

**NANYANG PRIMARY SCHOOL**

**PRIMARY 5 SCIENCE**

**SEMESTRAL ASSESSMENT 1**

**2014**

**BOOKLET A**

**Date : 8 May 2014**

**Duration : 1 h 45 min**

**Name : \_\_\_\_\_ (     )**

**Class: Primary 5 (     )**

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.  
FOLLOW ALL INSTRUCTIONS CAREFULLY.**

**Booklet A consists of 20 printed pages including this cover page.**

**Section A (30 x 2 marks = 60 marks)**

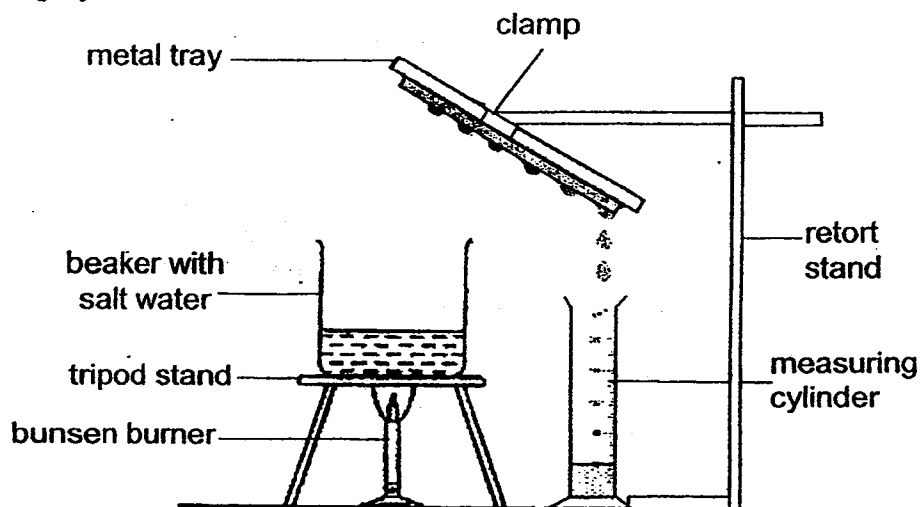
For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.

1. Which of the following statements are **true** about boiling and evaporation of water?

- A Boiling and evaporation of water take place at 100°C.
- B Water gains heat during evaporation and boiling of water.
- C Boiling and evaporation take place only at the surface of water.
- D There is a change in state of water during boiling and evaporation.

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

2. Pauline set up an experiment as shown below. At the end of the experiment, she observed that some water was collected in the measuring cylinder.

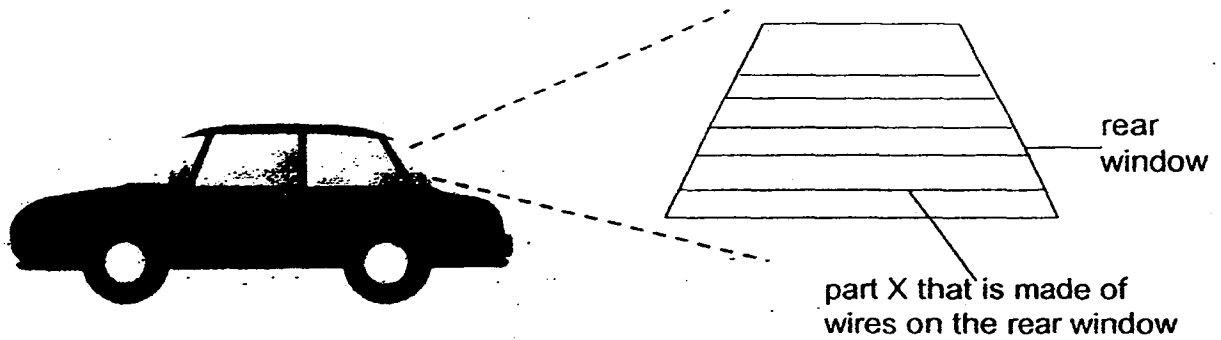


Which of the following statements is/are correct about the experiment above?

- A Salt water was collected in the measuring cylinder.
- B Salt was left behind in the beaker as the water evaporated.
- C Salt was collected on the metal tray at the end of the experiment.
- D Only water in the beaker evaporated into water vapour and condensed into water droplets on the metal tray.

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

3. Jie Ming noticed that the rear window of his father's car was misted up. When Jie Ming's father switched on part X, the mist on the rear window cleared up. Jie Ming touched the part of the rear window where part X was, it felt warm.

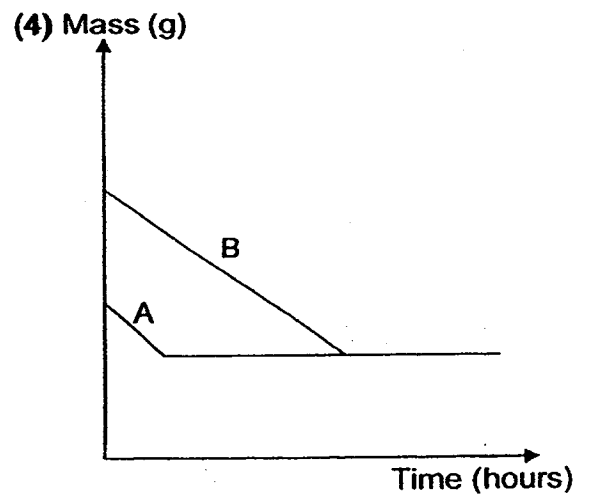
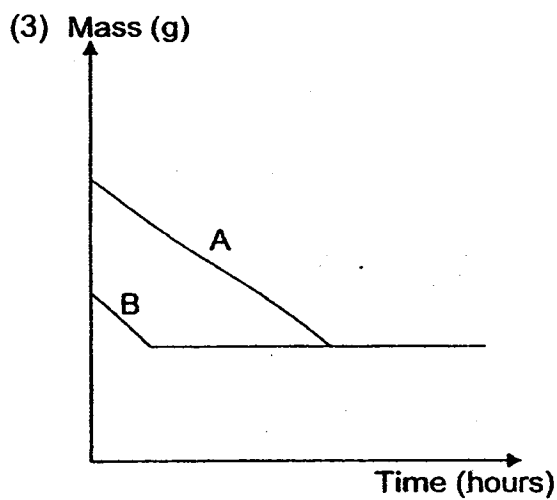
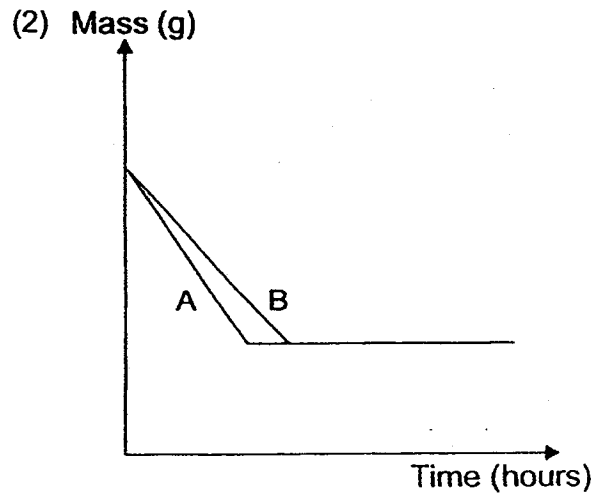
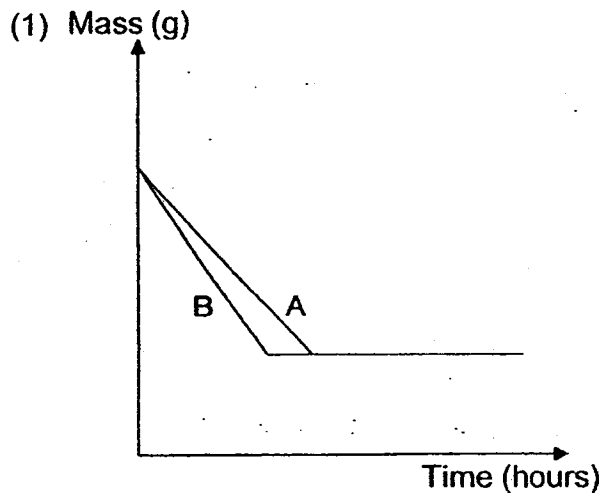


Which one of the following describes what happened when part X was switched on?

- (1) The mist on the rear window lost heat to part X.
- (2) The mist gained heat from part X and evaporated.
- (3) Surrounding air lost heat to part X and condensed into water droplets.
- (4) The temperature of the surrounding air is hotter than part thus causing water droplets to evaporate.

4. Taufiq conducted an experiment on the rate of evaporation of water. He poured an equal amount of water on 2 identical towels, A and B. Towel A was spread out in a closed cupboard but Towel B was spread out under the fan for a day.

Which one of the following graphs correctly shows the masses of towels A and B as time passed?

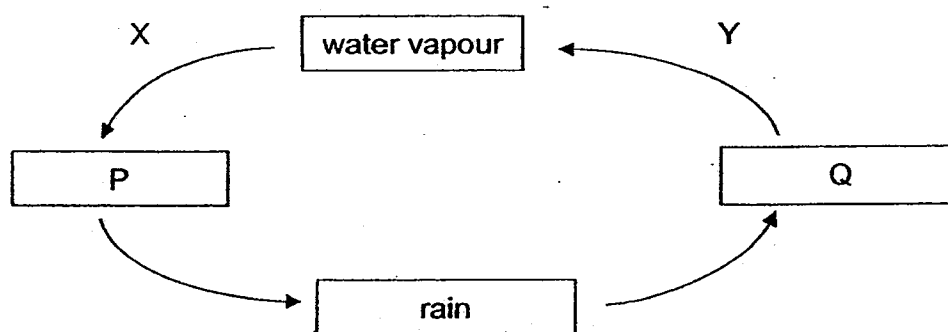


5. The table below shows the melting and boiling points of three substances, E, F and G.

Substances	Melting Point (°C)	Boiling Point (°C)
E	19	102
F	-5	18
G	71	134

Which one of the following observations is correct if the substances are placed in a room at 26°C?

- 1) Substance E is in the solid state.
  - 2) Substance G is in the solid state.
  - 3) Substances E and F are in the liquid state.
  - 4) Substances E and G are in the gaseous state.
6. The diagram below represents the water cycle.



Which one of the following represents P, Q, X and Y correctly?

