



RAFFLES GIRLS' PRIMARY SCHOOL  
SEMESTRAL ASSESSMENT (2)  
2005

Name: \_\_\_\_\_ Class: P4 \_\_\_\_\_ Index No: \_\_\_\_\_

28 October 2005                      SCIENCE                      Att: 1 h 15 min

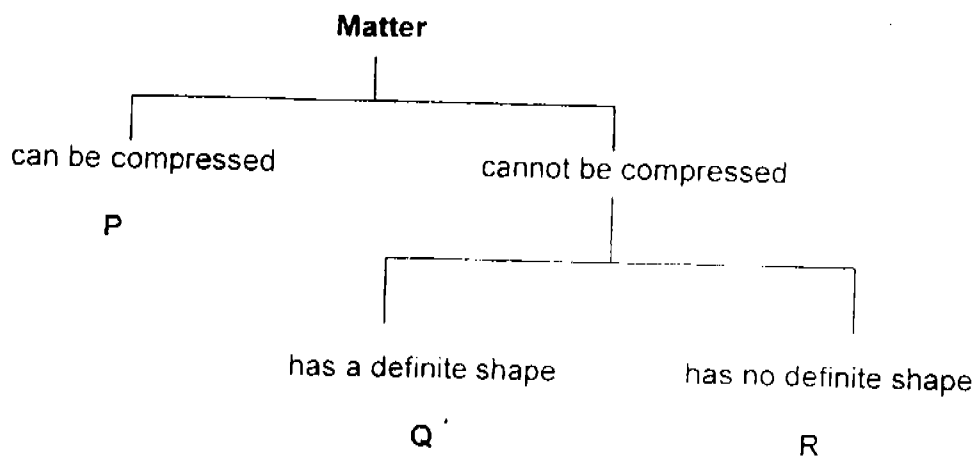
|                            |       |       |
|----------------------------|-------|-------|
| Your score out of 90 marks |       |       |
|                            | Class | Level |
| Highest score              |       |       |
| Average score              |       |       |
| Parent's signature         |       |       |

**SECTION A (25 x 2 marks)**

There are 25 questions in this section. Answer all of them. For each question, 4 suggested answers numbered 1, 2, 3 and 4 are given. Choose the most suitable answer and shade the correct oval on the Optical Answer Sheet (OAS).

1. Which of the following is/ are the difference(s) between a solid and a liquid?
- A. A solid does not occupy space but a liquid does.
- B. A solid has a definite shape but a liquid has no definite shape.
- C. A solid cannot be compressed but a liquid can be compressed.
- D. A solid has no definite volume but a liquid has a definite volume.
- (1) B only    (2) C only
- (3) A and B only                                      (4) C and D only

2. Study the classification table below.



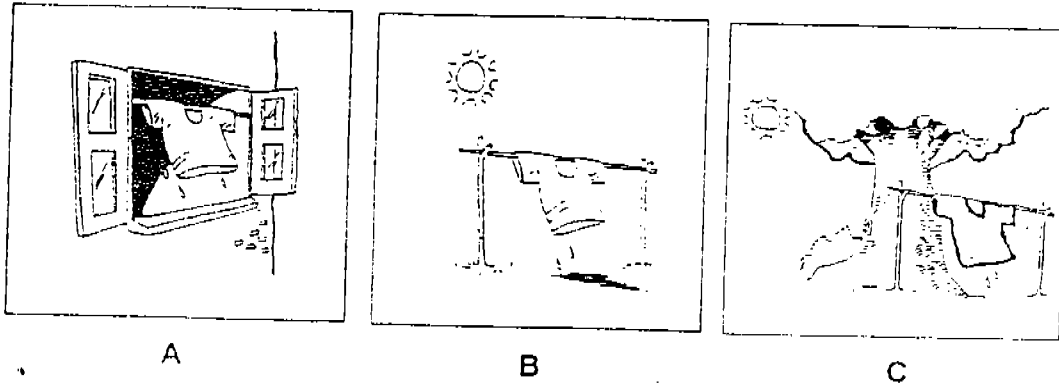
Which one of the following correctly represents P, Q and R?

|     | P            | Q            | R            |
|-----|--------------|--------------|--------------|
| (1) | water        | water vapour | ice cube     |
| (2) | water vapour | ice cube     | water        |
| (3) | ice cube     | water        | water vapour |
| (4) | water vapour | water        | ice cube     |

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Refer to the pictures below to answer Questions 3 and 4.

3.



Both Li Lin and her sister conducted an experiment to find out how long three identical T-shirts hung in different places would take to dry. The pictures above show the T-shirts drying in three different places A, B and C.

Which one of the following shows correctly the order in which the T-shirts took to dry?

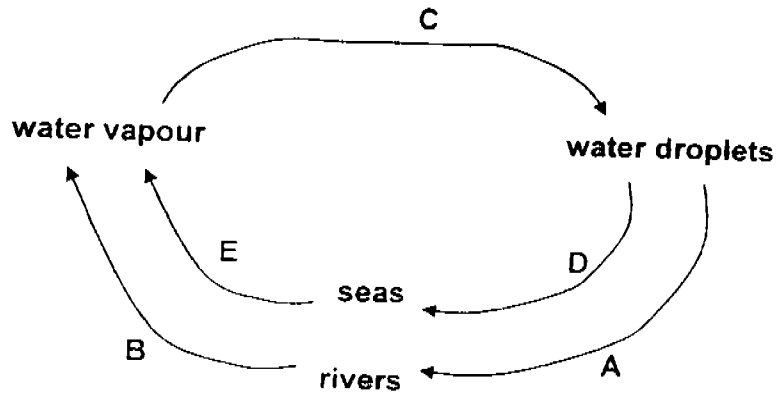
|     | shortest time to dry | → | longest time to dry |
|-----|----------------------|---|---------------------|
| (1) | A                    |   | B C                 |
| (2) | B                    |   | C A                 |
| (3) | B                    |   | A C                 |
| (4) | C                    |   | B A                 |

4. What did both Li Lin and her sister have to do in order to ensure that she had carried out a fair test?

- A. Use T-shirts made of different material.
- B. Ensure the exposed surface area of all T-shirts is different.
- C. Hang the T-shirts out to dry at the same time on the same day.

