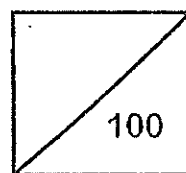




Rosyth School
Second Semestral Examination for 2014
SCIENCE
Primary 4

Name: _____

Total
Marks:



Class: Pr 4 _____ Register No. _____ Duration: 1 h 45 min

Date: 27th October 2014

Parent's Signature: _____

Booklet A

Instructions to Pupils:

1. Do not open the booklets until you are told to do so.
2. Follow all instructions carefully.
3. This paper consists of 2 booklets, Booklet A and Booklet B.
4. For questions 1 to 30 in Booklet A, shade the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.
5. For questions 31 to 44, give your answers in the spaces given in Booklet B.

* This booklet consists of 17 pages.

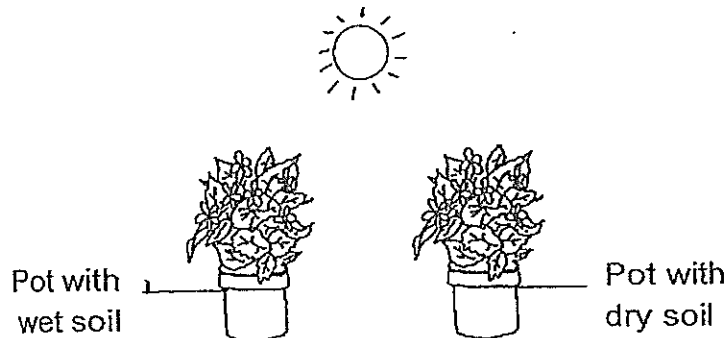
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Part I (60 marks)

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

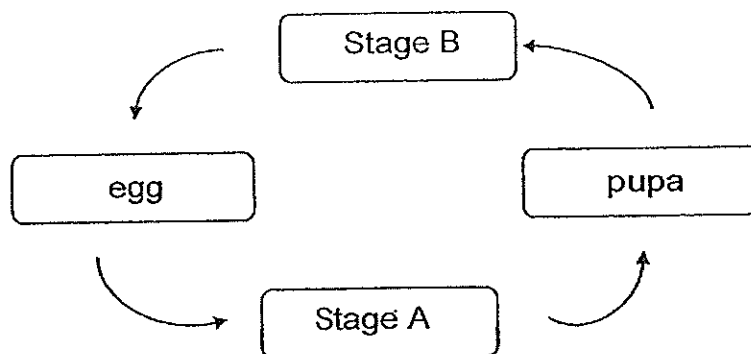
1. Kumar placed 2 similar plants, A and B, in a garden as shown below. He watered Plant A daily but not Plant B.

After some time, he noticed that Plant A grew taller but Plant B died. He concluded that plants need _____ to live.



- (1) air
(2) food
(3) water
(4) sunlight

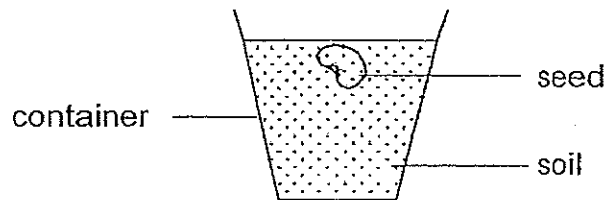
2. The diagram below shows the stages in the life cycle of an animal.



What are stages A and B?

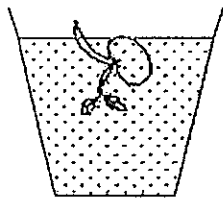
	Stage A	Stage B
(1)	adult	larva
(2)	larva	adult
(3)	nymph	Tarva
(4)	adult	nymph

3. Jill placed a seed into a container of soil as shown below. She poured water on the soil daily.

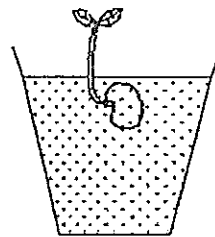


Which one of the following diagram shows what Jill will observe after some time?

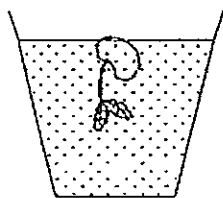
(1)



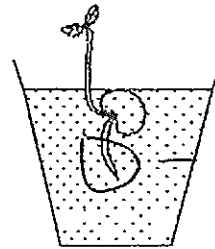
(2)



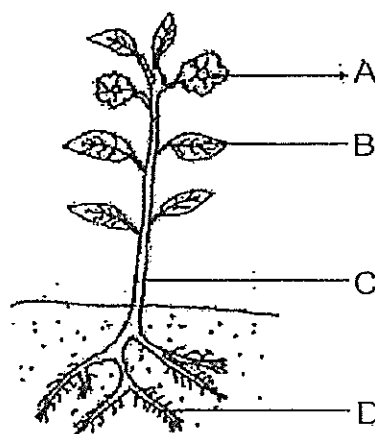
(3)



(4)



4. Which one of the following plant parts A, B, C or D produce fruits for the plant?



- (1) A
(3) C

- (2) B
(4) D

5. The table below describes three different states of matter, X, Y and Z.

	X	Y	Z
Has definite shape	No	Yes	No
Has definite volume	Yes	Yes	No

Based on the above table, which one of the following is correct?

	X	Y	Z
(1)	Solid	Liquid	Gas
(2)	Liquid	Solid	Gas
(3)	Solid	Gas	Liquid
(4)	Liquid	Gas	Solid

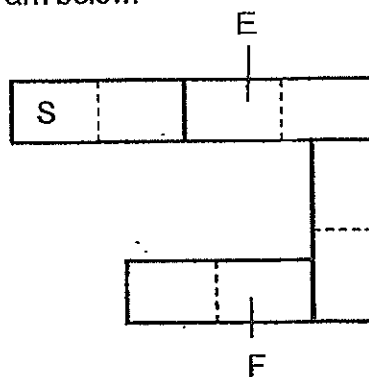
6. Which one of the following objects will be attracted to a magnet?

- (1) wooden chopsticks (2) aluminium foil
(3) plastic bag (4) iron rod

7. Mary had a bar magnet with the South Pole, S, marked as shown below.



She was given another three bar magnets and she arranged all four magnets as shown in the diagram below.

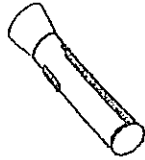


Which of the following are poles E and F?

	Pole E	Pole F
(1)	North	North
(2)	South	South
(3)	North	South
(4)	South	North

8. Which one of the following is a source of light?

(1)



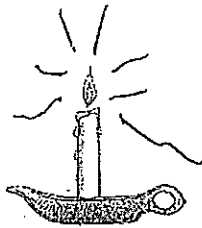
torchlight

(2)



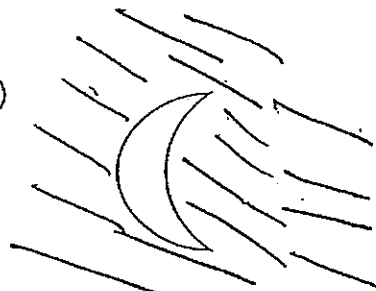
mirror

(3)



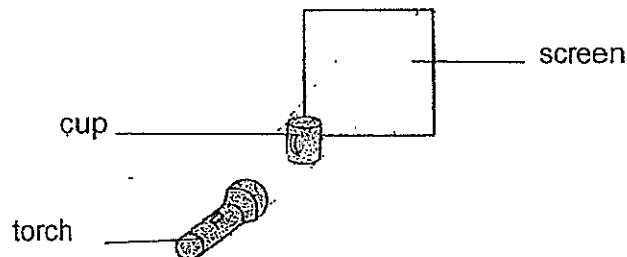
candle flame

(4)



moon

9. Hassan shines a torch on the cup as shown below.



Which one of the following shows the shadow of the cup on the screen?

