



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 EXAMINATIONS  
TAO NAN • AI TONG • CHONGFU • NAN CHIAU • KONG HWA

2012

科学 SCIENCE

BOOKLET A

Date : 27 August 2012

Total Time for Booklets A and B: 1 h 45 min

INSTRUCTIONS TO CANDIDATES

- √ 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 booklet consists of 29 printed pages.

School : \_\_\_\_\_  
Name : \_\_\_\_\_ ( )  
Class : \_\_\_\_\_

TOTAL	60
-------	----

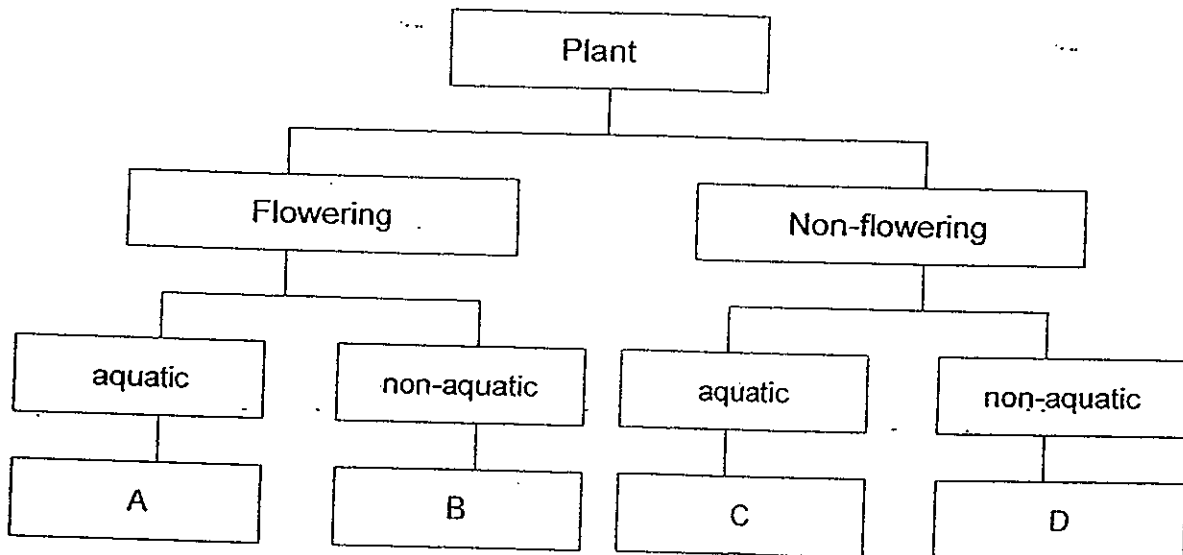
SECTION A (30 x 2 marks)

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 (OAS) provided.

1. The following table gives information on four plants, P, Q, R and S, based on two characteristics. A tick (✓) shows that the plant has the characteristic.

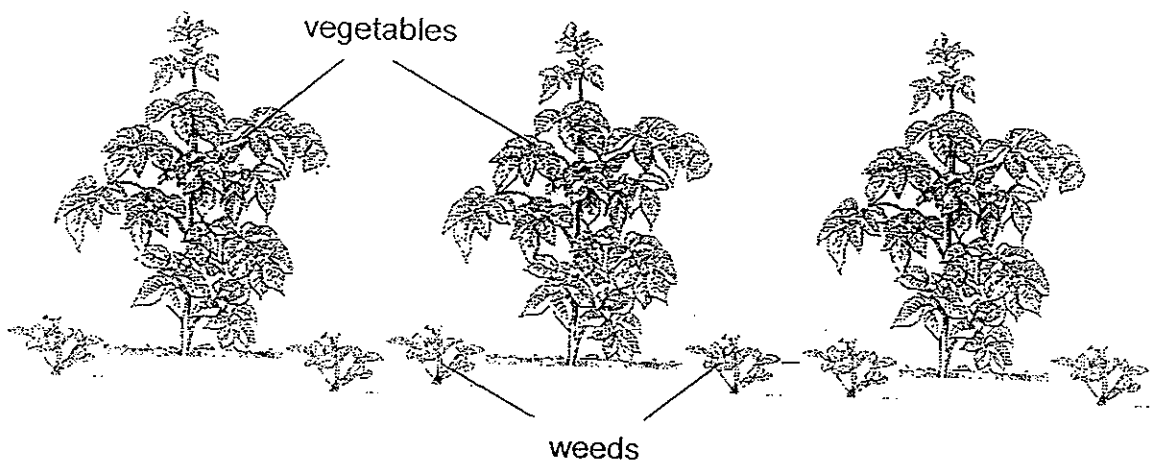
Plant	Characteristics	
	Bearfruit	Grow in water
P	✓	
Q		✓
R		
S	✓	✓

From the above information, where do plants P, Q, R and S belong to in the following classification chart?



	Plant P	Plant Q	Plant R	Plant S
(1)	C	A	D	B
(2)	D	B	A	C
(3)	B	C	D	A
(4)	D	A	B	C

2. The diagram below shows some vegetables and weeds growing together.

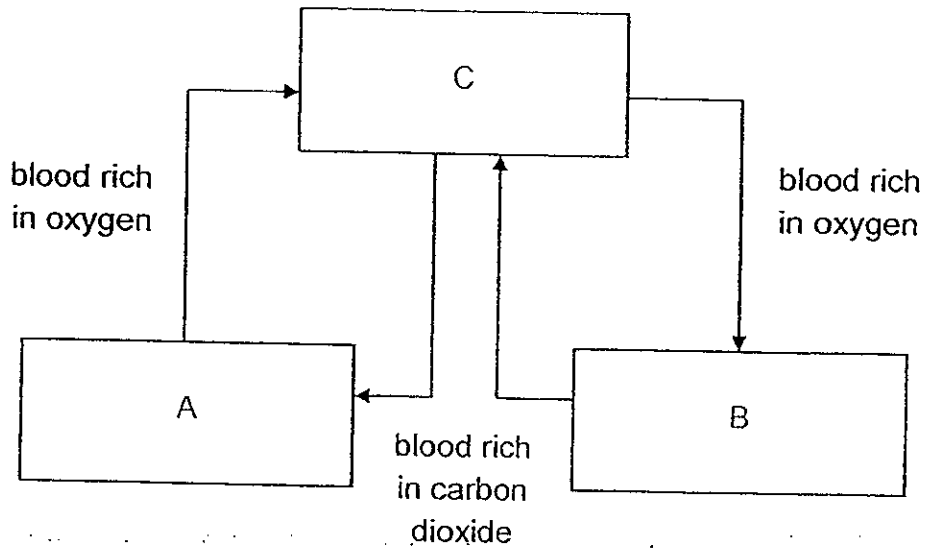


The vegetables have less of some of the following factors because of the weeds. What are they?

- A: air
- B: water
- C: space
- D: sunlight
- E: nutrients

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

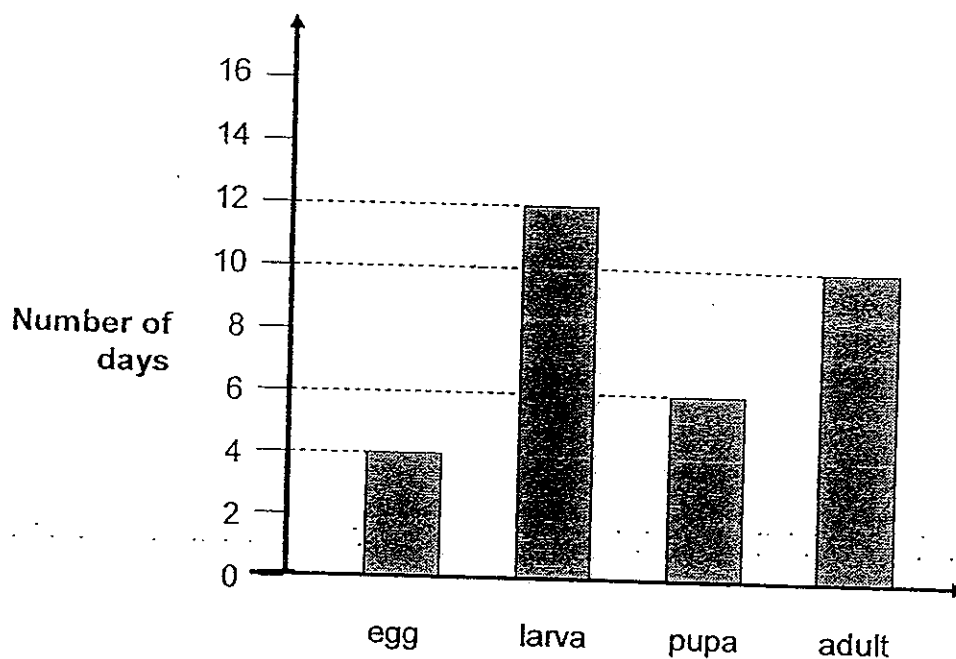
3. The diagram below shows a system in a human body.



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

	A	B	C
(1)	Lungs	Heart	Other parts of the body
(2)	Lungs	Other parts of the body	Heart
(3)	Heart	Other parts of the body	Lungs
(4)	Other parts of the body	Heart	Lungs

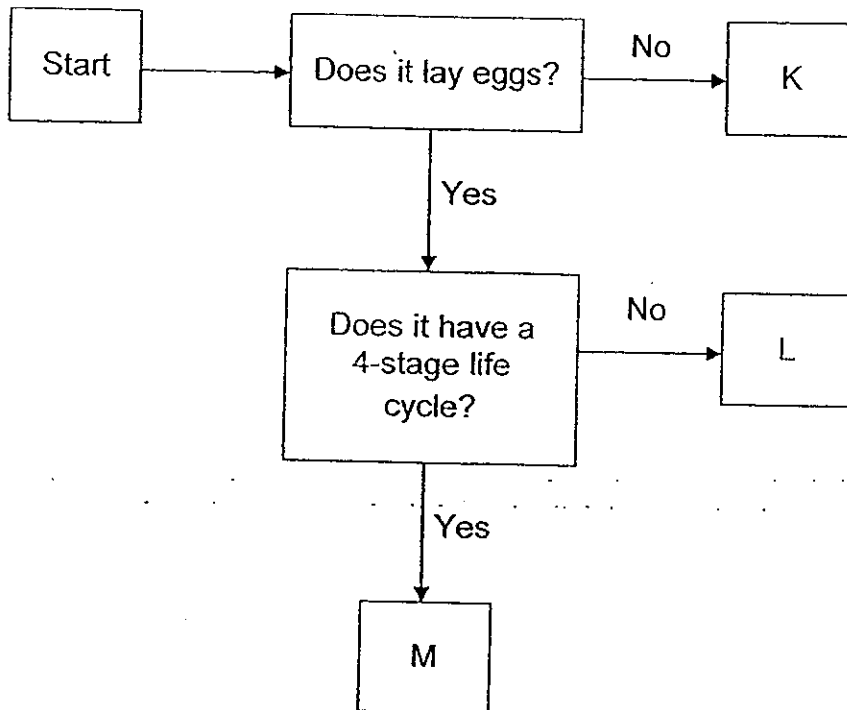
4. The graph below shows the stages in the life cycle of an insect and the length of time it remains at each stage of its life cycle.



How many days does the insect take to become an adult after the egg has hatched?

- (1) 6
- (2) 18
- (3) 22
- (4) 28

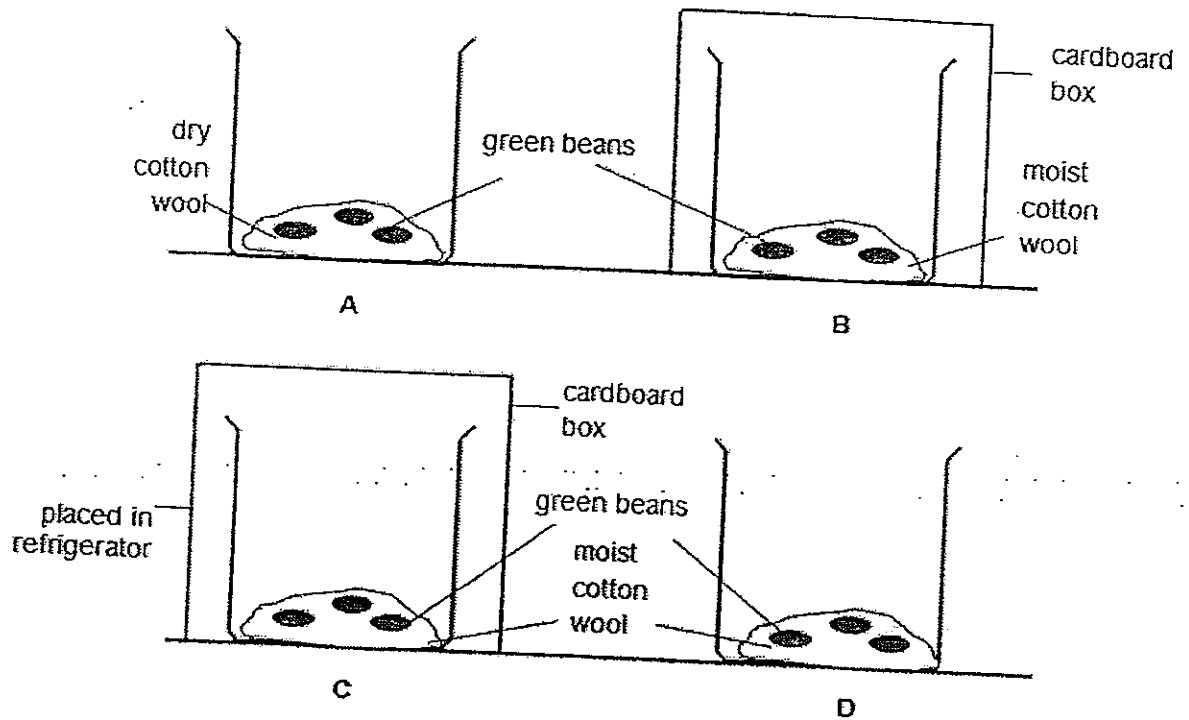
5. The flowchart below shows the characteristics of three animals, K, L and M.



Based on the above flowchart, which of the following statement(s) is/are definitely correct?

- A : K has a 3-stage life cycle
  - B : L lays eggs
  - C : M gives birth to young alive
- (1) A only
- (2) B only
- (3) B and C only
- (4) A, B and C

6. Cheryl conducted an experiment to find out the conditions needed for green beans to germinate. She set up the experiment with four containers, A, B, C and D. She placed three green beans in each of the four containers.



