

CATHOLIC HIGH SCHOOL  
PRIMARY FIVE  
END-OF-YEAR EXAMINATION, 2004

SCIENCE  
EM 1 / EM 2

Name: \_\_\_\_\_ ( )

Class : Primary 5 \_\_\_\_\_

Date : 4 Nov 2004

BOOKLET A

30 Questions  
60 Marks

Total Time for Booklets A & B : 1 hour 30 minutes

Instructions to Candidates

Do not open this booklet until you are told to do so.  
Follow all instructions carefully.  
Answer all questions.

Section A: Multiple Choice Questions (60 marks)

For each question from 1 to 30, four options are given. One of them is the most suitable answer. Make your choice (1, 2, 3 or 4) on the Optical Answer Sheet.

1. Which one of the following statements about the life cycle of the toad and the cockroach is correct?

	Toad	Cockroach
(1)	Does not look after its young	Looks after its young
(2)	Young lives in water	Young lives on land
(3)	Female lays about 5 to 6 eggs each time	Female lays about 6 to 25 eggs each time
(4)	Gives birth to its young alive	Young develops into a nymph

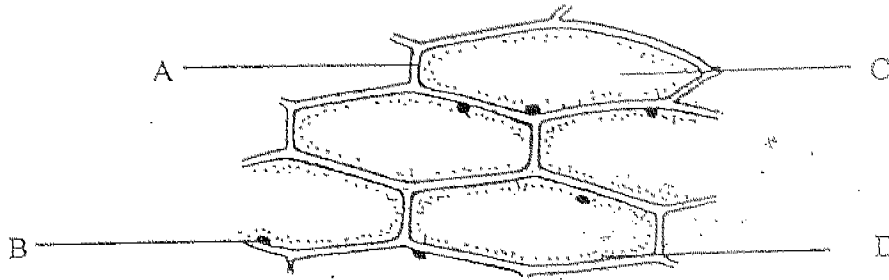
2. The following diagram shows a ginger plant.



What is the main function of part X?

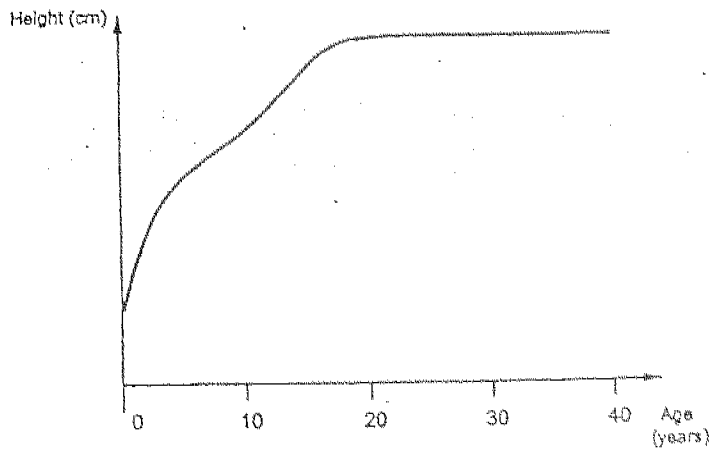
- (1) It stores food.
- (2) It makes food.
- (3) It absorbs water.
- (4) It takes in carbon dioxide.

3. The diagram below shows some plant cells as observed under a microscope.



Which part A, B, C or D gives the cells support like the 'bone'?

- (1) A
  - (2) B
  - (3) C
  - (4) D
4. The graph below shows Haisheng's height from birth until he was 40 years old.



Which of the following factors could have caused the increase in his height from birth till he was 20 years old?

- A Cell division
- B Cell growth
- C Cell death

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

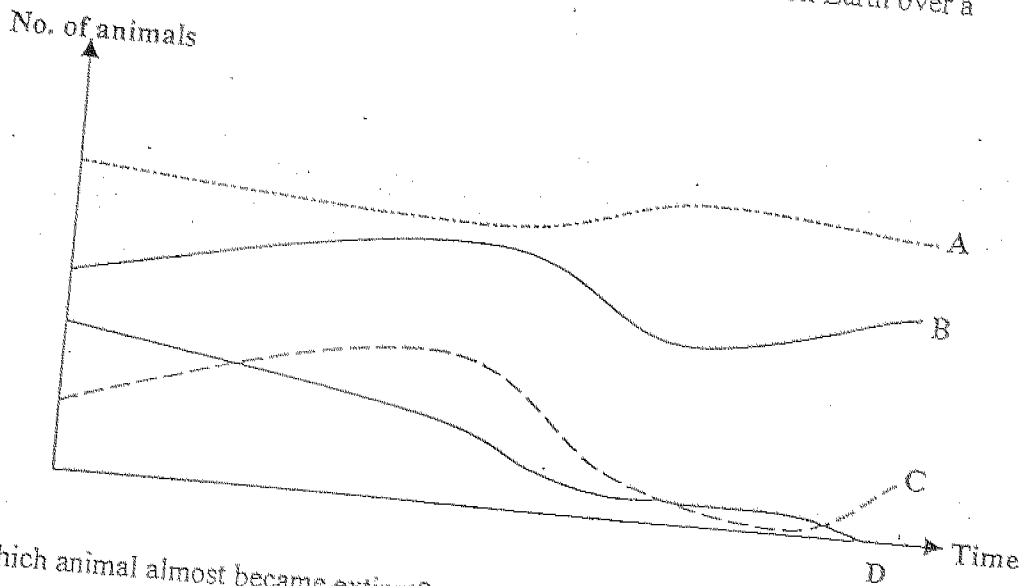
5. Janice has the following characteristics:

- brown eyes
- short nails
- curly hair
- attached earlobes
- able to roll her tongue
- likes chocolate ice-cream

How many traits has Janice inherited from her parents?

- (1) 2
- (2) 3
- (3) 4
- (4) 6

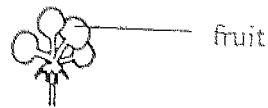
6. The graph below shows the number of animals A, B, C and D on Earth over a period of time.



Which animal almost became extinct?

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

7. The diagram below shows the fruit of plant Z.



Which one of the following diagrams best shows the flowering stage of the plant?