(1)



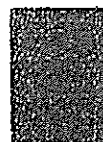
(2)



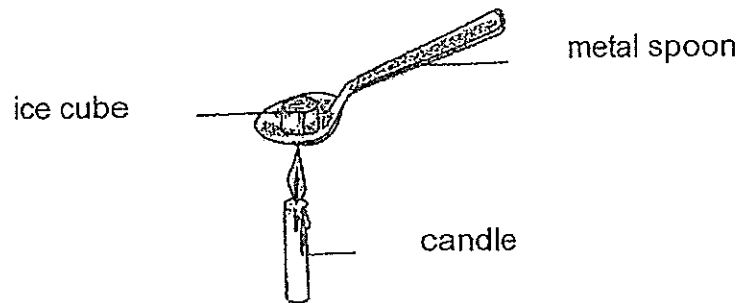
(3)



(4)



10. David heated an ice cube over a candle as shown below.

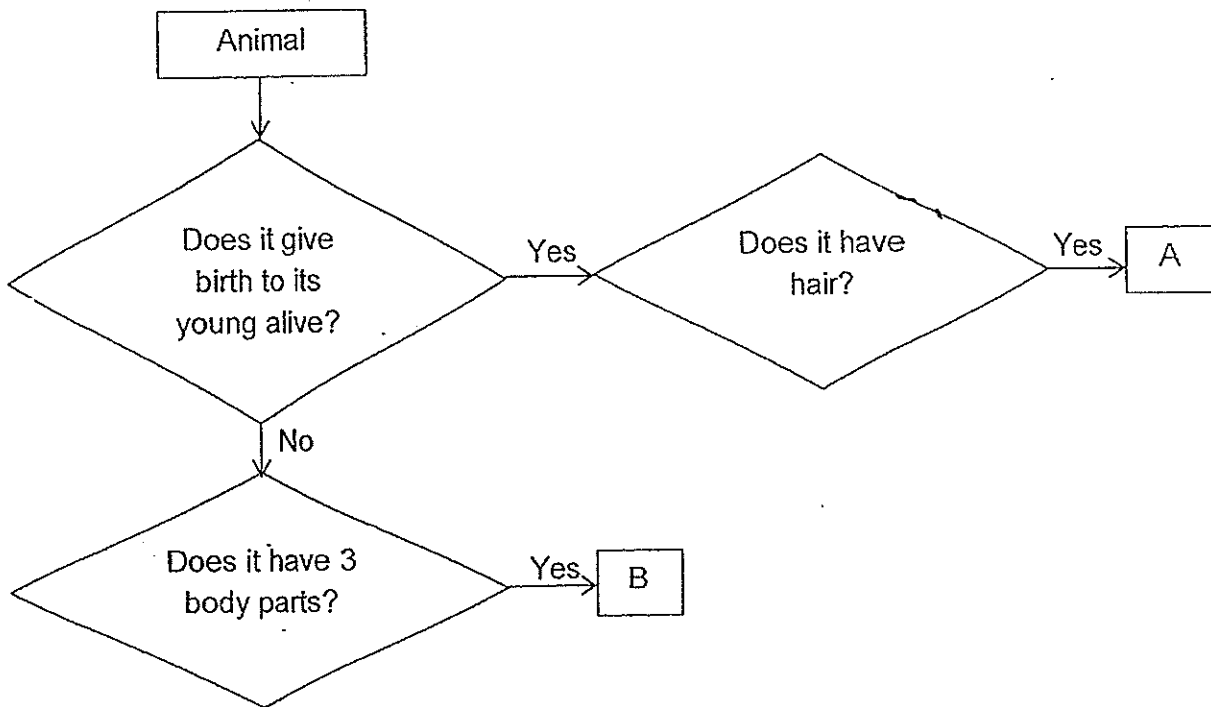


The ice will melt after a while.

Which one of the following statement explains why the ice melt?

- (1) The spoon gains heat from the ice cube.
- (2) The ice cube gains heat from the spoon.
- (3) The spoon loses heat to the candle flame.
- (4) The ice cube loses heat to the surrounding air

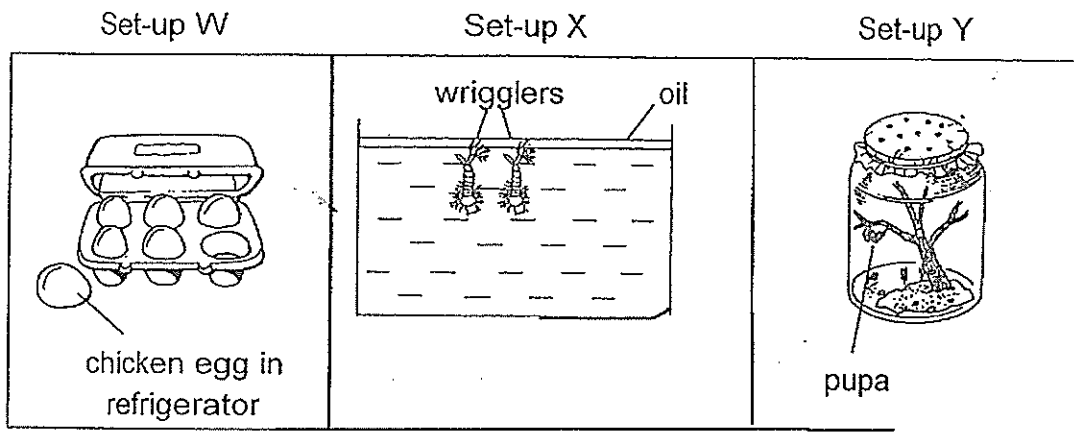
11. Study the flowchart below carefully.



Which of the following best represents A and B?

	A	B
(1)	fish	insect
(2)	mammal	bird
(3)	fish	mammal
(4)	mammal	insect

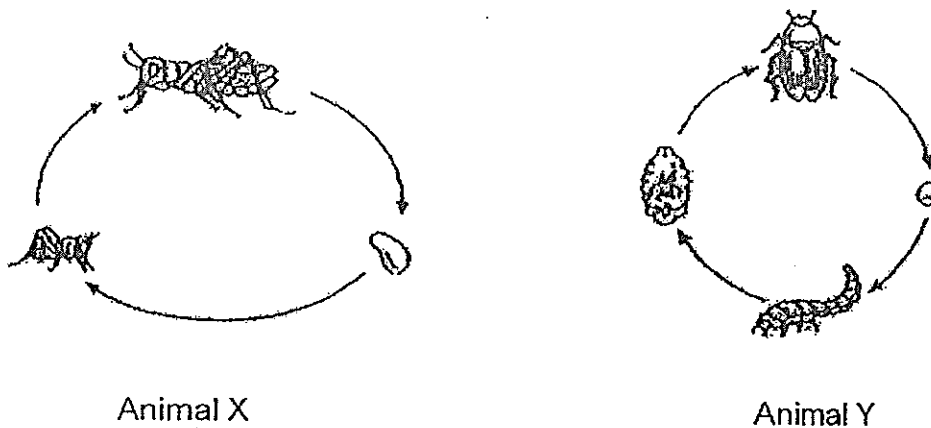
12. Study the following set-ups carefully.



In which of the following set-up would the labelled organism be able to develop into its next stage?

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

13. Compare the life cycle of Animal X and Y shown below.



Which of the following statement is true about the life cycles shown above?

