



Anglo-Chinese School (Primary)  
MID-YEAR EXAMINATION 2010  
SCIENCE  
PRIMARY FOUR  
BOOKLET A

Name: \_\_\_\_\_ (     )     Class: Primary 4

Date: 13 May 2010

Duration of paper: 1h 45 min

\_\_\_\_\_  
Parent's/Guardian's signature

**INSTRUCTION TO CANDIDATES**

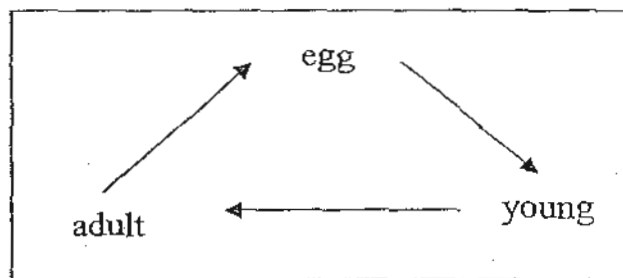
1. This question paper consists of 21 printed pages.
2. Do not turn this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answer on the Optical Answer Sheet (OAS) provided.

For each of the following questions 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. (30 x 2 marks) (60 marks)

1 Which one of the following changes does not form a cycle?

- (1) Earthquake
- (2) Sunrise and sunset
- (3) Four seasons of the year
- (4) Changes in the ocean tide daily

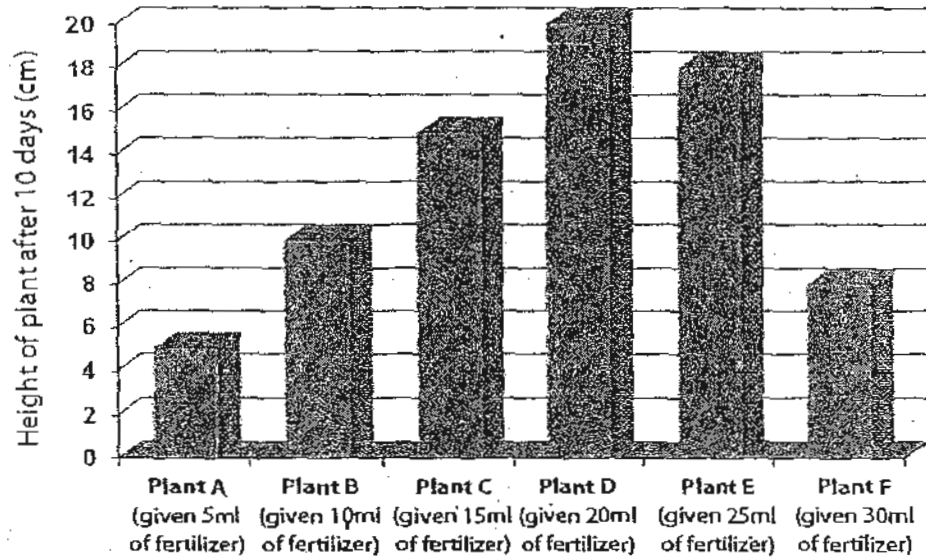
2 Look at the diagram below.



Which of the following animals have the same stages in its life cycle as shown in the diagram above?

- A: Frog
  - B: Moth
  - C: Chicken
  - D: Cockroach
- (1) A, B and C only
  - (2) A, B and D only
  - (3) A, C and D only
  - (4) B, C and D only

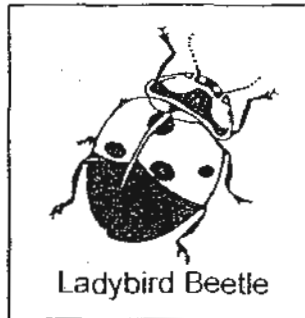
- 3 Peter conducted an experiment with 6 identical plants. He gave each plant different amount of fertilizer and measured the heights of the plants after ten days. He plotted a bar graph as shown below.



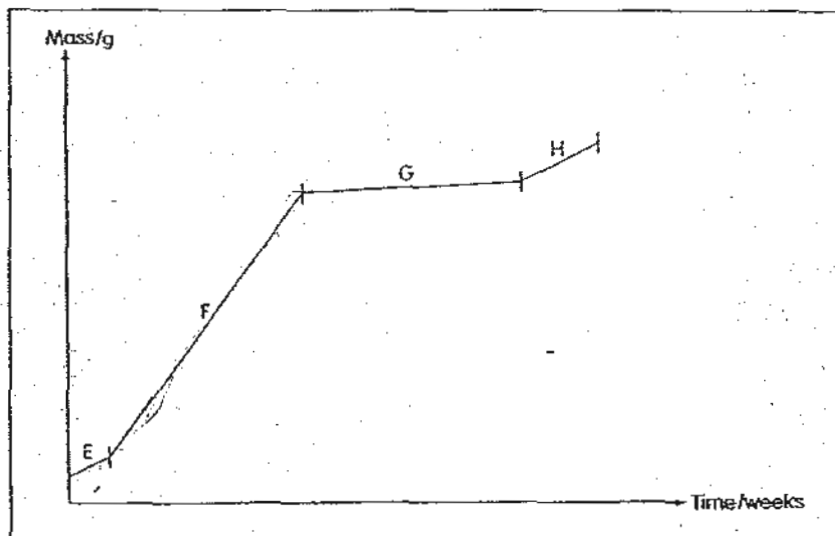
What was the aim of Peter's experiment?

- (1) To find out if fertilizers are good for plants.
- (2) To find out the maximum height that a plant can grow.
- (3) To find out if different types of fertilizers affect the growth of the plants.
- (4) To find out if the amount of fertilizer given to a plant affects its growth.

- 4 Which animal has the same number of stages in its life cycle as the animal shown below?



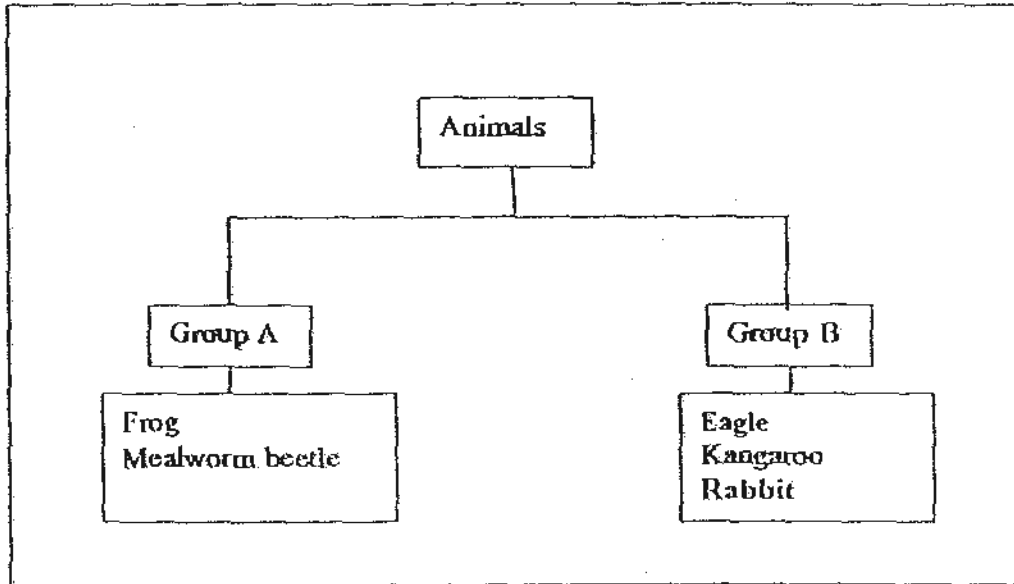
- (1) Duck  
(2) Human  
(3) Grasshopper  
(4) Mosquito
- 5 The graph below shows the mass of a butterfly which has been kept in a room for 3 weeks. The butterfly is undergoing changes as it goes through its life cycle.



At which stage is the butterfly in its pupa stage?

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

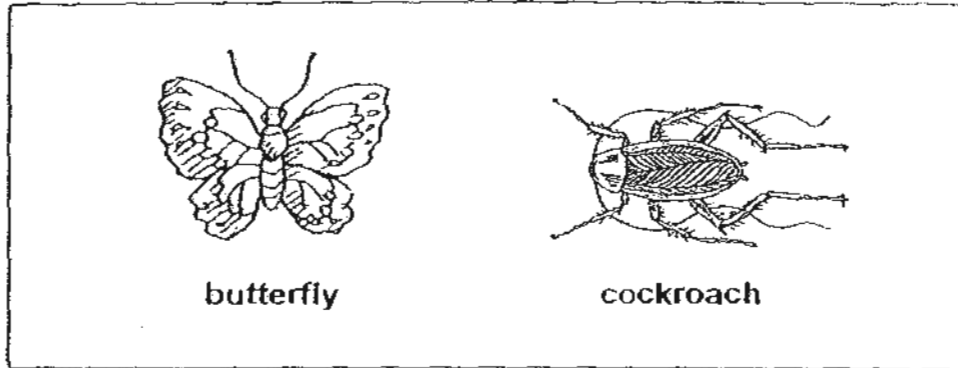
6 Study the classification chart below.



Which one of the following shows the most appropriate headings for Group A and Group B?

|     | Group A                            | Group B                     |
|-----|------------------------------------|-----------------------------|
| (1) | Insects                            | Non-insects                 |
| (2) | Reproduce by laying eggs           | Reproduce by giving birth   |
| (3) | Have a 4-stage life cycle          | Have a 3-stage life cycle   |
| (4) | Young do not resemble their adults | Young resemble their adults |

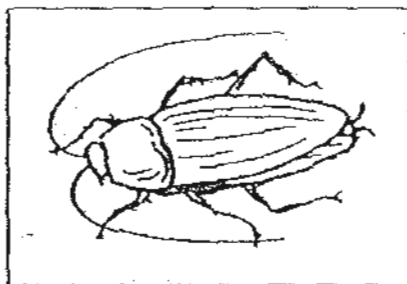
7 Study the following animals.



