

**Pei Chun Public School**  
**Semestral Assessment 1 – 2015**  
**Science**  
**Primary 4**

Name : \_\_\_\_\_ (     )

Date : 12 May 2015

Class : Pri. 4 (     )

Science Teacher : \_\_\_\_\_

Time : 1 h 30 min

**Section A (24 × 2 marks)**

For questions 1 to 24, choose the most suitable answer and shade its number (1, 2, 3 or 4) on the Optical Answer Sheet (OAS) provided.

1. The table below shows the characteristics of X, Y and Z.

| Characteristics           | X | Y | Z |
|---------------------------|---|---|---|
| has four legs             |   | ✓ | ✓ |
| can make its own food     | ✓ |   |   |
| needs air, food and water | ✓ | ✓ |   |

Which of the following, X, Y or Z, are living things?

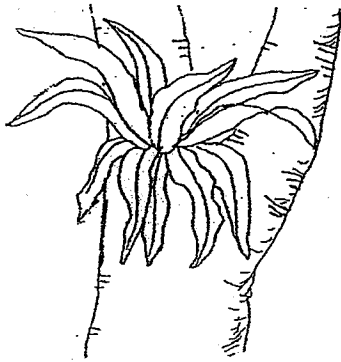
- (1) X and Z only
- (2) X and Y only
- (3) Y and Z only
- (4) X, Y and Z

2. Which of the following statements about plants are correct?

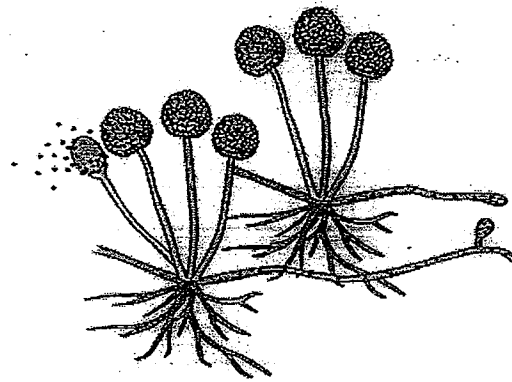
- A : Only flowering plants produce fruits.
- B : Only non-flowering plants have leaves.
- C : Flowering plants produce flowers when the conditions are right.
- D : The leaves of all plants have different sizes but similar shape.

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

5. Which of the following characteristics is generally common between insects and birds?
- (1) They reproduce by laying eggs.
  - (2) Their young look like the adults.
  - (3) They have the same number of legs.
  - (4) They have the same type of outer covering.
6. The diagram below shows a bird's nest fern and bread mould.



bird's nest fern



bread mould  
seen under a microscope

Four pupils, Ashok, Bryan, Celia and Darmia, made the following statements.

Ashok : Both are plants.

Bryan : Both reproduce from spores.

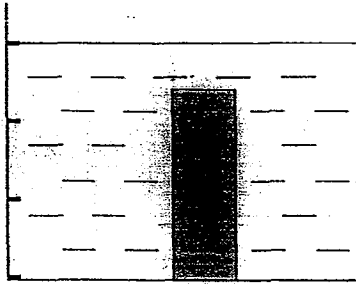
Celia : Both need air, food and water to stay alive.

Darmia : Bird's nest fern can make its own food but bread mould cannot.

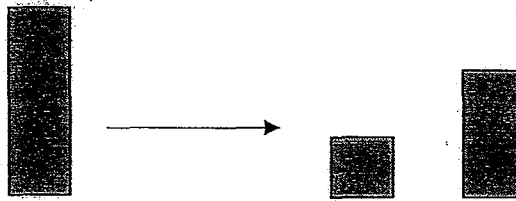
Whose statements are correct?

- (1) Ashok and Bryan only
- (2) Celia and Darmia only
- (3) Ashok, Bryan and Celia only
- (4) Bryan, Celia and Darmia only

9. Zaid placed a solid block into a tank of water and noticed that the block sank into the water as shown below.

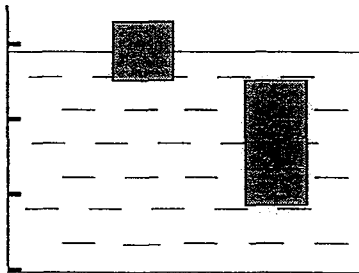


He cut the block into two unequal parts as shown below and placed them into the same tank of water again.

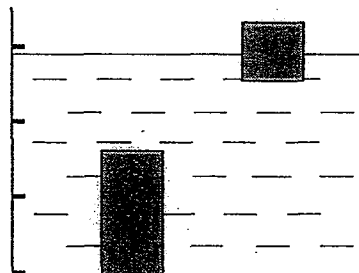


Where in the tank are the parts likely to be found?

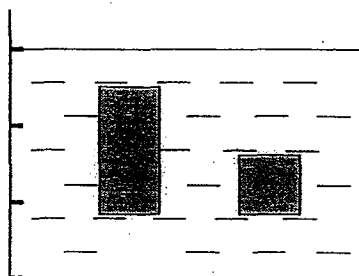
(1)



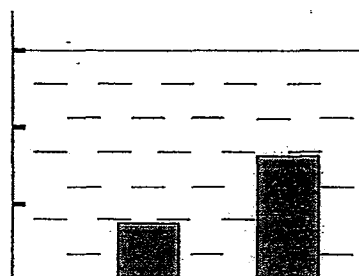
(2)



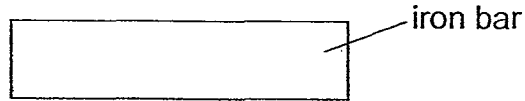
(3)



(4)

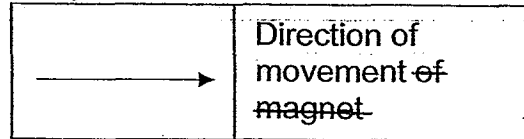


12. Daniel wants to magnetise an iron bar as shown below using the stroking method.

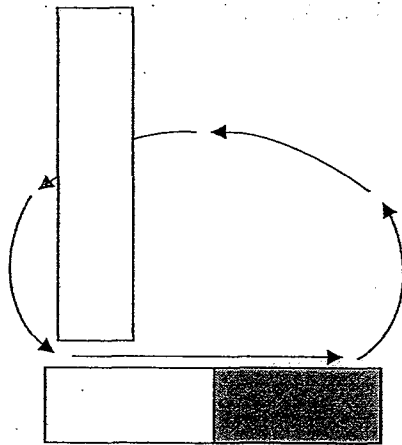


Which of the following shows the correct stroking method that Daniel should follow?

