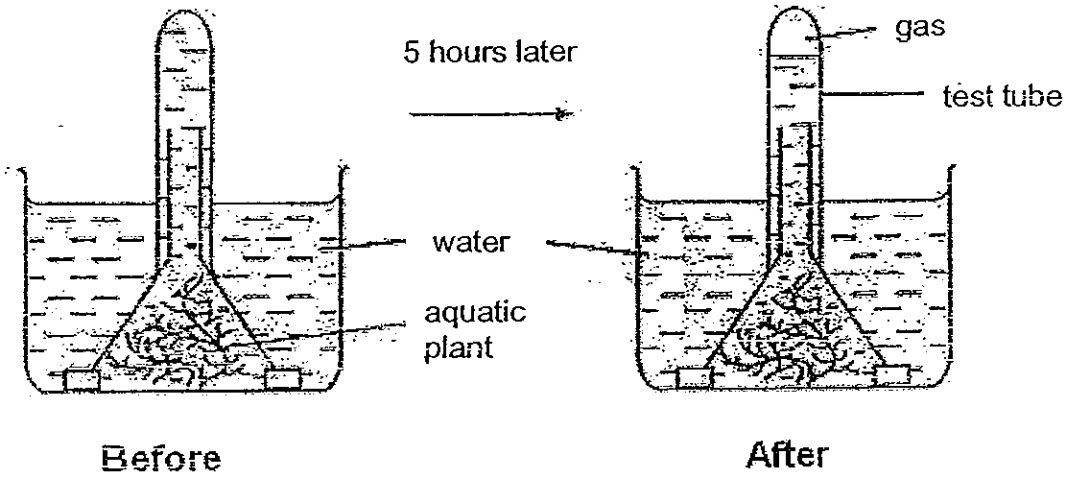
The diagram below shows an egg-beater.



She should look for an egg beater that has a longer _____.

(1) K
(2) L
(3) M
(4) N

26. Alice carried out an experiment to find out how temperature of the surroundings affects the rate of photosynthesis of an aquatic plant. She prepared five similar set-ups, **A, B, C, D** and **E**, with a plant each. The diagram below shows a set-up before and after the experiment.

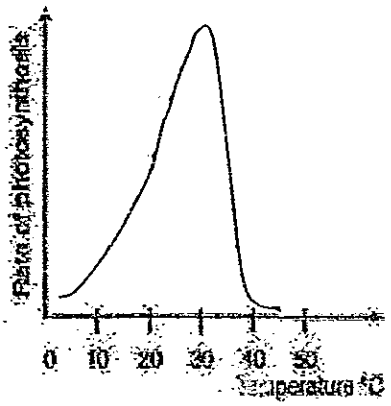


The set-ups were subjected to different temperatures over a period of five hours. The amounts of gas collected in the test tube at each temperature were recorded and tabulated as shown below.

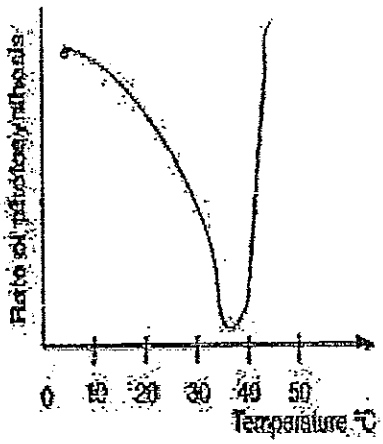
Temperature of the surroundings (°C)	10	15	25	35	40
Volume of gas collected (cm³)	7	20	40	~~80~~ 28	5

From the experiment, which one of the graphs below best shows the effect of temperature on the rate of photosynthesis?

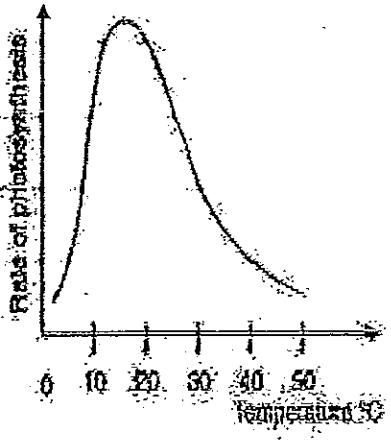
(1)



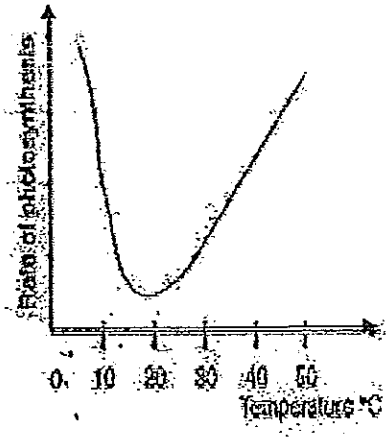
(2)



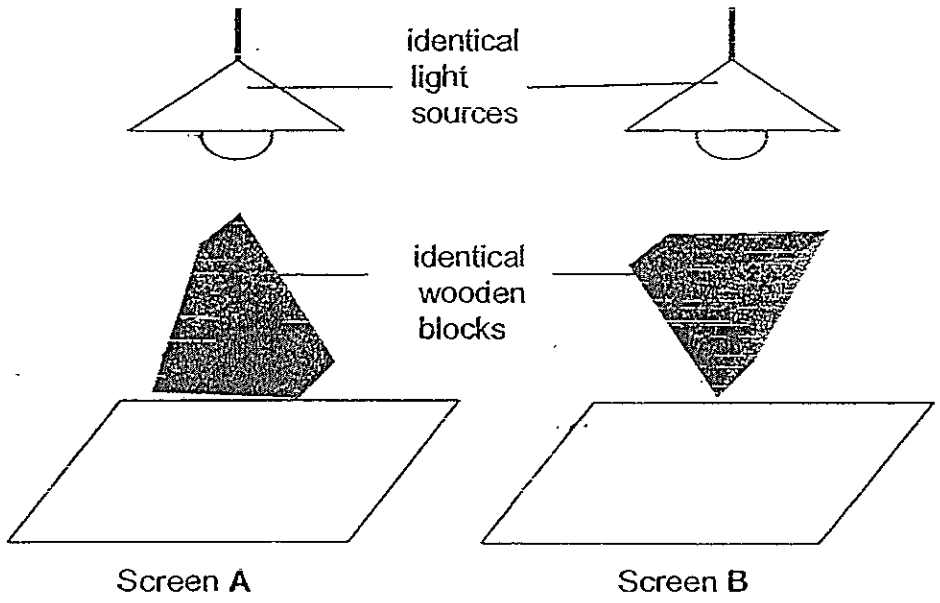
(3)



(4)



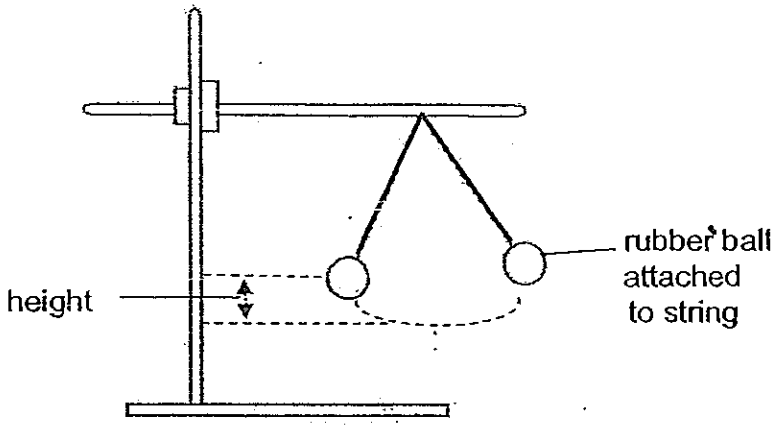
27. Sheryl placed two identical wooden blocks in different positions directly under identical light sources in a dark room.
Shadows were formed on Screens **A** and **B**.



