

SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

PRELIMINARY EXAMINATION 2008

NAME: _____ ()

DATE: _____

CLASS: PRIMARY 6(SY) / C / G / SE / P

SCIENCE

BOOKLET A

30 questions

60 marks

Total time for Booklets A & B: 1 h 45 min

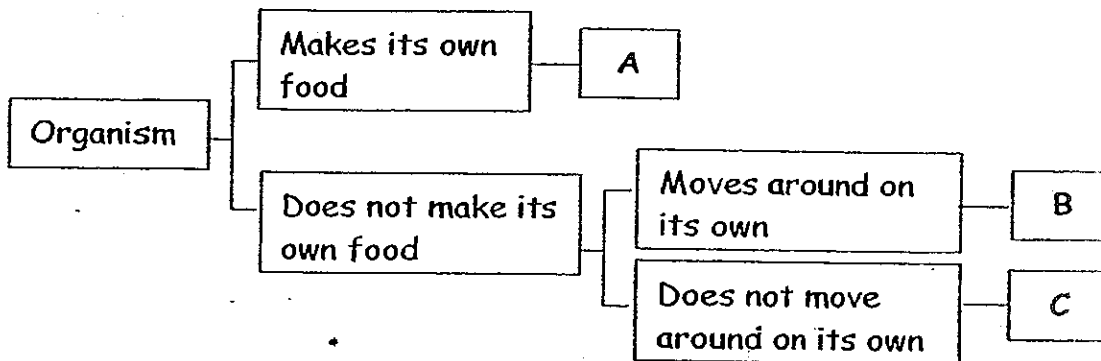
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

Part 1 (60 marks)

For each question from 1 to 30, 4 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. Study the key below carefully.



Which of the following is a possible classification for A, B and C?

	A	B	C
1)	Fern	Bread mould	Earthworm
2)	Bread mould	Fern	Amoeba
3)	Bread mould	Amoeba	Fern
4)	Fern	Earthworm	Bread mould

2. Simone was told to observe 4 unidentified materials, A, B, C and D. Her observations were listed below.

- ◇ Only Material B is attracted to magnets.
- ◇ Material A is better able to retain heat than Material B.
- ◇ Material C casts a faint shadow when exposed to light but Material D does not.

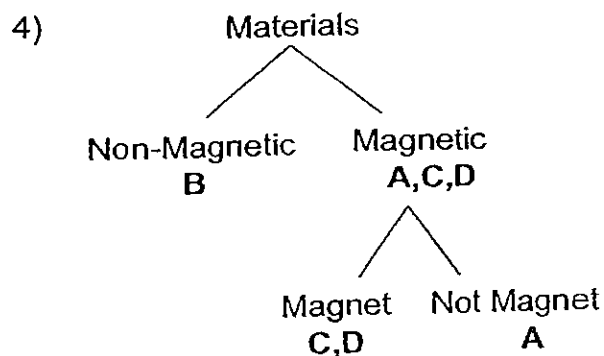
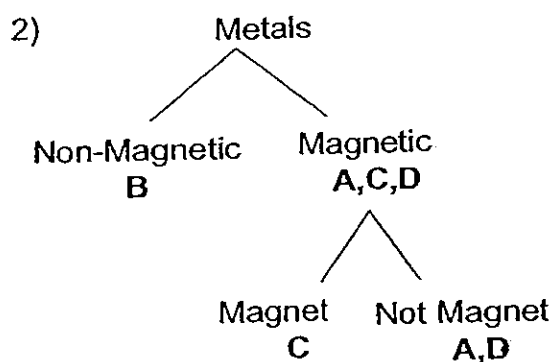
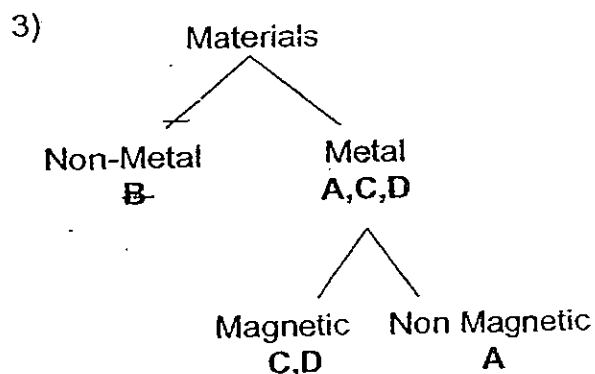
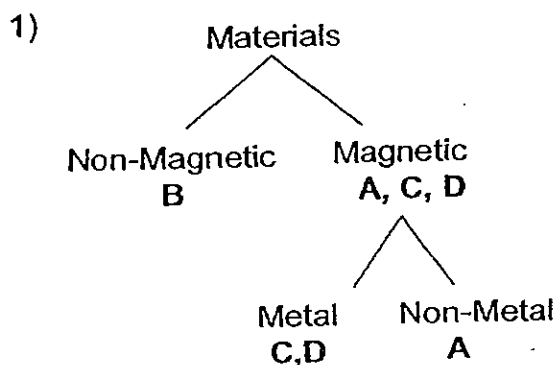
Which of the following correctly matches the description of the materials with the observations listed above?

	A	B	C	D
1)	Clay pot	Steel pot	Frosted glass	Glass window
2)	Steel pot	Clay pot	Glass window	Frosted glass
3)	Clay pot	Frosted glass	Steel pot	Glass window
4)	Clay pot	Steel pot	Glass window	Frosted glass

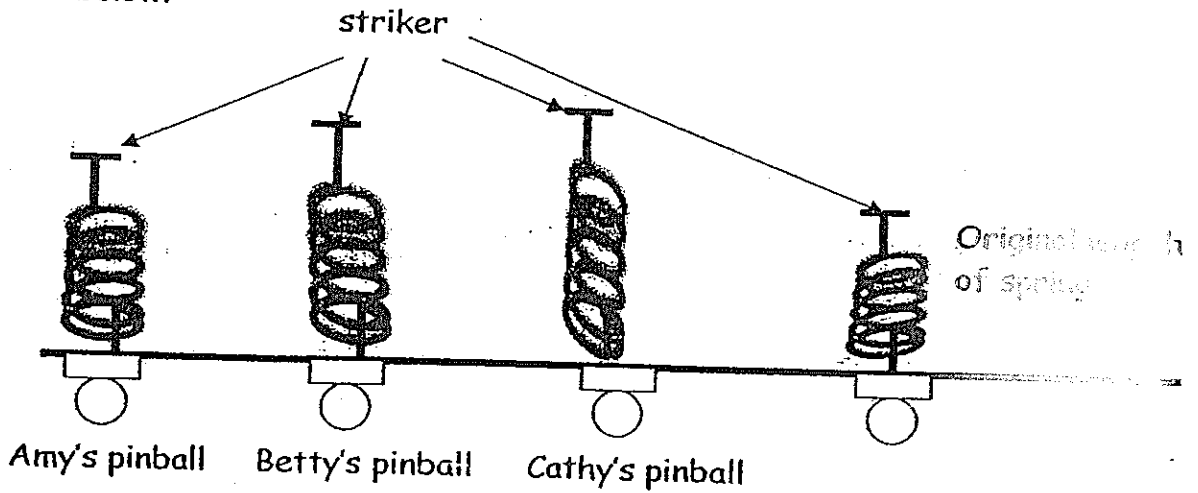
3. Penny tested 4 materials, A, B, C and D with a magnet. She tested the materials by placing the magnets at different parts of the material and recorded her observation in the table below.

Material	Top	Bottom	Left	Right
A	Attracted	Attracted	Attracted	Attracted
B	Not attracted	Not attracted	Not attracted	Not attracted
C	Attracted	Attracted	Repelled	Attracted
D	Repelled	Attracted	Attracted	Attracted

Which of the following classification charts reflect Penny's result?



4. Three students, Amy, Betty and Cathy set up a pinball machine. They were supposed to pull the striker to the positions as shown in the diagram below.

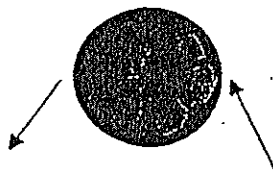


Assuming that all pinballs were of the same size and weight, they made the following predictions. Which of the following predictions made by them are correct?

- A: Betty's pinball would not move.
- B: Cathy's pinball would move the furthest.
- C: Amy needed to extend the length of her striker for the pinball to move further.

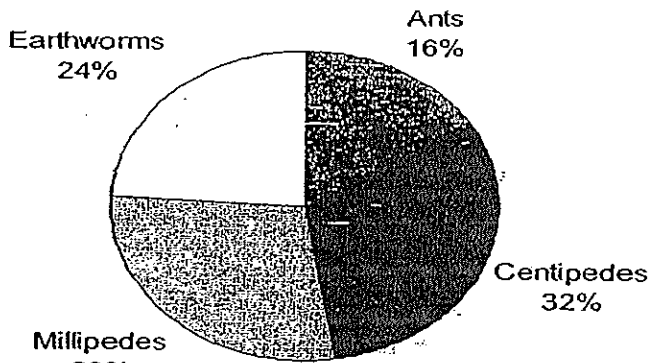
- 1) A and B only
- 2) A and C only
- 3) B and C only
- 4) All of the above.

5. Peter kicks a ball into the air. It moves upwards and after a while it changes direction and moves downwards. What can he conclude about this observation?

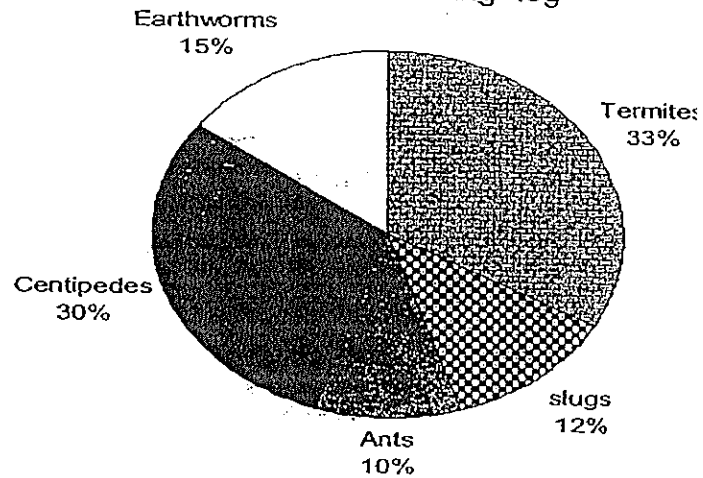


- 1) The ball has mass.
- 2) The ball occupies space.
- 3) There is a force pulling the ball downward.
- 4) There is no upward force acting on the ball.

