## PRIMARY 4 MID-YEAR EXAMINATION 2015

Name : _____ ( ) Date: 15 May 2015

Class : Primary 4 ( ) Time: 8 a.m. – 9.45 a.m.

Duration: 1h 45min

Parent's Signature : _____ Marks: _____ / 60

# SCIENCE
## BOOKLET A

**INSTRUCTIONS TO CANDIDATES**

Write your name, register number and class.

Do not turn over this page until you are told to do so.

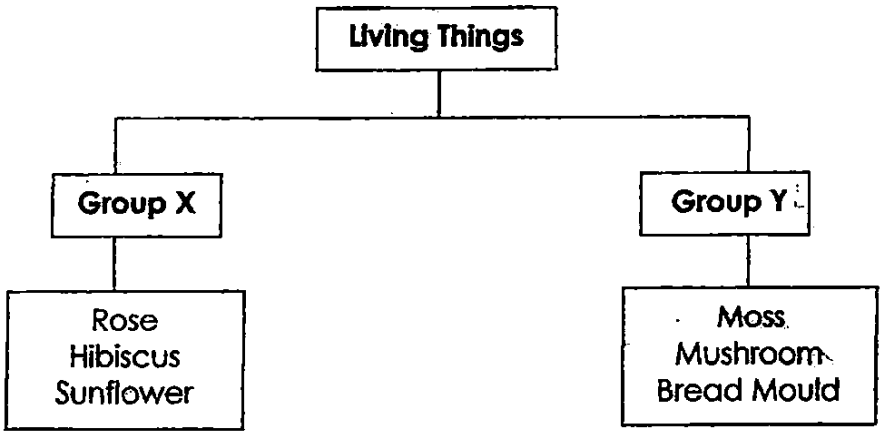
Follow all instructions carefully.

Answer all questions.

## Section A (30 x 2 marks)

**For each question, choose the most suitable answer and shade its corresponding oval (1, 2, 3 or 4) in the optical answer sheet.**

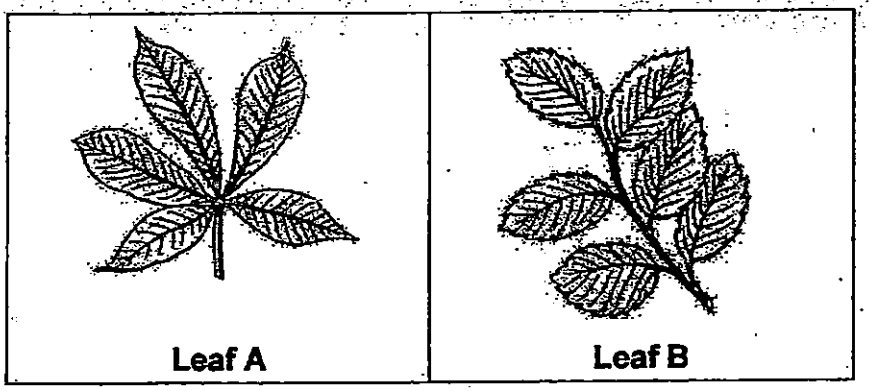
1. Study the classification chart below.




How are the living things above classified?

| | Group X | Group Y |
|---|---|---|
| (1) | Has stem | No stem |
| (2) | Grow on land | Grow in water |
| (3) | Has chlorophyll | No chlorophyll |
| (4) | Reproduce by seeds | Reproduce by spores |

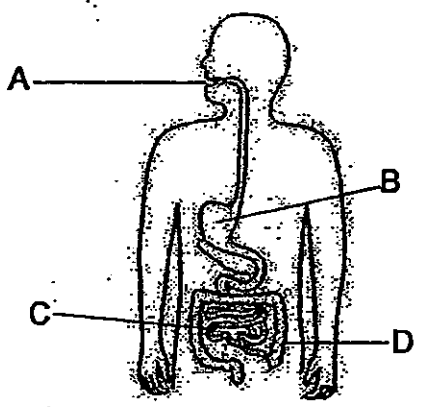
2.




Which of the following best describes the leaves above?

(1) Both have smooth edges.
(2) Both have parallel veins.
(3) Leaf A has parallel veins while Leaf B has network veins.
(4) Leaf A has smooth edges while Leaf B has toothed edges.

3. A, B, C and D are parts of the human digestive system shown below.



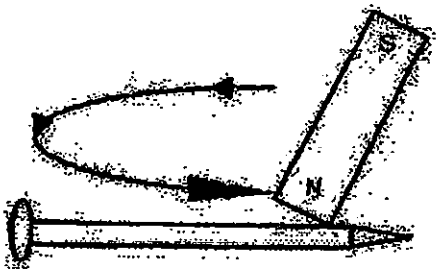

Where does digestion end?

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

4. A wooden crate is sometimes used to store fruits, instead of a cardboard box. Why?

(1) It is light.
(2) It is strong.
(3) It is flexible.
(4) It is waterproof.

5. Tom wants to make a temporary magnet using the stroking method as shown below.




Which material of nail should Tom use?

(1) Zinc
(2) Steel
(3) Copper
(4) Aluminium

6. A green bean has just sprouted. Which of the following conditions are necessary for its germination?

A: Air
B: Water
C: Sunlight
D Fertiliser

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

7. Susan puts 4 slices of bread in sealed plastic bags and places them in different locations as shown below.

|  |  |  |  |
|---|---|---|---|
| In a garden | In a cupboard | In a classroom | In a freezer |
| **Set-up A** | **Set-up B** | **Set-up C** | **Set-up D** |

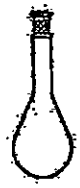
Which 2 set-ups should Susan use to find out if bread mould needs light to grow?

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

8. Which of the following is not matter?

(1) Book
(2) Light
(3) Slime
(4) Dough

9.



**Container X**
**300 $cm^3$**

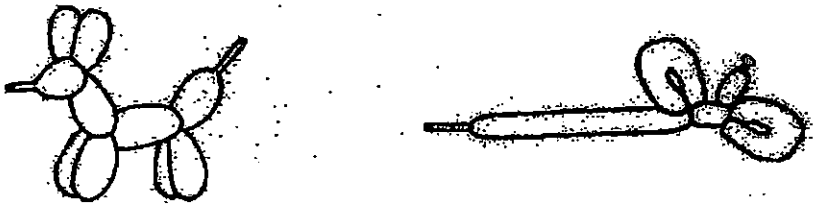
**Container Y**
**500 $cm^3$**

**Container Z**
**800 $cm^3$**

Look at the three containers above. Which container(s) can hold 500 $cm^3$ of air?

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

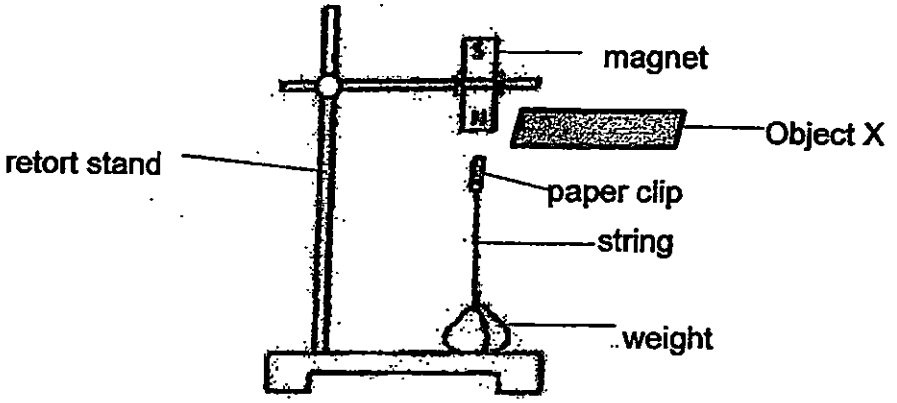
10. A clown is making some balloon sculptures. He fills them with some air. He then twists, squeezes and bends them into the balloon sculptures shown below.



Which property of air allows the clown to make these balloon sculptures?