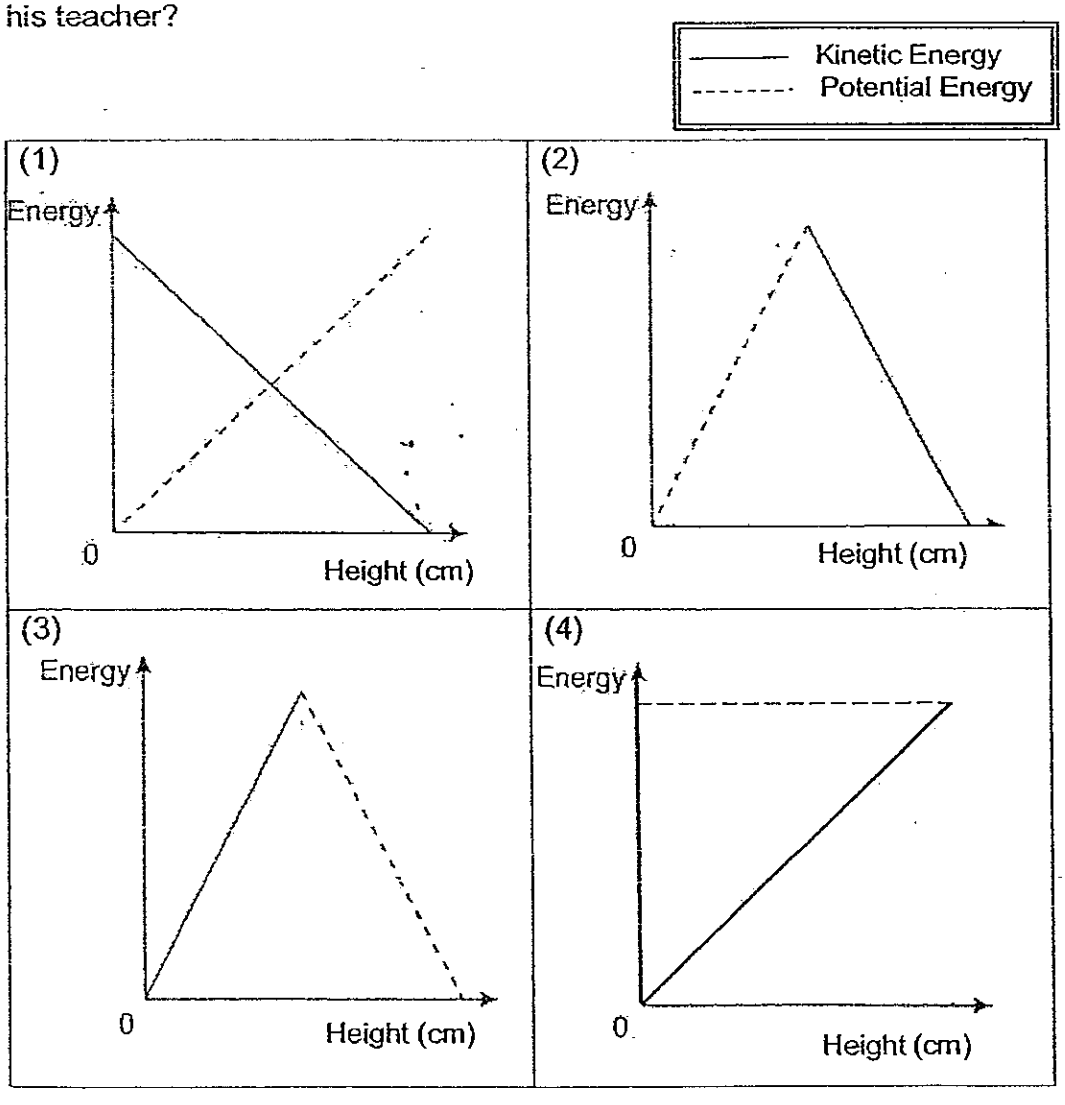
Which of the following shapes of shadows would be observed on each screen?

	Screen **A**	Screen **B**
(1)		
(2)		
(3)		
(4)		

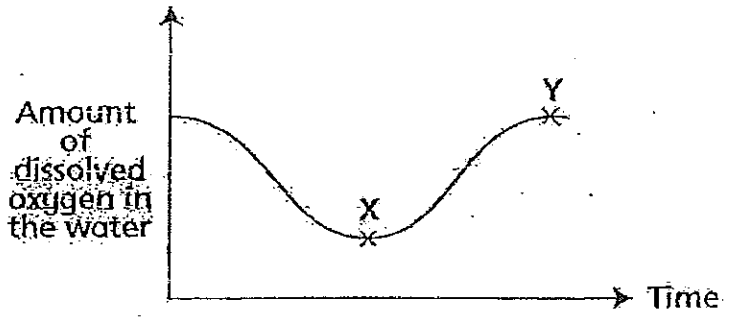
28. Junjie constructed a pendulum by securing a rubber ball to a string and attaching it to a retort stand. He then made it swing as shown in the diagram below.



He then plotted a graph to show how the potential energy and kinetic energy of this pendulum change with the height of the swinging rubber ball. His teacher commented that he had accurately shown his observations in his graph. Which one of the following graphs is probably what Junjie had shown his teacher?



29. Jeffrey placed some elodea in a fish tank which is four-fifth filled with water. He placed the tank beside a window for a 24-hour period. His mother told him that the amount of dissolved oxygen in the water would change throughout the experimental period. She drew him a graph as shown below to illustrate what she meant.

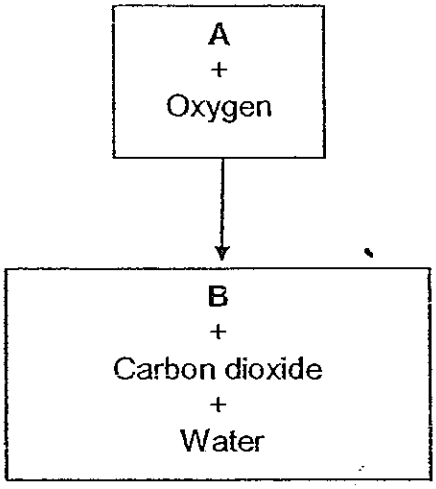


Which of the following changes in the experiment could have caused the amount of dissolved oxygen to increase from **X** to **Y** as shown in the graph?