Which one of the following shows the similarity and difference between the animals above?

|     | Similarity                    | Difference   |
|-----|-------------------------------|--|
| (1) | Both animals are not insects. | The butterfly has a pair of wings but the cockroach does not.  |
| (2) | Both animals are not insects. | The butterfly does not have legs but the cockroach has legs.   |
| (3) | Both animals are insects.     | The butterfly has a 4-stage life cycle but the cockroach has a 3-stage life cycle.                       |
| (4) | Both animals are insects.     | The young of a butterfly resembles the adult but the young of the cockroach does not resemble the adult. |

8 The diagram below shows an animal.



Which one of the following statements about its young is true?

- (1) Its young does not have wings.
- (2) Its young does not hatch from eggs.
- (3) Its young is larger in size than the adult.
- (4) Its young does not have a pair of feelers.

9 Benjamin observed the properties of some substances.

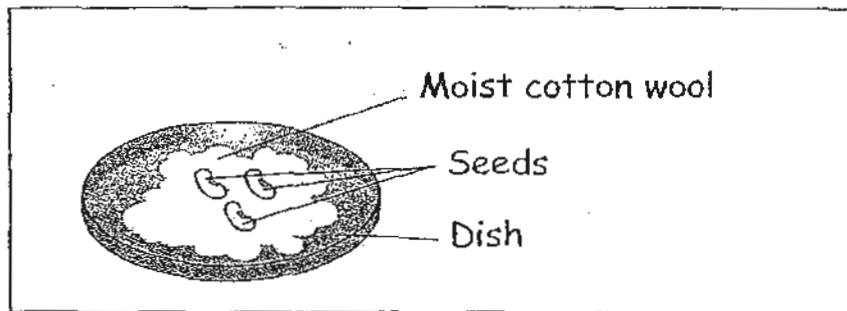
A tick (✓) indicated that the substance has the property while a (X) indicated that the substance does not have the property listed.

| Properties                     | Substance A | Substance B | Substance C |
|--------------------------------|-------------|-------------|-------------|
| Substance has mass             | ✓           | ✓           | ✓           |
| Substance occupies space       | ✓           | ✓           | ✓           |
| Substance can be compressed    | ✓           | X           | X           |
| Substance has a definite shape | X           | X           | ✓           |

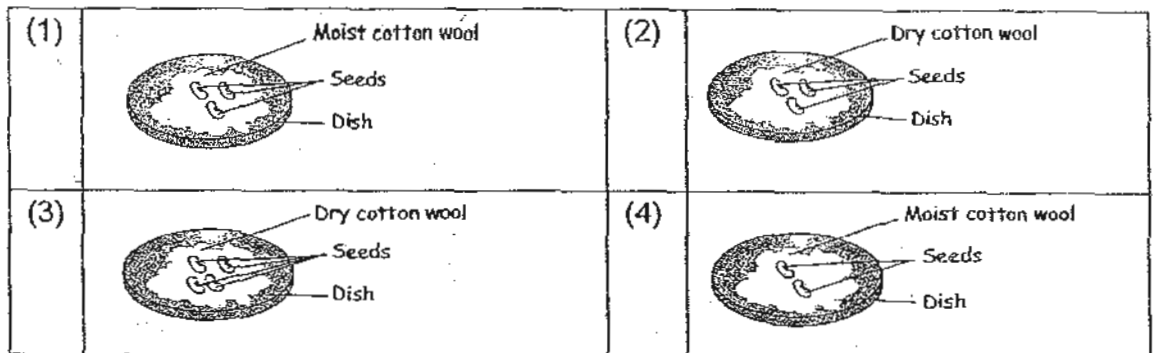
What could substances A, B and C be?

|     | Substance A | Substance B | Substance C |
|-----|-------------|-------------|-------------|
| (1) | Oxygen      | Blood       | Water       |
| (2) | Oxygen      | Blood       | Sand        |
| (3) | Air         | Milk        | Blood       |
| (4) | Air         | Milk        | Water       |

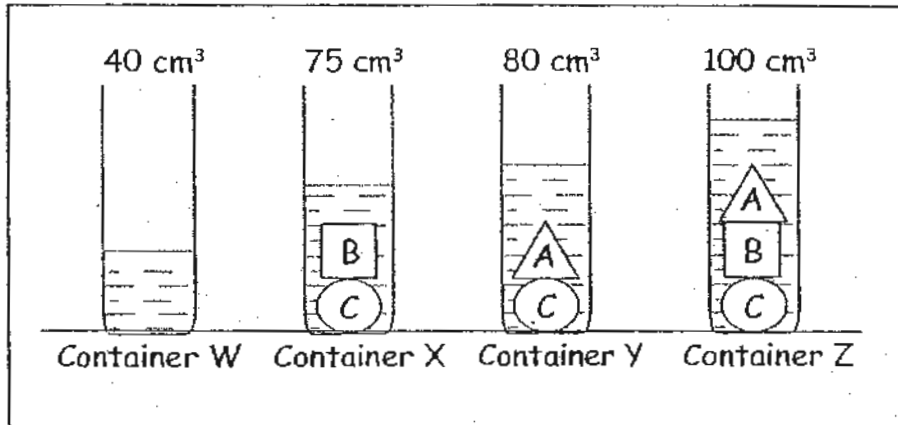
- 10 Isaac wants to investigate if water is needed in germination and so he conducts an experiment as shown below.



Which one of the following setups should he use as a control for the experiment?



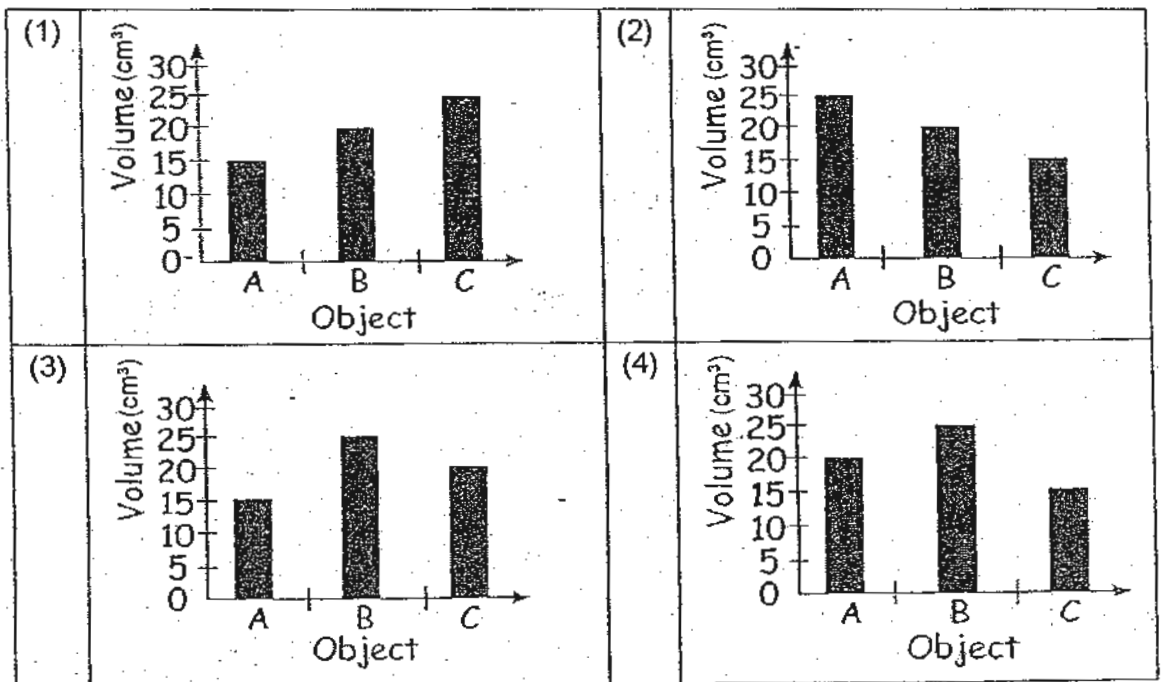
For questions 11 and 12, refer to the diagram below.  
Containers W, X, Y and Z contain the same amount of water.



11 Find the volume of C.

- (1) 15 cm<sup>3</sup>
- (2) 20 cm<sup>3</sup>
- (3) 35 cm<sup>3</sup>
- (4) 40 cm<sup>3</sup>

12 Which one of the graphs below shows the correct volumes of A, B and C?



13 Which one of the following shows the possible different states of water at room temperature?

- A: Gas
- B: Liquid
- C: Solid

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

14 Which one of the following collection of things / substances has been grouped correctly according to their states of matter?

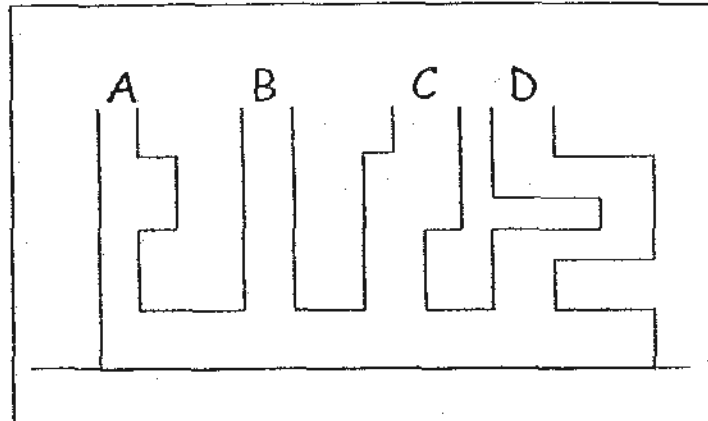
- (1) Paper, kerosene, alcohol, milk
- (2) Nitrogen, water vapour, oxygen, carbon dioxide
- (3) Toothpaste, mist, rain, iron nail
- (4) Cardboard, glass cup, apple juice, cotton wool

15 Which of the following statements are true?

- A: All matter has mass.
- B: All matter occupies space.
- C: All matter can be compressed.