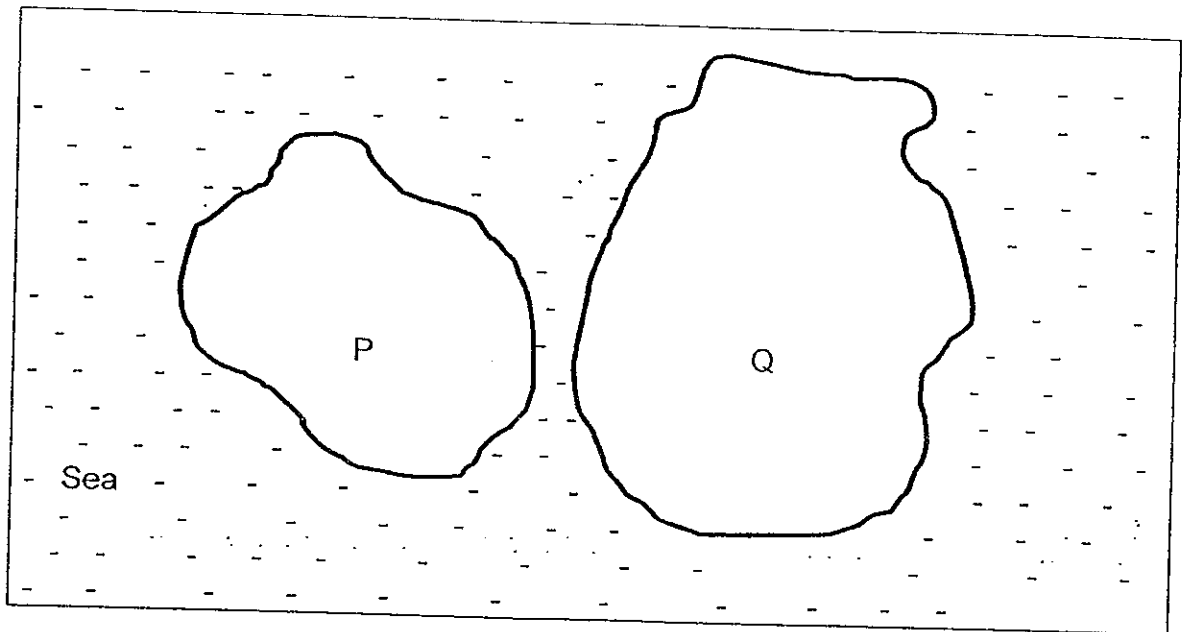
After four days, she observed that the green beans in containers B and D grew into young seedlings while those in containers A and C did not.

Which of the following conclusions can she make from her experiment?

- A : Light is necessary for the seedlings to develop.
- B : Water is needed for the green beans to germinate.
- C : Oxygen is needed for the green beans to grow into seedlings.
- D : Without the right temperature, the green beans will not germinate.

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

7. The diagram below shows two uninhabited islands, P and Q, which are surrounded by sea.



In 1999, four types of plants were found growing on Island P but none of these was found growing on Island Q.

Some characteristics of the fruits of the four plants found on Island P are shown in the table below.

Plant	Characteristics of the fruit
W	fibrous husk
X	sweet and juicy
Y	hair-like structures
Z	dry fruit wall

In 2011, new plants were found growing on Island Q. Scientists believe that they originated from Island P. Which plant(s) could this/these most likely be?

- (1) W only
- (2) X and Y only
- (3) W, X and Y only
- (4) X, Y and Z only



8. In a desert, road runners are spotted racing across the desert floor.



a road runner

Which of the following correctly explains how this behaviour helps the road runners withstand the heat from the hot sand in a desert habitat?

- (1) By running at a great speed across the hot desert floor, the road runners create wind resulting in less heat being felt by their feet.
- (2) As the road runners run quickly, the feet of the road runners leave the hot desert floor fast enough for heat to be gained and lost quickly.
- (3) As the road runners run quickly across the hot desert floor, the moving air cools down the heat between their feet and the hot desert floor.
- (4) The surface area in contact with the desert floor is reduced as the road runners alternate their feet when they run quickly across the hot sand.

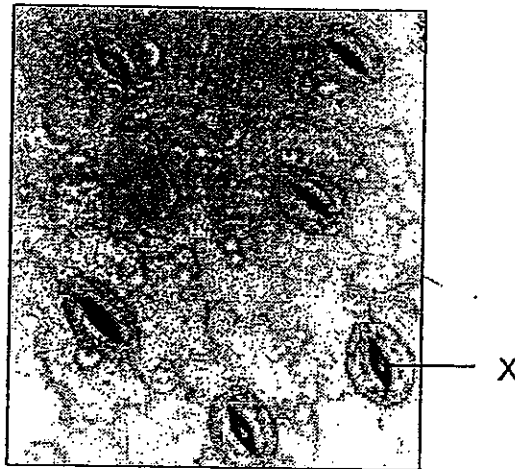
9. Jessica is a dancer.



As Jessica dances, her breathing rate changes because she needs more oxygen. Jessica's muscle cells produce carbon dioxide as she dances. Which of the following shows how the carbon dioxide is removed from Jessica's body?

- (1) muscle cells → bloodstream → windpipe → lungs → nose
- (2) muscle cells → windpipe → lungs → bloodstream → nose
- (3) muscle cells → bloodstream → lungs → windpipe → nose
- (4) muscle cells → windpipe → bloodstream → lungs → nose

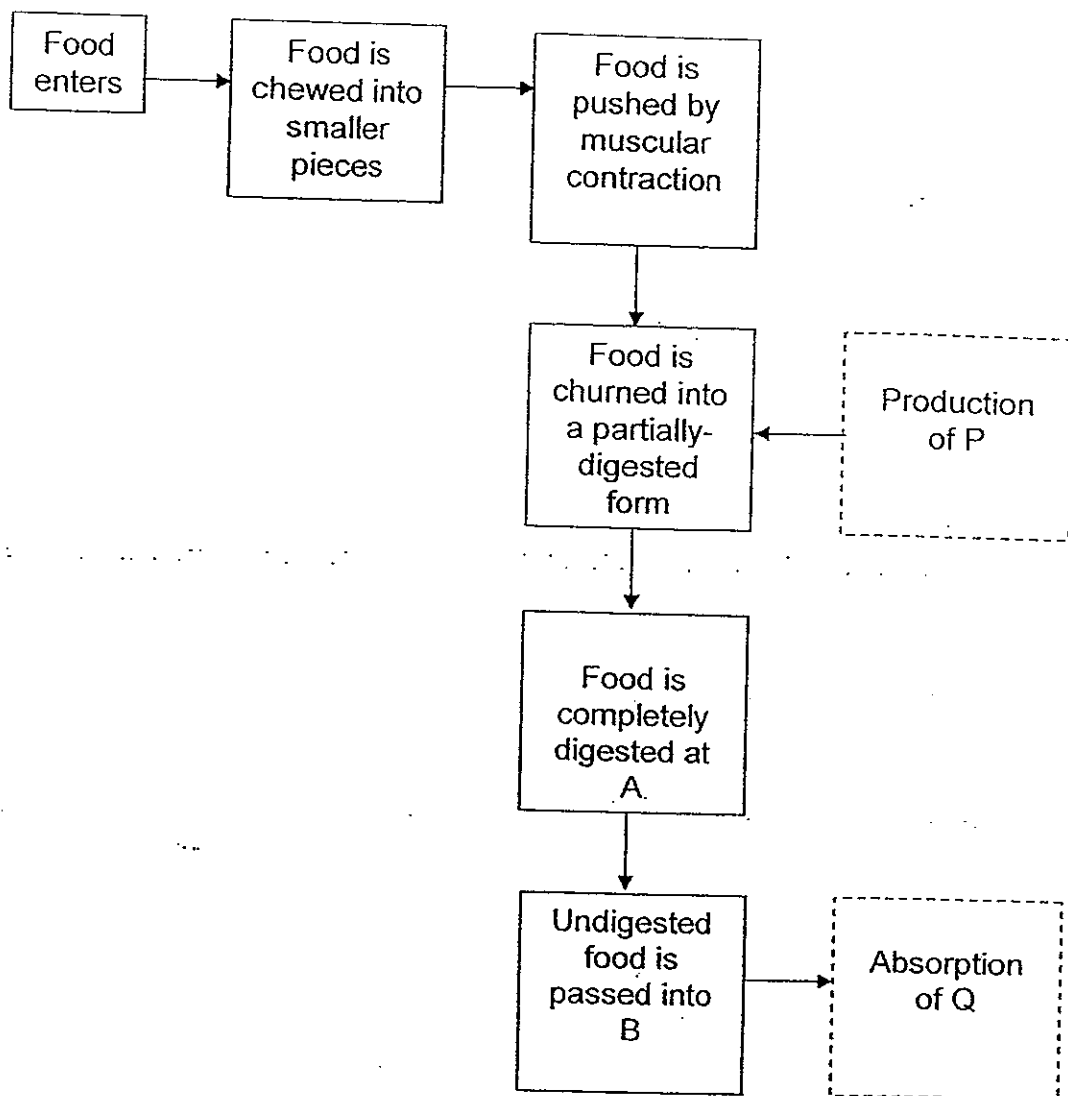
10. The diagram below shows a magnified view of the underside of a leaf observed under a microscope.



Which one of the following is true about the opening labelled X in the diagram?

- (1) It absorbs sunlight for the leaf to make food.
- (2) It transports food made in the leaf to all parts of the plant.
- (3) It enables the leaf to exchange gases with its surroundings.
- (4) It controls the amount of water vapour lost to the surroundings.

11. Study the flowchart of the human digestive system below.

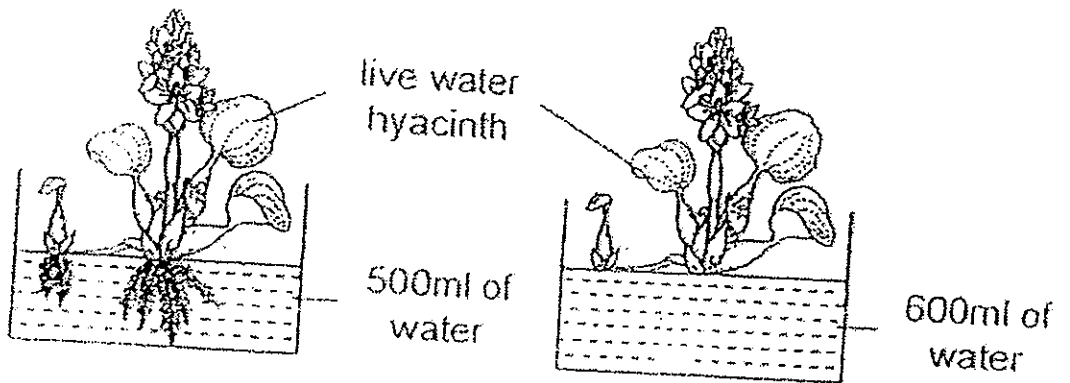


Based on the information given in the above flowchart, what are A, B, P and Q likely to be?

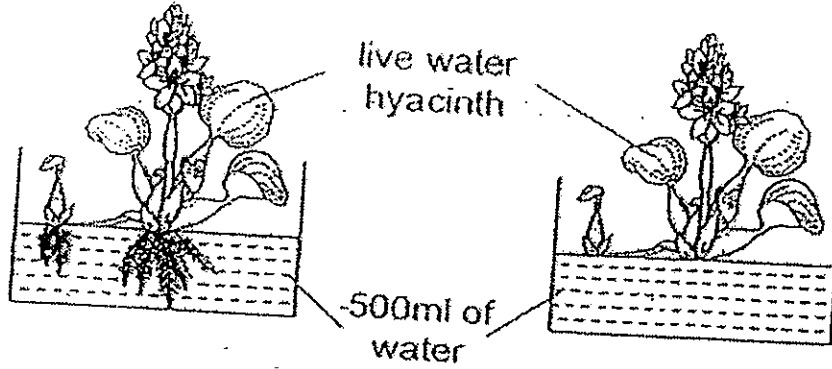
	A	B	P	Q
(1)	stomach	anus	saliva	nutrients
(2)	stomach	large intestine	digestive juice	water
(3)	small intestine	anus	saliva	nutrients
(4)	small intestine	large intestine	digestive juice	water

12. Mr Khoo wanted to carry out an investigation to show his pupils that plants take in water through their roots. Which of the following set-ups should he use for his investigation?

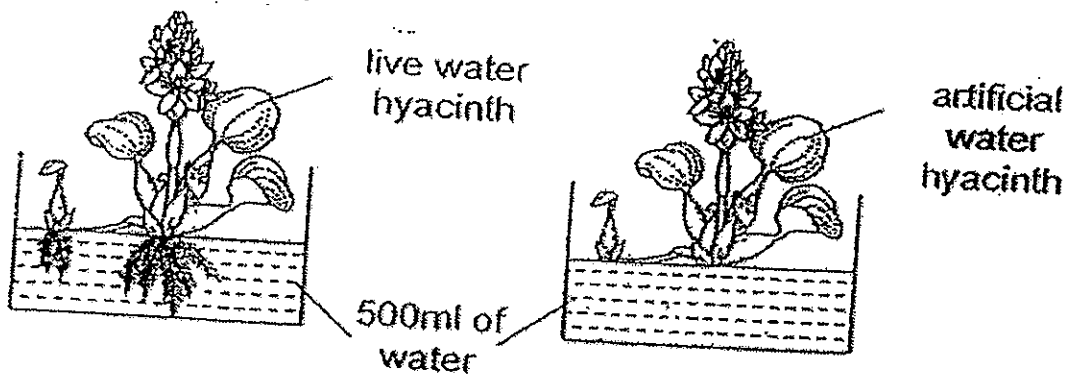
(1)



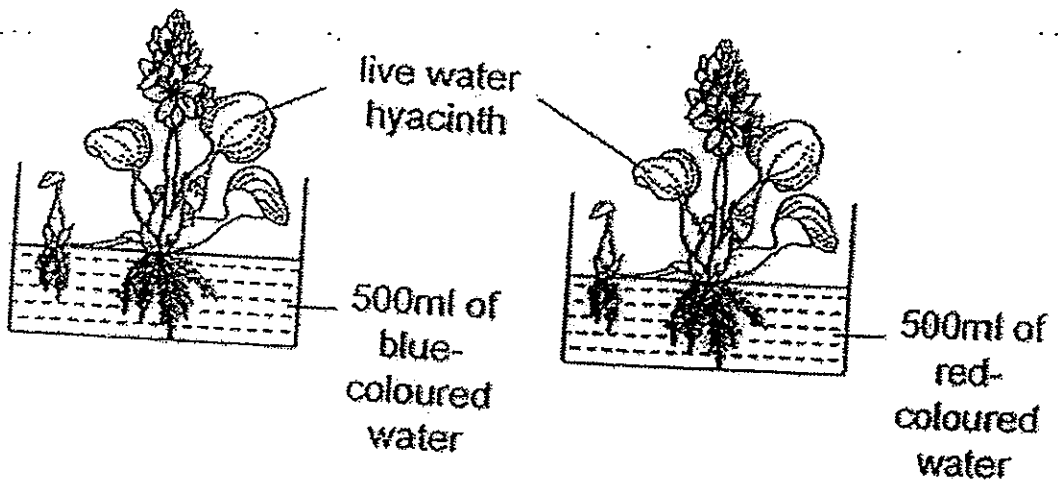
(2)



