



# RED SWASTIKA SCHOOL

## 2015 SEMESTRAL ASSESSMENT 2 SCIENCE PRIMARY 4

Name : \_\_\_\_\_ (     )

Class : Primary 4/ \_\_\_\_\_

Date : 2 November 2015

### BOOKLET A

Total time for Booklets A & B: 1h 30 min

Booklet A: 30 questions (60 marks)

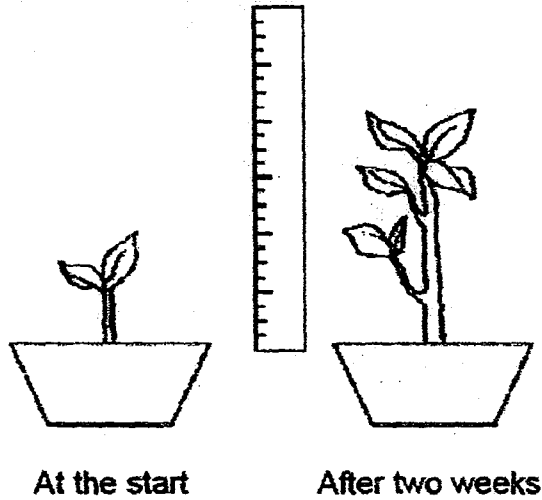
**Note:**

1. Do not open the booklet until you are told to do so.
2. Read carefully the instructions given at the beginning of each part of the booklet.
3. Do not waste time. If the question is too difficult for you, go on to the next question.
4. Check your answers thoroughly and make sure you attempt every question.
5. In this booklet, you should have the following:
  - a. Page 1 to Page 22
  - b. Questions 1 to 30

**Section A**

**For Questions 1 to 30, choose the most suitable answer and shade its number in the OAS provided.**

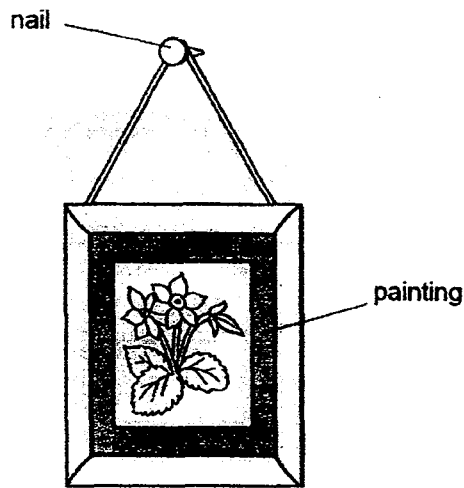
1. Marie found a pot of plant in the garden and measured its height. After two weeks, she measured its height again.



From her observation, Marie concluded that the plant is a living thing because it can \_\_\_\_\_.

- (1) die
- (2) grow
- (3) reproduce
- (4) respond

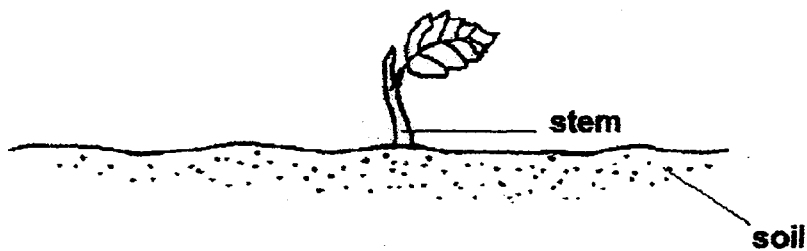
2. The diagram shows a painting hanging on a wall.



Steel is used to make nails because steel \_\_\_\_\_.

- (1) is a magnetic material
- (2) is strong ✓
- (3) is shiny
- (4) sinks in water

3. The diagram below shows a young plant.

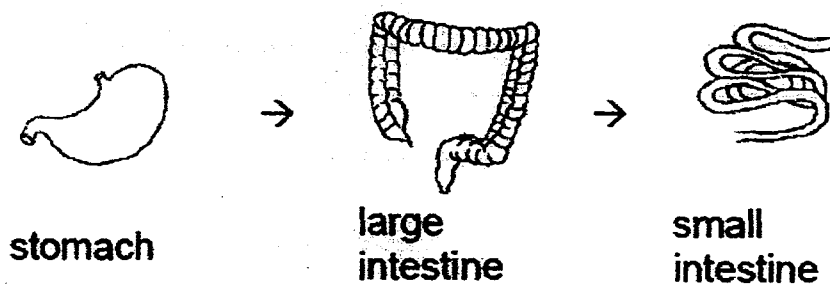


The stem helps the plant to \_\_\_\_\_.

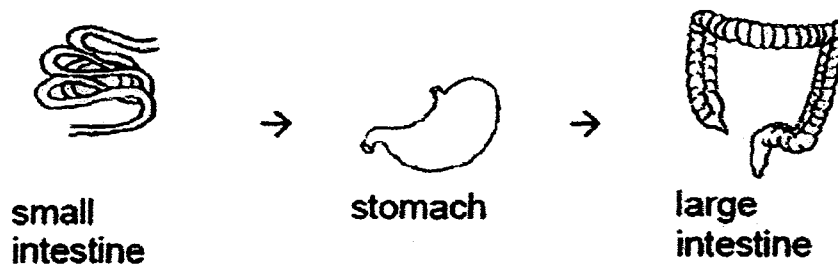
- (1) absorb nutrient
- (2) absorb water
- (3) grow upright
- (4) make food

4. Which one of the following shows the correct order when food moves through some parts of the digestive system?

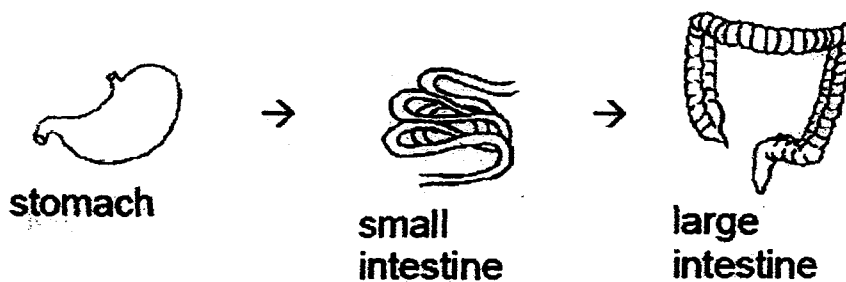
(1)



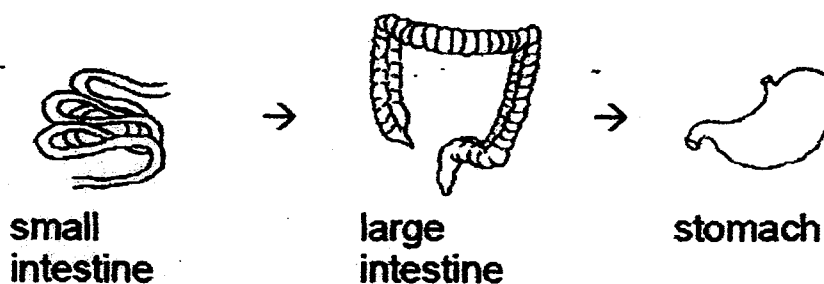
(2)



(3)



(4)



5. A, B, C and D are the various stages in the life cycle of a mosquito.



A



B



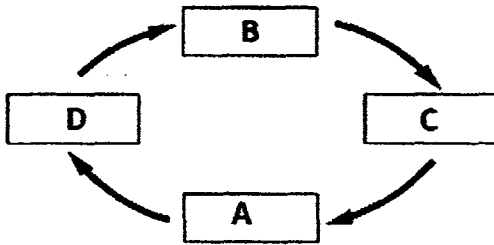
C



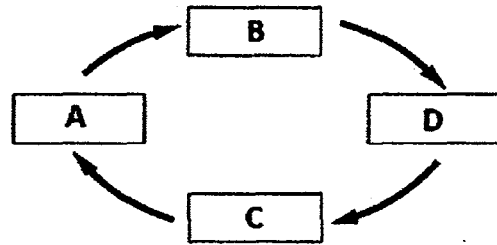
D

Which of the following correctly shows the life cycle of a mosquito?

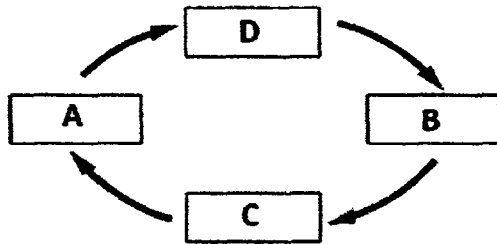
(1)



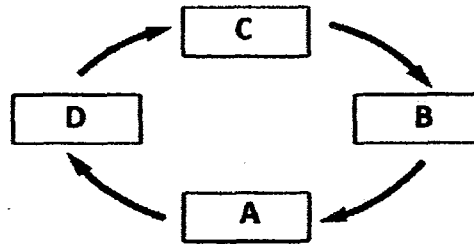
(2)



(3)



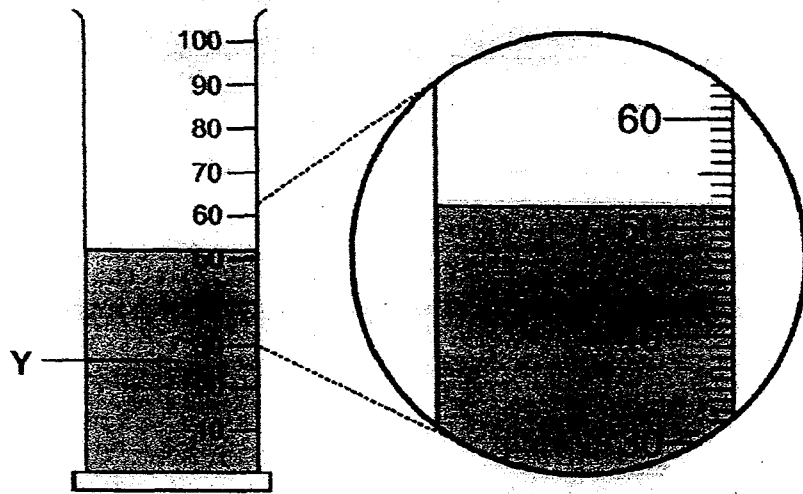
(4)



6. Which animal has a larva as a stage in its life cycle?

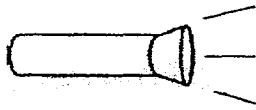
- (1) frog
- (2) beetle
- (3) chicken
- (4) cockroach

7. In the diagram, what is the volume of liquid Y?



- (1) 50 ml
- (2) 52 ml
- (3) 62 ml
- (4) 68 ml

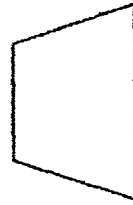
8. The set-up below shows light shining on a metal ball.