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

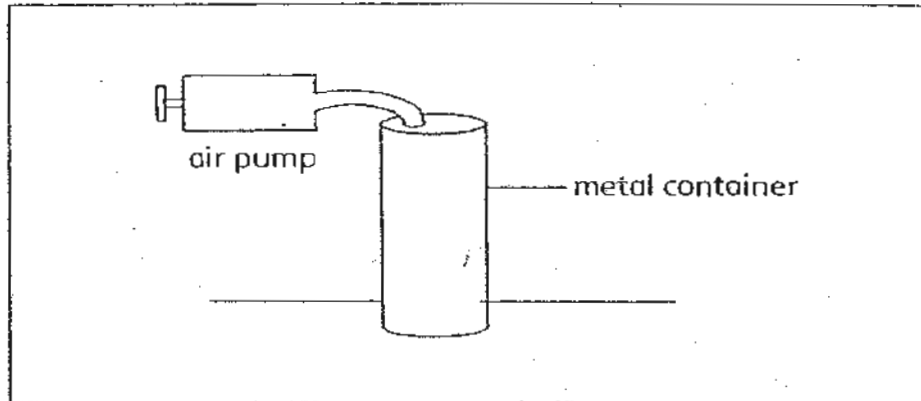
- 16 The diagram below shows a container with 4 openings, labelled A, B, C and D.



Water is poured into opening B. Which diagram shows the correct water level at the end of the experiment?

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

- 17 An air pump is attached to a metal container as shown below. The metal container has a capacity of  $6000 \text{ cm}^3$ . It is half-filled with water.

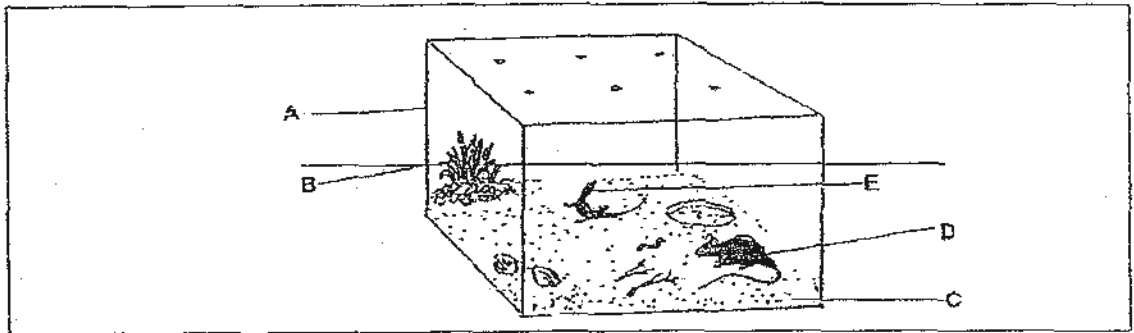


Each time the plunger of the air pump is pushed in,  $1000 \text{ cm}^3$  of air is forced into the metal container.

What will be the total volume of air inside the metal container if the plunger is pushed in twice?

- (1)  $2000 \text{ cm}^3$
  - (2)  $3000 \text{ cm}^3$
  - (3)  $5000 \text{ cm}^3$
  - (4)  $6000 \text{ cm}^3$
- 18 A lump of plasticine was dropped from a height of eight metres. Which of the following would change when it hits the ground?
- A: The mass of the plasticine.
  - B: The shape of the plasticine.
  - C: The volume of the plasticine.
- (1) A only
  - (2) B only
  - (3) A and B only
  - (4) A and C only

19 Jerald placed four things (B) to (E) in a tank (A) as shown below.



Jerald classified the things, A to E, into 2 groups of things. Which one of the following is grouped correctly?

| THINGS        |                   |
|---------------|-------------------|
|               |                   |
| Living things | Non-living things |
| (1) B         | A                 |
| (2) D         | E                 |
| (3) C         | B                 |
| (4) C         | A                 |

20 Jane classified some animals as shown below.

| Group S         | Group T                            |
|-----------------|------------------------------------|
| Bear<br>Giraffe | Parrot<br>Kingfisher<br>Ant<br>Bee |

Which one of the following is a suitable heading for Group S and T?

|     | Group S    | Group T     |
|-----|------------|-------------|
| (1) | Can run    | Can swim    |
| (2) | Give birth | Lay eggs    |
| (3) | Mammals    | Birds       |
| (4) | Meat Eater | Plant Eater |

21 Denny saw an animal in the park and observed some of its characteristics. Which of the following characteristics will help Denny to conclude that the animal is a mammal?

- A: Has hair on its body
- B: Move to find its mate
- C: Takes shelter when it rains
- D: Young seen feeding on its mother's milk

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

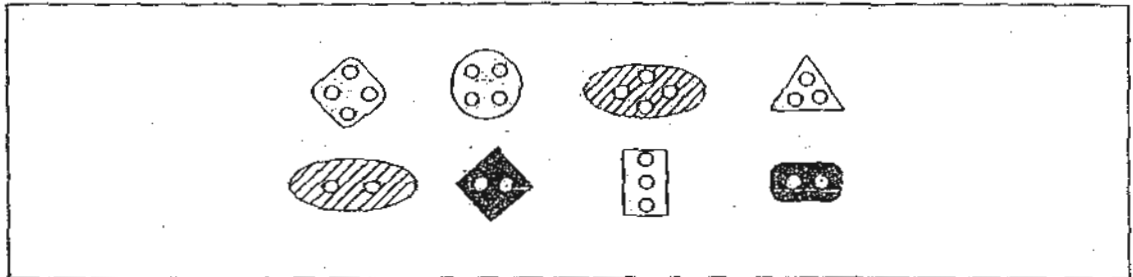
22 Anna observed a number of mushrooms under different conditions and obtained the results as shown in the table below.

| Conditions       | Number of mushrooms |
|------------------|---------------------|
| Bright and dry   | 6                   |
| Bright and moist | 14                  |
| Shady and dry    | 12                  |
| Shady and moist  | 18                  |

Based on the above information, which one of the following is not possible to tell?

- (1) Mushrooms reproduce by spores.
- (2) Mushrooms grow well under moist conditions.
- (3) Mushrooms grow best in the moist and shady place.
- (4) Mushrooms will grow better in shady places as compared to bright places.

23 Sam, Ryan and Andrew were each given a bag of 8 buttons as shown below.



Then, they were told to classify the buttons differently from one another.

The tables below show how each pupil classified the 8 buttons.

| Andrew's classification of the buttons | Ryan's classification of the buttons |
|--|--------------------------------------|
|  |                                      |



  

| Sam's classification of the buttons |  |
|-------------------------------------|--|
|                                     |  |

Which one of the following shows how the 3 boys classified the buttons?

|     | Andrew                                    | Ryan                                      | Sam                                       |
|-----|---|---|---|
| (1) | Number of corners                         | Number of holes in each button            | Pattern                                   |
| (2) | Pattern                                   | Number of corners                         | Even / odd number of holes in each button |
| (3) | Pattern                                   | Even / odd number of holes in each button | Number of corners                         |
| (4) | Even / odd number of holes in each button | Number of corners                         | Pattern                                   |

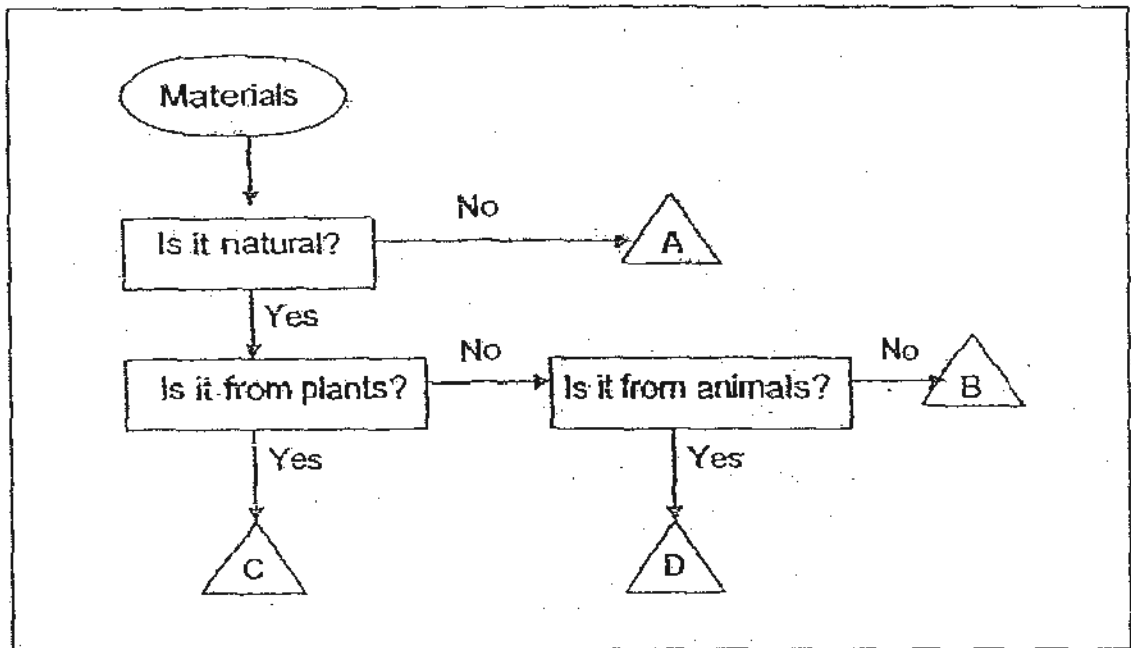
- 24 Peter conducted an experiment. He planted 2 seedlings of the same type, A and B, into two identical pots and took care of them for a week. He then measured the height of the seedlings on the 7<sup>th</sup> day.

| Seedlings                           | A  | B   |
|-------------------------------------|--|---|
| Height of the seedlings in cm       |  |  |
| Amount of fertiliser given everyday | 0ml  | 2ml   |
| Amount of water given everyday      | 40ml   | 40ml  |
| Location it was placed              | Garden   | Garden  |

Based on the information given above, what was the likely aim of the experiment?