(1) Air has mass.
(2) Air occupies space.
(3) Air is a mixture of gases.
(4) Air has no definite shape.

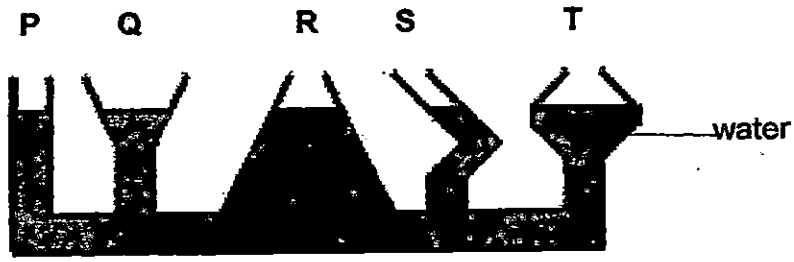
11. Minah conducted the following experiment. Initially, the paper clip was suspended in the air. However, the paper clip fell when she placed Object X between the magnet and the paper clip.




What is Object X ?

(1) A sheet of iron
(2) A sheet of glass
(3) A sheet of paper
(4) A sheet of plastic

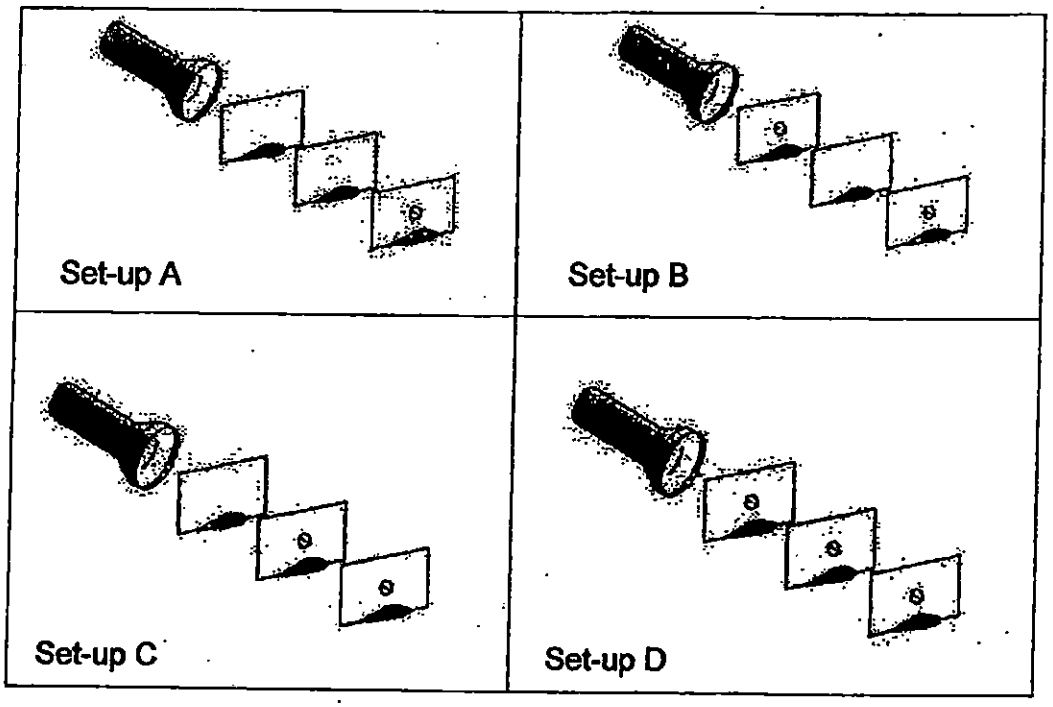
12 Peter pours 300ml of water into a communicating vessel with the parts, P, Q, R, S and T, as shown in the diagram below. He then used a syringe to remove 100ml of water from the part, R.
What is the change in water level of the parts, P, Q, R, S and T ?



Communicating Vessel

| | Water level of the parts | | | | |
|---|---|---|---|---|---|
| | P | Q | R | S | T |
| (1) | Unchanged | Unchanged | Decreased | Unchanged | Unchanged |
| (2) | Decreased | Decreased | Decreased | Decreased | Decreased |
| (3) | Increased | Increased | Increased | Increased | Increased |
| (4) | Unchanged | Unchanged | Increased | Unchanged | Unchanged |

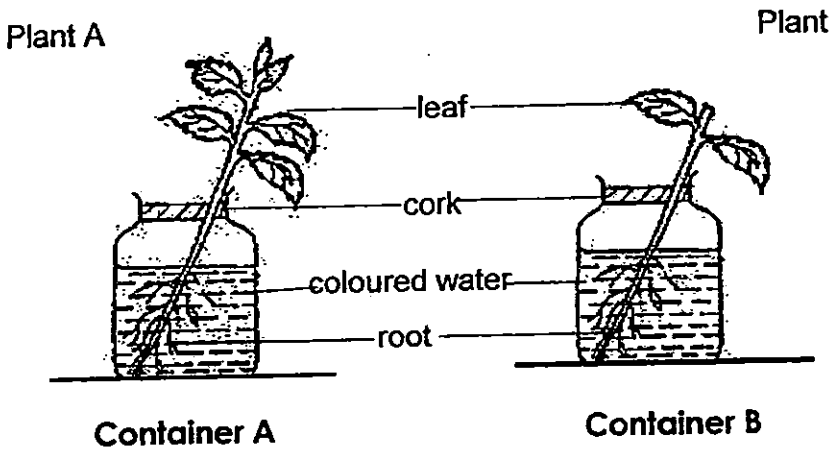
13 The following set-ups have 3 pieces of cardboard and a torch each. The torch is shone onto the 3 pieces of cardboard. Some of the pieces of cardboard have a hole in them.




In which set-up would light pass through the last piece of cardboard?

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

14. Fanny places 2 similar plants, Plant A and Plant B, in a container each. She trims off some leaves from Plant B. She gives each plant an equal volume of water. She then records the volume of water left in the containers for seven days in the table below.

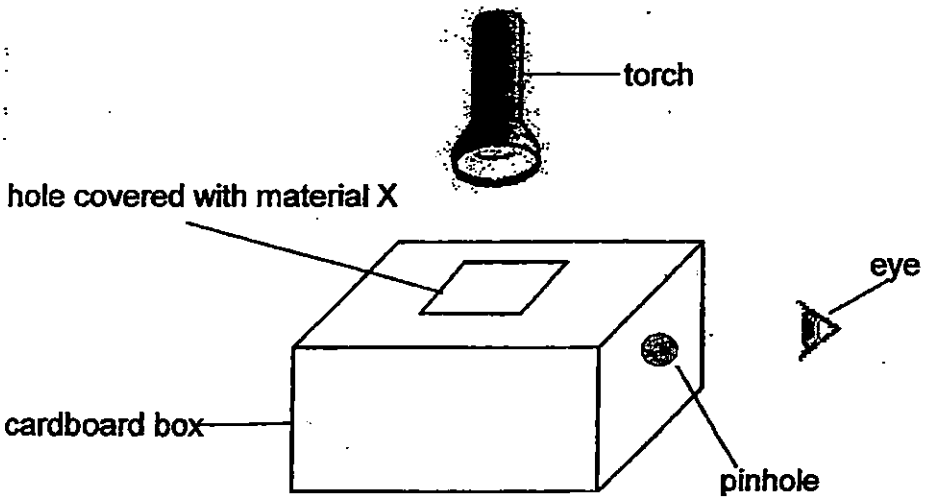



| | Volume of water left in the container (ml) | | | |
|---|---|---|---|---|
| | Day 1 | Day 3 | Day 5 | Day 7 |
| **Container A** | 500 | 450 | 400 | 350 |
| **Container B** | 500 | 495 | 490 | 485 |

What is the aim of Fanny's experiment?

(1) To find out if plants need water to make food.
(2) To find out if the stem of a plant absorbs water.
(3) To find out if the roots affect the volume of water taken in by plants.
(4) To find out if the number of leaves affects the volume of water taken in by plants.