**torch**



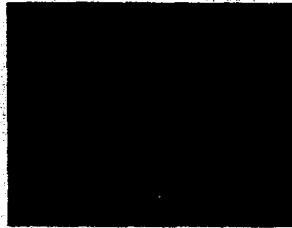
**metal ball**



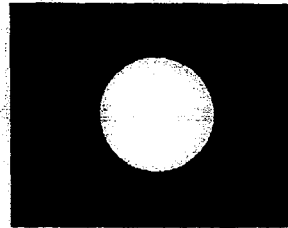
**screen**

Which one of the following would likely be seen on the screen?

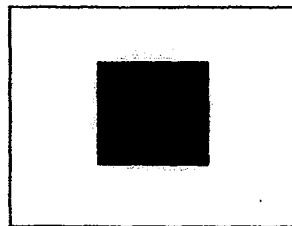
(1)



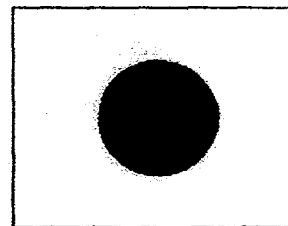
(2)



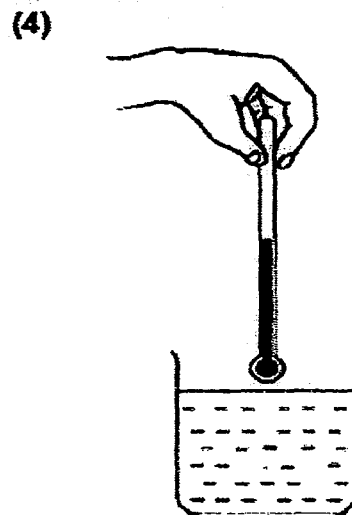
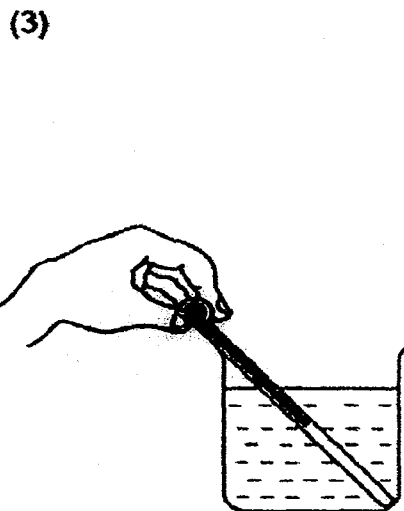
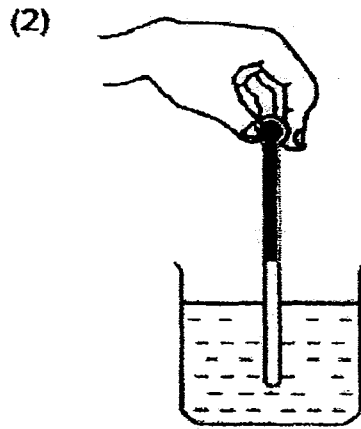
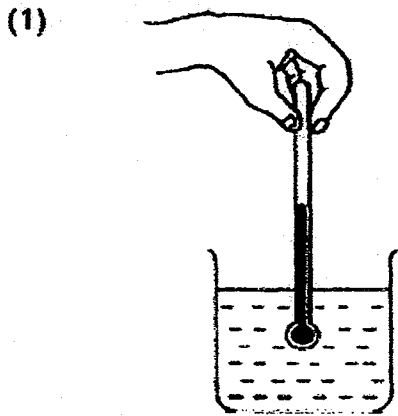
(3)



(4)

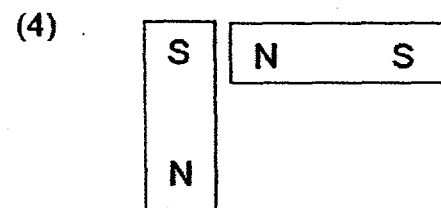
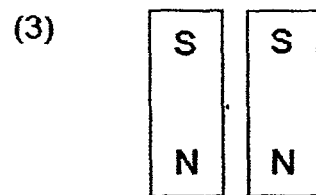
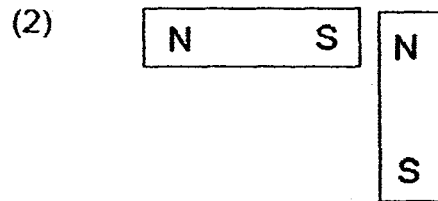
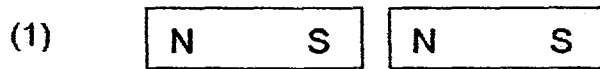


9. Amanda wants to measure the temperature of water in a beaker. Which one of the following diagrams shows the correct position of the thermometer when taking the temperature reading?

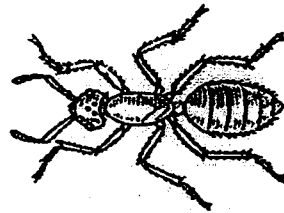




10. In which one of the following will the two magnets repel?



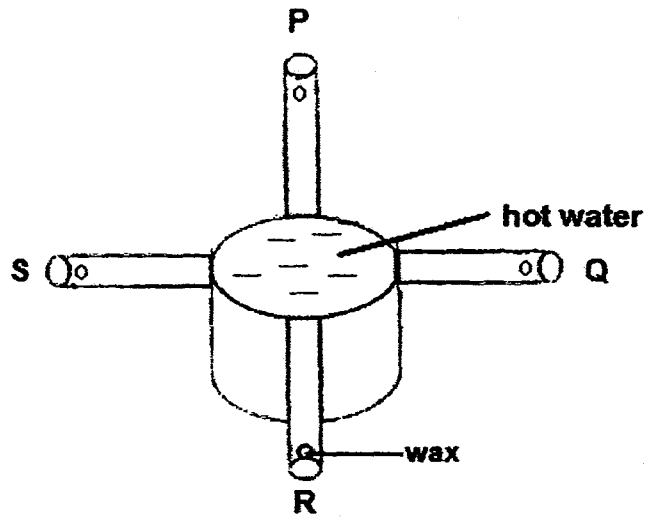
11. Study the diagram shown.



Which of the following statements about the animal is false?

- (1) The animal can fly.
- (2) The animal has a hard outer covering.
- (3) The animal has more legs than a dog.
- (4) The animal has three body parts.

12. Aileen wanted to investigate if the material of a rod affects how fast heat is conducted through it. She had a container of hot water with different rods, P, Q, R and S attached to it. Each rod had a piece of wax placed at its end.

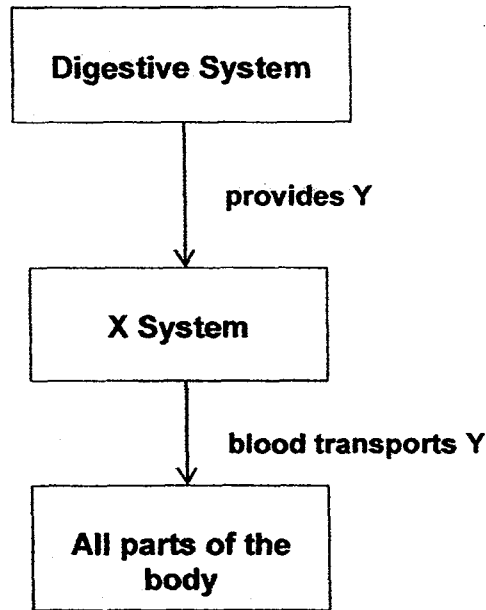


Rod	Material	Length (cm)	Thickness (cm)
P	Copper	7	0.7
Q	Iron	5	0.7
R	Glass	7	0.7
S	Copper	5	0.2

Which of the following rods should be compared to ensure a fair test?

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

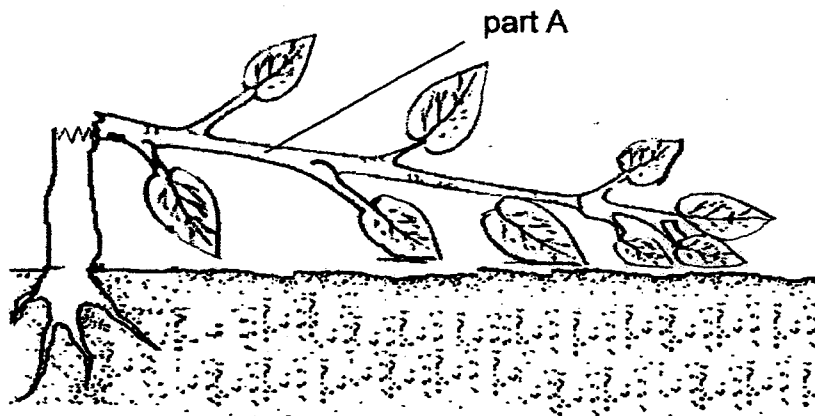
13. The flow chart shows how two human systems work together.



Which of the following best represents X and Y?

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

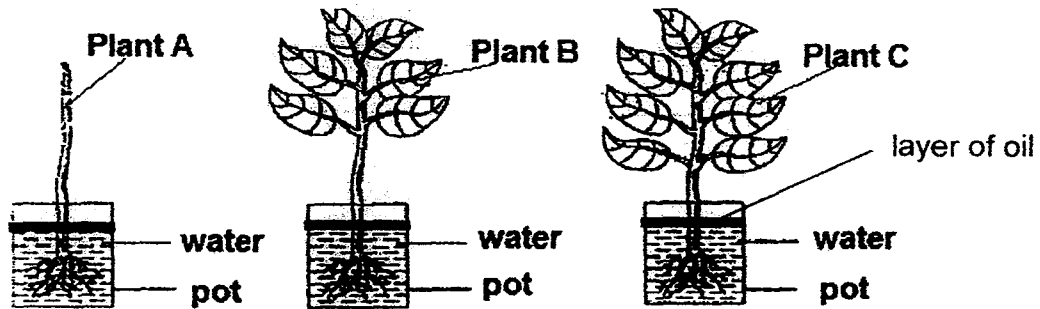
14. Look at the diagram below.



Part A of the plant died after a week because the \_\_\_\_\_.