9. The pie charts below show the populations of 2 different rotting log communities, A and B.



Rotting Log Community A



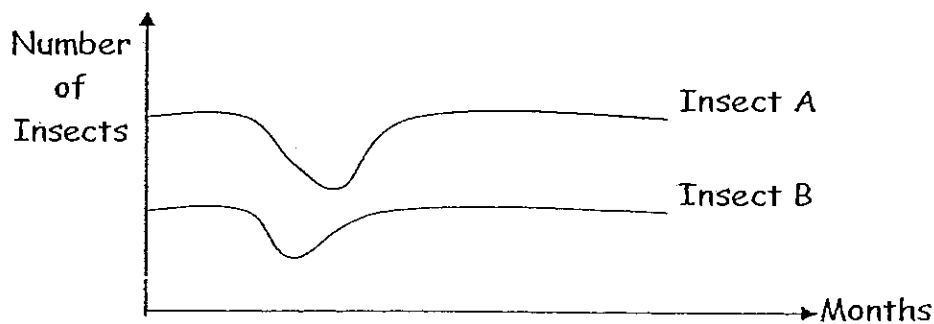
Rotting Log Community B

Which of the following statements about the 2 communities are correct?

- A: There are no millipedes in Community A.
- B: There are more ants in Community A than B.
- C: There are no slugs and termites in Community A.
- D: There is a lower percentage of earthworms in Community A than B.

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

10. Farmer Bobby sprayed some insecticides to prevent Insects A and B from destroying his crops. He tracked the changes of the 2 insects before and after the insecticide was sprayed on the crops.



Which of the following are possible reasons for Insects A and B to return to their original numbers after some time?

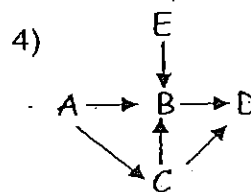
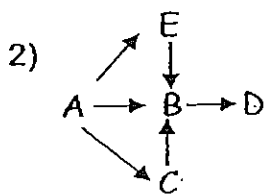
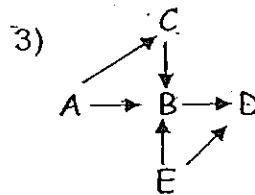
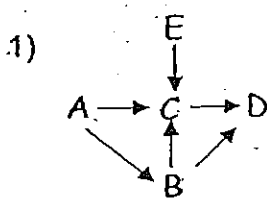
- A: Other types of insects joined the community.
- B: The farmer stopped spraying insecticide.
- C: A heavy rain washed away the insecticide.
- D: The insects were not affected by the insecticide.

- 1) A and B only
- 2) B and C only
- 3) A, B and D only
- 4) All of the above.

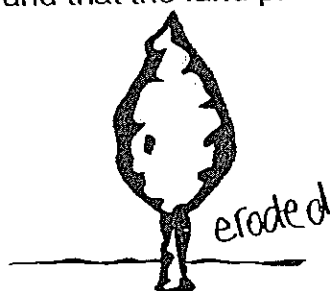
11. Study the 4 food chains given below.

- A → B → D
- A → C → D
- A → C → B → D
- E → B → D

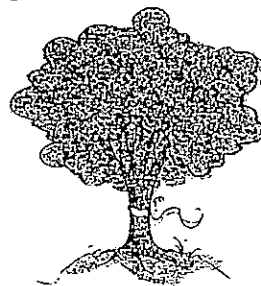
Which of the following food webs can be formed using the above food chains?



12. Two plots of land, side by side and of the same size and quality of soil were chosen. One plot of land was planted with rows of Tree A and the other plot of land was planted with rows of Tree B. However, after 2 years, it was found that the land planted with Tree A was extensively eroded.



Tree A



Tree B

Based on all the information given above only, which of the following is /are the possible answer/s to explain the phenomenon?

- A: Tree B is less able to shelter the soil from the rain than Tree A.
- B: There was heavier rain on the plot of land that Tree A was planted.
- C: The roots of Tree B grow deeper into the ground thereby preventing soil erosion.

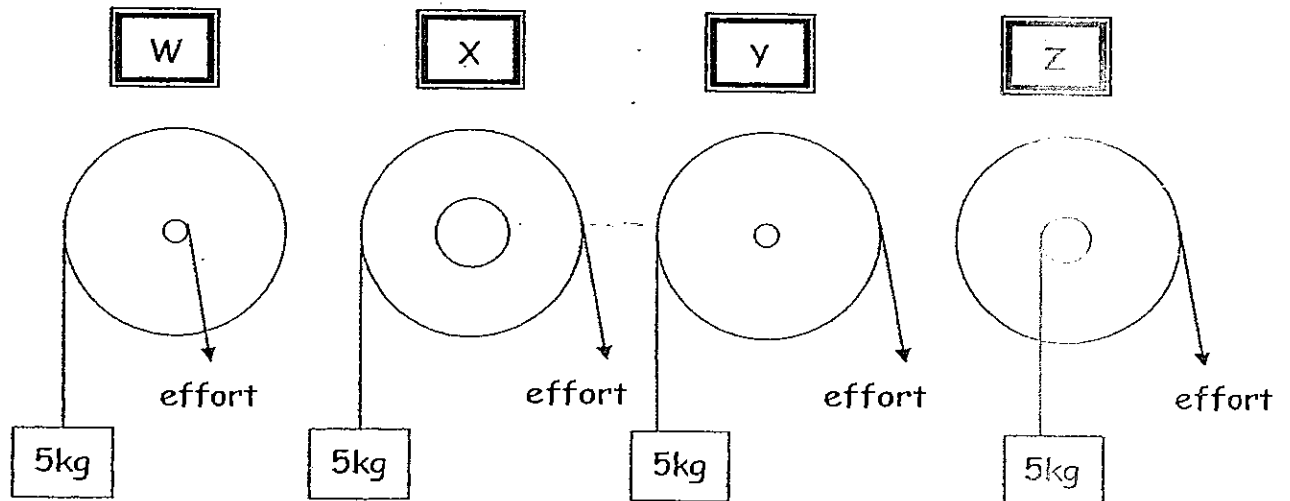
- 1) C only
- 2) B only

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

13. Betty wanted to make some yoghurt. Her mother told her to add a tablespoon of old yoghurt into the milk and leave it overnight. Why did her mother ask Betty to do that?

- 1) To ensure that the yoghurt would be easier to digest.
- 2) To introduce bacteria so the milk could be fermented.
- 3) To ensure that the new yoghurt would be able to last longer.
- 4) To ensure that there would be less bacteria in the old yoghurt so they will last longer.

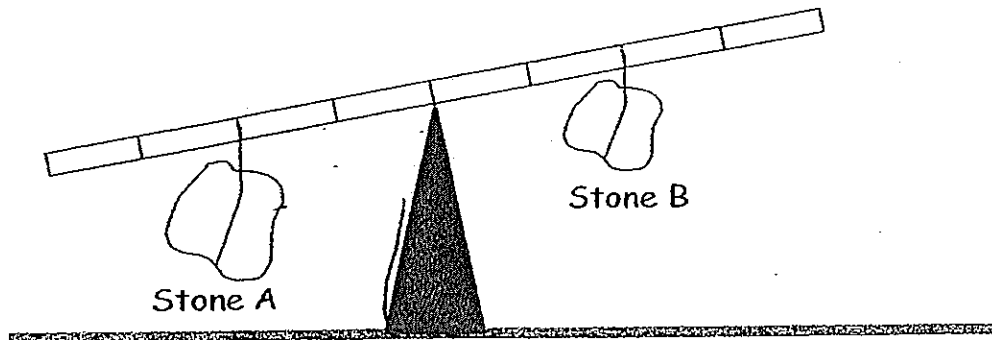
14. Which of the following wheel and axle systems (side view) requires the most effort to raise a 5kg load?



- 1) W
- 2) X

- 3) Y
- 4) Z

15. Timothy hung 2 stones on a plank as shown below.

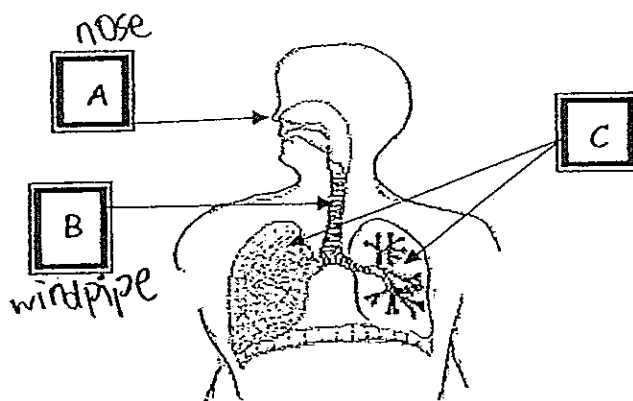


What could Timothy do to balance the plank?

- A: Move Stone A nearer the fulcrum.
- B: Move Stone B nearer the fulcrum.
- C: Move Stone A away from the fulcrum.
- D: Move Stone B away from the fulcrum.

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

16. The diagram below shows part of the human respiratory system.

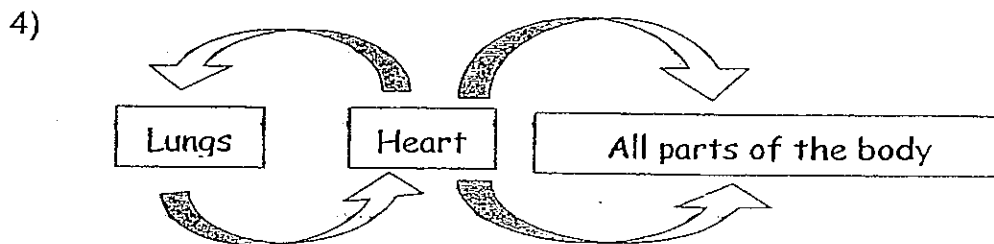
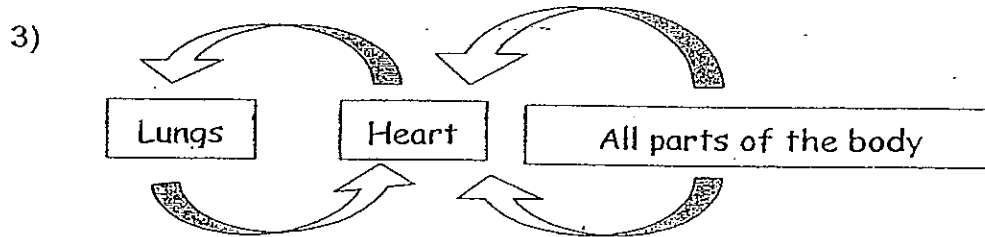
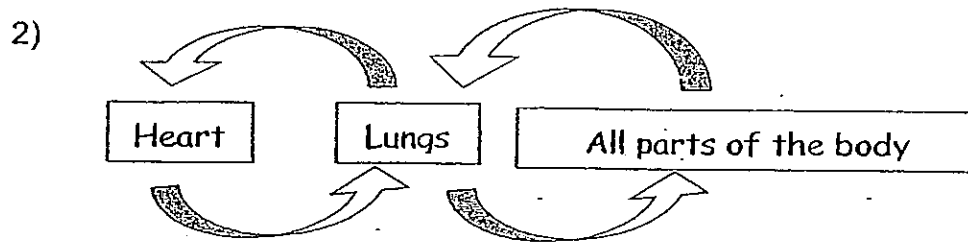
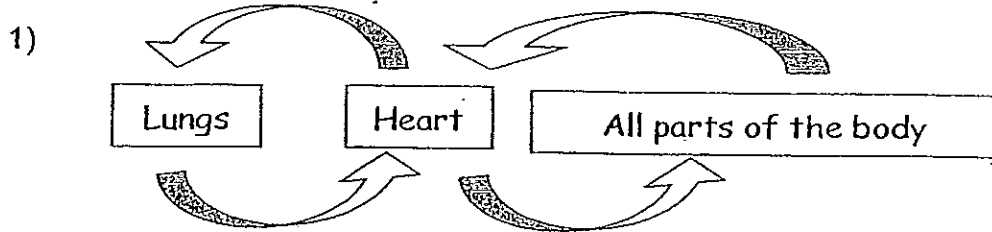


Based on the diagram above, which of the following statements are true?

