



Rosyth School
First Semestral Assessment for 2010
STANDARD SCIENCE
Primary 6

Name: _____

Total Marks:

100

Class: Pr _____

Register No. _____

Duration: 1 h 45 min

Date: 13th May 2010

Parents Signature: _____

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 46, give your answers in the spaces given in the Booklet B.

	Maximum	Marks Obtained
Part I	60 marks	
Part II	40 marks	
Total	100 marks	

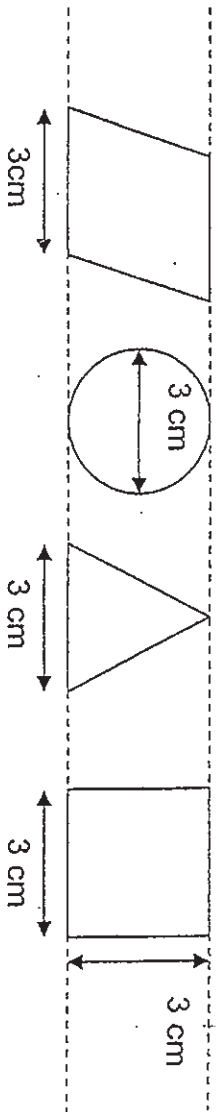
* This booklet consists of _____ 16 _____ pages .

This paper is not to be reproduced in part or whole without the permission of the Principal.

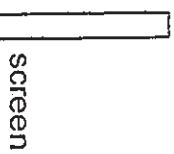
Part I (60 Marks)

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.**

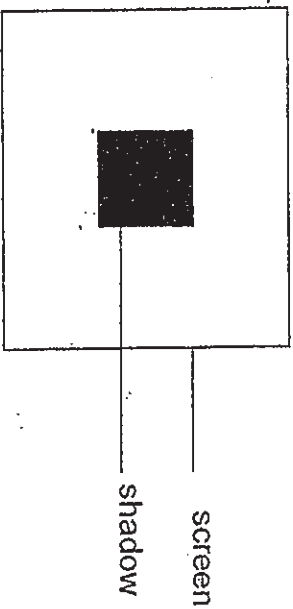
1. Zack was given only four pieces of wood. The shapes of the wood are shown in the diagram below.



Then he tried to place all the pieces of plywood together between a torch and a screen at the same time.



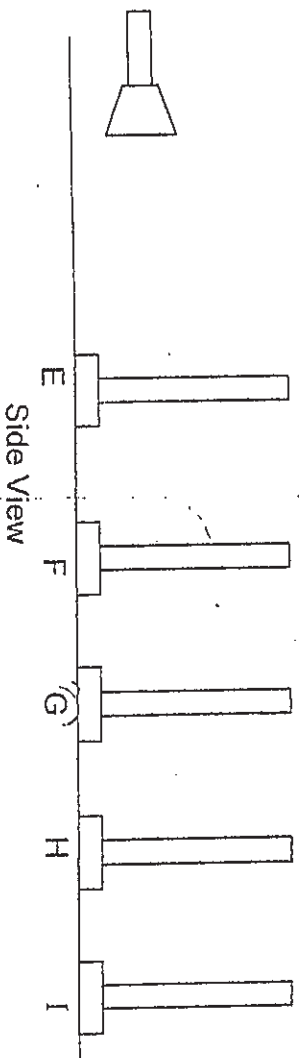
What was the maximum number of plywood that he could use at any one time so as to form the following shadow?



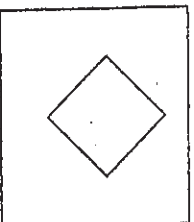
- (1) 1
- (3) 3

- (2) 2
- (4) 4

2. The experiment shown below was carried out in a dark room. Sheets E, F, G, H and I were arranged in a straight line.



A diamond – shaped hole was found on sheet E as shown below.



The properties of the materials are shown below.

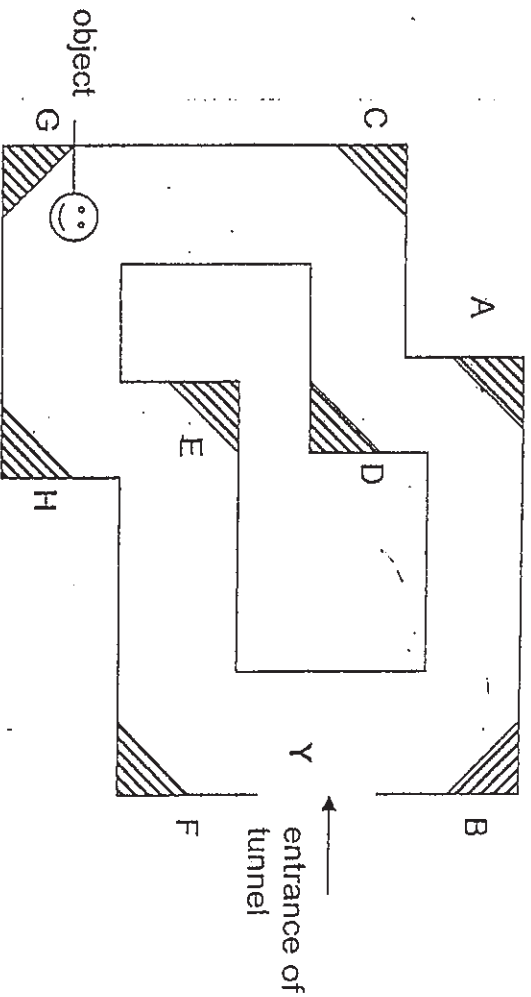
Allows light to pass through	Does not allow light to pass through
F	E
I	G
	H

When the torch was switched on, on which sheet would a bright diamond shape be seen?

- (1) F
(3) H

- (2) G
(4) I

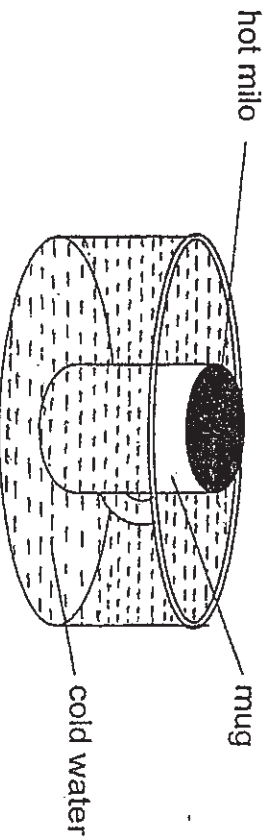
3. The diagram below shows a top view of an underground tunnel.



Where should the mirrors be placed in order for a person standing at point Y to see the object in the tunnel?

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

4. Azman carried out an experiment. He heated up a mug of Milo in a microwave. He then took out the mug from the microwave and placed it in a basin of cold water as shown below.