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

5. The diagram below shows part of the water cycle.



Which arrows, A, B, C, D or E, represent the two processes shown below?

|     | evaporation | condensation |
|-----|-------------|--------------|
| (1) | A           | B            |
| (2) | B           | C            |
| (3) | C           | D            |
| (4) | D           | E            |

6. Four families of similar size were trying to practise the conservation of water. The amount of water used by each family in the past four months was tabulated in a table shown below.

| Families    | Average usage of water in 2004 | Months in 2005    |                   |                   |                   |
|-------------|--------------------------------|-------------------|-------------------|-------------------|-------------------|
|             |                                | January           | February          | March             | April             |
| Lim family  | 17 m <sup>3</sup>              | 18 m <sup>3</sup> | 19 m <sup>3</sup> | 20 m <sup>3</sup> | 22 m <sup>3</sup> |
| Neo family  | 12 m <sup>3</sup>              | 15 m <sup>3</sup> | 14 m <sup>3</sup> | 12 m <sup>3</sup> | 15 m <sup>3</sup> |
| Ong family  | 10 m <sup>3</sup>              | 18 m <sup>3</sup> | 19 m <sup>3</sup> | 10 m <sup>3</sup> | 12 m <sup>3</sup> |
| Quek family | 18 m <sup>3</sup>              | 16 m <sup>3</sup> | 14 m <sup>3</sup> | 13 m <sup>3</sup> | 12 m <sup>3</sup> |

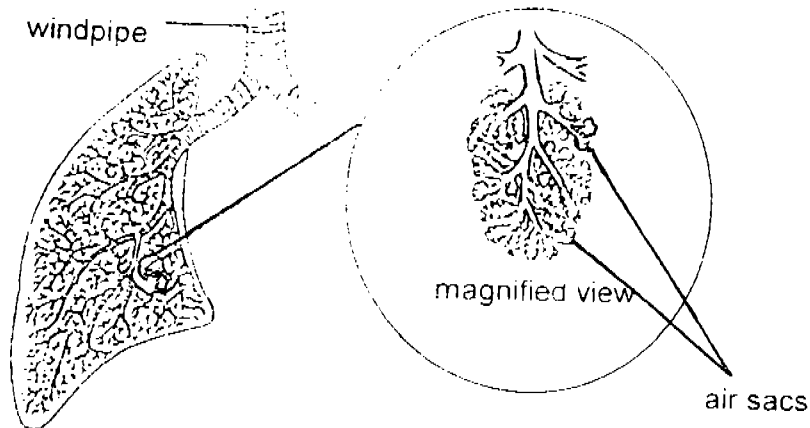
Which family appears to have been most successful in its attempts to conserve water?

- (1) Lim family
- (2) Neo family
- (3) Ong family
- (4) Quek family

7. Which one of the following shows correctly the path air takes in our body when we breathe in?

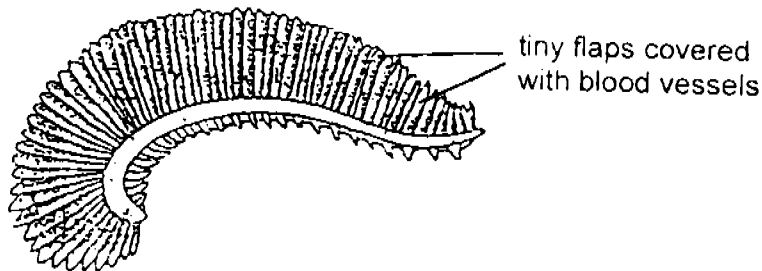
- (1) nose → gullet → lungs
- (2) mouth → gullet → heart
- (3) nose → windpipe → lungs
- (4) lungs → windpipe → nose

8. The diagram below shows part of a human respiratory system.



The windpipe branches into two air tubes in the lungs which further divide into many smaller tubes that end in numerous air sacs, providing a large surface area for gaseous exchange. These air sacs are surrounded by many blood vessels in the lungs, enabling a fast rate of gaseous exchange.

The diagram below shows the gills of a fish.

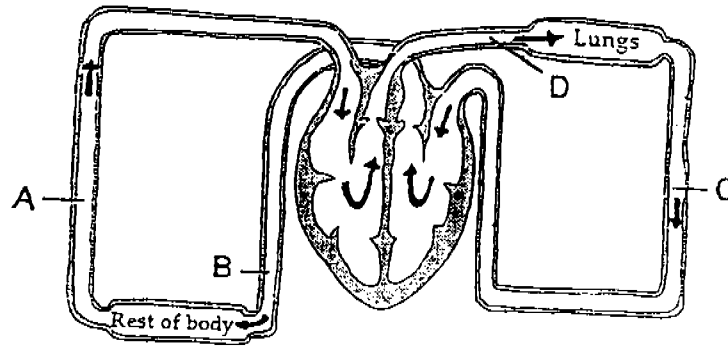


The gills of a fish have the same function as the lungs in humans. Hence, the gills have many tiny flaps to \_\_\_\_\_.

- A. increase the surface area for the absorption of oxygen
- B. enable gaseous exchange to take place at a faster rate
- C. enable gaseous exchange to take place at a slower rate
- D. increase the surface area for the absorption of carbon dioxide

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

9. The diagram below shows the circulatory system of man.



A, B, C and D represent blood vessels. The arrows show the direction in which blood flows. Which blood vessels, A, B, C or D, carry blood rich in oxygen?

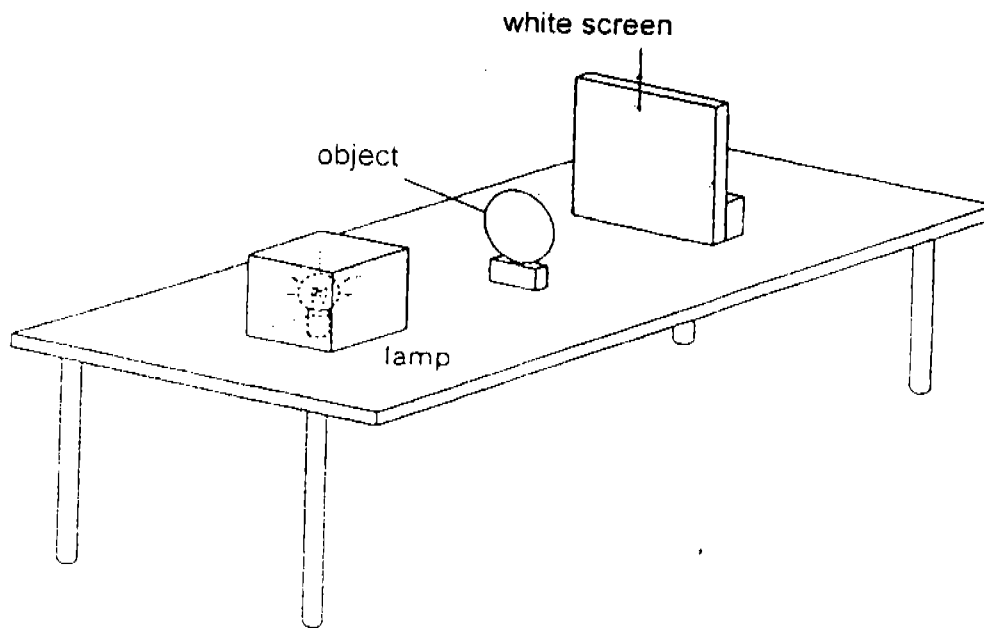
- (1) A and B only
  - (2) A and D only
  - (3) B and C only
  - (4) C and D only
10. The circulatory systems in both plants and animals \_\_\_\_\_
- (1) transport materials
  - (2) transport digested food and water
  - (3) transport oxygen and carbon dioxide
  - (4) have tubes which transport water only
11. The diagram shows the transfer of energy from the sun to the animals.

sun → P → chicken → Q → R

Which one of the following identifies P, Q and R correctly?

|     | P       | Q     | R          |
|-----|---------|-------|------------|
| (1) | grass   | man   | goat       |
| (2) | corn    | snake | eagle      |
| (3) | corn    | goat  | lion       |
| (4) | seaweed | fish  | kingfisher |