A : A decrease in carbon dioxide in the water.
B : A decrease in light intensity in the water.
C : An increase in light intensity in the water.
D : An increase in carbon dioxide in the water.

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

30. The diagram below shows the process of respiration.



What do **A** and **B** represent?

	A	B
(1)	Food	Energy
(2)	Energy	Food
(3)	Starch	Energy
(4)	Light	Energy

新加坡福建会馆属下五校小六统一考试

道南 • 爱同 • 崇福 • 南侨 • 光华

SINGAPORE HOKKIEN HUAY KUAN
5-SCHOOL COMBINED PRIMARY 6 PRELIMINARY EXAMINATION
TAO NAN • AI TONG • CHONGFU • NAN CHIAU • KONG HWA

2008
科学 SCIENCE
BOOKLET B

Date: 27 August 2008

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

INSTRUCTIONS TO CANDIDATES

1. Do not open this booklet until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.

This booklet consists of 31 printed pages.

School : _____

Name : _____ ( )

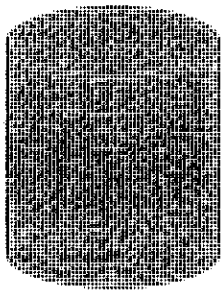
Class : _____

TOTAL	/40

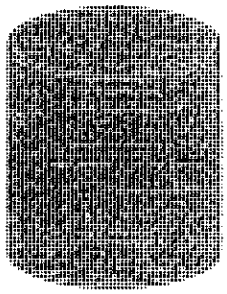
PART 2 (40 marks)

Write your answers to questions 31 to 46 in the spaces provided.

31. The same amount of boiling water was poured into two containers **X** and **Y** of similar shape, size and colour. The containers were placed in a room with a temperature of 29°C. The water in Container **X** took 25 minutes to cool down to room temperature while the water in Container Y took 40 minutes to cool down to the same temperature.



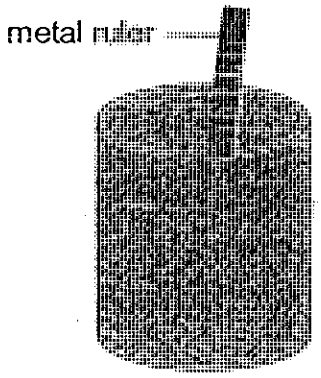
Container X



Container Y

(a) Suggest one reason why the water in the two containers took different lengths of time to cool down to room temperature. [1]

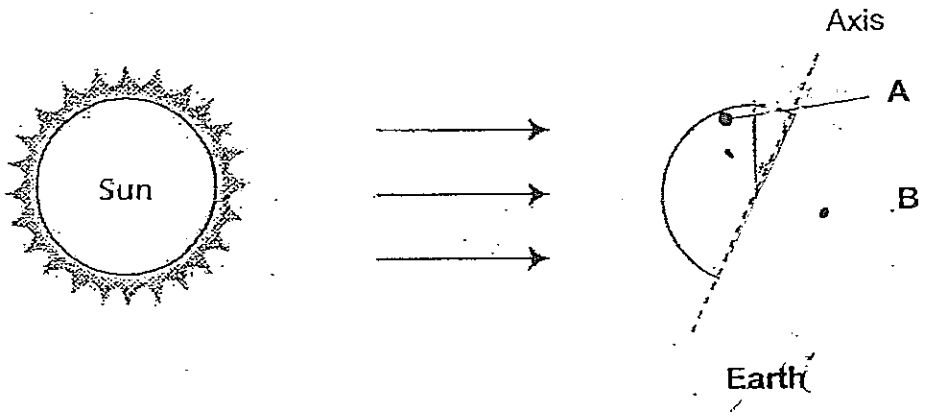
The experiment was repeated with a metal ruler placed inside Container **Y**. The boiling water in it took a shorter time to reach room temperature.



Container Y

(b) Suggest one reason why this is so. [1]

32. The diagram below shows the side view of the Sun and the Earth.

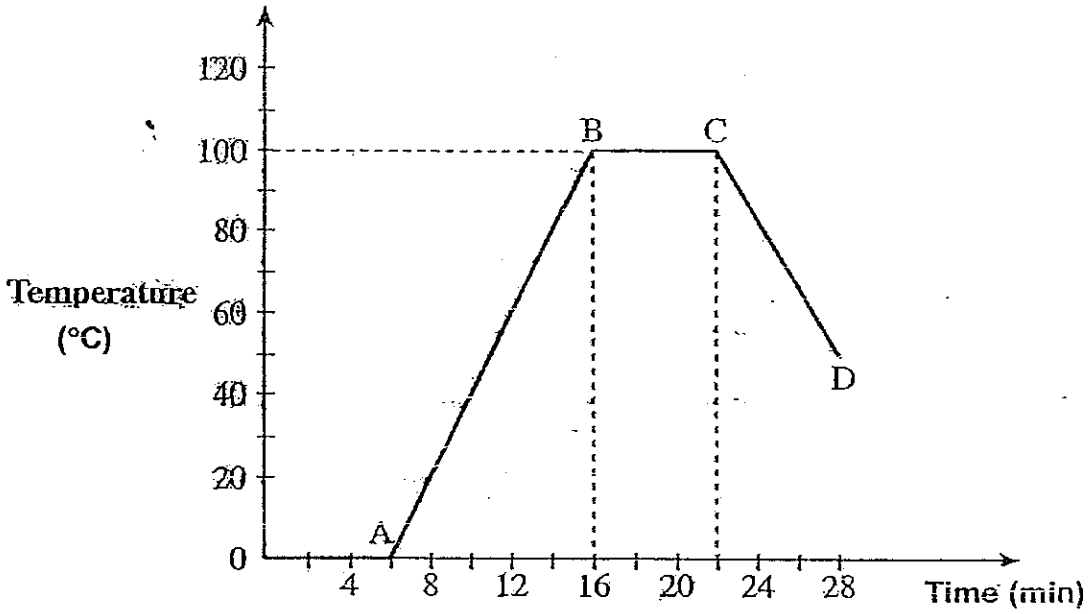


(a) On the above diagram, **shade the part of the Earth that is experiencing night.** [1]

(b) **A** and **B** are two places on Earth. By referring to the above diagram, state whether they will experience "night" or "day" 12 hours later. [1]

	12 hours later
A	
B	

33. Terry heated a beaker of ice and recorded the change in temperature over a period of time. The results are shown in the graph below.