- (1) To find out if flower pot affects the growth of the seedlings.
- (2) To find out if the location affects the growth of the seedlings.
- (3) To find out if the amount of water given affects the growth of the seedlings.
- (4) To find out if the amount of the fertiliser given affects the growth of the seedlings.





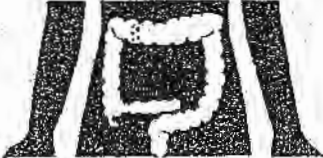
25 Study the flowchart below carefully.



Which one of the following are the correct characteristics of C and D?

| Characteristics |                        |                        |
|-----------------|------------------------|------------------------|
|                 | C                      | D                      |
| (1)             | Man-made, from animals | Natural, from animals  |
| (2)             | Natural, from plants   | Man-made, from animals |
| (3)             | Natural, from plants   | Natural, from animals  |
| (4)             | Man-made, from plants  | Man-made, from animals |

26 Study the table below carefully.

| Parts of Digestive System  | Functions   |
|--|---|
| A:    | Water is removed from the digested food. Undigested food passes out of the body through the anus.                       |
| B:    | Chew and grind the food into smaller pieces. Food mixes with saliva before it is being swallowed.                       |
| C:   | The food travels down the tube into the stomach.  |
| D:  | Digestive juices mix with the food to break it down into a soup-like form. From here, the food proceeds to the stomach. |
| E:  | The partly-digested food from the stomach continues to be further digested here.  |

Which of the above are matched **incorrectly**?

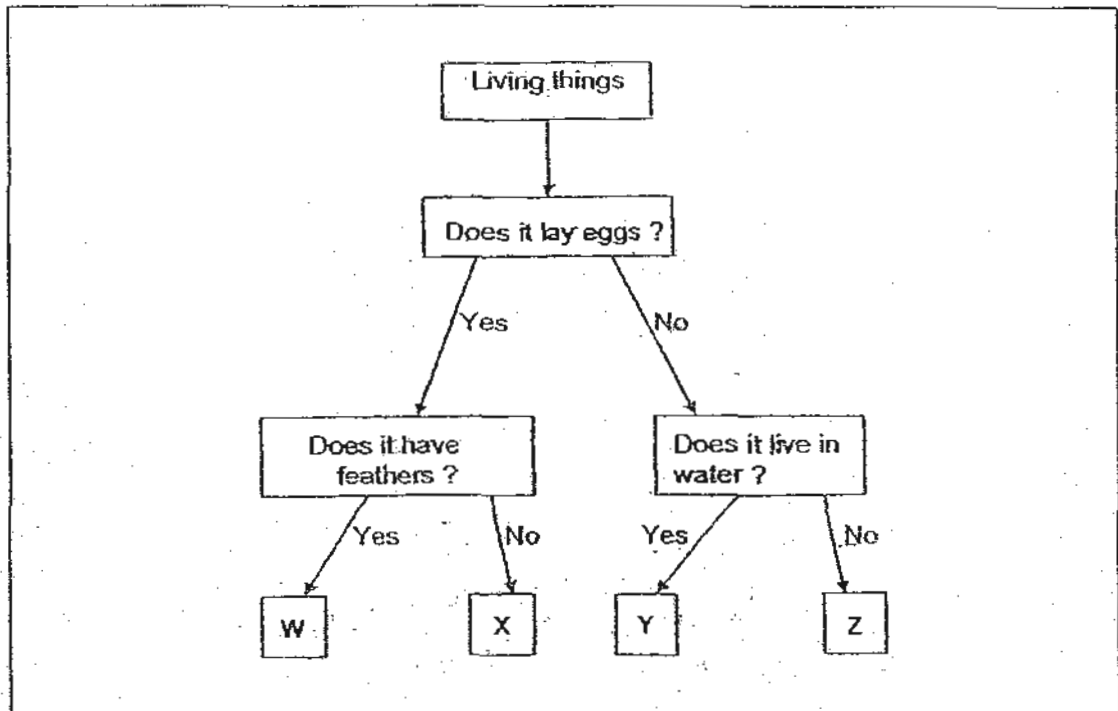
- (1) B, C, D only
- (2) B, D, E only
- (3) A, C, D only
- (4) A, D, E only

27 Mrs Wong wanted to show her pupils some bread mould. She took out a piece of bread and left it on the table. Five days later, she observed that nothing had grown on the bread.

Based on the above information, what would you advise Mrs Wong to do so as to ensure the growth of bread mould?

- (1) Put the bread in the oven
- (2) Put the bread under the sun
- (3) Put the bread in a dark and windy corner
- (4) Put the bread in a dark, warm and moist corner

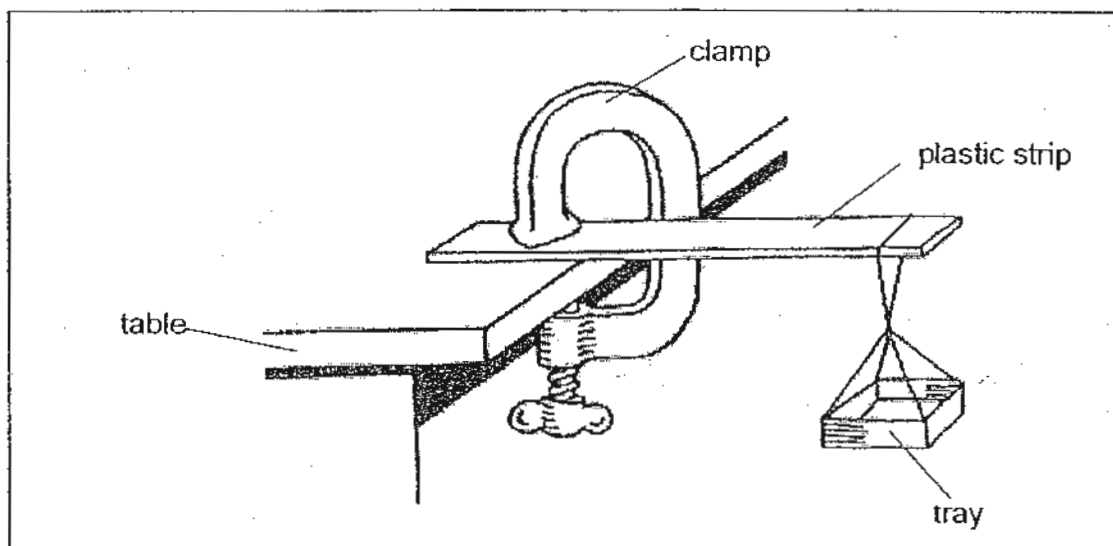
28 Study the flowchart below.



Which one of the following correctly represents animals W, X, Y and Z respectively?

|     | W       | X      | Y       | Z       |
|-----|---------|--------|---------|---------|
| (1) | Penguin | Turtle | Bat     | Guppy   |
| (2) | Bat     | Guppy  | Turtle  | Penguin |
| (3) | Penguin | Turtle | Guppy   | Bat     |
| (4) | Guppy   | Bat    | Penguin | Turtle  |

- 29 Jonathan set up an experiment as shown in the diagram below to investigate the flexibility of 2 different plastic strips, X and Y. He clamped one end of each type of plastic strip on top of a table and hung a tray over the other end.



He placed 5 g, 10 g, 15 g and 20 g of weights onto the same tray and measured the bending angle for Plastic Strip X and recorded the results in the table below. He repeated the experiment with Plastic Strip Y.

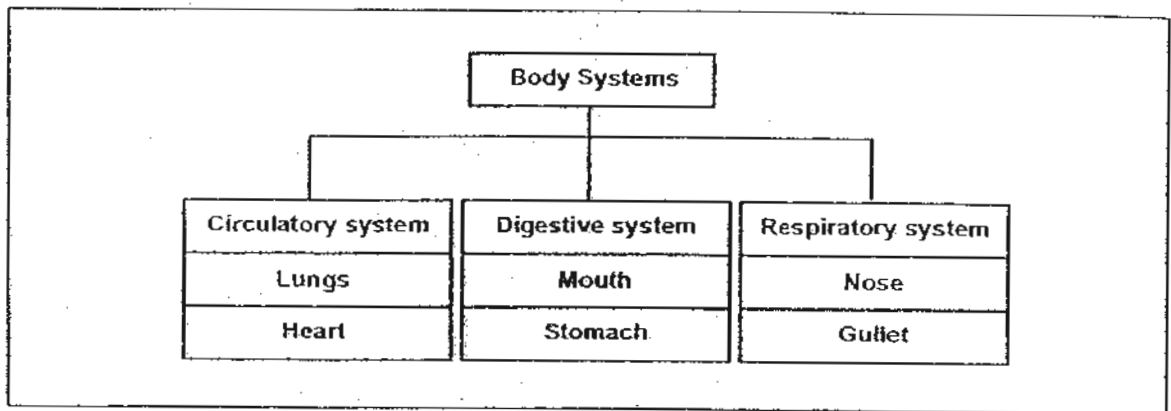
| Weight (g) | Angle of bending (°) |                 |
|------------|----------------------|-----------------|
|            | Plastic Strip X      | Plastic Strip Y |
| 5          | 8                    | 5               |
| 10         | 15                   | 10              |
| 15         | 20                   | 13              |
| 20         | 27                   | 15              |

Based on the results above, what is the conclusion of the experiment?