	P	Q	Process X	Process Y
1)	water	clouds	evaporation	condensation
2)	water	clouds	condensation	evaporation
3)	clouds	water	condensation	evaporation
4)	clouds	water	evaporation	condensation

7. Which one of the following statements about reproduction is false?

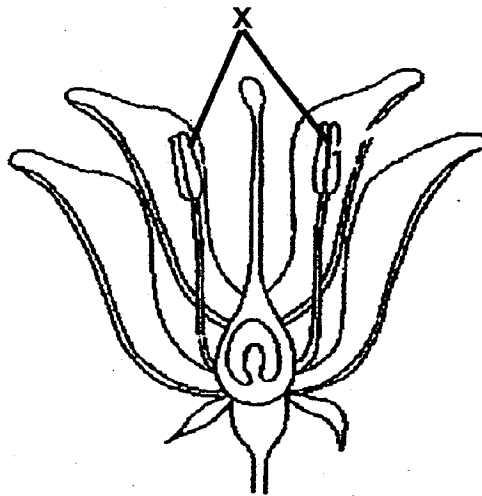
- (1) Animals can reproduce sexually but not plants.
- (2) Reproduction takes place in both plants and animals.
- (3) The young inherit their characteristics from their parents.
- (4) Living things will become extinct if they do not reproduce.

8. Which of the following is/are true about plants which reproduce by spores?

- A They cannot produce flowers.
- B They can make their own food.
- C They can be pollinated by insects.

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

9. The diagram below shows the cross-section of an unfertilised flower.

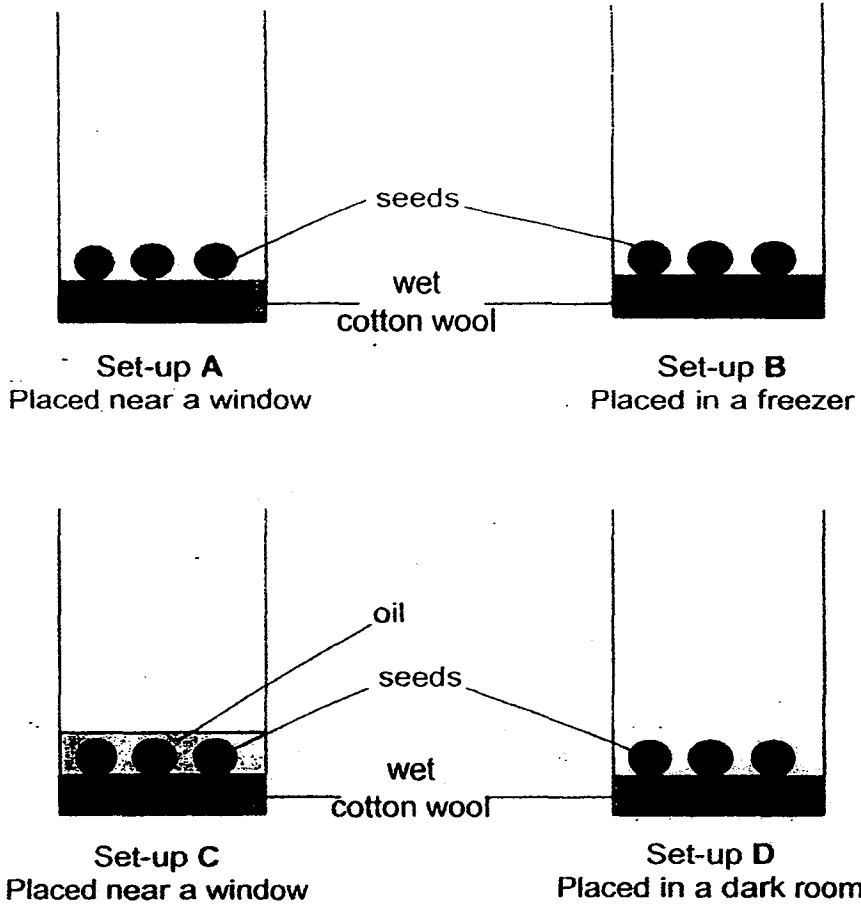


If both part X are cut off, what effect will it have on the flower?

- A The flower will attract less pollinators.
- B The flower will not be able to develop into a fruit.
- C The flower will not be able to receive pollen grain.
- D The flower will have less chance of being pollinated.

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

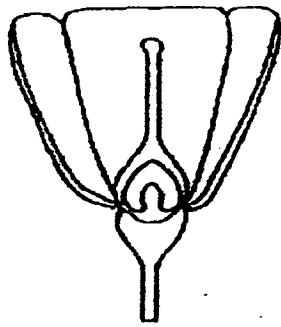
Joey prepared 4 set-ups, A, B, C, D, as shown below.



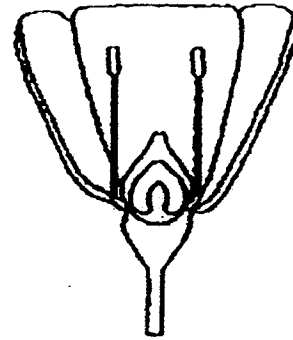
In which of the following set-ups would the seeds most likely germinate?

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

11. The diagram below shows 2 unfertilised flowers taken from the same plant.



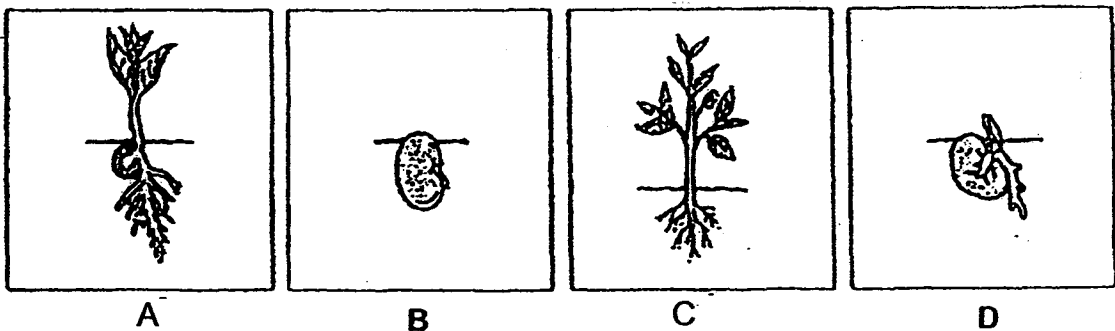
flower A



flower B

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

- (1) Flower B can develop into a fruit.
  - (2) Pollination can occur in flower A.
  - (3) Pollination can occur in flower B.
  - (4) Flower A can be used to pollinate flower B.
12. The diagram below shows the different stages, A, B, C and D, in the life cycle of a bean plant.

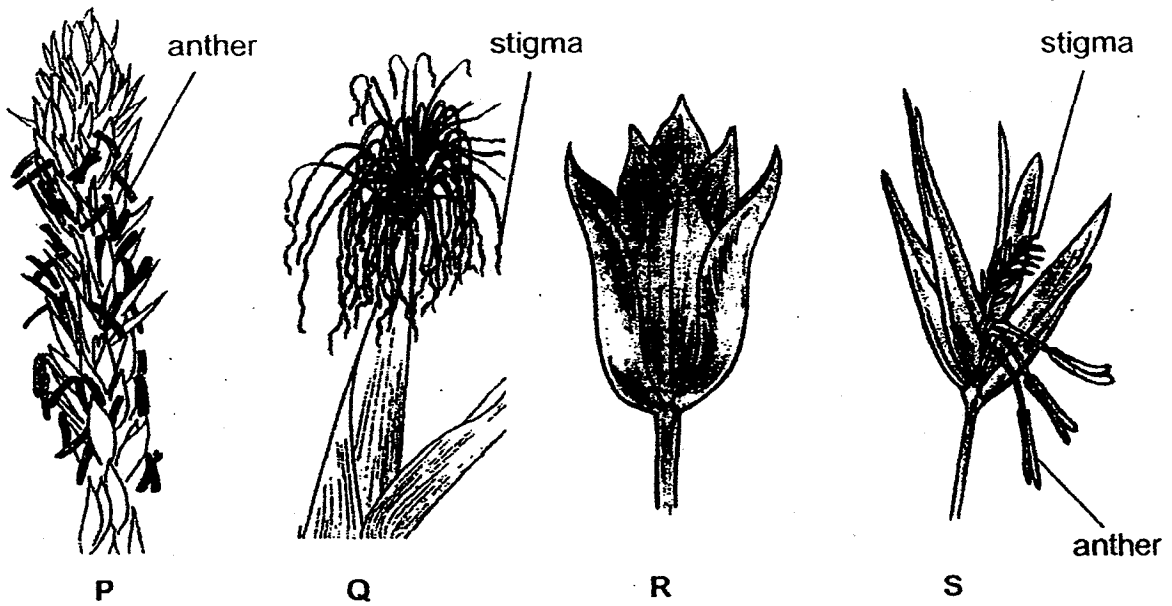


At which of the stage(s) will the plant be able to make its own food?

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



13. The diagram below shows 4 different types of flowers, P, Q, R and S.



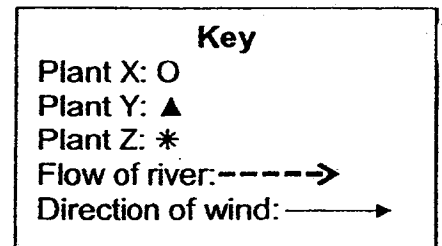
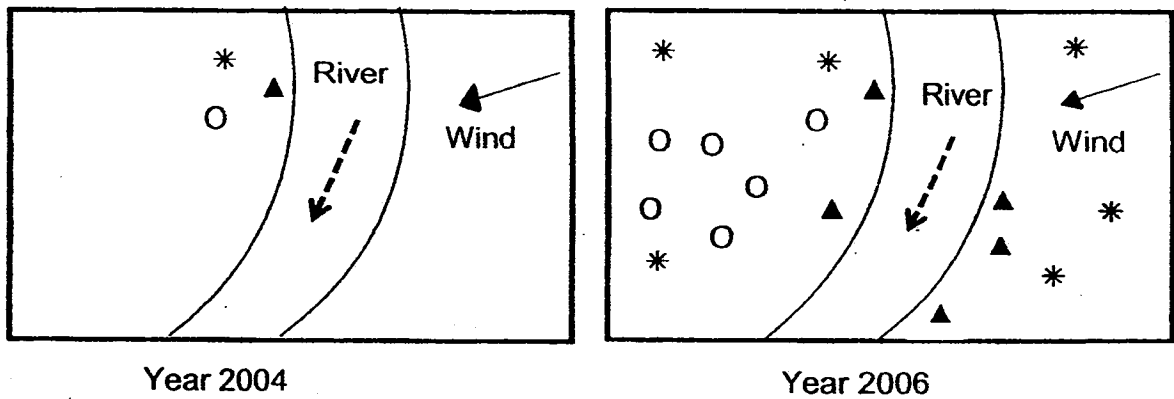
Based on the diagram above, which of the following statements are true?