(a) There was no change in temperature between B and C. State one observable change to the water during this period of time. [1]

_____

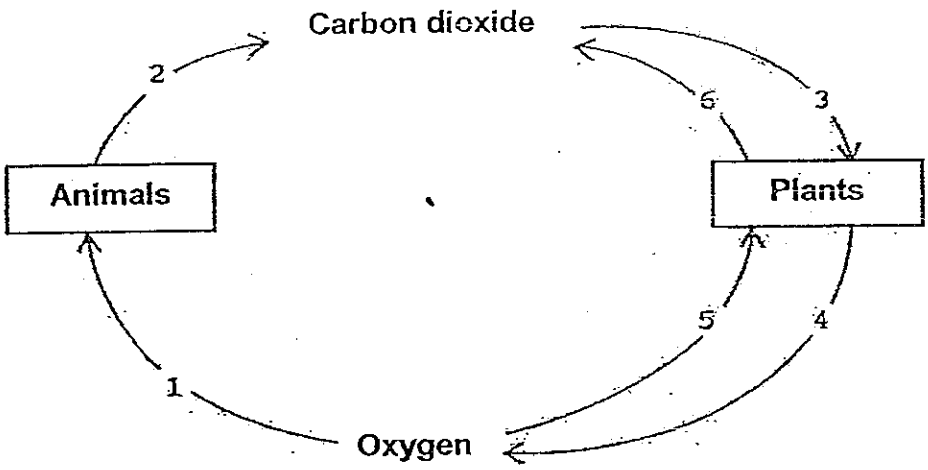
_____

(b) If Terry did not stop heating the beaker of water, what could have caused the temperature to drop from C to D? [1]

_____

_____

34.



The six arrows, numbered **1** to **6**, in the above diagram show the exchange of gases between living things and their surroundings.

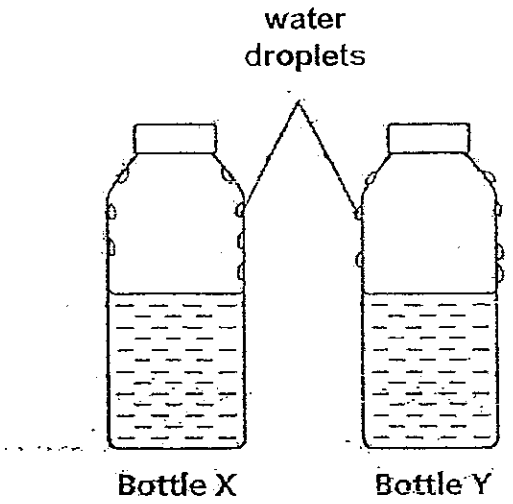
(a) Which two arrows in the above diagram show plants undergoing the process of converting light into chemical potential energy? [1]

Arrows _____ and _____ .

(b) **Name the product** that is broken down in plants when the process indicated by arrows **5** and **6** takes place. [1]

_____

35. Jason poured 250 ml of iced tea into a glass bottle, X, and another 250 ml of very hot tea into another identical glass bottle, Y. The two bottles were left on a table in the Science Laboratory. The diagram below shows the results of his investigation after 10 minutes.



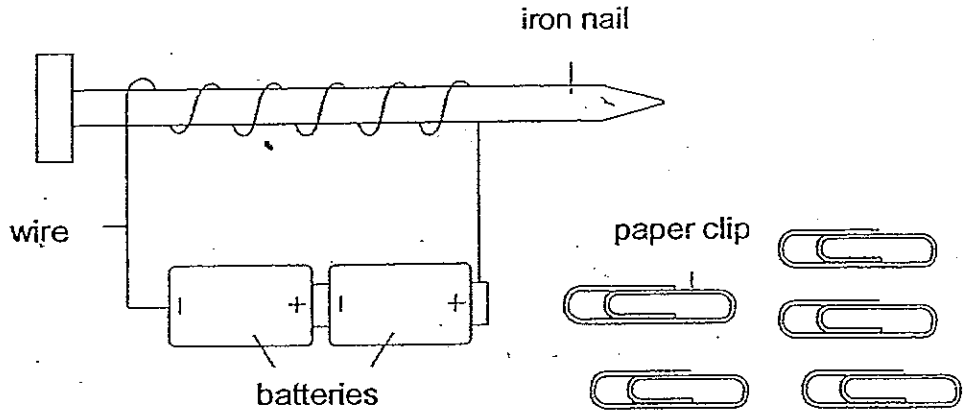
(a) Jason noticed that water droplets had formed on different parts of the two bottles. **Based on his observation**, infer which liquid was placed in each bottle. [1]

Bottle X	
Bottle Y	

(b) Explain clearly how these water droplets were formed on each surface of the bottles X and Y. [2]

Bottle X	
Bottle Y	

36. Peter made an electromagnet with two batteries, an iron nail and a wire. The set-up is as shown below.



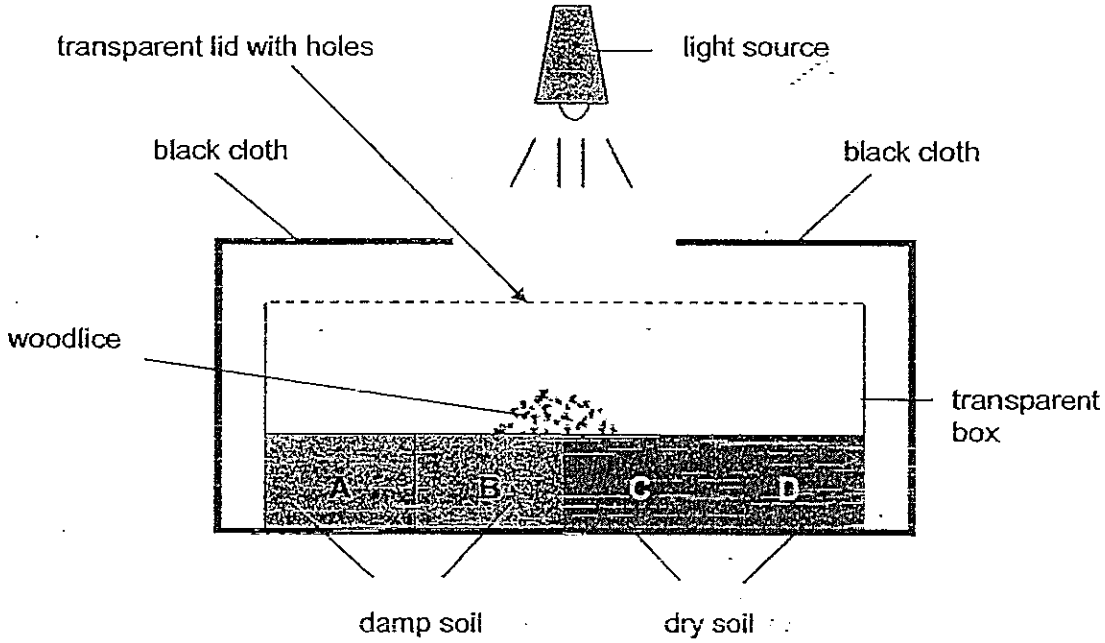
The table below shows the results of his experiment when the electromagnet was brought near some paper clips.