- A: Plastic X is more flexible than Plastic Y.
- B: Plastic X is less flexible than Plastic Y.
- C: The heavier the weight the lesser the degree of bending.
- D: The heavier the weight the more the degree of bending.

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

30 The table below shows the parts of three systems in a human body.



Which parts of the 3 systems are classified wrongly?

- (1) Nose, heart
- (2) Heart, mouth
- (3) Gullet, lungs
- (4) Mouth, stomach

END OF BOOKLET A



Anglo-Chinese School (Primary)  
MID-YEAR EXAMINATION 2010  
SCIENCE  
PRIMARY FOUR  
BOOKLET B

Name: \_\_\_\_\_ (     )     Class: Primary 4 \_\_\_\_\_

Date: 13 May 2010

Duration of paper: 1h 45 min

\_\_\_\_\_  
Parent's/Guardian's signature

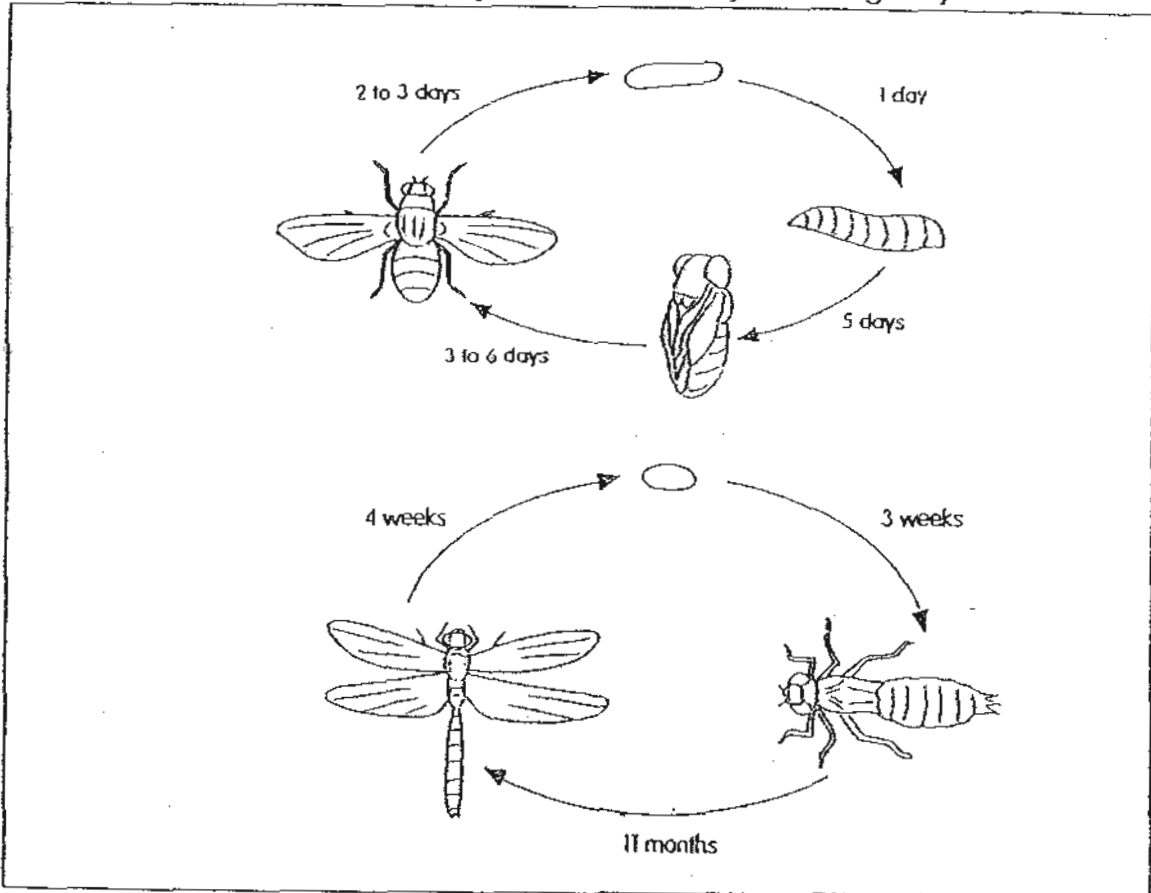
**INSTRUCTION TO CANDIDATES**

1. This question paper consists of 12 printed pages.
2. Do not turn this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.

| Booklet | Maximum marks | Marks obtained |
|---------|---------------|----------------|
| A       | 60            |                |
| B       | 40            |                |
| Total   | 100           |                |

For questions 31 to 44, write your answers in the spaces provided in this booklet. The number of marks available is shown in brackets [ ] at the end of each question or part question. (40 marks)

31 The diagrams below show the life cycles of a housefly and dragonfly.



Base on your observations only;

a) State 2 ways in which the life cycles are similar. [2]

(i) \_\_\_\_\_

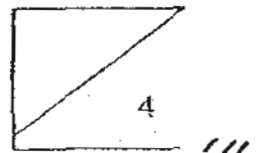
(ii) \_\_\_\_\_

Base on your observations only;

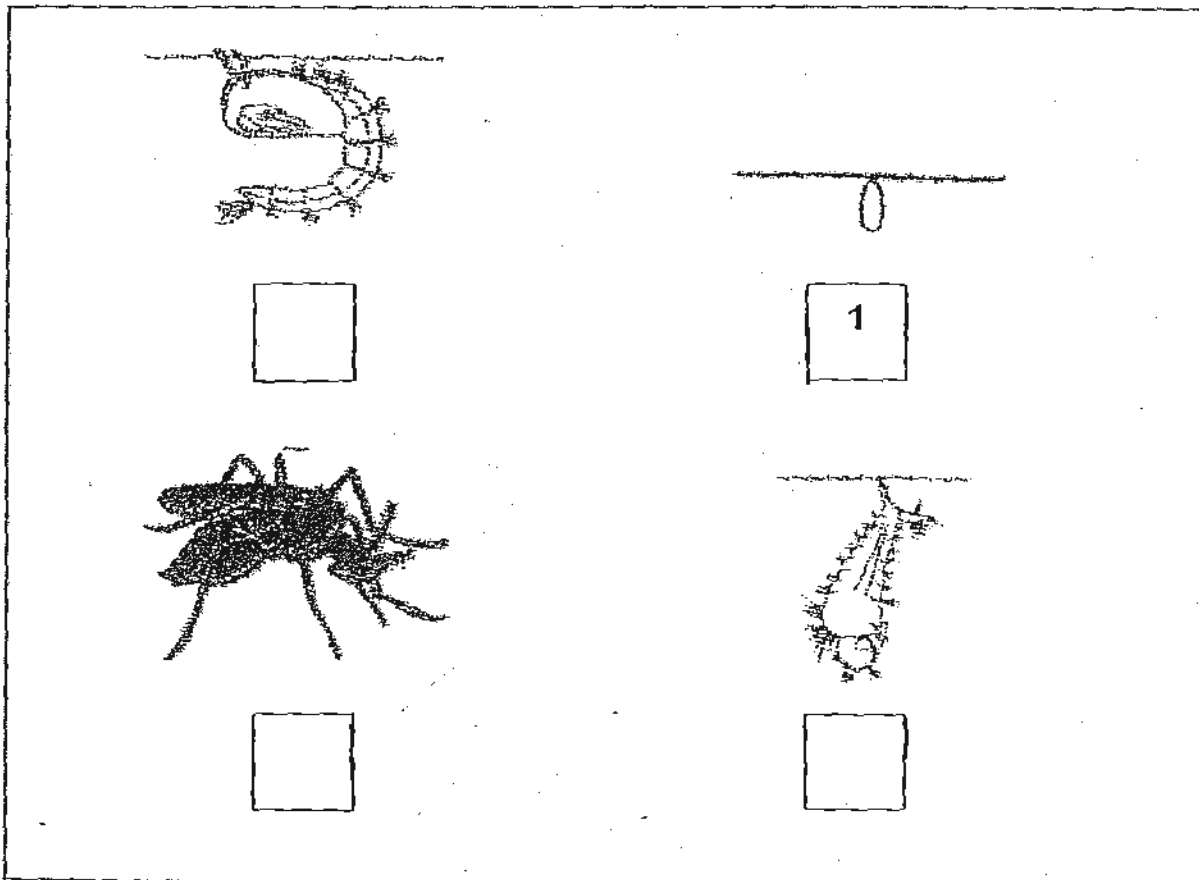
b) State 2 ways in which the life cycles are different. [2]

(i) \_\_\_\_\_

(ii) \_\_\_\_\_



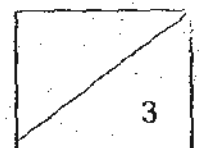
32 Study the diagrams below.