15. The diagram below shows a cardboard box placed in a dark room. Light is shone from a torch through the hole covered with material X. The eye is able to see the ball placed inside the box clearly through the pinhole.




What could material X be ?

(1) cloth
(2) cardboard
(3) clear plastic
(4) tracing paper

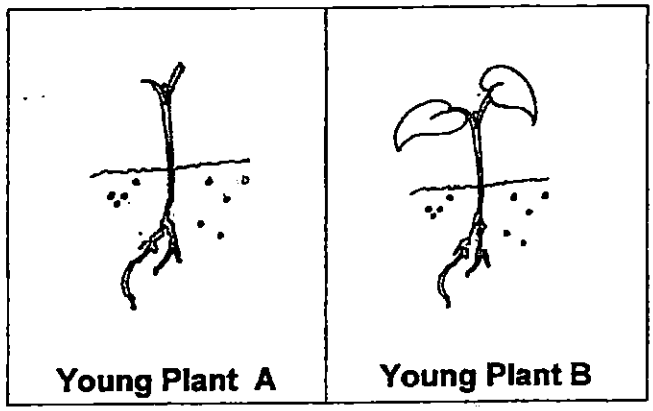
16.

| | | | |
|---|---|---|---|
|  |  |  |  |
| caterpillar | cockroach nymph | mosquito larva | mealworm larva |

What is a common characteristic among the young of these insects?

(1) All live on land.
(2) All do not eat or drink at this stage.
(3) All have four stages in their life cycles.
(4) All moult a few times before they grow into the next stage.

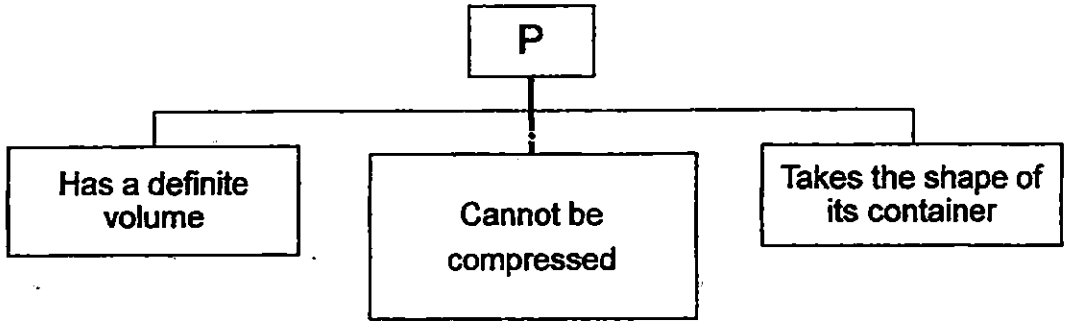
17. Yan planted 2 similar young plants as shown in the diagrams below. She cut the leaves of Young Plant A.




What would happen to the young plants after two weeks?

(1) Both young plants will die.
(2) Both young plants will grow into adult plants.
(3) Young Plant A will die but Young Plant B will grow into an adult plant.
(4) Young Plant A will grow into an adult plant without leaves but Young Plant B will die.

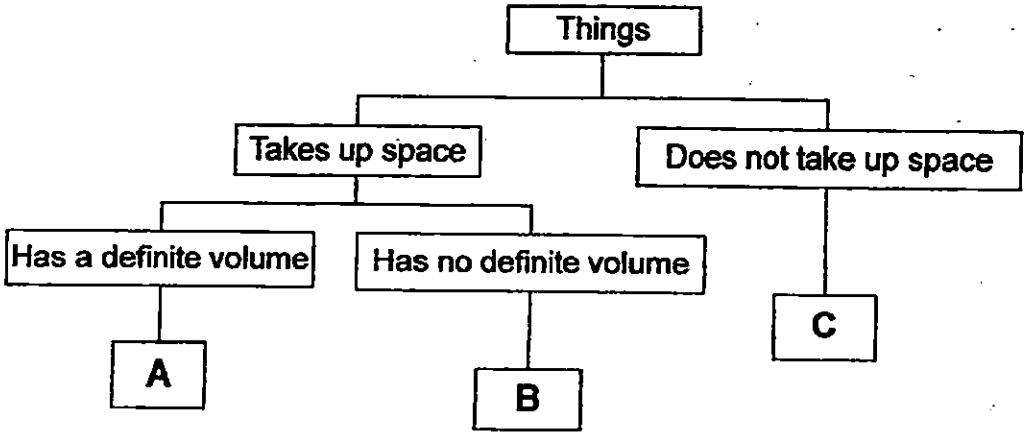
18. The diagram below shows the properties of P.




Which of the following is P?

(1) Air
(2) Book
(3) Water
(4) Balloon

19. Study the classification chart below.




What are represented by **A**, **B** and **C** ?

| | A | B | C |
|---|---|---|---|
| (1) | water | jelly | light |
| (2) | pencil | oxygen | sound |
| (3) | book | milk | air |
| (4) | oil | carbon dioxide | pen |

20. A data logger is used to measure the amount of light that can pass through an object. Objects that do not block light will show the highest reading. The table below shows the result when light was shone on three objects, A, B and C.

| **Object** | **Reading on the data logger (lux)** |
|---|---|
| **A** | 1000 |
| **B** | 0 |
| **C** | 200 |

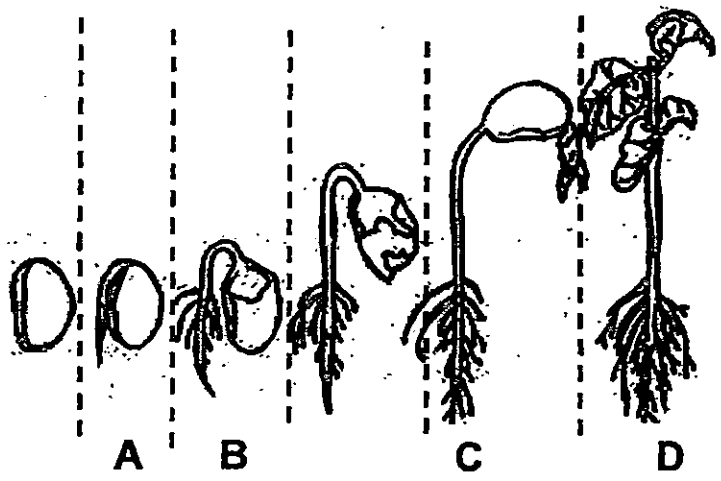
Based on the result, which of the following are represented by the objects, **A**, **B** and **C**?

| | A | B | C |
|---|---|---|---|
| (1) | coloured plastic sheet | frosted glass | cloth |
| (2) | clear glass | cardboard | tracing paper |
| (3) | aluminium foil | clear plastic | writing paper |
| (4) | metal sheet | ceramic tile | cellophane paper |

21. What is the similarity between a life cycle of a mosquito and a life cycle of a frog?

(1) Both have 3 stages in their life cycles.
(2) Both have 4 stages in their life cycles.
(3) Their young look different from their parents.
(4) Their young moult before they develop into the adult stage.

22. The diagram below shows the stages, A, B, C and D, of a germinating seed.



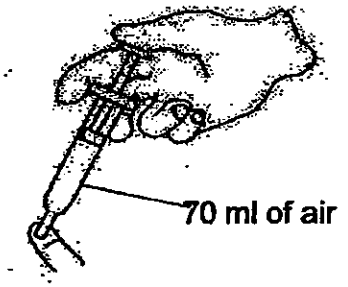

Which stage shows the start of germination?

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

23. Four children are having a discussion about light. Whose statement is true?

(1) Peter : We can see without light when our eyes are used to the darkness.
(2) Henry: I can see a book because it reflects light from the sun to my eye.
(3) Sarah: The Sun gives out light in the day while the moon gives out light in the night.
(4) Noah : I can see water in a glass bottle because light can pass through all materials.

