Rosyth School
Semestral Examination 2 for 2011
SCIENCE
Primary 4

Total Marks: 100

Name: _____

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

Date: 28 October 2011 Parent's Signature: _____

BOOKLET A

Instructions to Pupils:

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

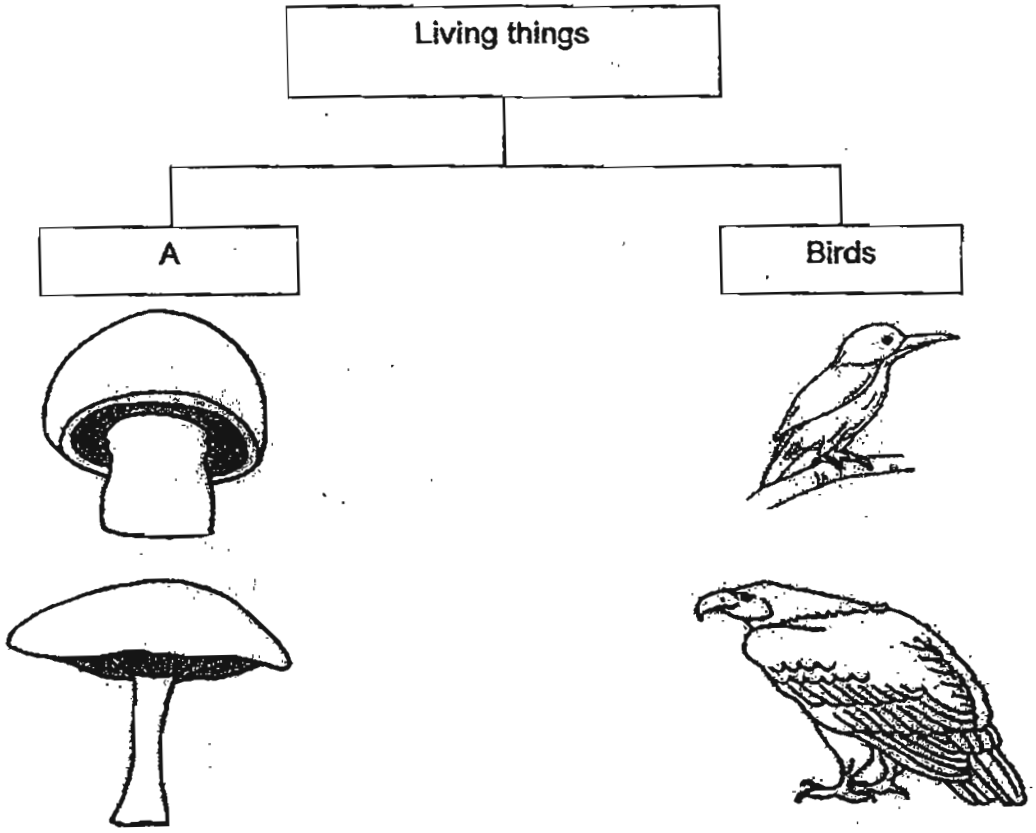
	Maximum	Marks Obtained
Booklet A	60 marks	
Booklet B	40 marks	
Total	100 marks	

* This booklet consists of 19 pages.

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.

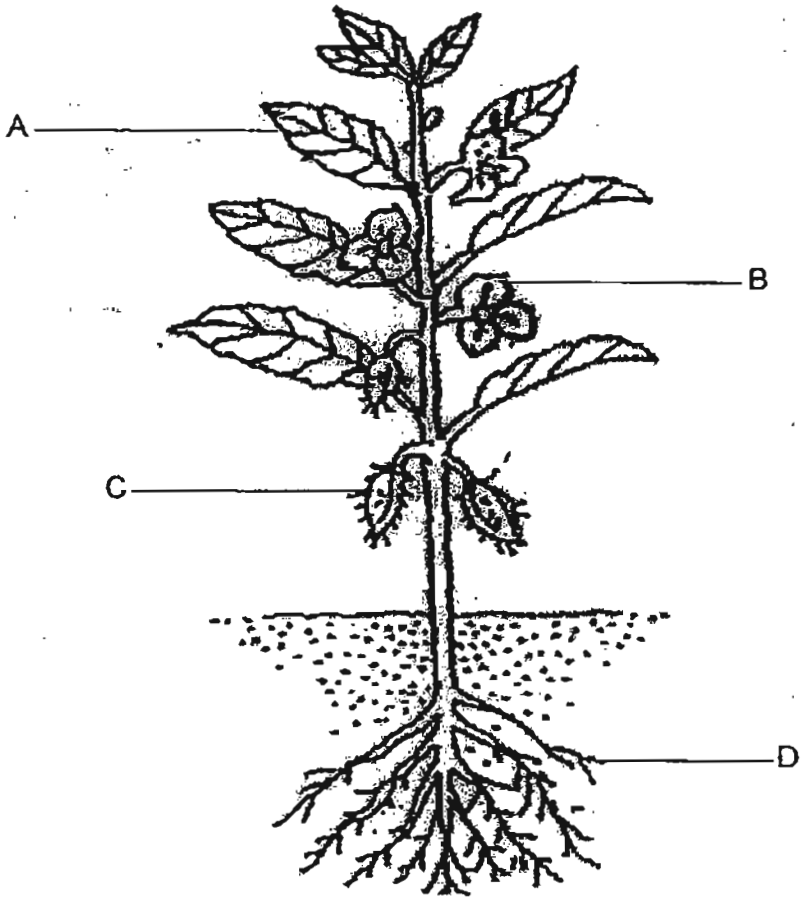
1. Study the classification below.



Which one of the following is the correct group for A?

(1) Plants
(2) Fungi
(3) Micro Organisms
(4) Non-Flowering Plants

Study the diagram below to answer Question 2 and 3.



2. Which of the following plant part above contains seeds?

(1) A (2) B

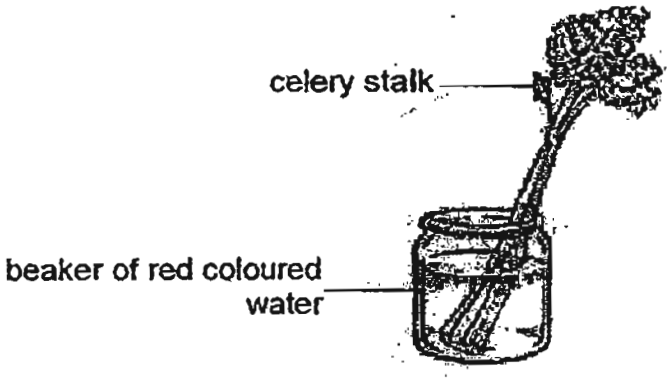
(3) C (4) D

3. Which of the following plant part above is capable of making its own food?

(1) A (2) B

(3) C (4) D

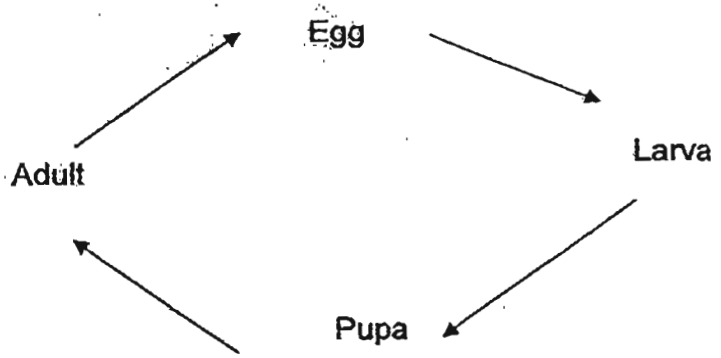
4. A celery stalk was placed in a beaker of red coloured water as shown in the diagram below. After a few days, the leaves and stem had turned red.



What does the experiment show about the function of the stem?

(1) It holds the plant upright.
(2) It stores water for the plant.
(3) It carries food to all parts of the plant.
(4) It transports water to all parts of the plant.

5. The diagram below shows the life cycle of an animal.



Which animal is likely to have the life cycle as shown above?