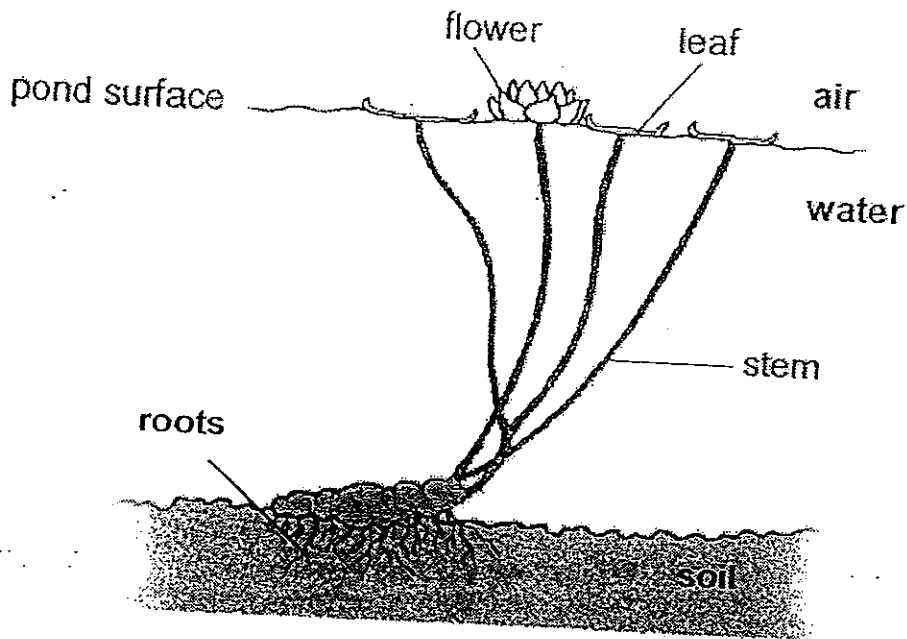
(3)



(4)



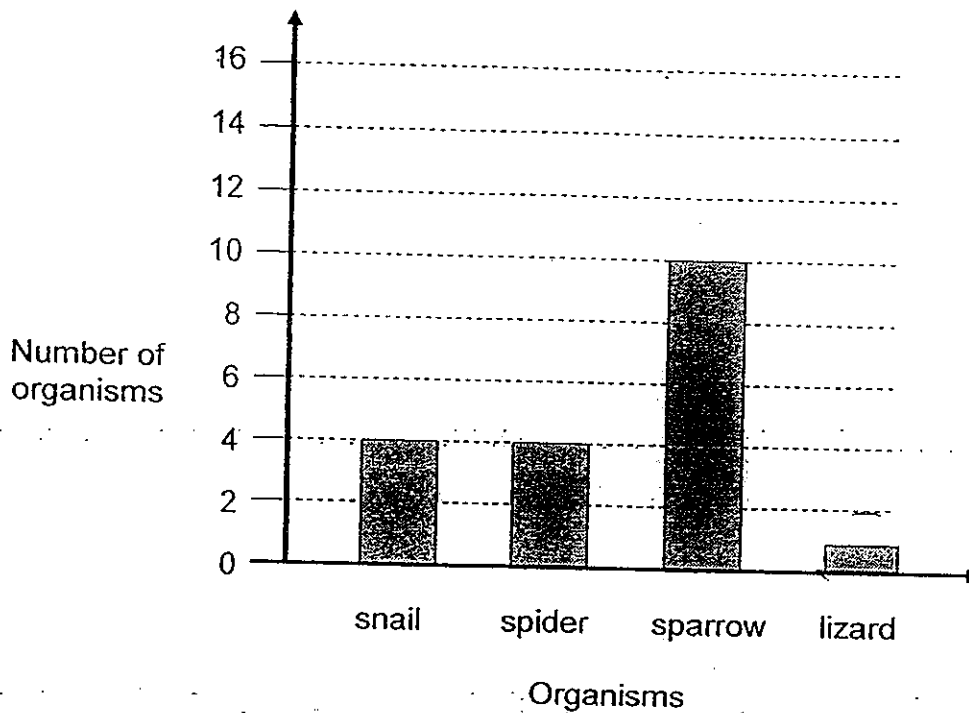
13. This diagram below shows a water lily plant growing in a pond.



Water lilies do not grow well in moving water but thrive well in a pond. Which of the following best explains why they are unable to do so?

- (1) There is less dissolved oxygen in moving water.
- (2) The roots are not long enough to hold the plants firmly to the soil.
- (3) The roots are spreading and thus are not able to hold the plants firmly to the soil.
- (4) The stems of the plants have air sacs to enable the leaves and flowers to be positioned above the water.

14. Desmond observed some organisms found on a plant over a period of time. He counted the number of each type of organisms he found on the plant and then recorded the results in the graph below.



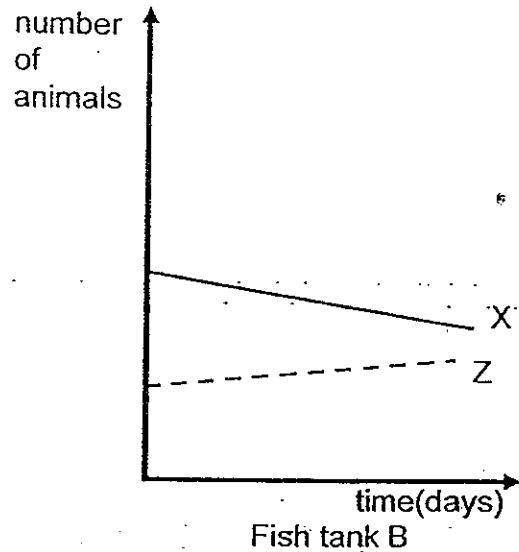
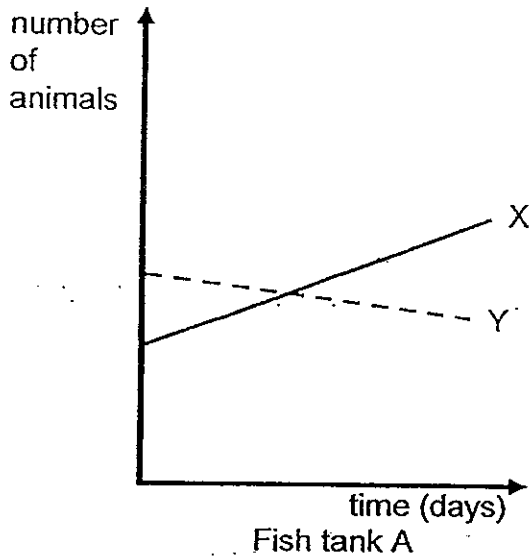
Based on the data recorded in his graph, which of the following statements is/are definitely correct?

- A: The plant forms a community.
- B: There are four types of spiders on the plant.
- C: The plant is the habitat of the organisms.
- D: There is a total of 19 populations of organisms on the plant.
- E: There are at least four populations of animals living on the plant.

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

15. Patricia collected three different types of animals, X, Y and Z, from a pond and put them into two fish tanks, A and B. She put animals X and Y into fish tank A and animals X and Z into fish tank B. She also put in the same amount of hydrilla plants into both fish tanks.

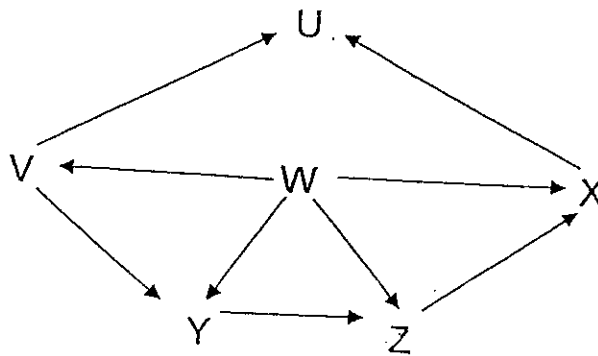
She counted the number of the three animals in each fish tank every day for a week and plotted her findings in the graphs below. She did not notice any dead animals in both fish tanks.



From the information given in the above two graphs, which of the following correctly shows the relationship between animals X, Y and Z?

- (1) Plant → X → Y → Z
- (2) Plant → Y → X → Z
- (3) Plant → Z → X → Y
- (4) Plant → Z → Y → X

16. Study the food web shown below.



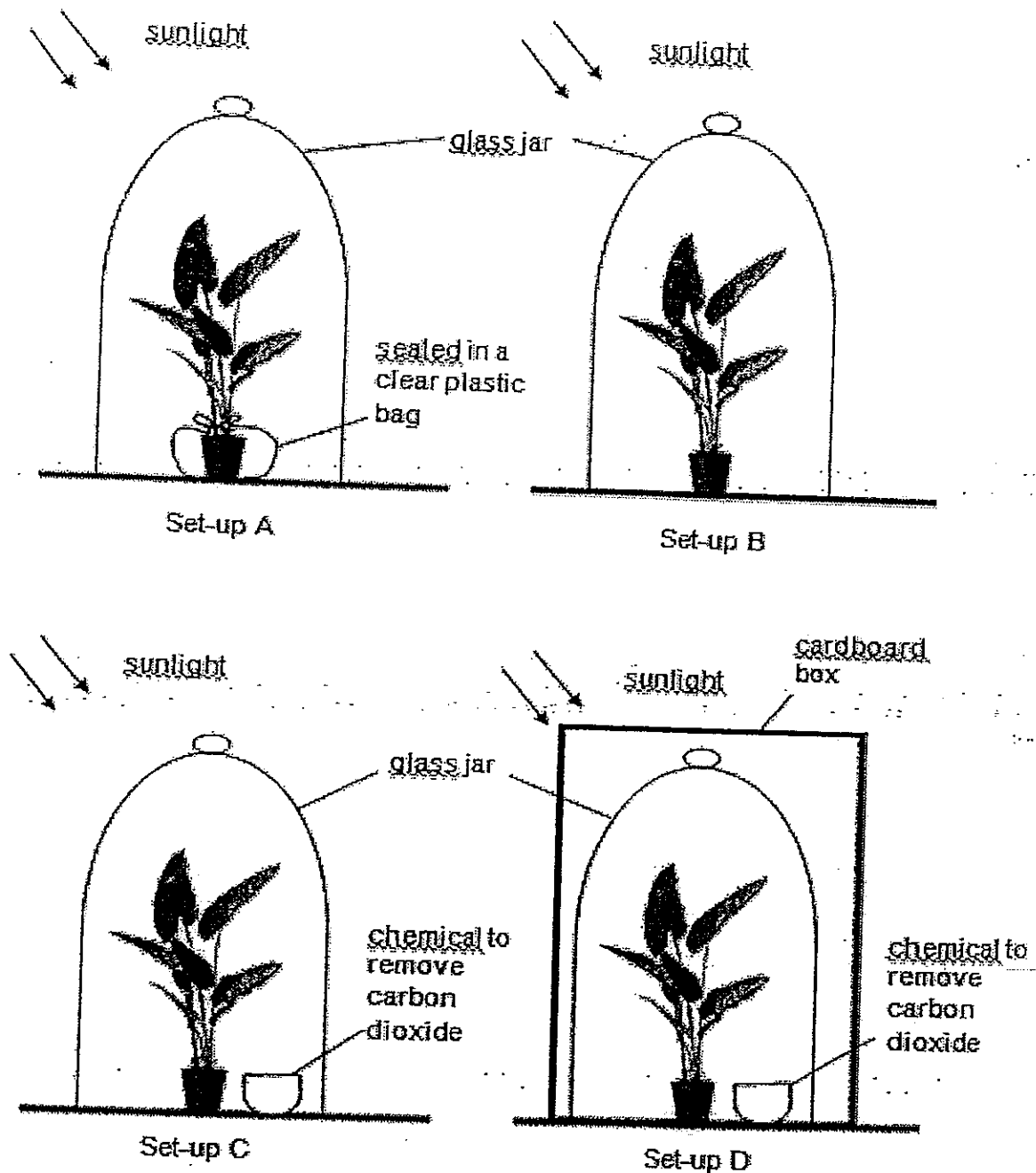
Which of the following statements are definitely true about the food web given above?

- A : Organism U is an animal-eater.
- B : Organism Z is a plant-and-animal eater.
- C : There are five food chains in the food web.
- D : A decrease in the number of W will also result in a decrease in the number of V, X and Y.

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



17. Alex wanted to show that carbon dioxide is needed for photosynthesis to take place. He set up the experiment using four similar plants as shown in the diagram below.



Which two set-ups should Alex use for his investigation?

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

18. The table below shows the states of four substances, P, Q, R and S, at three different temperatures.

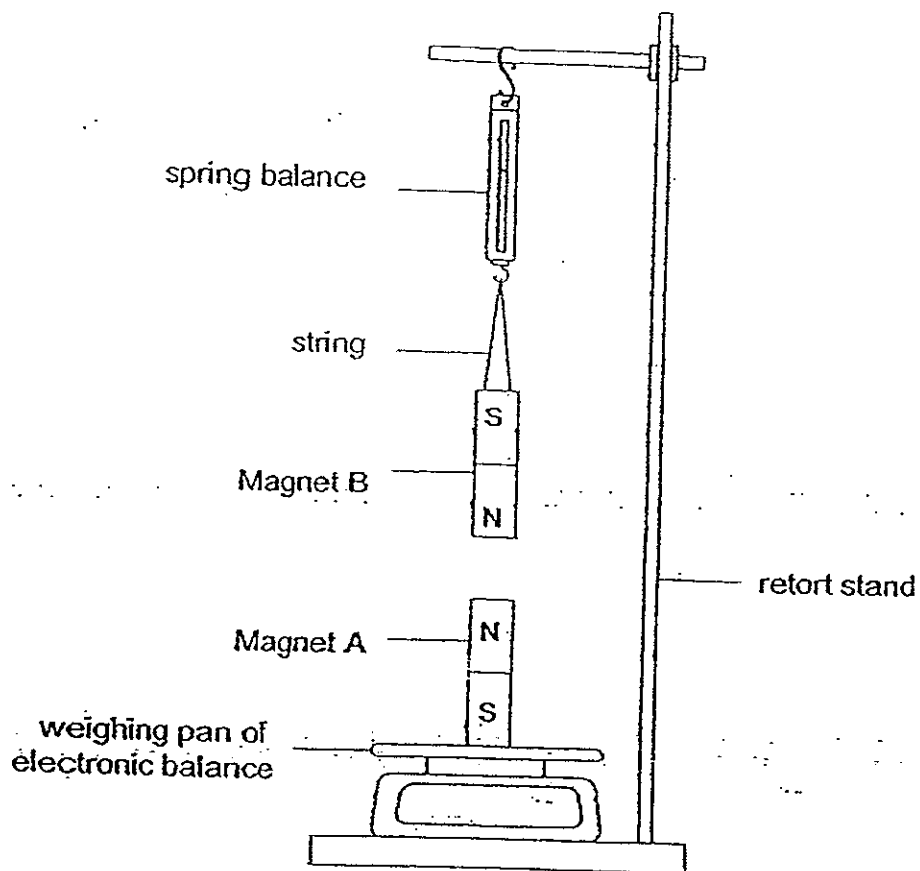
Substance	State of substance at		
	0°C	30°C	100°C
P	solid	solid	solid
Q	gas	gas	gas
R	solid	solid	liquid
S	solid	liquid	liquid

Which of the following statements are definitely correct?

- A: Substance P has the highest freezing point.
- B: Substance Q has the lowest boiling point.
- C: Substance R boils at 100°C.
- D: Substance S freezes at 0°C.