- A Flower P is not wind-pollinated because the anthers are small.
- B Flower Q is wind-pollinated because the stigmas are hanging outside the flower.
- C Flower R is insect-pollinated because the reproductive parts are hidden inside the flower.
- D Flower S is wind-pollinated because the reproductive parts are both found on the same flower.

- 1) A and C only
- 3) B and C only

- 2) A and D only
- 4) B and D only

14. The following diagrams represent the distribution of 3 types of plants, X, Y and Z, in an unknown location.



Based on the diagrams above, which of the following characteristics correctly describe the fruits of plants X, Y and Z?

	X	Y	Z
1)	Sweet and juicy	Dry pods	Small and light
2)	Sweet and juicy	Small and light	Dry pods
3)	Small and light	Fibrous and waterproof	Sweet and juicy
4)	Small and light	Sweet and juicy flesh	Fibrous and waterproof

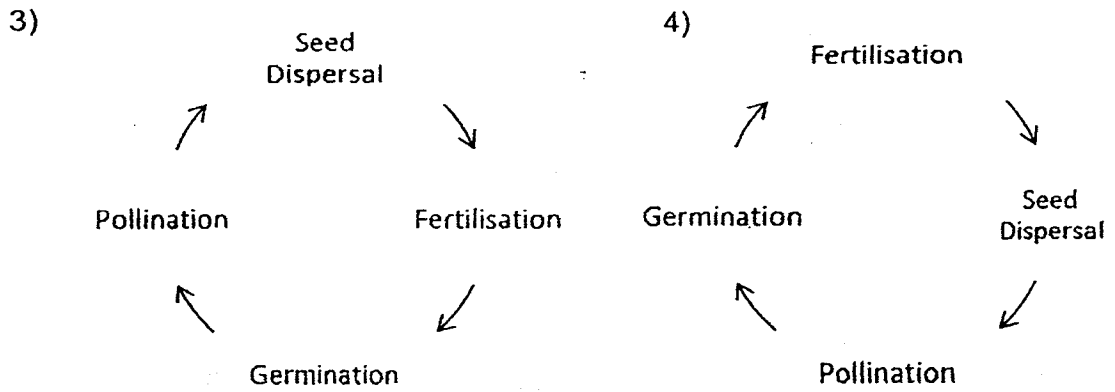
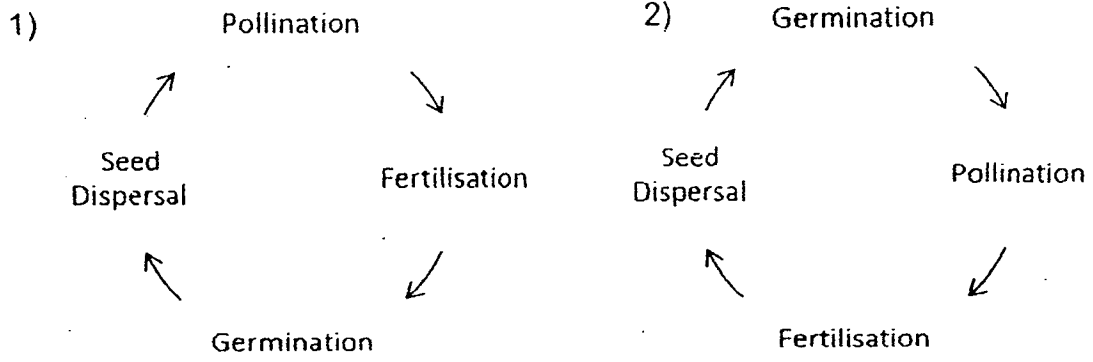
15. John was given some fruits and he tried to group them according to the way they are dispersed.

Which of the following has been grouped correctly?

A	B	C	D
Pong Pong	Shorea	Apple	Rubber
Coconut	Love Grass	Mango	Angsana
Nipah	Dandelion	Cherry	Balsam

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

16. Which one of the following shows the correct order of the processes in the life cycle of a flowering plant?



17. Which of the following statements about germination is/are true?

- A The seed coat breaks during germination.
- B The shoot grows out first during germination.
- C The seed needs sunlight during germination.
- D The seed leaf provides food for the germinating seed.

- 1) A and B only
- 3) B and C only

- 2) A and D only
- 4) C and D only

18. Which one of the following statements about both the male and female human reproductive systems are **correct**?

	<b>Female Reproductive System</b>	<b>Male Reproductive System</b>
1)	The ovary produces eggs.	The penis produces sperms.
2)	There is only one ovary in each female.	There are two testes in each male.
3)	Many eggs are released each time.	Many sperms are released each time.
4)	The fertilised egg attached itself to the womb and develops into the foetus.	The sperms which do not fertilise the egg will eventually die.

19. The umbilical cord is important in the development of the foetus. Which one of the following statements is true about its function?

- A The umbilical cord supports the foetus in the womb.
- B The umbilical cord transports nutrients to the foetus.
- C The umbilical cord transports oxygen to the foetus.
- D The umbilical cord removes carbon dioxide and waste materials from the foetus.

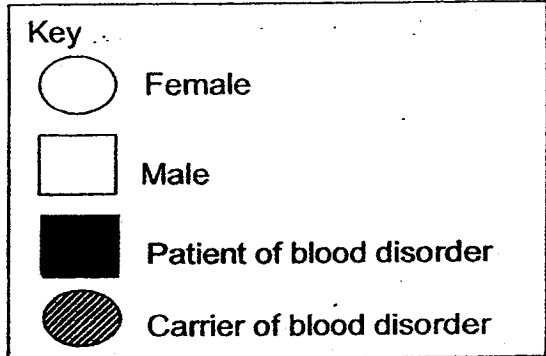
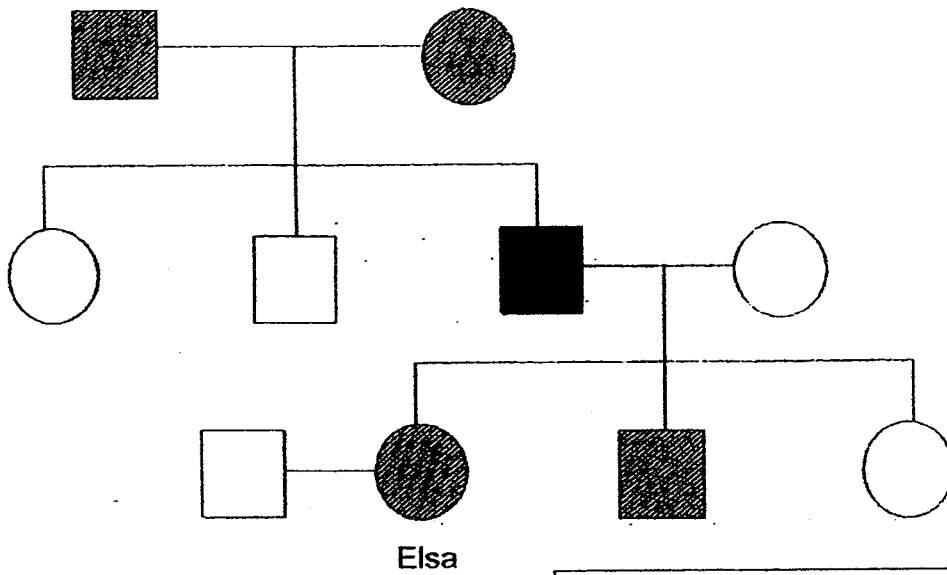
(1) A and B only

(2) C and D only

(3) A, B and C only

(4) B, C and D only

20. Study the family tree of Elsa's family. It shows the genetic trait for a blood disorder in 3 generations.



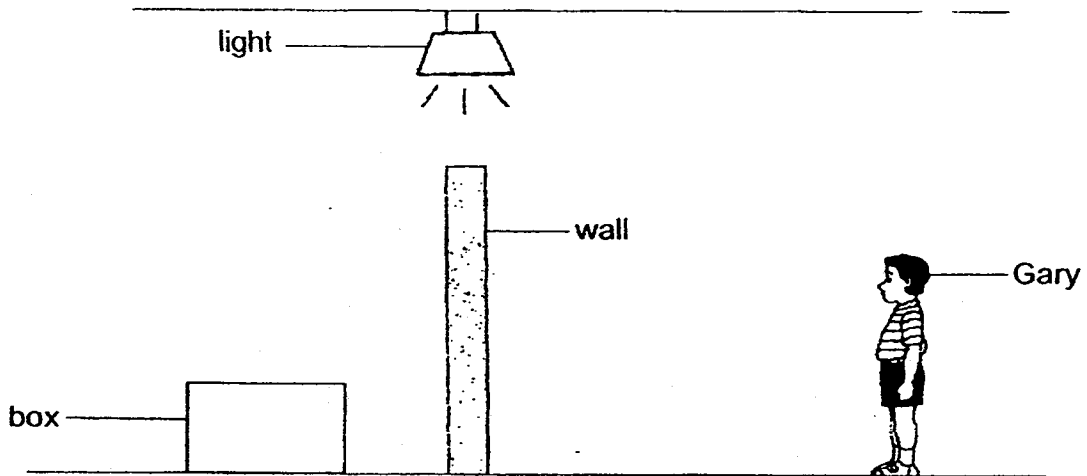
Based on the information from the family tree, which of the following statements are **true**?

- A Elsa has two brothers and one of them is a carrier of blood disorder.
- B Elsa's father is a patient of the blood disorder because he inherited the genes from his parents.
- C The genes for this blood disorder are passed down from Elsa's paternal family.
- D The genes for this blood disorder are inherited by only the female members of the family.