12. Jin Tai performed an experiment using the set-up below.

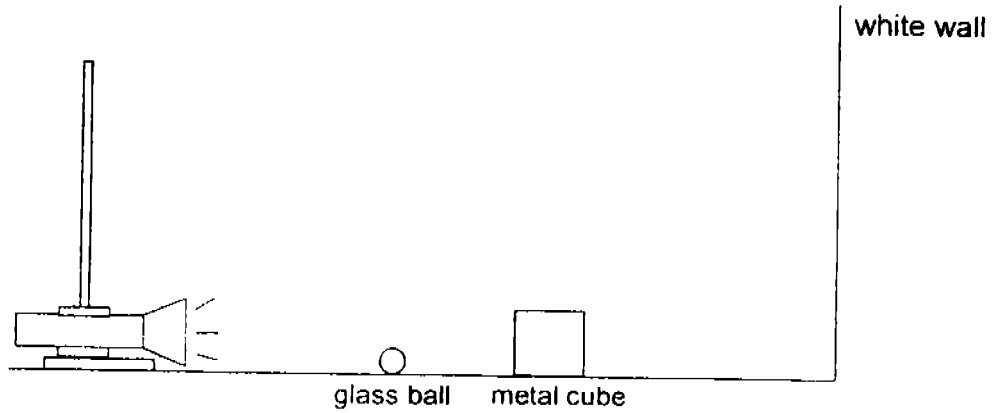


Which of the following objects will form a light shadow on the white screen?

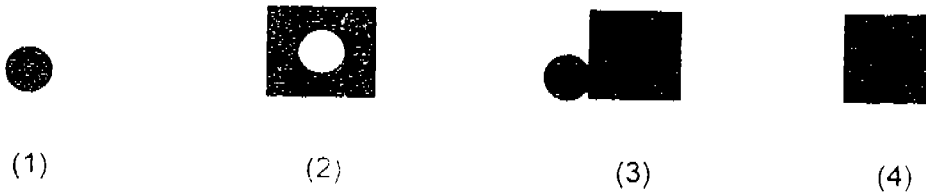
- A. clear glass
  - B. frosted glass
  - C. tracing paper
  - D. wooden plank
- 
- (1) A and C only
  - (2) B and C only
  - (3) C and D only
  - (4) A, B and D only

|  |
|--|
|  |
|--|

13. A screen, a glass ball, a metal cube and a torch are placed in a straight line as shown in the set-up below.



When the torch is switched on, a dark shadow is formed on the white wall. Which one of the following shows correctly what is seen on the white wall?

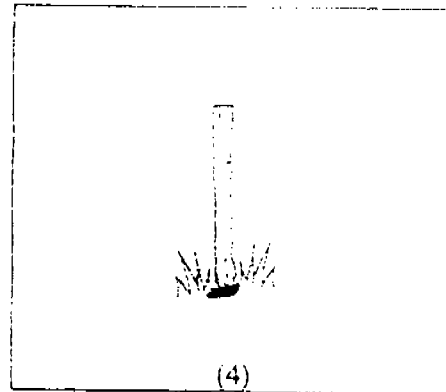
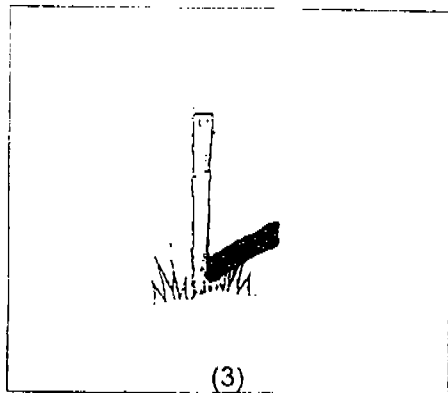
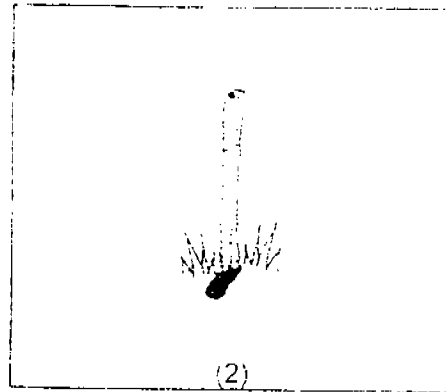
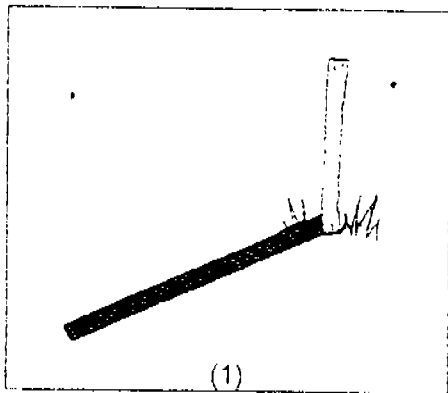




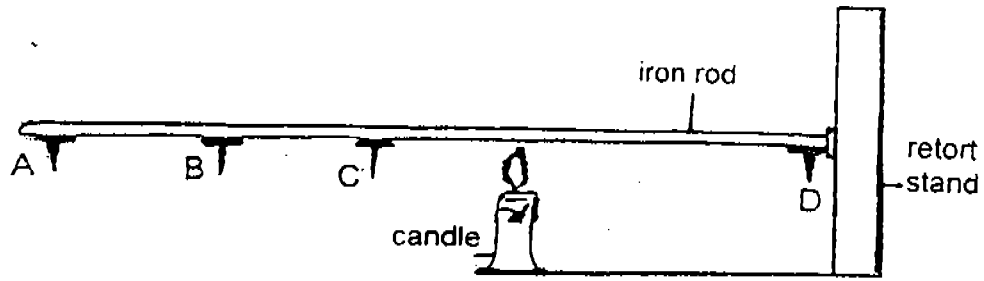
14. Shadow C was observed in the late afternoon.



The diagrams below show the shadows cast by the same pole at different times of the day. Which one of the following diagrams shows correctly the shadow cast at 8 am?

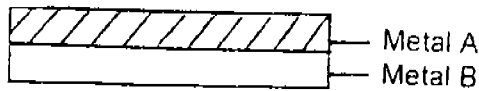


15. In the diagram below, four thumbtacks are attached to an iron rod with an equal amount of wax.

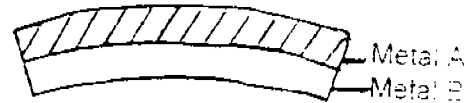


Which thumbtack(s) will drop off immediately after C?

- (1) A only
  - (2) B only
  - (3) D only
  - (4) B and D only
16. The diagrams below show a metal strip made of two different metals, A and B, before and after it had been heated.



Before heating

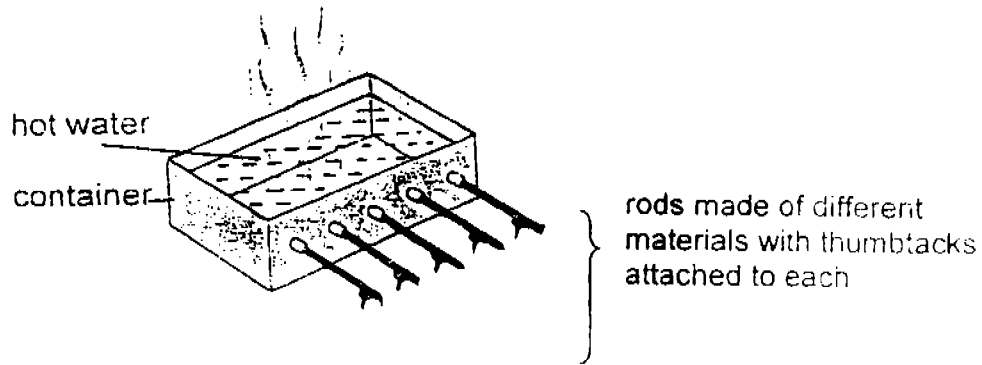


After heating

What can we conclude from this experiment?