(1) Frog
(2) Rabbit
(3) Mosquito
(4) Grasshopper

6. Look at the four pictures given below.

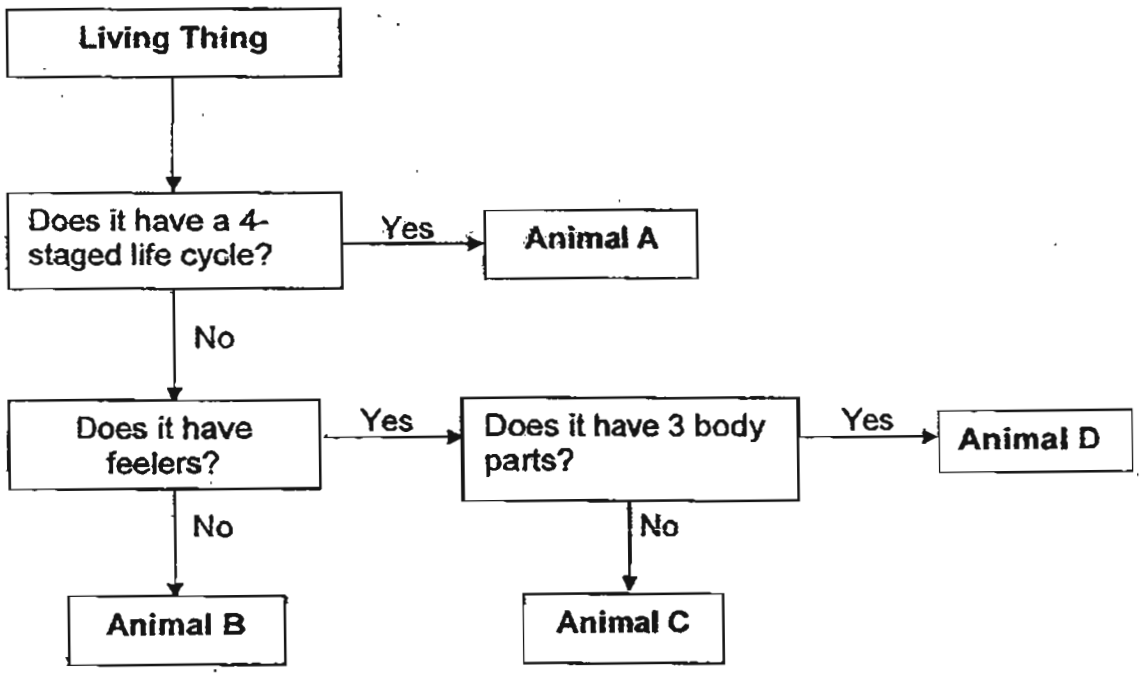
A B C D

Which one of the following is the correct order of the lifecycle of a butterfly?

(1) C, A, B and D (2) B, A, D and C

(3) A , B , C and D (4) D, A , C and B

7. Study the flow chart below.



Which of the animals above most likely belong to an insect group?

(1) B only (2) D only

(3) A and D only (4) B and C only

8. The table below shows how the temperature of the surroundings affects Plant Y in the following ways:

- number of seeds germinated
- length of its life cycle (until it grows its first leaves)

Surrounding temperature (°C)	Number of seeds germinated	Length of life cycle (days)
18	50	25
22	110	15
26	140	13
30	225	10

Which of the following is a possible deduction?

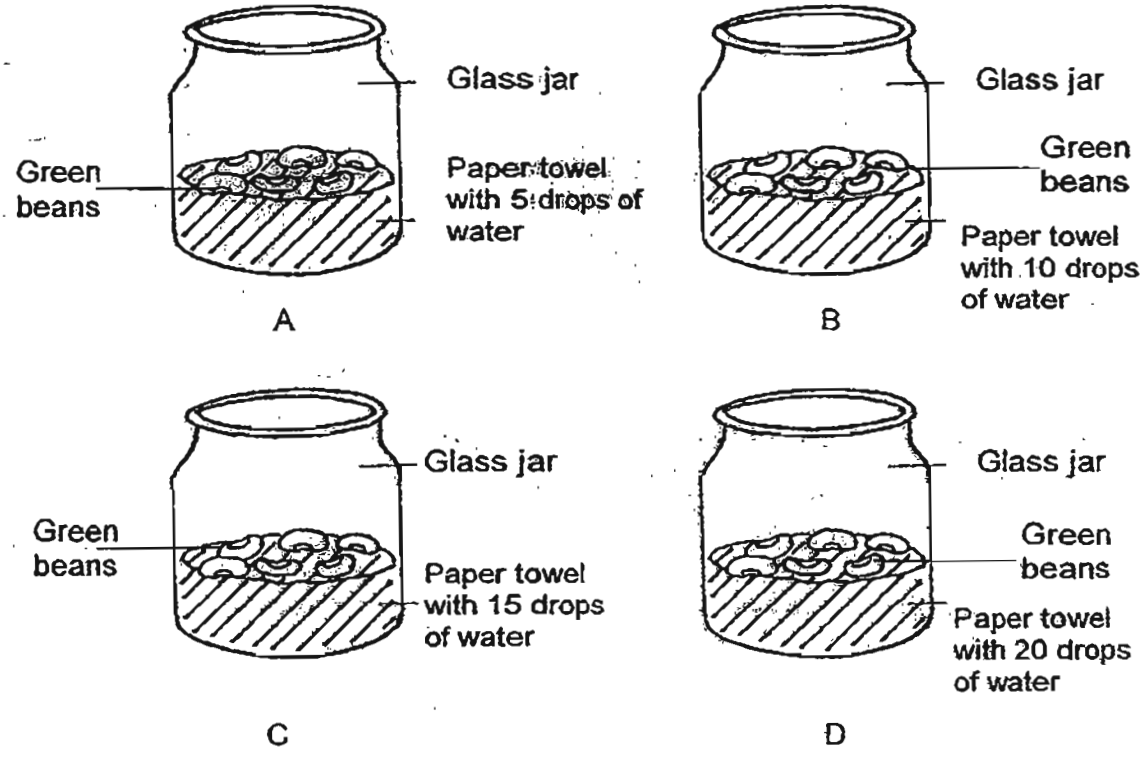
(1) As the length of life cycle of Plant Y decreases, the number of Plant Y decreases.

(2) As the temperature of the surroundings increases, the faster the seedlings grow its first leaves.

(3) As the temperature of the surroundings decreases, the number of seeds germinated increases.

(4) As the number of seeds germinated increases, the temperature of the surroundings decreases.

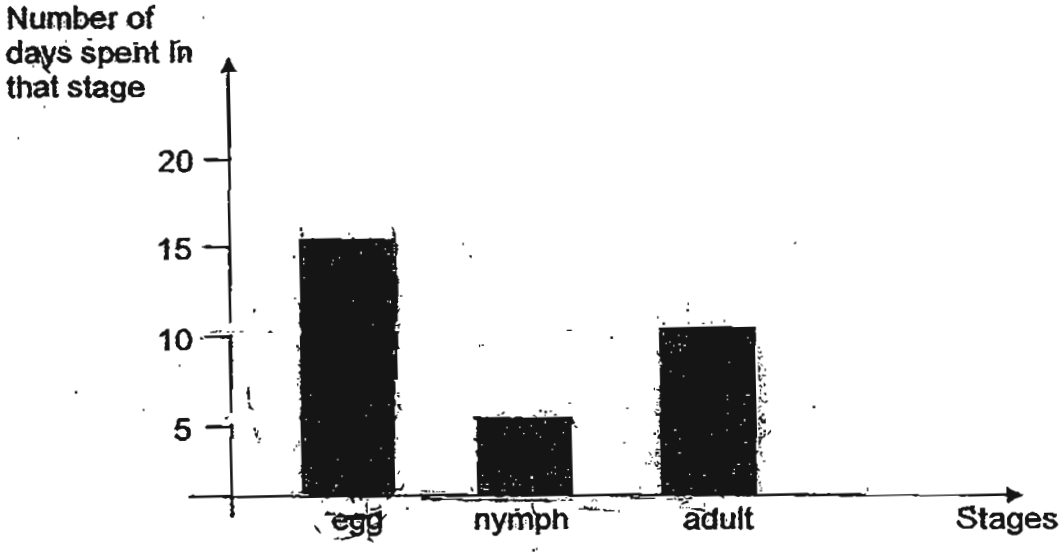
9. Peter planned an experiment. He labelled 4 similar glass jars as A, B, C and D and put some crushed paper towel into each of them. 6 green bean seeds were then placed on the paper towel in each jar. He placed a different number of drops of water on each of the paper towel. The total number of germinated seeds in each glass jar was counted each day for a week.



What was the aim of Peter's experiment?

(1) To find out if water is needed for germination
(2) To find out if the type of water will affect the rate of germination
(3) To find out if the amount of water will affect the rate of germination
(4) To find out if the temperature of water will affect the rate of germination

10. Study the graph of the life cycle of an insect.



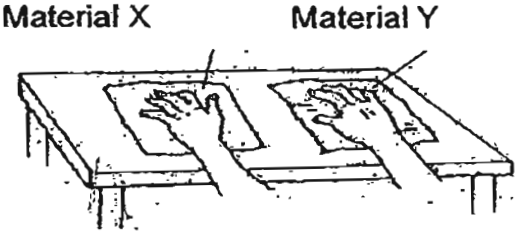
How many days does it take for the above insect to become an adult after the egg has hatched?

(1) 5 days
(2) 10 days
(3) 15 days
(4) 30 days

11. Matter is anything that has mass and occupies space.
Which one of the following is not a matter?

(1) Air
(2) Light
(3) Sponge
(4) Soil

12. Jenny wanted to find out which material is a better conductor of heat. She placed two sheets of different materials on a table in an air-conditioned room for a certain period of time. Then she placed her hands on each of the sheet as shown below.



Which of the variables must be kept the same for the above experiment?