Number of turns of wire around the nail	10	20	30	40
Number of paper clips attracted by the nail	1	1	2	2

(a) What was the energy source in Peter's experiment? [1]

(b) How else could Peter increase the strength of the electromagnet other than the method used in his experiment? [1]

37. Brian carried out an experiment with twenty-five woodlice. He divided a transparent box into four equal sections A, B, C and D as shown in the diagram below. He poured in an equal amount of garden soil into each section. He also covered the box with a piece of black cloth leaving only an opening at the top for the light source to shine through.



Brian then released the woodlice at the centre of the transparent box. He counted the number of woodlice in each section after thirty minutes. He repeated the steps of the experiment thrice. The table below shows the results of the experiment.

Number of tries	Number of woodlice in each section			
	A	B	C	D
1	19	4	0	2
2	17	5	1	2
3	18	4	0	3

(a) What do you think was the aim of the experiment? [1]

_____

_____

(b) What conclusion can you draw from the results of the experiment Brian carried out? [1]

_____

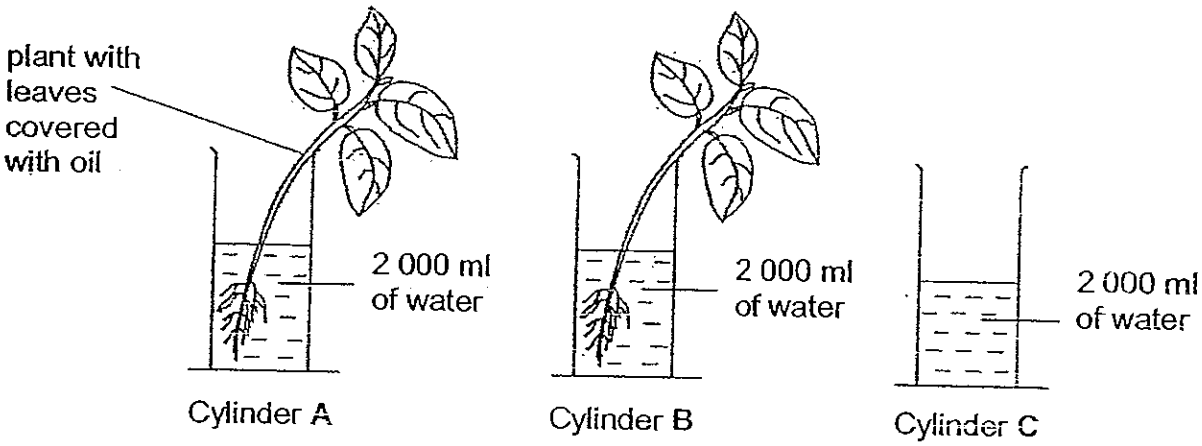
_____

(c) What was the purpose of repeating the experiment thrice? [1]

_____

_____

38. Sharon wanted to find out the volume of water taken in by a plant. She placed a healthy young plant in Cylinder **A** and another identical plant in Cylinder **B**. She also set up Cylinder **C** as a control.



The three set-ups were left in the open for two days.

The table below shows the volume of water in the three measuring cylinders at the beginning of the experiment on **Day 1** and at the end of the experiment on **Day 2**.

Measuring cylinder	Volume of water (ml)	
	Day 1	Day 2
A	2 000	1 350
B	2 000	1 250
C	2 000	1 500

(a) Why was there a difference in the amount of water left in measuring cylinders **A** and **B** at the end of the experiment? [1]

_____

_____

(b) What was the purpose of setting up measuring Cylinder **C** as a control? [1]

_____

_____

(c) What was the volume of the water taken in by the plant in measuring Cylinder **B**? [1]

_____

(d) Suggest <u>one</u> way for Sharon to improve the experiment so that she would not need to use Cylinder **C** as a control. [1]

_____

_____

39. Jenny studied three materials, **X**, **Y** and **Z**, and recorded her findings in a table below.

Property	Material X	Material Y	Material Z
Is it a liquid?	Yes	No	No
Is it a magnetic substance?	No	Yes	No
Does it allow light to pass through?	Yes	No	No
Does it allow electricity to flow through?	Yes	Yes	No

(a) What property is common to Materials **X** and **Z**? [1]

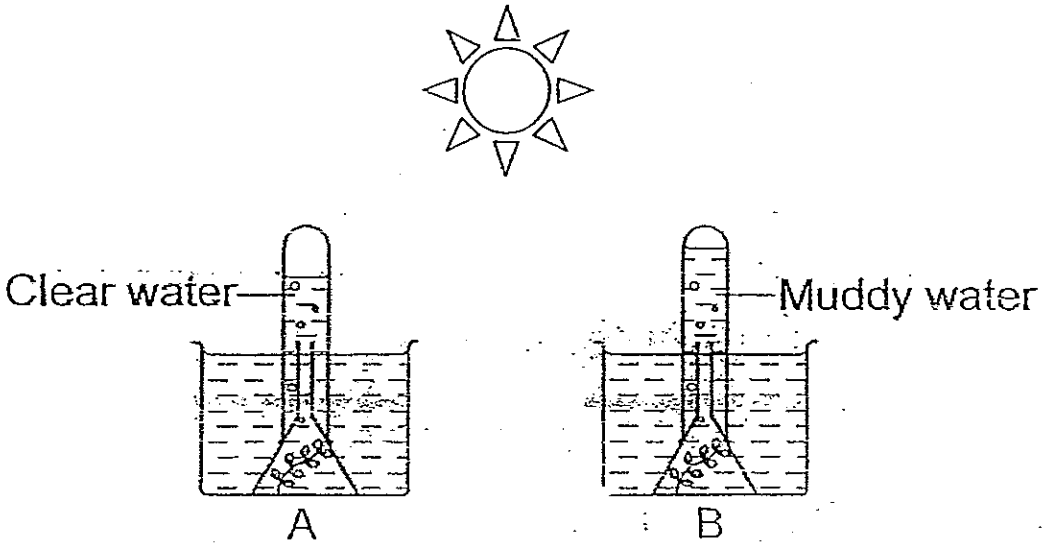
_____

(b) Suggest how Jenny can separate Materials **Y** and **Z** if 100g of the powdered form of **Y** and **Z** are mixed together in a beaker. [1]