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

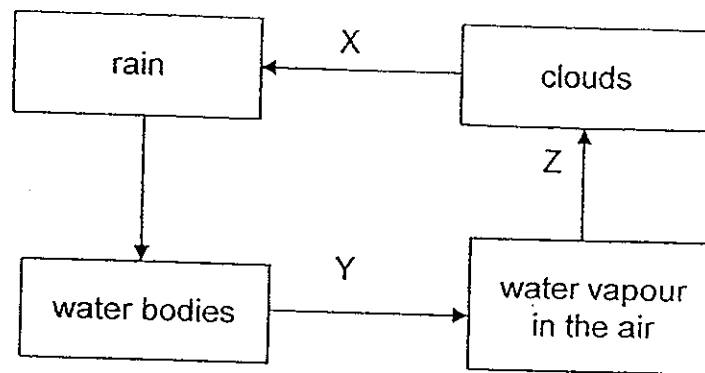
19. Gary set up an experiment using two similar magnets as shown in the diagram below. Magnet A was placed on a very sensitive electronic balance while Magnet B was suspended from a spring balance.



Which of the following predictions about the readings on the electronic balance and spring balance is correct when Magnet A is inverted with the South-pole facing the North-pole of Magnet B?

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

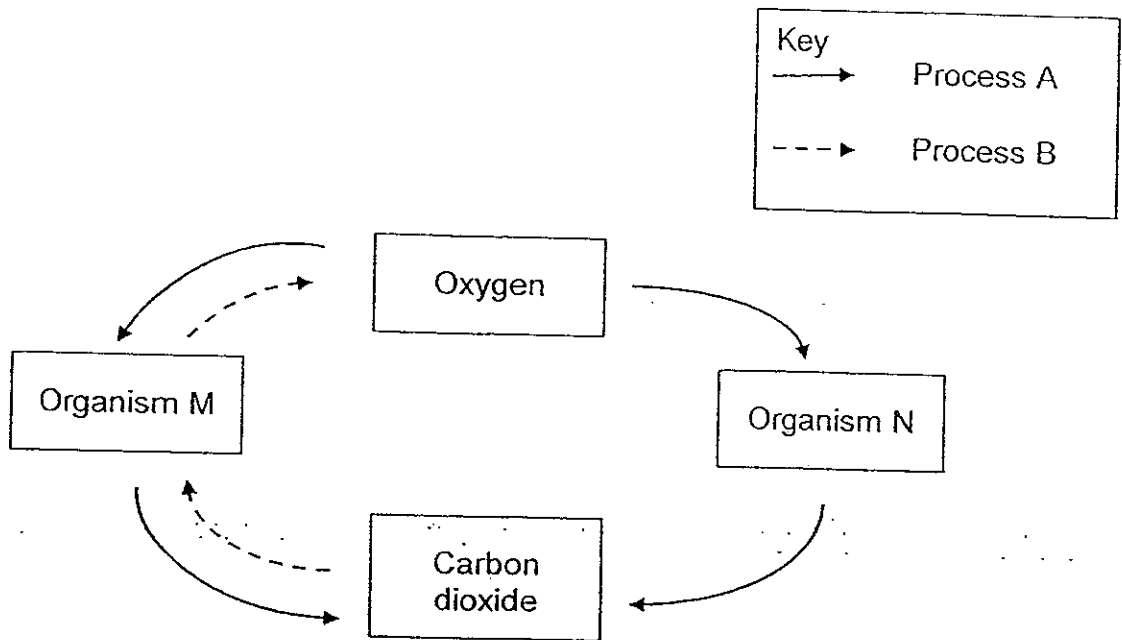
20. The diagram below shows the water cycle. X, Y and Z represent the processes taking place at each stage of the cycle.



Which one of the following correctly indicates what takes place at X, Y and Z?

	X	Y	Z
(1)	Change of state	Heat is gained by the water.	Heat is gained by the water vapour.
(2)	Change of state	Heat is lost by the water.	Heat is lost by the water vapour.
(3)	No change of state	Heat is lost by the water.	Heat is gained by the water vapour.
(4)	No change of state	Heat is gained by the water.	Heat is lost by the water vapour.

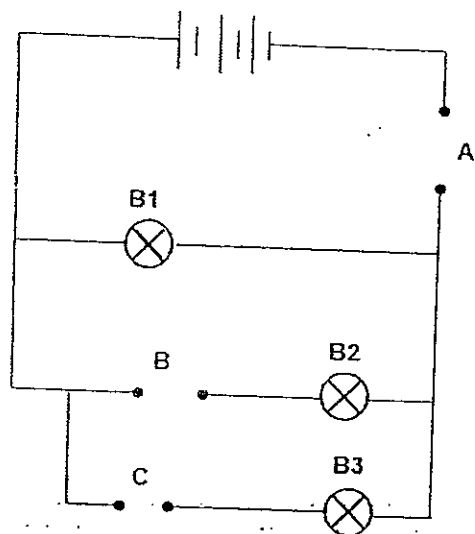
21. The diagram below shows how living things exchange gases with the environment.



Which one of the following statements is definitely incorrect?

- (1) Organism M could be a plant.
- (2) Process B takes place all the time.
- (3) Water is needed for Process B to take place.
- (4) Water is produced during Process A.

22. Gordon had three rods, X, Y and Z, made of different materials. He tested their electrical conductivity by placing them at positions A, B and C as shown in the circuit below.



The results of the experiment were recorded in the table below.

Position	A	B	C
Rod	X	Y	Z
Bulb	B1	B2	B3
Does the bulb light up?	Yes	No	Yes

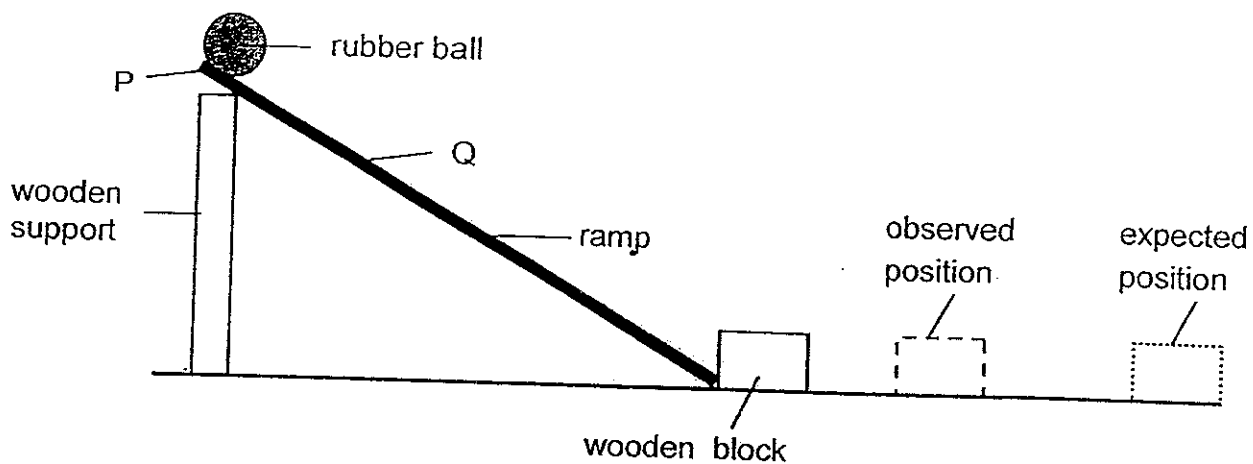
He then repeated the experiment by placing the rods at different positions as shown in the table below.

Position	A	B	C
Rod	Y	Z	X

Which one of the following correctly shows what Gordon would observe?

	B1	B2	B3
(1)	Unlit	Unlit	Unlit
(2)	Lit	Lit	Lit
(3)	Lit	Unlit	Lit
(4)	Lit	Lit	Unlit

23. Angelina carried out an experiment as shown below.

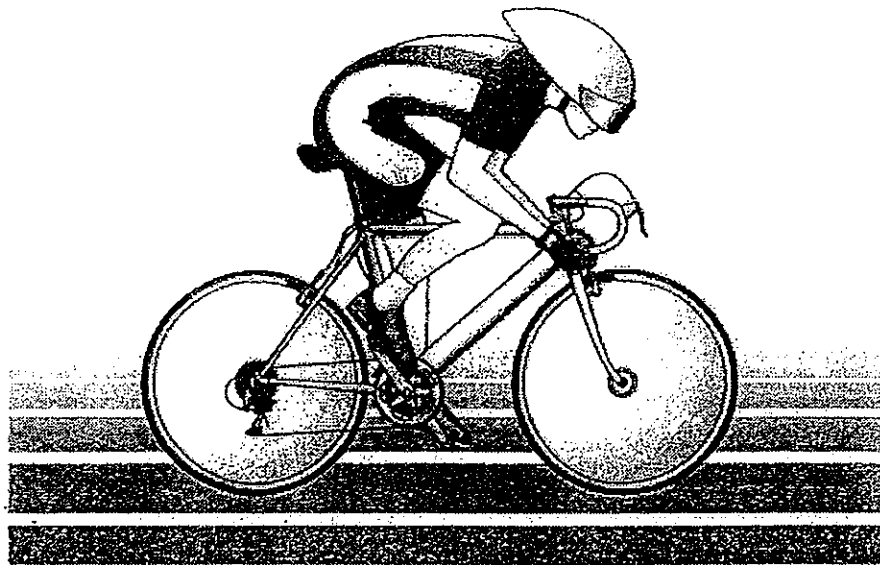


When she released the rubber ball from Position P on the ramp, the wooden block did not move as far as she had expected. Which of the following changes would allow the block to reach the expected position?

- A: Use a ball with a greater mass.
- B: Use a ramp with a rougher surface.
- C: Release the rubber ball from Position Q.
- D: Lower the height of the wooden support.

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

24. Susan crouched down over the handle bars of her bicycle as shown in the diagram below while competing in a race.

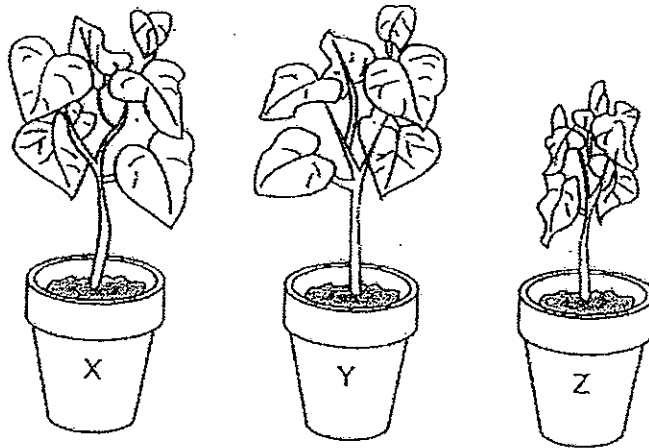


Which of the following correctly explains why crouching down over the handle bars helped her to move more quickly forward?

- (1) Gravitational force was reduced because the body was lowered.
- (2) Body weight was reduced as energy was converted to heat and sound.
- (3) Air resistance against her body was reduced as she streamlined her body.
- (4) Greater force was exerted to the front wheel to increase friction between the wheel and the ground.



25. Three similar healthy plants, X, Y and Z, were selected for an experiment. The diagram below shows the results obtained at the end of six weeks.

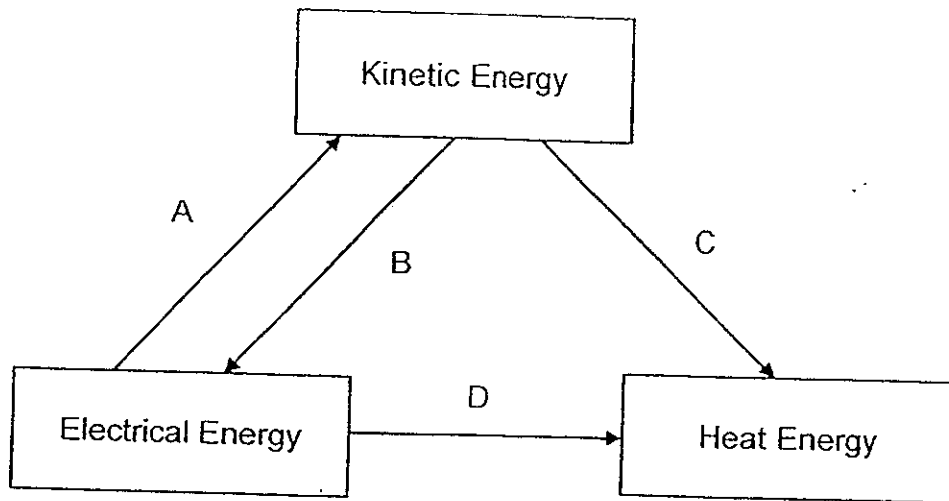


Which of the following could probably explain why Plant Z was different in its appearance from plants X and Y at the end of the experiment?

- A: It was given a different type of soil.
- B: It received a different amount of light.
- C: It was given a different amount of soil.
- D: It received a different amount of water.

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

26. The diagram below shows how energy can be converted from one form to another.

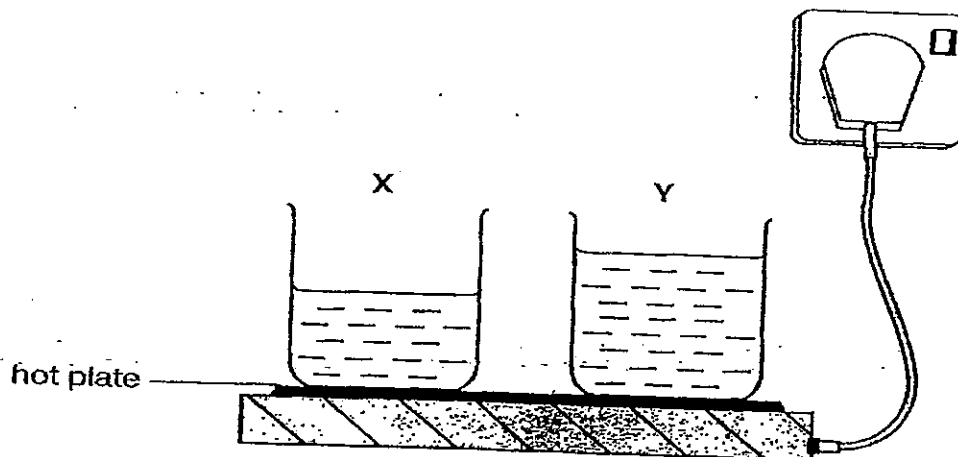


Which set of activities best represents the conversion of energy as shown above?

	A	B	C	D
(1)	Turning a wind turbine	Rubbing your hands together	Using an electric iron	Using an electric motor
(2)	Rubbing your hands together	Using an electric iron	Using an electric motor	Turning a wind turbine
(3)	Using an electric iron	Using an electric motor	Turning a wind turbine	Rubbing your hands together
(4)	Using an electric motor	Turning a wind turbine	Rubbing your hands together	Using an electric iron

27. Study the diagram below carefully.  
Delvin uses a hot plate to heat two beakers of tap water, X and Y, at the same time.