A : The temperature of the room
B : The material of the table used
C : The thickness of the materials X and Y
D : Amount of heat in the material when the hand was placed

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

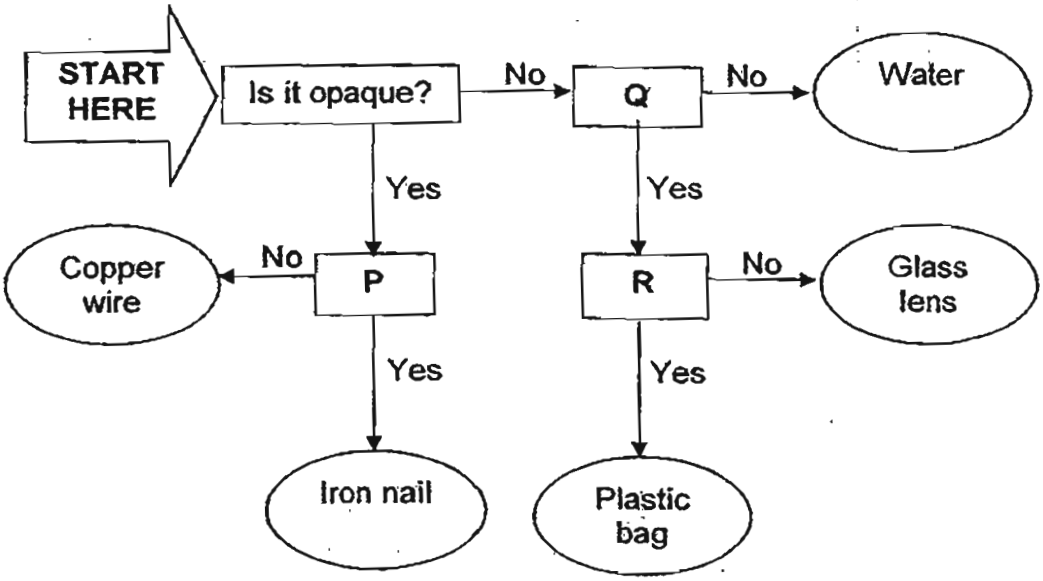
13. David measured the mass of four different materials before and after soaking each material in a pail of water. The results were as shown below.

	Mass of materials (g)	
Material	Before soaking in water	After soaking in water
A	50	160
B	90	150
C	100	200
D	150	180

Which material is the best for making a mop as shown below?

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

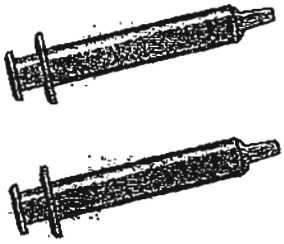
14. Study the flow chart below.



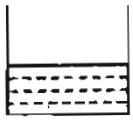
Which one of the following is the most suitable set of questions represented by P, Q, and R?

	P	Q	R
(1)	Is it flexible?	Is it a magnetic material?	Does it have a definite shape?
(2)	Is it a magnetic material?	Is it flexible?	Does it have a definite shape?
(3)	Is it a magnetic material?	Does it have a definite shape?	Is it flexible?
(4)	Does it have a definite shape?	Is it flexible?	Is it a magnetic material?

15. The materials shown below are used to show a difference in the property of oxygen and water.



2 syringes



$10cm^3$ of coloured water

$10cm^3$ of oxygen

What is the property that can be shown using all the materials above?

(1) Coloured water can be seen while oxygen cannot be seen.
(2) Coloured water allows less light to pass through than oxygen.
(3) $10cm^3$ of coloured water has a greater mass than $10cm^3$ of oxygen.
(4) Coloured water has a definite volume while oxygen has an indefinite volume.

16. What is the main function of the large intestine?

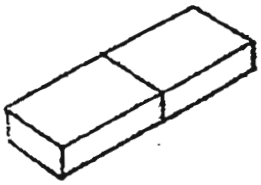
(1) It removes water from the body.
(2) It removes digested food from the body.
(3) It absorbs water from the undigested food.
(4) It allows undigested food to be passed into the blood.

17. Which one of the following is a horseshoe magnet?

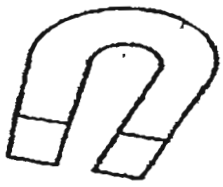
(1)

(2)

(3)



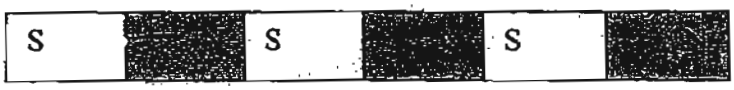
(4)



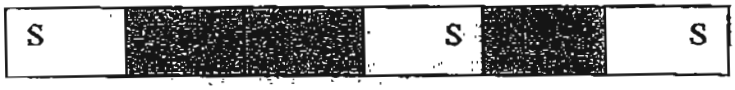
18. Which of the following diagram shows the property that unlike poles attract?

(1)

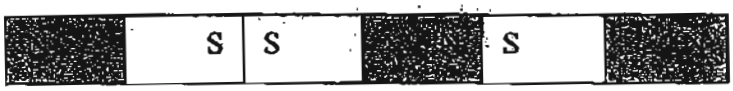
(2)



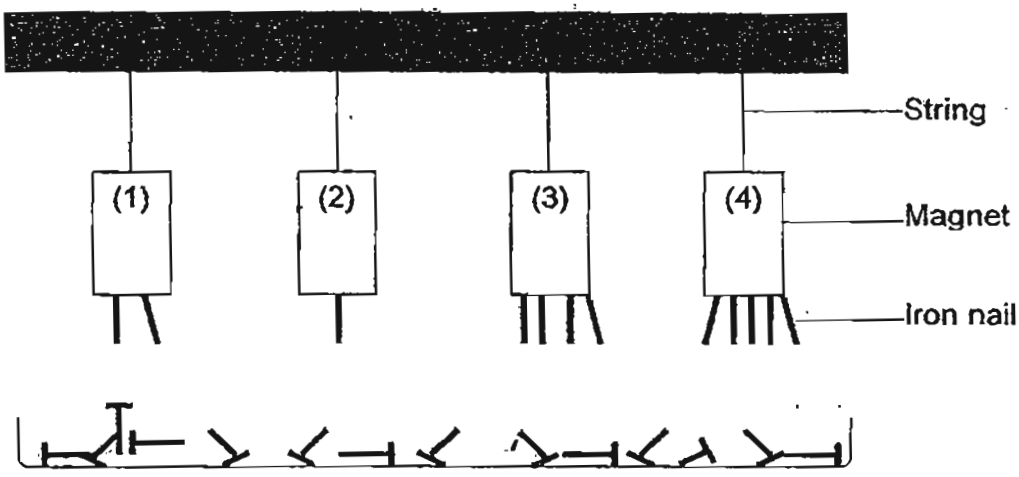
(3)



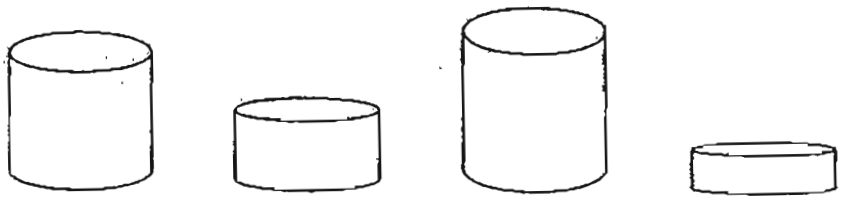
(4)



19. Which one of the following is the weakest magnet?



20. Wei Liang had four magnets as shown below. He brought them close to some paper clips.



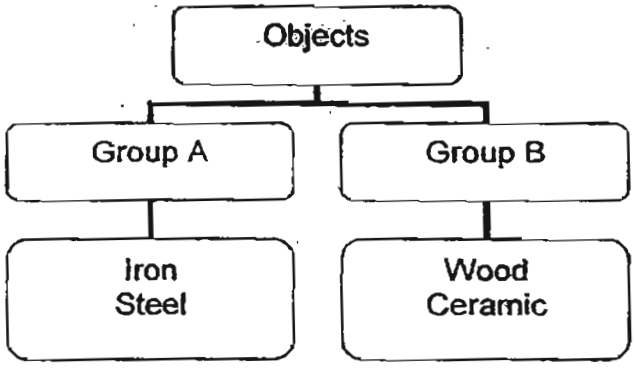
He observed the number of paper clips attracted by each magnet and tabulated the results in the table below.

	Magnet A	Magnet B	Magnet C	Magnet D
Number of paper clips attracted	15	10	13	26

What can he conclude from the results above?

(1) The strength of a magnet depends on its size.
(2) Bigger magnets are weaker than smaller magnets.
(3) Smaller magnets are stronger than bigger magnets.
(4) The strength of a magnet does not depend on its size.

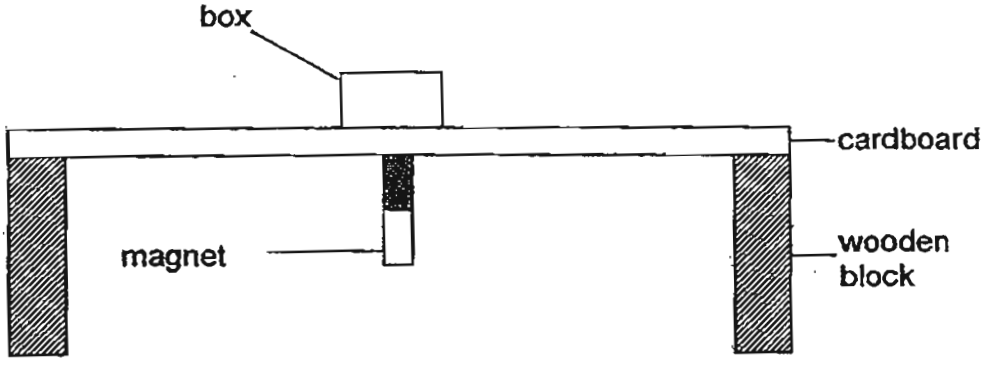
21. Study the classification diagram carefully.



What is the most suitable heading for the classification above?