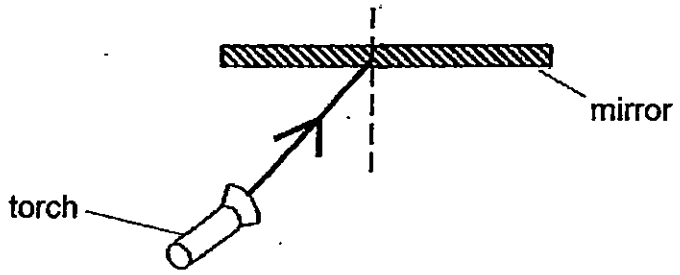
24. Betty fills a syringe with 100ml of air when she pulls its plunger. Then she covers the tip of the syringe with her finger. She pushes the plunger till it can no longer be pushed as shown below. It stops at 70 ml.




What can Betty conclude from this experiment?

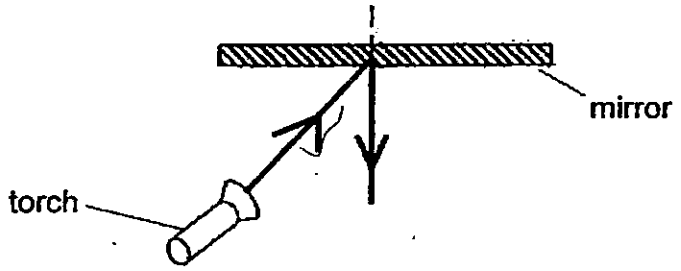
(1) Air has mass.
(2) Air takes up space.
(3) Air has definite shape.
(4) Air can be compressed.

25. Muthu shone a torch at a mirror from an angle as shown below.

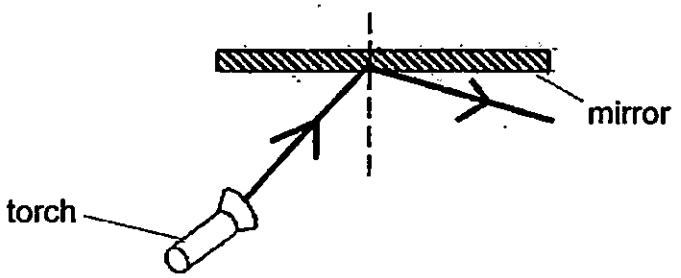



Which diagram shows the correct path of the reflected light ?

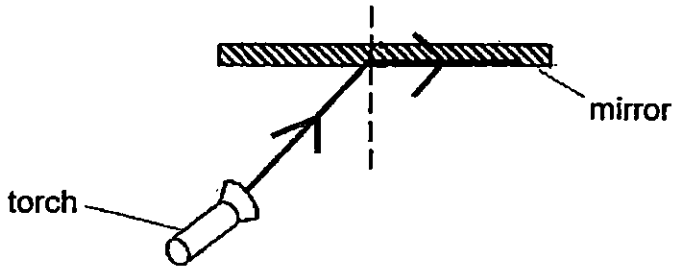
(1)



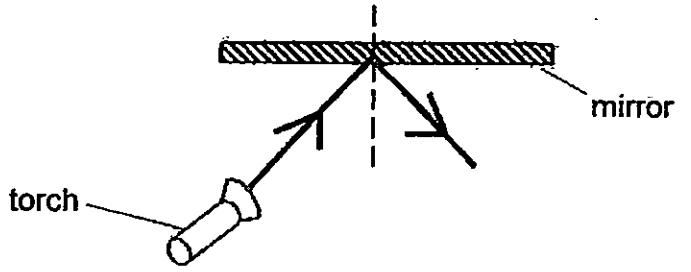

(2)



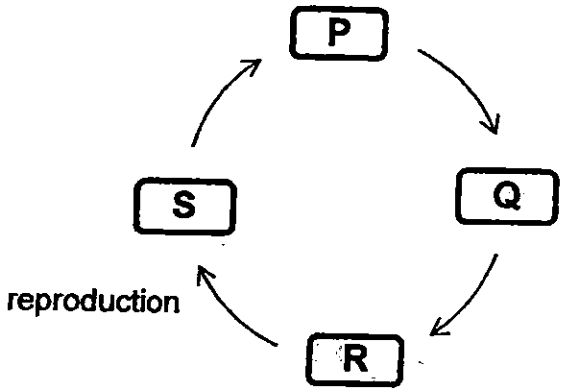

(3)




(4)



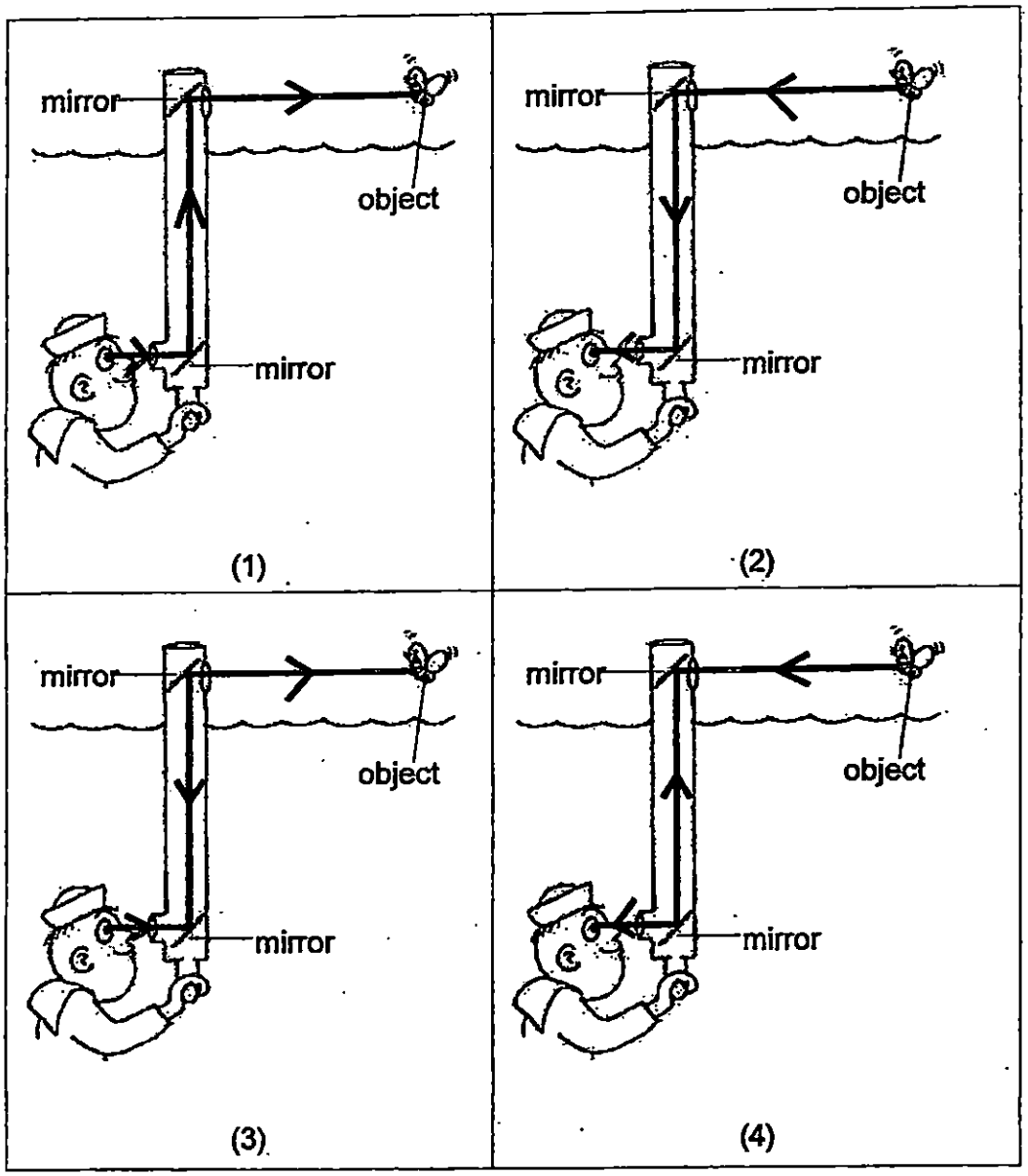
26. The diagram below shows **P**, **Q**, **R** and **S**, the four stages in the life cycle of a beetle and when reproduction occurs.