- (1) roots cannot take in water
- (2) leaves cannot trap sunlight to make food
- (3) roots cannot hold the plant firmly in the soil
- (4) stem cannot transport water from the roots to the upper part of the plant

15. Ismail selected three similar plants, A, B and C, for his experiment. He trimmed off all the leaves from plant A and some leaves from plant B. No leaves were trimmed from plant C. Then he placed each plant in a pot containing an equal volume of water. The plants were placed at the same location.



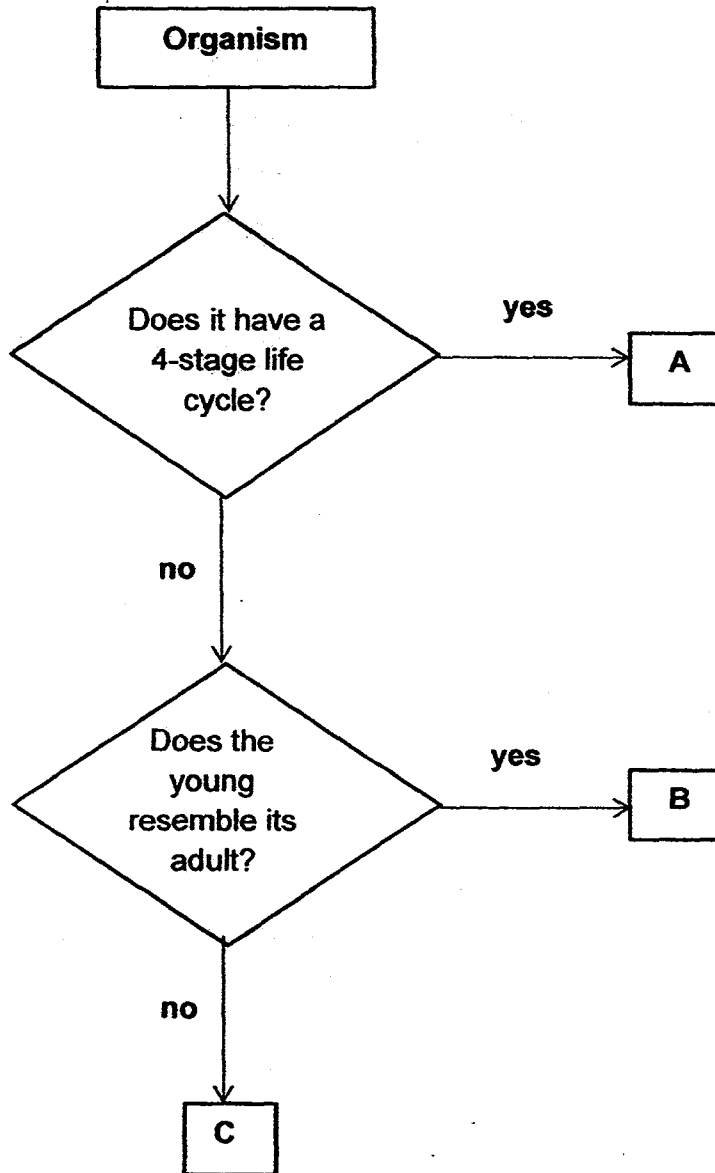
After ten hours, he recorded the volume of water in each pot.

Plant	Volume of water in the pot (ml)
A	500
B	300
C	200

What was the aim of the experiment?

- (1) To investigate if the roots of a plant absorb water.
- (2) To investigate if the stem of a plant transports water.
- (3) To investigate if the leaves of a plant need light to make food.
- (4) To investigate if the number of leaves affect the volume of water taken in.

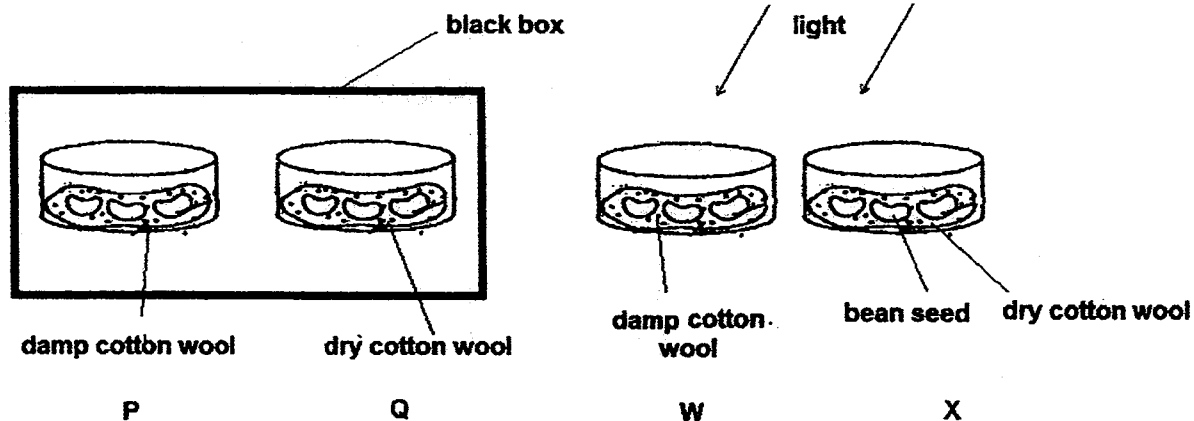
16. Study the flow chart below.



Which of the following is correct?

	<b>A</b>	<b>B</b>	<b>C</b>
(1)	butterfly	cockroach	grasshopper
(2)	mosquito	chicken	bear
(3)	mealworm beetle	dog	frog
(4)	cockroach	chicken	mosquito

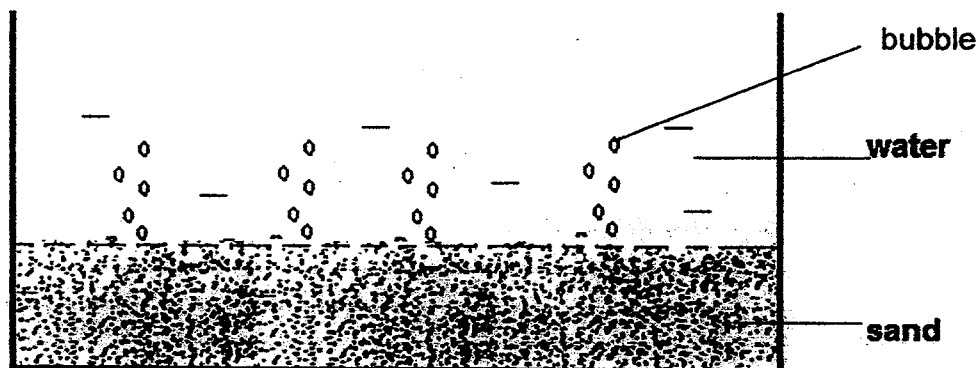
17. Study the set-ups shown below.



Each container contains three bean seeds placed on the same amount of cotton wool. Joshua wants to find out if light is needed for germination to take place. Which two set-ups are most suitable for the fair test?

- (1) P and W
- (2) Q and W
- (3) P and Q
- (4) W and X

18. When water is gently poured into the container of sand, bubbles are seen appearing from the sand and moving upwards as shown. The outer surface of the container remained dry. At the end of 30 seconds, the water level is lower than at the start of the experiment. Why is this so?



- (1) The container is leaking.
- (2) Some water has been compressed.
- (3) The air bubbles in the water increased in volume.
- (4) The water takes up the space occupied by the air trapped in the sand.

19. Belinda learnt that water can exist in three states of matter. She wrote down the properties of water at the different states of matter.

A: Definite volume but no definite shape

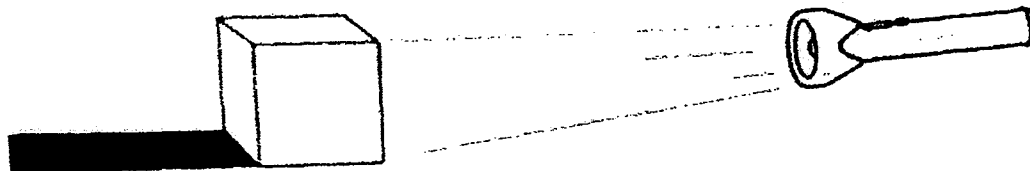
B: No definite volume or shape

C: Definite volume and shape

Which of the following is correct?

	A	B	C
(1)	water vapour	water	ice
(2)	ice	water	water vapour
(3)	water	ice	water vapour
(4)	water	water vapour	ice

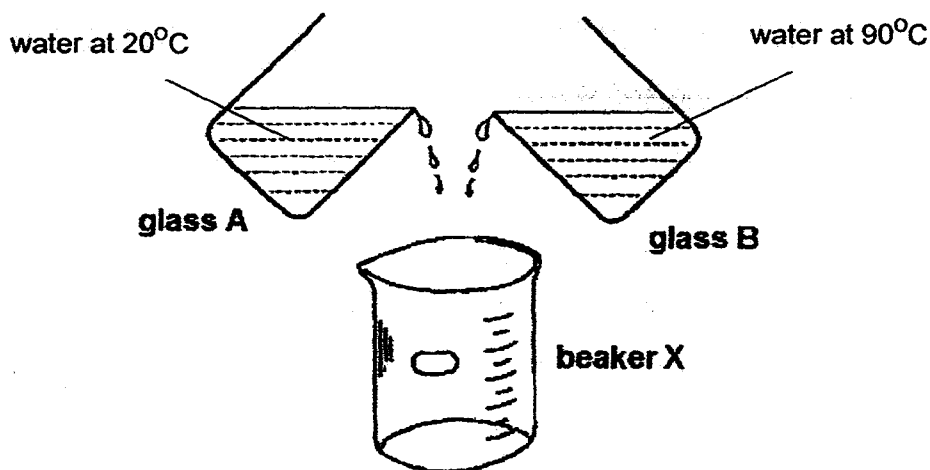
20. Rachel observed that a shadow was formed when she placed a wooden cube in the path of the torch as shown below.



Which of the following properties of light best explains why the shadow was formed?

- (1) Light can be blocked.
- (2) Light can be reflected.
- (3) Light is a form of energy.
- (4) Light enables us to see things.

21. Glass A contained water at a temperature of  $20^{\circ}\text{C}$ . Glass B contained water at a temperature of  $90^{\circ}\text{C}$ . Nellie poured an equal amount of water from glass A and glass B into beaker X.