- (1) Both life cycles have a nymph stage.
- (2) Animal X lays eggs but Animal Y does not.
- (3) Both life cycles have the same number of stages.
- (4) The young of Animal X resembles the adult but the young of Animal Y does not.

- | Stages in a life cycle | Amount of leaves eaten (g) in a plant per week |
|------------------------|--|
| W | 0 |
| X | 0 |
| Y | 0 |
| Z | 300 |

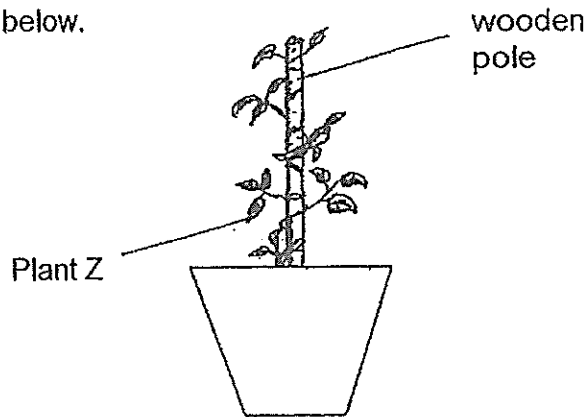
[illegible]

-
- A bar chart showing the mass of seed leaves (g) over five days. The y-axis is labeled 'Mass of seed leaves (g)' and the x-axis is labeled with 'Day 1', 'Day 2', 'Day 3', 'Day 4', and 'Day 5'. The mass decreases steadily from Day 1 to Day 5.
- | Day | Mass of seed leaves (g) |
|-------|-------------------------|
| Day 1 | 10.0 |
| Day 2 | 8.0 |
| Day 3 | 7.0 |
| Day 4 | 4.0 |
| Day 5 | 2.0 |

Ali: The leaves will make food for the young plant after Day 5.
Bala: The mass of the seed leaves will increase after Day 5.
Calvin: The young plant will die as the mass of the seed leaves decreases.
Daniel: The mass of the seed leaves decreases as the seed leaves provide food for the seedling.

(1) Ali and Daniel
(3) Balı and Calvin

16. Study Plant Z shown below.

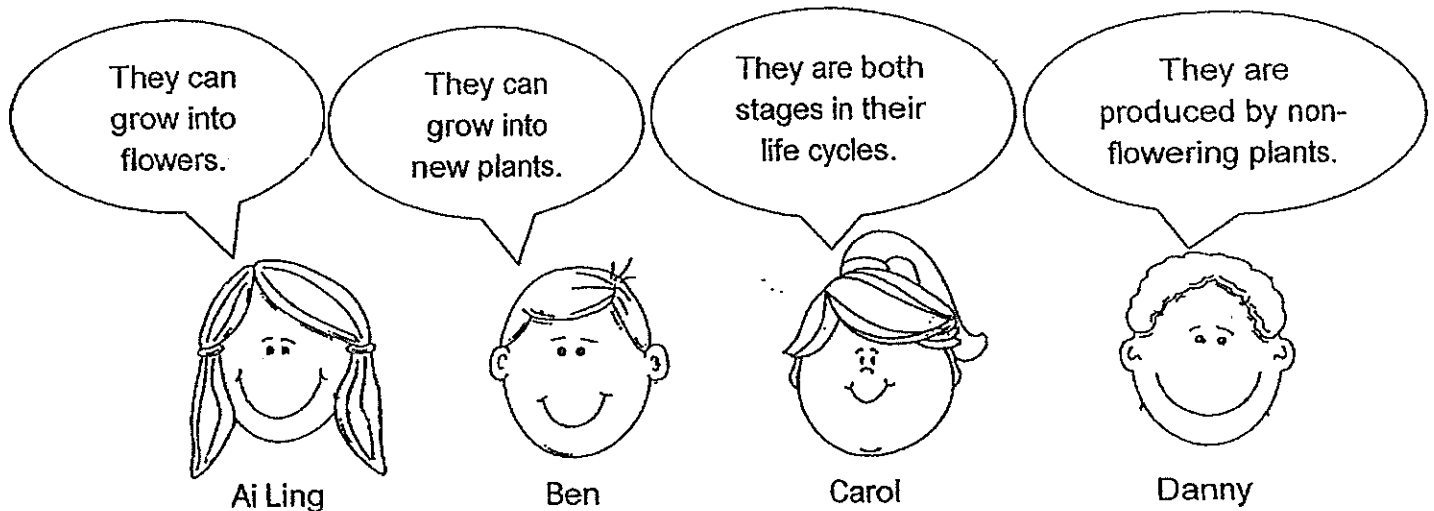


Which of the following statements best explain why a wooden pole is needed for Plant Z?

- A: It has a weak stem.
- B: It needs to reproduce.
- C: It needs to get as much sunlight as possible.
- D: It needs to absorb as much water as possible.

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

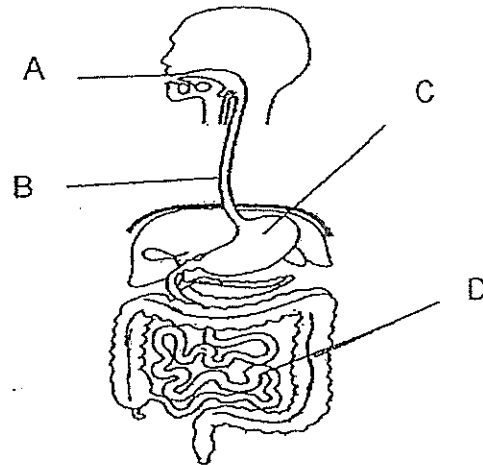
17. 4 students made the following statements about the seeds of a fruit and the spores of a fern.



Who made the correct statements?

- (1) Ai Ling and Ben
- (2) Ben and Carol
- (3) Carol and Danny
- (4) Ai Ling and Danny

18. The diagram below shows part of the human digestive system.



Which one of the following sets of information correctly indicates the changes in the amount of digested food in parts A, B, C and D?

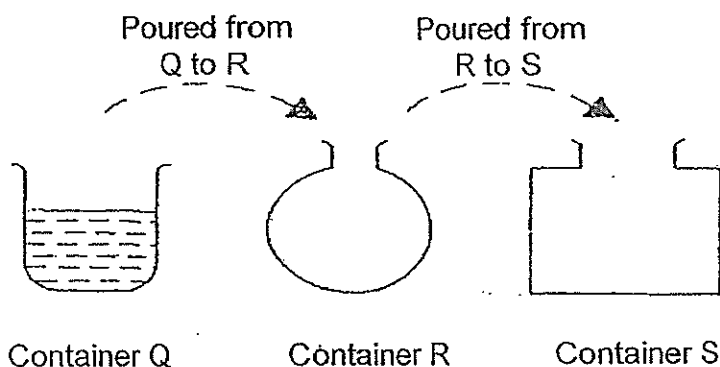
	A	B	C	D
(1)	Increases	No change	No change	Increases
(2)	Increases	No change	Increases	Increases
(3)	No change	No change	Increases	No change
(4)	No change	Increases	Increases	No change

19. Gopal wanted to select a material to make a toy boat.

Which property should he test to find out if it is most suitable to make the toy boat?