(1)



(2)

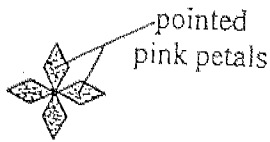


(3)

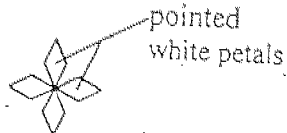


(4)

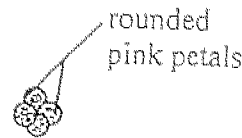
8. The diagram below shows flowers A, B, C and D which belong to the same type of plant.



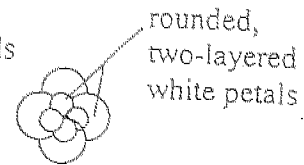
Flower A



Flower B



Flower C

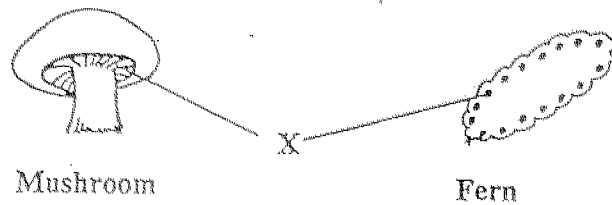


Flower D

If Mr. Teo wants to cultivate a new plant from these flowers, which will have pink, pointed petals that are two-layered, he will have better chances if he

- (1) cross-pollinates flower A with flower B
- (2) cross-pollinates flower B with flower D
- (3) cross-pollinates flower C with flower D
- (4) cross-pollinates flower A with flower D

9. Study the diagrams below.



X is a substance found in these two organisms. Which statement(s) about X is/are true?

- A X is scattered by wind.
- B X helps both organisms to reproduce.
- C X can only be seen under a microscope.

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

10. The table below shows how some organisms have been grouped according to the way they reproduce.

Group X	Group Y
Bread mould	Ginger
Bird's nest fern	Begonia
Blue green algae	Pineapple

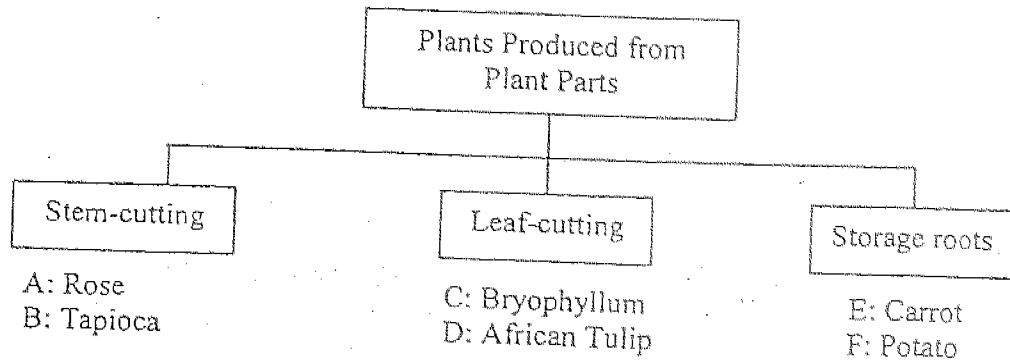
Which one of the following pairs can be classified under Group X and Y respectively?

- (1) Life plant, Water lily
- (2) Puff ball, Seaweed
- (3) Lotus, Allamanda plant
- (4) Club moss, Sweet potato

11. Fruits and seeds can be scattered using wind, water, explosive actions or man and animals. Which one of the following groups has a plant that is not scattered in the same way as the others in the group?

- (1) Guava, Pong Pong, Coconut
- (2) Mimosa, Love grass, Mango
- (3) Angsana, Yellow flame, Lajang
- (4) Balsam, String bean, Rubber tree

12. The grouping below shows how some plants have been classified according to the plant parts they can be produced from.



Which of the plants A, B, C, D, E or F are not grouped correctly?

13. The diagram below shows the path taken by water through an ixora plant.



Which of the following shows the parts of the plant in the diagram?

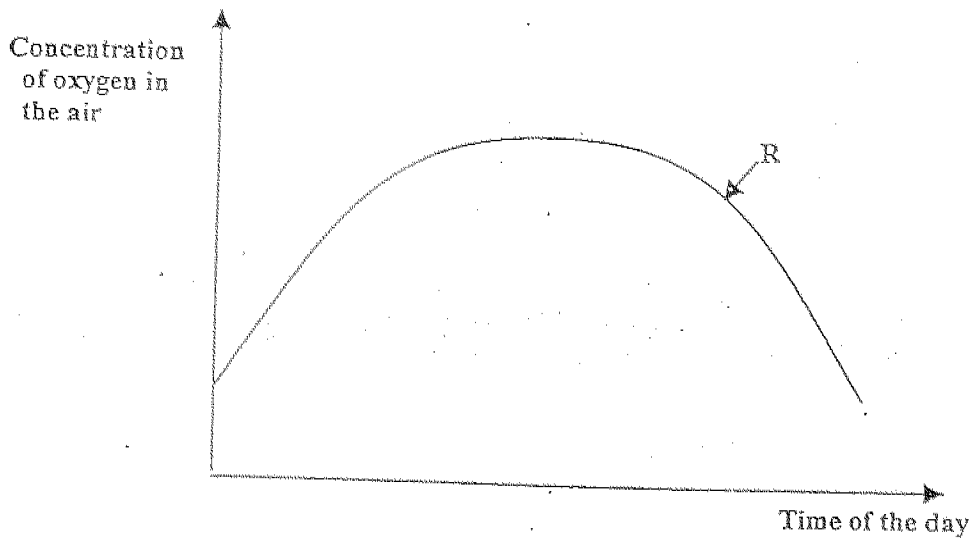
	M	N	Q
(1)	Root hairs	Xylem tubes in stems	Leaf
(2)	Root hairs	Phloem tubes in stems	Leaf
(3)	Leaf	Xylem tubes in stems	Root
(4)	Leaf	Phloem tubes in stems	Xylem tubes in stems

14. On Earth, green plants are useful and needed by animals as they

- A provide shelter
- B are food producers
- C produce oxygen
- D produce carbon dioxide

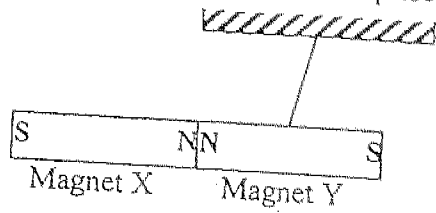
- (1) A and D only
- (2) A, B and C only
- (3) B, C and D only
- (4) A, B, C and D

15. The graph below shows the concentration of oxygen in the air at an orchard over a period of 24 hours. At what time is the reading at R most likely to be?