- (1) Both metals do not expand.
- (2) Metal A expands more than metal B.
- (3) Metal B expands more than metal A.
- (4) Both metals expand by the same amount.

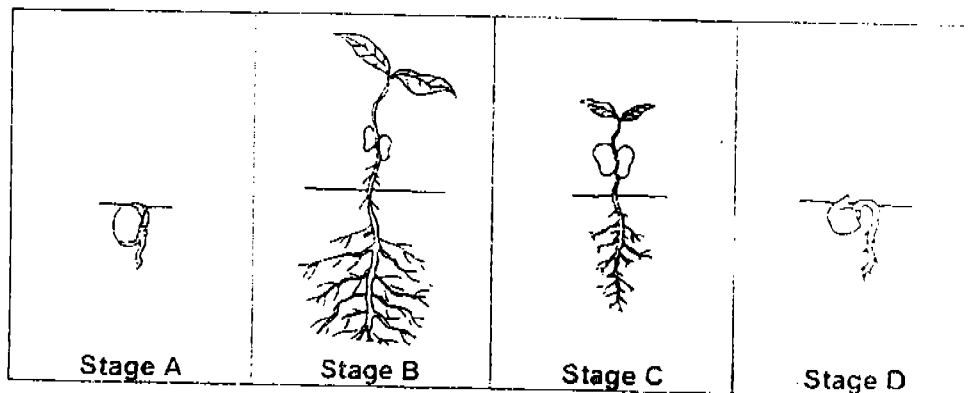
17. Mrs Lim conducted an experiment using the set-up shown below. Thumbtacks were attached to the rods with equal amounts of the same wax. All the thumbtacks were the same distance from the side of the container.



The time taken for the wax to melt at each end of the rod was taken. What was Mrs Lim trying to find out from this experiment?

She wanted to know \_\_\_\_\_.

- (1) the direction of heat flow
  - (2) if water could conduct heat
  - (3) which rod was the best conductor of heat
  - (4) the temperature at which the wax would melt
18. The pictures below show the stages of growth of a seed **NOT** arranged in order.



At which stage is the plant able to make food on its own?

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

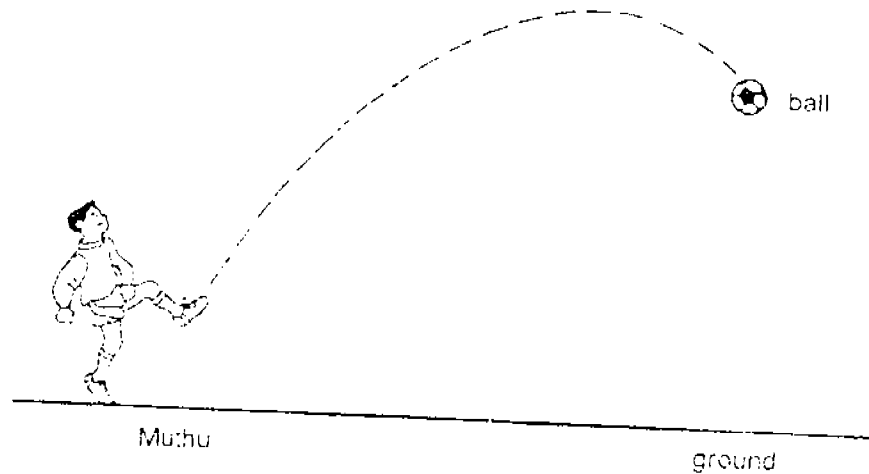
19. Linda is boiling water using a whistling kettle. She proceeds to watch her favourite TV programme while waiting for the water to boil. Which of her sense organ(s) help(s) her to know that the water in the kettle has boiled?

- (1) skin
- (2) ears
- (3) eyes
- (4) nose

20. While we are chewing food in our mouth, our tongue \_\_\_\_\_.

- (1) mixes the food with our saliva
- (2) helps us to digest the food we eat
- (3) prevents air from entering our gullet
- (4) prevents the food from entering our windpipe

21. Muthu kicked a ball high into the air as shown in the picture below.



The muscles in Muthu's leg \_\_\_\_\_ to enable him to kick the ball.

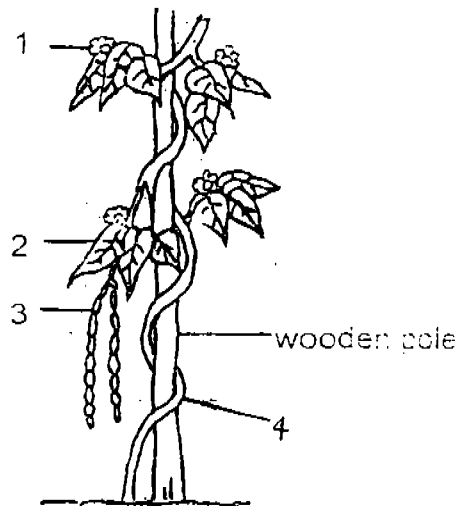
- A. relaxed
- B. contracted
- C. pulled on his bones
- D. pushed on his bones

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

22. Which one of the following statements about our skeleton is incorrect?

- (1) It gives our body shape.
- (2) It keeps our body upright.
- (3) It only protects the organs in our body.
- (4) It enables us to move by working with our muscles.

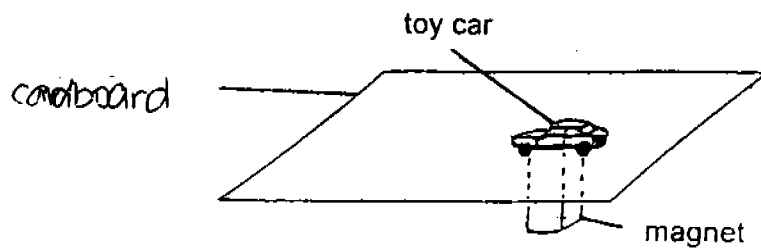
23. The parts of a plant are labelled 1, 2, 3 and 4 as shown in the picture below.