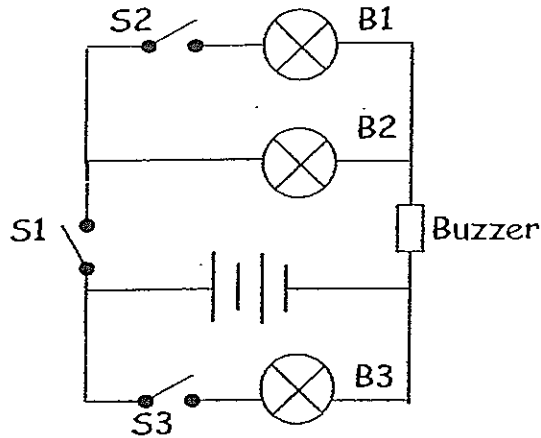
- A: Part A allows air to enter and leave the body system.
- B: Part B is the main pipe that the air enters and leaves.
- C: Part C contains tiny air sacs surrounded by many tiny blood vessels.
- D: Part B cleans the air by trapping impurities before the air enters the system

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

17. Which of the following diagrams shows how blood is circulated in our body?



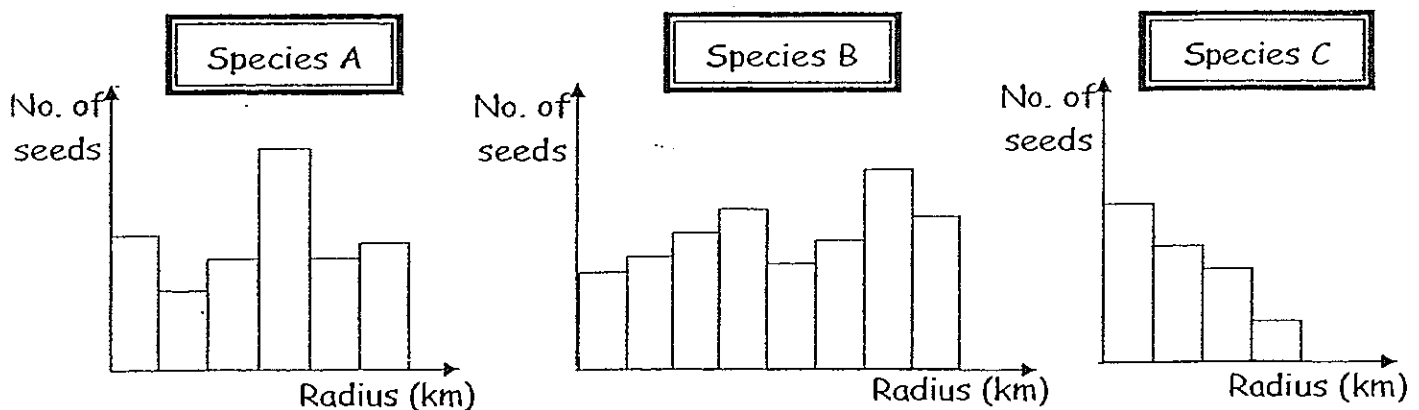
18. Study the circuit diagram below.



Which of the following is correct?

	Open	Close	Result
1)	S1	S2,S3	Only B1 and B3 will light up.
2)	S3	S1,S2	Only B1 and B2 will light up.
3)	S2	S1,S3	Only B3 will light up.
4)	S2,S3	S1	Only B2 will light up and buzzer will sound.

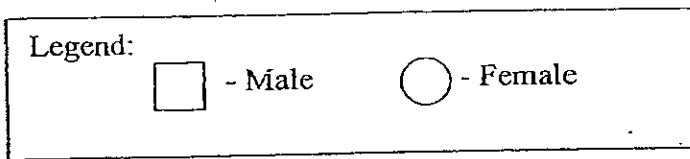
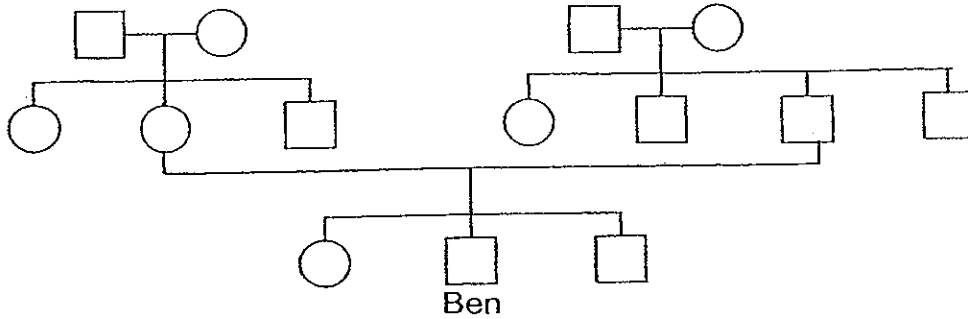
19. A group of students selected 3 different species of plants to understudy. They wanted to find out the method of dispersal of these 3 species of plants. The graphs below show the approximate number of seedlings found at different radii from the parent plant.



Based on the data collected, which of the following shows the correct method of dispersal for the different species?

	Species A	Species B	Species C
1)	Animal	Splitting	Wind
2)	Animal	Wind	Splitting
3)	Wind	Animal	Water
4)	Wind	Animal	Splitting

20. Study the family tree below carefully.



Which of the following statements about the family tree are false?

- A: Ben has 2 siblings.
- B: Ben has a total of 4 uncles.
- C: Ben's mother has a sister and a brother.
- D: There are more females than males in the family tree.
- E: Ben has 2 aunts from the paternal side of his family.

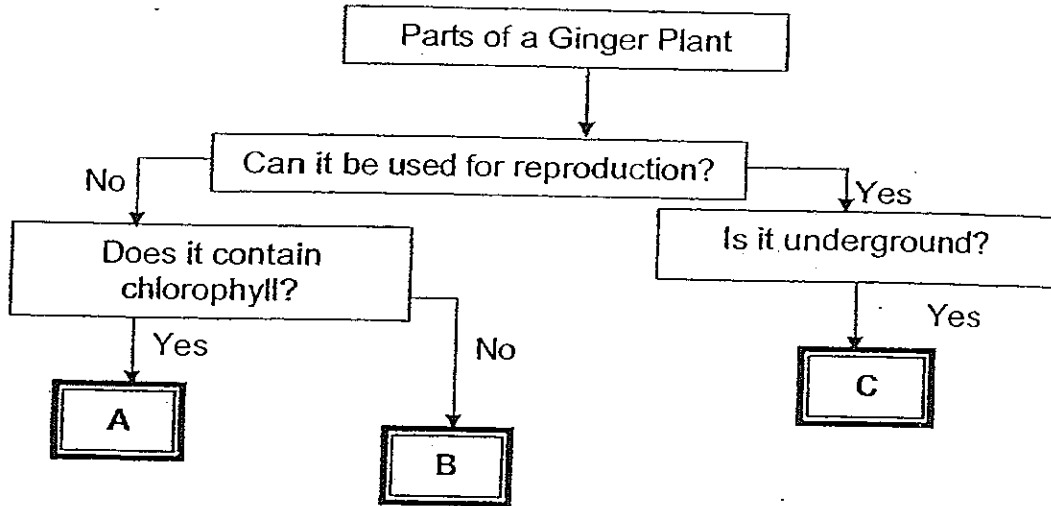
- | | |
|-----------------|--------------------|
| 1) A and C only | 3) B, D and E only |
| 2) B and E only | 4) A, B and C only |

21. Which of the following statements about the Sun, Earth and Moon are false?

- A: The Earth takes 24 hours to make a revolution.
- B: The Moon takes about 28 days to revolve around the Earth.
- C: Only the Earth revolves around the Sun in the Solar system.
- D: The rotation of the Earth allows us to see different shapes of the Moon.

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

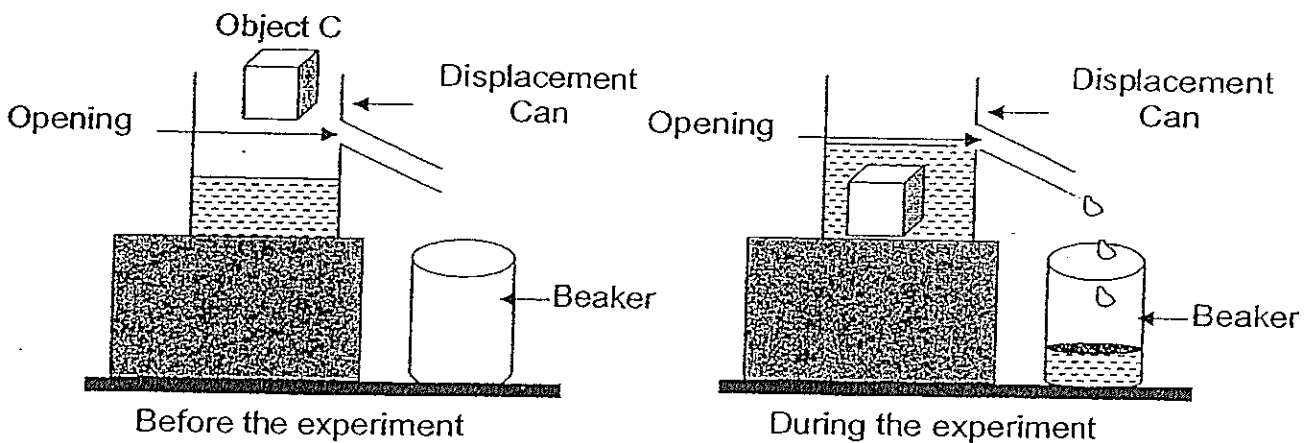
22. Study the chart below.