	Group A	Group B
(1)	Flexible	Stiff
(2)	Magnetic	Non-magnetic
(3)	Transparent	Opaque
(4)	Poor conductors of heat	Good conductors of heat

22. A box was placed on a thin sheet of cardboard as shown below.

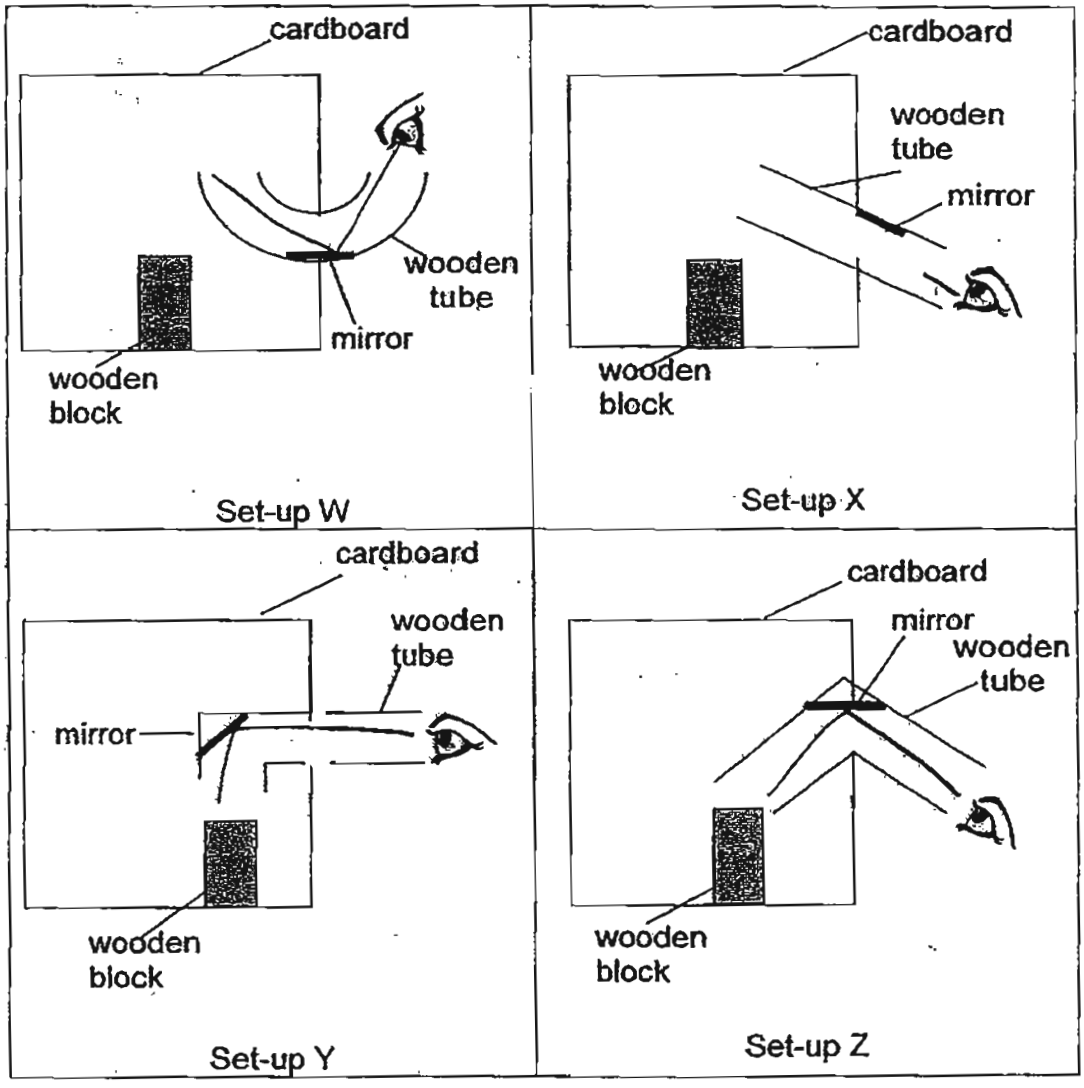


When the magnet moved, the box moved along with it.
Which material is the box likely to be made of?

(1) steel (2) glass

(3) copper (4) rubber

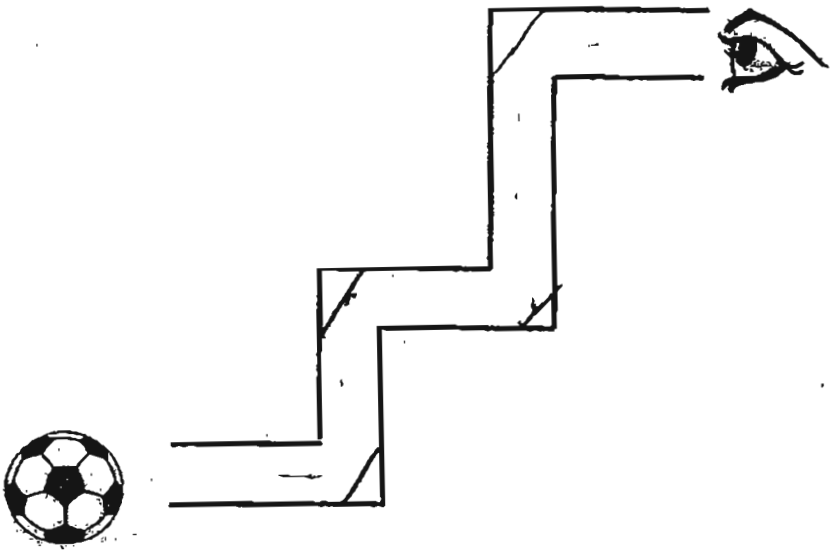
23. Similar wooden blocks and cardboards were used in all the set-ups shown below. However, the size and shape of the wooden tubes used were different. Mirrors were attached inside each of the tubes.



Which of the set-ups would enable you to see the wooden block at the other side of the cardboard?

(1) W and X only
(2) W and Y only
(3) Y and Z only
(4) X and Z only

24. Study the diagram below carefully.



Mirrors should be placed in the tube in order to see the football at the other end.

What is the least number of mirrors needed?

(1) Three (2) Four

(3) Five (4) Six

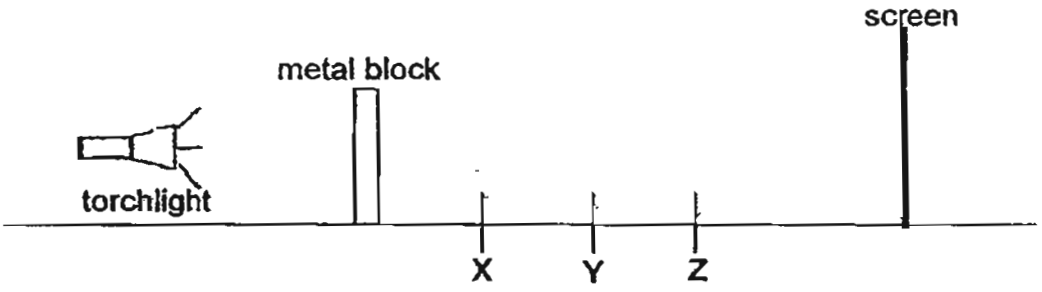
25. Which of the following give off their own light?

A Sun
B Star
C Moon
D Cloud

(1) A and B only (2) B and C only

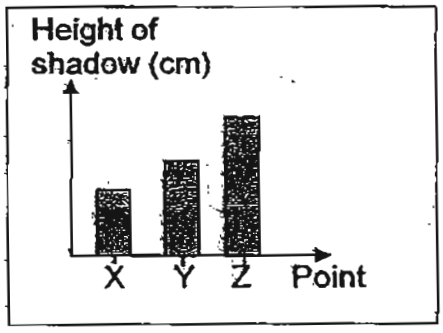
(3) A, B and C only (4) B, C and D only

26. Siti set up an experiment on light as shown below. She kept the torch and screen at the same positions but moved the metal block to three different positions, X, Y and Z. She then measured the length of the shadow cast on the screen.

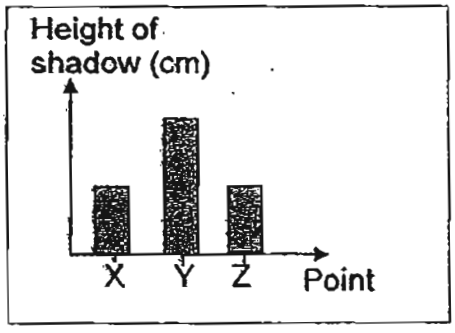


Which one of the following graphs correctly shows the likely result of the experiment above?