- (1) Noon
- (2) 2 pm
- (3) Midnight
- (4) 2 am

16. Jonah learnt that like poles of magnets repel each other and the unlike poles of magnets attract. However, when he set up a simple investigation to prove this as shown in the diagram below, he was surprised at what he observed.



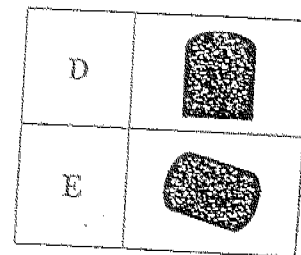
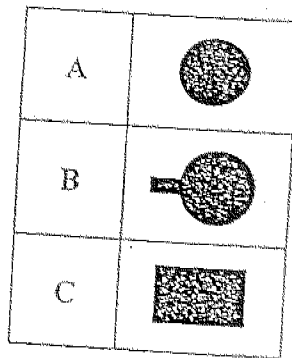
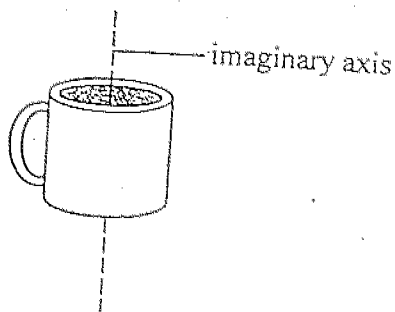
Compass placed out of the magnetic influence of Magnets X and Y.

What could have possibly gone wrong with his investigation?

- A Magnet Y could have been kept in oil.
- B Magnet Y could have been demagnetised.
- C Magnet X could have been heated over a fire.
- D Magnet X could have been hammered or dropped several times.

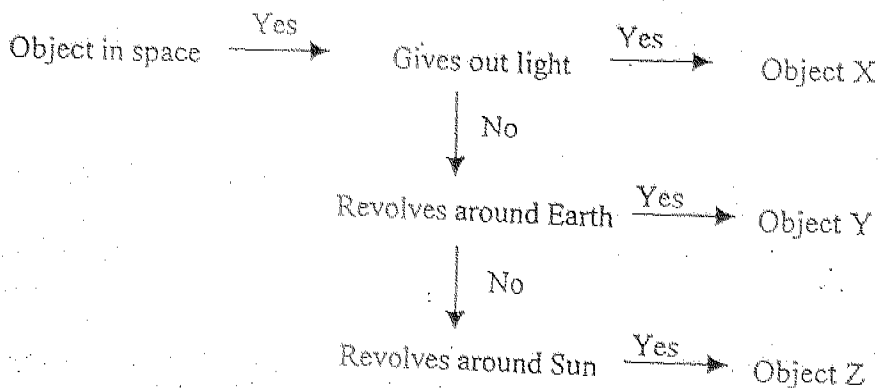
- (1) A and B only
- (2) B and C only
- (3) C and D only
- (4) B, C and D only

17. The diagram below shows a mug. Which of the following shadows A, B, C, D or E can be formed by shining a torch on it in a different direction each time?



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

18. Study the flowchart below.



Which of the following could Object X, Y and Z be?

	X	Y	Z
(1)	Moon	Sun	Earth
(2)	Earth	Moon	Sun
(3)	Sun	Moon	Earth
(4)	Sun	Earth	Moon

19. The table below shows some information about some planets.

Planet	Mercury	Earth	Uranus	Neptune
Distance from the Sun (millions of km)	36	93	1783	2794
Diameter of planet (km)	3031	7926	31763	30775
Mass of planet (no. of times of Earth's mass)	0.05	1.00	14.53	17.13

Two new planets, X and Y have just been discovered. Planet X is located between Mercury and Earth and is about the same size as Neptune. Planet Y is located between Uranus and Neptune and has about the same mass as Neptune. Based on the information given above, which one of the following statements is true?

- (1) Planet X is hotter than Planet Y.
- (2) Planet X is smaller than Planet Y.
- (3) Planets X and Y have the same mass.
- (4) Planets X and Y are heavier than Uranus.

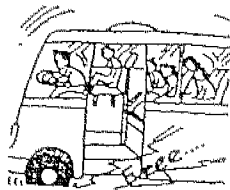
20. The diagrams below show 4 examples of forces.



A Tom pushing a stroller



B Owen raising the flag



C Peter driving a bus

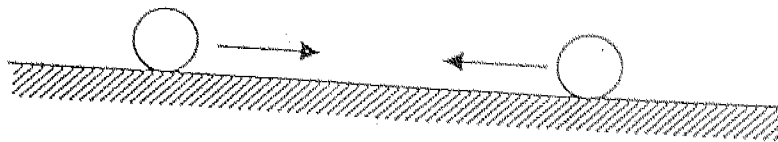


D Jane writing on the blackboard

Which of the examples involve friction?