	Beaker X	Beaker Y
Volume of water (ml)	80	100
Temperature of water before heating ( $^{\circ}\text{C}$ )	25	25

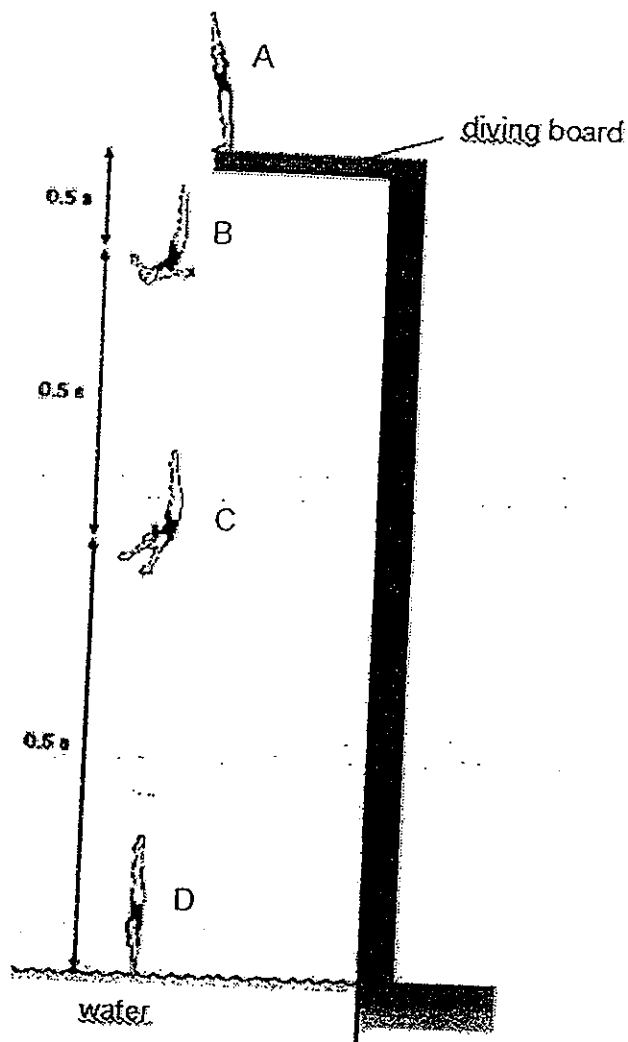


Which of the following statements about the above experiment are true?

- A: Heat energy travels from the hot plate to the water in the beakers.
- B: Electrical energy is changed to heat energy when the circuit is closed.
- C: Both beakers of water have the same amount of heat energy before they are heated.
- D: More heat energy is needed to boil the water in Beaker Y than the water in Beaker X.

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

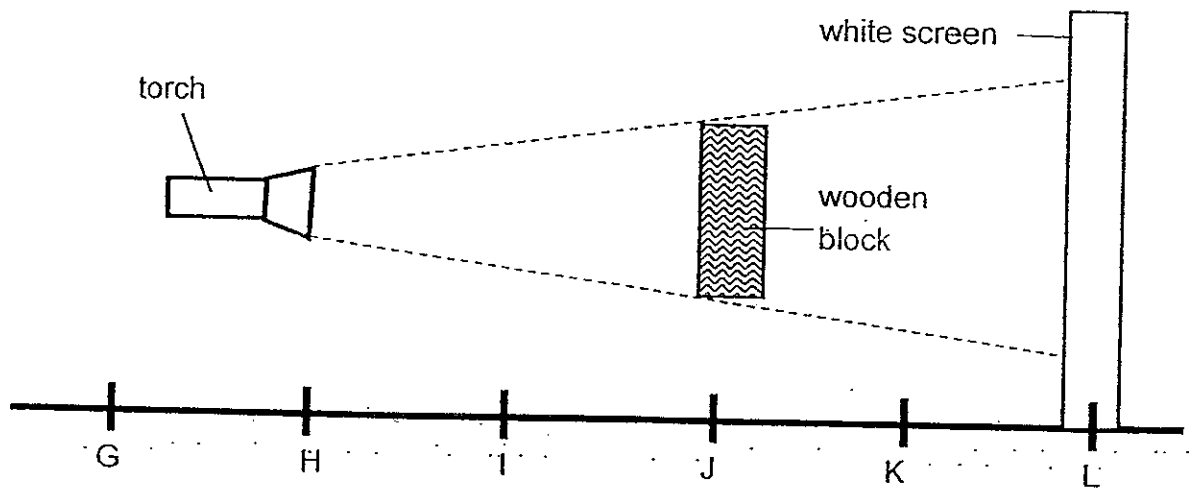
28. The diagram below shows Julie diving into a swimming pool from the diving board. As she dives downwards, gravitational potential energy is converted to kinetic energy.



Which of the following correctly describes how the kinetic energy of Julie changes from Stage A to Stage D of her dive?

	A	B	C	D
(1)	at its maximum	decreasing	decreasing	decreasing
(2)	at its minimum	increasing	increasing	increasing
(3)	at its minimum	increasing	increasing	at its maximum
(4)	at its maximum	decreasing	decreasing	at its minimum

29. Steven switched on a torch and shone it from Position H at a wooden block positioned at J as shown in the diagram below. A shadow was cast on a white screen held in place at Position L.



At which positions, G, H, I, J and K, should the torch and the wooden block be placed respectively so as to obtain a smaller shadow on the screen than before?

	Position of torch	Position of wooden block
A	G	J
B	H	K
C	I	J
D	J	K

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

30. Sally classified the energy that the following objects possess into three groups, P, Q and R, such that there were exactly two objects in each group.

- a bottle of petrol
- a tub of ice cream
- moving water in a river
- a compressed spring in a toy
- a rolling ball along a flat surface
- a stretched rubber band in a catapult

Which of the following correctly represents the most likely headings for groups P, Q and R?

	P	Q	R
(1)	Chemical potential energy	Sound energy	Kinetic energy
(2)	Gravitational potential energy	Elastic potential energy	Heat energy
(3)	Heat energy	Gravitational potential energy	Sound energy
(4)	Chemical potential energy	Elastic potential energy	Kinetic 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 EXAMINATIONS  
TAO NAN • AI TONG • CHONGFU • NAN CHIAU • KONG HWA

2012  
科学 SCIENCE  
BOOKLET B

Date : 27 August 2012

Total Time for Booklets A and B: 1 h 45 min

INSTRUCTIONS TO CANDIDATES

- √ Do not open this booklet until you are told to do so.
- √ Follow all instructions carefully.
- √ Answer all questions.

This booklet consists of 21 printed pages.

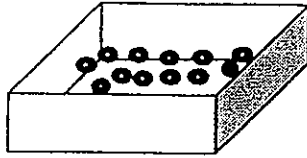
School : \_\_\_\_\_  
Name : \_\_\_\_\_ ( )  
Class : \_\_\_\_\_

TOTAL	40
-------	----

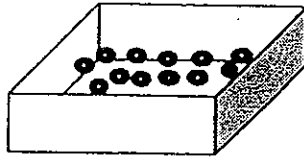
SECTION B ( 40 marks )

Write your answers to questions 31 to 44 in the spaces provided.

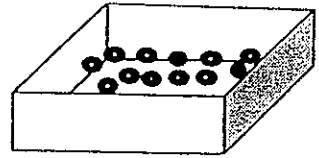
31. Two pupils planted an equal number of similar seeds in 3 different trays at each temperature as shown below. The seeds were provided the same amount of sunlight, the same type of garden soil and watered with the same amount of water daily for six days.



Tray A  
5°C



Tray B  
15°C



Tray C  
25°C

Their results are shown in the table.

Tray	Temperature (°C)	Total number of seeds germinated					
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
A	5	0	0	0	0	1	1
B	15	0	0	0	1	5	9
C	25	0	2	8	13	17	20

- (a) What was the aim of their experiment?

[1]

---



---

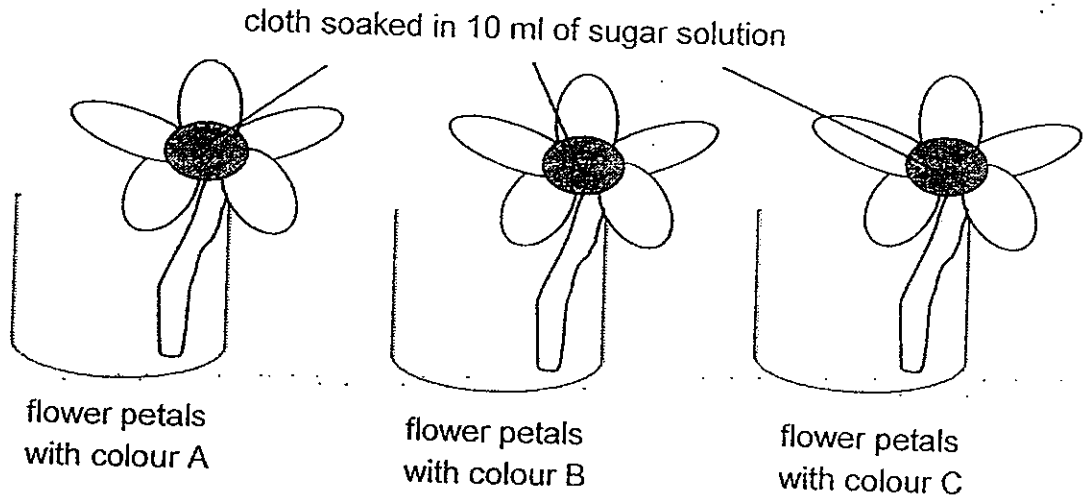
- (b) Based on the results in the table above, put a tick (✓) to state whether each conclusion below is true, false or not possible to tell.

[2]

Conclusion	True	False	Not possible to tell
The earliest germination was observed in seeds placed at 25°C.			
All types of seeds would germinate best at 25°C.			
5°C was too cold for seeds to germinate.			
Seeds would not germinate above 25 °C.			



32. Muthu wanted to find out if the number of butterflies landing on flowers was affected by the colour of the flowers. He made three identical flowers out of the same type of paper but of three different colours. He attached a ball of cloth soaked in 10 ml of sugar solution to the middle of each of the three flowers as shown in the diagram below.



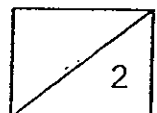
Muthu placed the three flowers in the garden and counted the number of butterflies that landed on each flower over a period of four hours.

- (a) How did using the same amount of sugar solution in the experiment help to ensure a fair test? [1]

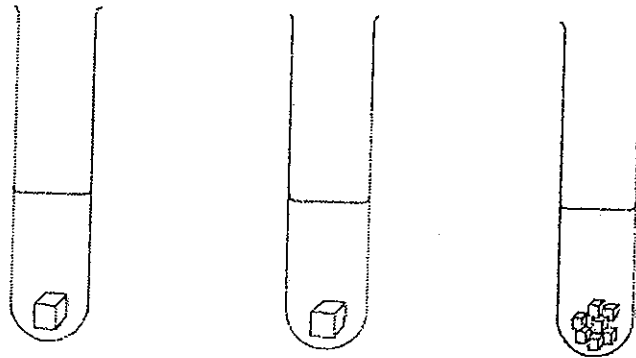
Muthu recorded his observations in the table below.

Colour of flower	Number of butterflies that had landed on the flowers			
	1st hour	2nd hour	3rd hour	4th hour
A	2	3	2	2
B	6	8	7	6
C	3	4	3	3

- (b) Based on the experimental results, which colour of flower, A, B or C, would have the highest chance of being pollinated? Explain your answer. [1]



33. Pineapple juice contains a substance that aids in the digestion of food. Jeremy did an experiment to investigate the digestion of jelly cubes as shown below.



**A**  
5 g jelly cube  
+  
15 cm<sup>3</sup>  
cold water

**B**  
5 g jelly cube  
+  
15 cm<sup>3</sup> fresh  
pineapple  
juice

**C**  
5 g jelly cube  
chopped into  
pieces  
+  
15 cm<sup>3</sup> fresh  
pineapple  
juice

He recorded how long it took for the jelly to be broken down completely in each test tube. The table below shows his results.

Test tube	Result
A	jelly not broken down after 2 h
B	jelly broken down in 2 h
C	jelly broken down in 1 h

- (a) What was the purpose of using test tube A? [1]

---



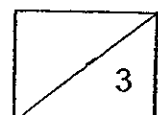
---

- (b) Based on the results, explain how chewing of food helps in digestion. [2]

---



---



- (c) The substances that speed up digestion stop working when they have been boiled. To test this hypothesis, Jeremy needs to use a fourth test-tube, labelled D together with the set-up used in the earlier experiment. In the blanks provided below, write down what he has to put in test tube D to carry out a fair investigation.

[1]



**A**

5 g jelly  
cube  
+  
15 cm<sup>3</sup>  
cold water



**B**

5 g jelly cube  
+  
15 cm<sup>3</sup> fresh  
pineapple  
juice

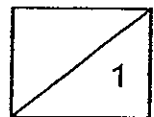


**C**

5 g jelly cube  
chopped into  
pieces  
+  
15 cm<sup>3</sup> fresh  
pineapple  
juice



**D**



34. The diagram below shows aphids and a ladybird on a stalk of a plant in a garden.



Study the food chain below.

Plant → Aphid → Ladybird → Bird

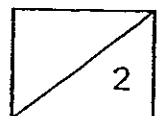
- (a) Name the source of energy for the plant in the above food chain. [1]

---

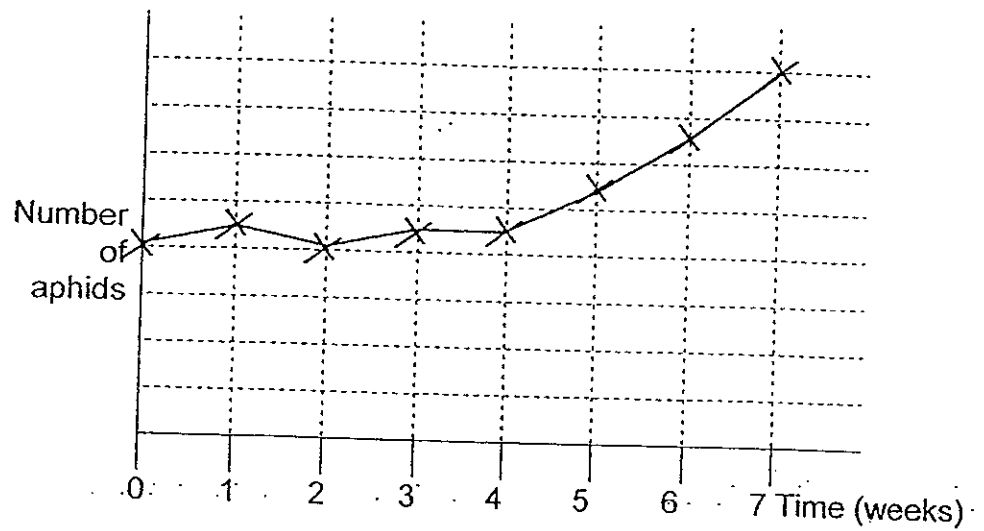
- (b) Why do the plants grow better when there are a lot of ladybirds in the garden? [1]

---

---



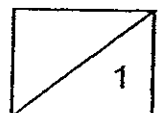
The graph below shows the change in the number of aphids living on the same type of plants in the garden over a period of seven weeks.