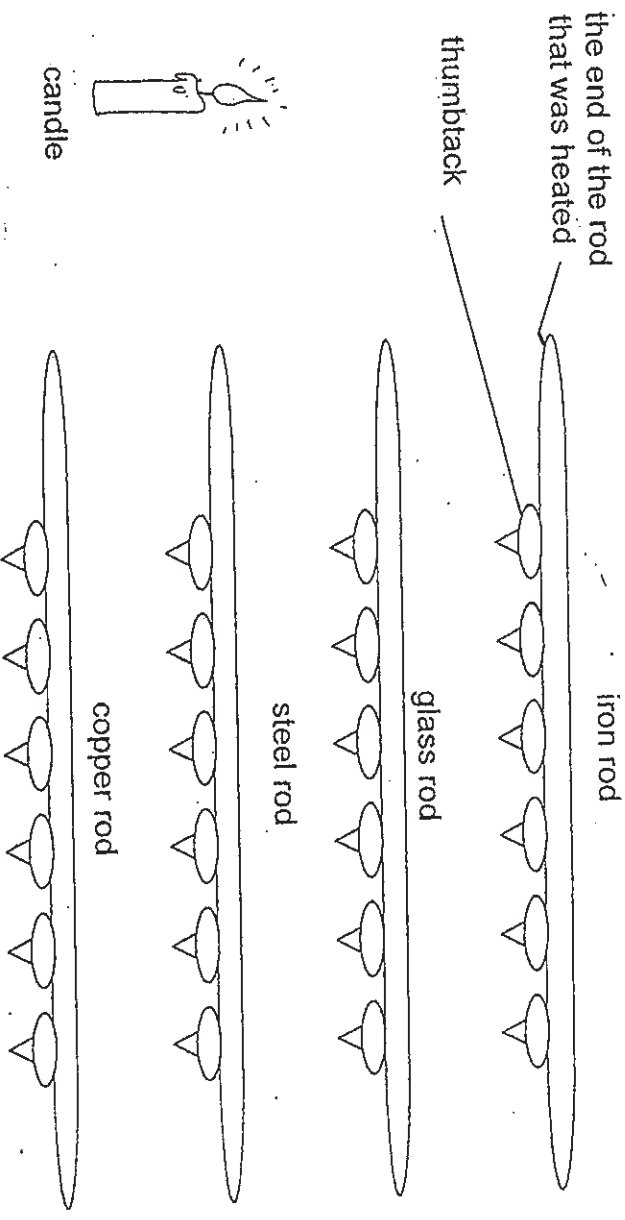


Which one of the following correctly shows the objects in the above set up that had gained heat or lost heat after 15 mins?

	Item		
	hot Milo	mug	cold water
(1)	lost heat	lost heat	gained heat
(2)	gained heat	gained heat	lost heat
(3)	lost heat	gained heat	gained heat
(4)	gained heat	lost heat	gained heat

5.

Adam conducted an experiment using four rods of equal diameter and length but of different materials. He used wax to stick 6 thumbtacks on the underside of each rod. Then he heated the rods with identical candle at the opposite ends as shown in the picture below.



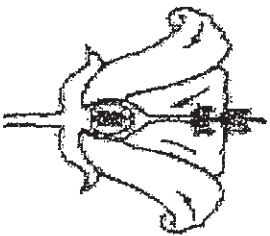
After heating the rods for one minute, Adam recorded the number of thumbtacks left on the rods in the table below.

Type of rod	Number of thumbtacks left on the rod
Iron	4
Glass	5
Steel	4
Copper	2

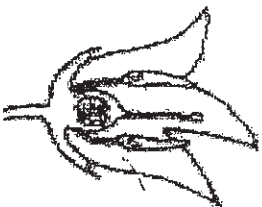
What conclusion can Adam draw from his experiment?

- (1) Glass is not a conductor of heat.
- (2) Copper conducts heat better than iron.
- (3) Steel conducts heat better than copper.
- (4) Steel is a more durable material than iron.

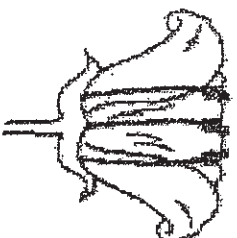
6. The diagrams below show the cross section of flowers taken from three different plants.



Flower E



Flower F



Flower G

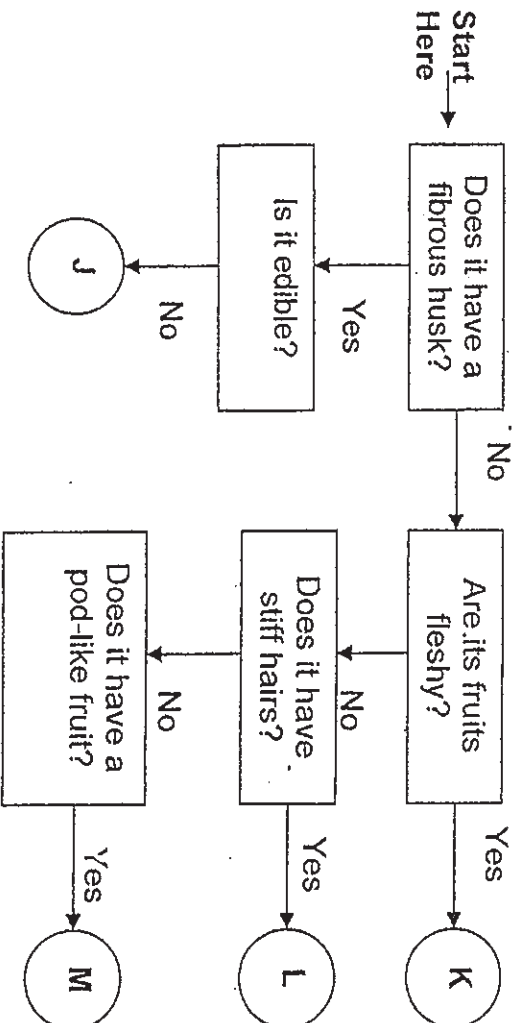
Which of the following statements about the flowers are true?

- A: Flower F has both male and female parts.
- B: Flower G can attract insects with its sweet nectar.
- C: Pollination is not required in Flower E for fertilisation to take place.
- D: Self or cross pollination must take place before fertilisation can occur in Flower F.

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

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

7. Study the flow chart below. It shows the characteristics of different plants, J, K, L and M.



Based on the flow chart, which of the following plant (s) are dispersed by animals?

- (1) J and M
 (3) L and M

- (2) J and K
 (4) K and L

8. The table below shows the comparison between the parts of the reproduction system in an animal and in a plant.

Reproduction System	
Animal	Plant
sperms	pollen grains
A	anthers
ovaries	ovary
eggs	B

Which one of the following shows the correct representation of A and B?

A	B
(1) penis	seeds
(2) testis	seeds
(3) penis	ovules
(4) testis	ovules

9. Study the description of the girls shown in the table below.

Name	Descriptions
Ellen	Has long hair
Sarah	Has black eyes
Sophie	Wear spectacles
Cynthia	Has dimples

Which girls' descriptions are inherited traits?

- (1) Ellen and Sophie's only
 - (2) Sarah and Cynthia's only
 - (3) Cynthia and Sophie's only
 - (4) Sarah and Ellen's only
10. Which one of the following statements about human reproduction is false?
- (1) The ovaries produce eggs.
 - (2) Only one sperm is needed to fertilise an egg.
 - (3) A female usually releases many eggs at a time.
 - (4) Human beings reproduce by internal fertilisation.

11. The table below shows the characteristics of four flowers, W, X, Y and Z.

Flower	Smell	Petals	
		Size	Colour
W	unscented	small	purple
X	scented	small	orange
Y	unscented	large	grey
Z	scented	large	red

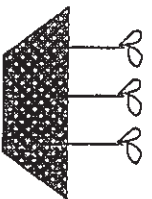
Which flower will attract the greatest number of insects?

- (1) W
(3) Y

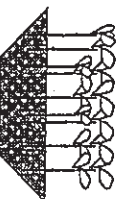
- (2) X
(4) Z

12. Seetha wanted to find out how overcrowding can affect plant growth. ~~She~~^{SHE} prepared five pots of plants and placed them in a sunny part of a garden. ~~She~~^{SHE} watered the plants with the same amount of water.

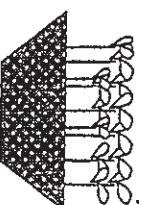
Which two pots of plants should she observe to make it a fair test?



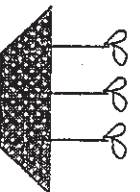
Garden Soil
A



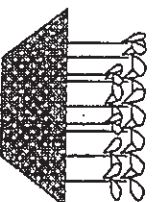
Garden Soil
B



Sandy Soil
C



Sandy Soil
D

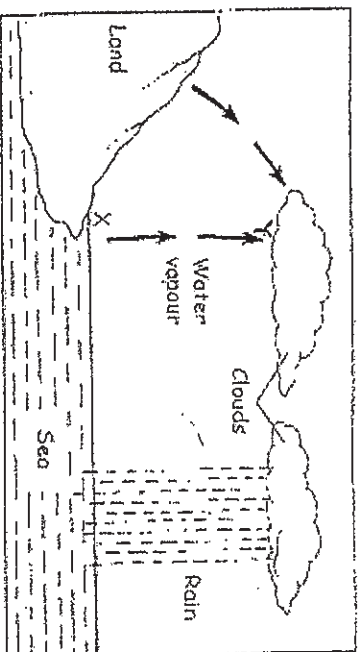


Garden Soil
E

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

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

13.