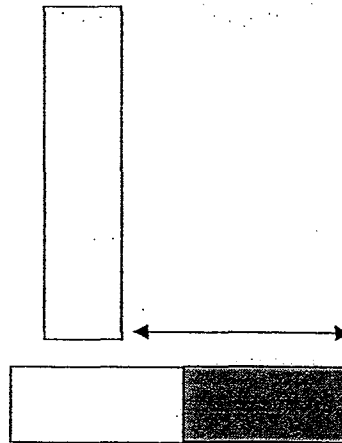
Key:



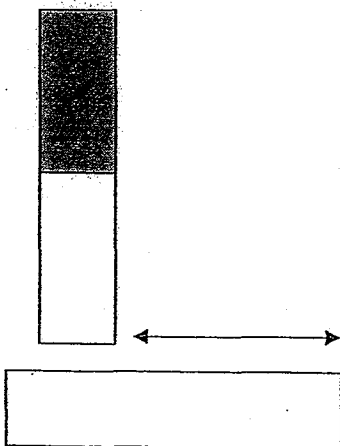
(1)



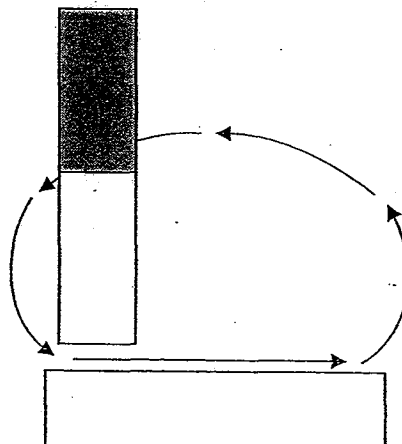
(2)



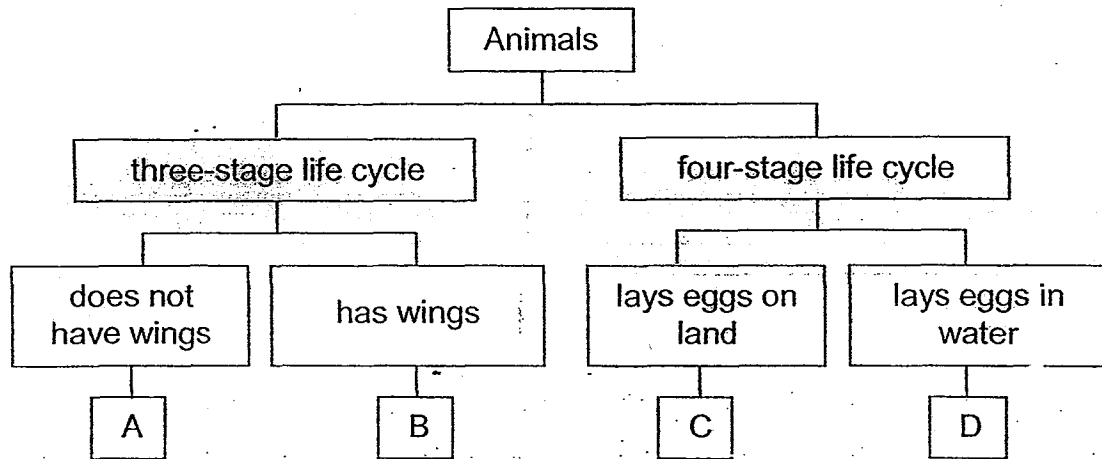
(3)



(4)



15. Study the classification diagram below.



Which of the following correctly matches the animals to the groups in the diagram?

|     | A           | B           | C         | D           |
|-----|-------------|-------------|-----------|-------------|
| (1) | chicken     | frog        | butterfly | grasshopper |
| (2) | mosquito    | grasshopper | cockroach | frog        |
| (3) | frog        | cockroach   | butterfly | mosquito    |
| (4) | grasshopper | cockroach   | chicken   | butterfly   |

16. Four children made the following statements about the human system shown below.

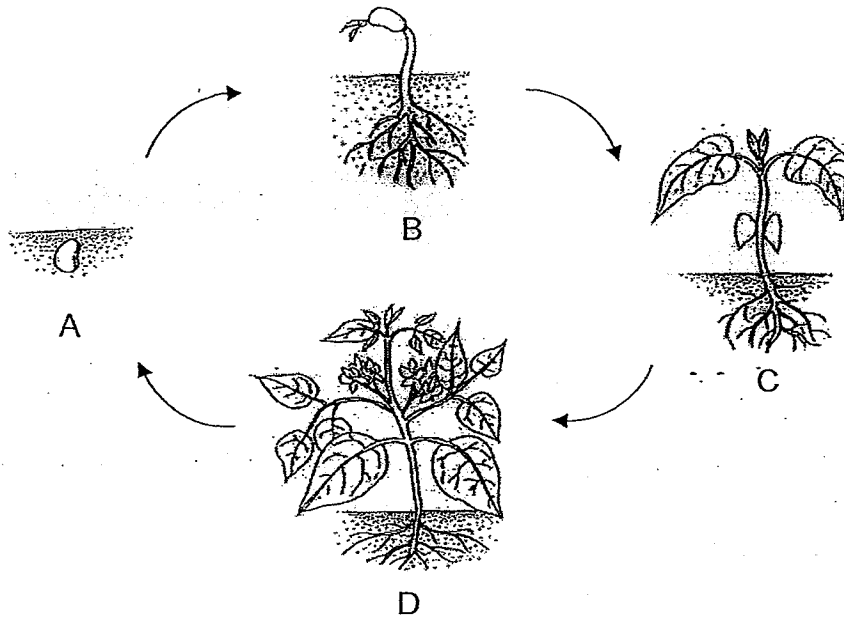


- Elsa : It protects the organs.  
 Veera : It takes air into the body.  
 Farhan : It gives shape to the body.  
 Claudia : It carries oxygen to all parts of the body.

Who made the correct statements?

- (1) Elsa and Veera only  
 (2) Elsa and Farhan only  
 (3) Veera and Claudia only  
 (4) Farhan and Claudia only

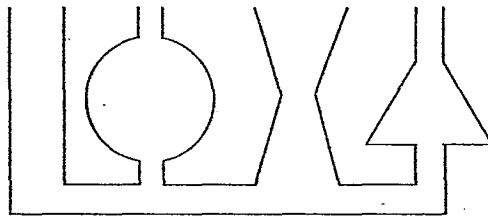
19. A, B, C and D are the various stages in the life cycle of a plant.



In which of the stage(s), A, B, C and D, can the plant make its own food?

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

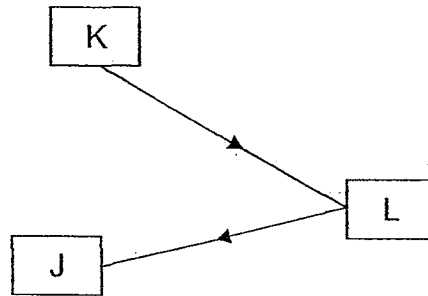
20. The diagram shows a communicating vessel.