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

	A	B	C
1)	roots	stem	leaves
2)	leaves	root	stem
3)	roots	leaves	stem
4)	stem	roots	leaves

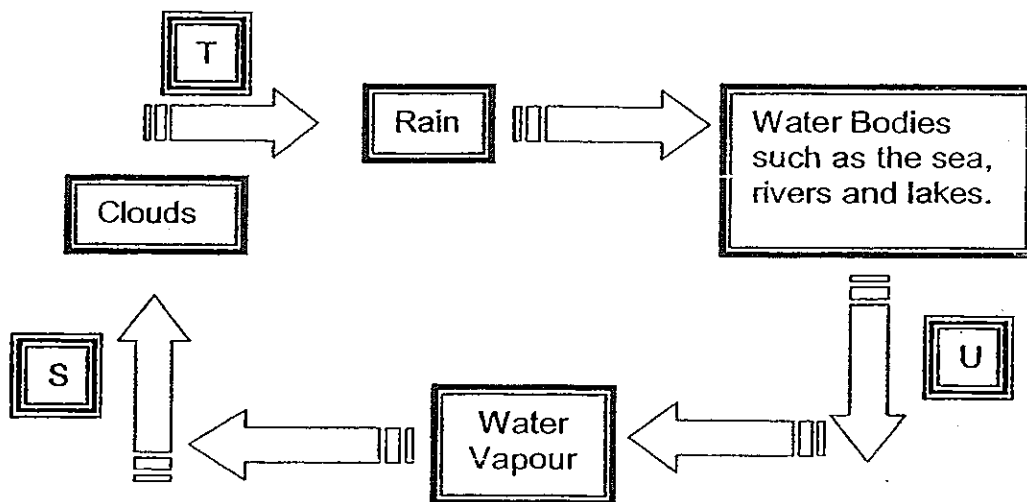
23. An experiment was set up below to find out the volume of Object C.



Jane told Paul that the amount of water collected in the beaker is not the volume of Object C. What can be done to improve on the accuracy of the experiment?

- 1) Repeat the experiment 3 times and take the average.
- 2) Paul needs to measure the amount of water left in the displacement can.
- 3) Paul needs to subtract the amount of water in the beaker from the total volume of water in the displacement can.
- 4) Ensure that the water level in the displacement can is just below the opening of the can before the start of the experiment.

24. The diagram below shows the Water Cycle.



Which of the following best represents Processes S, T and U?

	S	T	U
1)	Evaporation	Precipitation	Condensation
2)	Precipitation	Condensation	Evaporation
3)	Evaporation	Condensation	Precipitation
4)	Condensation	Precipitation	Evaporation

25. Queenie grew a culture of yeast and another culture of bacteria. At regular intervals, she measured the area of yeast and bacteria cells (cm^2) under the microscope and tabulated the results in the table below.

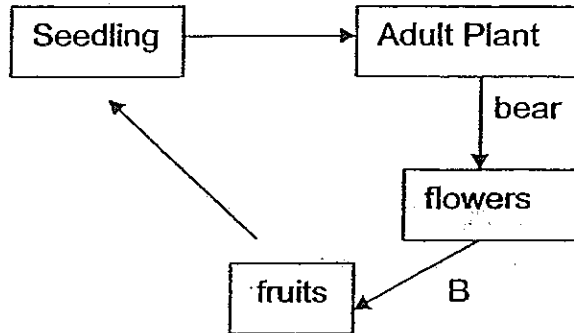
Time	0 min	10 mins	20 mins	30 mins	40 mins	50 mins	60 mins
Area of Yeast (cm^2)	5	5	10	10	10	20	20
Area of Bacterial (cm^2)	5	10	20	40	80	160	320

What can Queenie conclude from the results?

- A: Bacteria makes a copy of itself every 10 minutes.
- B: Yeast makes a copy of itself once every 20 minutes.
- C: Yeast takes a longer time to reproduce itself than Bacteria.

- 1) A and B only
- 2) A and C only
- 3) B and C only
- 4) All of the above.

26. The diagram below shows the development of a plant from a seed to an adult plant.

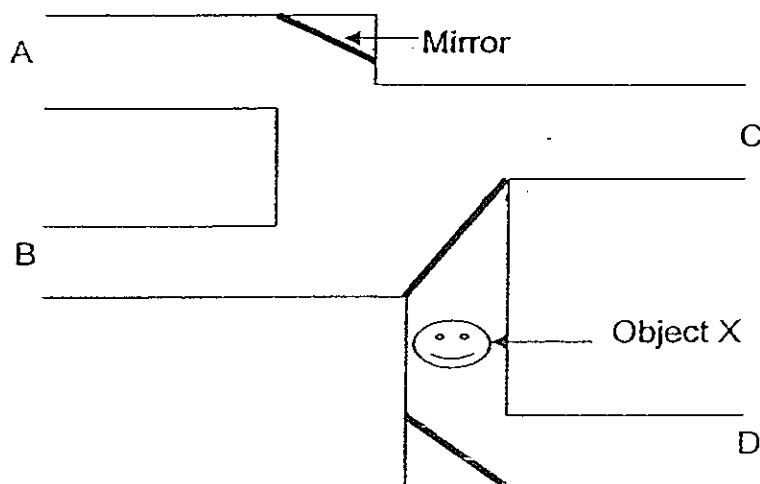


Which of the following best represent processes at B?

A: Dispersal
C: Pollination

B: Germination
D: Fertilisation

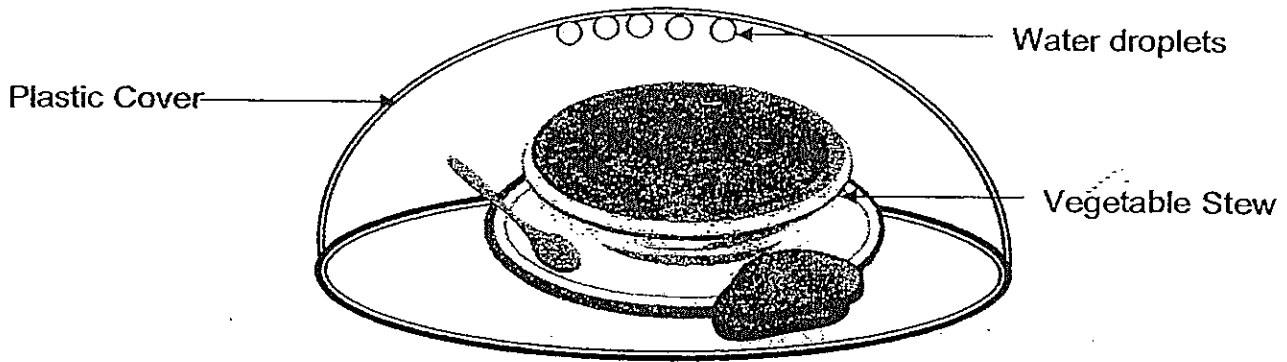
- 1) A and B only
2) A and C only
3) C and D only
4) B and C only
27. Some pipes were connected to form the diagram below. Evelyn placed 3 mirrors in the pipes as shown.



At which position should Joan place her eyes to see Object X?

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

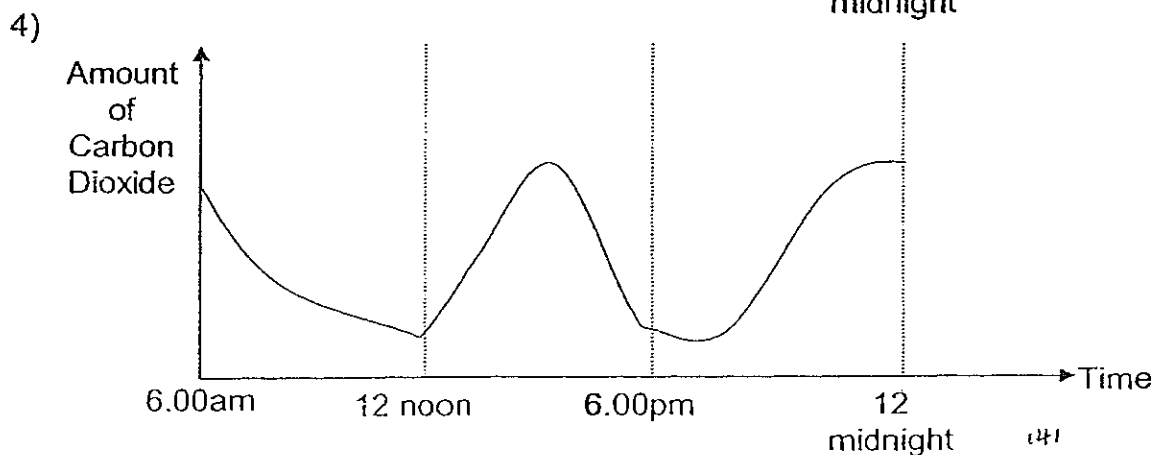
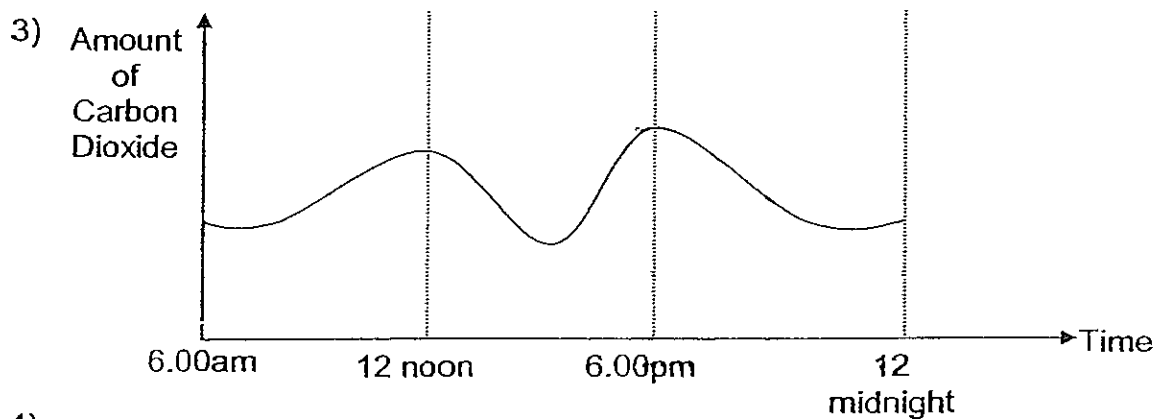
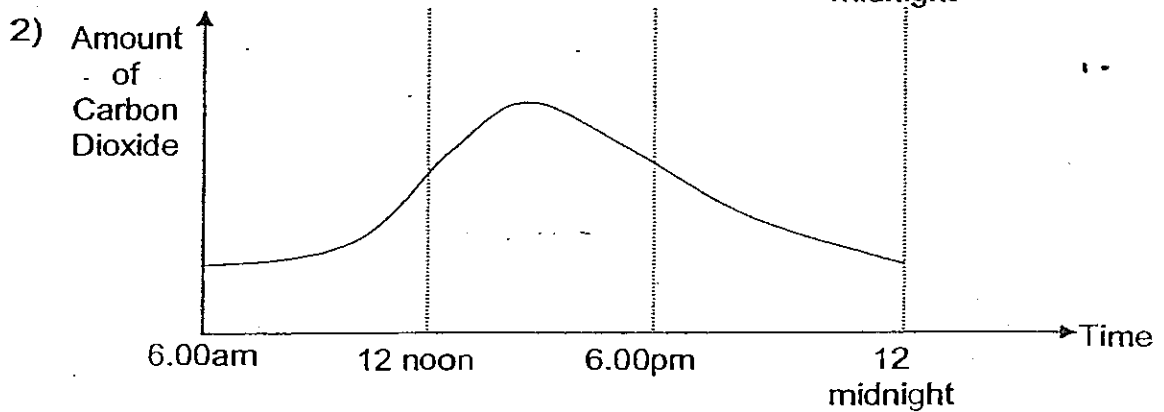
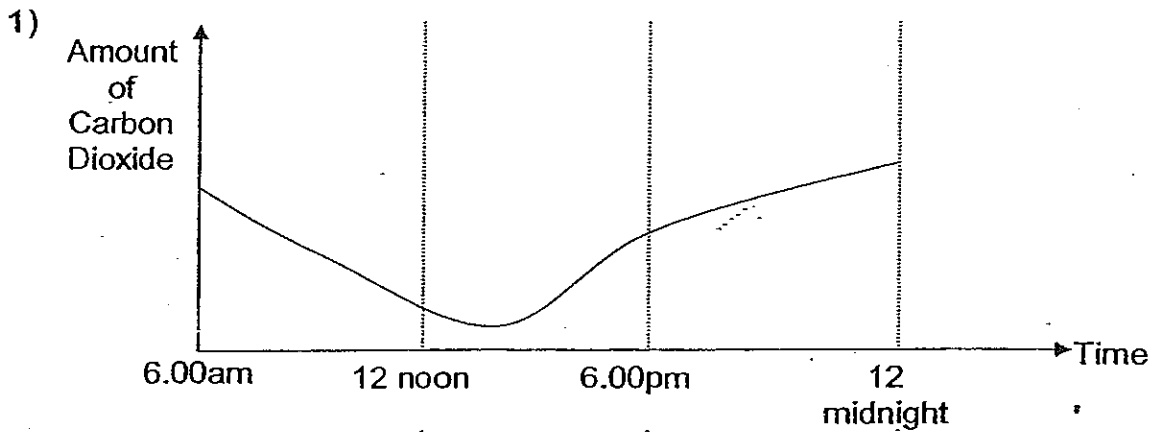
28. Kate placed a plastic cover over a bowl of hot vegetable stew that her mother had just prepared. After some time, Kate noticed that there were some water droplets on the inner surface of the plastic cover as shown below.