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

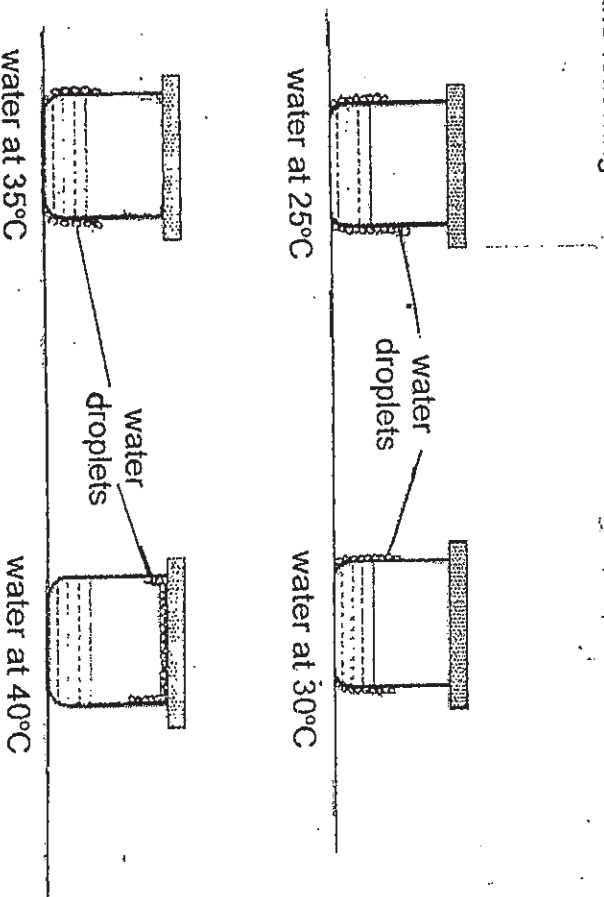
- A: X does not take place at a fixed temperature.
- B: X takes place at a higher temperature than Y.
- C: Y takes place only when there is a cooler surrounding air.

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

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

14.

Alli had four beakers of water at 25°C, 30 °C, 35°C and 40 °C. He placed the beakers in a special room at unknown temperature. After 10 minutes, he made the following observations as shown below.



- What is the most likely temperature of the special room?
- (1) 23°C
 - (2) 27°C
 - (3) 33°C
 - (4) 37°C

15. Susan and John were given an ice-cube each to see whose ice-cube would take a longer time to melt completely. Each child chose a container made of different materials to place their ice cubes.

For their game to be a fair one, which of the variables should they keep constant?

- A: The number of ice cubes
- B: The size of their ice-cubes
- C: The material of containers in which they placed the ice cubes

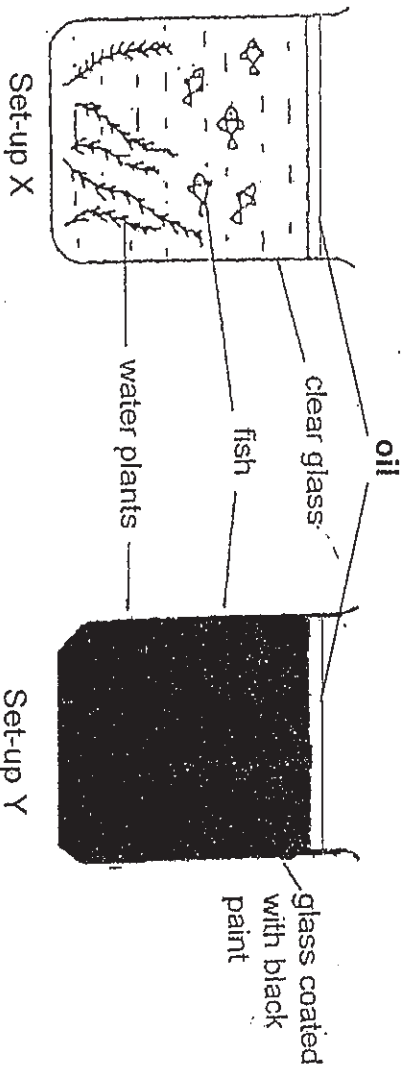
- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

16. Which of the following are needed for plants to make food?

- A: Water
- B: Oxygen
- C: Sunlight
- D: Carbon dioxide

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

17. Pei Pei prepared two set-ups, X and Y as shown in the diagram below. She put the same number of fish, water plants and amount of water in both set-ups. She coated set-up Y with black paint. She left both set-ups in the room.

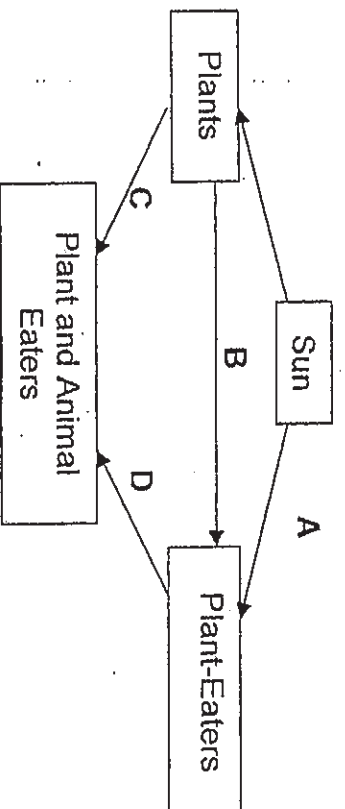


What do you think is/are the possible aim/s of her experiment?

- A: To find out if the presence of oil affects the amount of dissolved oxygen
- B: To find out if the amount of dissolved oxygen affects the survival of fish
- C: To find out if the amount of light affects the survival of the water plants

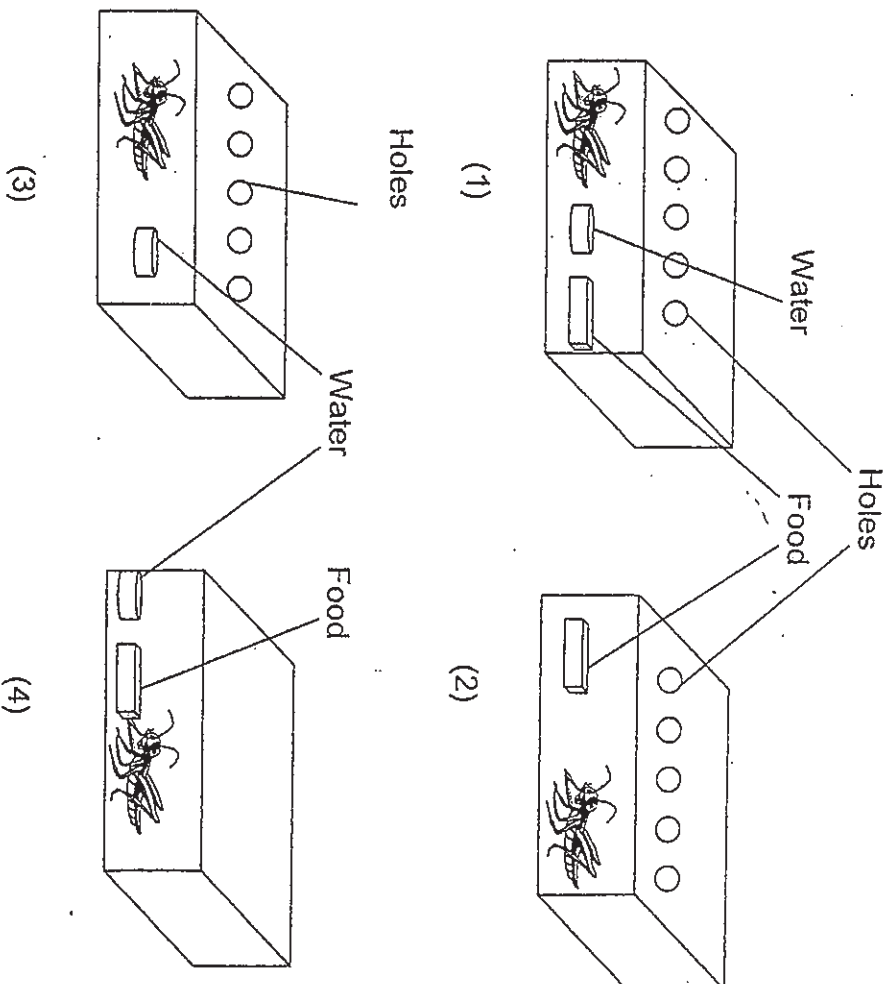
- (1) A only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

18. Study the diagram of direct energy transfer as shown below. Which one of the following shows the direct transfer of energy ~~incorrectly~~?