Which plant part, 1, 2, 3 or 4, is paired correctly with its function?

| Part | Main function              |
|------|----------------------------|
| 1    | for reproduction           |
| 2    | to protect the fruit       |
| 3    | to hold the plant upright  |
| 4    | to make food for the plant |

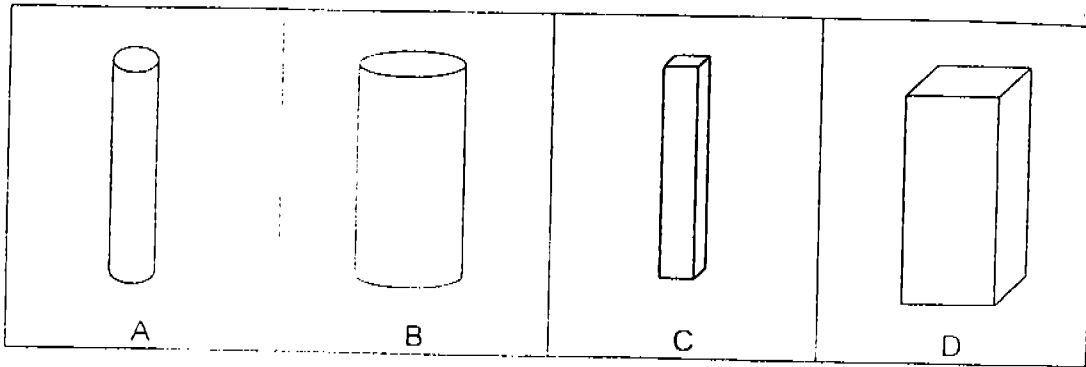
24. Tracy placed a metal toy car on a cardboard and held a magnet under the cardboard as shown in the diagram below.



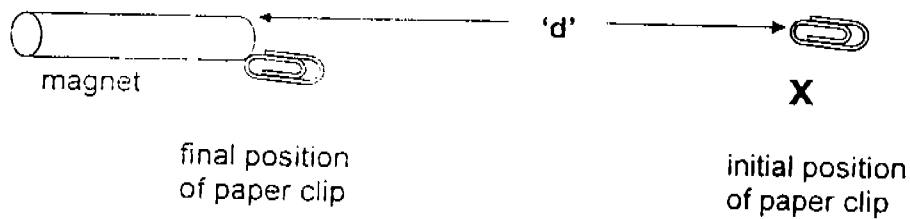
The toy car moved when the magnet under it moved. What does this experiment show?

- A. The toy car is made of plastic.
  - B. The toy car is made of a magnetic material.
  - C. The toy car and the magnet have like poles.
  - D. Magnetic force can pass through cardboard.
- (1) A and B only  
(2) A and D only  
(3) B and C only  
(4) B and D only

25. Sandy has four magnets, A, B, C and D, as shown below.



She placed a paper clip at a spot marked 'X'. One at a time, the magnets, A, B, C and D, were then brought from a distance towards the paper clip. The distance 'd' is the distance at which each magnet was able to attract the paper clip.



Sandy recorded her findings in a table shown below.

| Magnet | 'd'(cm) |
|--------|---------|
| A      | 4       |
| B      | 8       |
| C      | 12      |
| D      | 2       |

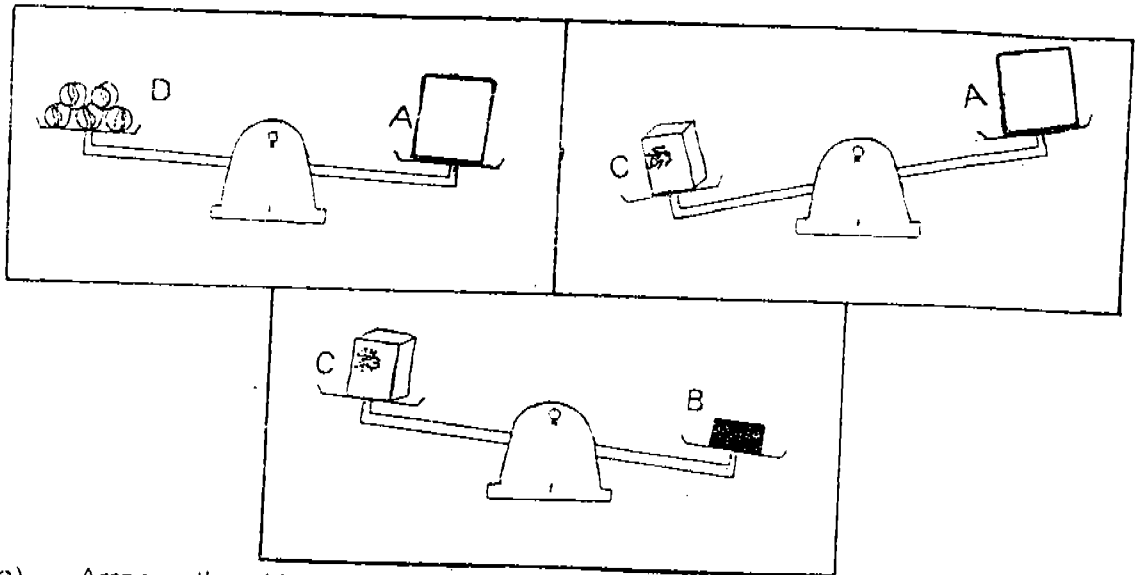
Based on the information given above, arrange the magnets, A, B, C and D, in order, from the weakest to the strongest.

|     | weakest |   |   | strongest |
|-----|---------|---|---|-----------|
| (1) | A       | B | C | D         |
| (2) | B       | D | A | C         |
| (3) | C       | A | B | D         |
| (4) | D       | A | B | C         |

**SECTION B (40 marks)**

There are 16 questions in this section. Answer all of them. Write your answers clearly in the spaces provided.

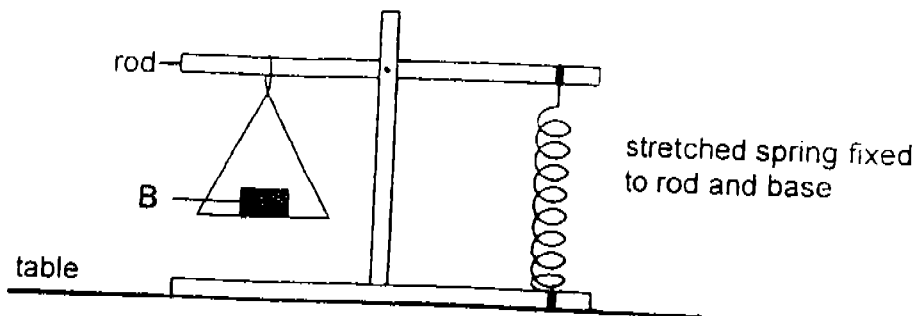
26. Ali compared the masses of objects, A, B, C and D, on balances as shown below.