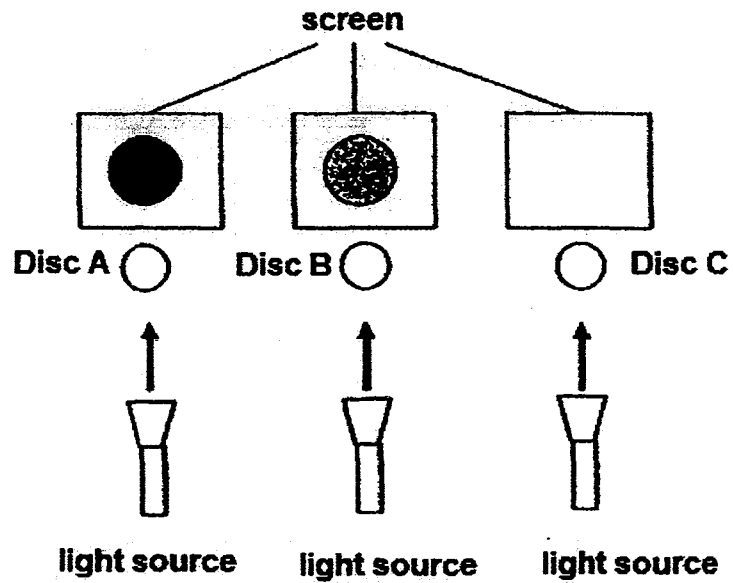
Which of the following statement(s) is/are true?

- A. The water in glass A is cooler than the water in glass B.
- B. The water in beaker X has a higher temperature than the water in glass A.
- C. The water in glass A contains more heat energy than the water in glass B.
- D. When water from both glasses is poured into beaker X, heat is transferred from the water in glass B to the water in glass A.

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



22. Three similar light sources with similar light intensity were shone at three different discs. The results can be seen on the screen as shown below.



What materials can the three discs be made of?

	Disc A	Disc B	Disc C
(1)	wood	clear plastic	metal
(2)	clear plastic	frosted glass	tracing paper
(3)	metal	frosted glass	clear glass
(4)	clear glass	tracing paper	metal

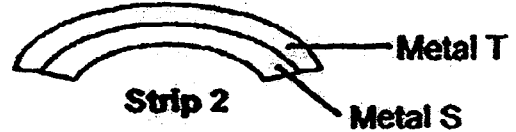
23. A bimetallic strip is formed by joining two different metals together as shown in the diagram below.



When the bimetallic strip is heated, the strip will bend down if metal A expands more than metal B.



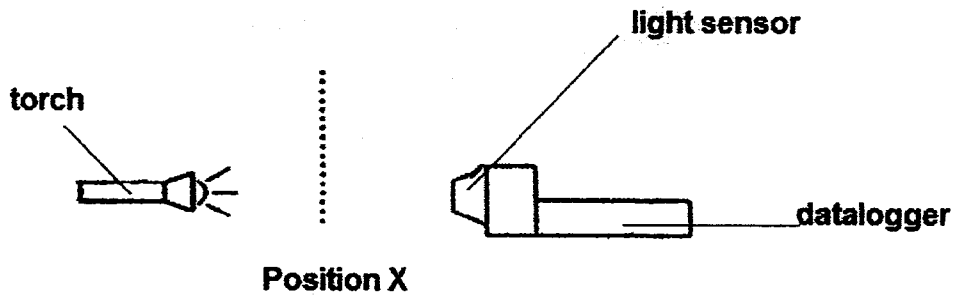
Four metals, S, T, U and V, each of equal length were used in different combinations to form four bimetallic strips. The diagrams below show how each strip bent when heated with the same amount of heat for the same length of time.



Based on the diagrams, which of the following shows the expansion of metals, S, T, U and V in the correct order?

	Expands least <span style="font-size: 2em;">→</span> Expands most			
(1)	T	U	V	S
(2)	U	T	S	V
(3)	V	S	T	U
(4)	S	V	U	T

24. Ravi set up an experiment to investigate if the number of sheets of paper between a torch and a light sensor affects the amount of light that can pass through. The papers are placed at position X.



He increased the number of sheets of paper of the same type and recorded his readings in the table below.

Number of sheets of paper	Amount of light recorded by the data logger (lux)
0	80
1	40
2	20
3	10

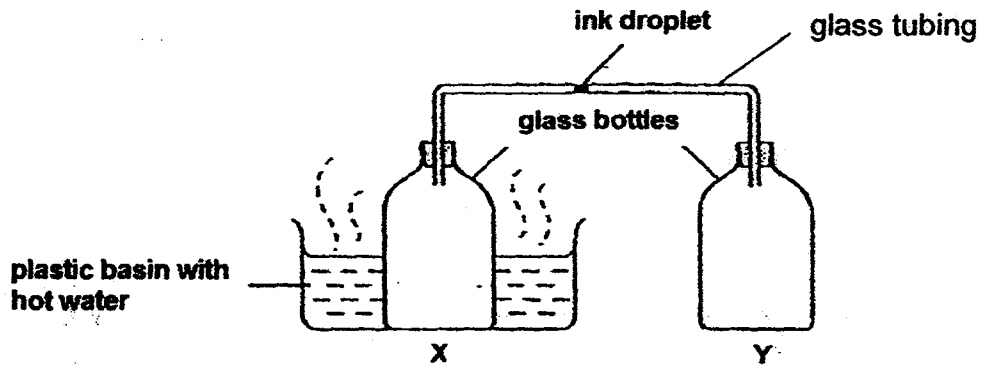
What is one change that Ravi can make if he wants more light to pass through three sheets of the same type of paper?

- (1) Move the torch nearer to the papers.
- (2) Move the torch further from the papers.
- (3) Move the papers nearer to the light sensor and datalogger.
- (4) Move the light sensor and datalogger further from the papers.

25. Which of the following pairs is incorrect?

	Good conductors of heat	Poor conductors of heat
(1)	steel spoon	plastic cup
(2)	wooden ruler	steel pole
(3)	iron ladle	styrofoam cup
(4)	aluminium tray	ceramic bowl

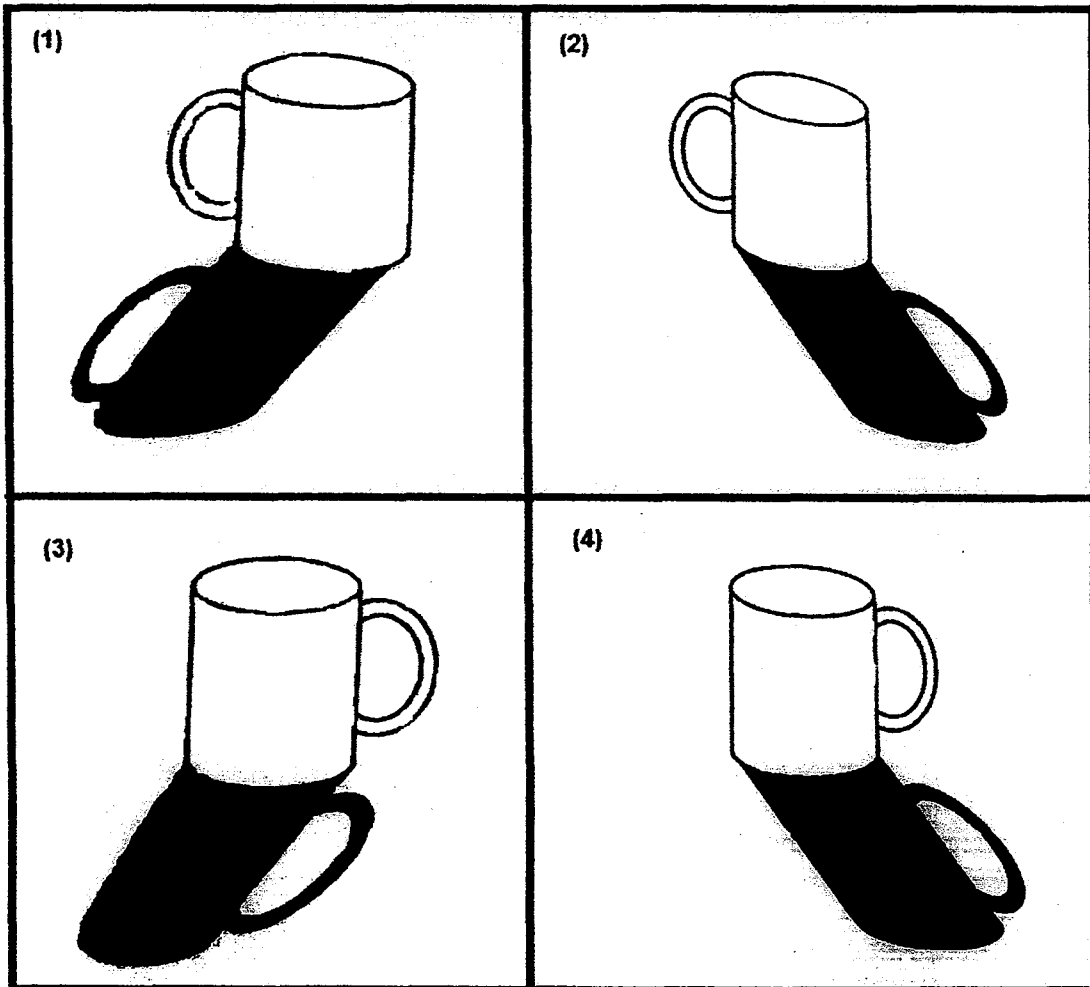
26. The diagram below shows two identical bottles, X and Y, which are connected by a glass tubing.



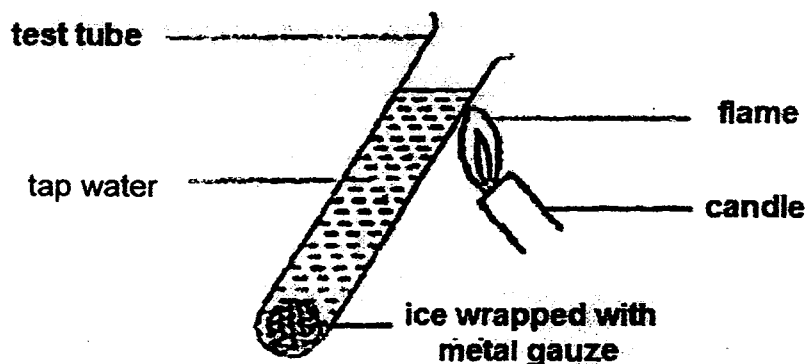
When bottle X was placed in hot water, the ink droplet \_\_\_\_\_.

- (1) moved towards bottle X
- (2) moved towards bottle Y
- (3) moved away from bottle Y
- (4) remained at the same position

27 For each of the diagrams below, observe the mug and the shadow it casts when light is shone from different directions of different heights and distances. Which of the following is unlikely to be the shadow cast by the mug?