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

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

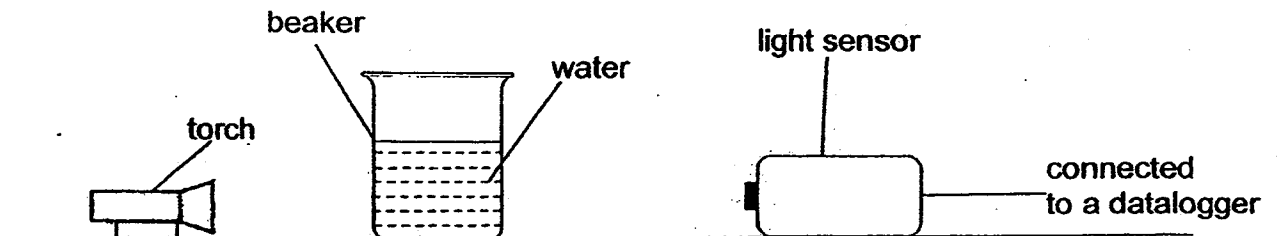
Gary stood behind the wall and could not see the box as shown in the diagram below.



Which one of the following statements explains why Gary could not see the box?

- (1) The box could not reflect light.
- (2) The wall could not give off light.
- (3) The box did not allow light to pass through.
- (4) The wall did not allow light to pass through.

22. Mala carried out an experiment in a dark room to investigate how the samples of water from locations A, B and C will affect the amount of light passing through them. The experimental set-up is shown below.

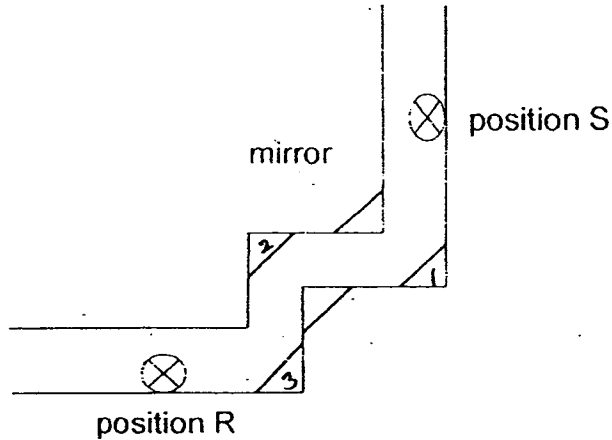


Which of the following variables must she keep the same to ensure a fair test?

- A Amount of water
- B Material of beaker
- C Distance between torch and water sample
- D Distance between water sample and light sensor

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

23. Two boys are travelling in a maze. They stopped at positions R and S as shown in the diagram.

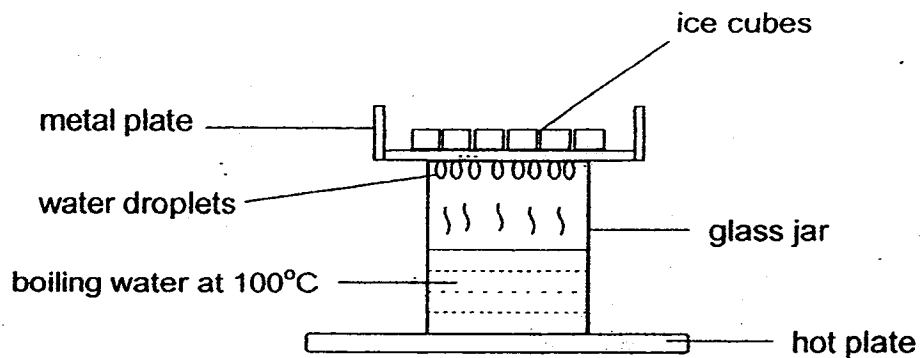


Top view of the maze

What is the least number of mirrors needed for the two boys to see each other from positions R and S?

- |    |   |    |   |
|----|---|----|---|
| 1) | 1 | 2) | 2 |
| 3) | 3 | 4) | 4 |

24. A metal plate with ice cubes was placed over a glass jar of boiling water and was left on the hot plate as shown in the diagram below.

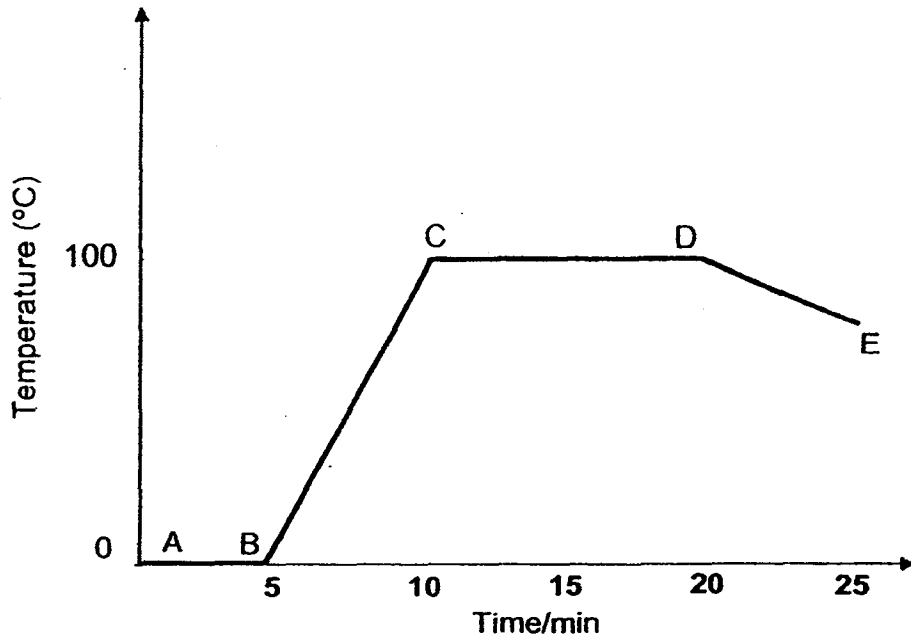


Which of the following explains the observation shown in the above diagram?

- A The metal plate lost heat to the ice cubes.
- B The ice cubes lost heat to the surroundings.
- C Water gained heat from the hot plate and become water vapour.
- D Water vapour lost heat to the metal plate and become water droplets.

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

25. Tom put a laboratory thermometer into a beaker of ice cubes. The beaker was then heated continuously until bubbles were seen in the beaker. After a while, a white 'cloud' was seen at the mouth of the beaker. He switched off the fire after some time. Tom recorded the temperature of the water at 5-minute intervals. He then plotted a graph as shown below.

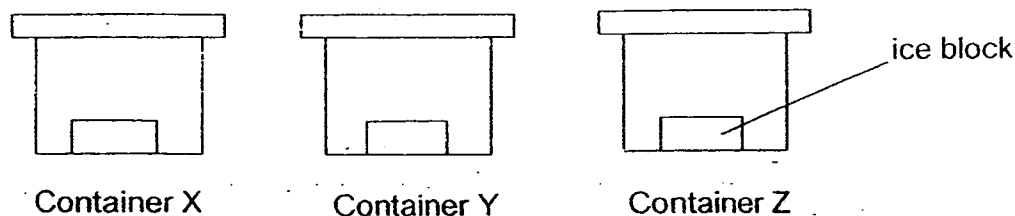


Which one of the following correctly describes the process happening at different points of the graph?

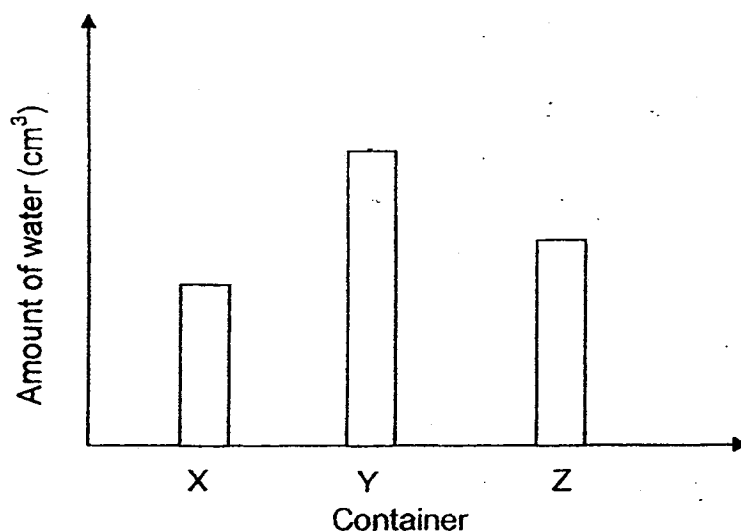
	Parts	Heat gain	Heat loss
1)	AB		✓
2)	BC	✓	
3)	CD		✓
4)	DE	✓	



26. Janet has three containers X, Y and Z of the same sizes. They are made of different materials. Janet puts an identical ice block into each of the three containers respectively. The three boxes were left in a room which has a surrounding temperature of  $30^{\circ}\text{C}$ .



After 20 minutes, she measured the amount of water in each container and recorded her findings in a graph as shown below.



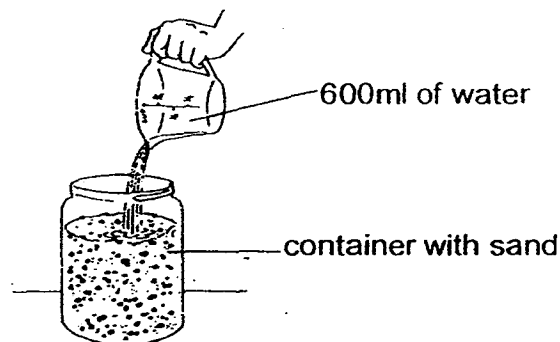
After the experiment, Janet stated the following conclusions.

- A Container Y is the best conductor of heat.
- B The ice block in container X lost the most heat.
- C Container X allows the most amount of heat to pass through it.
- D Container Z is a better conductor of heat than X but a poorer conductor of heat than container Y.

Which of the above conclusions are correct?

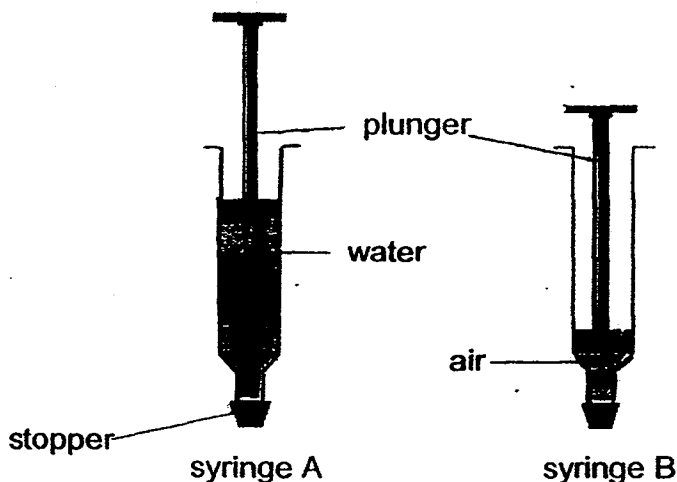
- (1) A and B only
- (2) A and D only
- (3) B and C only
- (4) A, B and D only

27. When Ramesh poured 600ml of water into a container filled with sand, he observed bubbles at the surface of the sand.



Which one of the following statements explains his observation?