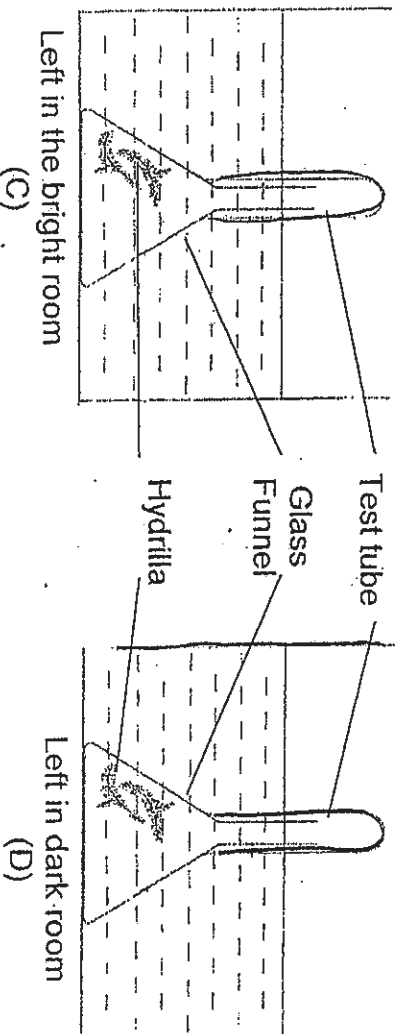
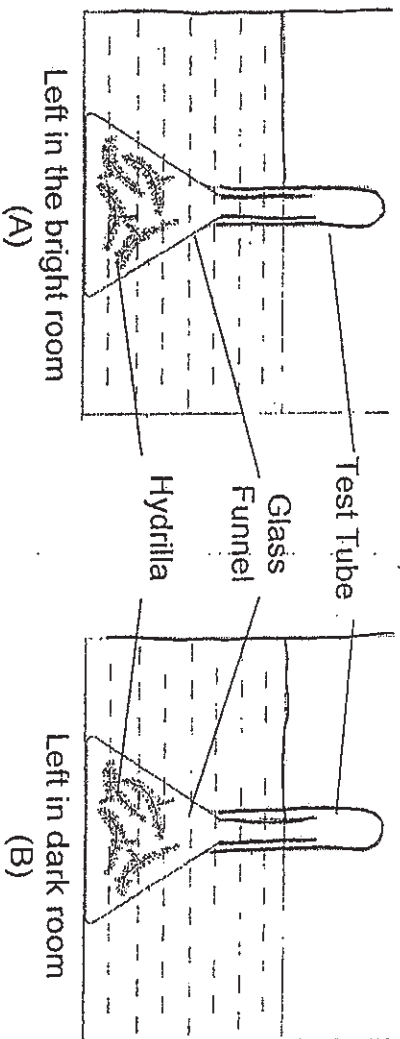
- (1) A
- (2) B
- (3) C
- (4) D

19. Kim Seng wanted to find out if air, food and water are needed for living things to survive. Which one of the set-ups should he use as a control for his experiment?



Refer to the diagram below and answer questions 20 and 21.

20. Mariam carried out an experiment to find out if the number of hydrilla affects the rate of photosynthesis.



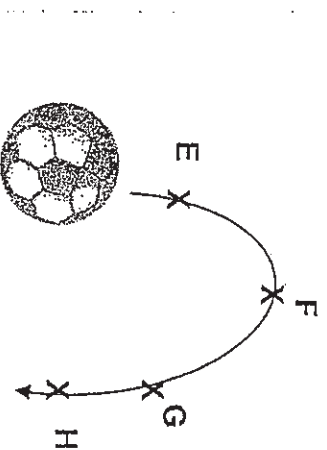
Which of the two set-ups should she use for her experiment?

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

21. What should she observe in the above experiment in order to draw her conclusion?

- (1) Amount of starch
- (2) Amount of water left
- (3) Amount of dead leaves
- (4) Amount of bubbles produced

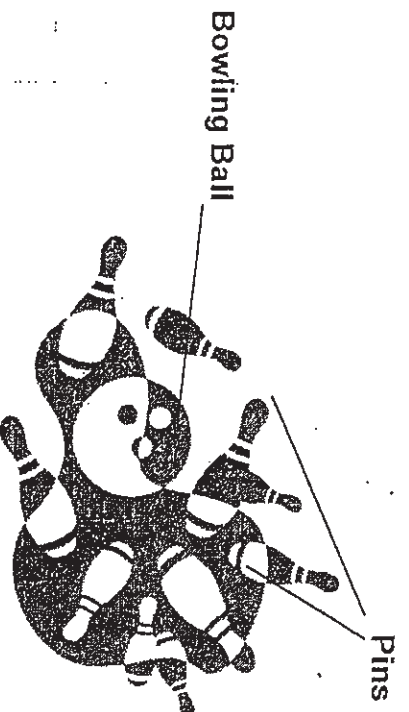
22. A ball was thrown up into the air. It drops back to the ground as shown in the figure below.



At which point would the ball have the greatest potential energy?

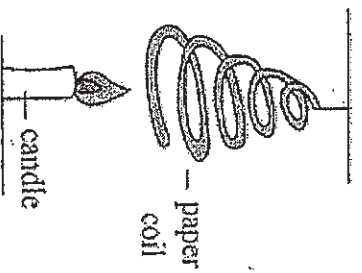
- (1) E
 (3) G
 (2) F
 (4) H

23. Adrian released the bowling ball which hit the pins as shown in the diagram below. Which one of the following shows the energy changes that has taken place?



- (1) Kinetic energy → Sound energy
 (2) Kinetic energy → Sound energy
 (3) Potential energy → Kinetic energy
 (4) Potential energy → Kinetic energy → Heat energy → Sound energy
- Kinetic energy
 → Kinetic energy + Sound energy
 → Heat energy → Sound energy

24. Wei Han prepared the set-up as shown below.



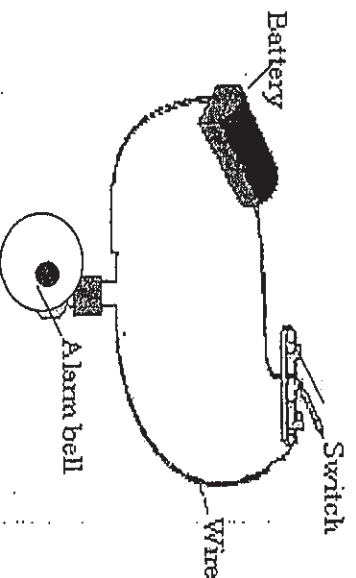
After sometime he observed that the paper coil starts to spin. What do you think he should do in order for the coil to spin faster?

- A: Increase the number of candles
- B: Increase the thickness of the paper coil
- C: Decrease the distance between the candle and the paper coil
- D: Increase the distance between the candle and the paper coil

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

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

25. The diagram below shows an electric circuit. When the circuit is closed, at which part will potential energy be converted into electrical energy?