Which of the following diagrams correctly shows the water level in the communicating vessel after some water was poured into it?

- (1)
- (2)
- (3)
- (4)

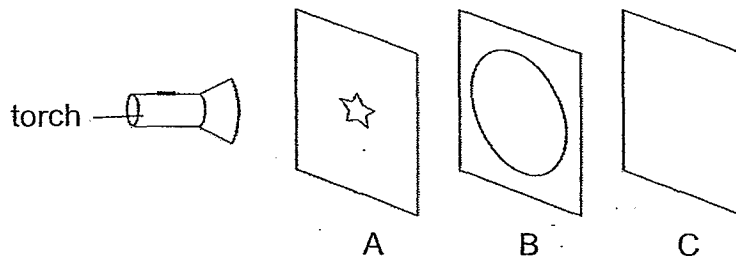
23. The diagram below shows the path of light that enabled Rita to read her book in the well-lit library.



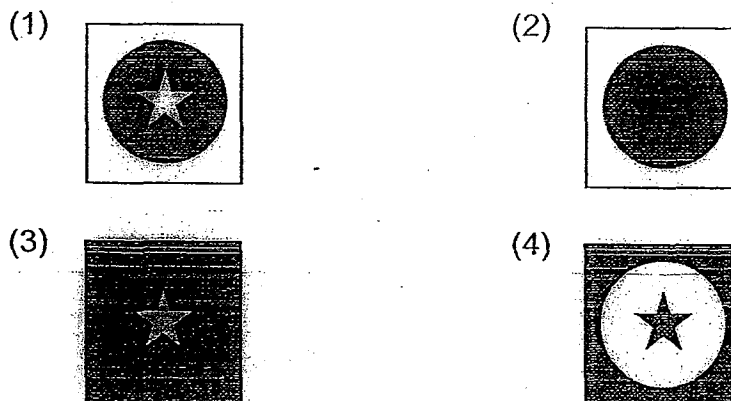
What could J, K and L be?

|     | J             | K             | L             |
|-----|---------------|---------------|---------------|
| (1) | book          | Rita          | ceiling light |
| (2) | Rita          | ceiling light | book          |
| (3) | book          | ceiling light | Rita          |
| (4) | ceiling light | book          | Rita          |

24. Three cardboards, A, B and C, were placed in front of a torch. Cardboard A had a star shape cut out from it and cardboard B had a circle cut out from it. The shadow produced was captured on cardboard C.



Which of the following shows the shadow on cardboard C?



**Pei Chun Public School**  
**Semestral Assessment 1 – 2015**  
**Science**  
**Primary 4**

Name : \_\_\_\_\_ (     )

Class : Pri. 4 (     )

Date : 12 May 2015

Time : 1 h 30 min

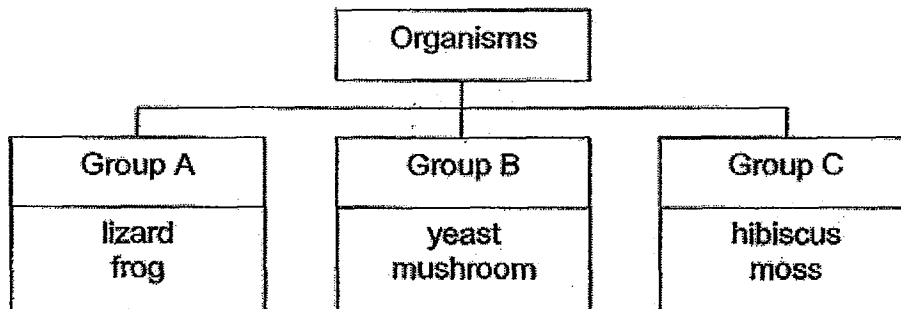
Science Teacher : \_\_\_\_\_

|           |    |
|-----------|----|
| Section A | 48 |
| Section B | 32 |
| Total     | 80 |

**Section B (32 marks)**

For questions 25 to 35, write your answers in the spaces provided.

25. The classification chart below shows how some organisms are grouped.



a) Give a suitable heading for Group B and Group C. [ 2 ]

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

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

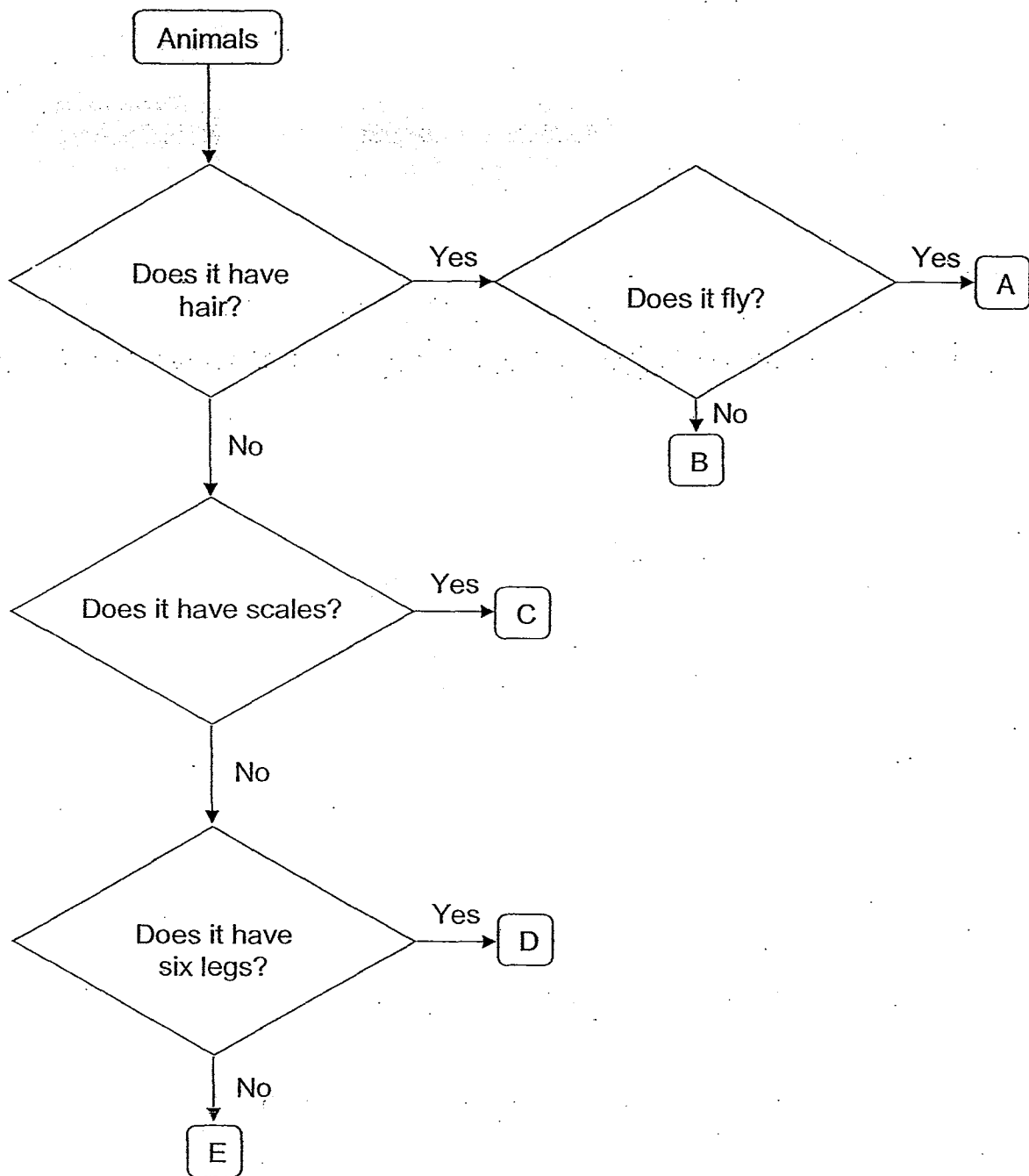
b) State how organisms in Groups A and B reproduce differently. [ 1 ]