- (c) At a certain time, a flock of birds arrived at the garden. The population of the aphids started to change rapidly after Week 4 as shown in the graph above. Give a reason why the presence of the birds caused this change. [1]

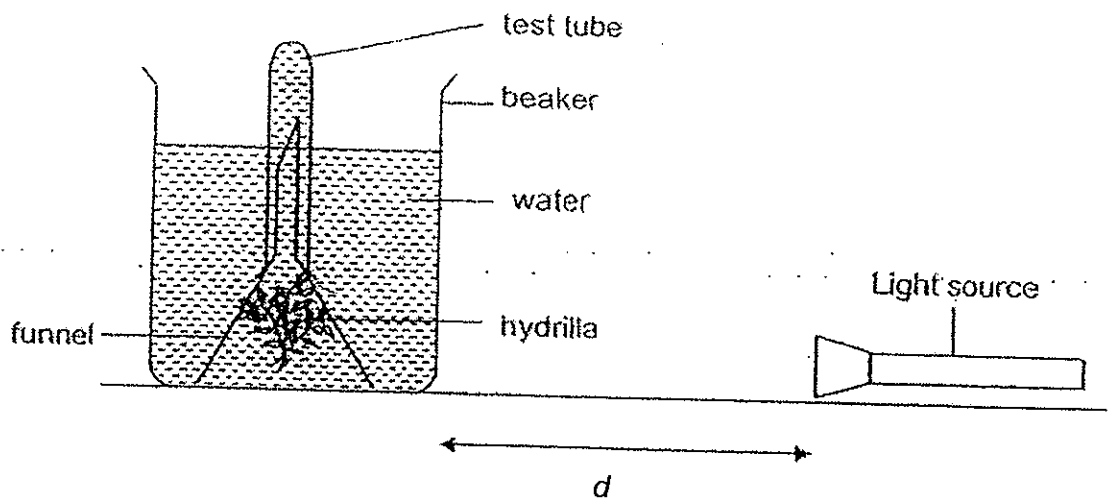
---

---



35. Daniel wanted to find out how the intensity of a light source affects the rate of photosynthesis of hydrilla plants.

He placed an inverted glass funnel filled with water and a hydrilla plant placed inside it in a beaker of water. He then placed an inverted test-tube containing water over the stem of the inverted glass funnel as shown in the diagram below. He then placed a brightly lit torch at a distance  $d$  away from the beaker.



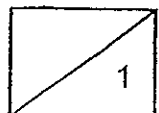
After 20 minutes, he counted the number of bubbles produced by the hydrilla plant over 30 seconds. He repeated the procedure five more times, increasing the distance between the brightly lit torch and the beaker,  $d$ .

He recorded his observations in the table below.

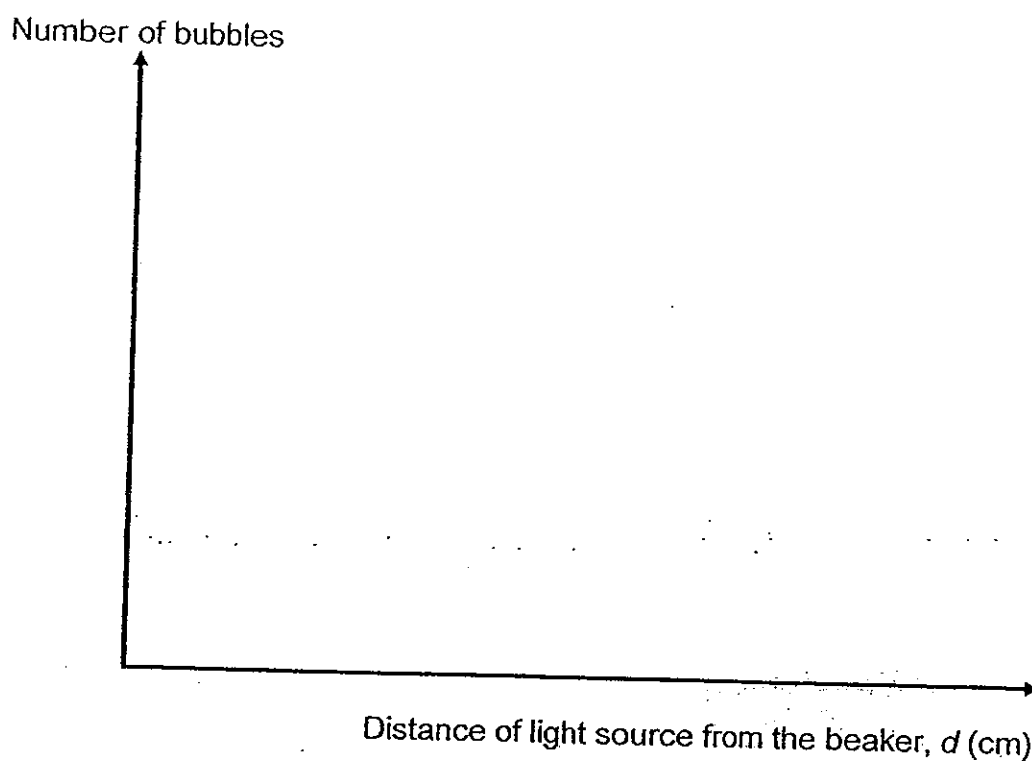
Distance of light source from the beaker, $d$ (cm)	Number of bubbles produced in 30 seconds
10	55
20	48
30	33
40	27
50	15

- (a) Identify the gas in the bubbles collected in the test-tube.

[1]



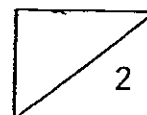
- (b) Draw a line graph in the space below to show the relationship between the distance of the light source from the beaker and the number of bubbles. [1]



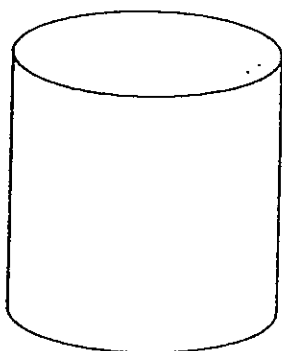
- (c) Explain the graph you have drawn in (b). [1]

---

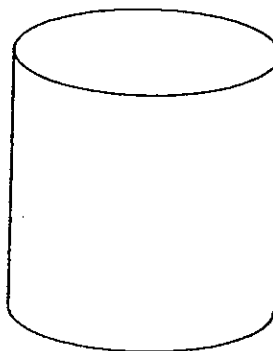
---



36. An equal amount of boiling water was poured into each of the two containers, A and B, of similar shape and size as shown below. The containers were then tightly sealed and left in the school field for an hour.



Container A



Container B

The table below shows the time the water in each container took to cool down to room temperature.

Container	Time taken to cool down to room temperature (min)
A	32
B	26

- (a) Suggest why the water in the two containers took different lengths of time to cool down to room temperature.

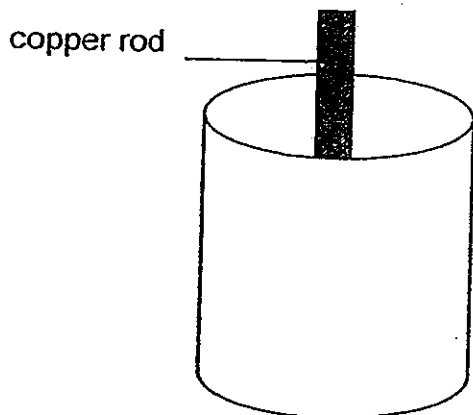
[1] 0

---

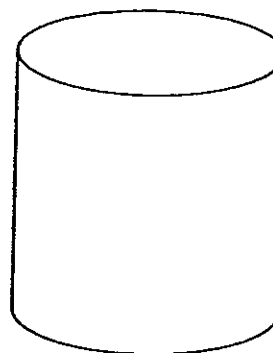


---

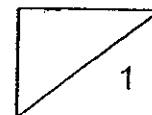
The experiment was repeated with a copper rod placed only in Container A as shown in the diagram below.



Container A



Container B





The table below shows the time the water in each container took to cool down to room temperature.

Container	Time taken to cool down to room temperature (min)
A	18
B	26

- (b) Explain why there was a difference in the time taken for the water in Container A to cool down to room temperature. [1]

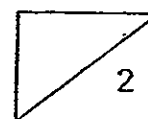
---

---

- (c) How can we cause the temperature of the water in Container A to cool down to room temperature even faster without making changes to the second set-up? [1]

---

---



37. Michael wanted to find out the properties of some materials. He conducted an experiment with different materials and recorded his findings in the table below.

Material	Does it allow electricity to pass through?	Does it conduct heat well?
A	No	No
B	Yes	Yes
C	No	No
D	Yes	Yes
E	Yes	Yes

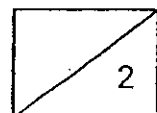
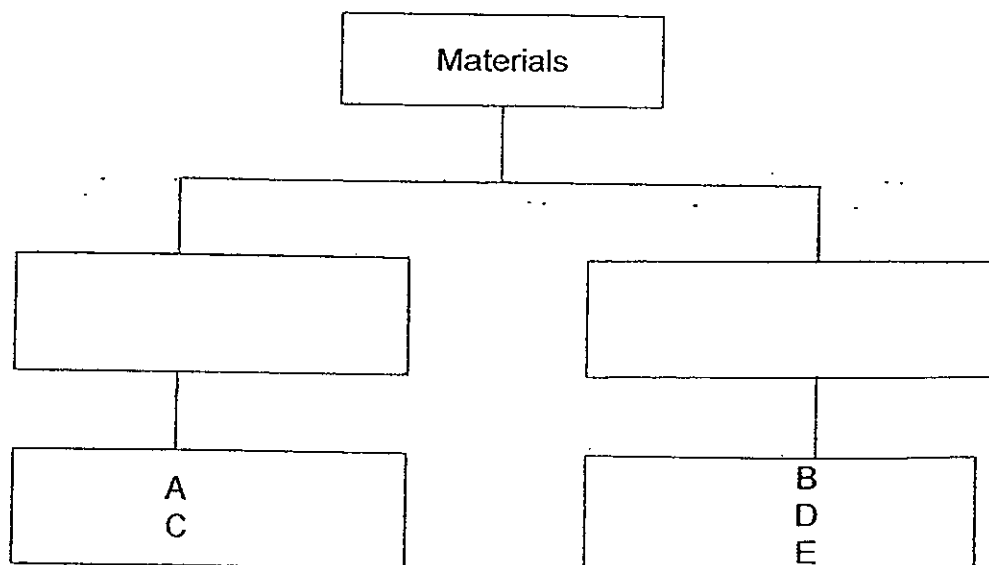
- (a) Based on his findings, what can you conclude about the likely relationship between a conductor of electricity and a conductor of heat? [1]

---



---

- (b) Michael then classified the materials into two groups. Fill in the possible headings of the two groups in the classification table below. [1]



38. Some pupils predicted that water will evaporate faster if the surrounding air temperature is higher.

To investigate their prediction they poured equal amounts of water into two identical containers and placed them in two different rooms, Room A and Room B.

- (a) State the variable they should change for them to verify that their prediction is correct.

[1]

They recorded the volume of water in the container in Room A and Room B every day for 5 days. The table below shows their results.

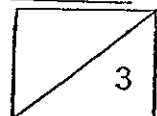
Time (days)	Volume of water in the container (ml)	
	Room A	Room B
0	100	100
1	92	85
2	80	72
3	72	54
4	60	45
5	46	30

- (b) State one other factor they should keep the same for their investigation to be fair.

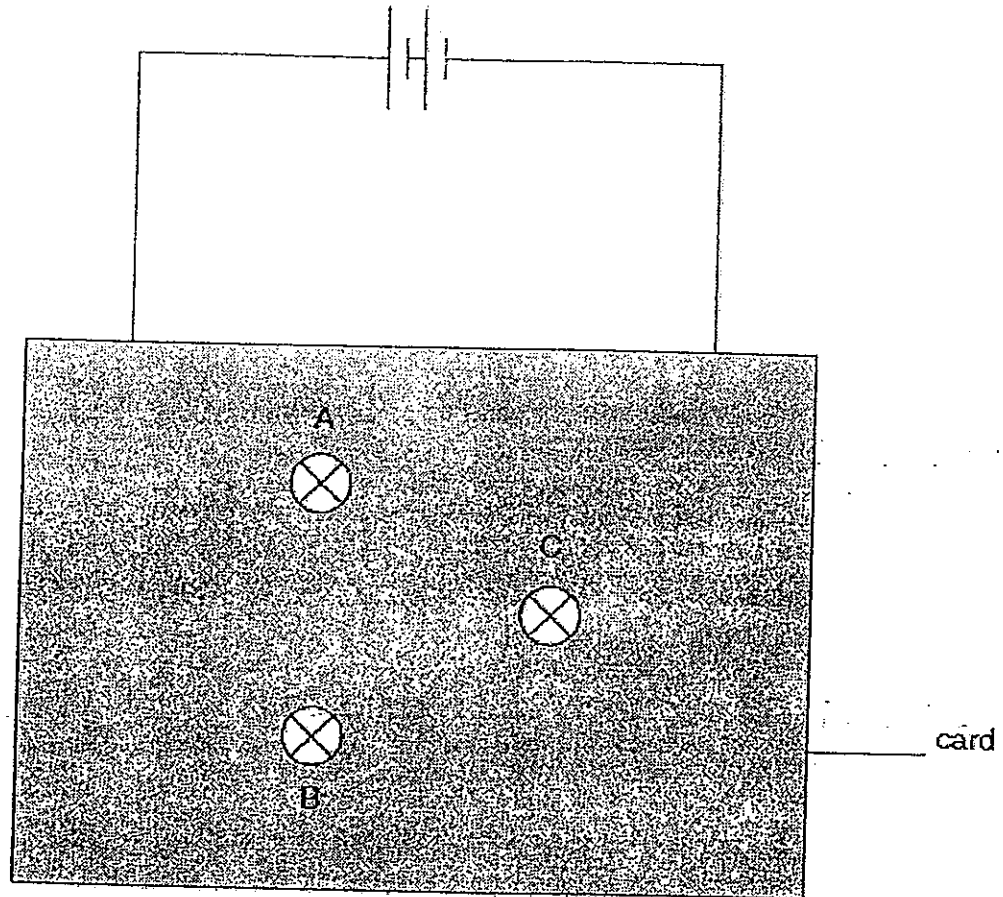
[1]

- (c) Based on the results in the table above, which room, A or B, had a higher temperature. Give a reason for your answer.

[1]



39. Nathan built a puzzle circuit with three identical bulbs and two dry cells. He covered the connections to the bulbs with a piece of card as shown below.

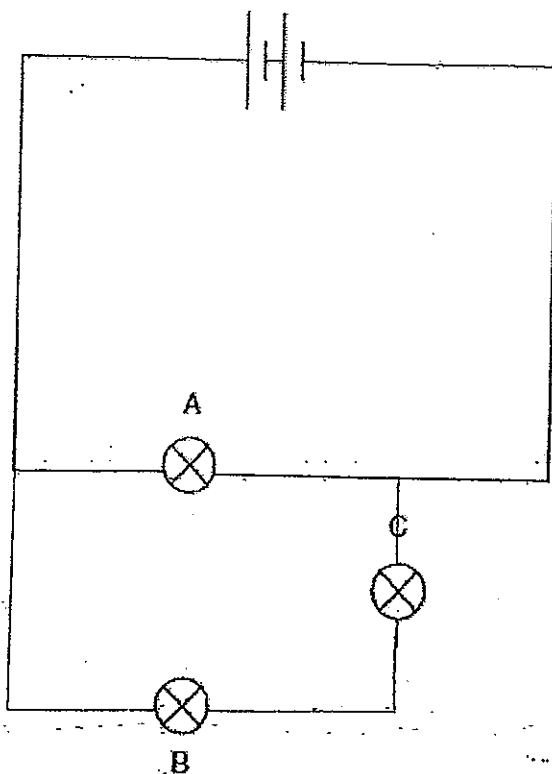


All the bulbs were switched on and then Nathan removed bulbs A, B and C one at a time. Before connecting each bulb back into the circuit, he observed the effect on the other two bulbs as each bulb was removed from the circuit. He recorded his observations in the table below.