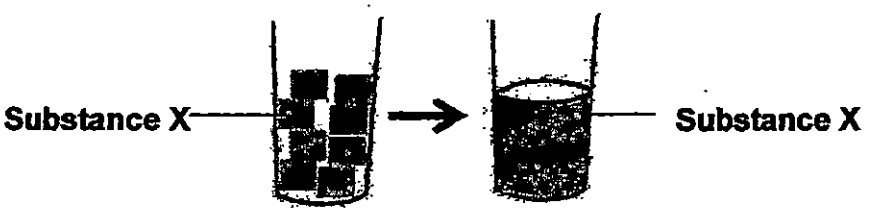

Which stages are represented by **P**, **Q**, **R** and **S** respectively?

| | P | Q | R | S |
|---|---|---|---|---|
| (1) | Egg | Larva | Pupa | Adult |
| (2) | Larva | Pupa | Adult | Egg |
| (3) | Pupa | Adult | Egg | Larva |
| (4) | Adult | Egg | Larva | Pupa |

27. Sailor Tom could see the object using a periscope in his submarine. Which of the following shows the correct reflection of light in his periscope?



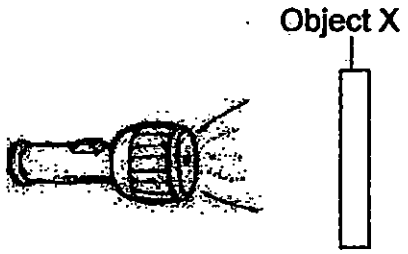
28. Kelly put Substance X in a clear container and left it on a table. About an hour later, she noticed that Substance X had changed as shown in the diagram below. Which of the following best describes the change in Substance X?




At the start At the end

| | At the start | At the end |
|---|---|---|
| (1) | Definite volume | Does not have a definite volume |
| (2) | Does not have a definite volume | Definite volume |
| (3) | Definite shape | Does not have a definite shape |
| (4) | Does not have a definite shape | Definite shape |

29. Serene conducted an experiment in a dark room as shown below. She placed Object X in front of a torch and only some light passes through it.




What material is Object X made of ?

(1) Cardboard
(2) Frosted glass
(3) Aluminium foil
(4) Wooden plank

30. Mrs Tan wanted to find out which type of soil is suitable for growing plants. She prepared three pots of plants, Pot P, Pot Q and Pot R, with the conditions shown below.

| | **Pot P** | **Pot Q** | **Pot R** |
|---|---|---|---|
| Type of plant | Rose | Balsam | Sunflower |
| Material of pot | Plastic | Plastic | Plastic |
| Type of soil | Garden soil | Sandy soil | Clay soil |
| Amount of soil | 1500 $cm^3$ | 1500 $cm^3$ | 1500 $cm^3$ |
| Volume of water given every day | 100 ml | 100 ml | 100 ml |

This experiment is **NOT** a fair test. Why?

(1) The type of soil is different.
(2) The type of plant is different.
(3) The volume of water is the same.
(4) The material of the pots is the same.

TAO NAN SCHOOL 道南学校

SINCERITY & PERSEVERANCE

## PRIMARY 4 MID-YEAR EXAMINATION 2015

Name : _____ (  )  Date: 15 May 2015

Class : Primary 4 (  )  Time: 8 a.m. – 9.45 a.m.

Duration: 1h 45min

Parent's Signature : _____  Marks: _____ / 40

# SCIENCE
## BOOKLET B

**INSTRUCTIONS TO CANDIDATES**

Write your name, register number and class.

Do not turn over this page until you are told to do so.

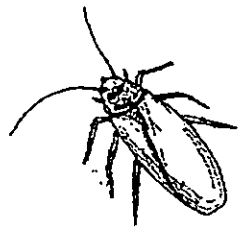
Follow all instructions carefully.

Answer all questions.

**Section B (40 marks)**

**Write your answers in the spaces provided.**

31. Study Animal X and Animal Y below:



**Animal X**

**Animal Y**

(a) Based on the pictures above, state one similarity between Animal X and Animal Y. ( Do not mention their colour, shape or size) [1]

_____

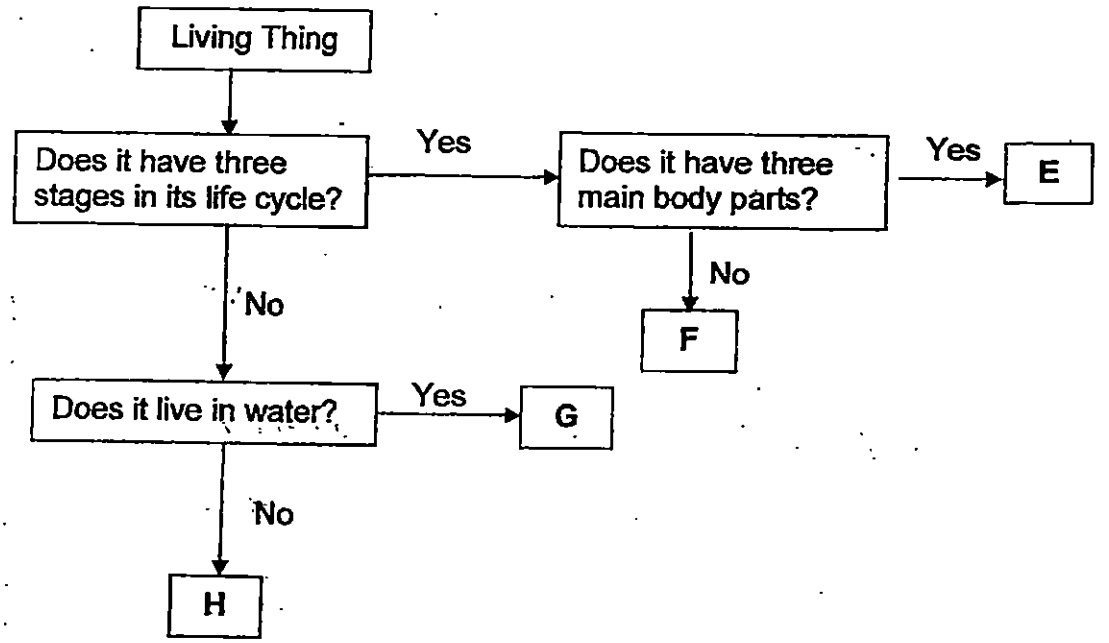
_____

(b) Based on the pictures above, state one difference between Animal X and Animal Y. ( Do not mention their colour, shape or size) [1]

_____

_____

32. Study the flowchart below.




(a) State one similarity between G and H. [1]

_____

_____

(b) State one difference between E and F. [1]

_____

_____

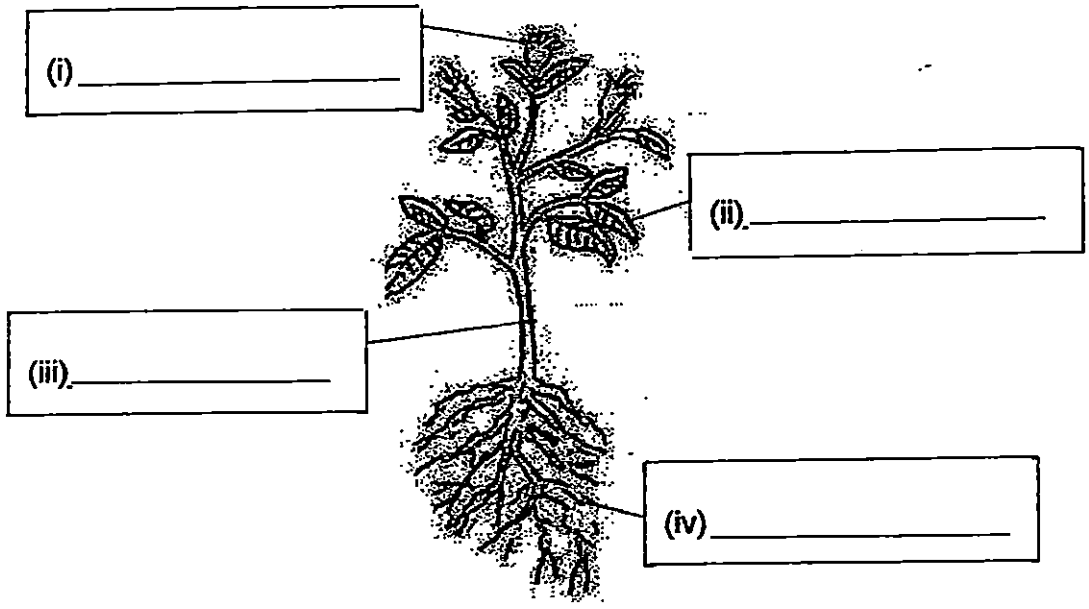
(c) List all the characteristics of G. [1]