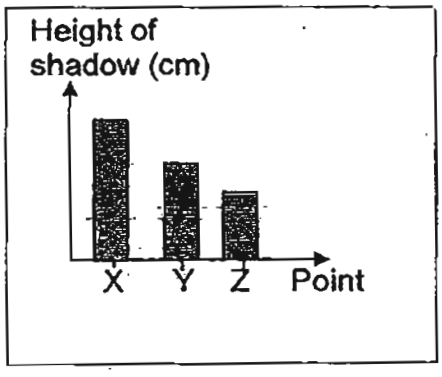
(1)



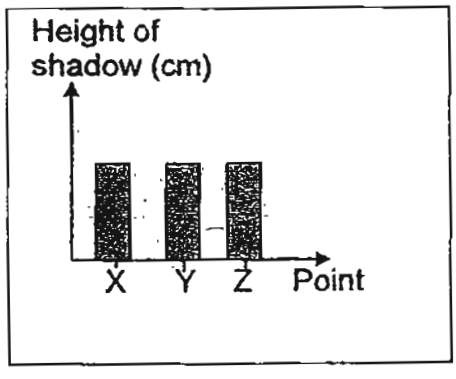
(2)



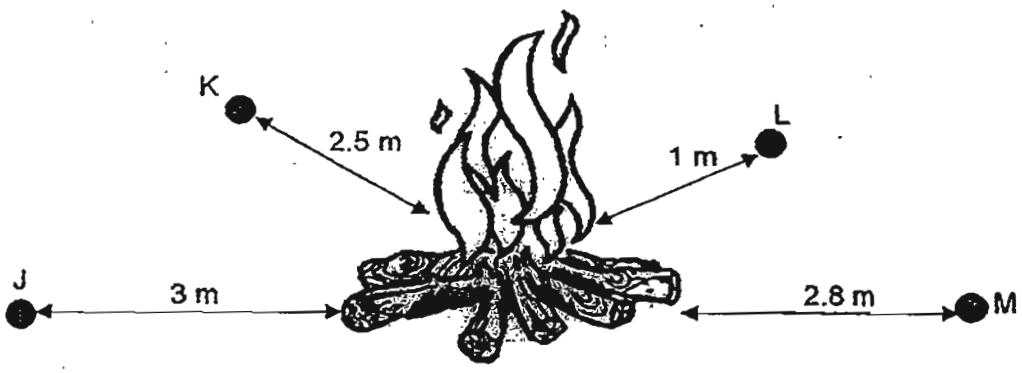
(3)



(4)



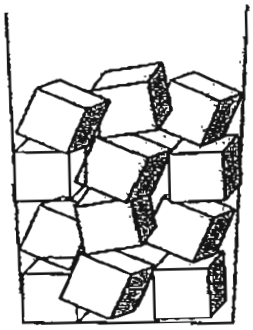
27. Many pupils sat around the campfire during the P4 camp. Based on the diagram below, at which seating position would you feel the hottest?



(1) J (2) K

(3) L (4) M

28. A glass filled with ice-cubes was left on the table for five minutes at room temperature.

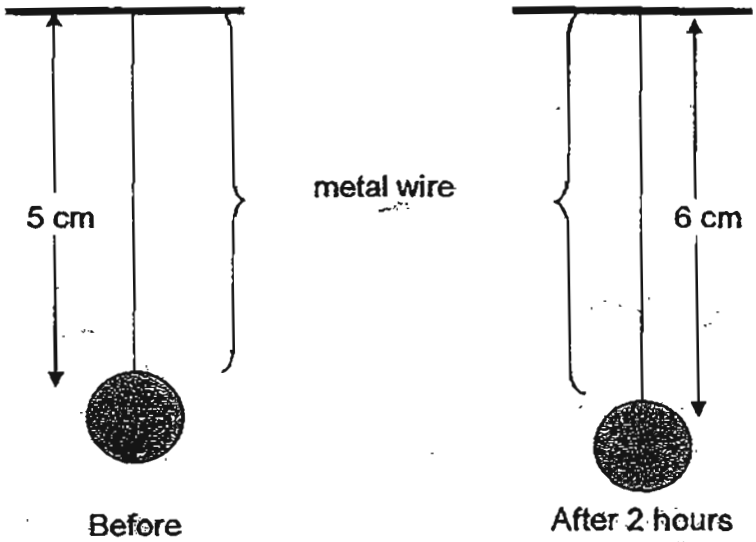


Which of the following state(s) would be observed as the ice-cubes started to melt?

(1) Solid only (2) Liquid only

(3) Liquid and gas only (4) Solid and liquid only

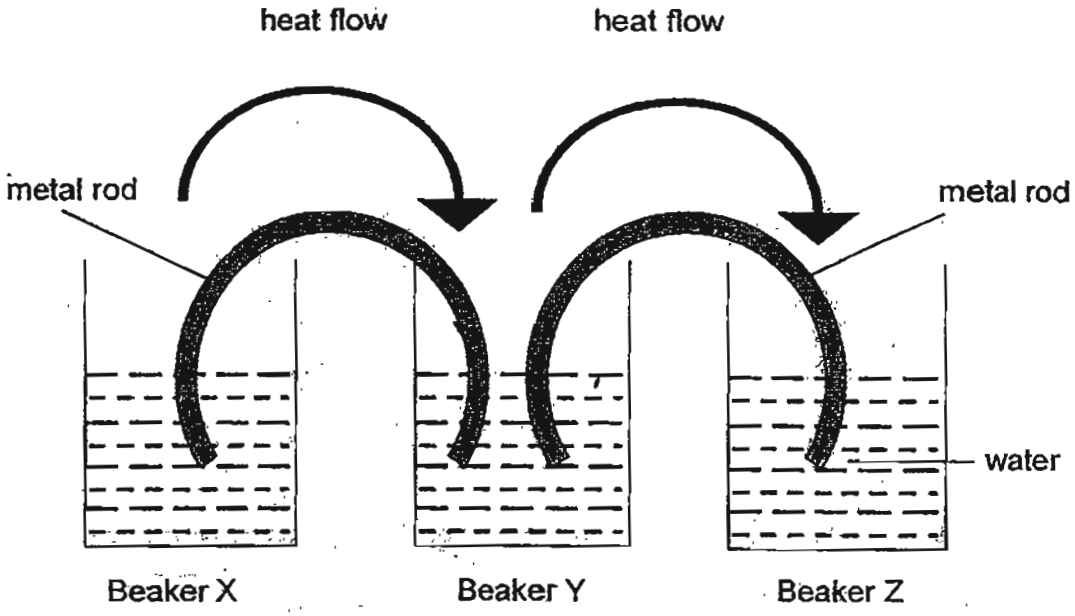
29. A ball is hung from a metal wire and left under the hot sun for 2 hours. The change in the metal wire is shown below.



Which effect of heat causes the change in the metal wire shown?

(1) The metal wire expands when it loses heat.
(2) The metal wire expands when it gains heat.
(3) The metal wire contracts when it gains heat.
(4) The metal wire contracts when it loses heat.

30. The arrows in the diagram below indicate how heat travels through two similar U-shaped metal rods immediately after they were immersed into three beakers of water, X, Y and Z.



Which of the following most likely shows the temperatures of water in the three beakers when the rods were just put in?

	Temperature of water in Beaker X (° C)	Temperature of water in Beaker Y (° C)	Temperature of water in Beaker Z (° C)
(1)	20	40	90
(2)	40	20	90
(3)	90	40	20
(4)	90	20	40

End of Part 1

Rosyth School
Semestral Examination 2 for 2011
SCIENCE
Primary 4

Total Marks: 40

Name: _____

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

Date: 28 October 2011 Parent's Signature: _____

BOOKLET B

Instructions to Pupils:

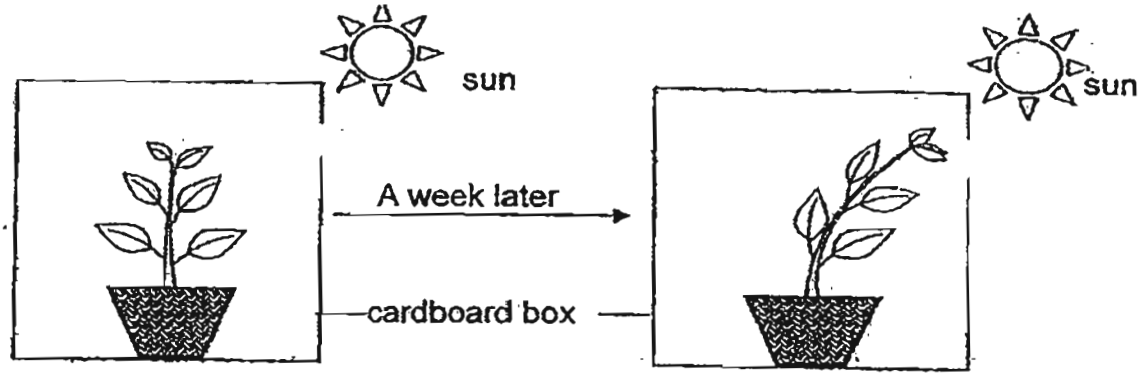
1. For questions 31 to 44, give your answers in the spaces given in this Booklet B.

* This booklet consists of 13 pages.

PART II (40 MARKS)

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

31. Muthu placed a potted plant in a cardboard box with a small opening and placed it in a garden for a week.

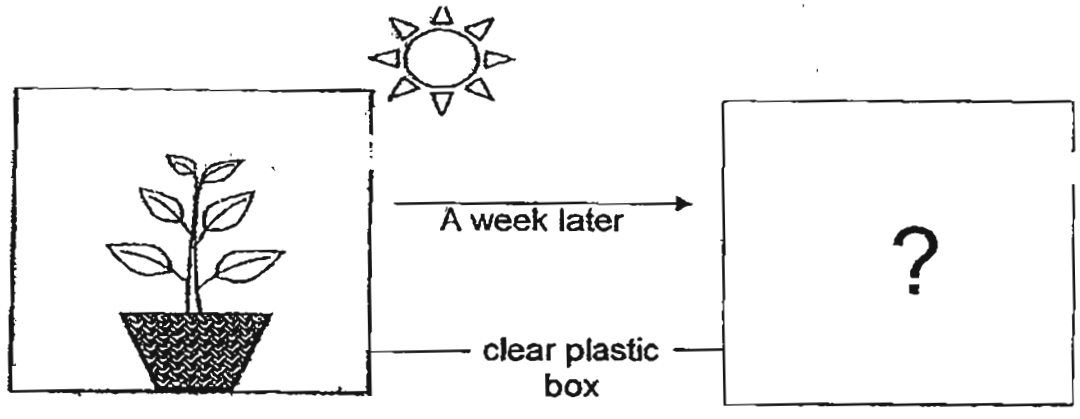


After a week, he observed that the plant has grown towards the opening.