- (1) Wire
- (2) Switch
- (3) Battery
- (4) Alarm bell

26. Ahmad wanted to find out how the mass of a plastic toy affected the time it took to fall vertically to the ground from a certain height. What are the variables Ahmad had to keep the same to ensure that it is a fair test?

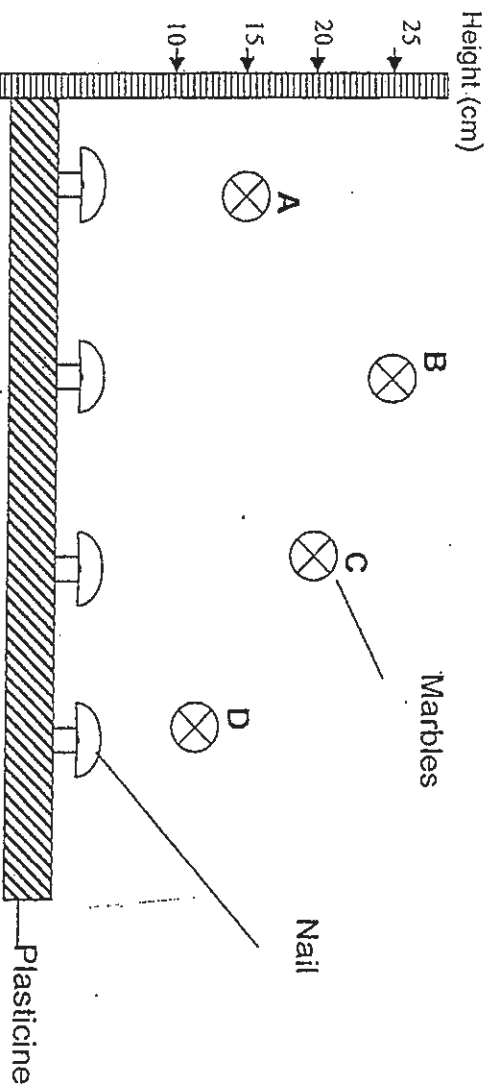
A: The mass of the toy
 B: Time taken to reach the ground
 C: Place where the toy is released
 D: Height in which the toy is released

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

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

Refer to the diagram below and answer questions 27 and 28.

Four similar marbles from different positions were dropped onto nails placed directly under them as shown below.



27. Which of the following shows correctly, in ascending order, the depth the nail had been pushed in ?

(1) A,B,C,D
 (3) D,C,B,A

(2) B,C,A,D
 (4) D,A,C,B

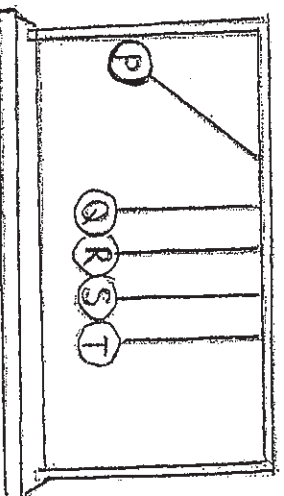
28. What conclusion can be drawn from the experiment above?

A: The lower the height of the ball, the lower the kinetic energy.
 B: The greater the height of the ball, the greater the potential energy.
 C: The greater the mass of the ball, the greater the potential energy.

(1) A only
 (3) A and B only

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

29. The diagram below shows a toy called 'Newton's Cradle'.



Which of the following explains what happens to ball T after P is released?

- (1) Ball T swung to a lower height than P as potential energy has been converted to kinetic energy.
- (2) Ball T swung to a lower height than P as some energy has been converted to sound energy.
- (3) Ball T swung to a greater height than P as potential energy has been converted to kinetic energy.
- (4) Ball T swung to a greater height than P as some energy has been converted to sound energy.

30. Why do we want to find other sources of energy to produce electricity?

A: Energy from coal, oil or natural gases are fast depleting.
B: Energy from coal, oil or natural gases are less efficient.
C: Energy from coal, oil or natural gases produces less energy.
D: Energy from coal, oil or natural gases causes pollution.

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

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

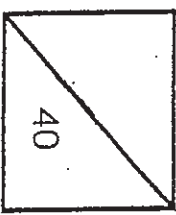
End of Part 1



Rosyth School
First Semestral Examination for 2010
STANDARD SCIENCE
Primary 6

Name: _____

Total
Marks:



Class: Pr _____

Register No. _____

Duration: 1 h 45 min

Date: 13 May 2010

Parent's Signature: _____

BOOKLET B

Instructions to Pupils:

1. For questions 31 to 46, give your answers in the spaces given in this Booklet B.

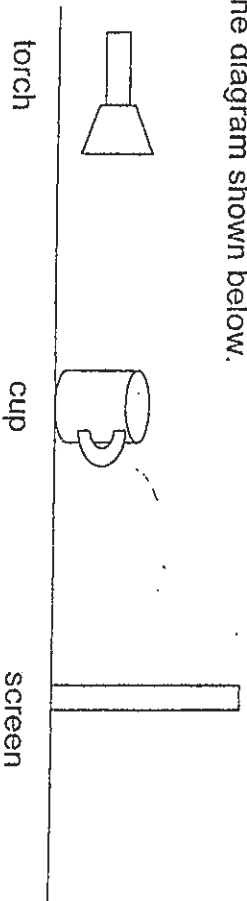
* This booklet consists of 15 pages.

This paper is not to be reproduced in part or whole without the permission of the Principal.

Part II (40 marks)

For questions 31 to 46, write your answers in this booklet.

31. Study the diagram shown below.



Lily carried out an investigation to find out how the distance of the torch from the screen affects the height of the cup's shadow.

Her results are shown in the table below.

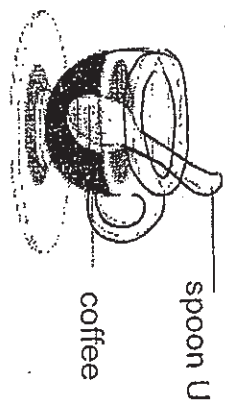
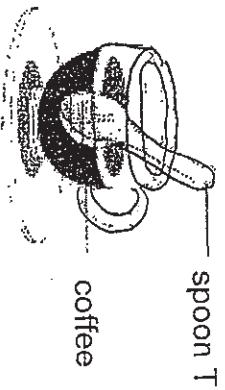
Distance of torch from the screen (cm)	Height of the shadow on the screen (cm)
30	6
25	8
20	10
15	12

- (a) From the results above, what is the relationship between the distance of the torch from the screen and the height of the shadow on the screen? [1m]

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

- (c) What is the property of light that can be shown by the above experiment? [1m]

32. A little wax was melted on the handles of 2 spoons. The wax was allowed to cool and harden on the handles. Spoon T was made of one material while spoon U was made of another material. Both spoons were then placed into a cup of hot coffee. After some time, the wax on both spoons melted.



- (a) Explain how the wax melted?

[1m]

- (b) Using the above experiment, state how you can determine which spoon (T or U) is made of a better conductor of heat?

[1m]

33. Roy had 2 bottles, one black and the other silver. He filled the two bottles with water.



silver bottle



black bottle

He placed both bottles out in the sun. Every 5 minutes, he recorded the temperature of the water in the bottles as shown in the table below.