- (1) Whether it is waterproof (2) Hardness
(3) Strength (4) Whether it is breakable

22. Study the diagram below. Container Q has 400ml of water.

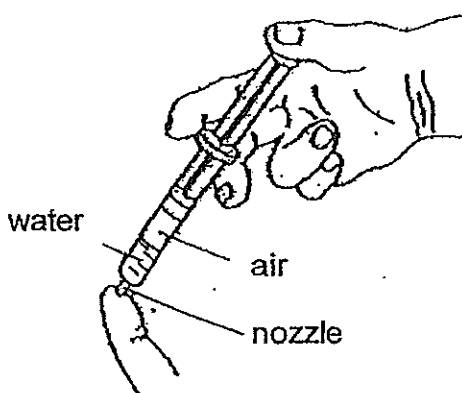


Which one of the following will remain the same when all the water is poured from Container Q to Container R and then to Container S, with no loss of water?

- A: Mass of water
B: Shape of water
C: Volume of water

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

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



Which one of the following is true when the plunger was pushed in?

	Volume of Air	Volume of Water
(1)	Decreases	Remains the same
(2)	Increases	Remains the same
(3)	Remains the same	Increases
(4)	Remains the same	Remains the same

24. Regina set up an experiment using object X, object Y and a bar magnet. When she placed object Y between object X and the bar magnet, she observed that object X is pulled towards the magnet as shown in Diagram 1.

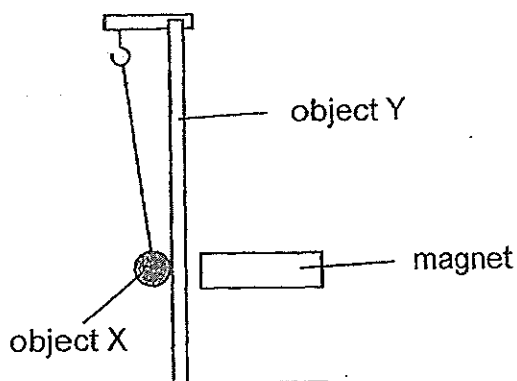


Diagram 1

However, when Regina replaced object Y with an iron sheet, she observed object X hung vertically in the position as shown in Diagram 2.

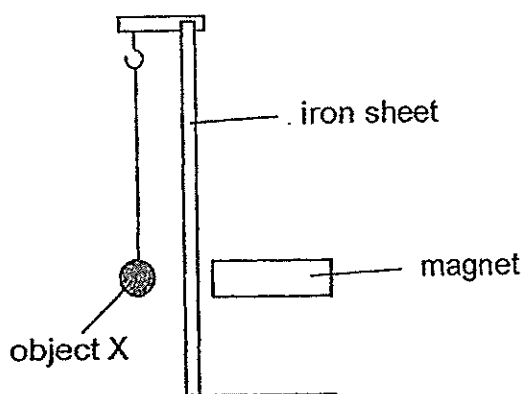
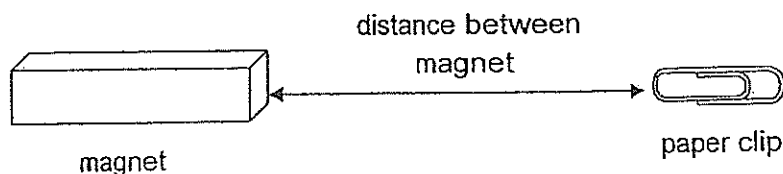


Diagram 2

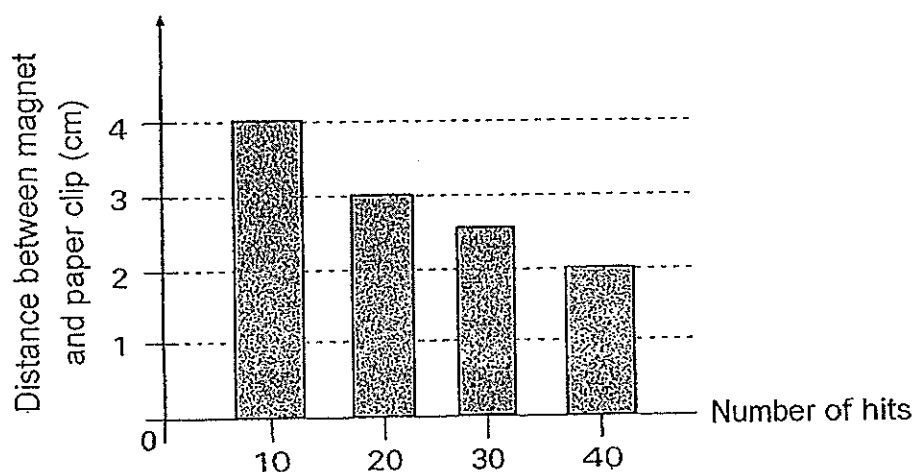
What materials were used to make objects X and Y?

	Object X	Object Y
(1)	copper	plastic
(2)	aluminium	steel
(3)	iron	aluminium
(4)	steel	steel

25. Three students conducted an experiment to find out if the strength of a magnet is affected by the number of times it was hit. They counted the number of times the same magnet was hit and measured the distance between the magnet and the paper clip before the paper clip was attracted to the magnet.



Their findings were recorded in the graph below.



Based on the graph above, the students make the following inferences.

Student 1: After 40 hits, the magnet could not attract the paper clip from a distance of 2cm.

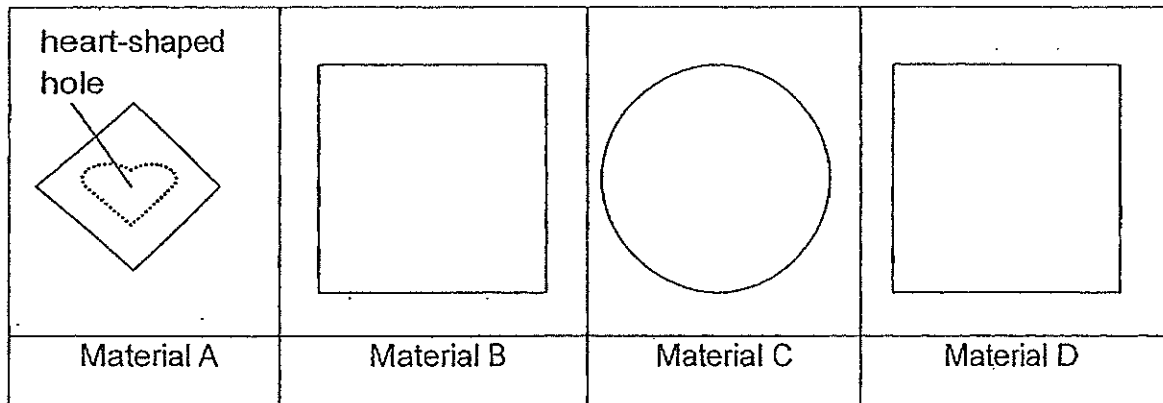
Student 2: After 30 hits, the magnet could not attract the paper clip from a distance of more than 2.5cm.

Student 3: Before being hit, the magnet could attract the paper clip from a distance of more than 4cm.

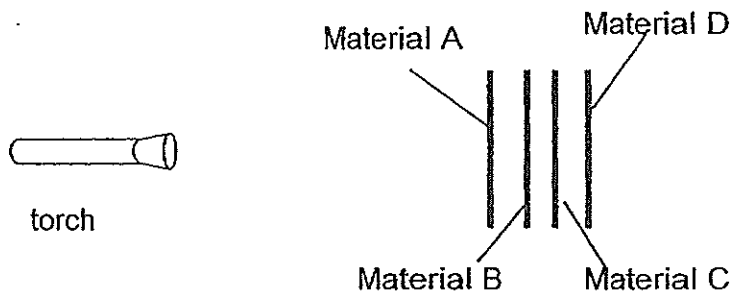
Whose inference(s) on the experiment is/are correct?