- (a) Arrange the objects, A, B, C and D, according to their mass. (1 m)



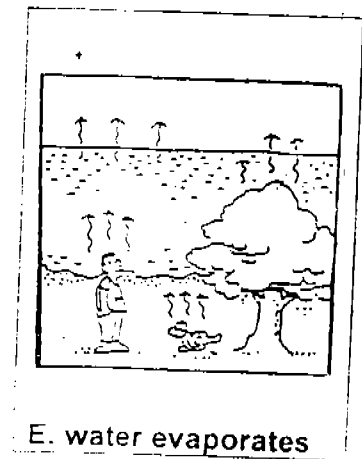
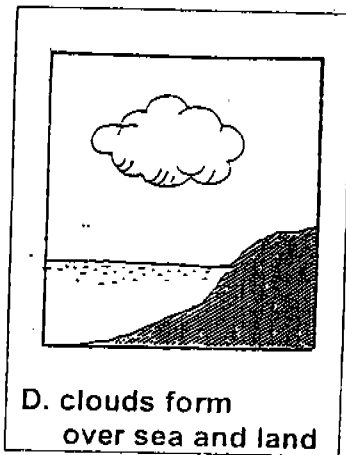
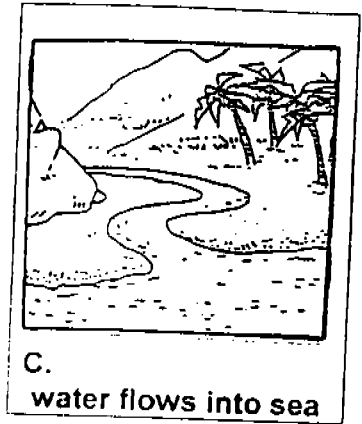
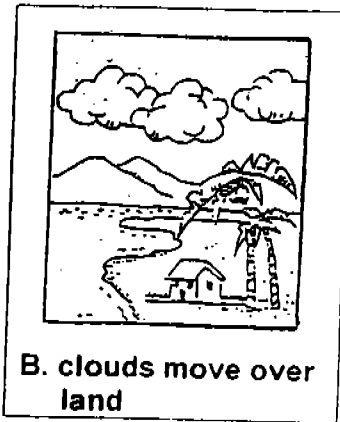
- (b) Ali then decided to set up an experiment as shown below to compare the masses of objects B and D. The rod was straight and parallel to the table when B was placed in the pan.



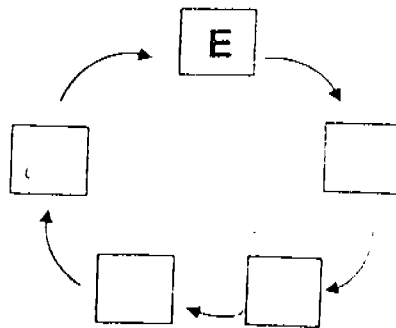
What would happen to the length of the spring when D replaced B in the pan? (1 m)



27. The pictures below show the various stages of the water cycle but they are **NOT** arranged in the correct sequence.



- (a) Write the letters A to D to show the correct order of events in the water cycle. The first letter, E, is done for you. (2 m)



- (b) Name the natural source of heat needed for the water cycle to take place. (1 m)

28. Which one of the 3Rs (**reduce, reuse, recycle**) are Siti's family members practising in each of the situations shown in the table below?  
Write '**reduce**', '**reuse**' or '**recycle**' in the boxes provided. (2 m)

| situations   | the 3Rs |
|--|---------|
| (a) Mother uses the water from the washing machine to wash the floor and windows.    |         |
| (b) Grandfather takes a shower instead of a bath.                                    |         |
| (c) Father uses a watering can to water the plants instead of a hose.                |         |
| (d) Treated water from the sea is sent to all homes for drinking and other purposes. |         |

29. Our respiratory system ensures a continuous supply of oxygen in our body.

- (a) Where does the exchange of gases take place in the human respiratory system? (1 m)

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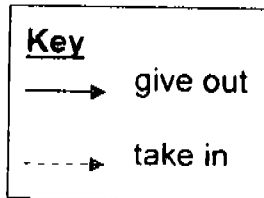
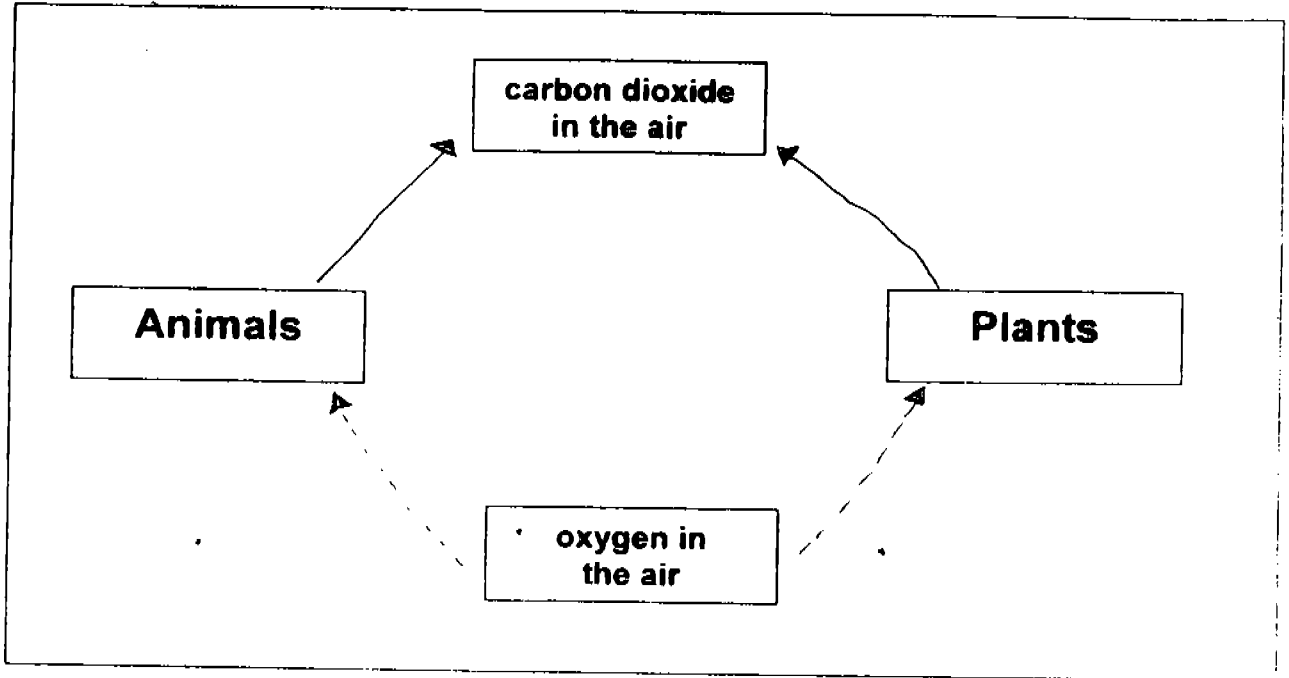
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- (b) How does the oxygen absorbed by our respiratory system get to all the other parts of our body? (1 m)

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30. (a) Using the type of arrows shown in the key, draw 4 arrows in the diagram below to show how carbon dioxide and oxygen are added to and removed from the air during respiration. (1 m)



- (b) The exchange of gases takes place through the tiny openings found in the leaves of the plants. These tiny openings are known as \_\_\_\_\_ . (1 m)

31. Write 'T' for true statement and 'F' for false statement in the boxes provided. (4 m)

|     |   |  |
|-----|---|--|
| (a) | Capillaries connect the arteries and veins.                             |  |
| (b) | Arteries have walls that are weak and thin.                             |  |
| (c) | Blood that flows from the lungs to the heart is rich in oxygen.         |  |
| (d) | The tiny tubes that transport food inside a plant also transport water. |  |