_____

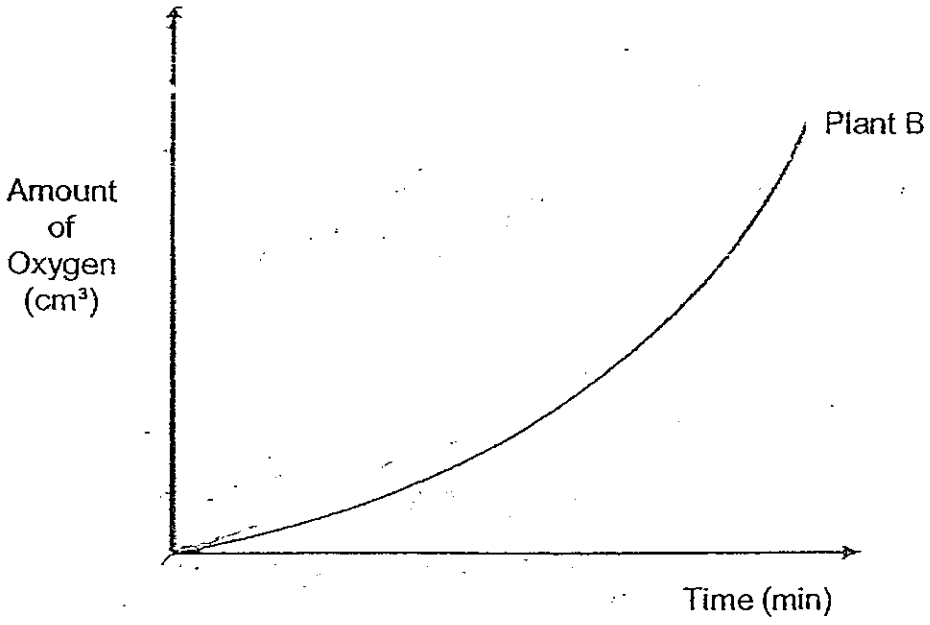
_____

40. Caroline set up an experiment to find out the effect of muddy water on the rate of photosynthesis in aquatic plants. Similar aquatic plants were placed in each beaker and the set-ups were placed under strong sunlight as shown below.



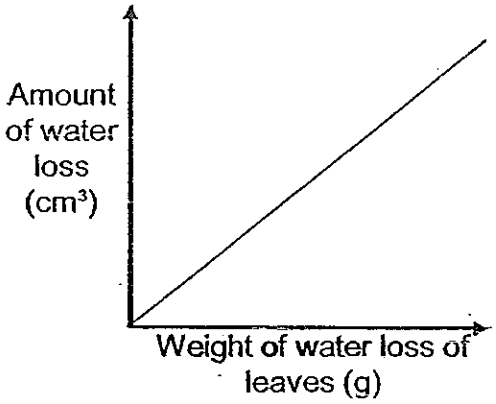
She measured the amount of oxygen that was collected in each test tube at regular intervals. She then drew a line graph for Plant B in the graph shown below.

Draw a line graph for Plant A below and label it 'Plant A'. [2]

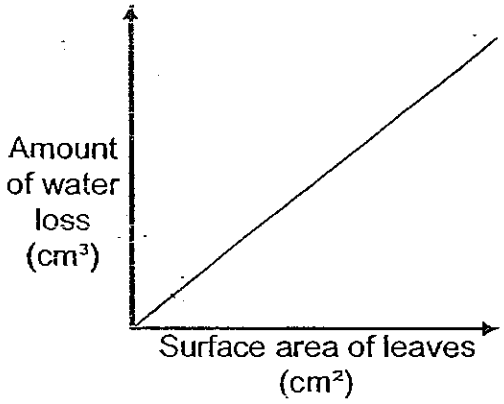


83

41. Study the two graphs below carefully. Graph **A** shows how the amount of water loss is related to the weight of water loss of leaves. Graph **B** shows how the amount of water loss is related to the surface area of leaves.



Graph A



Graph B

(a) **Using the information in Graphs A and B** explain how the surface area of leaves affects the weight of water loss in plants. [1]

_____

_____

(b) **Use only the information given in Graphs A and B** to explain how a cactus plant is able to minimize water loss and survive in very dry places. [1]

_____

_____

(c) The diagram below shows a plant.

Do you think this plant is able to survive in the same habitat as a cactus?
Give one reason for your answer. [1]

_____

_____

42. Leonard was given the following things to carry out an experiment :

2 different wooden blocks, X and Y

1 spring balance

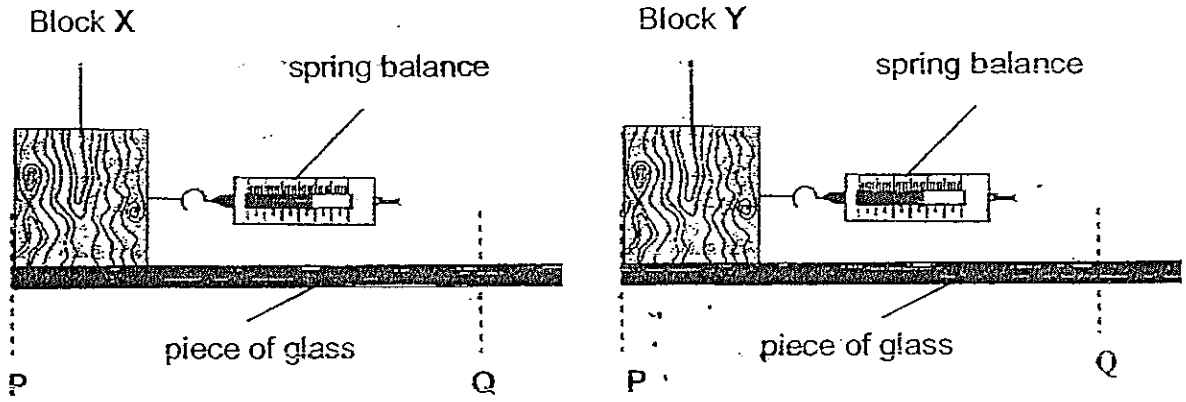
1 piece of glass measuring 2m by 1m

1 piece of wood measuring 2m by 1m

He wanted to find out how the type of surface affects the effort needed to move a wooden block over it from **P** to **Q**.

A force was applied on each of the wooden blocks, one at a time, to move them over a glass surface.

The forces needed to move the wooden blocks were measured and recorded.



Set-up A

Set-up B

Leonard's teacher, Mrs Lim, observed him carrying out his experiment and said that what he did was incorrect.

She instructed him to make one change each to Set-ups A and B.

(a) List the change Leonard had to do for each of the set-up. [2]

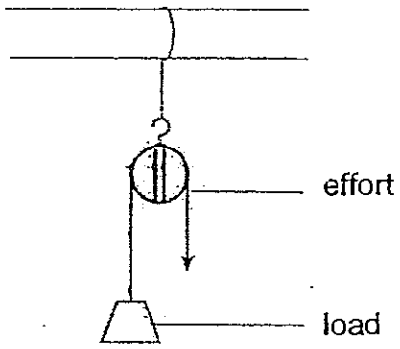
One change to be made in Set-up A	
One change to be made in Set-up B	

(b) He noticed that the wooden block required a greater force over the wooden surface. What can you infer from this result? [1]

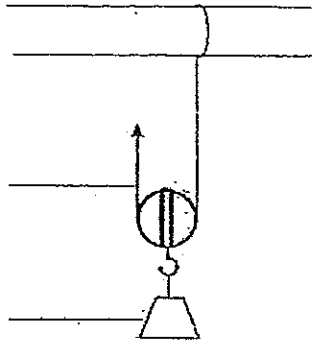
_____

_____

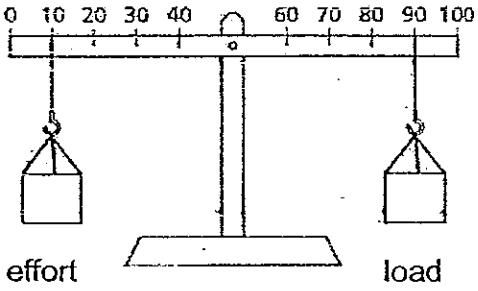
43. The diagram below shows three pulley systems and a lever.