(a) State the characteristic of living things based on the above experiment. (1m)

_____

Muthu repeated the experiment using a clear plastic box with a small opening and another potted plant as shown below.



(b) What would be the observation a week later? Explain why. (2m)

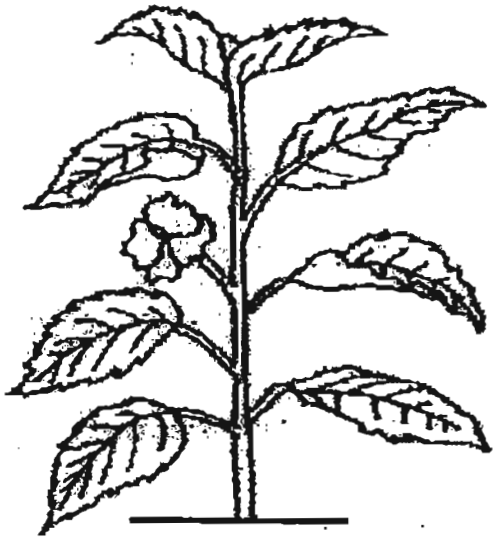
_____

_____

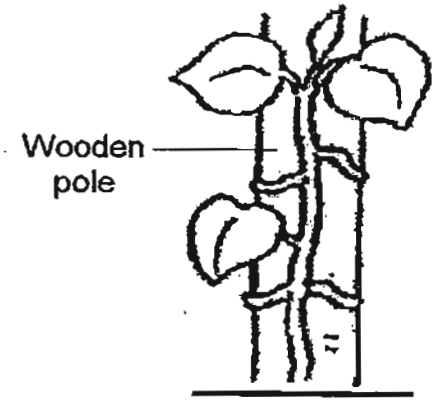
(c) Why is sunlight important to plants? (1m)

_____

32. Kevin saw 2 different plants at the Science garden.



Plant J



Plant K

(a) State one difference between Plant J and Plant K with regards to the stem. (1m)

_____

_____

(b) Kevin noticed that both plants are growing upright.
Why is it important for both plants to remain upright? (1m)

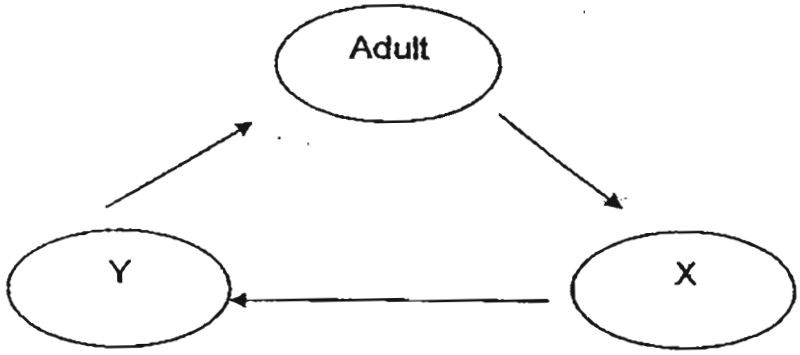
_____

_____

(c) Name two things that both plants need in order to grow well. (1m)

_____

33. The diagram below shows the life cycle of a cockroach.



Choose the correct words from the box to answer the question below.

larva	nymph	egg	pupa

(a) Name the two stages above X and Y. (2m)

X: _____

Y: _____

(b) Give an example of another animal that has a 3-stage life cycle. (1m)

_____

34. Gerald tested two materials on their ability to stretch. He added the weights onto the two materials separately and measured the length they can stretch as shown below. The materials returned back to their original length when the weights were removed.

Mass of weights (g)	Length of material P (cm)	Length of material Q (cm)
0	30	30
20	31	35
40	34	35
60	34	35

(a) Which material (P or Q) has a greater ability to stretch ? (1m)

_____

(b) Support your answer in (a). (1m)

_____

_____

35. Choose the correct words from the box to answer the questions below.

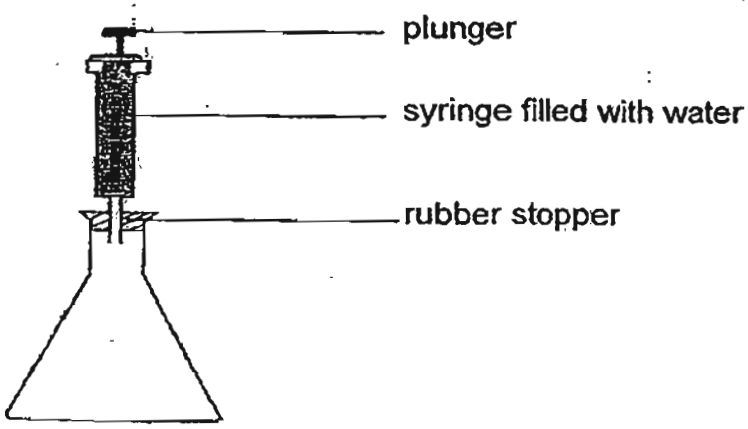
large intestine	anus	small intestine	gullet

In a human digestive system, name the part where

(a) digestive juices can be found : _____ (1m)

(b) waste is passed out from the body : _____ (1m)

36. The flask below contains 400 cm^3 of air. Sumei tried to push the plunger of the syringe filled with water but she could not do it. No water entered the glass flask.



(a) Explain why the water did not enter the flask? (1m)

_____

_____

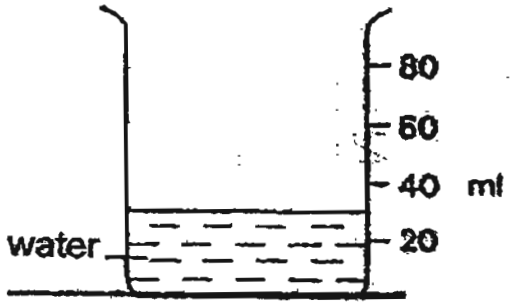
_____

(b) What should Sumei do to allow the water to enter the flask? (1m)

_____

_____

37. The diagram below shows a beaker of water.



(a) State if the following are solid, liquid or gas. (2m)

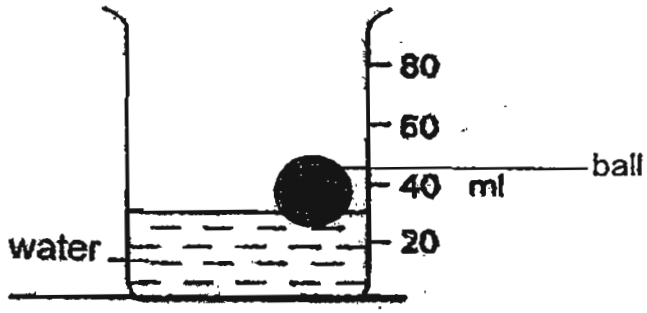
Beaker: _____

Water: _____

(b) State the common property between the two states only mentioned in (a). (1m)

_____

A ball was placed in the beaker of water and its position is shown in the diagram below.

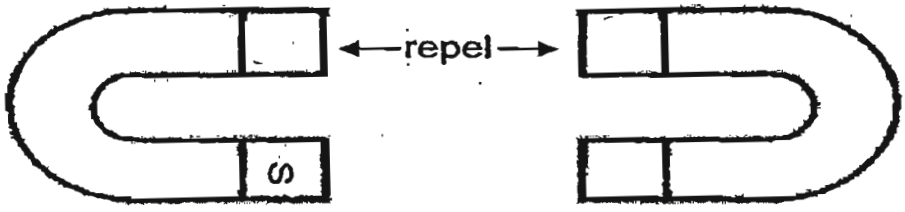


(c) Can the volume of the ball be found in the above set-up? Explain why. (1m)

_____

_____

38. Zheng Wei used two magnets and arranged them as shown below.



(a) Based on the set-up given, identify the pole at X. (1m)

X : _____

(b) State the property of magnet that has caused the above arrangement. (1m)

_____

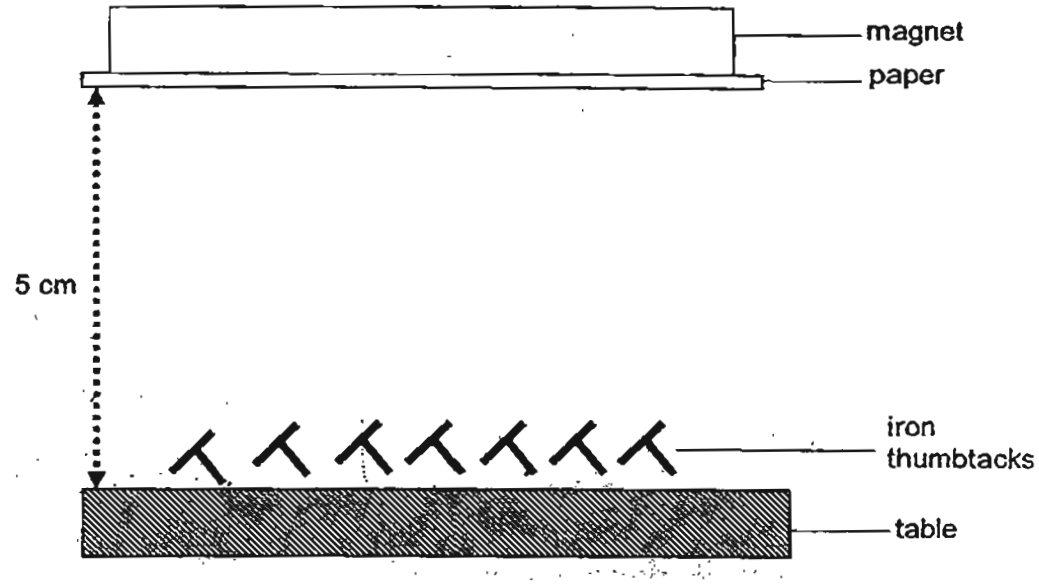
Zheng Wei brought Object A near the magnet. Both ends of Object A can be attracted to the magnet.