She made the following conclusions. Which of the following conclusion is correct?

- 1) The water from the vegetable stew condensed on the plastic cover.
 - 2) The water vapour in the air outside the plastic cover condensed on the plastic cover.
 - 3) The plastic cover was wet and the water gathered on the surface of the plastic cover.
 - 4) The warm water vapour inside the plastic cover condensed on the cool surface of the plastic cover.
29. Which of the following correctly states how respiration helps a living thing to stay alive?
- 1) Respiration uses food to release energy necessary for survival.
 - 2) Respiration produces carbon dioxide which is needed by plants to survive.
 - 3) Respiration helps to digest the food necessary for a living thing to survive.
 - 4) Respiration produces oxygen that is necessary for the survival of all living things.

30. Ruby fixed a carbon dioxide detector on a leaf of a plant in the Science Garden. The detector detects the amount of carbon dioxide taken in by the plant. She recorded the results over a period of 18 hours. Which of the following graphs is a correct representation of what Ruby would observe?



SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

PRELIMINARY EXAMINATION 2008

NAME: _____ () DATE: _____

CLASS: PRIMARY 6(SY) / C / G / SE / P

Booklet A	60
Booklet B	40
Total	100

Parent's Signature

SCIENCE
BOOKLET B

16 questions

40 marks

Total time for Booklets A & B: 1 h 45 min

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

Name: _____ ()

Date: _____

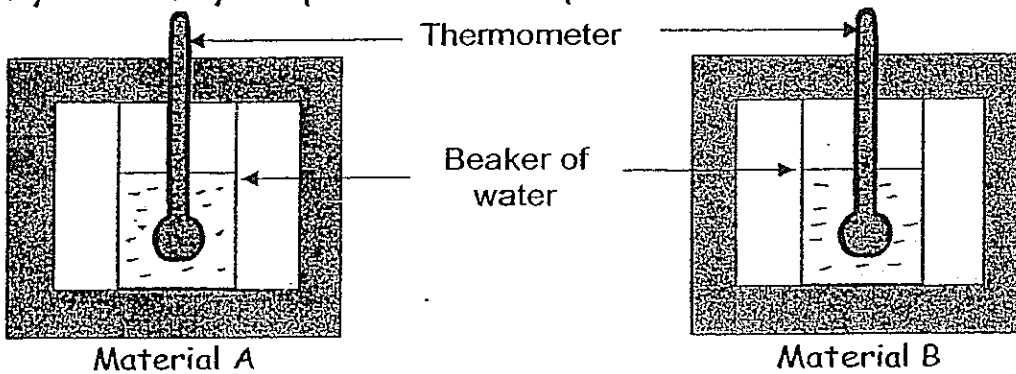
Class: Primary 6 S/C/G/SE/P

Part II (40 marks)

Answer all the following questions.

31. Fanny and Tammy wanted to find out which material, A or B is better at keeping heat in. They set up the experiments as shown below and wrote down their investigation plan below.

Fanny and Tammy's Experimental Set-up



Steps	Fanny's Plan
1	Fill 2 similar glass beakers with boiling water at 100°C.
2	Cover one beaker with Material A and the other with Material B.
3	Place the thermometer into the water.
4	Record the reading on the thermometer by taking out the thermometer every 3 minutes.

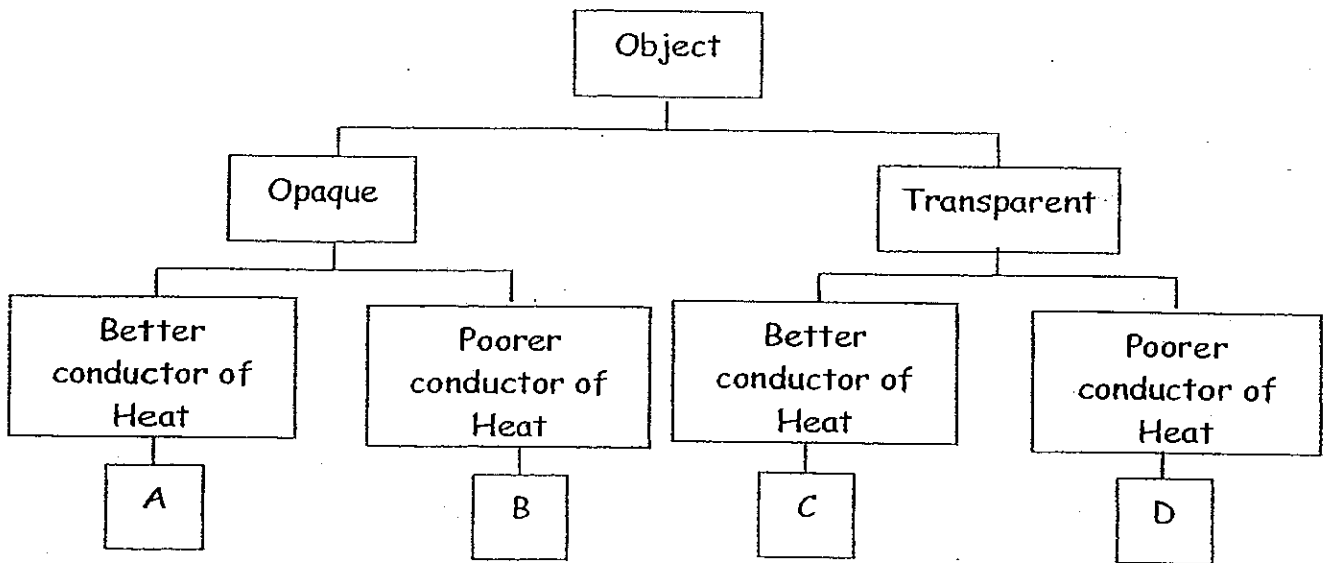
Steps	Tammy's Plan
1	Fill 2 similar glass beakers with boiling water at 100°C.
2	Cover one beaker with Material A and the other with Material B.
3	Place the thermometer into the water.
4	Read the temperature on the thermometer without taking it out and record it into a table every 3 minutes.
5	Repeat the experiment 3 times.

Who had a better plan? Give 2 reasons to support your answer. (2 marks)

Reason 1: _____

Reason 2: _____

32. Study the classification key below.



Thermal conductivity is a measurement of the rate of heat flow through different materials. A material with a higher thermal conductivity is a better conductor of heat. Based on the information given below, complete the classification key. (2 marks)

Material	Thermal Conductivity (w/m K)
Baby Oil	0.15
Copper	401
Water	0.58
Corkboard	0.043

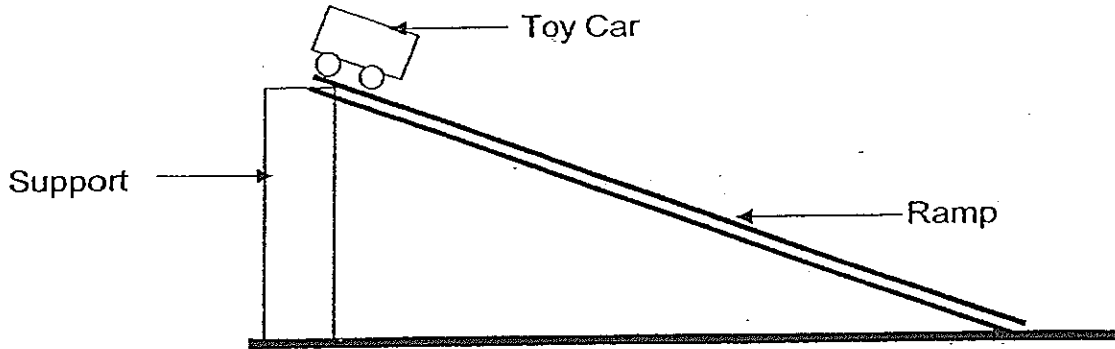
A: _____

B: _____

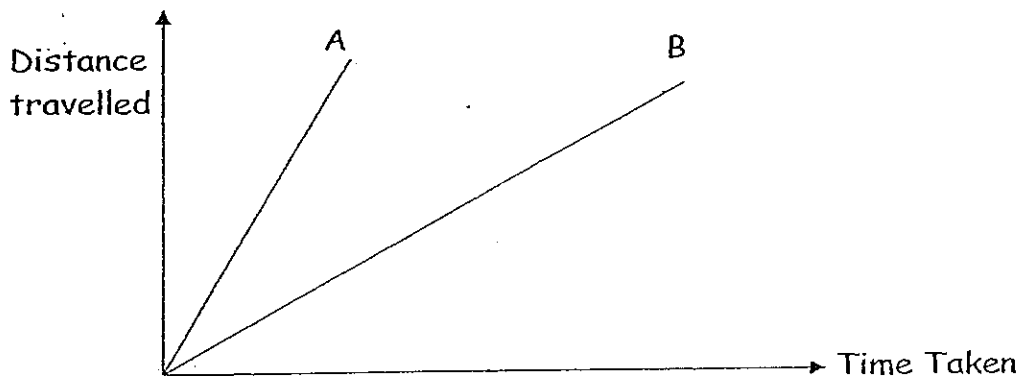
C: _____

D: _____

33. Peter set up an experiment using a support, a toy car and a ramp as shown below. He recorded the time taken for the toy car to travel down the ramp on 2 different surfaces A and B.