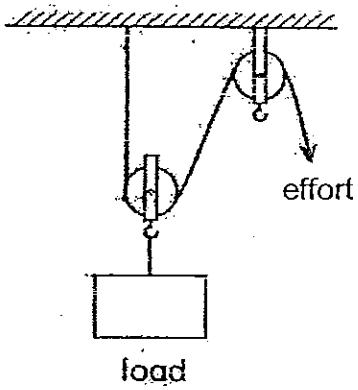
Fixed pulley



Movable pulley

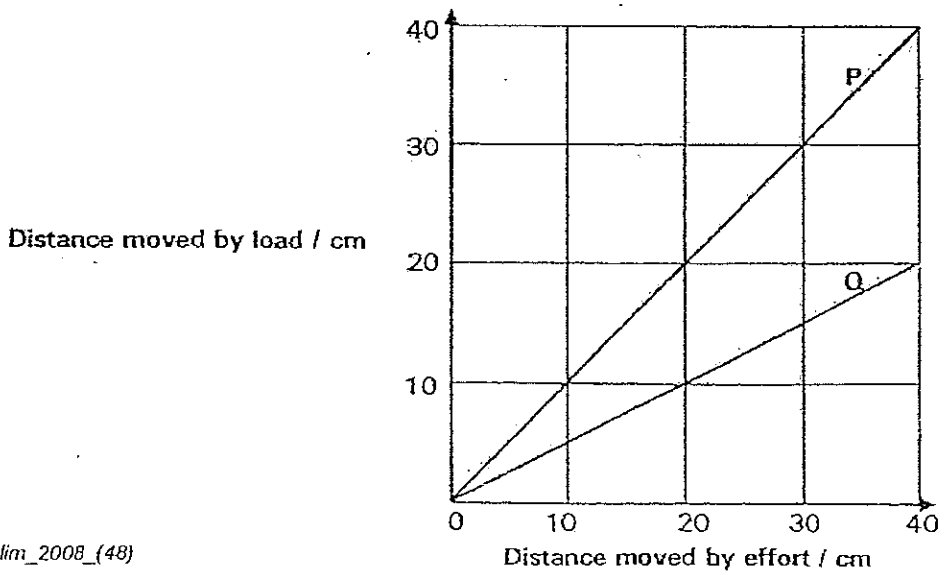


Lever



Fixed and movable pulley system

The graphs, **P** and **Q** below, show the relationship between the distance moved by the effort used and the distance moved by the load lifted.



(a) How does the distance moved by the effort affect the distance moved by the load for Graph **Q**? [1]

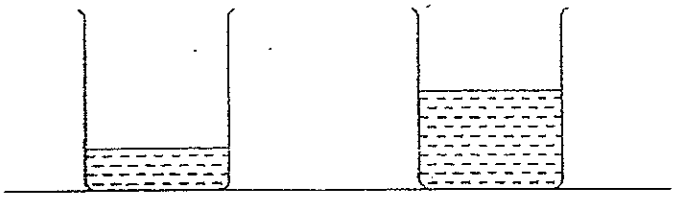
_____

_____

(b) **Use the information given above** to assess if the statements below are **'true'**, **'false'** or **'not possible to tell'**. Put a tick (√) in the correct box for each statement. [2]

Statement	True	False	Not possible to tell
Graph **P** cannot be used to show the relationship between the distance moved by the effort used and the distance moved by the load lifted for the lever system.			
Graph **P** can be used to show the relationship between the distance moved by the effort used and the distance moved by the load lifted for the lever and the fixed pulley systems.			
Graph **Q** can be used to show the relationship between the distance moved by the effort used and the distance moved by the load lifted for the combined fixed and movable pulley system.			
Graph **Q** can only be used to show the relationship between the distance moved by the effort used and the distance moved by the load lifted for the movable pulley system.			

44.



The diagram above shows two beakers, X and Y, which contain 60 ml and 120 ml of water respectively. Both beakers of water have been left in the Science Laboratory for at least an hour. The water in both beakers is at 29°C.

(a) Does the water in both beakers have the same amount of heat? Why? [1]

_____

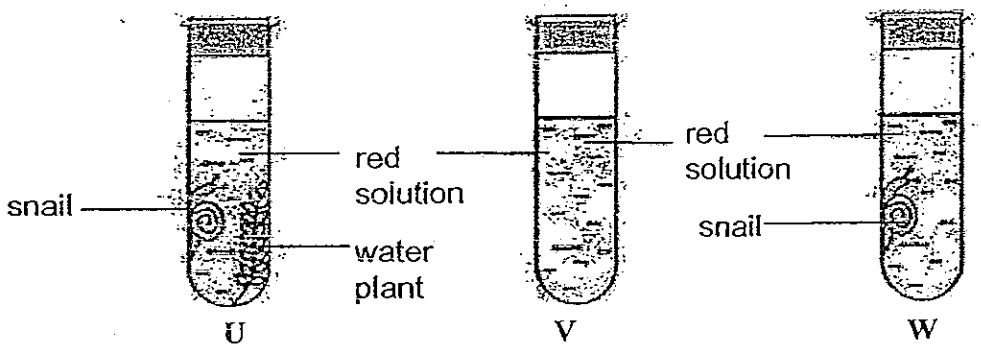
_____

(b) Compare the time taken to heat both beakers of water to boiling point. [1]

_____

_____

45. Three tubes **U**, **V** and **W** containing the same amount of red solution were set up as shown in the diagram below.



Tube **U** contained a snail and a water plant while Tube **W** contained a snail. These tubes were kept in darkness for 2 hours before they were left in the sunlight for another 2 hours.

When Tube U was kept in darkness for 2 hours, Gas **X** was produced which turned the red solution yellow. It then turned purple when it was left in the sunlight for another 2 hours.

Tube **V** remained unchanged throughout the experiment.