(c) Zhen Wei said that Object A is made of aluminium.
Do you agree with Zheng Wei? Give a reason to support your answer. (1m)

_____

_____

39. Alicia pasted a piece of paper under a magnet and placed them above 7 iron thumbtacks as shown below. She placed the magnet at a height of 5 cm above the table.



She repeated the experiment using different number of papers and placed the magnet to the same height.

She then recorded the number of thumbtacks that were attracted by the magnet and the result is shown in the table below.

Number of paper(s) used	Number of thumbtacks attracted
1	7
2	5
3	3
4	0

(a) Based on the results obtained, state the relationship between the number of papers used and the number of thumbtacks attracted by the magnet? (1m)

_____

_____

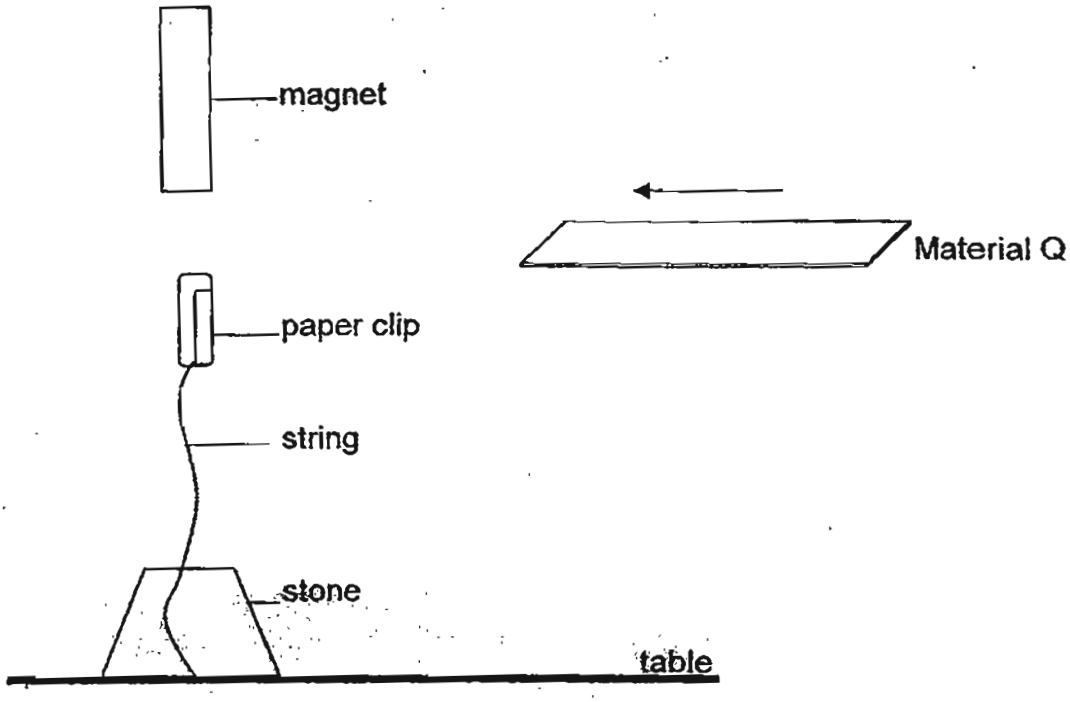
(bi) State the variable that was changed. (1m)

_____

(bii) State two variables that were kept the same. (1m)

_____

40. Vanni set up an experiment using magnet as shown below. She was able to keep the paper clip floating in the air when she held the magnet above it.



(a) Why was Vanni able to keep the paper clip floating in the air? (1m)

_____

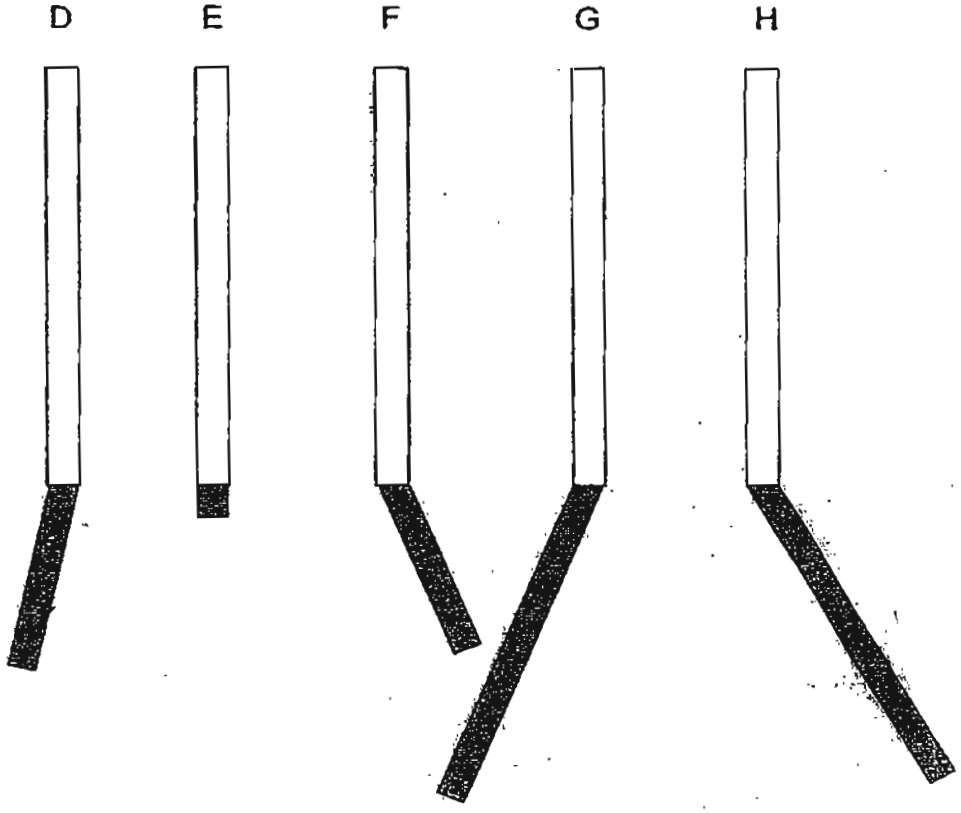
When a very thin sheet of Material Q was placed in between the magnet and the paper clip, the paper clip fell onto the table.

(b) Explain why the paper clip dropped. (1m)

_____

_____

41. Zack recorded the length and direction of shadows formed at different times of the day as shown below.



(a) Based on the shadows formed, rank the shadows according to the time they appeared from 8 am to 6 pm. The first one is done for you. (1m)

8 am ⟶ 6 pm

G				

(b) Explain why the shortest shadow is formed at E. (1m)

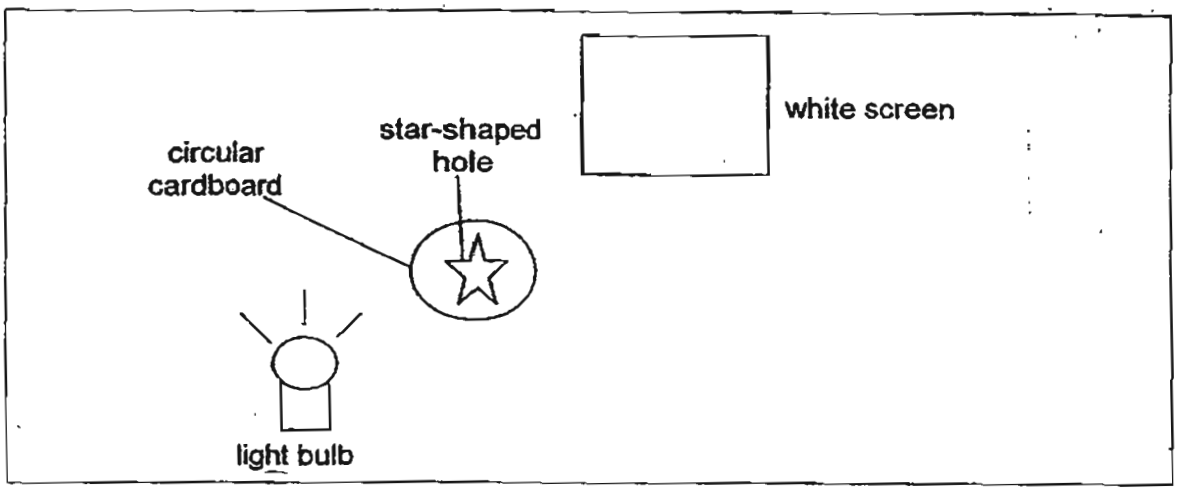
_____

(c) What property of light causes shadows to be formed? (1m)

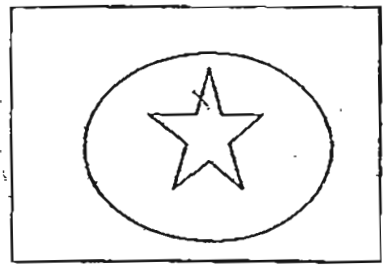
_____

_____

42. Mei Ling set up an experiment using the materials as shown below.



(a) Shade in the diagram below to show the shadow formed on the screen. (1m)



Mei Ling then decided to test if different materials affected the shadow formed. She placed each material in between the circular card and the screen.