Time (min)	Temperature of water (°C)	
	X	Y
0	28	28
5	28	29
10	28.5	30
15	29.0	30.5
20	29.0	32
25	29.1	34

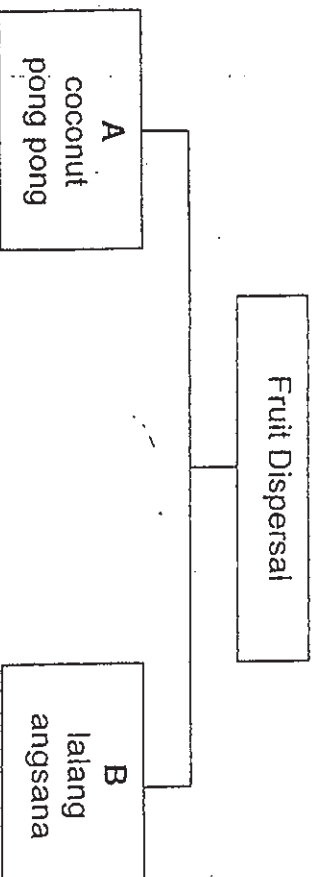
- (a) Which coloured bottle match with the results above? [1m]

X: _____

Y: _____

- (b) Why do you think there is a difference in the temperature of the water in both bottles? [1m]

34. Study the classification table below.



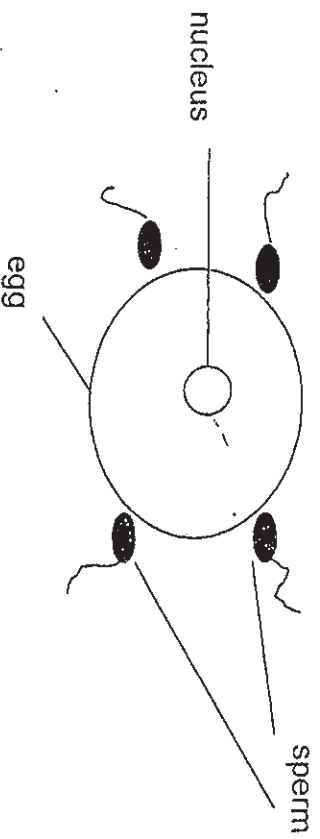
(a) State the difference between the dispersal of fruits in Group A and Group

B. [1m]

(b) Explain why the fruits in Group A can be dispersed by that method. [1m]

(c) Why do plants need to disperse their seeds? [1m]

35. Mary looked at the diagram below and told her teacher that fertilization has already taken place.

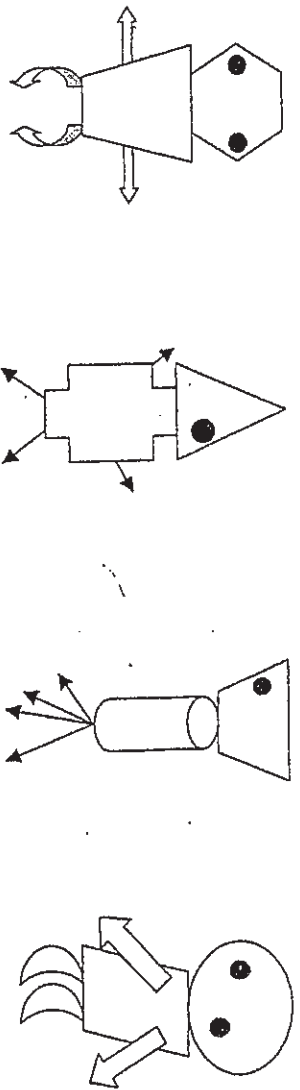


- (a) Is she right or wrong? Explain your answer.

[1m]

- (b) Which of the animals, chicken or frog, has their eggs fertilized the same way as humans? Give a reason for your choice. [1m]

36. The diagram below shows 4 imaginary parents, A, B, C and D.



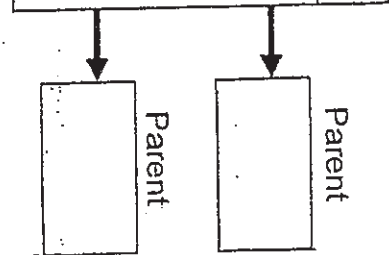
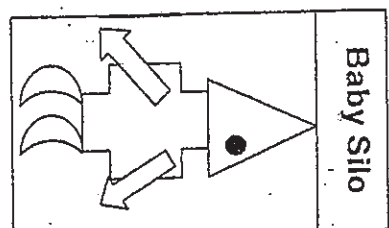
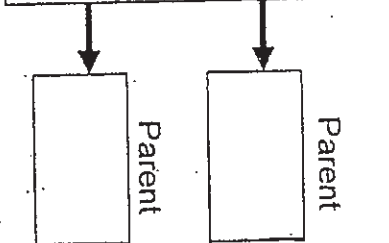
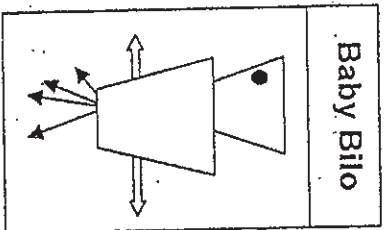
Parent A

Parent B

Parent C

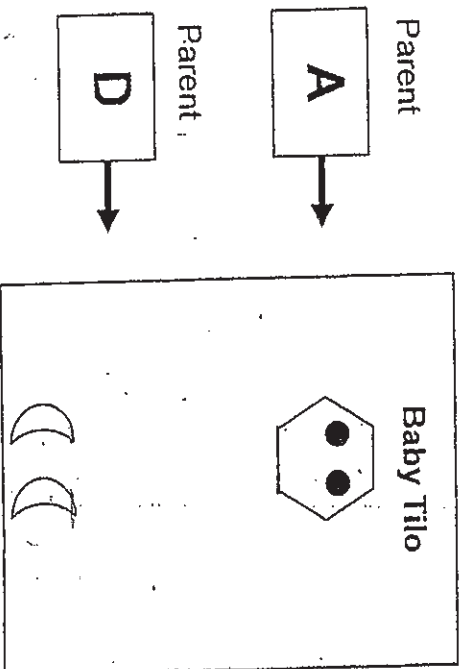
Parent D

Study Baby Bilo and Silo as shown below.

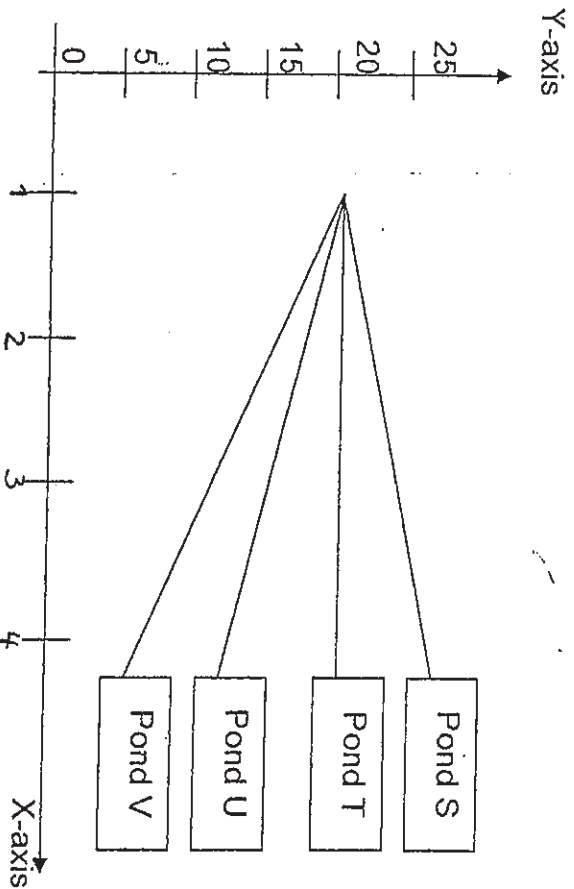


(a) Identify their parents in the boxes above using A, B, C or D. [2m]

(b) Parent A and D produced a young named Baby Tilo who inherited some characteristics from each parent. Complete the drawing of Baby Tilo in the given box below. [1m]



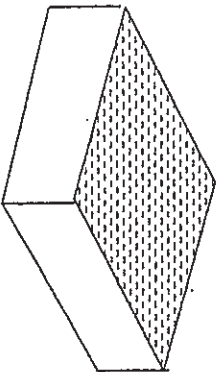
37. Doris collected water from 4 different ponds to grow duckweeds. She poured 100 ml of water from each pond into 4 containers S, T, U and V. She then added 20 duckweeds into each container and left the containers near the window. At the end of each week, she counted the number of duckweeds left in the container and recorded her observations in the graph below.