- (1) Student 1 only (2) Student 2 only
 (3) Students 2 and 3 only (4) Students 1, 2 and 3

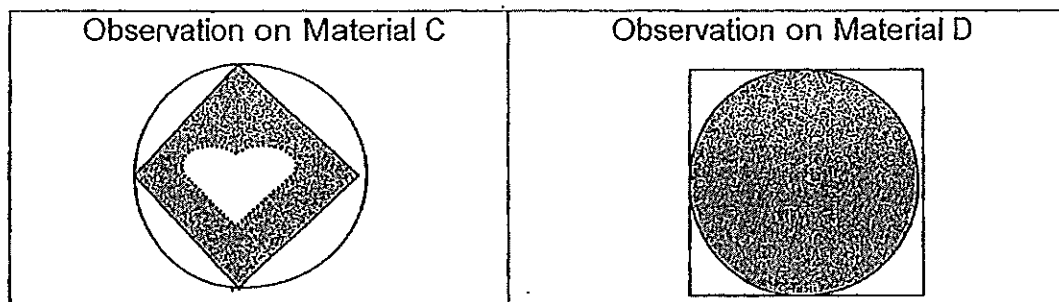
26. Muthu had 4 pieces of paper of different shapes and made of different materials as shown below.



He placed the 4 different materials one in front of the other as shown in the diagram below and shone a torch in front of them.



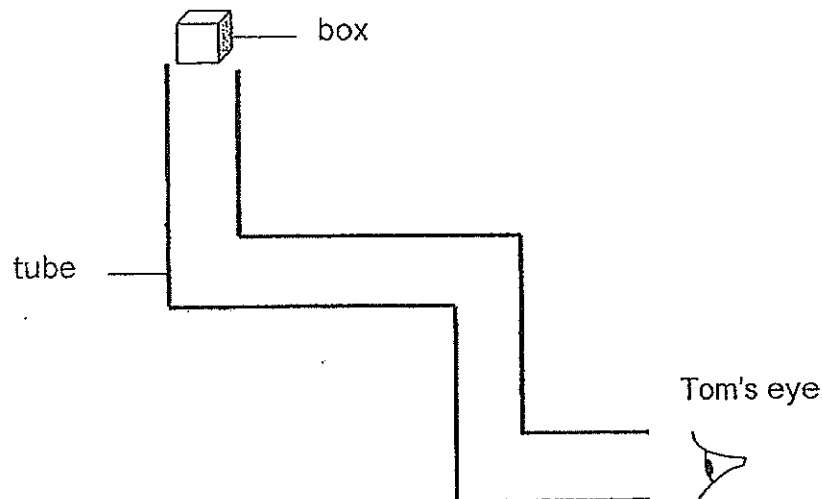
Muthu then recorded his observations on Material C and D as shown below.



Which of the following shows the degree of transparency of Material A, B, C and D respectively?

	Material A	Material B	Material C	Material D
(1)	opaque	transparent	opaque	opaque
(2)	transparent	transparent	transparent	opaque
(3)	opaque	transparent	opaque	transparent
(4)	opaque	opaque	opaque	transparent

27. Study the diagram below carefully.



For Tom to be able to see the box, mirrors should be placed in the tube. What is the minimum number of mirrors he needed?

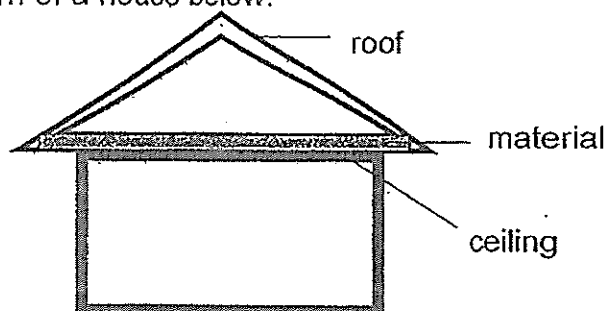
- (1) three
- (2) four
- (3) five
- (4) six

28. Sarah put a metal rod and a plastic rod into a refrigerator at a temperature of 3°C for a day. When she removed both rods from the refrigerator, the metal rod felt colder than the plastic rod.

Which are the most likely temperatures of both rods before they were taken out of the refrigerator?

	Metal Rod	Plastic Rod
(1)	1°C	3°C
(2)	3°C	3°C
(3)	3°C	1°C
(4)	5°C	3°C

29. Study the diagram of a house below.

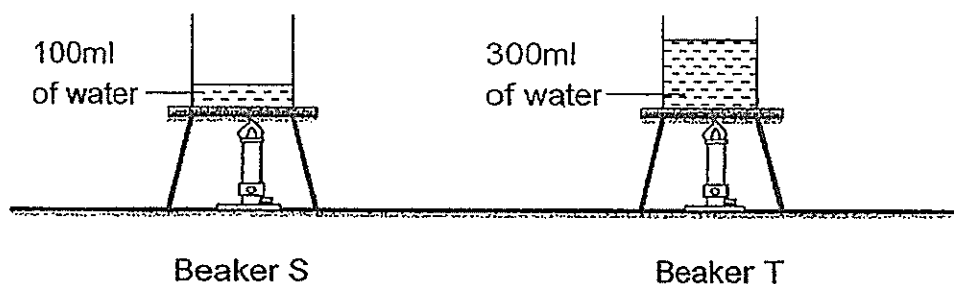


The material is placed in between the roof and the ceiling.

How does the material help to keep the house cool in a hot day?

- (1) It conducts heat easily from the ceiling to the roof.
- (2) It allows air to pass through easily into the house.
- (3) It allows heat to flow from the roof to the surrounding air easily.
- (4) It prevents heat from travelling from the roof to the ceiling easily.

30. Two beakers S and T, each containing water at 30°C , were heated with the same heat intensity until the water reached 60°C .



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

- A: The water in Beaker T will reach 60°C first.
- B: The water in Beaker S and T have the same amount of heat energy at the end of the experiment.
- C: The water in Beaker S has less heat energy than the water in Beaker T at the end of experiment.

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

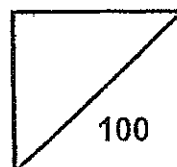
End of Part I



Rosyth School
Second Semestral Examination for 2014
SCIENCE
Primary 4

Name: _____

Total
Marks:



Class: Pr 4 _____ Register No. _____ Duration: 1 h 45 min

Date: 27th October 2014

Parent's Signature: _____

Booklet B

Instructions to Pupils:

1. For questions 31 to 44, give your answers in the spaces given in this Booklet B.

	Maximum	Marks Obtained
Booklet A	60 marks	
Booklet B	40 marks	
Total	100 marks	

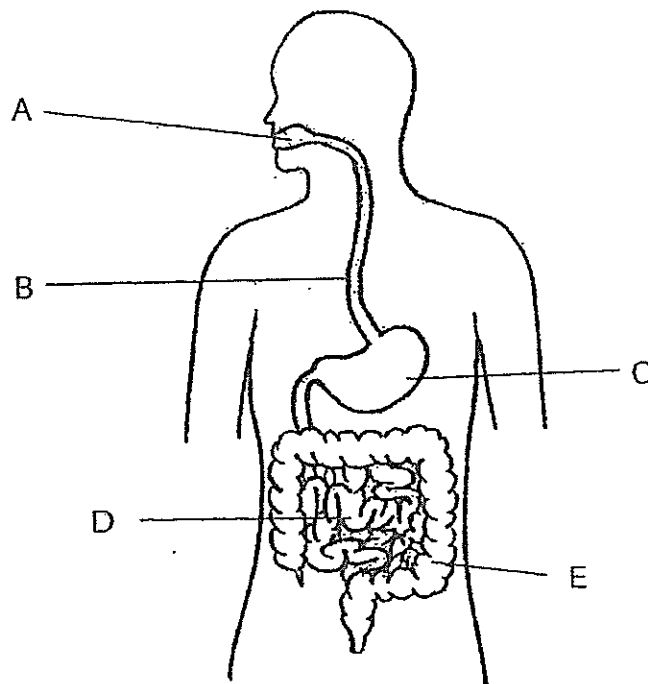
* This booklet consists of 12 pages.