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27. Five different animals have been classified in a flowchart as shown below.



In the table provided, write the letter A, B, C, D, or E which best represents each of the following animals.

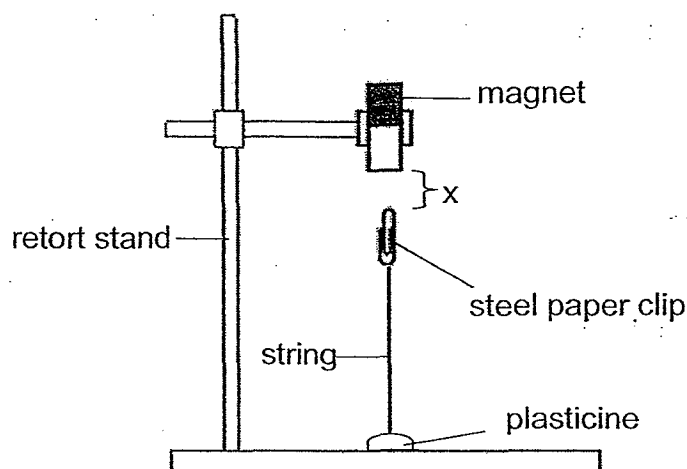
[3]

|          |     |           |
|----------|-----|-----------|
| goldfish | bat | dragonfly |
|          |     |           |

29. Brandon wanted to test the strength of three different magnets. He placed each magnet 1 cm away from some iron nails and recorded the number of iron nails each magnet attracted. He recorded his results in the table below.

| Magnet | Number of iron nails attracted |
|--------|--------------------------------|
| A      | 10                             |
| B      | 5                              |
| C      | 8                              |

He then held each magnet on a retort stand as shown in the diagram below.



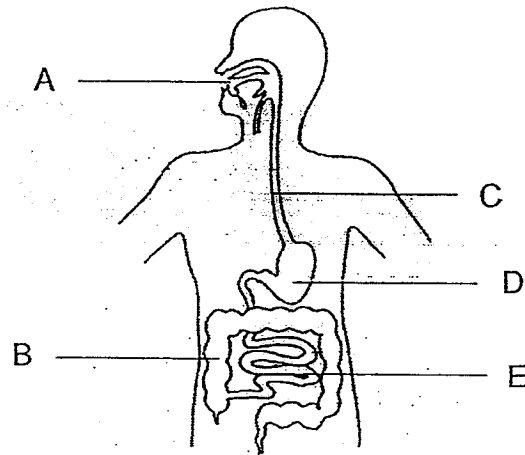
The distance 'X' is the maximum distance that the paper clip could remain suspended in the air from the magnet. He recorded his findings in the table below.

- a) In the table below, write the letters A, B and C to best represent Brandon's findings. [1]

| Magnet | Distance of 'X' (cm) |
|--------|----------------------|
|        | 3                    |
|        | 4                    |
|        | 2                    |

- b) What would happen if the steel paper clip was replaced by a copper ring? [1]

30. Study the diagram below.



- a) Which letters A, B, C, D or E, represent the parts where <sup>digestion occurs</sup> food is digested? [1]

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- b) State the function of B. [1]

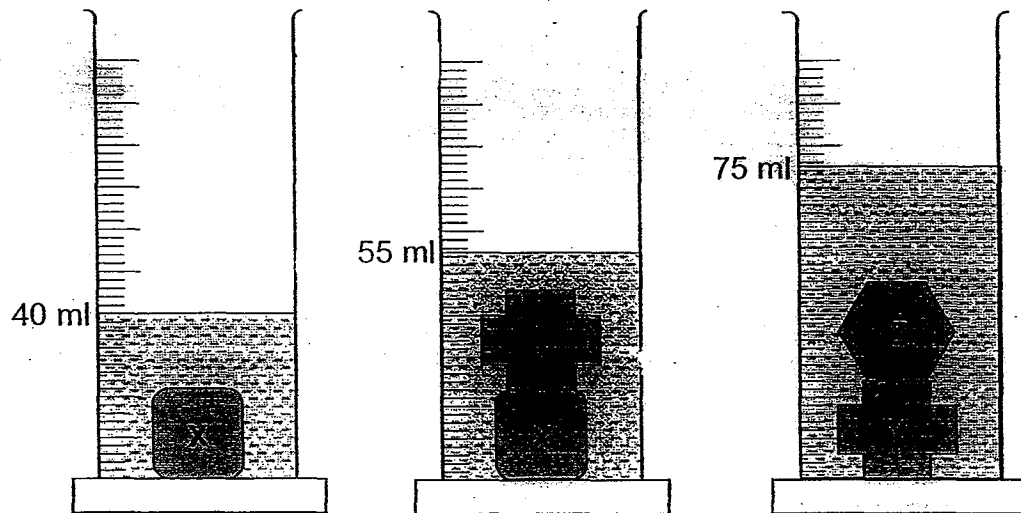
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- c) State the substance that will pass into the bloodstream in E. [1]

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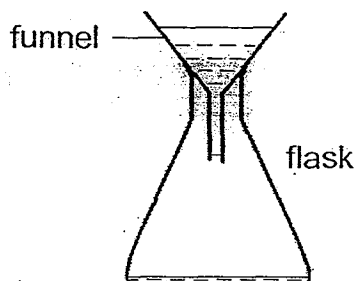
32. Peiyu had three measuring cylinders. She poured equal amount of water into each cylinder. She then placed some blocks into the cylinders as shown below.