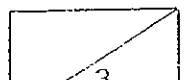
He repeated the experiment, calculated the average distance traveled by the car and plotted the graph below.



- 33a. From the graph above, which surface is smoother? Give a reason for your answer. (1 mark)

- 33b. What can be done to reduce the friction on both surface A and B? (1 mark)

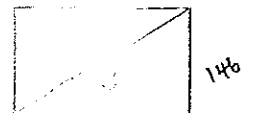
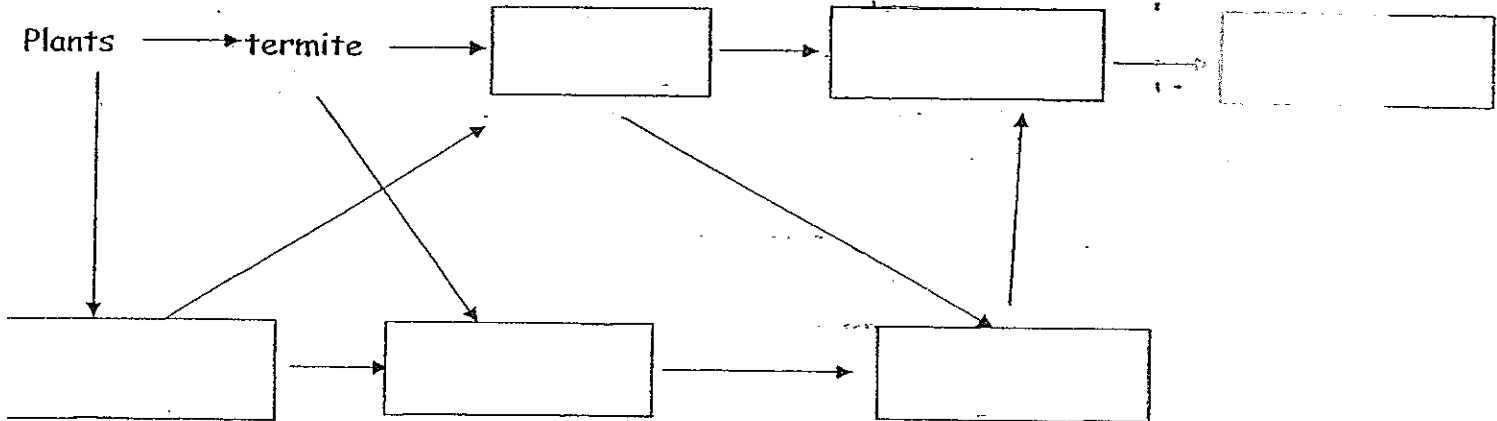
- 33c. The experiment was repeated a few times. How did repeating the experiment make the results more accurate? (1 mark)



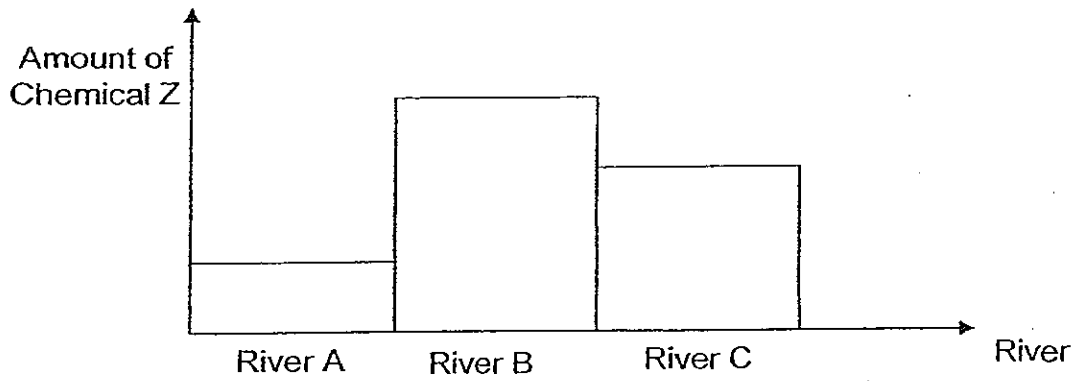
34. Study the food chains below.

- Plants → termites → moon rat → python → eagle
- Plants → termites → moon rat → civet → python → eagle
- Plants → termites → monitor lizard → civet → python → eagle
- Plants → ants → moon rat → python → eagle
- ~~Plants → ants → moon rat → civet~~
- Plants → ants → monitor lizard → civet → python → eagle
- Plants → ants → moon rat → civet → python → eagle

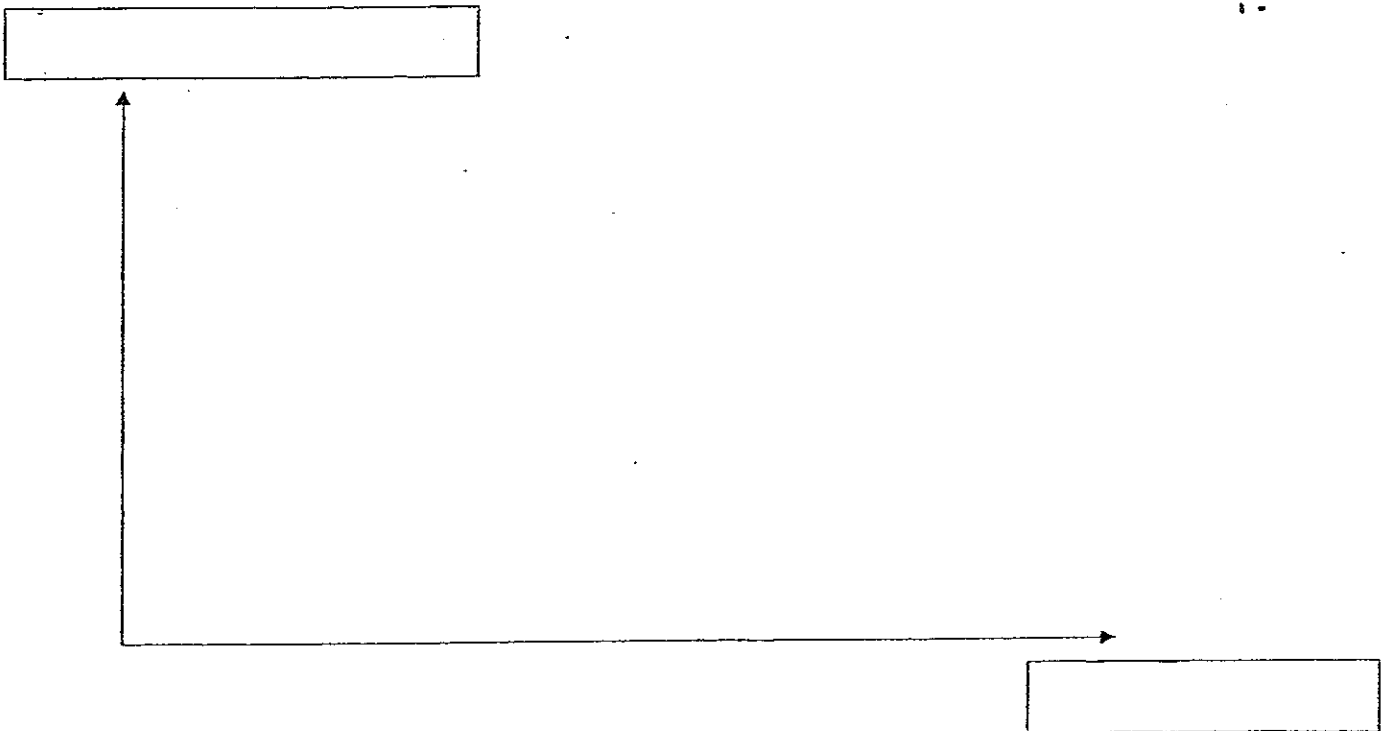
Complete the food web below with the correct organisms. (3 marks)



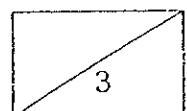
35. A small amount of water from 3 rivers, A, B and C was collected and tested for Chemical Z. Chemical Z is a poisonous chemical that is harmful to living things. The results for the tests are shown in the graph below.



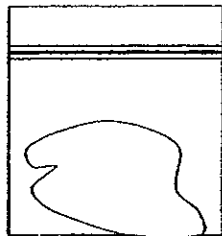
- 35a. Based on the results given, plot a graph that predicts the number of living things in the 3 different rivers. Label your graph clearly. (2 marks)



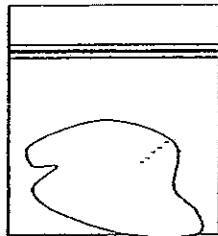
- 35b. What is the relationship between the amount of Chemical Z and the number of living things in the river? (1 mark)



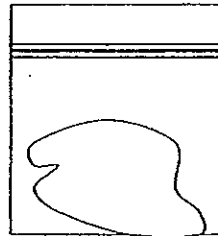
36 Betty wanted to find out how different amounts of milk will affect the growth of mould on rice. She placed some cooked rice into a container, poured in the milk and stirred it thoroughly before emptying the content into a Ziploc bag. She repeated the steps for different amounts of milk she wanted to test as shown below.