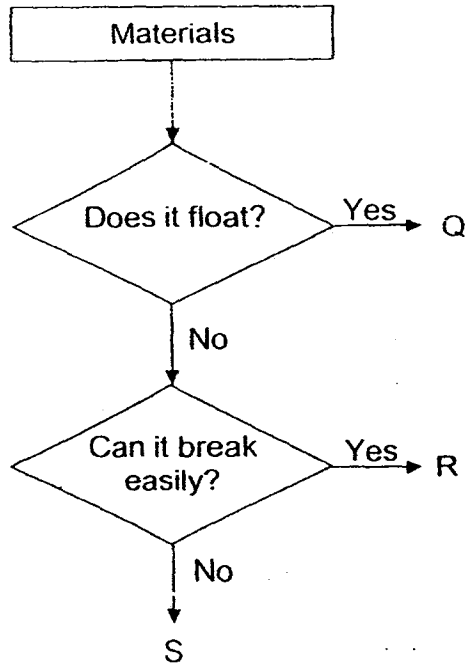
- 1) Air was produced when the sand absorbed the water.
  - 2) Air in the sand was trapped on the surface when the water was poured into the container.
  - 3) Air in the water could not pass through the sand and remained at the surface.
  - 4) Air in the sand was pushed to the surface as the water took the place of air spaces in the sand.
28. Huiying set up an experiment with syringe A filled with equal amount of water and syringe B with equal amount of air. Syringe A which was filled with water, could not be pushed downwards. However, syringe B which was filled with air, could be pushed downwards. The result of the experiment is shown below.



What can Huiying conclude from the experiment?

- 1) Air and water have masses.
- 2) Air and water occupy space.
- 3) Air can be compressed but water cannot be compressed.
- 4) Water does not have a fixed volume but air has a fixed volume.

29. Study the flow chart below.



Which one of the following represents materials Q, R and S?

	Q	R	S
1)	iron	styrofoam	glass
2)	glass	iron	wood
3)	wood	glass	iron
4)	styrofoam	wood	styrofoam

30. Tom placed 4 objects, W, X, Y and Z, one at a time near the pole of a magnet as shown in the diagram below.



He recorded his observations in the table below.

Object	Observation
W	attracted to the magnet
X	repelled by the magnet
Y	no reaction
Z	attracted by the magnet

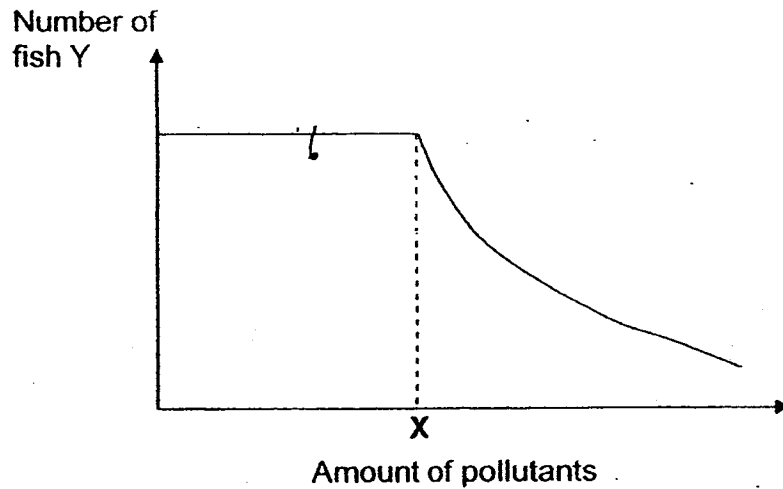
Which one of the following is the best conclusion based on his observations?

- 1) W and X are magnets while Y and Z are metals.
- 2) W and Z are metals and X and Y are magnets.
- 3) W is magnetic, X is magnet and Y and Z are non-magnetic.
- 4) W and Z are magnetic, X is a magnet and Y is non-magnetic.

**Section B (40 marks)**

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

31. The graph below shows the change in the number of fish Y when the amount of pollutants in a river changes.



- (a) Based on the graph, what is the relationship between the number of fish Y and the amount of pollutants in the river? [1]

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- (b)i) State a human activity that could have caused an increase in the amount of pollutants in the river. [1]

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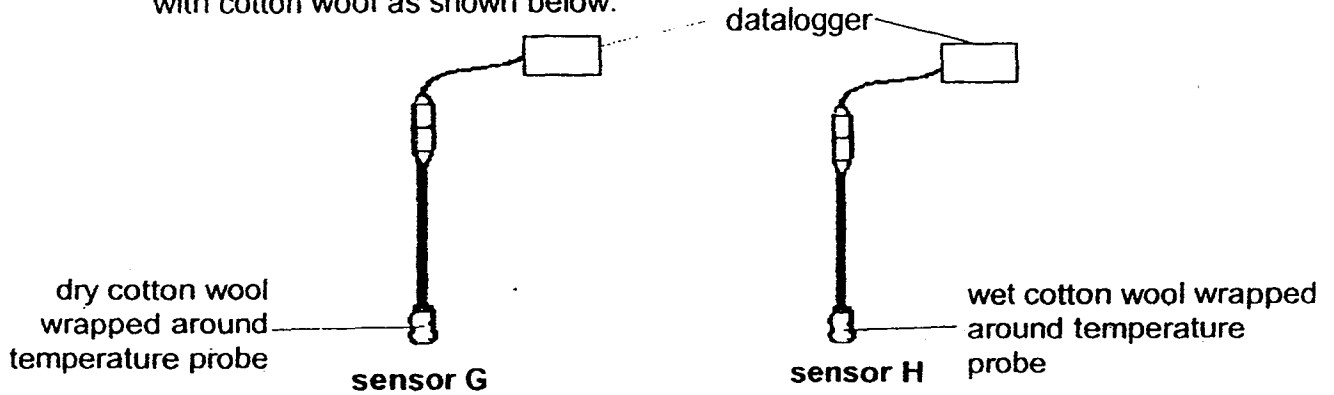
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- (b)ii) Based on your answer in (i), suggest a method to control the human activity. [1]

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32. Shane recorded temperatures of a room using two dataloggers and temperature sensors, G and H. The ends of the sensors were covered with cotton wool as shown below.



At every 5 minutes, the data logger recorded temperatures detected by the sensors. Shane recorded the results in the table as shown below.

Time (minutes)	Temperature recorded by G ( $^{\circ}\text{C}$ )	Temperature recorded by H ( $^{\circ}\text{C}$ )
0	30	26
5	30	27
10	30	28
15	30	29
20	30	30
25	30	30

- (a) Explain the temperature difference between sensor G and H for during the first 15 minutes. [1]

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- (b) What could have happened to the cotton wool to explain the results recorded by sensor H after 20 minutes? [1]

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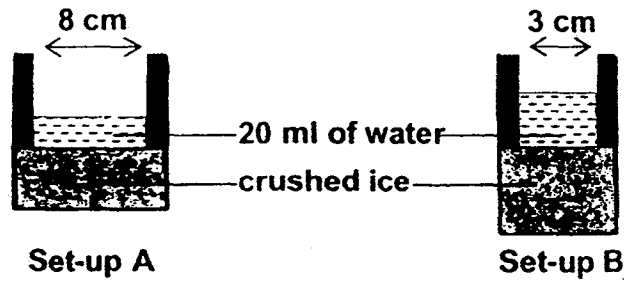
- (c) When Shane had a fever, his mother used a wet cloth to wipe his body constantly. Based on the results of this experiment, how would his mother's action help him? [1]

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33. Ivan added 20 ml of water into each of the set-ups below. The set-ups are made up of two metal containers with the same thickness. The base of each container is filled up with an equal amount of crushed ice.



Ivan noticed that the water in set-up A became cold faster than the one in set-up B.  
Based on the diagram only, explain Ivan's observation. [2]

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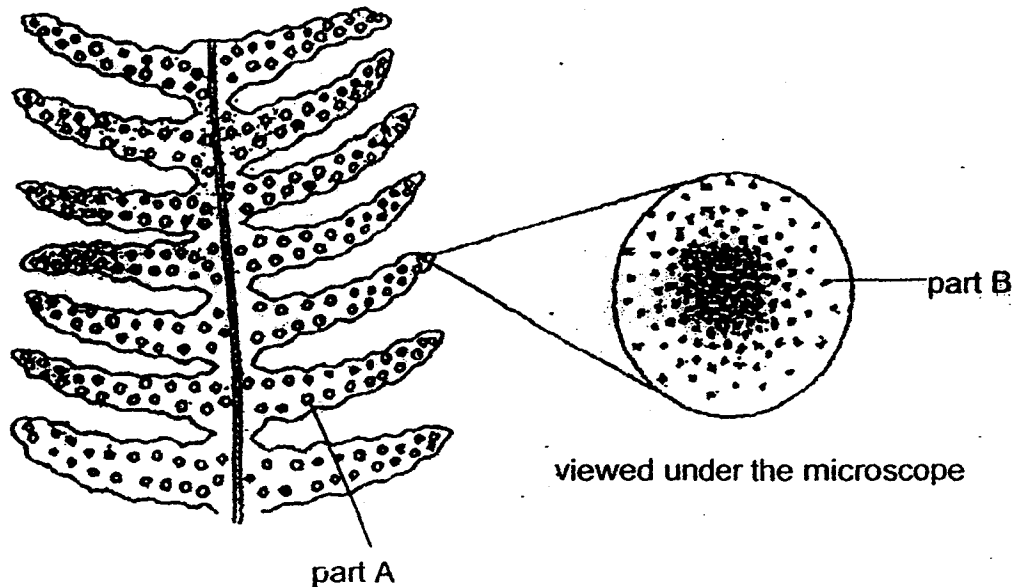


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34. The diagram below shows the underside of a fern.



- (a) Identify part A and part B. [1]

A: \_\_\_\_\_

B: \_\_\_\_\_

(b) Why does the fern need to produce many of part B? [1]

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(c) Identify the characteristics of part B and state its most likely method of dispersal. [1]

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(d) Mushrooms have a similar method of reproduction as ferns. State one difference between mushrooms and ferns. [1]

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35. John planted a green bean seed on a cotton wool, placed it near a window and watered it every day. He recorded the length of the root and the shoot of the germinating seed at various intervals.