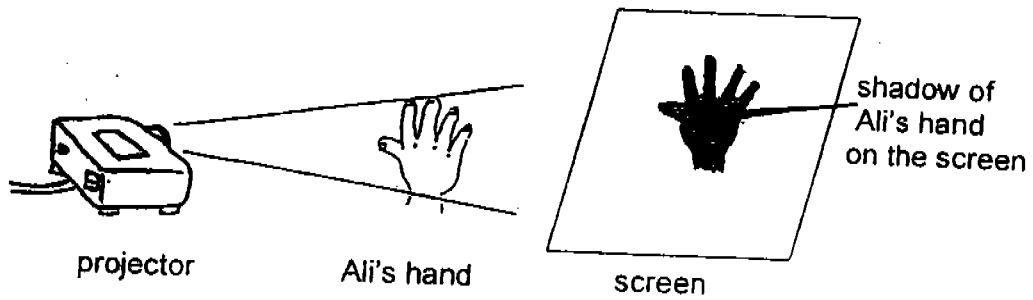
32. John does the following activities at different times during a week

| Activities |                   |
|------------|-------------------|
| A          | jogging           |
| B          | resting           |
| C          | walking           |
| D          | writing at a desk |

Complete the table below by matching the activities above to the amount of energy you think John uses up to carry them out. Write down the letters, A, B, C and D, only in the boxes below. (2 m)

| Activity | Energy used up per hour in kilojoules |
|----------|---------------------------------------|
|          | 252                                   |
|          | 400                                   |
|          | 1260                                  |
|          | 2268                                  |

33. Ali placed his hand in front of a projector as shown in the following set-up.



(a) Why was the shadow of Ali's hand cast on the screen? (1 m)

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(b) What can be done to make the shadow of Ali's hand on the screen smaller? (1 m)

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(c) What happens to the shadow if the screen is moved further away from Ali's hand? (1 m)

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34. The ice cubes below were taken from a freezer and left on a table for a few minutes.



- (a) What would happen to the ice cubes? ( $\frac{1}{2}$  m)

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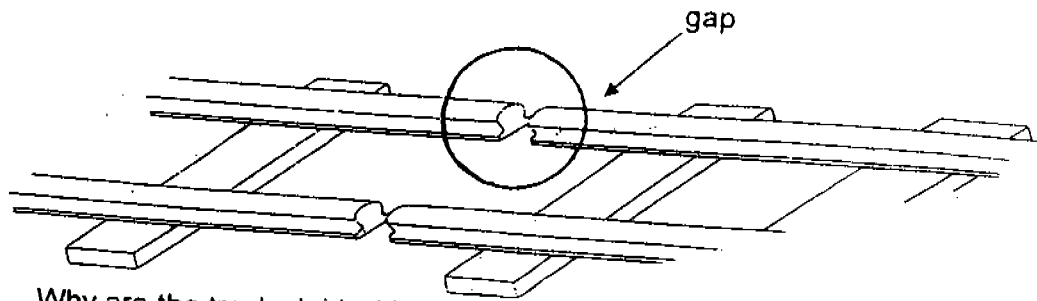
- (b) Explain why this happens. ( $1\frac{1}{2}$  m)

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35. (a) Look at the railway track shown below.



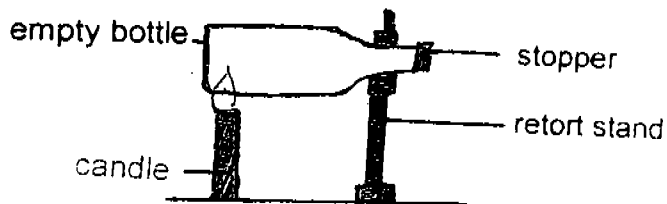
Why are the tracks laid with the gaps shown? (1 m)

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- (b) An empty bottle is brought near a candle flame.

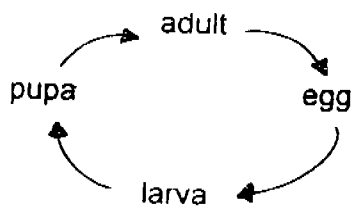


Why might the stopper pop out after some time? (1 m)

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36. (a) The diagram below shows the life cycle of a butterfly.

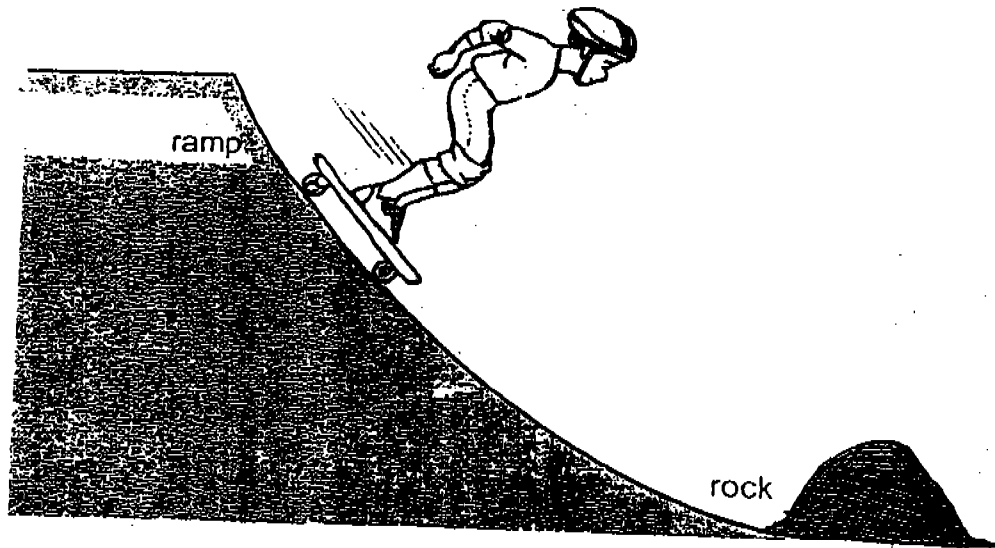


- (i) The larva of a butterfly is also called a \_\_\_\_\_ (1 m)
- (ii) During the larval stage, \_\_\_\_\_ takes place several times. (1 m)
- (b) Place ticks (✓) in the appropriate boxes in the table below to show which characteristics describe correctly the nymph and adult stages of the cockroach's life cycle. (2 m)

| Characteristics     | a cockroach nymph | a female cockroach |
|---------------------|-------------------|--------------------|
| lays eggs           |                   |                    |
| has feelers         |                   |                    |
| moults a few times  |                   |                    |
| has developed wings |                   |                    |



37.



- (a) Jeremy rode a skateboard down a ramp as shown in the picture above. Which sense organ alerted him to the presence of the rock? (1 m)

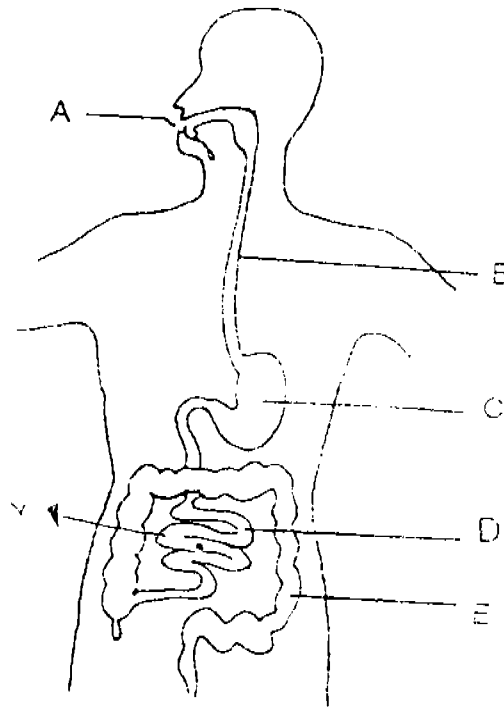
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- (b) Jane bit into an apple and told her mother that the apple was rotten. Name two senses which helped her to know this. (1 m)

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38. The diagram below shows the parts of the digestive system of man.