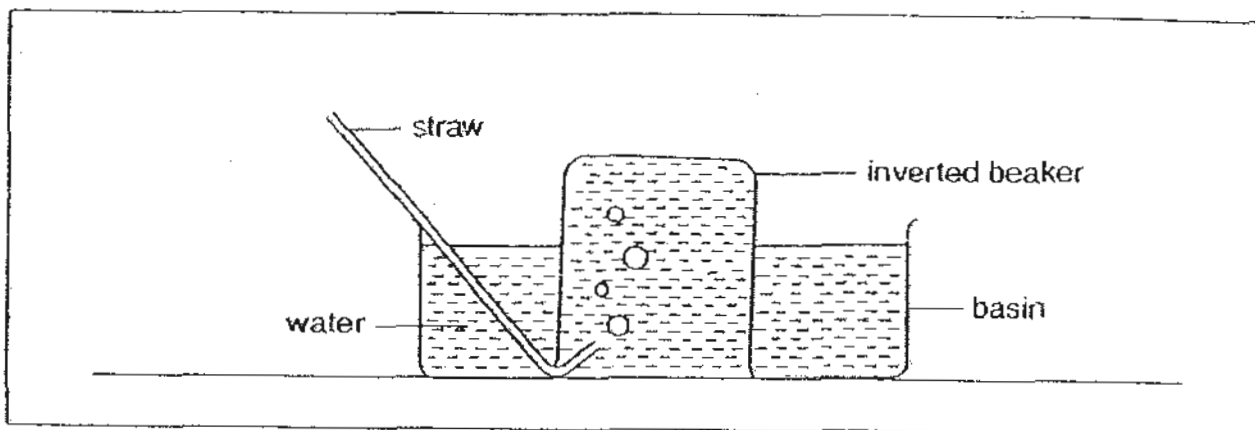
- a) Arrange the diagrams above to show the correct sequence of the life stages of a mosquito. Number 1 has been written for you. Write the numbers 2 to 4 in the spaces provided. [2]
- b) The pond is a good breeding place for mosquitoes. State one way that you can prevent the breeding of mosquitoes without polluting the water. [1]

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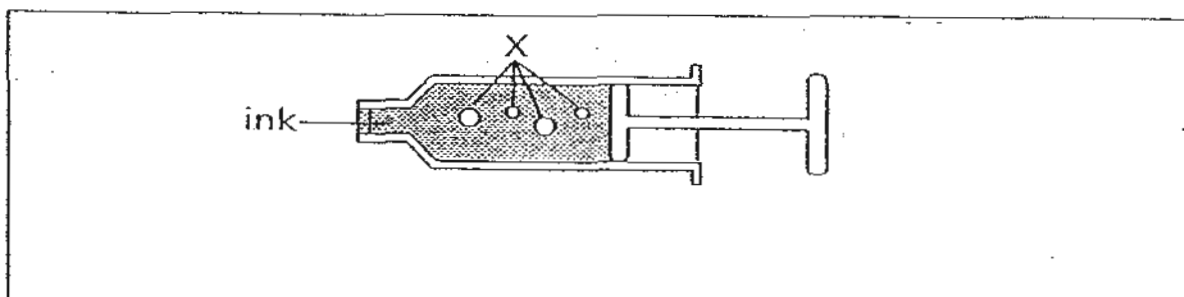
- 33 Jonathan set up the experiment below and blew into the straw.



State what will happen to the water level in the inverted beaker. Explain why.

[2]

- 34 Peter conducted an experiment as shown in the diagram below. In the process of using the syringe to draw up some ink, some bubbles of X were also taken up.



- a) Identify X.

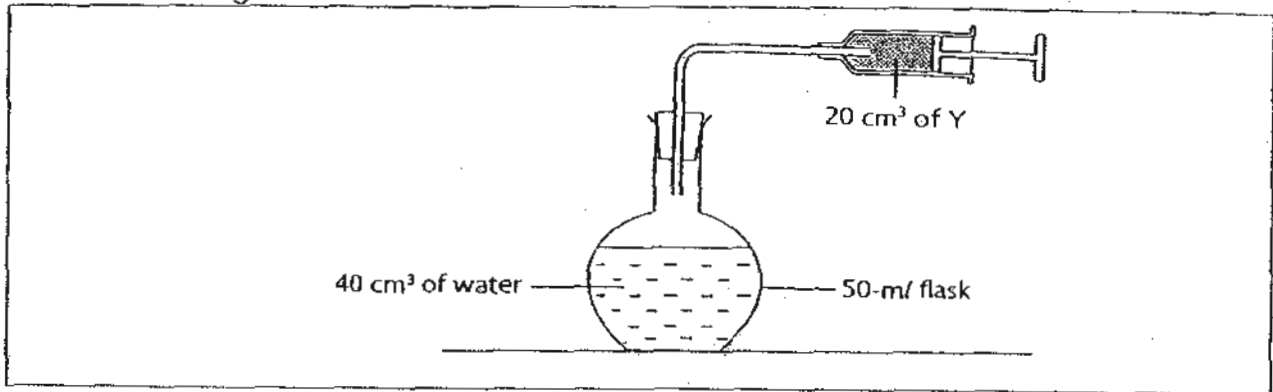
[1]

From the reading on the syringe, Peter claimed that the volume of the ink collected was  $35 \text{ cm}^3$ .

- b) Explain why the claim of  $35 \text{ cm}^3$  of the ink collected was inaccurate?

[1]

- 35 A syringe was filled with  $20 \text{ cm}^3$  of substance Y. It was then attached to a 50 ml flask containing  $40 \text{ cm}^3$  of water as shown below.



The plunger of the syringe was pushed inwards to its limit.  
 $10 \text{ cm}^3$  of Y was collected in the flask.

What can you conclude about substance Y from the experiment above?

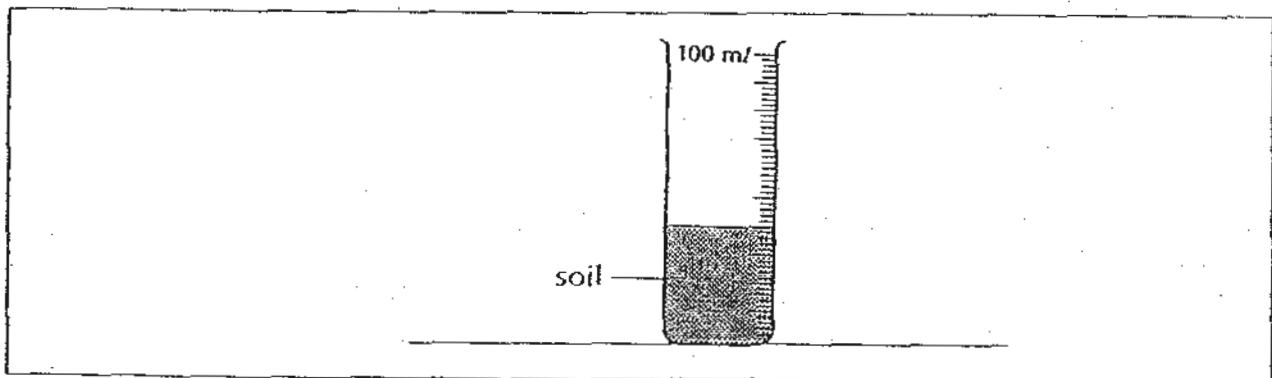
[2]

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- 36 A measuring cylinder is filled with soil until it reaches the 40 ml mark. 40 ml of water was then poured into the measuring cylinder.

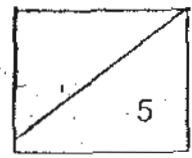


- a) Using a ruler and pen, draw the new level of the water in the diagram above. [1]  
 b) Explain why you have drawn the level of the water as such in (a). [2]

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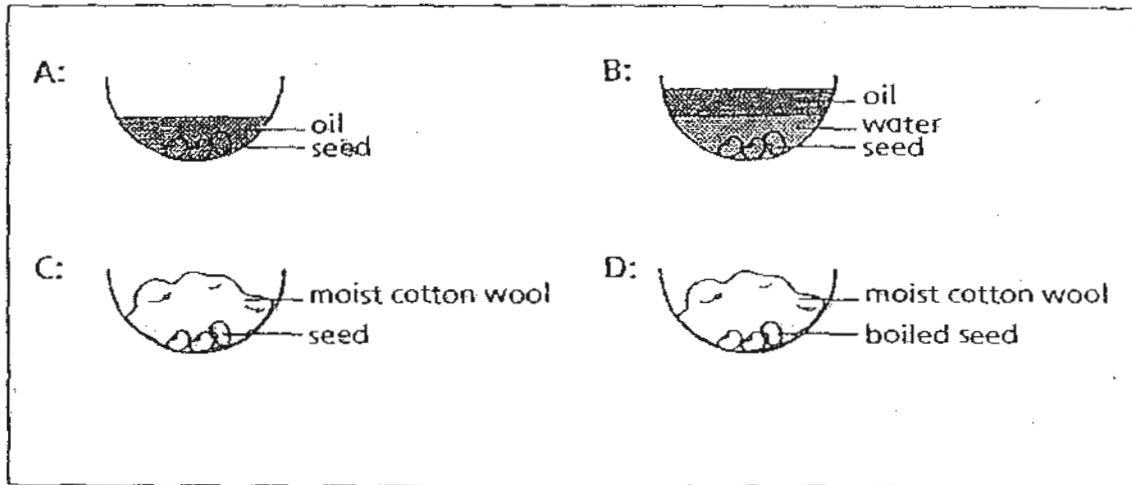


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37 Annie conducted an experiment as shown below.

Green beans were used in the experiment. She placed the 4 set-ups, A, B, C and D in a cupboard.