Peiyu made some observations as shown in the table below. Study the diagram above and indicate whether each of the statements is True, False or Not possible to tell. Put a tick (✓) in the correct box. [ 3 ]

|     | Statements                                                | True | False | Not possible to tell |
|-----|-----------------------------------------------------------|------|-------|----------------------|
| (a) | The volume of block Y is 15 ml.                           |      |       |                      |
| (b) | The volume of block Y is less than the volume of block X. |      |       |                      |
| (c) | The volume of block X is greater than block Z.            |      |       |                      |

34. Fandi placed a funnel over the opening of a flask. When he tried to pour water into the flask through the funnel, he observed most of the water in the funnel could not flow into the flask as shown below.

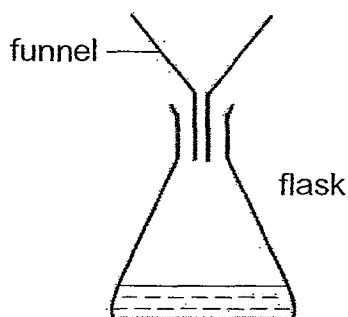


- a) Give a reason why the water in the funnel could not flow into the flask. [ 1 ]

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- b) When Fandi lifted up the funnel as shown below, he observed that all the water in the funnel flowed into the flask.



Give a reason for his observation. [ 1 ]

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## Answer Key

**EXAM PAPER 2015**

**SCHOOL : PEICHUN**

**SUBJECT : P4 SCIENCE**

**TERM : SA1**

**ORDER CALL : MR GAN @ 92998971 92475053 86065443**

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

**25) a) B: Fungi**

**C: plants**

**b) Organisms in group A reproduce by laying eggs while organisms in group B reproduce by spores.**

**26) a) Group X**

**b) The plant in group Y has a strong stem but the plant in group X has a weak steam.**

**c) The plant in group Y has flowers that grow singly while the plant in group Z has flowers that grow in cluster.**

**33) a) Insect A: Adult**

**Insect B: nymph**

**b) Diff 1: The insect has a 3-stage life cycle but the beetle has a 4-stage life cycle.**

**Diff 2: The young of the insect looks like its adult but the young of the beetle does not look like its adult.**

**34) a) Air is occupying space in the flask.**

**b) Air in the flask could escape through the opening into the surroundings, so water could enter to occupy the space.**

**35) a) Screen R: frosted glass**

**Screen C: clear plastic**

**b) Material S. It allows the most light to pass through it.**



27) Goldfish: C    Bat: A    Dragonfly: D

28) a) Material P

b) Reason 1: Only materials P and S are waterproof.

Reason 2: P is lighter than S

29) a) C

A

B

b) The copper ring would not be attracted to the magnet as it is a non-magnetic material.

c) K, J, L

d) The size of a magnet does not affect its strength.

30) a) A, D, E

b) It is to remove water from undigested food.

c) Digested food

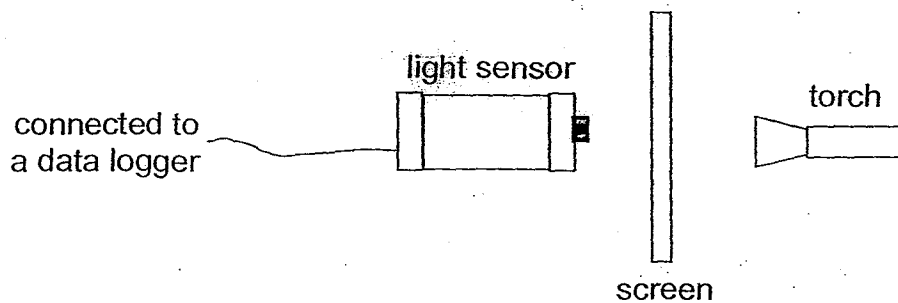
31) a) Object A: rectangular

Object B: Circular

b) There will only be rectangular and circular shadows. The square shadow would not be seen.

32) a) True    b) Not possible to tell    c) False

35. Jason was asked to conduct an experiment to find out how much light can pass through three different screens. He placed a torch on one side of the screen and a light sensor on the other side.



The results obtained from the light sensor were recorded in the table below.

|                | Amount of light (units) |
|----------------|-------------------------|
| without screen | 580                     |
| screen R       | 220                     |
| screen S       | 500                     |
| screen T       | 70                      |

- a) Using the list below, write down the material that the screens could be made of. [2]

|           |               |               |
|-----------|---------------|---------------|
| cardboard | clear plastic | frosted glass |
|-----------|---------------|---------------|

Screen R: \_\_\_\_\_

Screen S: \_\_\_\_\_

- b) Based on the data above, which material, R, S or T, would be most suitable for the part marked Y below? Give a reason for your answer. [1]



spectacles

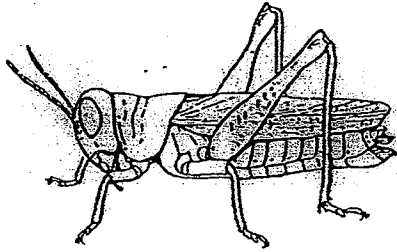
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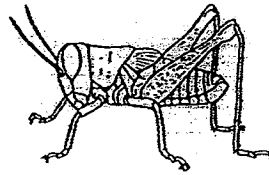
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End of Section B

33. Kumarah went to the school garden and came across insect A and insect B. He took pictures of them and pasted them in his notebook, as shown below.



Insect A



Insect B

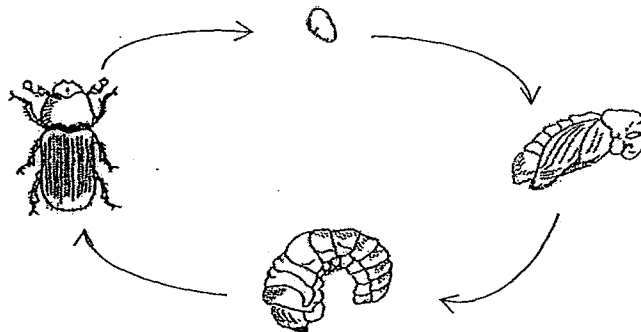
He then asked his Science teacher about insect A and insect B and his teacher told him that they are the same insects but in different stages.

- a) Name the stage of life cycle that insect A and insect B is in. [ 1 ]

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

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

- b)



Kumarah also found some beetles in the school garden.