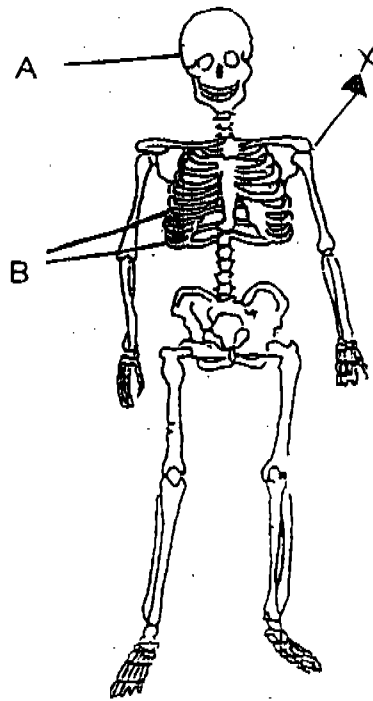


(a) Complete the table by matching the functions given to the parts, A, B, C, D or E. (2 m)

| Function  | Part |
|---|------|
| Digested food enters the blood stream and is transported to all parts of the body.                  |      |
| Food is further digested by more digestive juices but is <b>not</b> absorbed into the blood stream. |      |
| Water is absorbed from the undigested food.   |      |
| Digestion of food begins in this part of the digestive system.                                      |      |

(b) Mark an "X" on the diagram to show where food taken into the body is completely digested. (1 m)

39. Look at the skeletal system of a man below.



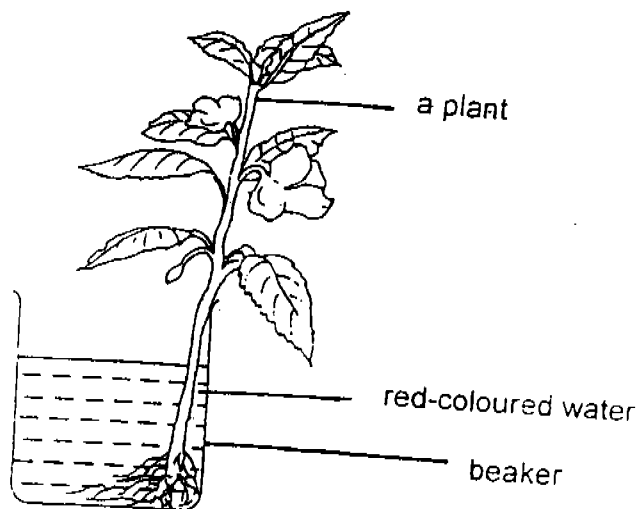
(a) The parts, A and B, protect some of the organs in the body. Name an organ that each of these parts protects. (2 m)

A protects the

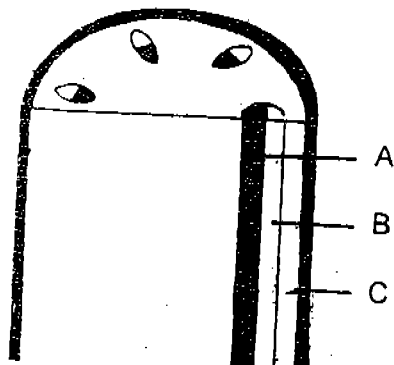
B protects the

(b) Mark an "X" on the skeleton to show where a ball-and-socket joint may be found. (1 m)

40. A plant is placed in a beaker of red-coloured water.



A few hours later, the plant is removed from the beaker and its stem is cut. The picture below shows the cross section of the stem of the plant.



(a) Which part of the stem, A, B or C, will be stained red? (1 m)

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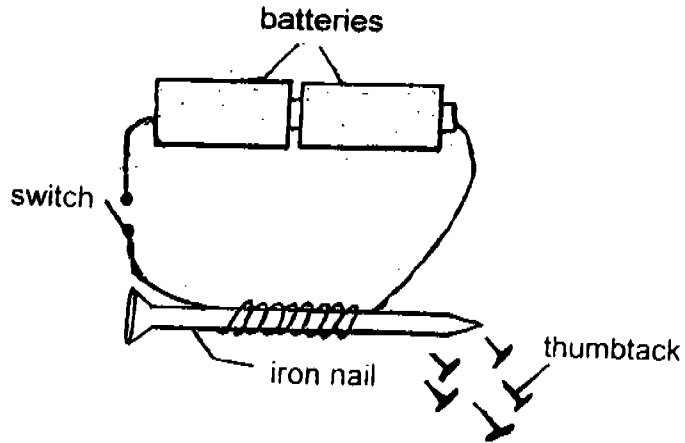
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(b) Name the parts, A and B, of the stem. (1 m)

A

B

41. Look at the set-up below.



(a) What will happen to the iron nail when the switch is closed? (1 m)

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(b) What will happen if the number of batteries is increased? (1 m)

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- END OF PAPER -

Setters  
Mdm Janice Yeo  
Mdm Poh Bee Leng  
Mrs S M Seet

**Raffles Girls Primary School**  
**Primary 4 Science SA2 Exams (2005)**

*Examinations*

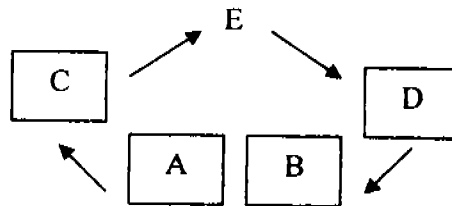
**Answer Sheets**

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

26a. B, C, A, D

26b. Shorter

27a.



27b. Sun (heat from sun)

28. Reuse  
Reduce  
Reduce  
Recycle

29a. Lungs

29b. The heart pumps oxygen to all parts of the body.

30b. Stomata

31a. True

31b. False

31c. True

31d. False

32. Resting  
Writing at a desk  
Walking  
Jogging
- 33a. It blocks the path of light and shadow, an area of darkness is formed.
- 33b. Move all hard away from the projector (light source) the shadow will get smaller.
- 33c. Bigger and lighter (less contrast).
- 34a. They melted.
- 34b. They gained heat from the surroundings.
- 35a. These gaps allow for the expansion of metal during hot weather. If the railway track is made up of a long continuous piece, it would buckle and bend during hot weather.
- 35b. The air in the bottle expanded when the heat of the candle and hence pushed the stopper outwards.
36. (i) Caterpillar  
(ii) Moulting
- 36b.
- |   |   |
|---|---|
| ✓ | ✓ |
| ✓ |   |
| ✓ |   |
|   | ✓ |
- 37a. Eyes
- 37b. Sense of sight and taste.
- 38a. D  
C  
E  
A
- 39a. Brain (skull)
- 39b. Lungs and the heart.

40.       A  
          Xylem  
          Phloem

41a.       The iron nail is magnetized and attracts the thumbtacks.

41b.       More thumbtacks will be attracted to the iron nail.