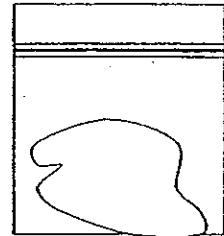
100ml of milk
50g of rice
Set-up A



150ml of milk
100g of rice
Set-up B



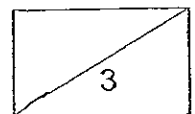
50ml of milk
150g of rice
Set-Up C



No milk
100g of rice
Set-up D

36a. Why is there a need to have set-up D as a control? (2 marks)

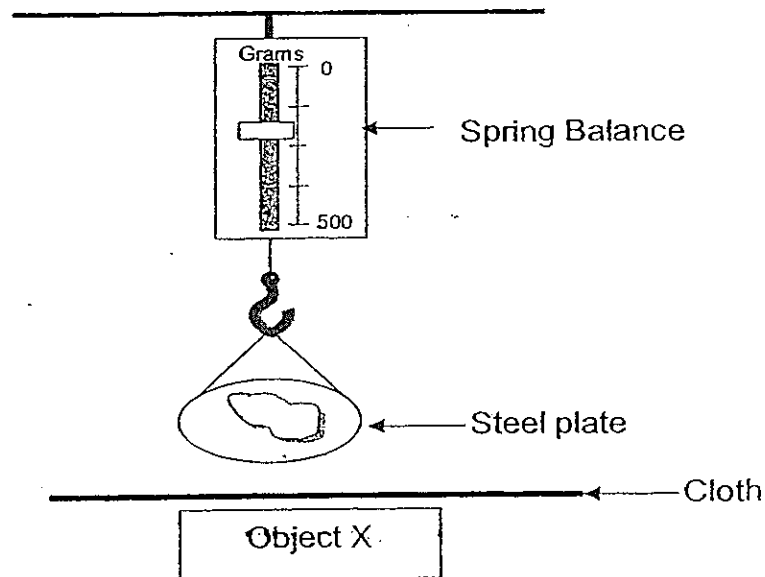
36b. Her friend, Jane told her that she did not conduct a fair test. How can she improve on her experimental set-up? (1 mark)



- 37 Put a tick (✓) in the correct boxes to indicate if the following statements about **genetic engineering** are true or false. (2 marks)

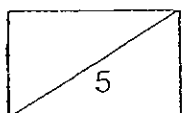
Characteristics	True	False
i) It takes a longer time to produce organisms with the desired characteristics than genetic selection.		
ii) It is moving genes from one type of organism to another.		
iii) Plants that had gone through genetic engineering are usually resistant to pests.		
v) It is to select parents with the desired character traits and breed them together to obtain young with the desirable characteristics.		

38. A dishonest hawker wanted to cheat his customers by making them pay more for their goods. He placed Object X just below the weighing scale and covered it with a piece of cloth.

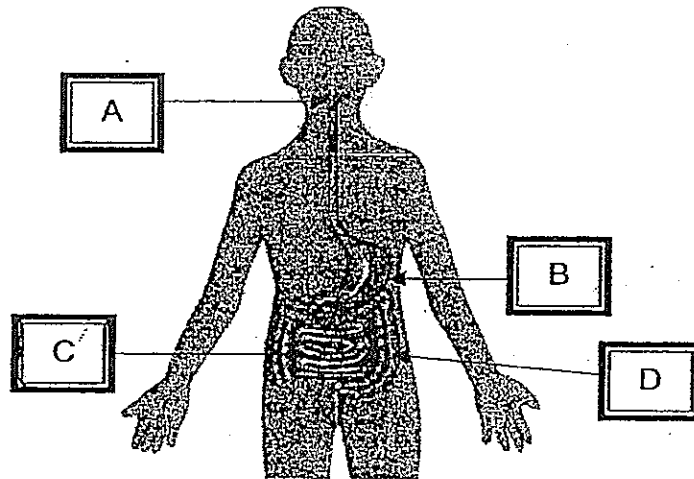


- 38a. What is Object X? (1 mark)

- 38b. Explain how Object X will increase the reading of the scale. (2 marks)



39. Label the parts of the digestive system shown below.



39a. What do A, B and C each represent in the digestive system? (2,marks)

A: _____

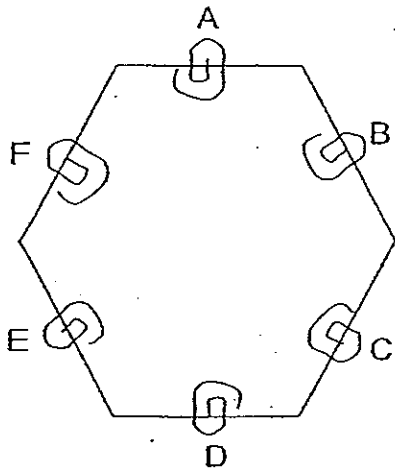
B: _____

C: _____

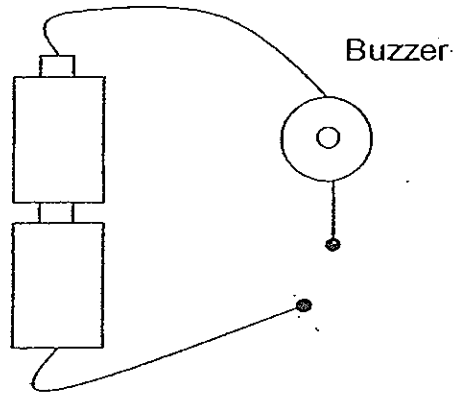
D: _____

39b, Ali had part of his stomach removed as there is a high possibility that he may have stomach cancer. Based on your understanding of the digestive system, will he still be able to digest food? Give a reason for your answer. (1 mark)

40. Ian was given a circuit card as shown below.



Circuit Card



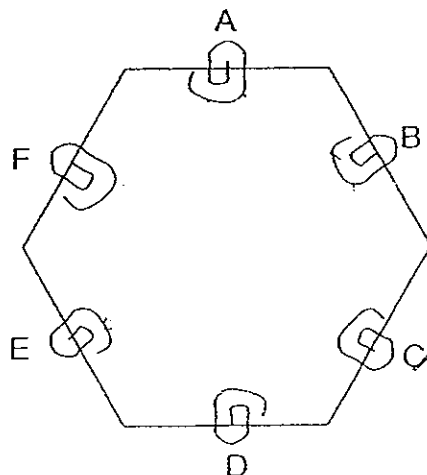
Circuit Tester

He used a circuit tester to test the card and tabulated his results as shown in the table below.

Testing points	Buzzer sounded?	Testing points	Buzzer sounded?
A and B	Yes	B and F	No
A and C	No Yes	C and D	No
A and D	No	C and E	Yes
A and E	Yes	C and F	No
A and F	No	D and E	No
B and C	Yes	D and F	No
B and D	No	E and F	No
B and E	Yes		

Assume that the other side of the circuit card is connected using wires. Indicate using only 3 straight lines to show how the circuit card is connected below.

(2 marks)



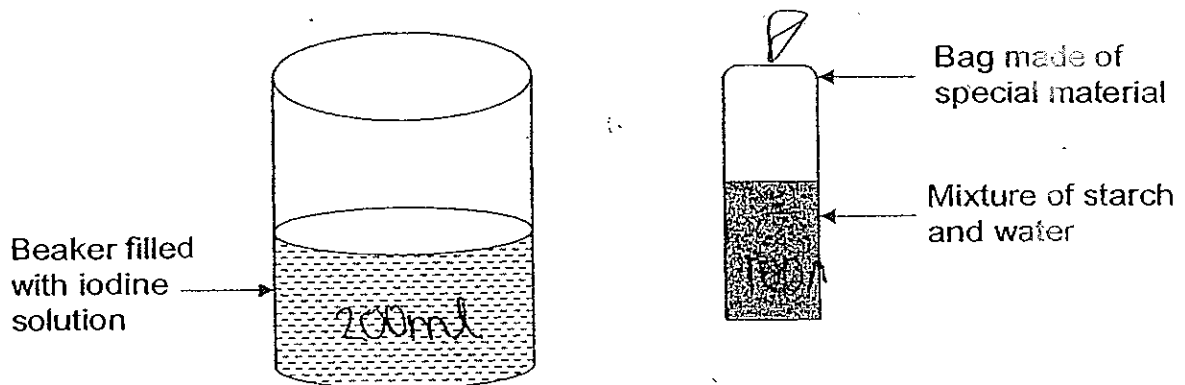
- 41 The table below shows the characteristics of some objects A, B, C and D that can be found in the Solar System.

Characteristics	A	B	C	D
Revolves around a planet	X	X	✓	X
Revolves around the Sun	✓	X	X	✓
Produces light	X	✓	X	X
Has oxygen and water	X	X	X	✓

What are Objects A, B, C and D likely to be? (2 marks)

A: _____ B: _____
 C: _____ D: _____

42. Michael wanted to build a model that shows the function of a cell membrane. He filled a bag made of special material with water and starch. He placed the bag into a container filled with iodine solution and left it there for 5 hours as shown below.

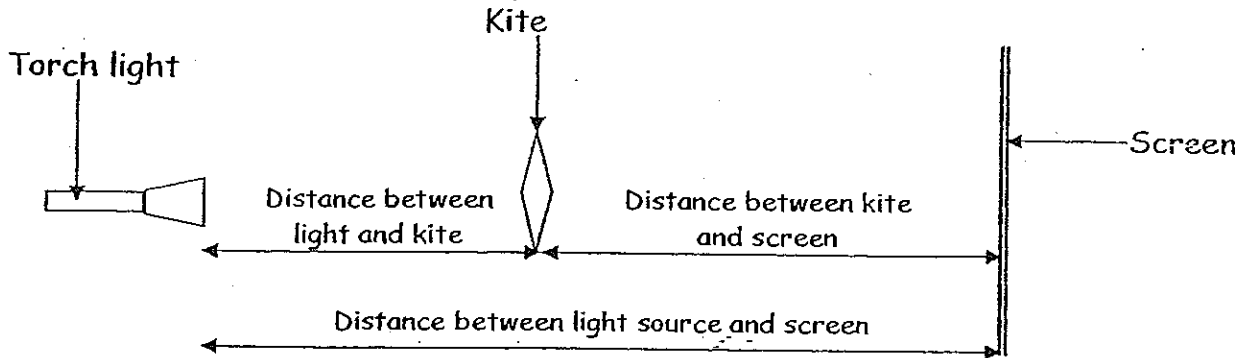


He noticed at the end of 5 hours that the mixture of starch and water which was originally white had become dark blue while the water containing iodine solution remained the same.

- 42a. Why did the mixture of starch and water become dark blue? (1 mark)

- 42b. Why did the iodine solution remain the same? (1 mark)

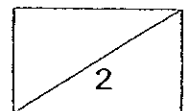
43. Marianne placed a kite in front of a screen and a light source behind the kite as shown below. She wanted to find out if the distance of the light source from the screen affects the size of the shadow.