State two differences between the life cycles of the beetle and the insect that he researched in part (a). [ 2 ]

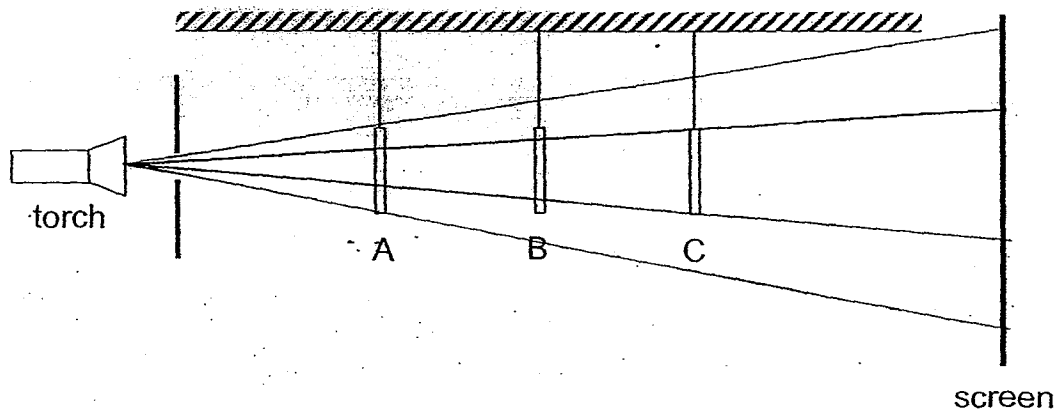
Difference 1: \_\_\_\_\_

\_\_\_\_\_

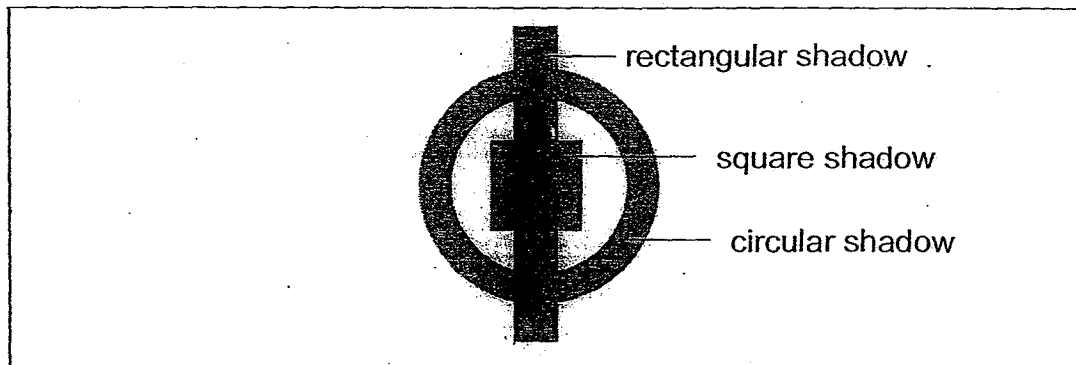
Difference 2: \_\_\_\_\_

\_\_\_\_\_

31. The set-up below shows light shining on three wooden objects A, B and C. They are placed at different distance from the torch.



The diagram below shows the shadow of the objects on the screen.



- a) What are the shapes of objects A and B? [ 1 ]

Object A is \_\_\_\_\_ in shape.

Object B is \_\_\_\_\_ in shape.

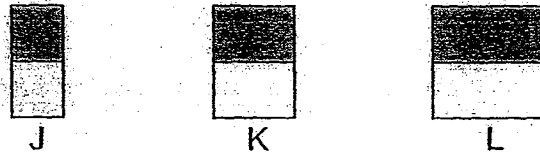
- b) Predict what will be observed on the screen if object C is changed into an object of the same shape but made of clear glass. [ 1 ]

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Brandon wanted to know if the size of a magnet would affect its strength. He conducted his experiment with three other magnets as shown below.



He placed each magnet 1 cm away from the same iron nails and recorded the number of iron nails each magnet attracted. He recorded his results in the table below.

| Magnet | Number of iron nails attracted |
|--------|--------------------------------|
| J      | 7                              |
| K      | 13                             |
| L      | 2                              |

- c) Arrange the three magnets according to their strength, starting from the strongest.

[ 1 ]

strongest      →      weakest

,,

- d) From his experiment, what can Brandon tell about the size of the magnet and strength of the magnet?

[ 1 ]

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28. Materials P, Q, R and S of the same size and thickness were weighed before they were each placed in ~~four~~ <sup>a</sup> buckets of water. After ten minutes, each material was removed from the bucket and weighed again. The results were recorded in the table below.

| Material | mass before being placed in water (g) | mass after ten minutes (g) |
|----------|---------------------------------------|----------------------------|
| P        | 80                                    | 80                         |
| Q        | 75                                    | 150                        |
| R        | 260                                   | 370                        |
| S        | 400                                   | 400                        |

- a) Which material, P, Q, R or S, is most suitable for making a lightweight raincoat? [1]

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- b) State two reasons for your answer in (a). [2]

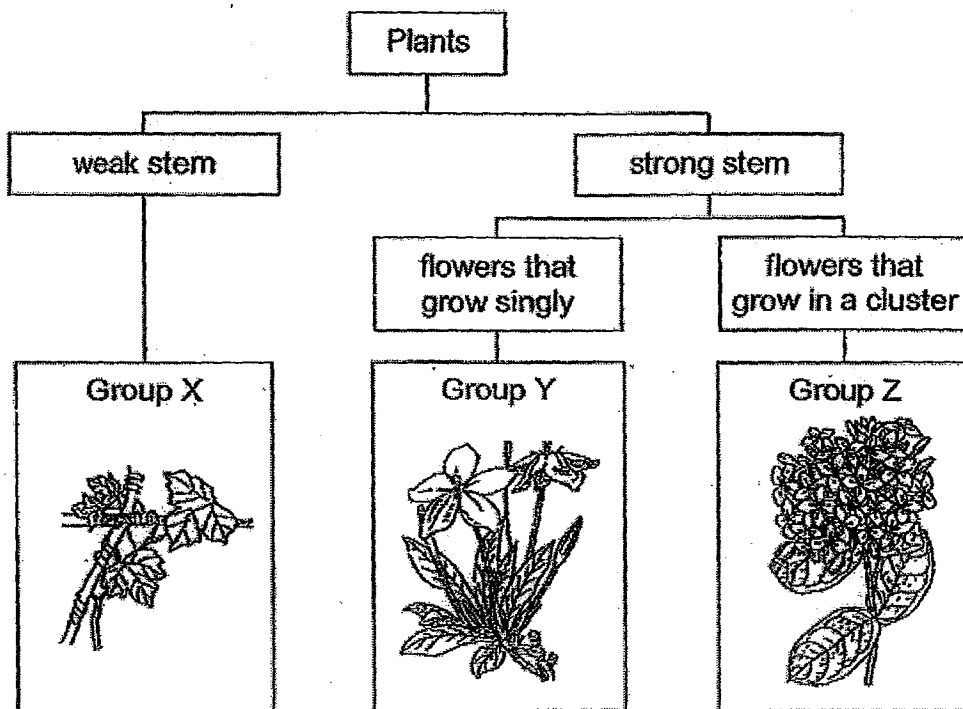
Reason 1: \_\_\_\_\_

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Reason 2: \_\_\_\_\_

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26. Study the classification diagram below.