28. An experiment was set up as shown below. After a few minutes, the water at the top of the test tube became warm while the ice at the bottom of the test tube did not melt.



What could be done to enable the ice to melt faster?

- (1) Remove the flame.
  - (2) Place the test tube in the freezer.
  - (3) Use ice water instead of tap water.
  - (4) Heat the bottom of the test tube instead of the top.
29. Susan used the stroke method to magnetise an iron nail. She placed the magnetised iron nail near three different objects, X, Y and Z and recorded her observation in the table below.

	X	Y	Z
Repelled by the iron nail	Yes	No	No
Attracted by the iron nail	Yes	Yes	No

Which of the following statements about objects X, Y and Z is/are definitely true?

- A: Object X is a magnet.  
 B: Object Y is made of a non-magnetic material.  
 C: Object Z is made of a non-magnetic material.

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

30. Jane hung two objects X and Y on each end of a balance. The balance moved downwards on one end as shown in diagram 1.

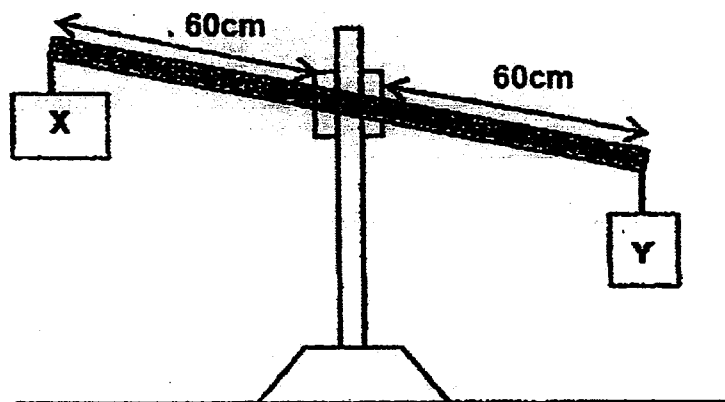


Diagram 1

Next, Jane placed object A directly below object Y and observed the result as shown in diagram 2 below.

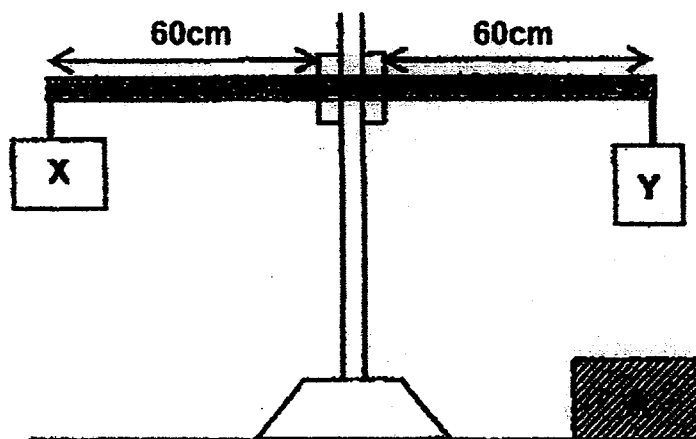


Diagram 2

Which one of the following best explains Jane's observation in diagram 2?

- (1) Object Y was lighter than object X.
- (2) Object A, X and Y were magnets.
- (3) Object X and Y were of the same mass.
- (4) Objects A and Y were magnets with like poles facing each other

End of Section A

Please check your answers.



# RED SWASTIKA SCHOOL

## 2015 SEMESTRAL ASSESSMENT 2 SCIENCE PRIMARY 4

Name : \_\_\_\_\_ (      )

Class : Primary 4/ \_\_\_\_\_

Date : 2 November 2015

### BOOKLET B

14 Questions  
40 Marks

In this booklet, you should have the following:

- a. Page 23 to Page 37
- b. Questions 31 to 44

### MARKS

	OBTAINED	POSSIBLE
BOOKLET A		60
BOOKLET B		40
TOTAL		100

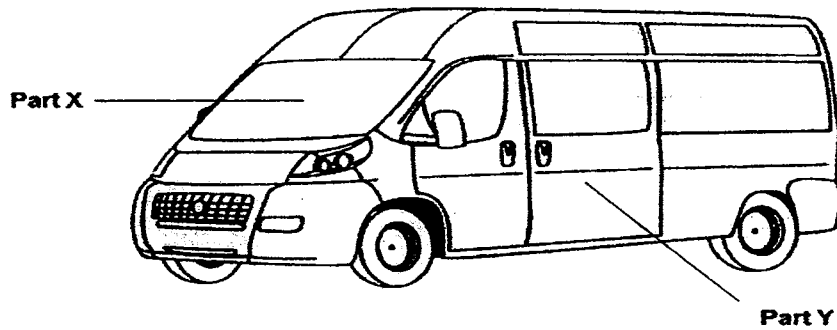
Parent's Signature : \_\_\_\_\_



**Section B**

Answer all the questions in the space provided.

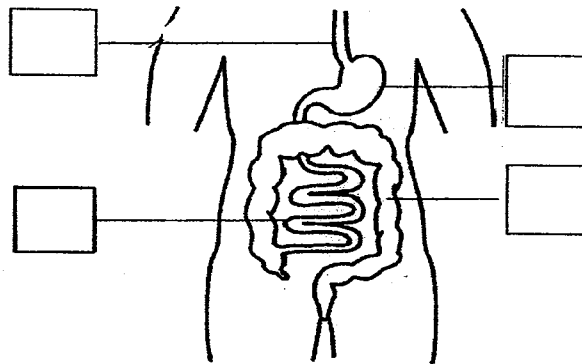
31. The diagram below shows a vehicle.



(a) Part X is made of glass because it allows \_\_\_\_\_ to pass through so that the driver can see the road. (1m)

(b) Part Y is made of \_\_\_\_\_ because Y has to be strong. (1m)

32. The diagram shows part of the human digestive system.

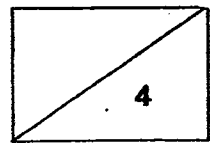


(a) Tick one box to show where the gullet is. (1m)

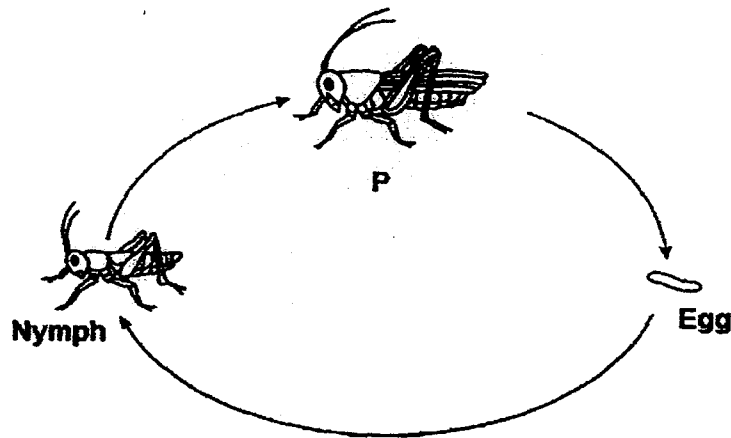
(b) Fill in the blank using the following helping words. (1m)

large intestine	gullet	small intestine	mouth
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Food from the small intestine is next passed on to the \_\_\_\_\_



33. The diagram below shows the stages in the life cycle of a grasshopper.



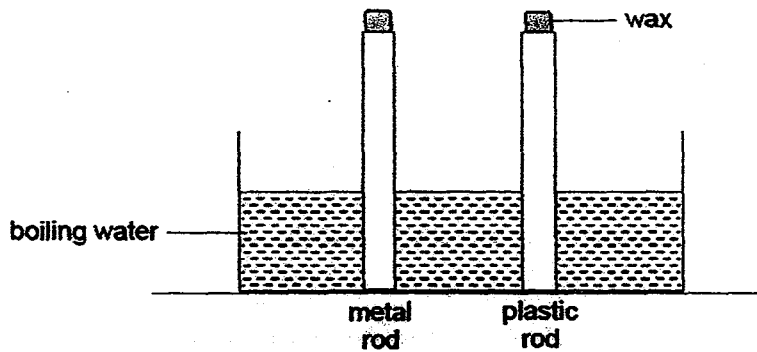
(a) Name stage P. (1m)

\_\_\_\_\_

(b) State one other insect that has a similar life cycle as a grasshopper. (1m)

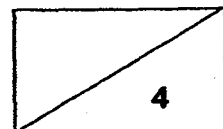
\_\_\_\_\_

34. James placed a metal rod and a plastic rod into a tank of boiling water as shown below. Equal amounts of wax were put on both rods.

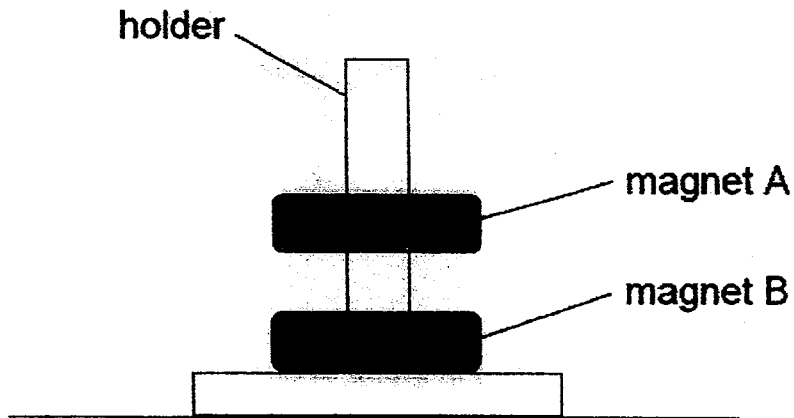


What would he observe and why? (2m)

The wax on the plastic rod melted \_\_\_\_\_ than the wax on the metal rod, as plastic is a \_\_\_\_\_ conductor of heat than metal.



35. Alice placed two ring magnets, A and B, through a holder as shown below.

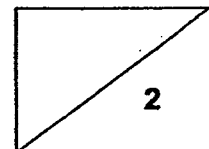


(a) The holder was made of plastic and did not attract the magnets.