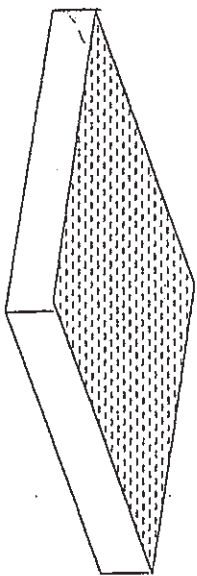
- (a) Doris did not label the Y axis and X axis of the above graph. How should she have labelled the axes? [1m]
- (i) X-axis: _____
- (ii) Y-axis: _____
- (b) Which container contained water that encouraged the growth of duckweeds? Explain your answer. [1m]

- (c) At the end of the 4th week, Doris went back to the pond where she collected the water for container V. She observed that there were many dead fishes floating on the surface of the pond. What could have caused them to die? [1m]

38. Susan and Mary poured the same amount of water into two trays as shown below.



Susan's tray



Mary's tray

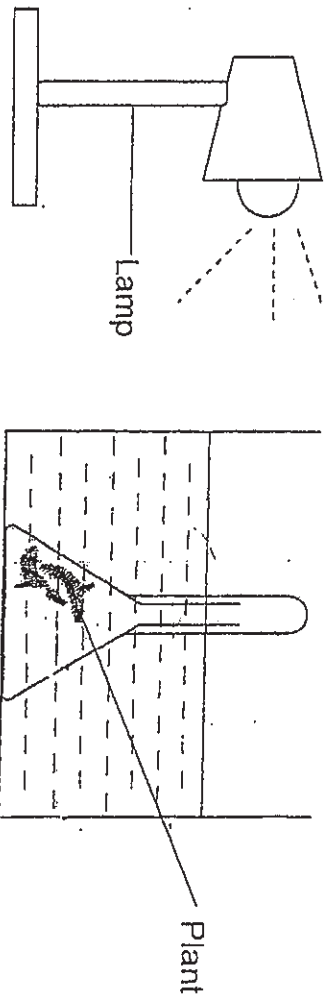
Susan and Mary wanted to compete with each other to completely dry their trays.

- (a) State the process that would enable the tray of water to be completely dry by itself. [1m]

- (b) Do you think it is a fair competition? Give a reason to support your answer. [1m]

- (c) Suggest a way Susan could dry her tray faster than Mary, without throwing the water elsewhere. [1m]

39. Wai Heng conducted an experiment to investigate if coloured lights will affect the rate of photosynthesis in a plant.



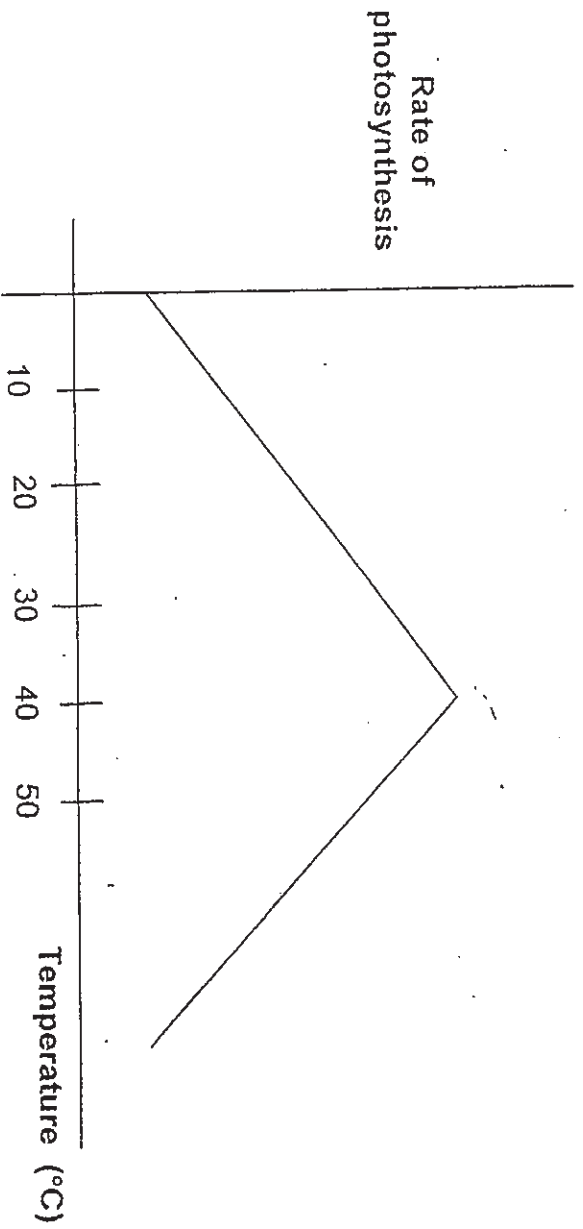
He recorded his findings in the table below:

Colour of light bulb	Rate of photosynthesis
Green	34
Blue	23
Yellow	45
Pink	12

- (a) What can he conclude from the result of his findings? [1m]

- (b) Besides changing the colour of the light bulb, identify another variable which when changed can affect the rate of photosynthesis in the above plant. [1m]

40. Flora wanted to find out how the temperature in a greenhouse garden affect the rate of photosynthesis of her crops. She set up an experiment and recorded her findings in the graph below.



- (a) According to the graph, what is the relationship between the temperature and the rate of photosynthesis. [1m]

- (b) If Flora wants to increase the yield to the greatest in her farm, at what temperature would she grow her crops? Explain how your choice would cause her crops yield to increase to the greatest. [2m]

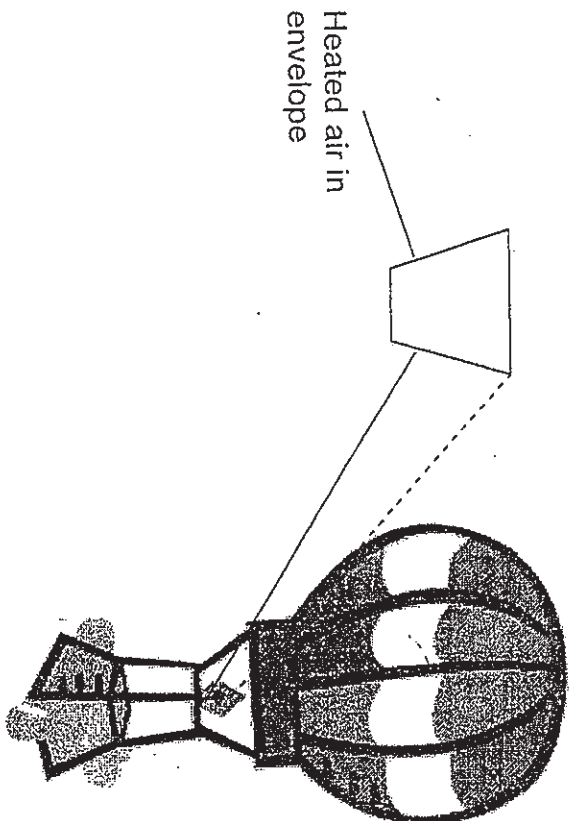
41. Hassan carried out a starch test on different parts of a plant and recorded the results as shown below.

Plant Parts	Presence of Starch
Leaves	Yes
Underground Stem	Yes
Roots	No

- (a) How did Hassan find out that there is starch present in the leaves and underground stem of the plant? [1m]

- (b) Explain why there is starch present in the underground stem. [1m]

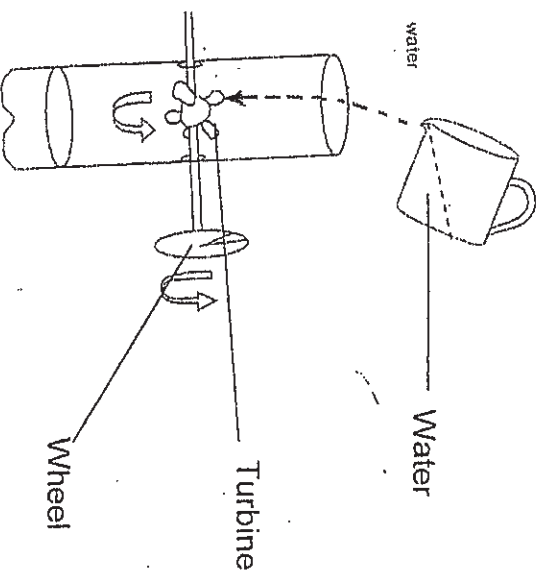
42. The diagram below shows a model of a hot air balloon.