_____

_____

33. Study the plant below.

(a) Label the parts of the plant. [2]



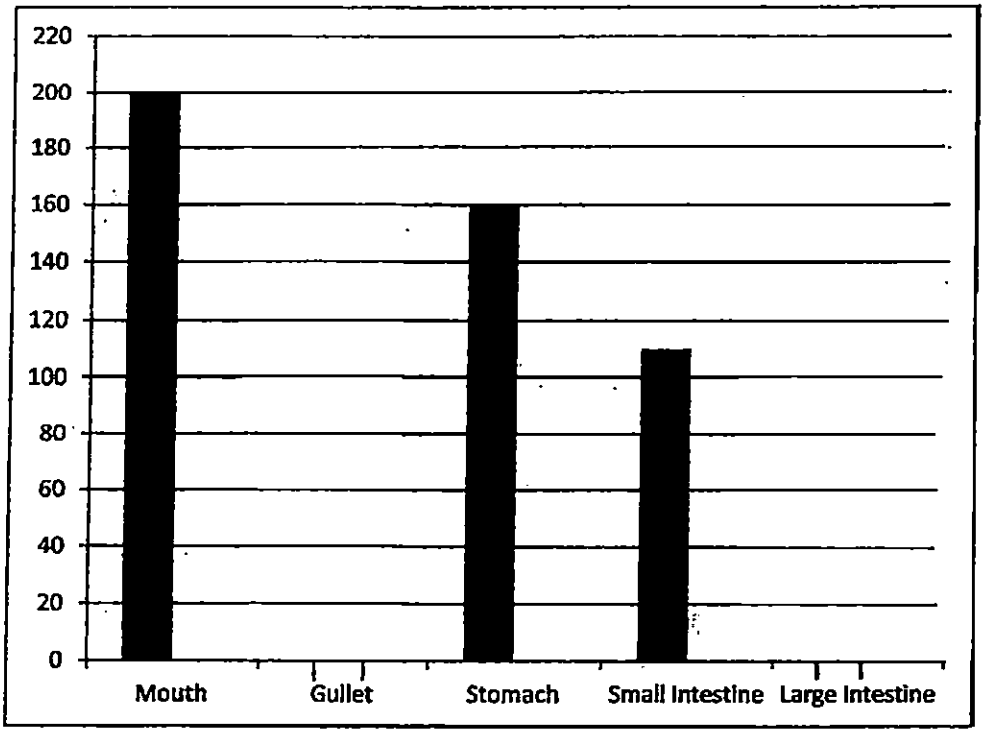

(b) Which part of the plant makes food ? [1]

_____

(c) Name the process when the plant makes its own food. [1]

_____

34. Draw and complete the bar graph to show the amount of undigested food in the **gullet** and in the **large intestine** of the human digestive system. [2]

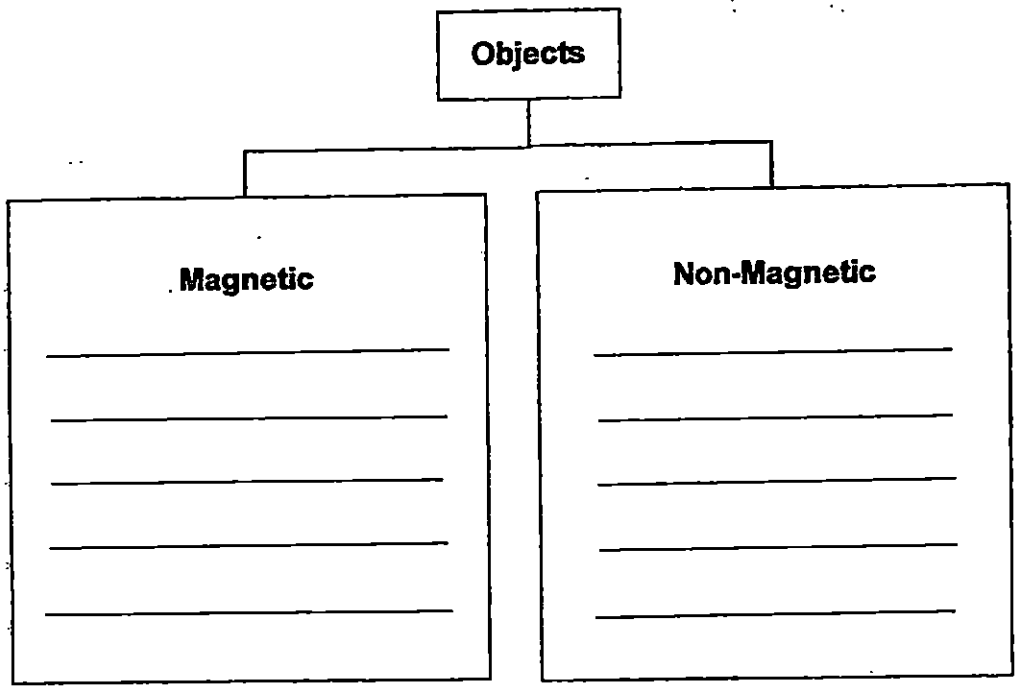


35. An electromagnet is used to separate magnetic and non-magnetic objects as shown in the picture below.

The list of objects to be separated is as follows :

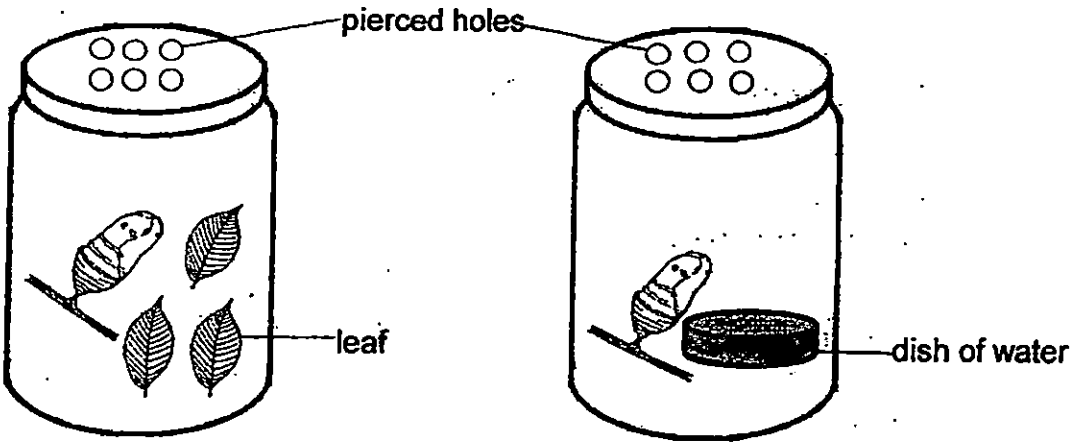
| | | | |
|---|---|---|---|
| rubber shoe | ceramic mug | iron rod | styrofoam cup |
| steel spoon | nickel coin | aluminium foil | copper wire |

(a) Classify the objects in the classification chart below. [2]




(b) Will the electromagnet be able to separate the objects into metallic and non-metallic objects effectively? Explain your answer. [2]