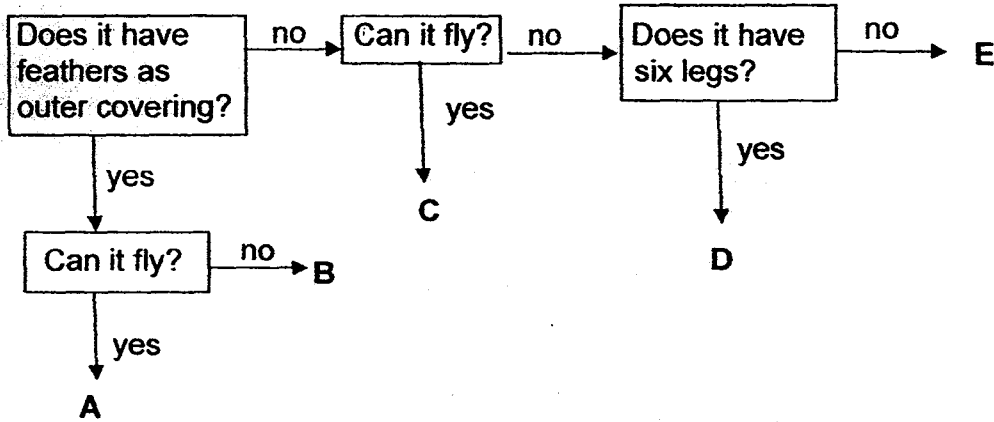
Plastic is a \_\_\_\_\_ material. (1m)

(b) Why was magnet A floating above magnet B?

Magnet B was \_\_\_\_\_ magnet A. (1m)



36. Study the flow chart below.

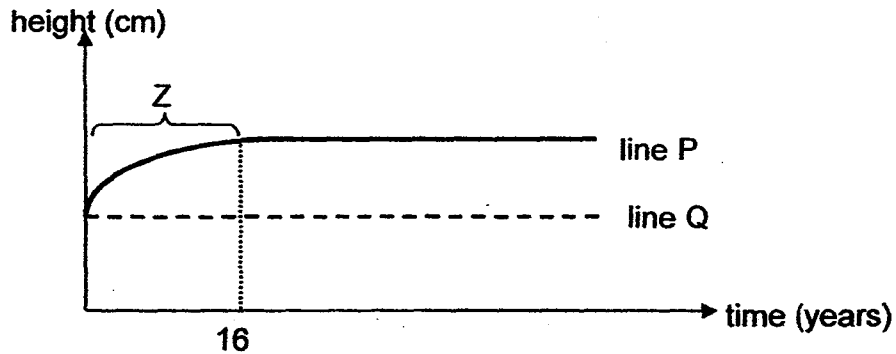


(a) Based on the flow chart, identify the group of animals that the animals in D is classified under. (1m)

(b) Classify the following animals by writing the most suitable letter, A, B, C, D or E, in the blanks provided. (1m)

(i) Pigeon: Group \_\_\_\_\_ (ii) Crocodile: Group \_\_\_\_\_

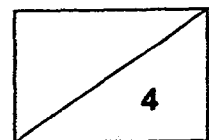
Rahida drew a graph that showed the changes in the height of a metal pole and a young boy over a period of time.



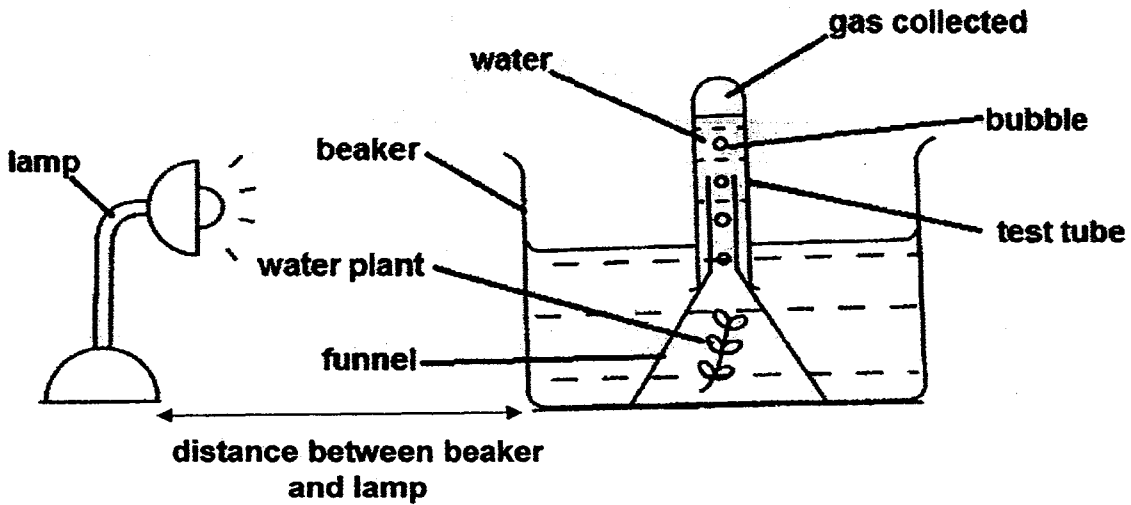
(c) Identify the lines, P and Q, that represent the change in height of the metal pole and the young boy. (1m)

(i) Metal pole : Line \_\_\_\_\_ (ii) Young boy : Line \_\_\_\_\_

(d) Which characteristic of a living/non-living thing best matches part Z of line P? (1m)



37. Hermione set up the following experiment in a dark room.



She calculated the number of gas bubbles released by the water plant per minute when the beaker was placed at different distances away from the lamp. Her results were as follow:

<b>Distance between beaker and lamp (cm)</b>	5	10	15	20	25
<b>Number of gas bubbles released per minute</b>	15	11	9	?	2

(a) Predict the likely number of gas bubbles released per minute when the distance between the beaker and lamp is 20cm. (1m)

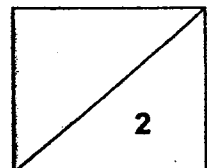
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(b) What is the relationship between the distance between the beaker and the lamp and the number of gas bubbles released per minute? (1m)

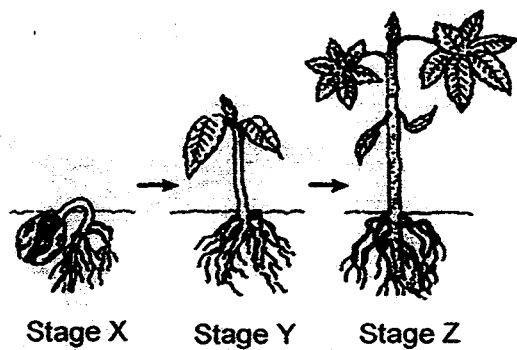
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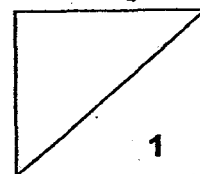
37. The picture shows the growth of a plant.



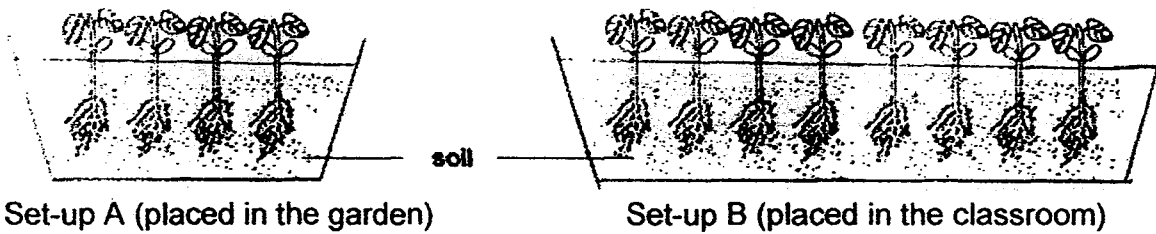
(c) The plant at stage Y makes less food than the plant at stage Z. Give a reason to explain why. (1m)

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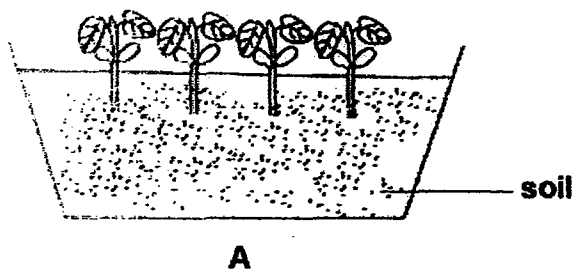
38. Ahmad set up the following experiment to find out how the amount of soil affects the growth of the plants. The same amount of water was given daily.



(a) Ahmad's experiment is not a fair one. Tick two changes he can make to set-up B to make it a fair test. (2m)

Change	Tick (✓) the correct answer
Add four plants.	
Remove four plants.	
Use a larger container.	
Place the set-up in the school field.	
Place the set-up in the garden.	

After one week, Ahmad made the following change to set-up A.

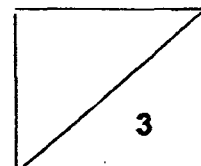


(b) He found out that the plants died after a few days. Why? (1m)

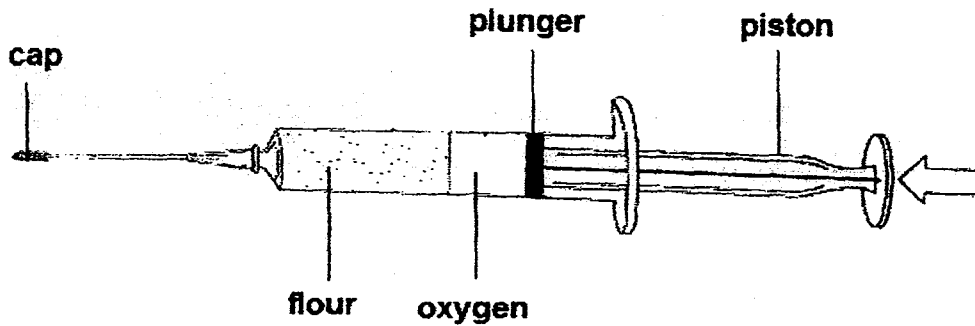
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39. Look at the diagram below.



(a) Identify the state of matter for flour. (1m)

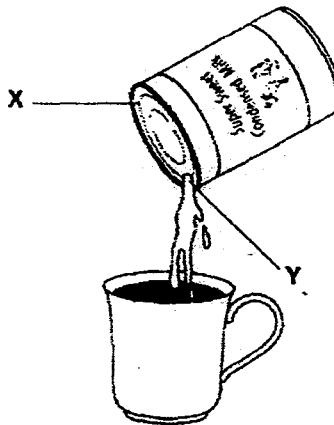
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(b) When the piston is pressed, the plunger could move in slightly. Why? (2m)

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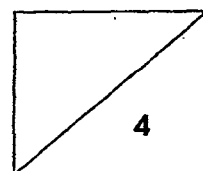
Nikita is pouring some condensed milk into her coffee through hole Y in the tin as shown. The condensed milk flows very slowly out of the tin.