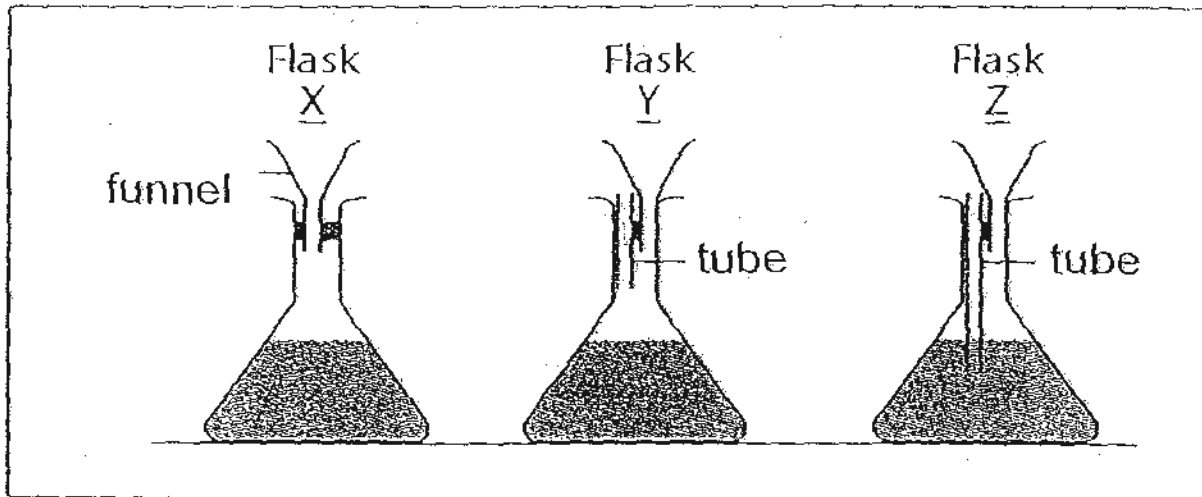


After 5 days, Annie observed that only one of the set-ups showed that the seeds germinated.

a) In which set-up will the seeds most likely germinate? [1]

b) Explain why germination could take place in that set-up. [2]

38 40 ml of water each is poured into the 3 flasks, X, Y and Z, through a funnel.

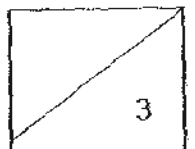


a) In which flask will the water flow through its funnel easily?

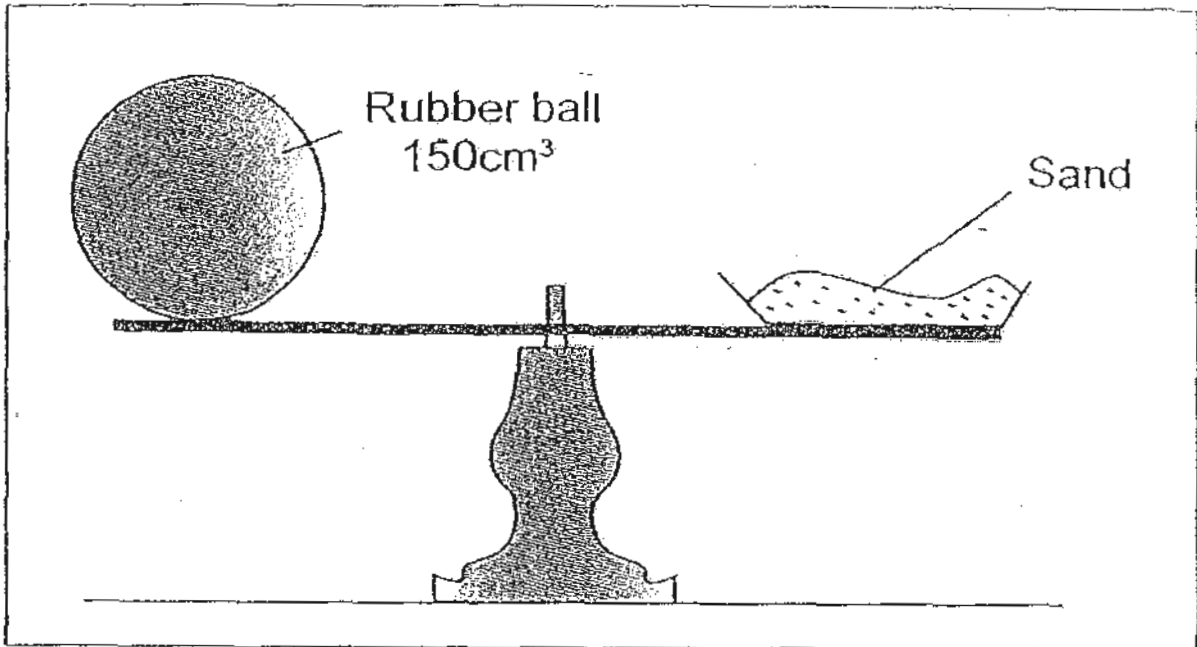
[1]

b) Explain your answer to (a)

[2]



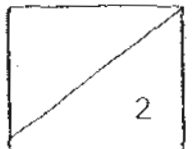
- 39 The diagram below shows a weighing balance with a rubber ball and sand on each end of the balance. The weighing balance is in perfect balance.



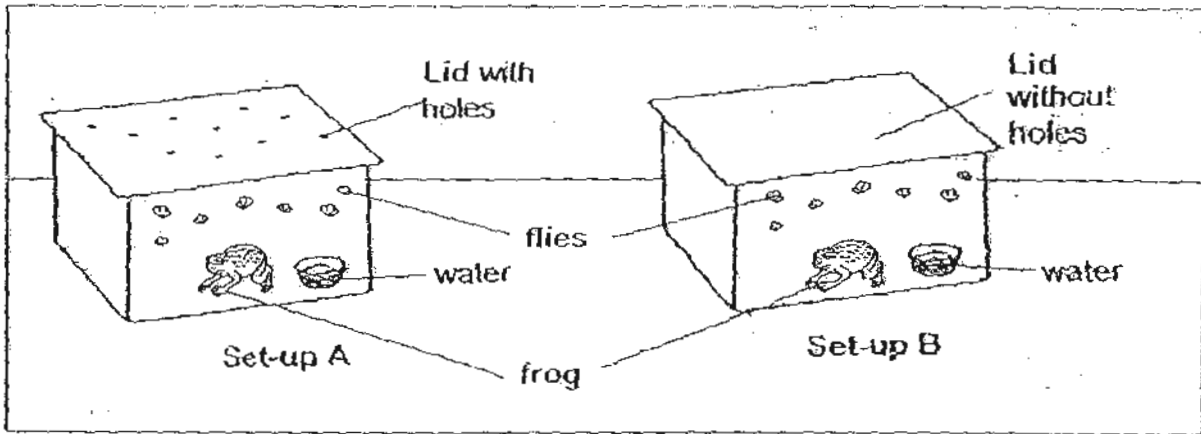
20 cm<sup>3</sup> of air was then pumped into the rubber ball.

- a) What is the volume of air in the rubber ball now? [1]

- b) What will happen to the balance now? [1]



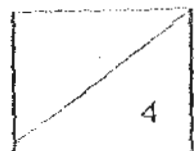
- 40 Sean set up an experiment using frogs of similar size and breed as shown below.



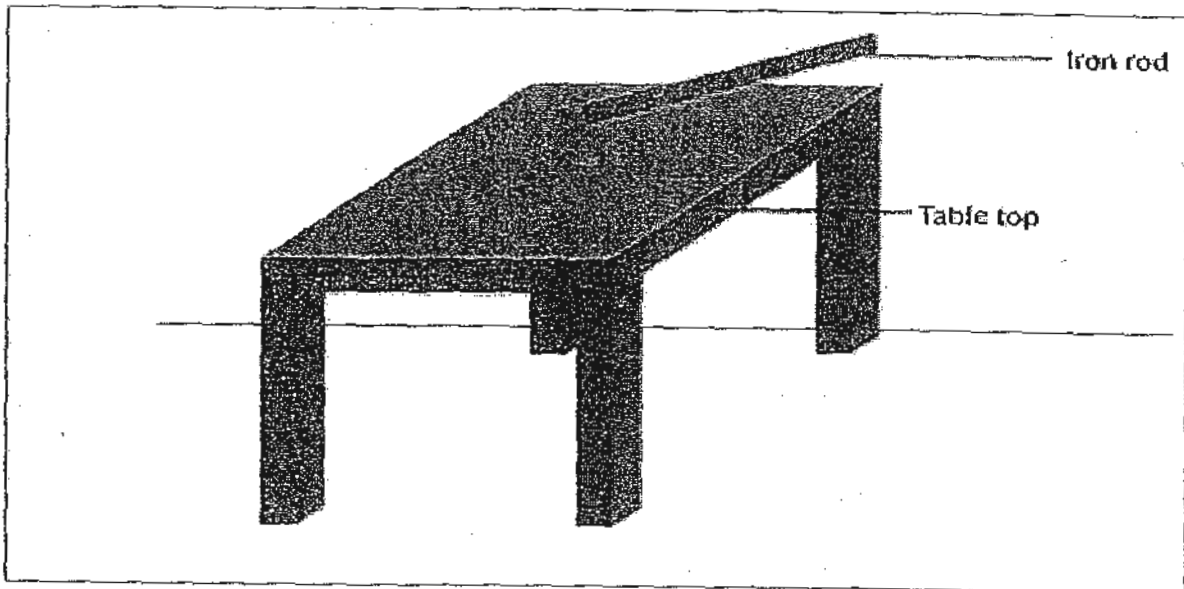
- (a) Using the information given above, what was the aim of Sean's experiment? [2]

- (b) Tick (✓) the appropriate boxes to indicate if the variables should be kept constant or changed. [2]

| Variable         | Constant | Change |
|------------------|----------|--------|
| Type of animal   |          |        |
| Number of flies  |          |        |
| Amount of water  |          |        |
| Lid of container |          |        |



- 41 Jill conducted an experiment. She scratched 4 table tops of different materials ten times each with an iron rod.