36. Warren wanted to observe the development of the young of butterflies. He kept them in two containers as shown below.




**Container X** **Container Y**

(a) At which stage of the life cycle of butterflies are these two young at? [1]

_____

(b) In which container/s will the young of the butterflies change into an adult butterfly? [1]

_____

_____

(c) Explain your answer for (b). [2]

_____

_____

_____

37. Bobby wanted to find out if temperature would affect the number of days before a seed germinates. He planted 5 seeds in each pot, A, B, C, D and E. He placed the pots in different locations.

| Pot | A | B | C | D | E |
|---|---|---|---|---|---|
| **Temperature (°C)** | 15 | 20 | 25 | 30 | 35 |
| **Number of days before germination** | 28 | 25 | 18 | 12 | 8 |

(a) From the above results, state the relationship between the temperature and the number of days before germination. [1]

_____

_____

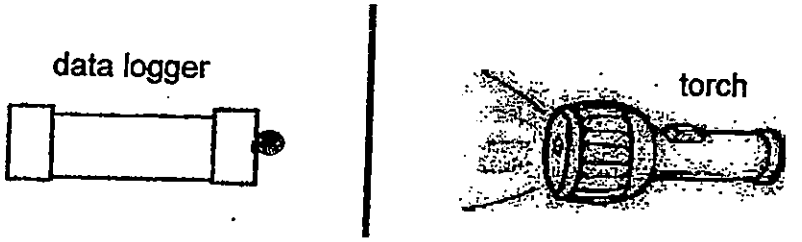
(b) Name one variable which should be kept constant in order for it to be a fair test. [1]

_____

(c) Which part of the seedling helps it to make its own food? [1]

_____

38. Nathan conducts an experiment as shown below.




When no paper is placed at position X, the data logger shows a reading of 1000 lux. When a sheet of thin paper is placed at X, the reading becomes 450 lux.

(a) Based on the readings, identify one property of the sheet of thin paper? [1]

_____

(b) Explain why there is a decrease in the reading on the data logger. [1]

_____

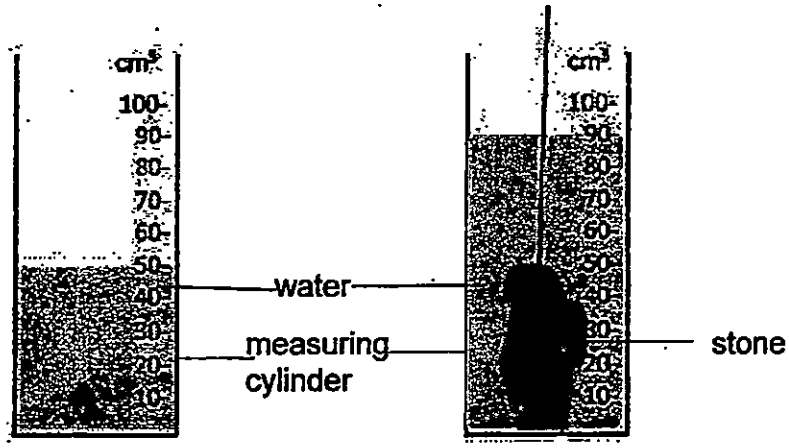
_____

(c) What type of material can Nathan use so that the reading on the data logger remains at 1000 lux? [1]

_____

_____

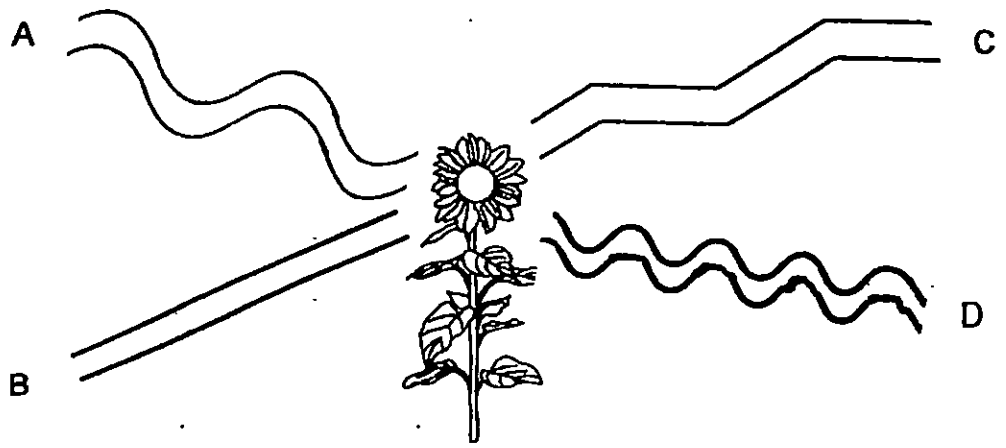
39. Jane wanted to measure the volume of a stone. She lowered the stone into a measuring cylinder with some water as shown in the diagram below.




Using the information from the above diagram, complete the table below.

| | | |
|---|---|---|
| Volume of water | _____ $cm^3$ | [½] |
| Volume of water and the stone | _____ $cm^3$ | [½] |
| Volume of the stone | _____ $cm^3$ | [1] |

40. Aisha uses 4 different tubes, A, B, C and D, to look at a flower as shown below.




(a) Which of the tubes, A, B, C and D, would allow Aisha to see the flower ? [1]

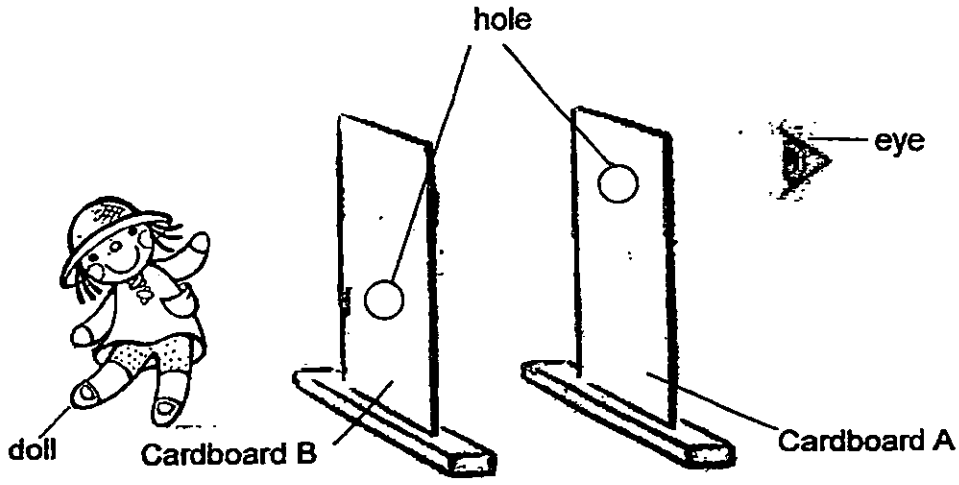
_____

(b) Explain your choice in (a). [2]

_____

_____

41. Jane set up an experiment with a doll and two pieces of cardboard, as shown below. There was a hole each on Cardboard A and Cardboard B.