(a) What was Gas X? [1]

_____

_____

(b) What would happen to the red solution in Tube **W** after it was kept for 2 hours in darkness? [1]

_____

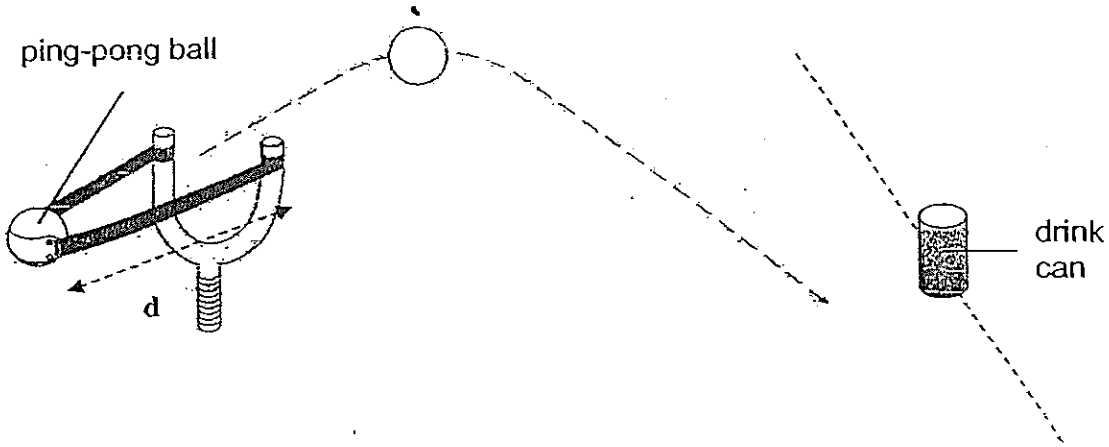
_____

(c) What would happen to the solution in Tube **W** after it was kept for another 2 hours in the sunlight? [1]

_____

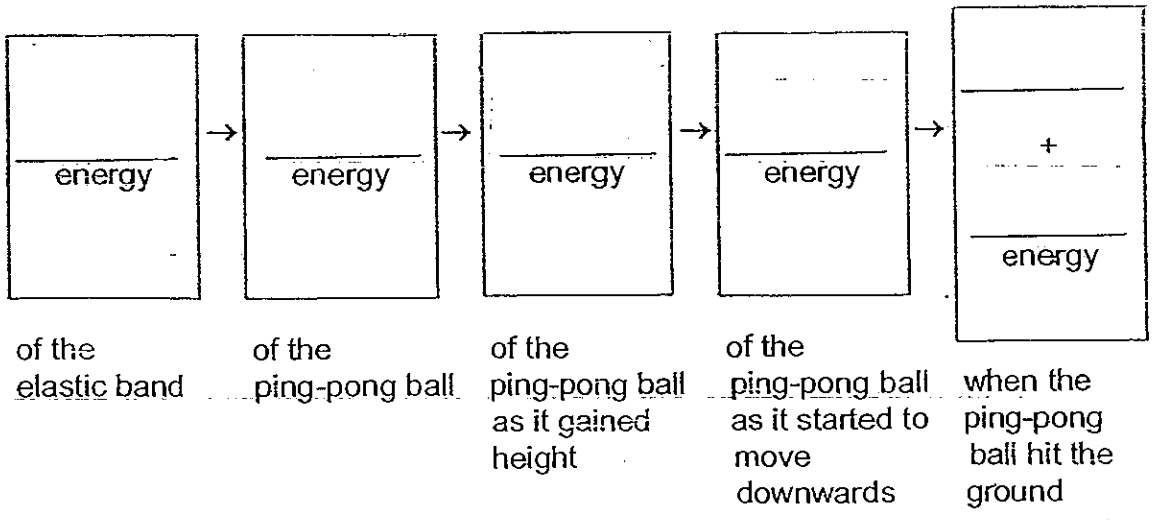
_____

46. Junyi placed a ping-pong ball against the elastic band of his catapult and pulled it backwards. He released the stretched elastic band to propel the ping-pong ball forward to hit a drink can placed in front of him in a game. The ping-pong ball was propelled upwards for a short distance before hitting the ground noisily missing the target. The path of the ping-pong ball is shown in the diagram below.



The letter '**d**' in the diagram represents the length of the elastic band that was stretched to propel the ping-pong ball forward.

(a) Given the above information, trace the energy changes of the action from **the time the elastic band was stretched to the time the ping-pong ball landed on the ground.** [1]



(b) Explain how the elastic spring force of the elastic band changes as the length of '**d**' increases. [1]

End of paper

Hokkien Primary School

Primary 6 Science SA2 (2008)

Answers Key

Qn no.	Ans
1	3
2	4
3	3
4	2
5	3
6	1
7	4
8	1
9	1
10	1

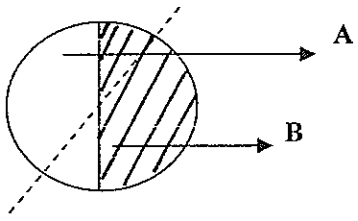
Qn no.	Ans
11	2
12	3
13	2
14	1
15	2
16	1
17	3
18	3
19	2
20	4

Qn no.	Ans
21	3
22	4
23	2
24	2
25	2
26	1
27	2
28	1
29	4
30	1

31a. The material used to make X is a better conductor of heat than that of Y.

31b. Metal is a good conductor of heat. The metal ruler helped to conduct heat away from the water.

32a.



32b. A : Night B : Day

33a. Water was changed to water vapour.

33b. He added ice cubes into the water

34a. 3 and 4

34b. Glucose

35a. X : Hot Tea Y : Ice Tea

35b. X : the hot water vapour of the hot tea rose and came into contact with to cool surface. It condensed into water droplets on the inner water of the bottle.

Y : the hot water vapour from the surrounding air came into contact with the cool surface.

36a. Batteries

36b. Add more batteries into the set-up.

37a. It was to find out what condition does the woodlice prefer.

37b. Woodlice prefer dark and damp condition.

37c. To ensure that the results of the experiment are reliable and consistent.

38a. The leaves in A lose only a little water and therefore the plant took in less water than the plant in B.

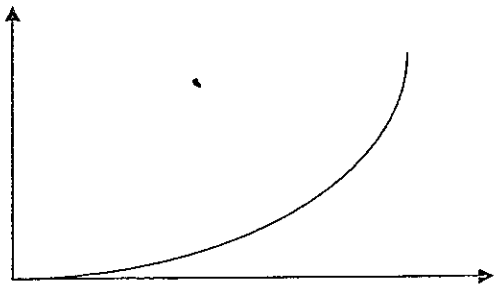
38b. To enable us to find the volume of water taken in by the plant after

38c. She could pour a layer of oil over the water to prevent evaporation in set-ups A and B.

39a. Both are not magnetic

39b. Hold a magnet on top of the beaker and the material that are attracted is Y.

40.



41a. It has needle-like leaves so that the surface area is reduced.

41b. The surface area of its leaves is small so the amount of water is lesser.

41c. No, this plant has big leaves and this will cause the plant to lose too much water in a habitat which is dry and hot.

42a. Set-up A : Use wooden block instead.
Set-up B : Move Y over a wooden surface.

42b Surface compared to glass. Thus, more friction is present when wooden block is moved across it.

43a. The distance moved up the effort is twice the distance moved by the load.

43b. False, True, True, False

44a. No. The water in beaker Y is more than the water in beaker X.

44b. The time take to heat beaker X to be boiling pant is faster than the time taken to heat beaker Y to its melting point.

45a. Carbon dioxide

45b. It would turn yellow.

45c. It would remain yellow.

46a. Potential energy ⟶ kinetic energy ⟶ potential energy ⟶ kinetic energy ⟶ source + heat energy

46b. The elastic spring force will increase.