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

21. The diagram below shows 2 rubber balls of the same size rolling towards each other.

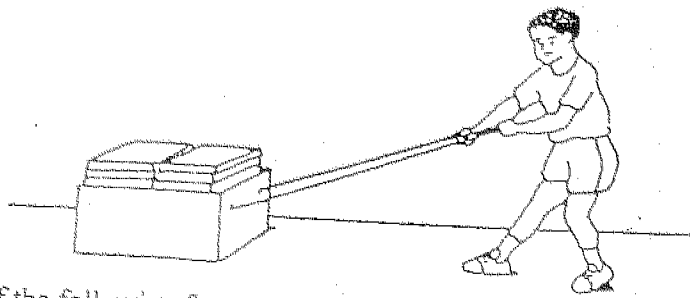


When the balls knock into each other, there is a change in \_\_\_\_\_

- A shape
- B speed
- C direction

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

22. The diagram below shows Samuel moving a box of books along the floor.



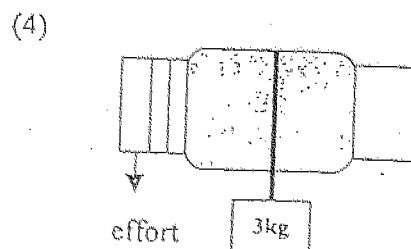
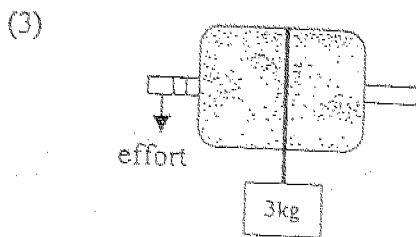
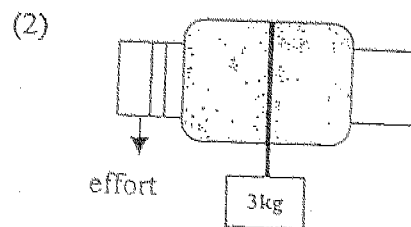
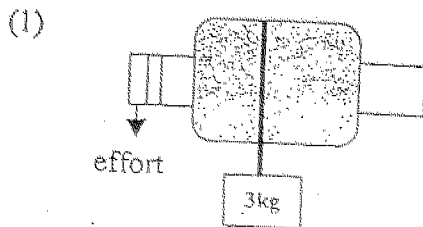
Which of the following forces are acting on the box?

- A Gravity
  - B Friction
  - C Weight of the books
- (1) A and B only
  - (2) A and C only
  - (3) B and C only
  - (4) A, B and C

23. The advantage of using a fixed pulley to that of a movable pulley is that \_\_\_\_\_

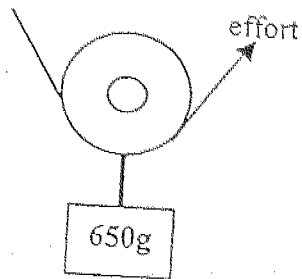
- (1) it is cheaper
- (2) less effort is required
- (3) the direction of the force is changed
- (4) the same amount of effort can overcome a heavier load

24. Which one of the following wheel and axle machines will need the most effort to lift a load of 3 kg?

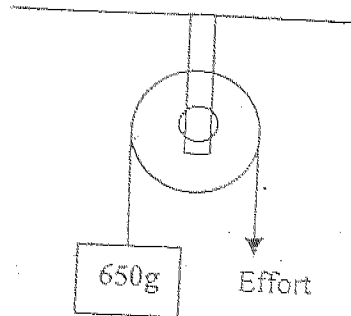


25. Which one of the following systems will require the effort to be greater than the load?

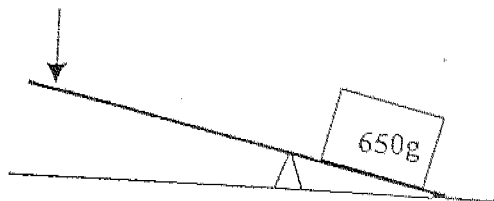
(1)



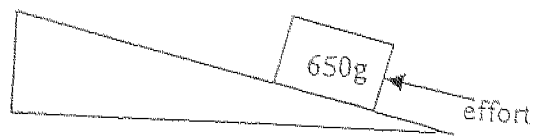
(2)



(3) effort

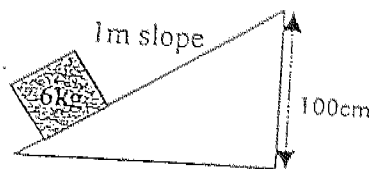


(4)

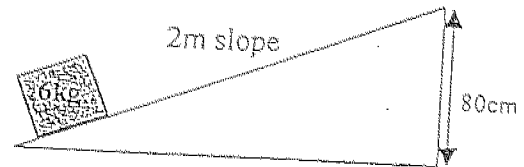


26. The diagram below shows four ramps. Which one of the following sets will require the least effort to pull the given load up the ramp?

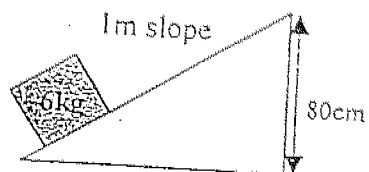
(1)



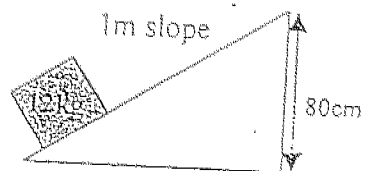
(2)



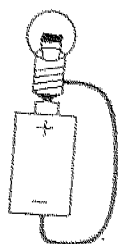
(3)



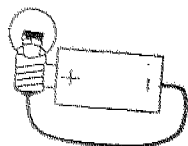
(4)



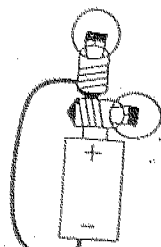
27. Which of the circuits will have at least one bulb lighting up?



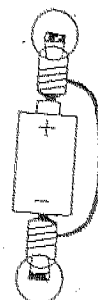
A



B



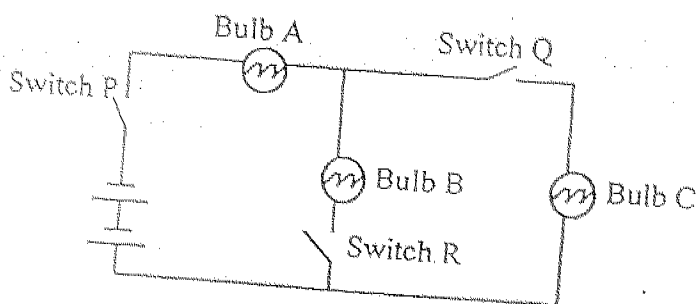
C



D

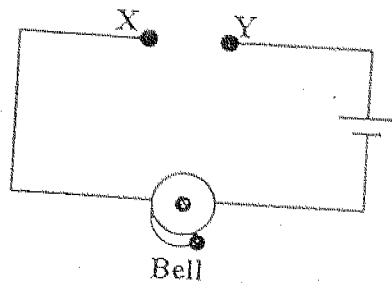
- (1) A and B only
- (2) A and D only
- (3) B, C and D only
- (4) A, B, C and D

28. The diagram shows a circuit. Which switches need to be closed in order for only bulbs A and B to light up?



- (1) Switches Q and R only
- (2) Switches P and Q only
- (3) Switches P and R only
- (4) Switches P, Q and R

29. The diagram below shows a simple circuit.



Which of the following materials will allow the bell to ring when it is placed between points X and Y?