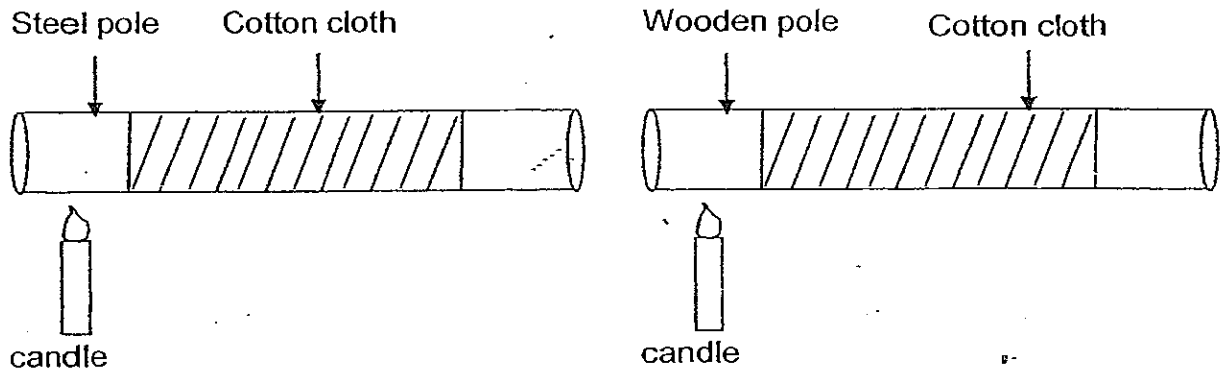
She tabulated her results as shown below

Distance between light source and screen (cm)	Distance between kite and screen (cm)	Size of shadow (lengthwise) in cm
100	20	10
100	40	20
100	60	30
100	80	40

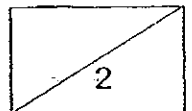
What is the relationship between the distance between the torchlight and the kite to the size of the shadow (lengthwise)? (2 marks)



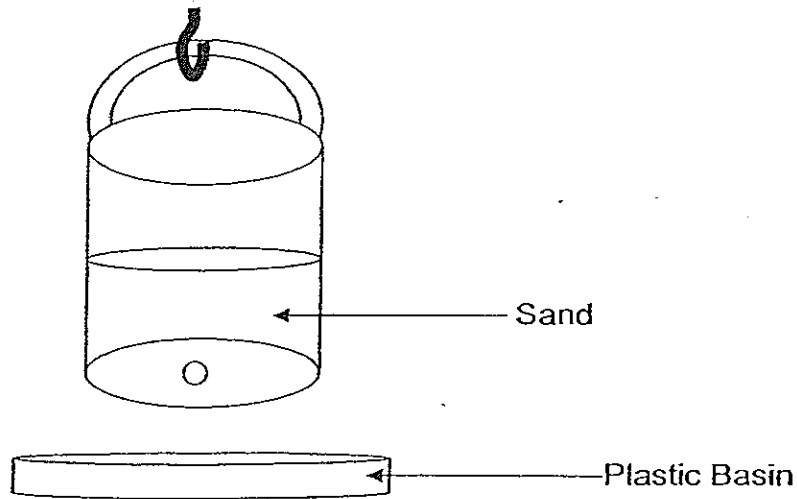
- 44 Anita set up an experiment as shown below. She took 2 poles of the same length, 1 made of steel and the other made of wood. She then took 2 pieces of cotton cloths of the same thickness and wrapped them around each pole. A candle flame was placed at one end of each pole as shown below.



She noticed that the cloth around the steel pole was warmer than the cloth around the wooden pole. Explain why this is so. (2 marks)



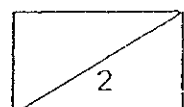
- 45 Oliver hung a container of sand above a plastic basin. There is a tiny hole at the bottom of the container of sand. The sand leaked out from the ~~basin~~ ^{container} and as it lands on the basin, it makes a sound.



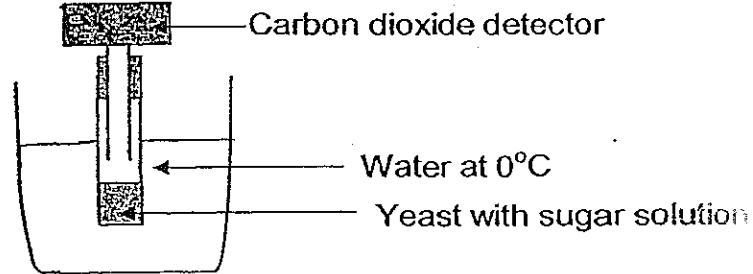
- 45a. State the energy changes for the sand to make a sound in the plastic basin.(1mark)

- 45b. Without changing the size of the hole, what can be done to the container of sand such that the sand will make a louder sound in the plastic basin? (1 mark)

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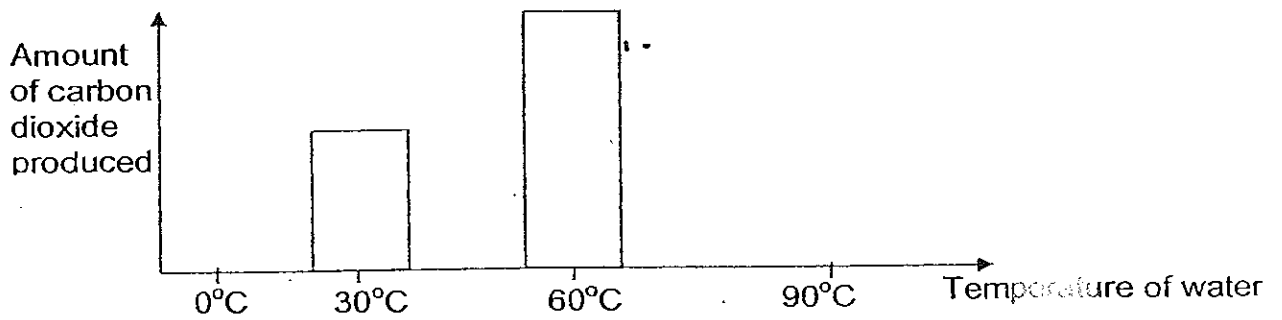


46. Jennifer placed equal amounts of yeast into 4 test-tubes. She then put in equal amounts of sugar solution into the test-tubes. Next, she placed the test-tubes into beakers filled with water of different temperatures, 0°C, 30°C, 60°C and 90°C. One of the set-ups is shown below. The opening of each test-tube was connected to a carbon dioxide detector.



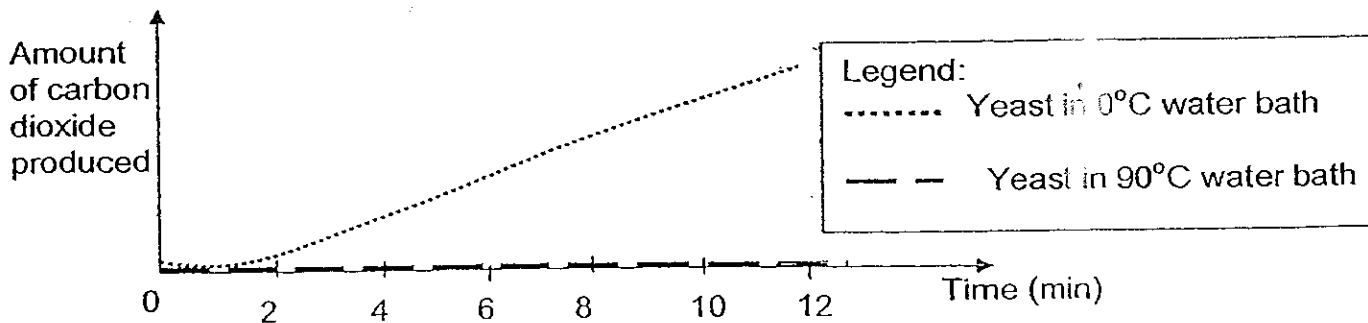
- 46a. What was the aim of her experiment? (1 mark)

Her results are tabulated in the graph below.



- 46b. Which temperature is best for yeast to reproduce? (1 mark)

She took the test tubes of yeast solution from the beaker with water at 0°C and 90°C and placed them in another beaker of warm water of 50 °C. The results are shown in the graph below.



- 46c. Explain the difference in the results from the 2 test tubes. (2 marks)

SCGS Primary School
Primary 6 Science SA2 (2008)

Answers Key

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

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

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

31. **Tammy**
(i). Tammy's plan has to repeat the experiment to ensure accuracy.
(ii). Tammy repeated the experiment 3 times to ensure accuracy.

32. A : copper B : Corkboard C : Water D : Baby oil

33a. A. It takes a shorter time to travel a longer distance.

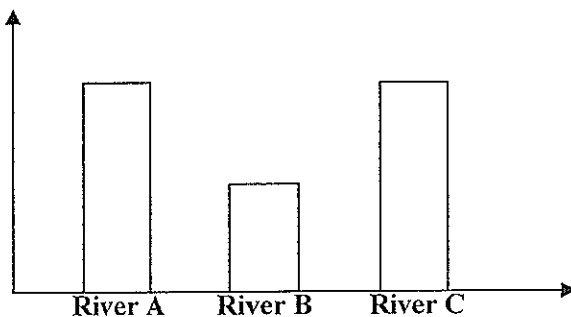
33b. Apply lubricants on their surfaces.

33c. Reduce effect of human error.

34. Plants → termite → moon rate → phython → eagle
ants → monitor lizard → civet

35a. Number of living things.

35b.



The more the amount of chemical Z, the lesser the number of livings things in the river.

36a. Acts as a basis of comparison to prove that the growth of mould is caused by the milk only.

36b. Put the same amount of ricc into each set-up.

37(i). False (ii) True (iii) True (v) False

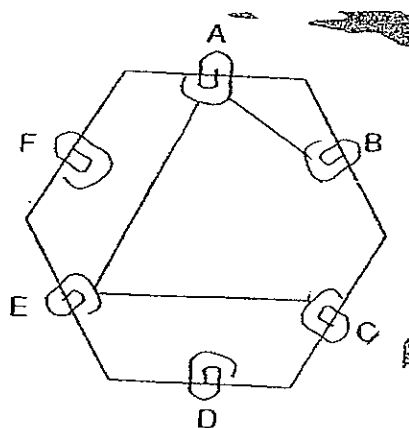
38a. A magnet

38b. The magnet will attract the steel plate by pulling it down. So that the weight will be more.

39a. A : Mouth B : Stomach C : Small Intestine D : Large intestine

39b. Yes. Digestion can still take in the mouth and small intestine.

40.



41a. A : Planet B : Sun C : Moon D : Earth

42a. Iodine entered the bag.

42b. Starch could come out from the bag

43. The bigger the distance between the torchlight and the kite, the smaller size of the shadow.

44. Steel conducts heat better than wood. Steel conducts heat faster to the cloth.

45a. Potential energy \longrightarrow kinetic energy \longrightarrow sound energy

45b. Lift the container higher

46a. To find out if the temperature of the water affected the amount of carbon dioxide given out by the yeast with sugar solution.

46b) 60°C

46c) For the yeast in 90°C water bath do not carbon dioxide is produce. Because the temperature is too High for the yeast to survive.

For the yeast in 0°C water bath the amount of carbon dioxide produce is increases. Because the yeast is alive when the plate in warmth water of 50°C it keep multiplying.