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Part II (40 marks)

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

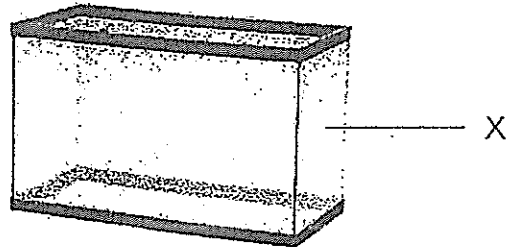
31. The diagram below shows the human digestive system. Parts A, B, C, D and E are the various organs in the human digestive system.



- (a) Name part C as shown in the diagram above. [1m]

- (b) Which part (A, B, C, D or E) indicates where the digested food enters the bloodstream? [1m]

32. Look at the fish tank shown below.

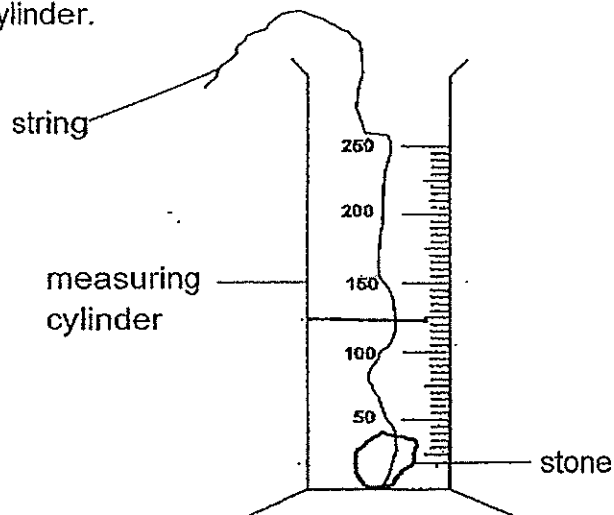


- (a) Name a suitable material to make part X. [1m]

- (b) Besides being waterproof, why is material in part (a) suitable? [1m]

33. Sebastian filled a measuring cylinder with 100ml of water. Next, he lowered a piece of stone into the measuring cylinder of water. He observed that the water level rose from the 100ml to the 125ml mark.

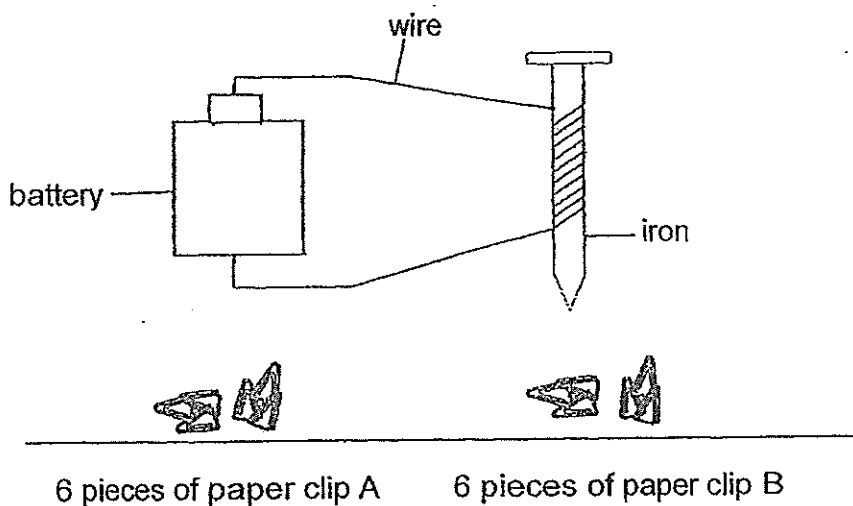
- (a) In the diagram below, draw in the water level of the stone and water in the measuring cylinder. [1m]



- (b) From the above experiment, what is the volume of the stone? [1m]

cm³

34. Amy used an iron nail, a battery and wire to make an electromagnet. She had two types of paper clips, A and B, made of different materials.



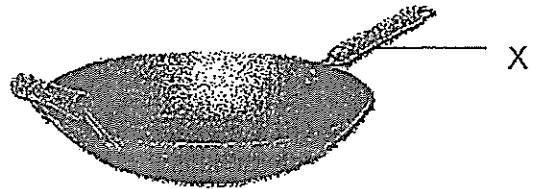
When she brought the iron nail near the paper clips, she recorded her observation in the table below.

Paper Clip	Number of paper clips attracted to iron nail
A	4
B	0

- (a) Name a material that paper clip A is likely made of. [1m]

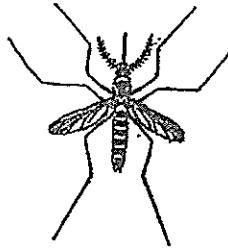
- (b) Suggest what Amy could do to increase the strength of her electromagnet besides increasing the number of coils of wires on the iron nail? [1m]

35. The diagram below shows a frying pan. It is used for cooking.



Suggest a suitable material to make part 'X'. Give a reason to support your choice. [2m]

36. Observe the animal shown in the diagram below.



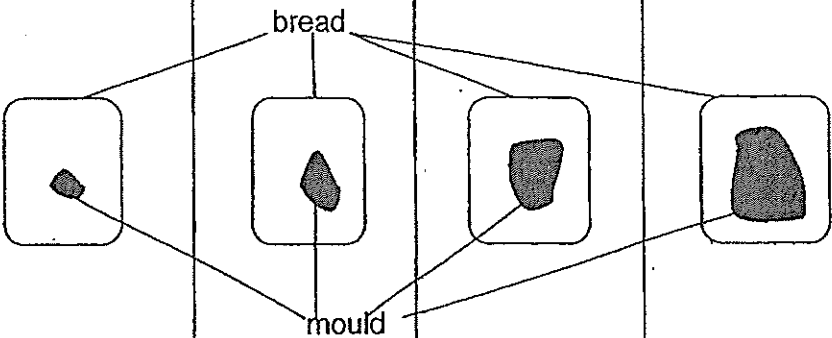
- (a) Based on your observations, which group of animal does this animal belong to? [1m]

- (b) Give a reason for your answer. [1m]

- (c) The animal can lay many eggs each time it reproduces. What is the advantage of laying many eggs? [1m]

37. Peter wanted to find out if the amount of water will affect the growth of bread mould.

He added different amount of water to 4 pieces of bread. He recorded his observation after a few days in the table below.