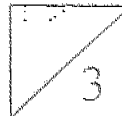
- A Wet towel
  - B Wooden stick
  - C Aluminum foil
  - D Graphite pencil lead
- (1) A and C only  
(2) C and D only  
(3) A, C and D only  
(4) A, B, C and D
30. Which one of the following statements is false?
- (1) Lightning strikes tall buildings more than short ones.
  - (2) If you are caught in a thunderstorm, you should take shelter under a tree.
  - (3) It is not advisable to swim when there is lightning, even if there is no rain.
  - (4) It is advisable to stay as close to the ground as possible, if you are caught in a thunderstorm.

Section B: Open-Ended Questions (40 marks)

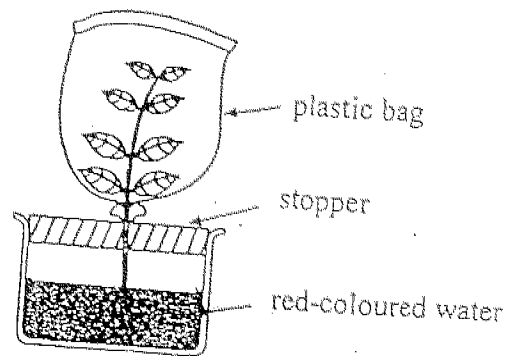
Read the following questions carefully and write your answers in the space provided. The maximum marks that can be awarded is shown at the end of each question or part question.

31. Study each of the statements below. State whether they are True, False or Not Possible to Tell by putting a tick (✓) in the appropriate boxes. [3]

	True	False	Not Possible to Tell
a. Muscles work in pairs together with our bones to bring about movement.			
b. Breathing is brought about by the contraction and relaxation of the lungs muscles			
c. The skull is made up of one piece of bone.			
d. The digestive system is protected by the rib cage.			
e. The heart is actually a muscle.			
f. A sporty person has more muscles than a less active person.			



32. Susan set up an experiment as shown below. The set-up was left overnight.



a) The next morning, Susan noticed that there were some droplets of water inside the plastic bag. Where did the water droplets come from? [1]

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b) Then Susan removed the plastic bag and left the set up for a few days. After a few days, she noticed that something had happened to some of the leaves. What could she have observed? Give a possible explanation for your answer [2]

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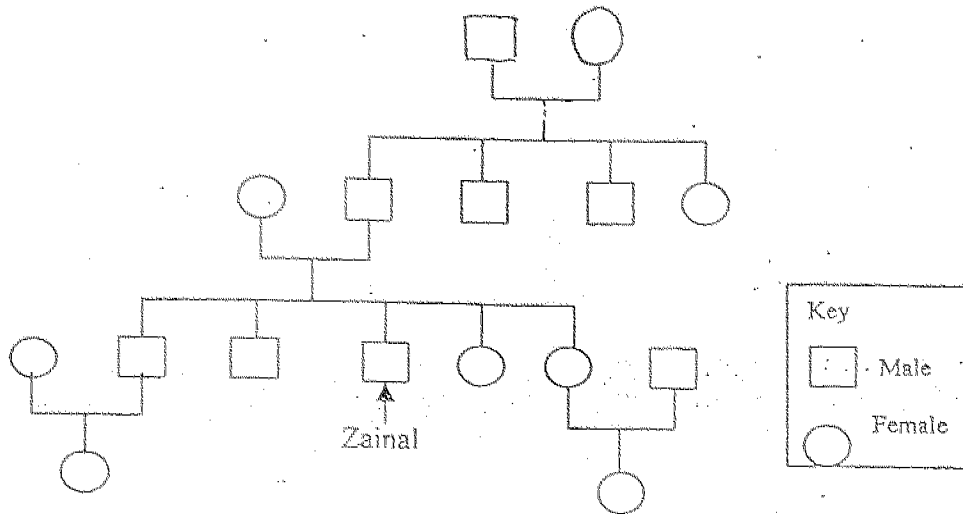
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33. Fill in each of the blanks with a suitable word. [3]

During \_\_\_\_\_ of the fruit, the \_\_\_\_\_ fuses with the egg cell, which is found in the \_\_\_\_\_ or immature seed. Once this process is completed, the \_\_\_\_\_ continues to enlarge to become the fruit. When the fruit ripens, it is usually \_\_\_\_\_ to another place so as to prevent \_\_\_\_\_, which may result in unhealthy plants.



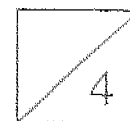
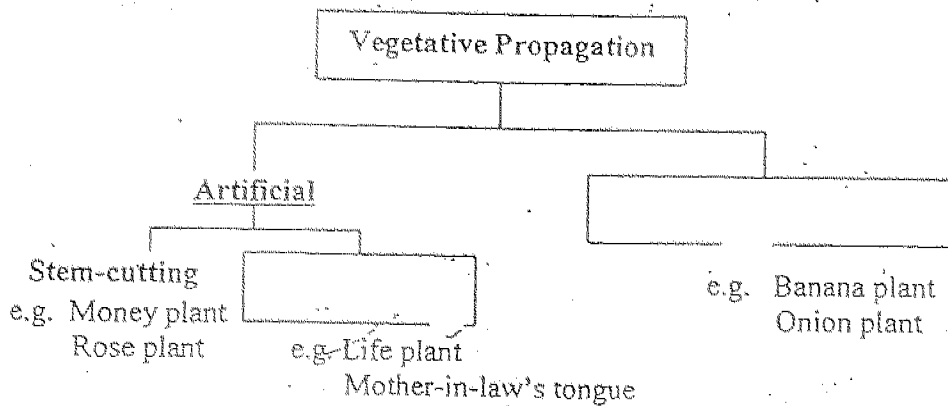
34. The diagram below shows Zainal's family tree.