The plant shown below is a morning glory plant.



a) Which group X, Y or Z does the morning glory plant belong to? [ 1 ]

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b) From the classification diagram, state a difference between the plant in group X and the plant in group Y. [ 1 ]

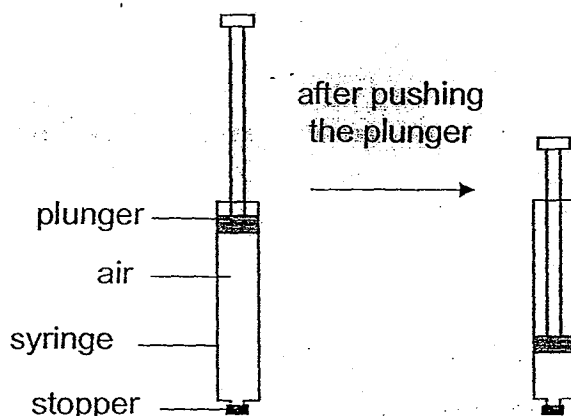
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c) From the classification diagram, state a difference between the plant in group Y and the plant in group Z. [ 1 ]

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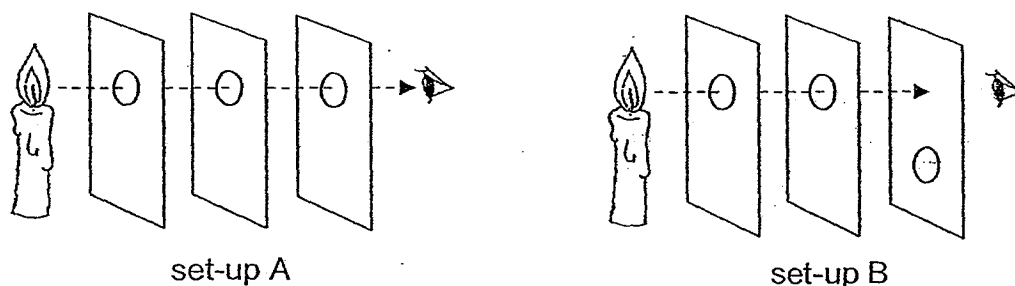
21. John set up an experiment to find out the property of air. When John pushed the plunger of the syringe, the plunger could be pushed in easily as shown below.



John then replaced the air with water but the plunger could not go down when he pushed the plunger.

Which of the following is a possible explanation for his observation?

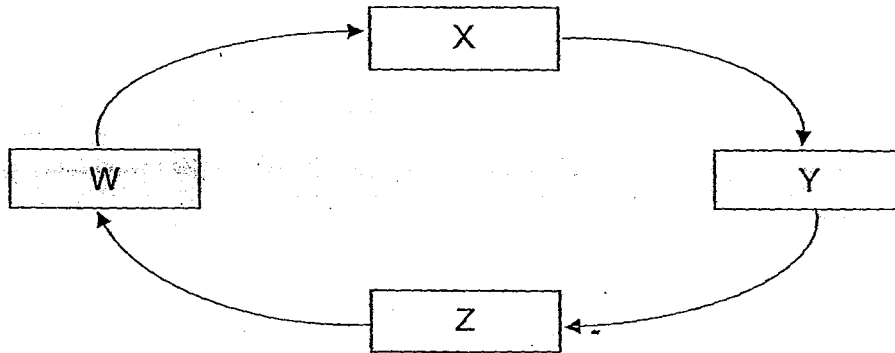
- (1) The mass of the air changes.
  - (2) Water takes up space but air does not.
  - (3) Air can be compressed but water cannot.
  - (4) Air has definite shape but water does not.
22. Aihua conducted an experiment as shown in the diagram below. She looked through the cardboards to see if she could see the light from the candle. She realised that she could see the light from the candle in set-up A but not set-up B.



What is the aim of the experiment?  
It is to show that light \_\_\_\_\_.

- (1) travels in a straight line.
- (2) can be detected by our eyes.
- (3) can be blocked by cardboard.
- (4) can pass through any hole no matter big or small.

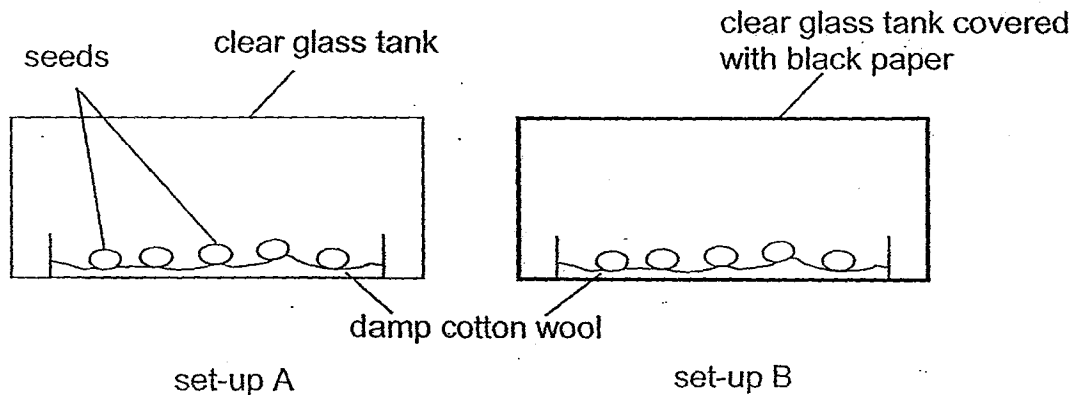
17. The diagram below shows the life cycle of an insect.



Which of the following correctly matches the stage of the life cycle as shown above?

|     | W     | X     | Y     | Z     |
|-----|-------|-------|-------|-------|
| (1) | adult | pupa  | larva | egg   |
| (2) | pupa  | adult | egg   | larva |
| (3) | larva | egg   | adult | pupa  |
| (4) | pupa  | larva | egg   | adult |

18. Tracy carried out an experiment on the germination of seeds using two set-ups, A and B, as shown below.

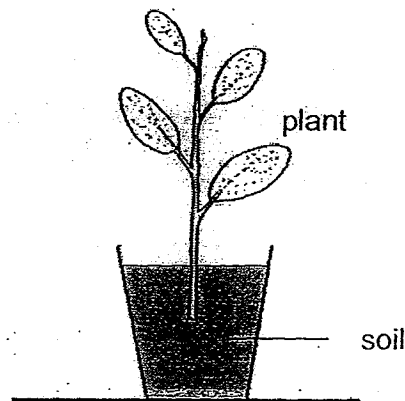


After a few days, seeds in both set-ups germinated.  
What was Tracy trying to find out from her experiment?