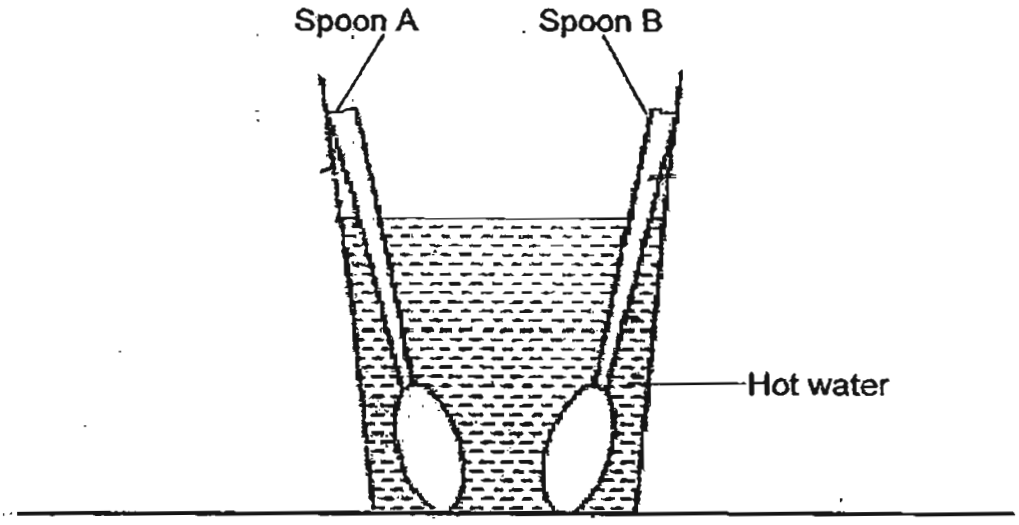
The result is shown in the table below.

Material	Shadow formed
X	Light shade
Y	No shadow is formed
Z	Dark shade

(b) Based on the results obtained, identify the type of materials used.
Write your answers in the table below as opaque, transparent or translucent.
(3m)

Material	Type of material (opaque, transparent or translucent)
X	
Y	
Z	

43. Samy placed 2 spoons of the same size but made of different materials into a glass of hot water at the same time.

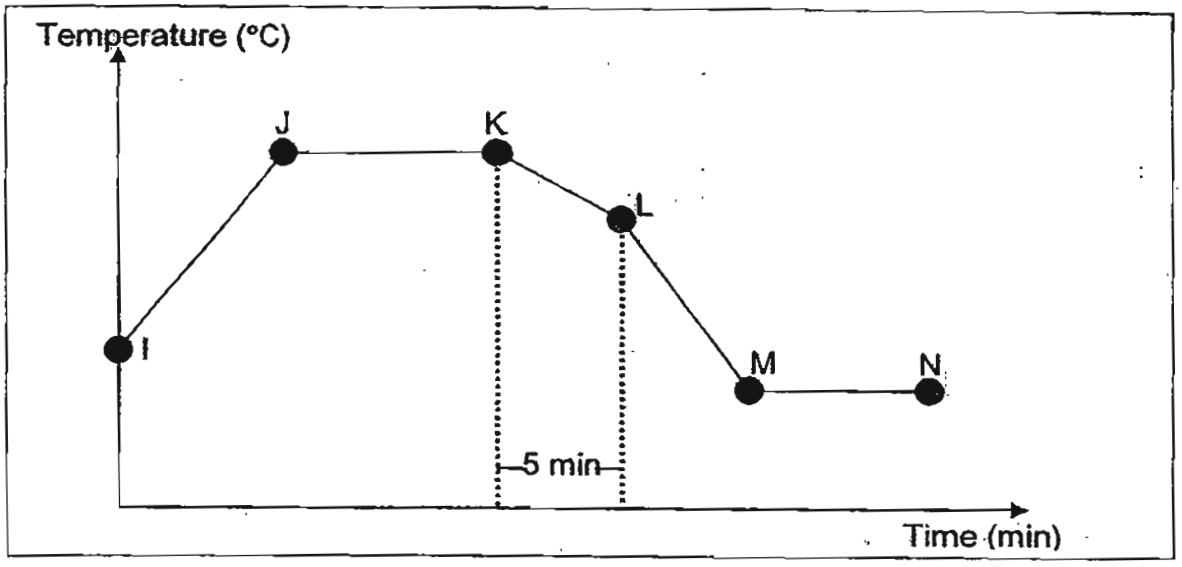


After 2 minutes, he held spoon A with his left hand and spoon B with his right hand. He felt that spoon A was hotter than spoon B.

(a) Give a reason why spoon A was hotter than spoon B. (1m)

(b) Samy then left both spoons in the cup at room temperature.
What will happen to the temperatures of both spoons after 5 hours? (1m)

44. Study the graph below to answer the following questions.

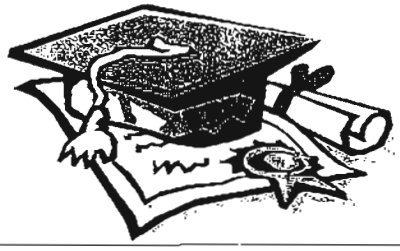


(a) Is the water gaining or losing heat from point I to J? (1m)

(b) Support your answer in (a). (1m)

(c) What is the similarity between JK and MN? (1m)

☺ End of paper ☺

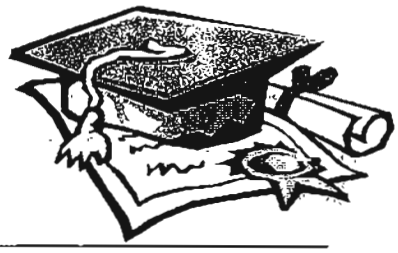


ANSWER SHEET

EXAM PAPER 2011

SCHOOL : ROSYTH
SUBJECT : PRIMARY 4 SCIENCE

TERM : SA2



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

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

31)a)Living things respond to changes.
b)The plant will grow straight and not grow towards the opening in the box./ Light can pass through the box as clear plastic box is transparent. Therefore it does not need to grow towards the opening in the box.
c)Sunlight is important to plants as they need to make food.

32)a)Plant K has a weak stem while plant J has a strong stem.
b)The plants need to make food so it has to grow upright in order to get sunlight.
c)Both plants need water and sunlight in order to grow well.

33)a)X: egg Y: nymph b)Frog.

34)a)Material Q
b)Material Q is able to stretch more then material P when the same amount of weight are added to both of them.

35)a)small intestine. b)anus.

36)a)The air in the flask cannot escape as there is a rubber stopper.
As air in the flask occupies space the water in the syringe could not enter the glass flask.
b)Sumei should poke some holes in the rubber stopper so that the air in the glass flask can escape and the water in the syringe can enter the glass flask.

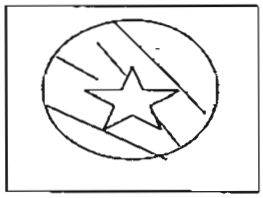
37)a)Beaker: solid Water: liquid
b)Both have definite volume.
c)No the volume of the ball cannot be found.
The ball is floating and there will be no increase in the volume of water.
Therefore we cannot subtract the level of water before the ball is placed in and after the ball is place in.

38)a)North pole.
b)Like poles repel.
c)No I do not agree with Zheng Wei.
Aluminum is made of metal but it is made of a non-magnetic metal.
Therefore aluminum cannot be attracted to the magnet.

39)a)As the number of paper's used, the number of thumbtacks attracted decreases.
b)i)Amount of paper.
ii)The type of magnet, thickness of the paper.

40)a)The paper clip was attracted to the magnet.
b)Material Q must be made of a magnetic material.
Therefore the magnetic force cannot be passed through magnetic materials.
Instead of attracting to the paper clip it will attract to the very thin sheet of material Q that is made of magnetic material.

41)a)G, D, E, F, H
b)At noon the sun is overhead so the shadow formed is directly below the object. Therefore the shadow formed is short at not.
c)Light cannot bend through objects.

42)a) 

b)X : translucent
Y : transparent
Z : opaque

43)a)Spoon A was able to conduct heat more easily than spoon B.
b)After 5 hours both spoons will come to room temperature.

44)a)The water is gaining heat.
b)The temperature is increasing from point I to J.
c)The temperature remains constant.