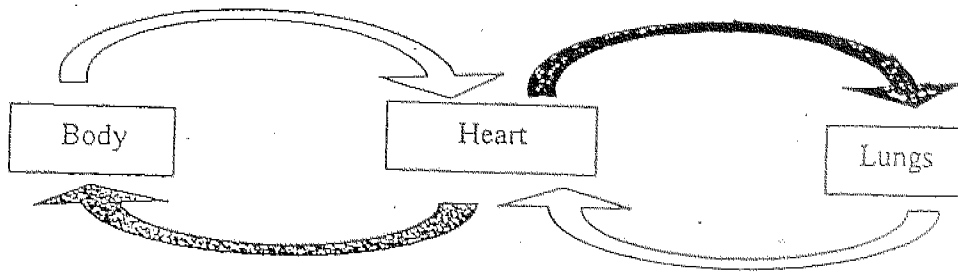
a) How many aunts and uncles does Zainal have altogether? [1]

b) Shade the figure that represents Zainal's grandfather in the family tree above. [1]

35. Complete the classification below with the correct words in the boxes. [2]

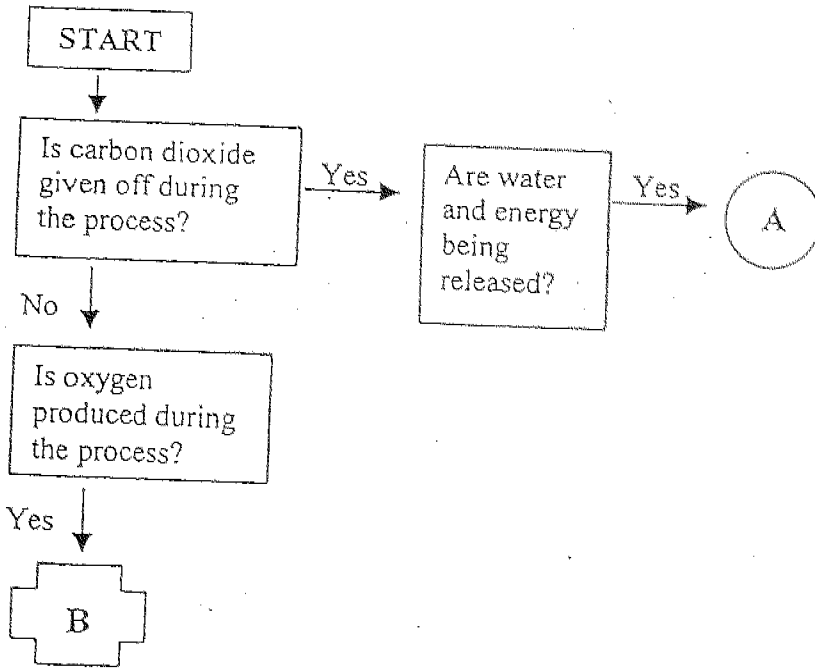


36. Look at the diagram below. The arrows show the circulation of blood in the body.



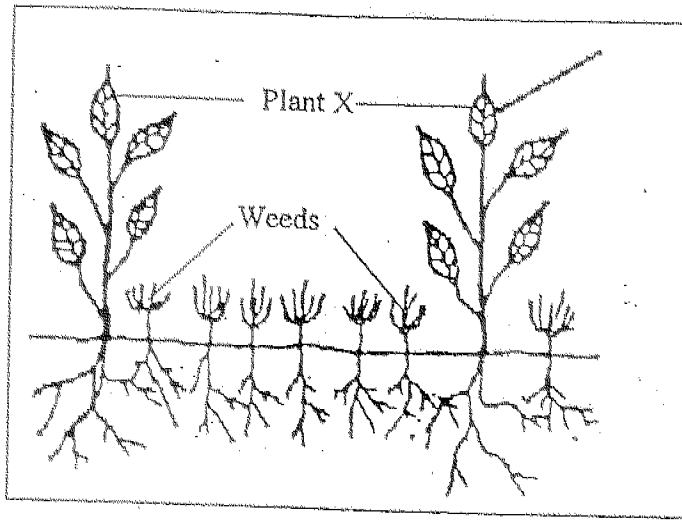
- a) The grey arrow shows blood rich in \_\_\_\_\_ [1]
- b) Colour the arrow that has comparatively the least amount of dissolved oxygen. [1]

37. The flow chart below shows the processes in a plant.



- a) Name the 2 processes, A and B: [1]  
 A: \_\_\_\_\_  
 B: \_\_\_\_\_
- b) What other raw materials are needed for process B to take place? [1]  
 \_\_\_\_\_

38. Look at the diagram below. Mary waters the plants sufficiently twice a day.



a) The weeds will not be competing for \_\_\_\_\_ and \_\_\_\_\_ with plant X. [2]

b) Give a reason to your answer to part (a). [1]

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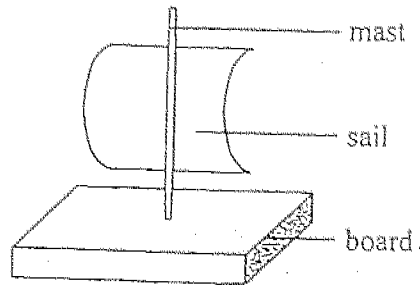
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39. The diagram below shows a raft to be used in a competition which will be held in the afternoon. The rafts should be able to help competitors cross a river and glide down a grassy slope.



Competitors are given a range of materials as shown in the table below to build the raft. For each part of the raft, they are only allowed to use one kind of material and the sizes of the materials are all the same.

Parts of raft	Material
Mast	Glass pole, Metal pole, Wooden pole
Sail	Cardboard, Opaque plastic sheet, Transparent plastic sheet
Board	Rubber foam, Straw mat, Metal sheet

Based on the information given, select the materials which are most suitable and support your choice with a reason. [3]