A hot air balloon consists of a bag called the envelope that is capable of containing heated air. The hot air balloon was heated up using a flame and set to float up into the sky.

(a) State the energy conversion when the balloon floated into the sky. [1m]

43. Aminah prepared the following set-up to make a water wheel.



(a) Explain what will happen when the water is poured? [1m]

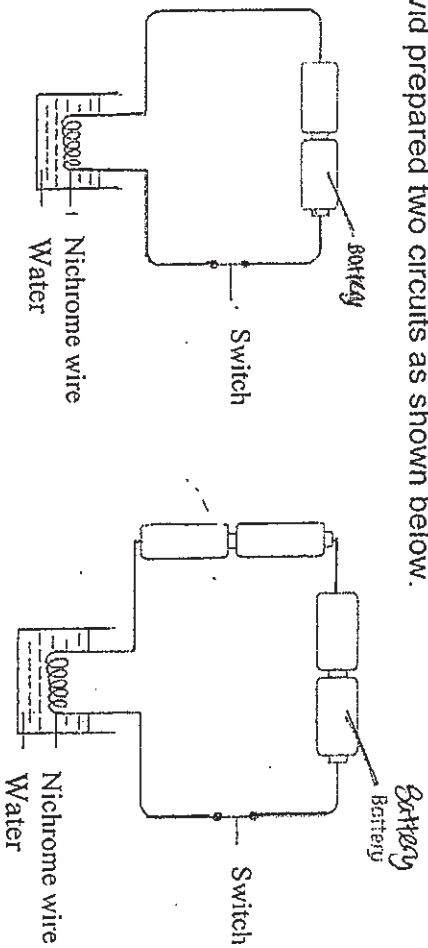
Using the same set-up, Aminah poured different amount of water each time and recorded her observations below.

Amount of water	No of turns
100ml	11
200ml	24
300ml	36

(b) What can she conclude from her observation? [1m]

(c) Why must Aminah keep the height of the water the same when she changed the amount of water? [1m]

44. David prepared two circuits as shown below.



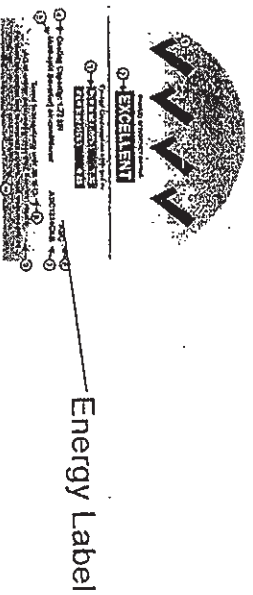
Circuit A

Circuit B

(a) State the energy conversion in the circuits above. [1m]

(b) In which circuit would the water be hotter after ten minutes? Explain your answer. [2m]

45. Mrs Lee went to the electrical shop to purchase a washing machine. She observed that for different brands of washing machine there were different number of ticks on the energy label as shown in the diagram below.



How would choosing a washing machine that has the most number of ticks on the energy label help to conserve the fossil fuels? [2m]

46. The diagram below shows the power station located near a dam.

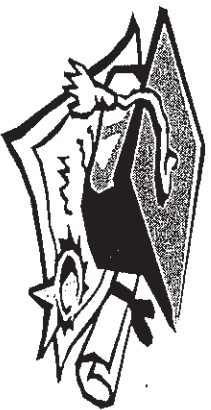


(a) State the two factors that would affect the amount of electricity generated in the power station above. [1m]

(b) What is an advantage of using moving water to generate electricity? [1m]

End of Paper



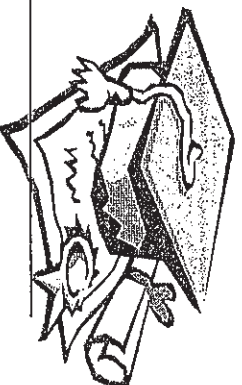


ANSWER SHEET

EXAM PAPER 2010

SCHOOL : ROSYTH PRIMARY
SUBJECT : PRIMARY 6 SCIENCE

TERM : SA1



Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
3	2	3	1	2	2	4	4	2	3	4	2	4	4	1	3	3

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
1	1	2	4	2	3	2	3	2	4	2	2	2

31)a)The nearer the distance of the torch is to the screen, the higher the height of the shadow on the screen.

b)Lily could move the cup nearer to the torch.

c)Lily travels in straight lines.

32)a)The heat travels from the hot coffee to the spoon, then it travels from the spoon to the wax, which made the wax melted.

b)I could measure the time taken for the wax to melt. The spoon with the wax that melted faster would be the one that is made of a better conductor of heat.

33)a)X: Silver bottle Y: Black bottle

b)The colour on each bottle absorbed different amount of heat. Black colour absorbs more heat than silver colour.

34)a)The fruits in group A are dispersed by water while the fruits in group B disperse their fruits are dispersed by wind.

b)Their fruits have a fibrous husk that traps air which will allow them to float on water.

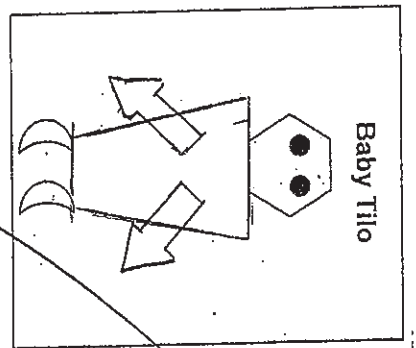
c)It is to prevent overcrowding so that the young plants do not compete for sunlight, water and space.

35)a)Mary is wrong. One of the many sperms has not penetrate into the egg and fuse with it.

b)Chicken has their eggs fertilized the same way as us. The chicken fertilise their eggs internally and lay the eggs out fertilized, while the frog fertilise their eggs externally.

36)a)A→B
C→D

b)



- 37)a)i)Number of weeks ii)Number of duck weeds
b)Container S. The number duckweeds increased during the weeks.
c)The river had oil spills/litter/acid rain/harmful substances/ factory dumping.

38)a)The process is evaporation.

- b)I do not think that it is a fair competition. The exposed surface area of Susan's tray is smaller than Mary's tray, which will affect the results.
c)Susan could put her tray under very hot sun, and put Mary's tray in a room.

39)a)Yellow coloured light allows the water plant to increase its rate of photosynthesis the highest.

b)The amount of carbon dioxide available to the water plant.

40)a)As the temperature increases the rate of photosynthesis also increases till 40 °C after which the rate of photosynthesis decreases.

b)The rate of photosynthesis is highest of 40 °C and thus there will be greatest amount of sugar produced and greatest energy for growth.

41)a)The iodine will turn dark blue if starch is present.

b)The plant has stored the starch in the underground stem.

42)a)Chemical energy→Light + Heat energy→Kinetic energy.

43)a)What poured from that height turn the turbine due to the potential energy and it will be converted to kinetic energy.

b)She can conclude that the greater the amount of water, the greater the number of turns.

c)The higher the light of the water, the more potential energy it has. Thus, it will have more kinetic energy when poured which will make the wheel turn more.

44)a)Chemical potential energy→Electrical energy→Heat energy.

b)Circuit B. It has more batteries, which means it has more chemical potential energy, which will result in more electrical energy and more heat energy.

45)It will use less electricity and less fossil fuels would be used to produce electricity.

46)a)The speed of the moving water and the amount of water in the dam.

b)Moving water is renewable and it does cause pollution to the surroundings.