(a) Why was Jane unable to see the doll ? [1]

_____

_____

(b) Jane removed Cardboard B. She replaced it with another piece of material of the same size. Although there was no hole in this piece of material, Jane was able to see the doll. Explain why Jane could see the doll. [1]

_____

_____

42. At an open sea fish farm, a number of fish died. A researcher investigating their death, collected information about micro-organism X floating on the water and oxygen level in the water as shown in the table below.

| Day | 1 | 3 | 5 | 7 |
|---|---|---|---|---|
| **Mass of micro-organism X (unit/m²)** | 50 | 70 | 100 | 150 |
| **Number of dead fish** | 10 | 50 | 120 | 200 |
| **Oxygen level in the water (unit/l)** | 10 | 8 | 5 | 2 |

(a) Based on the table above, what is the relationship between the mass of micro-organism X and the number of dead fish? [1]

_____

_____

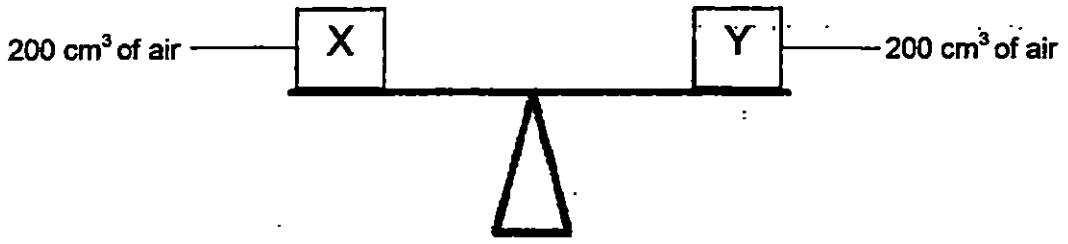
(b) The researcher found that the fish had died due to micro-organism X and no other factors. Based on the table, explain how micro-organism X caused the death of the fish. [1]

_____

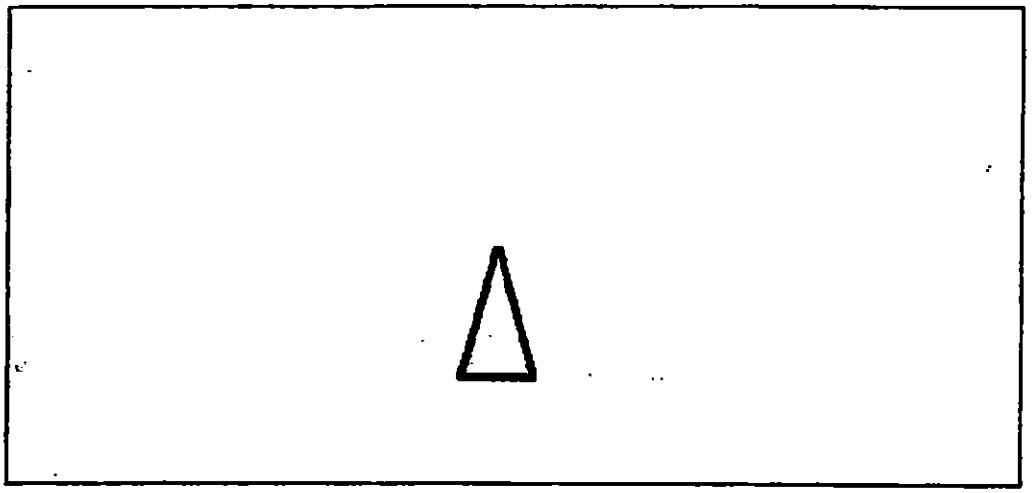
_____

_____

43. Johnny had two identical containers, X and Y, of equal capacity, 200 $cm^3$. He placed them on a beam balance as shown below.




(a) If Johnny pumped another 100 $cm^3$ of air into Container **X**, draw and label how the beam balance would look below. [1]



(b) Explain your answer in (a). [1]

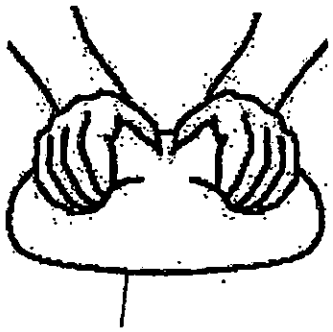
_____

_____

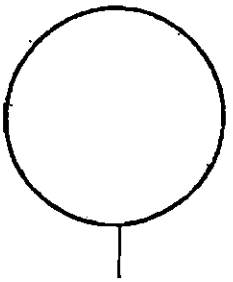
(c) What would be the volume of the air in Container **X** after Johnny had pumped 100 $cm^3$ of air into it? Explain your answer. [2]

_____

44. Lala played with 200g of plasticine. She kneaded **all** the plasticine to make a ball of plasticine as shown below.



200 g of plasticine



ball of plasticine

She made four statements about the plasticine below. Tick (✓) the correct boxes to indicate whether each statement is 'True', 'False' or 'Not Possible To Tell'. [2]

| | **True** | **False** | **Not Possible To Tell** |
|---|---|---|---|
| The plasticine is a solid. | | | |
| The volume of the ball of plasticine is smaller than ~~that of~~ the 200g of plasticine. | | | |
| The ball of plasticine can bounce while the 200g of plasticine cannot. | | | |
| The mass of the 200g of plasticine is the same as that of the ball of plasticine. | | | |

End of Paper

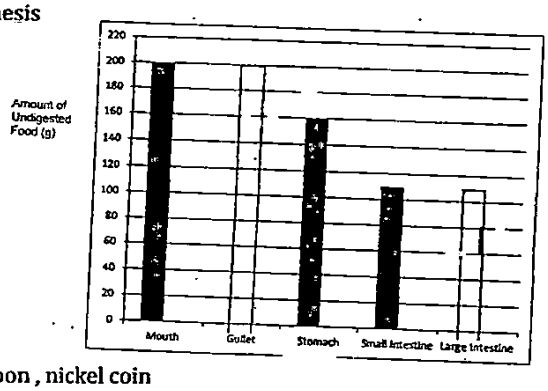
**LEVEL : PRIMARY 4**
**SCHOOL : TAO NAN**
**SUBJECT : SCIENCE**
**TERM : SA1**

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

Q31a Both animal X and Animal Y have eyes.
Q31b. Animal X has three pairs of legs while Animal Y has two pairs of legs.

Q32a. Both G and H do not have three stages in their life cycles.
Q32b. E has three main body parts while F does not have three main body parts.
Q32c. G does not have three stages in his life cycle and lives underwater.

Q33. i) Flower Q33ii) leaves Q33iii) stem Q33iv) roots
Q33 b. The leaf Q33c. Photosynthesis
Q34. See picture




Q35a. Magnetic – iron rod, steel spoon , nickel coin
Q35a Non – magnetic – rubber shoe, ceramic mug, Styrofoam cup,
Aluminum foil, copper wire
Q35b. No. Aluminium and copper are also metal but they are non magnetic. Hence, the electromagnet will not be able to get attracted.

Q36a. They are at the pupal stage. Q36b. Container Y & X
Q36c. Both, because they are at the pupa stage and will not be eating or drinking .

Q37a. C → The higher the temperature is, the faster the seed will germinate.
Q37b. The type of seed used. Q37c. C → Leaves

Q38a. It allows some light to pass through it.
Q38b. The thin piece of paper only allowed some light to pass through it and not all the light.
Q38c. Nathan can use clear plastic.
Q39. Volume of water →50cm$^3$
Q39. Volume of water and the stone → 90cm$^3$
Q39 Volume of the stone →40cm$^3$

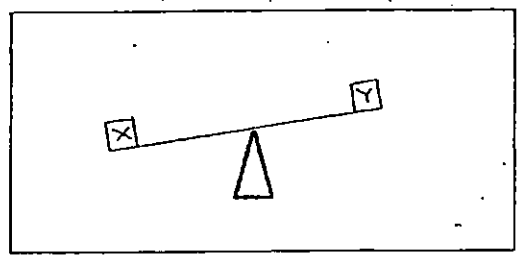
Q40a. B
Q40b. Light can only travel in a straight line and tube B is the only straight tube.

Q41a. The holes are not as the same height and light can only travel in a straight line.
Q41b. The material is transparent .

Q42a. The heavier the mass of Micro – organism, the bigger the number of dead fish.
Q42b. The fish might not have enough oxygen in the water as micro- organism might have taken in most of the oxygen.

Q43a. SEE PICTURE

(a) If Johnny pumped another 100 $cm^3$ of air into Container X, draw and label how the beam balance would look below. [1]




Q43b. Air has mass and more air was added into Container X which made it heavier.
Q43 C → 200$cm^3$ · the air can be compressed.
Q44. The plasticine is a solid → TRUE
Q44. The volume of the ball of plasticine is smaller than the 200g of plasticine.→FALSE
Q44. The ball of plasticine can bounce while the 200g of plasticine cannot.→Not possible to tell
Q44. The mass of the 200g of plasticine is the same as that of the ball of plasticine.→TRUE

**THE END**