Day	Length of shoot (mm)	Length of root (mm)
1	0	0
2	0	1.7
3	1.2	2.4
4	2.6	3.8

(a) Based on the results, what can be concluded about the growth of the germinating seed? [1]

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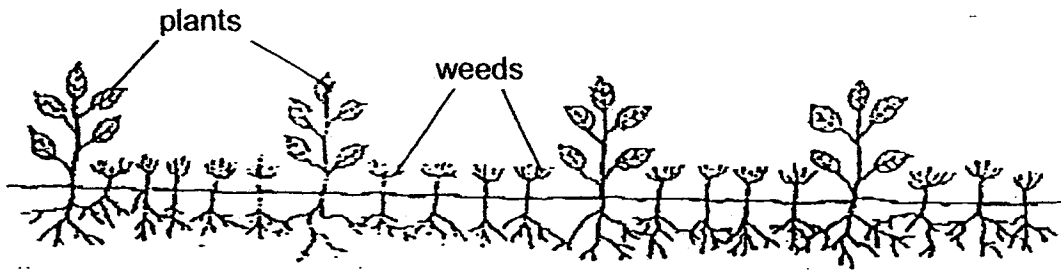
(b) State the 3 conditions required for a seed to germinate. [1]

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36. The diagram below shows part of a garden.



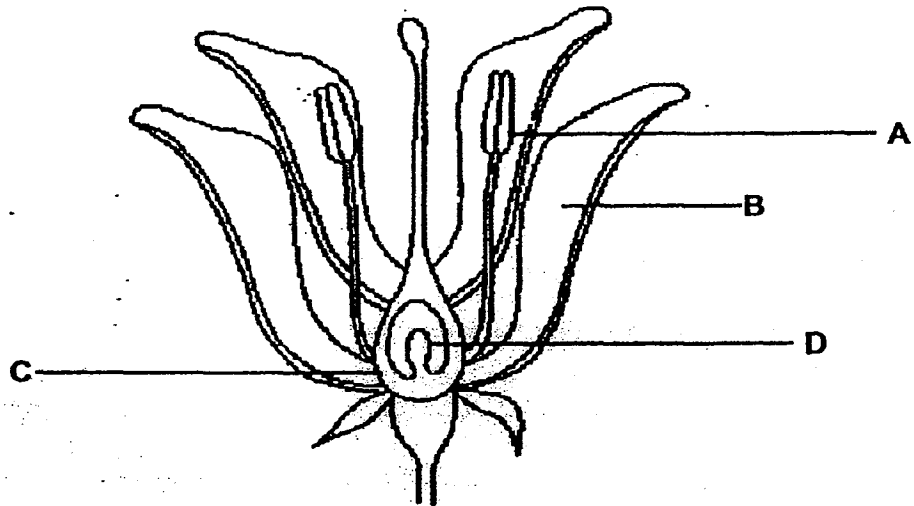
Based on the diagram, explain why gardeners always try to pluck out any weeds growing around the plants in the garden. [2]

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37. The diagram below shows an unfertilised flower.



What will happen to parts A, B, C and D, after fertilization? [2]

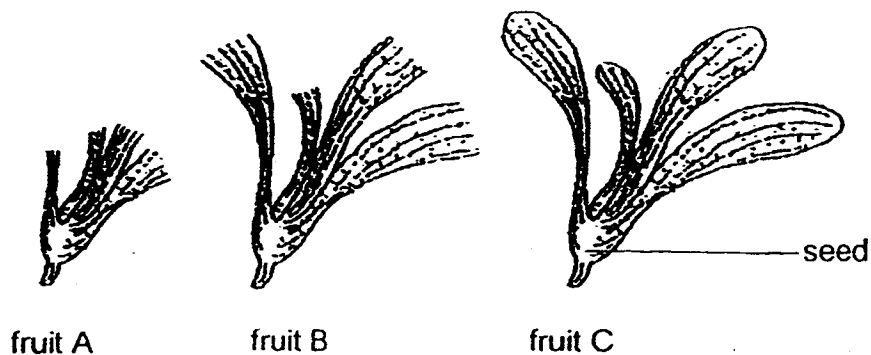
Part A: \_\_\_\_\_

Part B: \_\_\_\_\_

Part C: \_\_\_\_\_

Part D: \_\_\_\_\_

38. Kathy found three shorea fruits, A, B and C, with identical seed sizes but wing-like structures of different lengths as shown in the diagram below. She then dropped all of them from the same height and place and measured the time taken for the fruits to reach the ground. The results are shown in the table below.



	A	B	C
Length of wing-like structures (cm)	2.4	4.3	5.2
Time taken to reach the ground (s)	X	3.5	Y

- (a) State the possible values of X and Y. [1]

X: \_\_\_\_\_ s

Y: \_\_\_\_\_ s

- (b) State the aim of Kathy's experiment. [1]

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- (c) Other than those mentioned in the question, state one variable which must be kept constant to ensure a fair test. [1]

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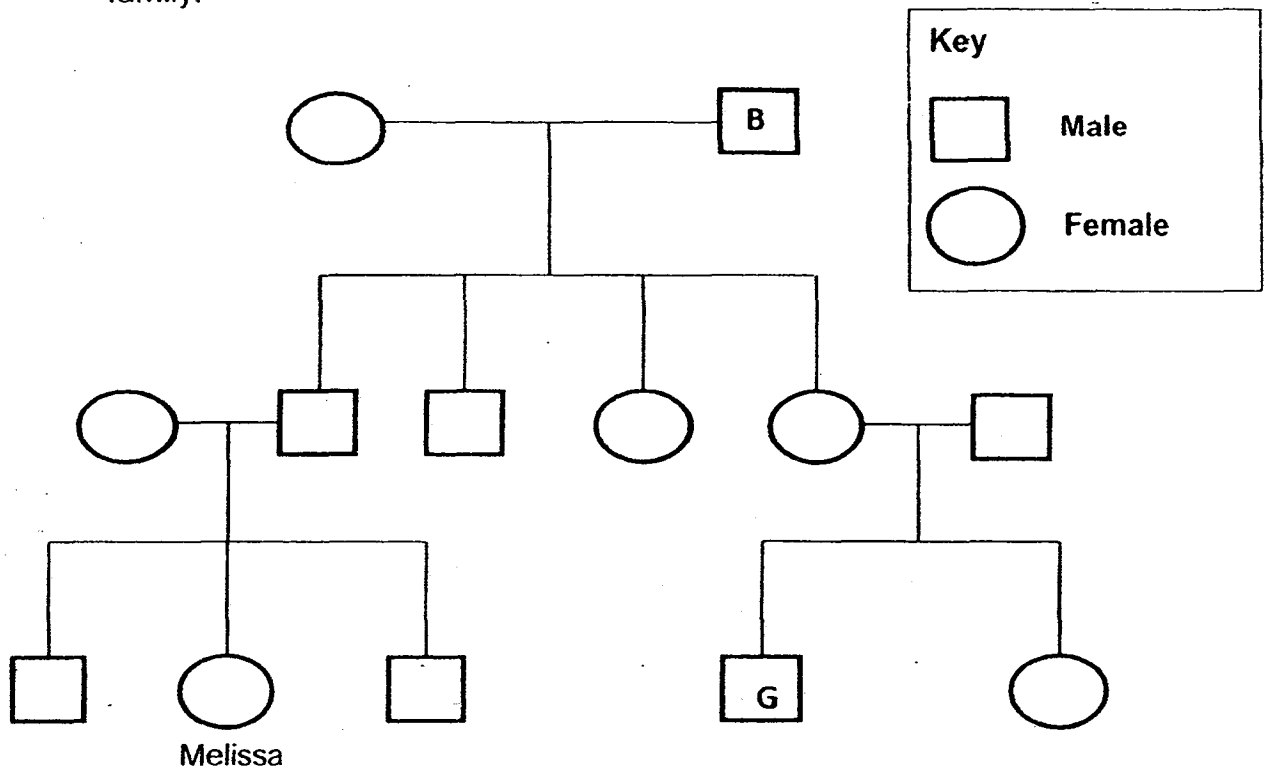
- (d) What can Kathy do to make the results of the experiment more reliable? [1]

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39. The diagram below shows the family tree of Melissa and her extended family.



- (a) How many siblings does Melissa have? [1]

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- (b) How is person B related to person G? [1]

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- (c) If person B has double eyelids, what is the maximum number of people in the third generation that can have double eyelids? [1]

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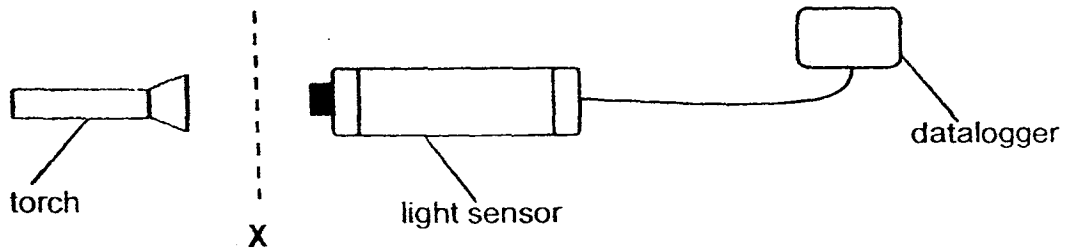
- (d) Melissa's paternal grandfather can roll his tongue and so does Melissa. Give a reason why Melissa can roll her tongue. [1]

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40. Bob set up an experiment in a dark room as shown below.



No object was placed at position X. The torch was switched on and the datalogger shows a reading of 95 lux.

(a) Bob then placed object Z at position X and the reading becomes 0 lux. Give a reason for this observation. [1]

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Bob decided to use the same set-up to count number of sheets of paper. He used identical sheets of paper. He placed a sheet of paper at position X and repeated the experiment by increasing the number of sheets of paper. The table below shows the results collected.