(c) When she pokes another hole at X, she finds that the condensed milk flows faster from hole Y. Why? (1m)

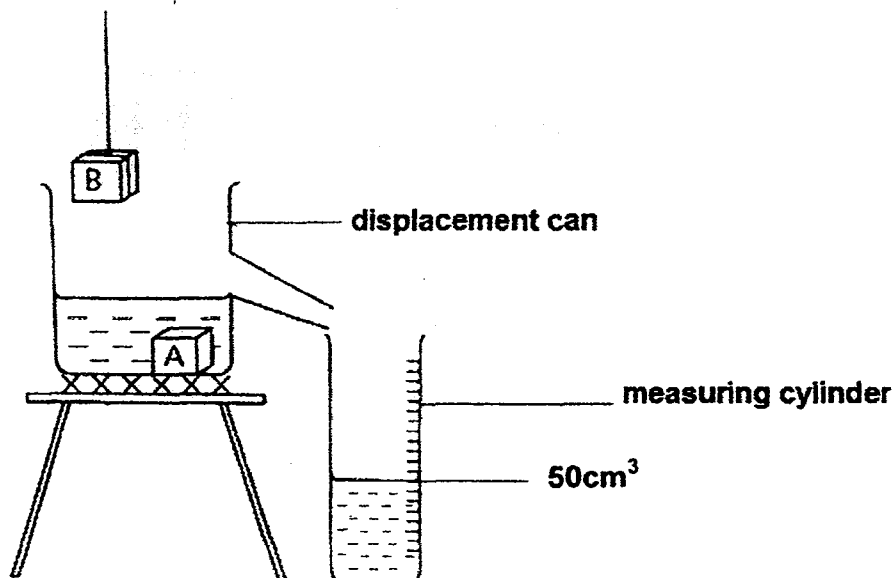
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40. Study the diagram carefully.



When block A is lowered into the displacement can, 50cm<sup>3</sup> of water flows from the can into the measuring cylinder. When block B is lowered into the can, with block A still in the can, the level of water in the measuring cylinder increased to 120cm<sup>3</sup>.

(a) What can be concluded about the volume of block B compared to block A? (1m)

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(b) State one property of a solid that can be shown from the experiment. (1m)

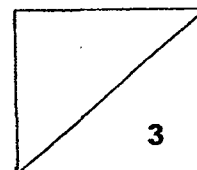
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(c) Block A was removed from the displacement can and heated evenly over a bunsen burner for five minutes. The volume of block A after heating was 52cm<sup>3</sup>. Explain why. (1m)

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41. Devi conducted an experiment in the Science room. She poured 500ml of warm water at 65°C into a metal container and sealed it. The container was then placed in a styrofoam box as shown in diagram 1.

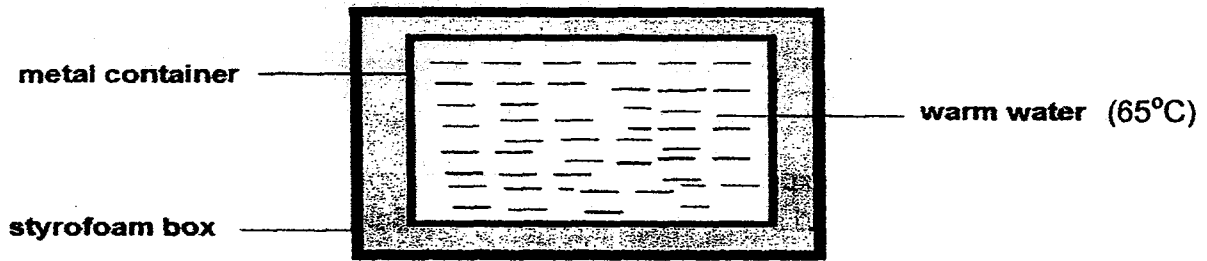
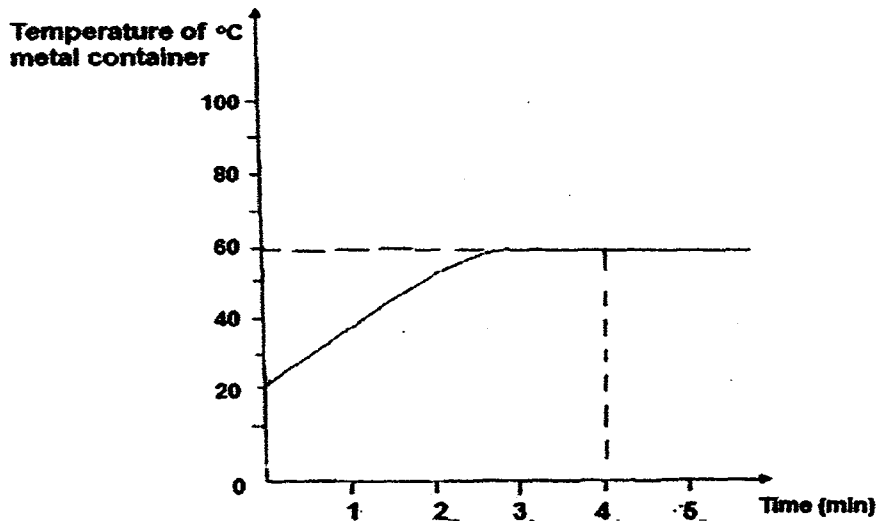


Diagram 1

The temperature of the metal container was taken at regular intervals. The graph below shows the change in the temperature of the metal container over time.



(a) Based on the graph, describe the change in the temperature of the metal container from zero to three minutes. (1m)

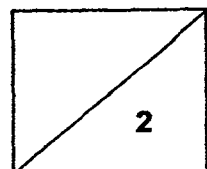
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(b) Based on the answer for part (a), why did the temperature of the metal container change? (1m)

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- (c) The temperature of the Science room was  $30^{\circ}\text{C}$ . Why was the styrofoam box able to maintain the temperature of the metal container at  $60^{\circ}\text{C}$  from the third to the fifth minute? (2m)

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Devi repeated her experiment with only the metal container as shown. The container was placed in the same location at the Science room.

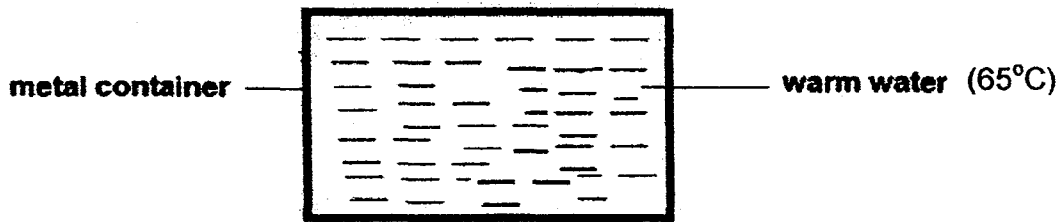
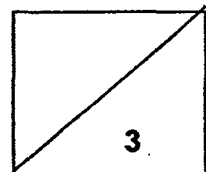


Diagram 2

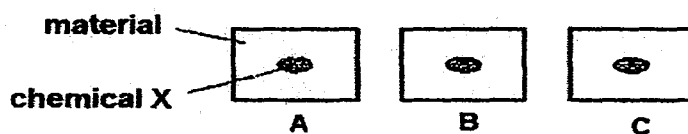
- (d) Would the warm water in the metal container in diagram 2 take a shorter or longer time to reach room temperature than in diagram 1? Why? (1m)

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42. Henry carried out an experiment to find out which material could conduct the most heat. Three different materials of the same size were used. A drop of chemical X was placed on each material before they were heated.



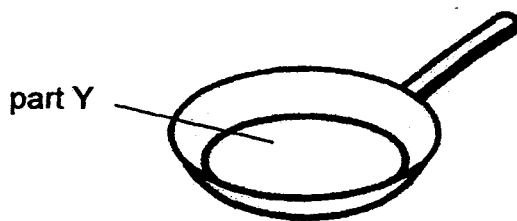
The table below shows how the colour of chemical X changes with different temperature.

Temperature	Colour of chemical X
30°C to 39°C	white
40°C to 50°C	yellow
51°C to 70°C	orange

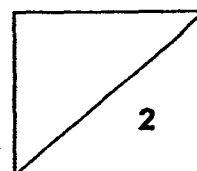
After the materials were heated for five minutes, Henry recorded his observations in the table below.

Material	Colour of chemical X after 5 minutes
A	orange
B	white
C	yellow

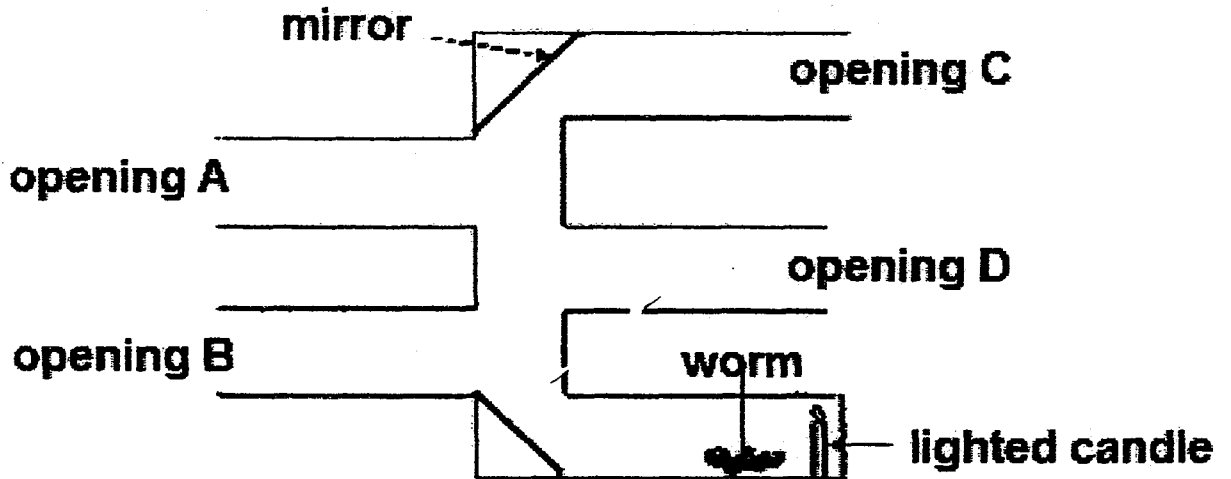
(a) Which material, A, B or C, is most suitable to make part Y of a frying pan?  
(1m)