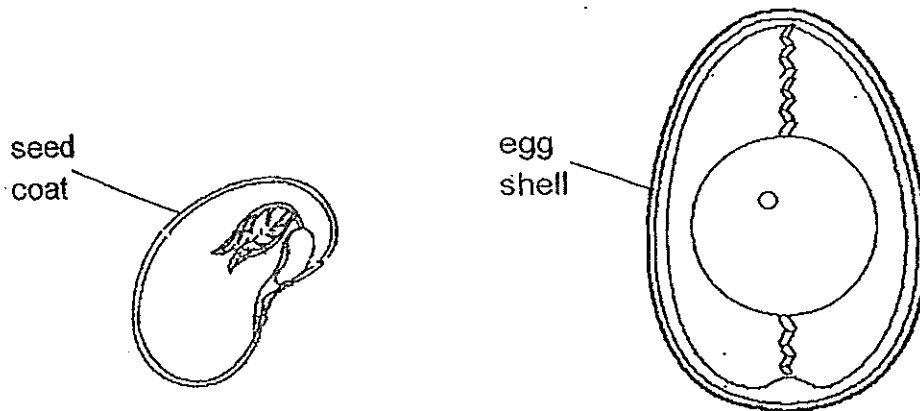
Set-up	A	B	C	D
Amount of water added (ml)	2	4	6	8
Appearance of mould on the bread after a few days				

- (a) Based on the result above, state the relationship between the amount of water added and the appearance of mould on the bread after a few days. [1m]

- (b) Identify and tick (✓) the correct variables shown in the table below. [2m]

Type of variables	Changed variable	Variable kept the same	Measured variable
(i) Location where the bread was left			
(ii) Type of bread used			
(iii) Amount of water added			
(iv) Appearance of mould on the bread after a few days			

38. The diagrams below show the inside of a bean seed and a chicken egg.

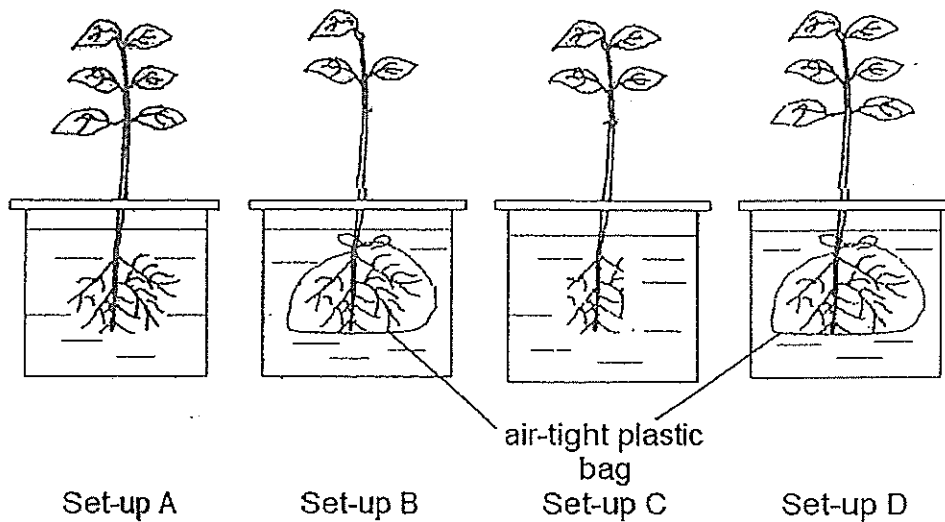


- (a) Both seed coat and egg shell share a common function. State the function. [1m]

- (b) Draw the life cycles of the bean plant and the chicken in the boxes below. [2m]

Life cycle of a bean plant	Life cycle of a chicken

39. Fiqah wants to find out if plants take in water through their roots.



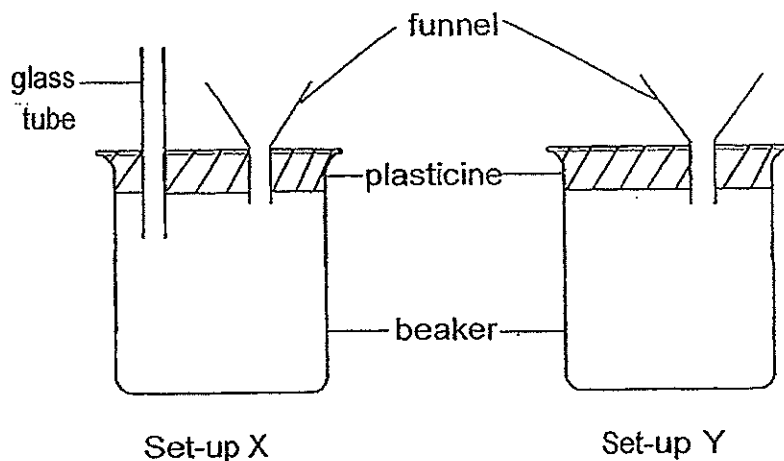
The roots of the plants in set-up B and set-up D are placed in air-tight plastic bags at the start of the experiment before being put into the beakers of water. Each set-up has the same amount of water.

- (a) Which of the two set-ups above should she choose to conduct a fair test? [1m]

- (b) Give a reason to support your answer in part (a) [2m]

- (c) Fiqah wants to repeat the experiment by replacing the air-tight plastic bags with a piece of cloth. Do you think her experiment will be successful? Explain why. [1m]

40. The diagram below shows set-up X and set-up Y. An equal amount of water was poured into each funnel.

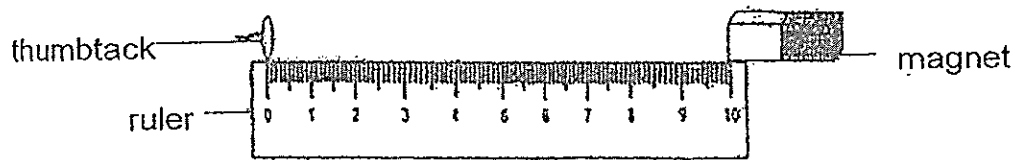


- (a) Based on your observations of the above set-ups, compare the amount of water that would flow into X and Y. [1m]

- (b) Give a reason for your answer in part (a). [2m]

- (c) What would you do to make the water in X flow faster? [1m]

41. Derek carried out an investigation to find out the 'pulling' distance of 3 different types of magnets A, B and C on a thumbtack. The 'pulling' distance of a magnet is the furthest distance from which the magnet is able to attract a magnetic object.



He recorded the 'pulling' distance of the different magnets in the table below.

Magnet	'Pulling' Distance (cm)
A	2.5
B	0.8
C	1.4

- (a) Based on Derek's results, arrange the magnets according to their strengths, from the strongest to the weakest.

Write down the answers in the boxes provided below.

[1m]

strongest

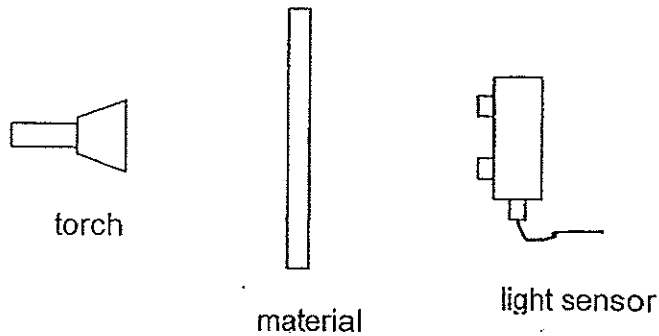
→

weakest

- (b) State one variable that Derek must keep the same throughout the investigation so that his test is a fair one. [1m]

- (c) State the relationship between the strength of the magnet and the 'pulling' distance of the magnet. [1m]

42. David carried out an experiment to investigate the amount of light passing through 4 different materials W, X, Y and Z of similar size and thickness. Using a light sensor and a torch, he set up the experiment as shown below.