Material for mast: \_\_\_\_\_

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

Material for sail: \_\_\_\_\_

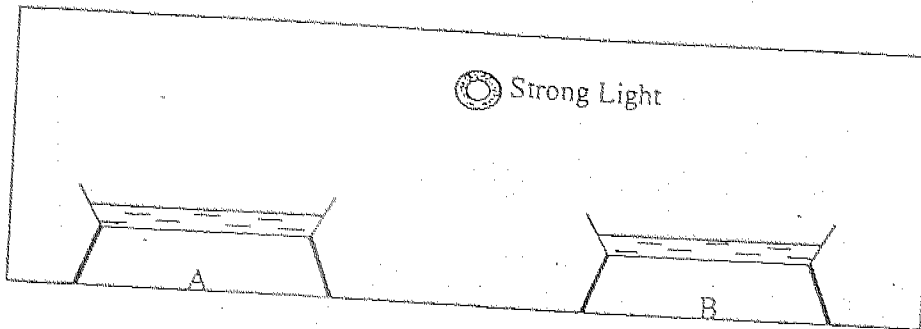
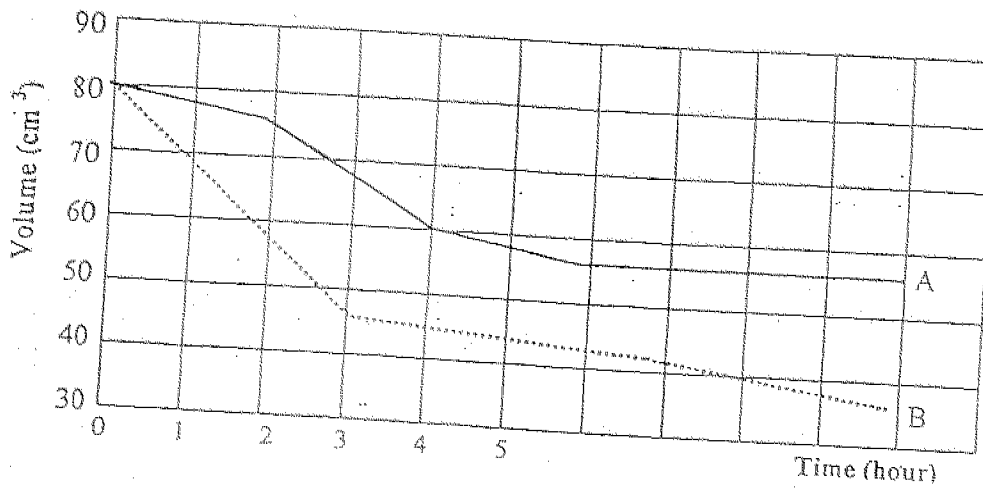
Reason: \_\_\_\_\_  
 \_\_\_\_\_

Material for board: \_\_\_\_\_

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



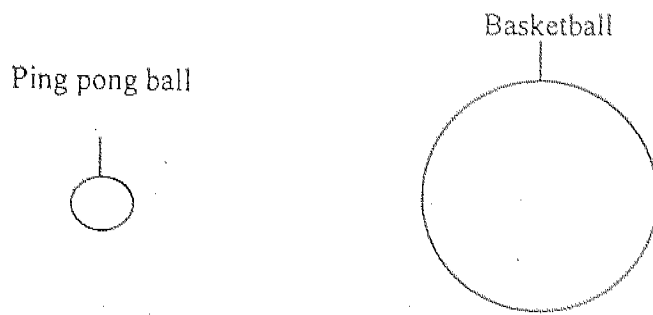
40. Two containers made of different materials, A and B, which are of the same colour, size and shape are placed in a box with a strong light source for 5 hours. They are placed at an equal distance from the light source. The volume of the water is measured every hour. A graph is then plotted as shown below.



- a) Why does the water in one container evaporate faster than the other? [1]
- 
- b) What is the difference between the volume of water in the containers at the 4<sup>th</sup> hour? [1]
- 
- c) What is the aim of the experiment? [1]
- 



41. Desmond set up the following experiment to demonstrate the cycle of day and night by moving the ping pong ball around the basketball.



- a) Anthony looked at Desmond's experiment and said that Desmond did not do the experiment correctly. What was wrong with Desmond's experiment? [1]

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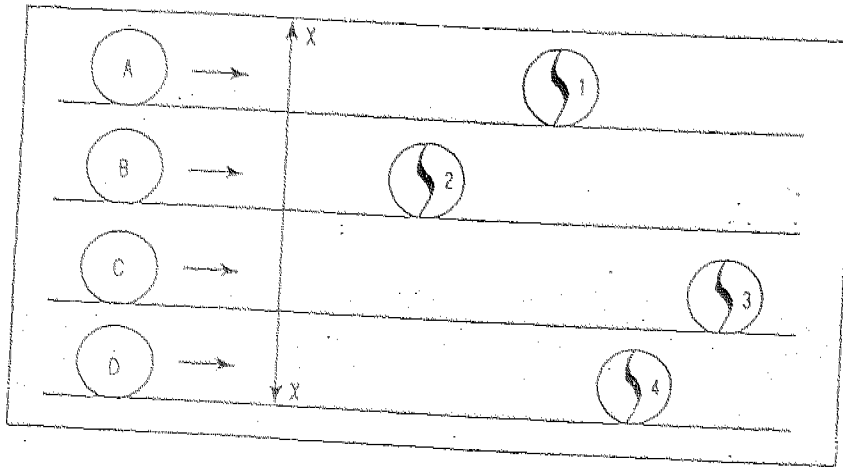
- b) What did the ping pong ball and basketball represent in the above experiment? [1]

Ping pong ball : \_\_\_\_\_

Basketball : \_\_\_\_\_



42. 4 similar balls, A, B, C and D were rolled at the same time towards 4 similar marbles placed at the starting line X. The balls hit the marbles and the marbles rolled forward and stopped as shown below.



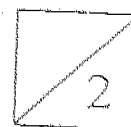
4 boys made the following statements after looking at the above experiment.

- Finley : Ball A rolled at the fastest speed.  
 Richard : Ball B hit marble 2 last.  
 Chong Ping : Ball C hit marble 3 with the most force.  
 James : Ball D moved marble 4 the longest distance.

Which 2 boys made an incorrect statement? Give the correct statement.

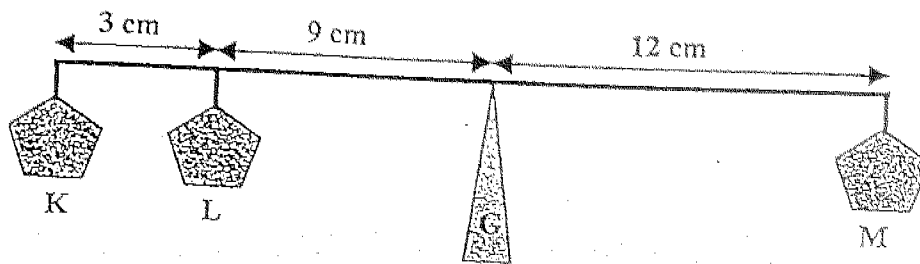
[2]

Boy's name	Rephrase the incorrect statements to make them correct.