Bulb being removed	Observations
A	B and C remained lit
B	A remained lit but not C
C	A remained lit but not B

- (a) Based on the information given, complete the circuit diagram below to show how the three bulbs could be connected.

[1]



- (b) Which bulb, A, B or C, was the brightest? Give a reason for your choice

[1]

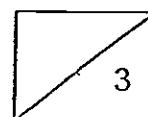
---

---

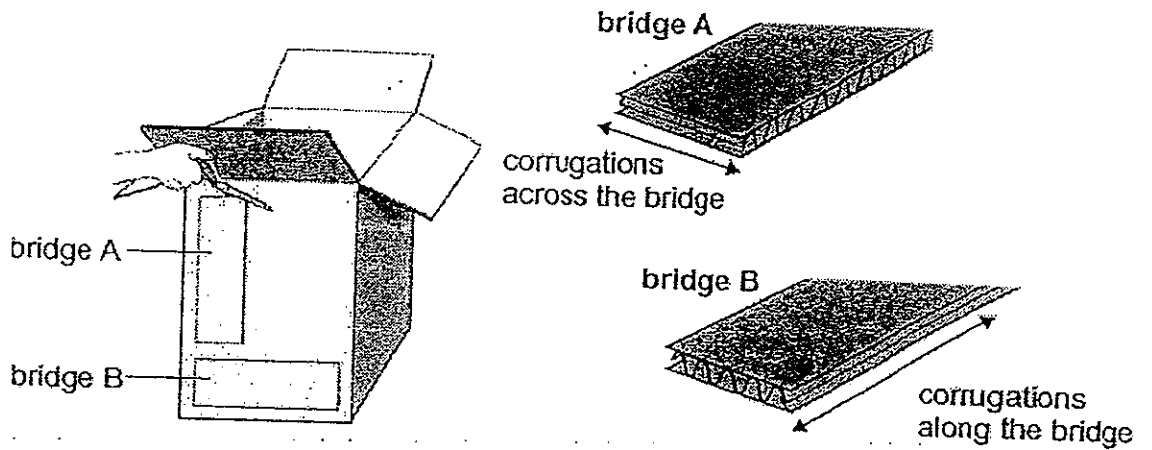
- (c) Nathan added a switch to the above circuit in (a) so that he could switch all three bulbs on and off at the same time.

Mark 'X' on the above circuit diagram in (a) to indicate where this switch could be placed.

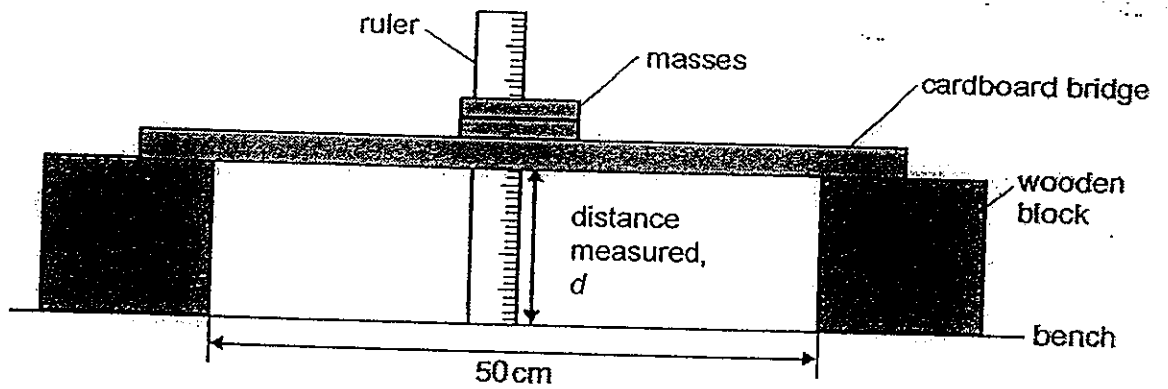
[1]



40. Jimmy makes two bridges from strips of cardboard cut as shown below.



He tests the strength of the bridges by adding masses on top of each of them. He measures the distance from the bench to the bottom of each bridge,  $d$ , for different masses as shown below.



Jimmy records the results of his investigation in the table below.

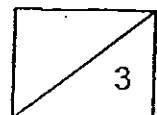
Mass added to bridge (g)	Distance from bench to bottom of bridge $d$ (cm)	
	bridge A	bridge B
0	7.2	7.2
100	7.1	7
200	7.0	6.5
250	6.8	6.1
300	3	5.6
350	0	5

- (a) Which bridge would be better for carrying a 200g toy car? Explain your answer.

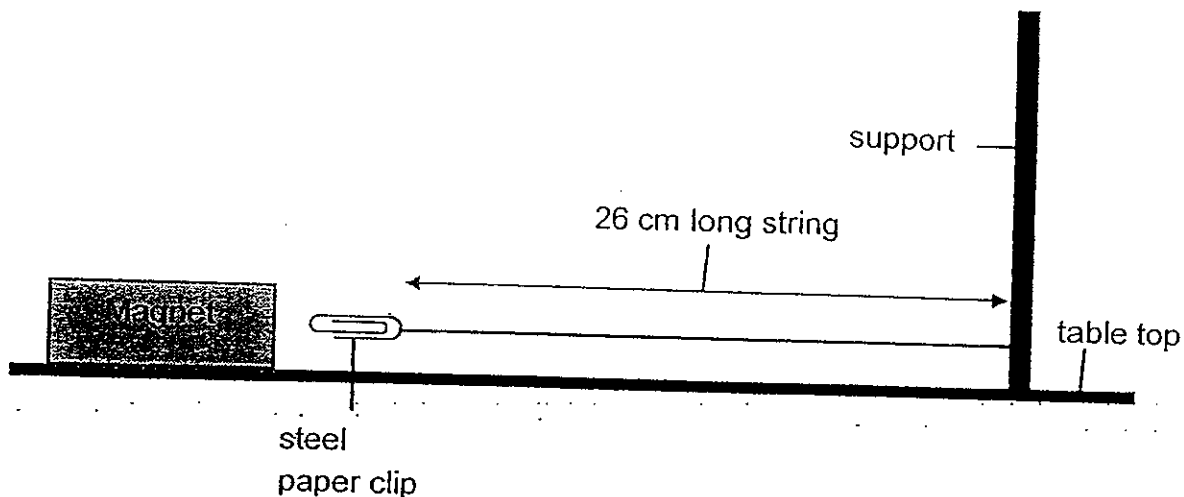
[1]

- (b) When a mass of 350 g was placed on Bridge B, the distance  $d$  was 5 cm. Predict what distance  $d$  would be if this mass was dropped 10 cm vertically above Bridge B. Explain your answer.

[2]



41. Jonathan carried out the following experiment. He held a strong magnet in place on top of a table. A steel paper clip, tied to a support by a string of length 26 cm, was found to be floating in the air as shown in the diagram.



- (a) Explain why the steel paper clip floated in the air as shown in the diagram. [2]

---

---

In a second experiment, Jonathan heated the same magnet to a certain temperature and set up the apparatus the same way as in the first experiment. He observed that the steel paper clip did not float in the air unless a longer string of length 28 cm was used.

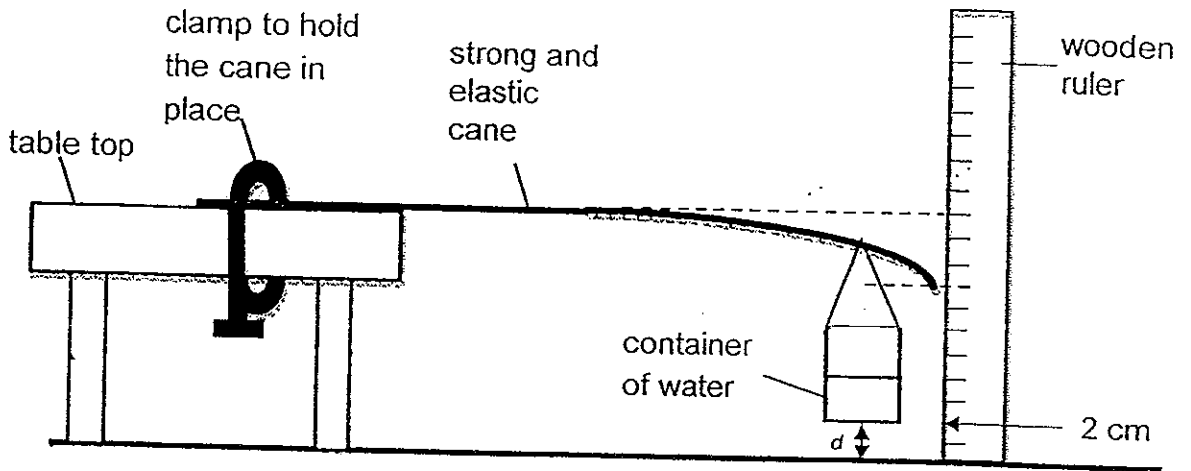
- (b) Explain why he had to use a longer string of 28 cm. [1]

---

---

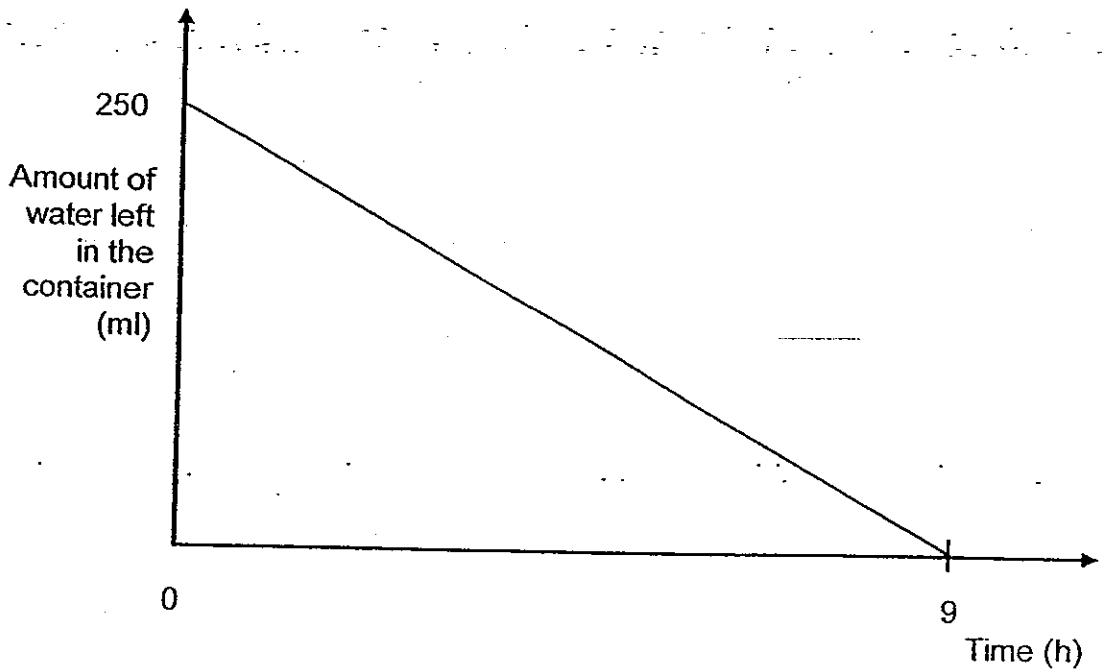


42. Jason carried out an experiment as shown below near an open window.



He started the experiment with 250 ml of water in the styrofoam container hung at one end of the cane. He recorded the amount of water left in the container as well as the difference in the height between the bottom of the container and the floor,  $d$ , for a period of time.

He then plotted the following graph to show how the amount of water left in the container changed with time.

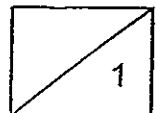


(a) Based on the graph above, what was happening to the water in the container over time? [1]

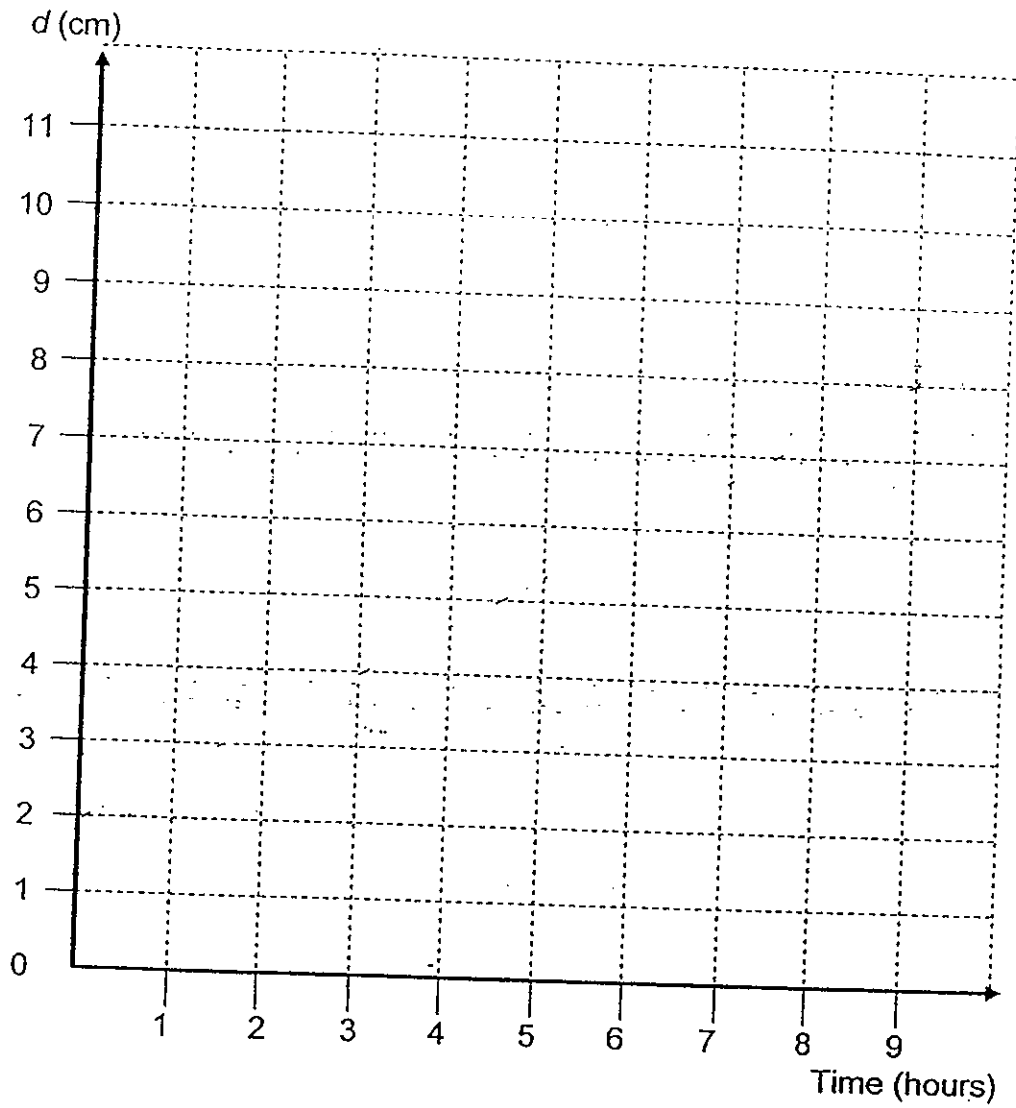
---



---



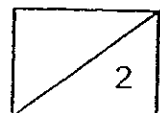
- (b) Complete the graph below to show how the value of  $d$  would change over time. [1]