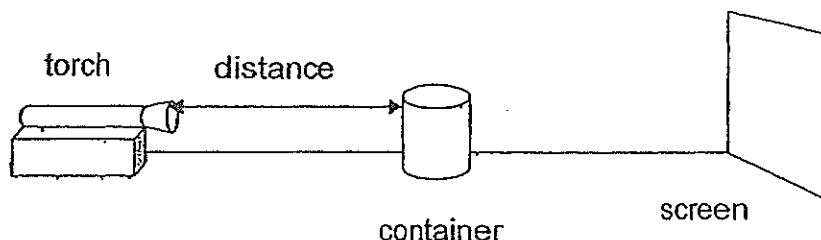
He then recorded his results in the table below.

Material	Amount of light detected (units)
W	30
X	10
Y	15
Z	5

- (a) Why was there different amount of light detected by the light sensor for materials W, X, Y and Z? [1m]

- (b) Based on David's results, which is the most suitable material to make an umbrella to be used on a sunny day. Give a reason to support your choice. [1m]

43. Suzy set up the experiment as shown below. She changed the distance between the torch and the container.



The table below shows the results of Suzy's experiment.

Distance between torch and the container (cm)	Height of the shadow on the screen (cm)
20	6
15	8
10	10
5	12

- (a) (i) State the measured variable: [1m]

- (ii) State the changed variable: [1m]

- (b) What can Suzy do if she wants to decrease the height of the container's shadow without moving the position of the torch? [1m]

- (c) What should Suzy do to ensure that the results of her experiment are reliable? [1m]

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44. Jason had a black and a silver bottle. He filled the 2 bottles with the same amount of water. Both the bottles and the water were at the same temperature at the beginning of the experiment.



silver bottle



black bottle

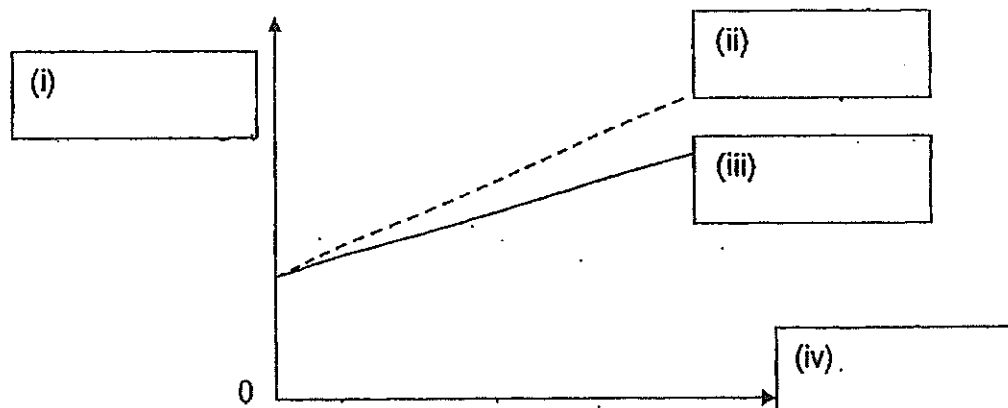
He then placed both bottles out in the sun. He measured the temperature of water in both bottles every 10 minutes for an hour.

The graph below shows the temperature changes of the water in the bottles over a period of time.

Fill in the boxes in the graph with the appropriate words given.

[4m]

black bottle	silver bottle
temperature of water	time



End of Paper

Year: 2014

Level: Primary 4

School: Rosyth School

Subject: Science

Semester: SA2

Booklet A:

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

Booklet B:

Q31) a) Stomach

b) Part D

Q32) a) Glass

b) The material is transparent.

Q33) a) (Draw at 125 ml marking)

b) 25

Q34) a) Steel

b) Increase the number of battery being used to make an electromagnet.

Q35) Plastic. Plastic is a bad conductor of heat. As we may get burnt if a good conductor of heat is used for the handle, a bad conductor of heat is needed to make the handle thus plastic is suitable.

Q36) a) Insects.

b) Insects have six legs, three body parts and a feeler just like the animal in the diagram.

c) To increase the chance of survival of its species.

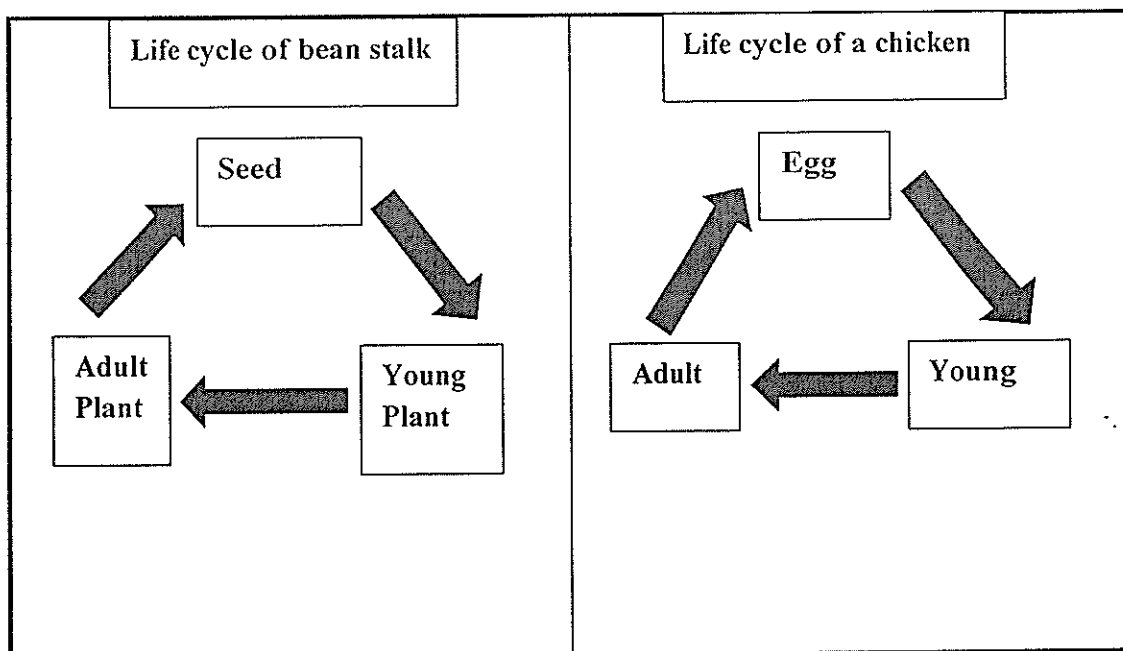
Q37) a) As the amount of water increases, the appearance of mould also increases.

b)

Type of variables	Changed variable	Variable kept the same	Measured variable
(i) Location where bread was left		✓	
(ii) Type of bread used		✓	
(iii) Amount of water added	✓		
(iv) Appearance of mould on the bread after a few days			✓

Q38) a) To protect the developing young inside the seed coat or egg shell.

b)



Q39) a) Set-up A and D

b) Set-up A and D both have the same number of leaves and same number of roots. The roots in set-up A can absorb water but the roots in set-up D cannot absorb water.

c) No, cloth is not waterproof and it can absorb water, allowing the roots to absorb the water.

Q40) a) More water will flow into set-up X than set-up Y.

b) Set-up X has a glass tube so air can escape and water can enter. Set-up Y does not have a glass tube to allow air to escape.

c) Loosen the Plasticine.

Q41) a) $A \rightarrow C \rightarrow B$

b) The type of thumbtack.

c) The more strength the magnet has, the longer the 'pulling' distance of the magnet.

Q42) a) Different materials allowed different amounts of light to pass through them.

b) Material Z as allows the least amount of light to be detected, making it suitable to be used for making a umbrella which is used on a sunny day.

Q43) a) (i) The height of the shadow on the screen.

(ii) The distance between the torch and the container.

b) Move the container further away from the torch.

c) Repeat the experiment a few times.