43. A beam is balanced at the fulcrum G by the three weights K, L and M. G is a fixed point at the middle of the beam as shown in the diagram below.

[2]

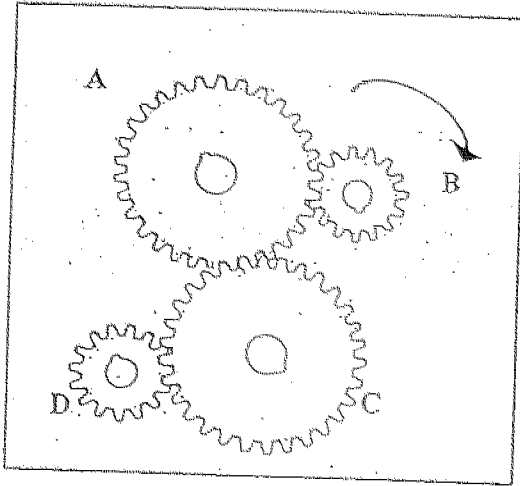


Fill in the table below correctly with a tick (✓).

	Statement	True	False	Not possible to tell
a)	K is the heaviest.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b)	The total weight of K and L is the same as that of M.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c)	K is as heavy as L.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d)	M is heavier than K.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e)	L and M have the same weight.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f)	L is the lightest.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

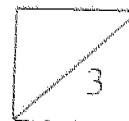
44. Look at the diagram below.  
If gear B turns in the direction shown, gear D will turn in a/an \_\_\_\_\_ direction.

[1]

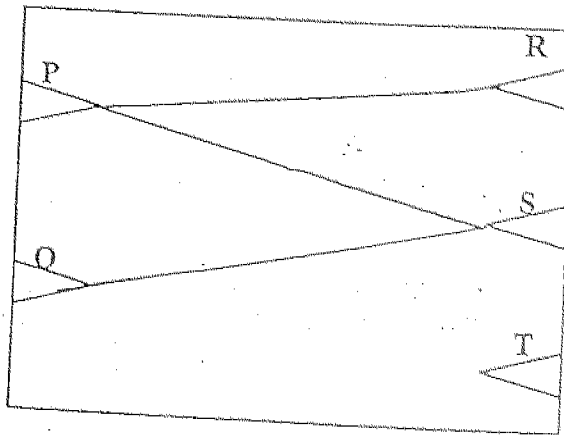


b) If gear A turns 1 round, gear B will turn \_\_\_\_\_ rounds and gear D will turn \_\_\_\_\_ rounds.

[2]



45. Jie Ming designs a circuit card using some wires and paper clips P, Q, R, S and T as shown below.



The following results are obtained when a circuit tester is used on the card.

Clips tested	Does the bulb light up?
P and R	Yes
P and S	Yes
P and T	No
Q and R	Yes
Q and S	Yes
Q and T	No

- a) Draw on the circuit card how the wires are connected, based on the results shown above. [1½]
- b) It is not advisable for Jie Ming to use bare wires and insulated paper clips for this investigation. Explain why.

Reason for not using bare wires: \_\_\_\_\_

\_\_\_\_\_

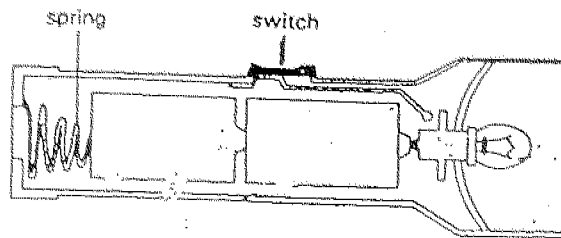
\_\_\_\_\_

Reason for not using insulated paper clips: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

46. The diagram below shows a torch.

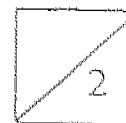


Name and label on the diagram :

- b) the electrical source
- c) the indicator to show that there is electricity flowing through.

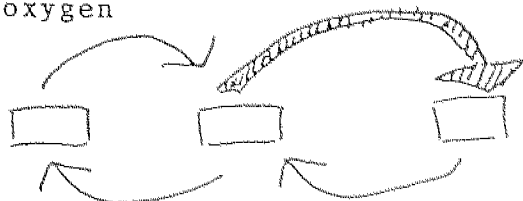
[2]

The End of Paper  
Check your work thoroughly.



SA 2

- 1) 2            28) 3
- 2) 1            29) 3
- 3) 1            30) 2
- 4) 1            31) Water vapour in the air inside the plastic  
 condensed on the colder surface of the plastic.
- 5) 3
- 6) 3            b) The leaves had turned red. The plant  
 absorbed the water in the container of  
 red-coloured water making the leaves  
 turned red.
- 7) 1
- 8) 4            33) fertilisation            pollen grain
- 9) 3            ovule
- 10) 4            ovary
- 11) 1            scattered
- 12) 2            overcrowding
- 13) 1            34) a) Zainal has three aunts and uncle.
- 14) 2            b)
- 15) 2            35)
- 16) 3            Leaf cutting            Natural
- 17) 4            36) a) oxygen
- 18) 3            b)
- 19) 1
- 20) 4
- 21) 3            37) a) respiration
- 22) 4            photosynthesis
- 23) 3            b) Water, carbon dioxide
- 24) 4            38) a)            oxygen
- 25) 2            / water
- 26) 2            b) The weeds are shorter than plant X so sunlight  
 is blocked. There is ample carbon dioxide in  
 the air.
- 27) 4



39) Wooden pole

It is light

Transparent plastic sheet

People standing behind the sail can see where they are going.

Rubber Foam

It will be able to float on water.

40) a) B is a better conductor than A.

b)  $15 \text{ cm}^3$

c) To find out what materials are good conductor of heat and which are not.

41) He should replace the basketball with a light source.

b) Earth

Sun

42) Finley Ball A rolled at the third fastest speed.

James Ball D moved marble 4 slightly behind marble 3.

43) a) False

b) False

c) Not possible to tell.

d) True

e) False

f) Not possible to tell.

44) a) anti-clockwise

b) 2 2

45) a) Using bare wires will allow more pathways in the circuits.

b) Using insulated paper clips will not allow electricity to pass through.

46)