(b) Explain your answer in part (a). (1m)



43. Robert carried out an experiment as shown below. There were four openings, A, B, C and D.



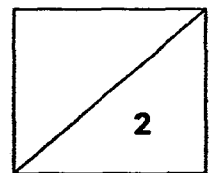
(a) Draw a line in the diagram to show where a mirror should be placed so that Robert could see the worm from opening D. (1m)

(b) Which two properties of light are shown in the above experiment? (1m)

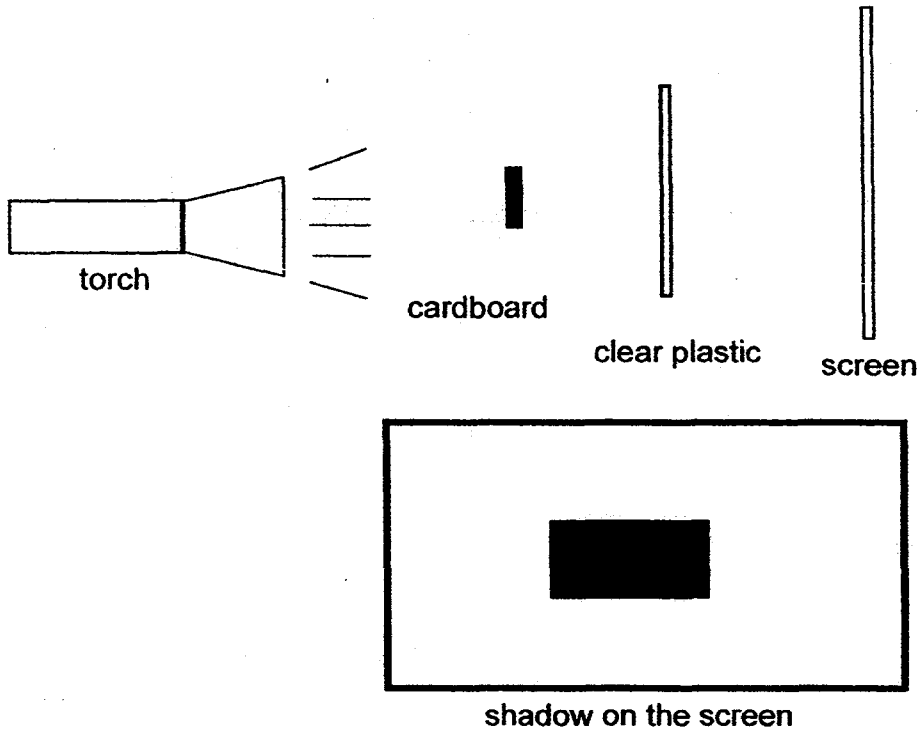
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43. Jamie conducted an experiment in a dark room. She shone a torch on the cardboard. A shadow was formed on the screen as shown.



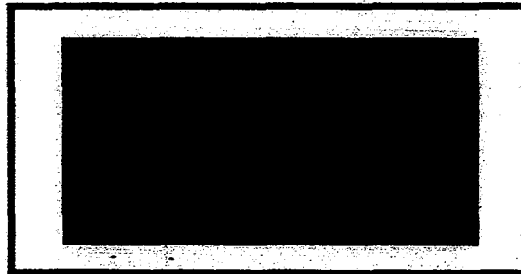
- (c) What should Jamie do to decrease the size of the shadow without moving the torch? (1m)

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Jamie changed the clear plastic to a wooden board of the same size and thickness. The position of the torch, cardboard, wooden board and screen remained unchanged.

When the torch was turned on, the following shadow was seen on the screen.

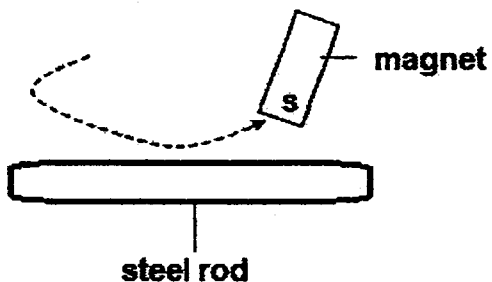


- (d) Explain why the shadow became bigger. (1m)

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44. Karen was using the stroke method to make a steel rod into a magnet. She noted her observations in the table below.



<b>Number of strokes</b>	20	30	40
<b>Number of paper clips attracted to the steel rod</b>	2	3	5

(a) From the table, what could she conclude about the number of strokes and the magnetic strength of the steel rod? (1m)

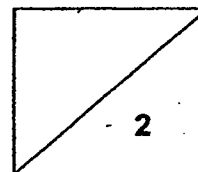
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(b) Karen repeated the experiment by changing the steel rod into a copper rod. Would the copper rod attract any paper clips? Why? (1m)

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**End of Section B**  
**Please check your answers.**





**EXAM PAPER 2015**

**LEVEL : PRIMARY 4**

**SCHOOL : RED SWASTIKA SCHOOL**

**SUBJECT : SCIENCE**

**TERM : SA2**

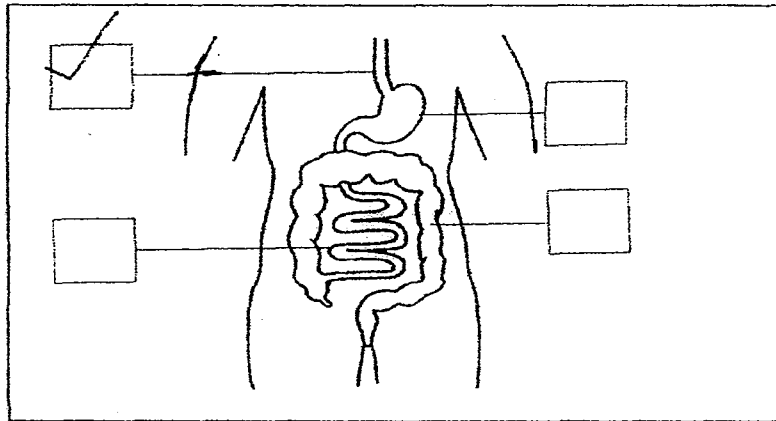
Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q 9	Q 10
2	2	3	3	2	2	2	4	1	3
Q 11	Q 12	Q 13	Q 14	Q 15	Q 16	Q 17	Q 18	Q 19	Q 20
1	1	3	4	4	3	1	4	4	1
Q 21	Q 22	Q 23	Q 24	Q 25	Q 26	Q 27	Q 28	Q 29	Q 30
3	3	3	1	2	2	2	4	4	4

Q31a. light

Q31b. metal

Q32a. **SEE PICTURE**

Q32b. large intestine



Q33a. Adult grasshopper

Q33b. Cockroach

Q34 slower / poorer

Q35a. non magnetic

Q35b. repelling

Q36a. The animals in D is classified under insects.

Q36b (i) Group A    Q36b (ii) Group E

Q36c (i) Line Q    Q36c (ii) Line P

Q36d. Living things grow in height.

Q37a. The likely number is 7.

Q37b. As the distance between the beaker and the lamp increase, the number of gas bubbles released per minute decrease.

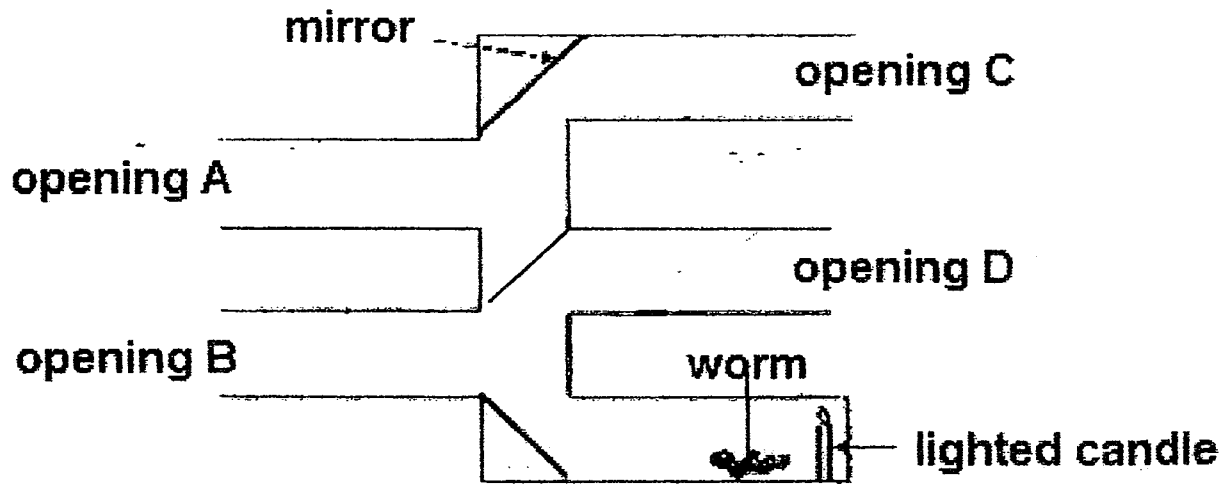
Q37c. Stage Y has lesser leaves than stage Z, therefore stage Y makes less food than the plant at stage Z.

Q38a. Remove four plants.

Q38a. Place the set up in the garden

- Q38a. Remove four plants.      Q38a. Place the set up in the garden
- Q38b. The plant had no roots and could not absorb water.
- Q39a. Solid
- Q39b. Oxygen can be compressed.
- Q39c. Air will enter through hole X to displace the condensed milk at hole Y.
- Q40a. Block B have more volume than block A.
- Q40b. Solid has definite volume.
- Q40c. Block A gained heat from the Bunsen burner and expanded.
- Q41a. The temperature from the metal container rises from 20°C to 60°C within zero to three minutes.
- Q41b. The metal container gained heat from the warm water in it, so its temperature increased.
- Q41c. Styrofoam was a poor conductor of heat and slowed down heat loss from the metal container to the surroundings.
- Q41d. Shorter time. Metal is a better conductor of heat which allows heat to be transferred more quickly from the warm water to the surroundings.
- Q42a. Material A
- Q42b. Material A has the highest temperature at the end of the experiment and, so it is the best conductor of heat as it conducts heat the fastest.
- Q43a. **SEE PICTURE - next page**
- Q43b. Light moves in straight line, mirror can reflect light.
- Q43c. Jamie should move the cardboard further away from the torch.
- Q43d. The wooden board was bigger than the cardboard and blocked more light.
- Q44a. The greater the number of strokes, the greater the magnetic strength of the magnet.
- Q44b. No. Copper is a non – magnetic material and cannot be magnetized.

Q43a



THE END