Number of sheet	Amount of light
0	95
1	78
2	53
3	29
4	14
5	3
6	0
7	0
8	0

(b) Suggest why the set-up cannot be used to count more than 6 sheets of paper. [1]

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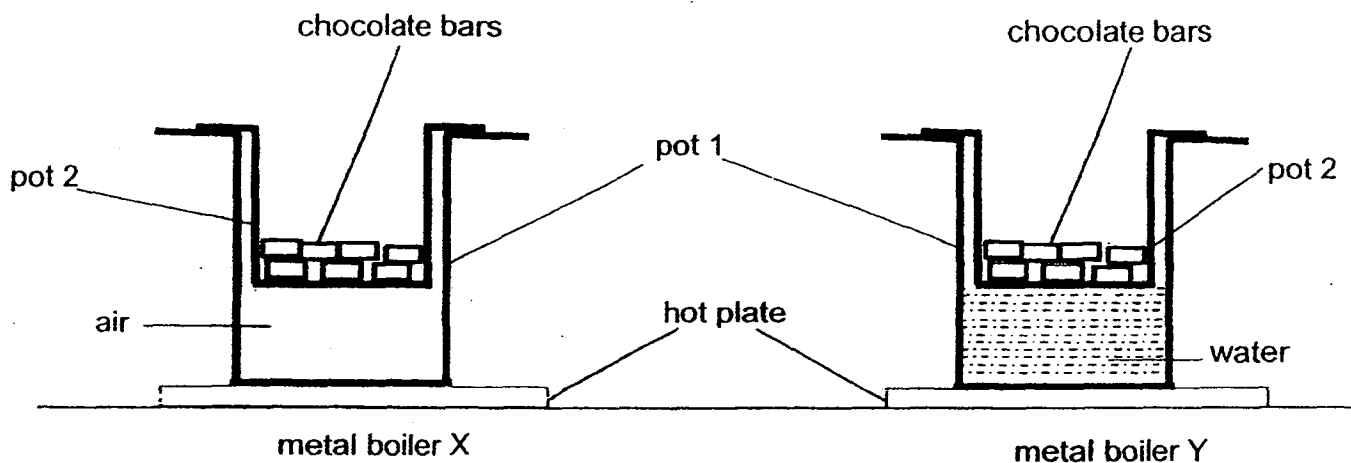
(c) State one change to help Bob modify the experiment so that the set-up can count up to 8 sheets of the paper. [1]

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41. The diagram below shows two identical metal boilers, X and Y. Each is made up of two pots and used to melt the same number of chocolate bars.



The two boilers were placed over hot plates and an equal amount of heat was supplied to heat them.

Mrs Tan observed that after heating both boilers for 10 minutes, the chocolate bars in boiler X just started to melt but the chocolate bars in boiler Y have melted completely.

- (a) Explain the observation Mrs Tan has made. [2]

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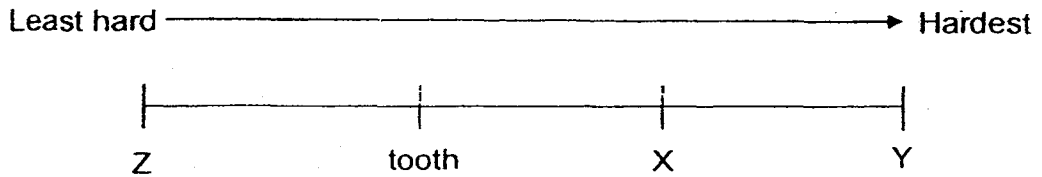
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- (b) The boiler can also be used to keep food hot after it has been removed from the heat source. State a possible reason why Mrs Tan should use a ceramic boiler instead of metal boiler for this purpose. [1]

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42. Every toothpaste contains a material that is hard enough to clean off food that is stuck on our teeth without scratching the teeth. Tina compared three materials, X, Y and Z, to see which of them is suitable to be used in toothpastes. She ranked their hardness on a simple scale as shown below. The hardness of teeth is shown on the same scale.



Which material, X, Y or Z, should Tina use in the toothpaste?  
Explain your answer.

[2]

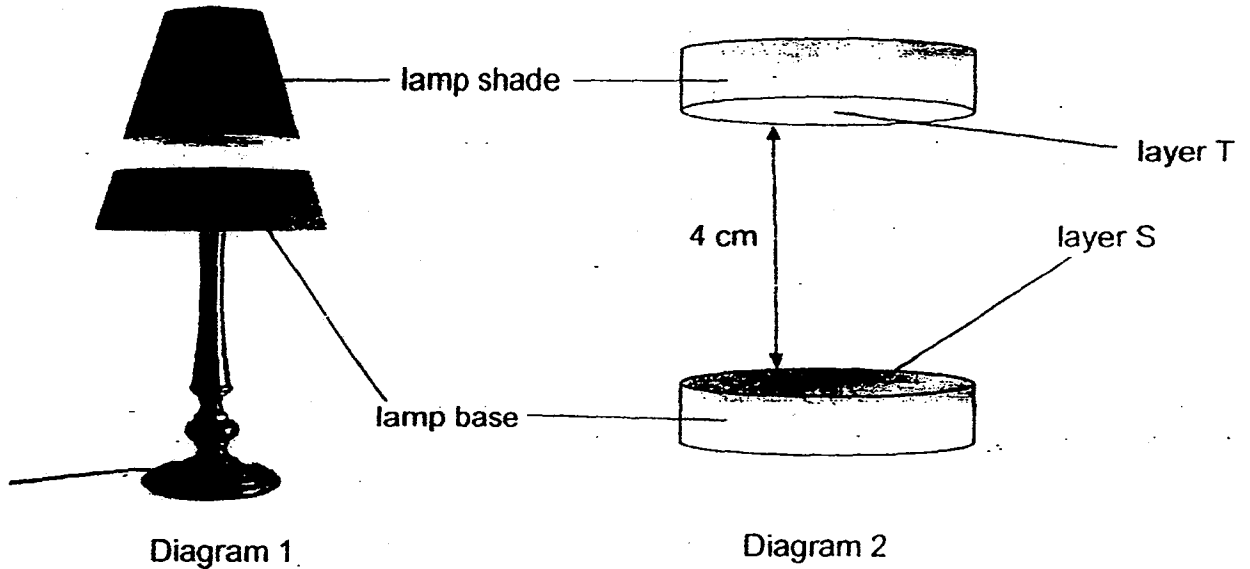
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43. Diagram 1 below shows the floating desk lamp. The lamp shade 'floats' about 4cm above the lamp's base

Diagram 2 shows the magnified view of the lamp shade and the base of the lamp. Layer S contains many electromagnets powered by electricity. Layer T is made of object Z.



- (a) Explain how the lamp shade could 'float' above the lamp base. [1]

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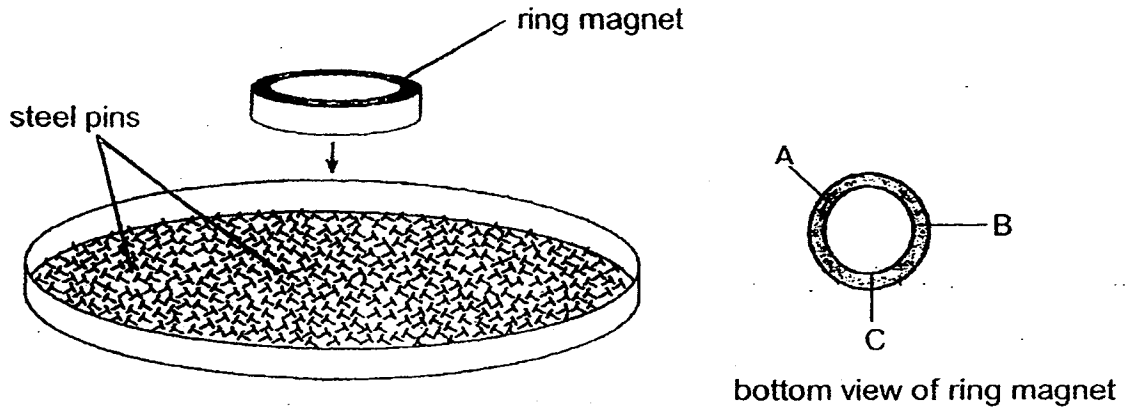
- (b) When the electricity was switched off, the lamp shade no longer 'floats' above the lamp base. Explain this observation. [2]

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The diagram below shows a ring magnet lowered onto a tray of steel pins and the bottom view of the ring magnet.



- (c) Fill in the number of pins attracted to the bottom of the magnet at positions A and C. [1]

A	B	C
	4	



44. May placed some paper clips, one at a time at points P, Q and R of a magnet (diagram 1) until no more paper clips could be attracted by it.

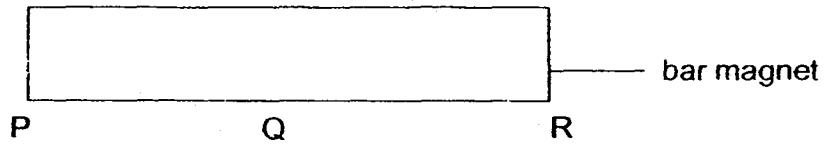


Diagram 1

She recorded the number of paper clips at the three points in the following table.

Point	Number of paper clips
P	5
Q	2
R	5

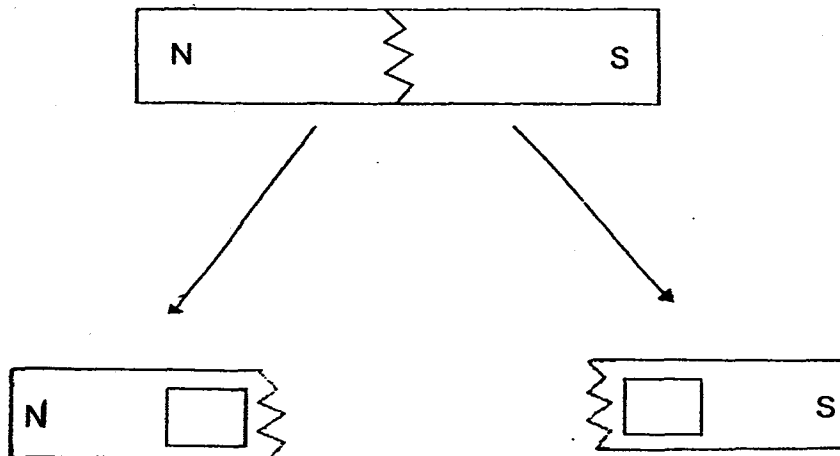
- (a) What can May conclude about the bar magnet based on her observation? [1]

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- (b) May accidentally dropped the bar magnet and it broke into two pieces. The two broken pieces are still magnets. Label the poles of the two pieces of broken magnets in the boxes as shown below. [1]



**EXAM PAPER 2014****SCHOOL : NANYANG PRIMARY SCHOOL****LEVEL : PRIMARY 5****SUBJECT : SCIENCE****TERM : SA1****BOOKLET A**

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

**BOOKLET B**

- Q31** a) The amount of pollutants did not affect the number of Fish Y until X amount of pollutants. After X amount of pollutants increased, the number of Fish Y decreases.  
b)i)They could have littered into the river.  
ii)They should not litter into the river but throw their rubbish into the dustbins.
- Q32** a) When water gains heat from the sensor to evaporate, there will be a drop of temperature.  
b) All the water on the cotton wool has evaporated and the temperature of the cotton wool has become the same temperature as the cotton wool on G.  
c) The water droplets on Shane's body gain heat from his body and evaporate, thus bringing Shane's body temperature down.
- Q33** There is a greater exposed surface area of water in contact with the crushed ice, so the water in set-up A loses heat faster/lost more heat than the one in set-up B.
- Q34** a) A: sporebags  
B: spores  
b) To allow the plant to increase its chances of survival./ growing into a new plant.  
c) It is small and light. It is dispersed by wind.  
d) Spores are found in the gills of mushrooms but spores are found on the underside of the leaves of ferns./ Ferns can make their own food, mushrooms cannot.
- Q35** a) The root grows before the shoot/ the root grows first/ appear first.  
b) The 3 conditions are water, oxygen and warmth.
- Q36** There will be too many plants in the garden if more weeds grow there and the plants will have to compete with each other for light, water, space and minerals salts.