She was trying to find out if \_\_\_\_\_ is/are needed in her experiment.

- (1) light
- (2) water
- (3) light and water
- (4) air and light

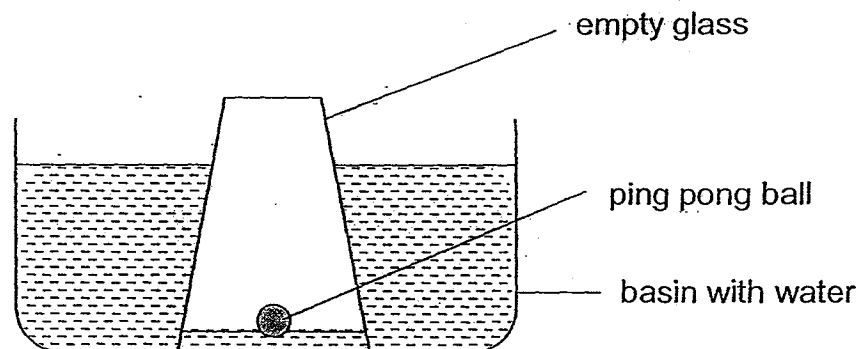
13. Siti removed the roots of a plant and planted it back into the pot of soil as shown below.



After a few days, the plant died because it needed roots to \_\_\_\_\_.

- (1) make food
  - (2) take in oxygen
  - (3) take in food from the soil
  - (4) take in water from the soil
14. Ming Yue lowered an empty glass with a ping pong ball into a basin of water until it touched the bottom of the basin.

She observed that the water level inside the glass was not the same as the water level outside. The ping pong ball still floated on the water as shown below.

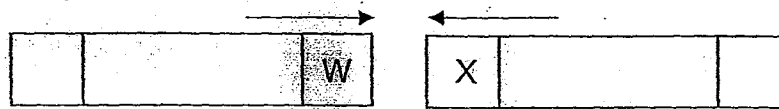


What could be the main reason for the difference in the water level inside and outside of the glass?

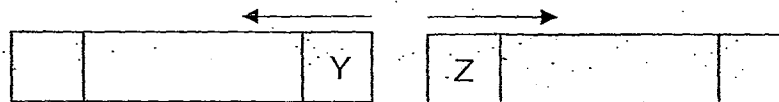
- (1) The ping pong ball occupies space.
- (2) The air trapped in the glass occupies space.
- (3) The air trapped in the glass dissolved in the water.
- (4) The ping pong ball pushed the water out from the glass.

10. Aini has four magnets.

The diagram below shows how the magnets moved when she placed two of the magnets near each other.



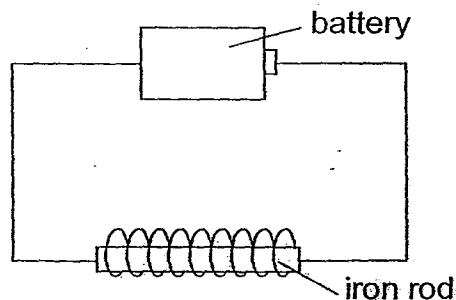
She repeated her experiment with the other two magnets. Her observation is shown below.



Which of the following correctly represents the poles W, X, Y and Z?

|     | W     | X     | Y     | Z     |
|-----|-------|-------|-------|-------|
| (1) | South | South | North | South |
| (2) | South | North | South | North |
| (3) | North | South | South | South |
| (4) | North | North | North | North |

11. Thomas sets up an electromagnet as shown below.



Which of the following can he do to increase the strength of the electromagnet?

- A : Change the iron rod to an aluminium rod
- B : Increase the number of batteries
- C : Increase the number of coils around the iron rod

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

7. The table below shows how some objects are classified according to the materials they are made of.

| Objects       |                         |                |
|---------------|-------------------------|----------------|
| made of X     | made of Y               | made of Z      |
| needle<br>key | magazine<br>toilet roll | tyre<br>eraser |

What do materials X, Y and Z represent?

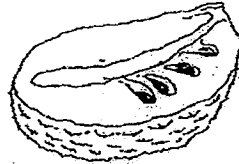
|     | X       | Y      | Z      |
|-----|---------|--------|--------|
| (1) | paper   | rubber | metal  |
| (2) | plastic | fabric | paper  |
| (3) | metal   | paper  | rubber |
| (4) | metal   | fabric | paper  |

8. Xiuzhen had an object. When she brought a magnet towards it, she found that the object could be attracted to the magnet. What metal could the object be made of?

- (1) iron
- (2) gold
- (3) silver
- (4) copper

3. Study the classification table below.

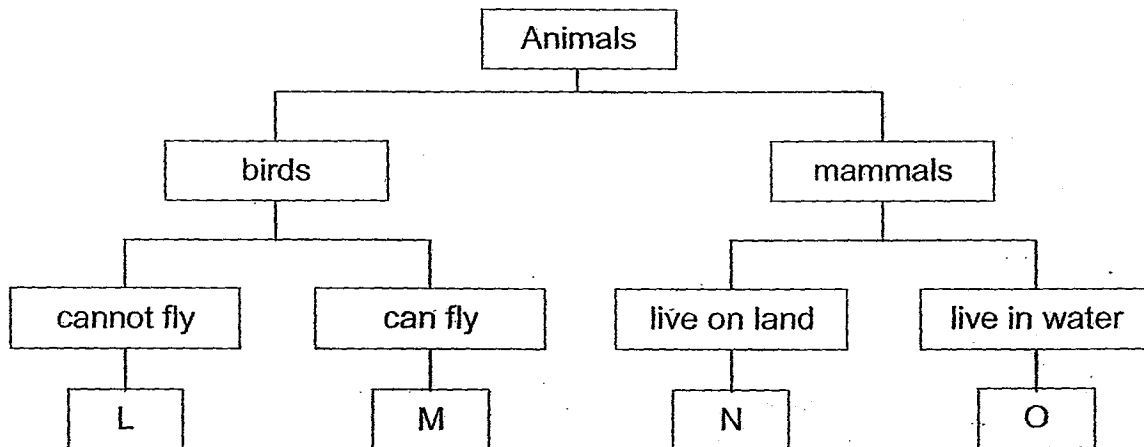
| Fruits     |            |             |            |
|------------|------------|-------------|------------|
| rough skin |            | smooth skin |            |
| one seed   | many seeds | one seed    | many seeds |
| P          | Q          | R           | S          |



Which of the following letters, P, Q, R, or S, represents the above fruit?

- (1) P
- (2) Q
- (3) R
- (4) S

4. Study the classification diagram below.



Which of the following letters, L, M, N or O, represents a penguin in the classification diagram?

- (1) L
- (2) M
- (3) N
- (4) O