She recorded the depth of scratches found on each table top in the table below.

| Table Top | Depth of scratches (mm) |
|-----------|-------------------------|
| A         | 3                       |
| B         | 6                       |
| C         | 5                       |
| D         | 4                       |

- (a) Based on the information given, rank the table top starting from the hardest to the softest. [2]

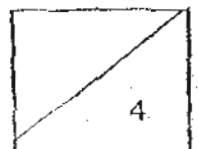


- (b) What is the aim of the experiment? [2]

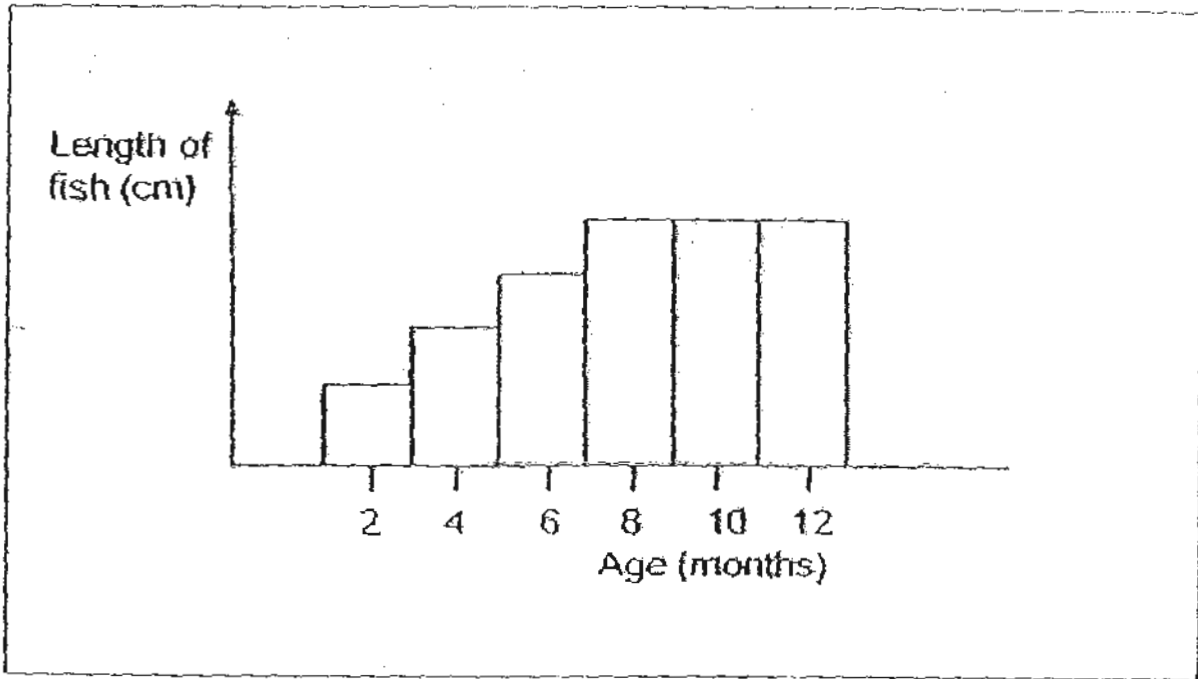
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42 The graph below shows the length of a fish at different ages.



From the graph above, state the relationship between the length of the fish and its age? [2]

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43 Using a ruler and a pen, match the following items appropriately. [3]

Outer Covering

Purpose

Hair

•

- Keep animals warm and protects them from injuries.

Feather

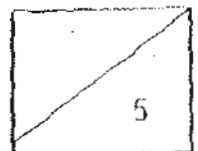
•

- Protect the animals from injuries and predators

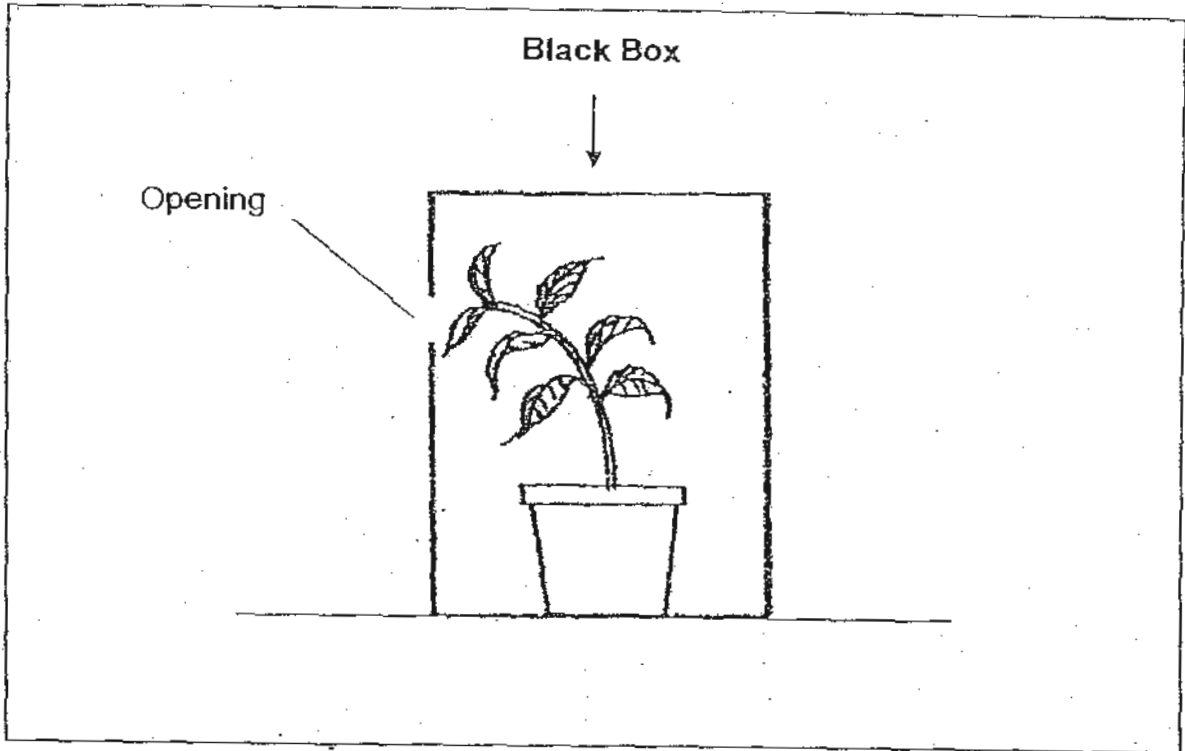
Shell

•

- Keep the animals warm and help them fly.



- 44 Ethan conducted an experiment with one potted plant. He placed the plant in a sealed black box with an opening on one side of the box. He watered the plant daily. The diagram shows what happened to the plant one week later.



- (a) Ethan concluded that the plants grew this way as there was no room for it to grow upwards. Is his conclusion correct? Explain your answer. [2]

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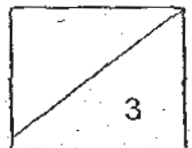
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- (b) Explain why it was important for Ethan to use the black box in his experiment. [1]

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END OF BOOKLET B



# ANSWER SHEET

**EXAM PAPER 2010**

**SCHOOL : ANGLO-CHINESE SCHOOL (PRIMARY)**  
**SUBJECT : PRIMARY 4 SCIENCE**

**TERM : MID-YEAR EXAMINATION**

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

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

**Q31ai) Both life cycles will start with an egg.**

**ii) Both life cycles have an adult stage**

**bi) The housefly have a four stage life cycle but the dragonfly have a three stage life cycle**

**ii) The time period of a whole life cycle of a dragonfly is much longer than that of a housefly.**

**Q32a)**

3 1

4 2

**b) Breed fish to eat the young mosquitoes.**

**Q33 The water level will drop.**

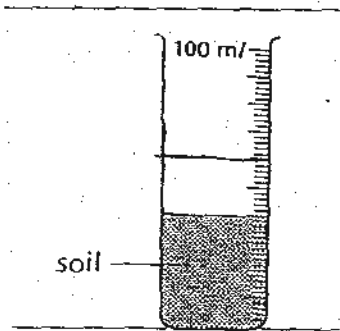
**Q34a) X is the air.**

**(X is a gas—1/2 mark)**

**b) Air takes up space hence its volume is added onto the volume of the liquid in the syringe**

**Q35 Substance Y has no definite shape and volume.**

Q36a)



b) There is space between the soil particles so water fills up the spaces.

Q37a) Set up C.

b) There is presence of air, water and warmth.

Q38a) Flask Y.

b) It is because the air is escaping the flask that is why the water flow through easily.

Q39a)  $150\text{cm}^3$

b) The sand will go up while the rubber ball will go down.

Q40a) The aim of Sean's experiment was to find out if living things need air to survive.

b) ✓  
✓  
✓  
✓

Q41a) (hardest) A, D, C, B (softest)

b) To find out which material of the table top is the hardest/softest.

Q42 The length of the fish will increase as the age of the fish increases but it will stop increasing at the age of 8 months.

Q43 Hair---Keep animals warm and protects them from injuries.

Feather---Keep the animals warm and help them fly.

Shell---Protect the animals from injuries and predators.

Q44a) No. His conclusion is wrong because plants grow towards sunlight.

b) The black box is to ensure that the plant only gets light through the opening.