**Q37** Part A : Wither/ wilt and drop off  
Part B : Wither/ wilt and drop off  
Part C : Grow/ become into the fruit  
Part D : Grow/ become into the seed

**Q38** a) X: 2  
Y: 4.4  
b) To find out how the length of the wind-like structures of the shorea fruit affect the time taken for it to reach the ground.  
c) The amount of wind at the place where the fruits are being dropped./ Weight of fruit.  
d) She can repeat the experiment for at least 3 times.

**Q39** a) Two.  
b) Person B is person G's maternal grandfather.  
c) 6.  
d) Melissa inherited the characteristics from her father./ Melissa's paternal grandfather passed the characteristic to her father and then passed the characteristics to her.

**Q40** a) Object Z is opaque and does not allow light to pass through it.  
b) No light was able to pass through the 6 sheets of paper/ the 6 sheets of paper blocked the light from passing through to reach the light sensor.  
c) He should place the torch nearer to position X./ use a brighter light source/ use a torch with a greater intensity of light.

**Q41** a) Water is a better conductor of heat than air and caused the chocolate to melt at a faster rate/completely faster in boiler Y than in boiler X.  
b) Ceramic is a poorer conductor of heat than metal and loses heat slower/ Metal is a better conductor of heat than ceramic, hence it will lose heat faster.

**Q42** Material Z. Z is less hard than the tooth and will not scratch the tooth.

**Q43** a) There was repulsion between object Z and the electromagnets.  
b) The electromagnets will lose their magnetism and will no longer repel object Z.  
c) A- 4, B- 4, C- 4

**Q44** a) The bar magnet is strongest at its poles.  
b) N, S

## P5 2014 Science SA 1 – Booklet B analysis

31. **Constant line** : The amount of pollutants did not affect the number of Fish Y until X amount of pollutants. (1/2m)

**decreasing curve** : After X amount of pollutants increased. the number of Fish Y decrease. (1/2m)  
Focus : must explain for **two parts** of the graph.

**Unacceptable answer** : As the number of fish X decreases, the amount of pollutants increase-  
**wrong sequence**

Number of fish will only decrease due to more pollutants.

32(a). When water gains heat from the sensor to evaporate, there will be a drop of temperature.(1m)

Focus: explain for the lower temperature (**26°C to 29°C**) for sensor H compared to sensor G which **remains at 30 °C**.

OR : Water from wet cotton wool cools the sensor. (This explanation focuses on water being a cooling agent).

32(b). Water in the cotton wool has all evaporated./Water in the cotton wool dried up.

This explains why the temperature for sensor H reaches 30 °C, as no water left in the cotton wool to cool the sensor. Pupils can use the constant 30°C for Sensor G to deduce that the cotton wool is dry when Sensor H record a constant temperature of 30°C.

32(c). The water droplets on Shane's body gains heat from his body (1/2m) and evaporate; thus bringing Shane's body temperature down (1/2m).

Focus: **How would using a wet cloth bring down the fever?**

**Concept : heat loss / heat gain**

The water droplets on Shane's body gains heat from his body and evaporate(**explanation**), thus bringing Shane's body temperature down. (**effect**)

OR : His body lost heat to the wet cloth (1/2m) and his body temperature dropped (1/2m).

33. There is a **greater** exposed surface area **of water** in contact with **the crushed ice (1m)**, so the water in set-up A lost heat **faster**/lost **more** heat (1m) than the one in set-up B.

Focus: Why the **water** in set-up A become cold **faster** than in set-up B?

**Must compare using both set-ups . using 'comparative'**

Concept : water lost heat to the crushed ice and became cold.

**Take Note : Object becomes cold due to heat loss.**

34(b) To allow the plant to increase its chances of survival/ growing into a new plant

Focus: Why does the fern need to produce **many** of part B?

Unacceptable answer : To ensure the continuity of its own kind, does not answer to the key word 'many'. **only to answer ' why does the fern reproduce?'**

34(d) Spores are found in the gills of mushrooms but spores are found on the underside of the leaves of ferns/Ferns can make their own food, mushrooms cannot.

Focus: must compare using the **characteristics** of ferns and fungi ( at the P5 level)

Unacceptable answers such as : mushroom is a fungi and fern is a plant. (does not explain why the mushroom is a fungi and a fern is a plant)

35. The root grows **before** the shoot / the root grows **first**/ appear **first**

Focus: Root must grow before the shoot, based on the table of results provided.

Answer : The root grows **faster** than the shoot is not acceptable. Indicates root and shoot grow together at first but root was faster in the growth later on.

37 Part A: Wither / wilt and drop off

Part B: Wither /wilt and drop off

Part C: Grow/become into the fruit

Part D: Grow /become into the seed

Focus : To explain what **will happen** to parts A,B,C and D. after fertilization, **not** to state the labelled parts.

**Unacceptable answer : part A:anther, B: petal C:ovary D:Ovule**

38(b). To **find out how** the length of the wing-like structures of the shorea fruit affect the time taken for it to reach the ground.

Focus: There is a range of value for the changed variable, length of wing-like structures, for this experiment so the aim will be 'HOW' length of wing-like structure will affect the results, time taken for the fruit to reach the ground.

'IF' is used when experiment is conduct with and without condition under investigation. The conclusion will provide a YES or NO answer.

Eg :

Aim : To find out **if** light is needed for germination.

Experiment : Set-up 1 : Seed in cup with all germinating factors kept in the dark (no light)

Set-up 2 : Seed in cup with all germinating factors under light (with light)

Observation : Seed in both set-ups germinated.

Conclusion : Light is not needed for germination.

38(c). Weight of fruit(0.5m) as weight is different from mass.

Weight is the gravitational pull towards the earth while mass is the amount of matter in an object.

Answers not acceptable : fruits from the same tree – does not matter as question states that the 3 fruit are the same kind and they have the same seed size.

Dropped the fruits at the same time- does not matter as it is the 'duration' of time( time taken) which is crucial.

38(d). **Repeat** the experiment for at least 3 times.

Focus: 'Repeat' to indicate 'reliability' of experimental results

39(d). Melissa inherited the characteristics from her father. / Melissa's paternal grandfather passed the characteristic to her father and then passed the characteristics to her.

Focus :Inheritance of genes/characteristics **must be from her father.**

- Characteristics from parents ( father/mother) are passed down to their offspring ( children).

40(b). No light was able to through the 6 sheets of paper/ the 6 sheets of paper blocked the light from passing through to reach the light sensor.

Focus: **light not able to pass through** the 6 sheets of paper.

Answer not acceptable: the papers were too thick. Does not indicate the effect of the thickness of the papers.

40(c). Place the torch nearer to position X/ Use a torch with a greater intensity of light/use a brighter light source.

Focus: how to ensure **more light can pass through** the 8 sheets of paper.

Answers not acceptable: change the battery of the torch

Use two torches – does not ensure more light can pass through unless the two torches are shone at the same spot, hence higher intensity of light.

Use transparent/translucent sheets of paper – question states that the same set-up was used to count the identical sheets of paper.

41(a). Water is **a better conductor of heat** than air (1m)[**explanation**] and caused the chocolate to melt completely **quicker/** at a **faster** rate in boiler Y than in boiler X(1m)[**effect**]

Focus: Comparison question requires the use of 'comparatives'.

Water is a better conductor of heat than air : observation states that the chocolate bars in X **just started to melt** while those in Y **melted completely**. Hence, shows that water conducts heat to the chocolate bars **faster** as compared to air.

41(b) Ceramic is a **poorer** conductor of heat than metal (0.5m) and loses heat **slower**(0.5)/ Metal is a **better** conductor of heat than ceramic, hence it will lose heat **faster**.

Focus: Comparison question requires the use of 'comparatives'.

Concept: Heat must be retained in the boiler for long if want to keep food hot, means heat loss should be very minimum. Which material will ensure heat loss is slower?

**Remember : A good conductor of heat will gain heat and lose heat quickly/ A poor conductor of heat will gain heat and lose heat slowly.**

42. Material Z (1m) (*Choice*). Z is less hard than the tooth ( 0.5)(*data*) and will not scratch the tooth (0.5m)(*explanation*)

Focus: Make a choice, use data/results and explain on your choice. Comparison question.

Concept: hardness- the ability of a substance to scratch another substance or be itself scratched  
Unacceptable answer: Z is **softer** than the tooth. Soft is not the opposite of hard as in English.

Answering Techniques : Choice, data, explanation

43(a). There was repulsion between object Z and the electromagnets.

Focus : must mention the concept of 'repulsion' in order to explain on ' lamp shade could float above lamp base.

43(b). The electromagnets will lose their magnetism (1m)[**explanation**] and will no longer repel object Z(1m). [**effect**]

Focus: must mention losing of magnetism( when electricity is stopped) and cannot repel object Z

Concept: electromagnets require electricity to work in order to repel the lamp shade.

43(c). A- 4 C-4

Concept : A, B and C are the poles of the ring magnet, hence the strength is the same. The top and bottom of ring magnet are the poles of the ring magnet.

44(a). The bar magnet is strongest at its poles(1m).

Focus: must provide **conclusion** and **not on observation**.

Unacceptable answers: The poles of the magnet can attract the most number of paperclips- stating the data from the table only, not able to provide a conclusion based on the data but merely stating an observation.