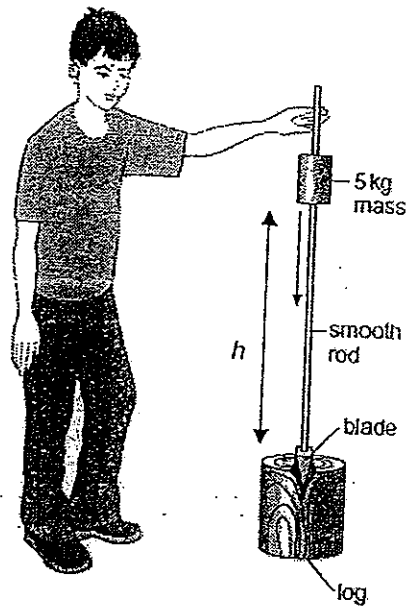
- (c) Based on the graph you have drawn in (b), explain why the value of  $d$  changed over time. [1]

---

---

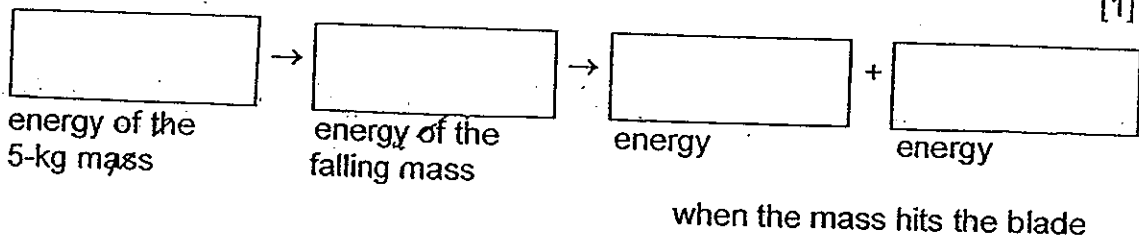


43. Timothy uses a falling mass to split wooden logs. The 5 kg mass slides down the rod and hits the metal blade. The force on the blade splits the log.



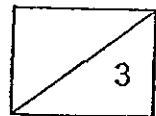
To lift the mass Timothy uses energy stored in his muscles. He releases the 5-kg mass from a height,  $h$ , before the blade hits the log to split it.

- (a) Trace the energy conversion from the moment the 5-kg mass is released till it hits the blade. [1]



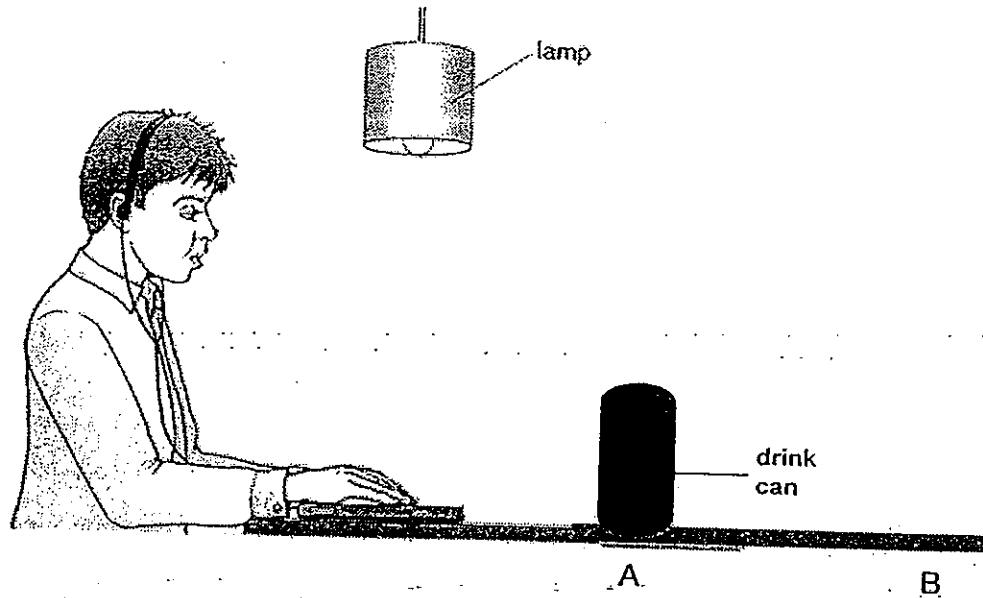
- (b) When lubricant is applied to the rod, it makes it easier to split the log. Explain why this is so. [1]

- (c) Timothy then released a 10-Kg mass from the same height,  $h$ . Would it be easier for him to split the log? Explain your answer. [1]

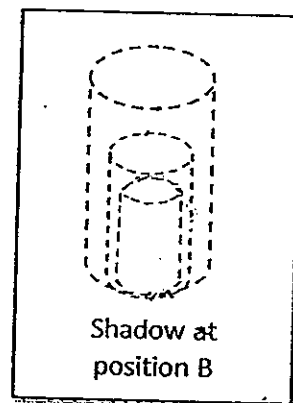
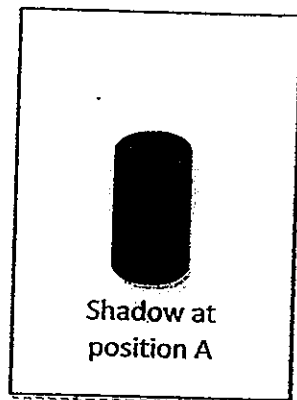


44. The diagram below shows James using his laptop.

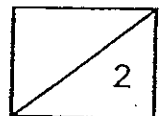
- (a) James could see a drink can on the desk he was working on as shown below. Draw on the diagram below a ray of light to show how the light from the lamp help him see the drink can. [1]

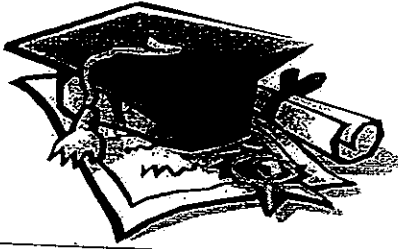


- (b) As James pushed the drink can from position A to position B, the shadow of the drink can formed on the table changed. The box on the left shows the shadow of the drink can at position A. The box on the right shows the possible shadows of the drink can at position B. Trace and shade the correct shadow of the drink can formed on the table at position B in the box below. [1]



End of Paper





# ANSWER SHEET

EXAM PAPER 2012

SCHOOL : HOKKIEN  
SUBJECT : PRIMARY 6 SCIENCE

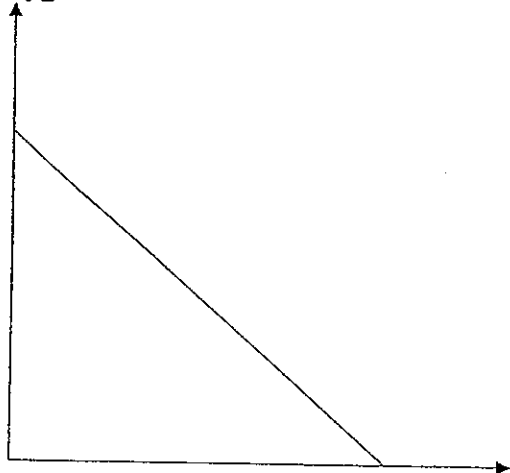
TERM : SA2

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
3	2	2	2	2	2	3	4	1	3	4	2	2	3	2	4	3
Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30				
1	2	4	2	1	1	3	2	4	2	3	1	4				

- 31)a) It is to find out what temperature is the most suitable for seeds to germinate.  
b) T, Not, F, Not
- 32)a) It ensures that the butterflies will be attracted by the colour of the flowers and not the amount of sugar solution.  
b) Colour B. It has the most number of butterflies landing on it.
- 33)a) Test tube A is used as C control to prove that the broke down of the jelly is caused by the pineapple juice.  
b) It took a shorter time for the jelly to be digested when it was chopped into pieces just like chewing, chewing the food made the food into smaller pieces and increased the exposed surface area of the food.  
c) 5g jelly cube chopped into pieces + 15cm<sup>3</sup> of boiled pineapple juice
- 34)a) Sun.  
b) When there are more ladybirds, the aphids feeding on the plant will be eaten up so less aphids will feed on the plant.  
c) The birds ate the ladybirds while feed on the aphids, causing the population of the aphids to rise.

35)a)Oxygen.

b)



c)As the distance the light source was from the beaker increases, the intensity of light decreases and hence, the rate of photosynthesis also decreases and hence the number of babbles produced decreases.

36)a)The material used to make container A was poorer conductor of heat than the material used to made material B and the water lost heat faster.

b)The copper rod which was a good conductor of heat helped to conduct heat away to the surrounding thus cooling the water faster.

c)By blowing at the water Container A.

37)a)Material that conduct electricity can also conduct heat well.

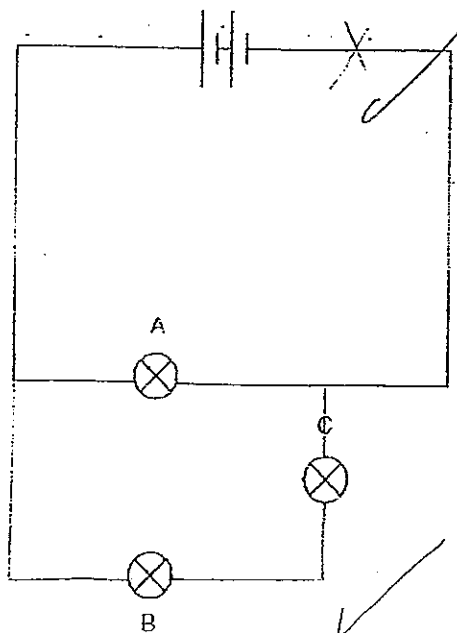
b)non-metals / metals

38)a)The temperature of the surrounding air.

b)The same initial temperature of the water in the two rooms.

c)Room B. The amount of water left in the warmer room would be less than the amount of water in the cooler room.

39)a)c)



39)b) Bulb A will be the brightest. Bulb A receives more electrical energy than Bulb B and C.

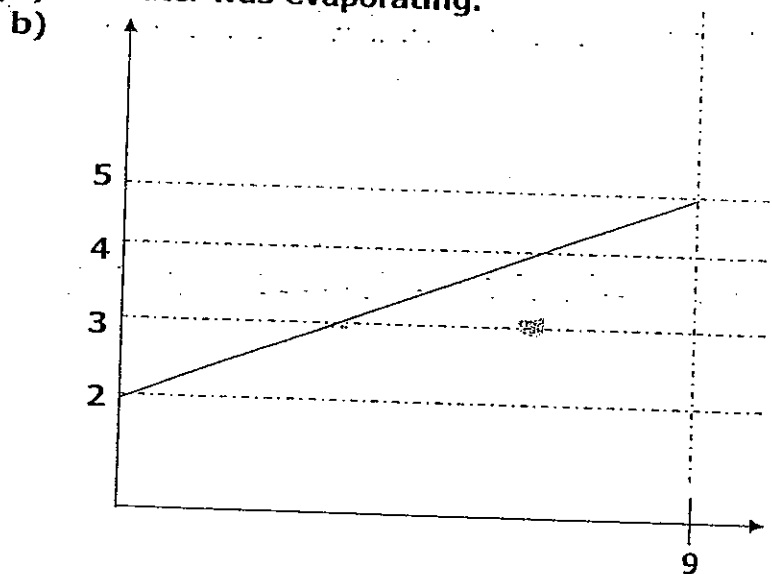
40)a) Bridge A. Bridge A bent less than Bridge B when a 200g weight was added to the bridge.

b) It possessed greater gravitational energy which converted to greater kinetic energy when it was dropped from 10cm vertically above the bridge then when it was placed on the bridge.

41)a) The steel paper clip was a magnetic material and it was able to be attracted by the magnet. The magnetic force was able to overcome the gravitational force.

b) The magnetic force of the magnet was weakened after heating thus the steel paper clip needs a longer string.

42)a) The water was evaporating.

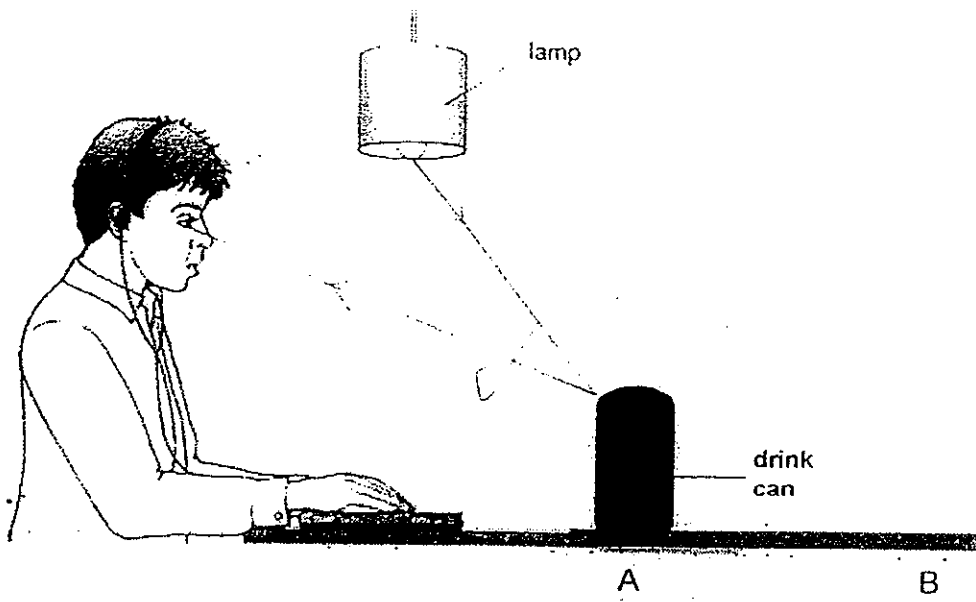


c) Over time, the water would have evaporated and the mass of the water and container together will decrease resulting in a smaller weight on the wooden cane and hence,  $d$  would increase.

43)a) Gravitational Potential energy  $\rightarrow$  Kinetic energy  $\rightarrow$  Sound energy + Heat energy

b) The lubricant reduces friction between the mass and the rod resulting in greater kinetic energy and hence, greater force acting on the log making it easier to split the log.

44)a)



b)

