



PRIMARY FOUR SCIENCE
SEMESTRAL ASSESSMENT 1
2012

BOOKLET A

Date : 9 May 2012

Duration : 1 h 45 min

Name : _____ ()

Class: Primary 4 ()

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.**

Booklet A consists of 22 printed pages including this cover page.

Section A (30 x 2 marks = 60 marks)

For each question 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 provided.

1. Which one of the following groups of animals has been classified correctly?

	Lay eggs	Give birth to young alive
(1)	rabbit, turtle	hen, giraffe
(2)	ostrich, rabbit	giraffe, turtle
(3)	hen, turtle	rabbit, giraffe
(4)	ostrich, turtle	giraffe, hen

2. Faith described some characteristics of animals A, B, C and D as shown in the table below.

Animal	Description
A	- gives birth to young alive - covered with scales
B	- lays eggs - has 6 legs
C	- lays eggs - produces milk to feed its young
D	- gives birth to young alive - covered with hair

Which animal is likely to be the platypus?

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

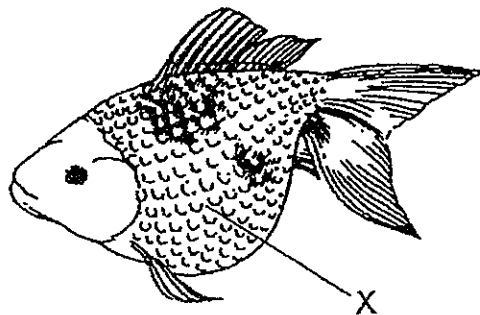
3. The table below shows how six organisms have been classified.

Group X	Group Y
Staghorn fern	Mushroom
Grass	Toadstool
Hibiscus	Bread mould

What are the characteristics used to group them?

	Group X	Group Y
1)	Indoor plants	Outdoor plants
2)	Plants	Fungi
3)	Flowering plants	Non-flowering plants
4)	Plants	Micro-organisms

4. The diagram below shows a goldfish

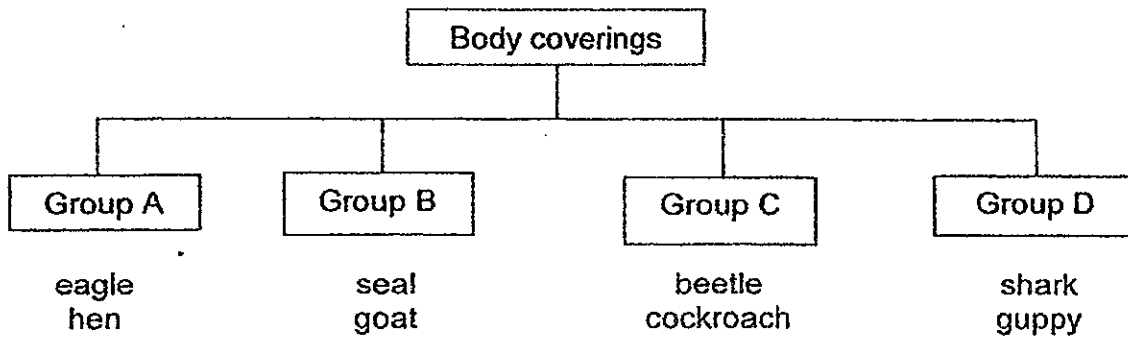


X is a type of body covering.

Which one of the following statements correctly describes the function of X?

- (1) It protects the fish
- (2) It helps the fish to breathe
- (3) It helps the fish to find food
- (4) It helps the fish to reproduce

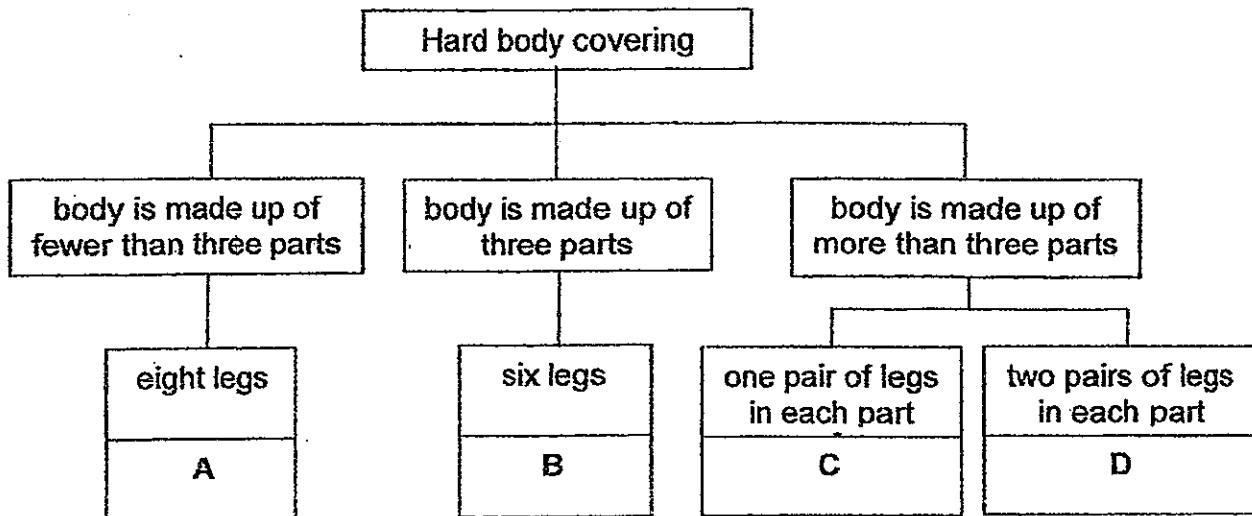
5. The diagram below shows how some animals can be grouped according to their body coverings.



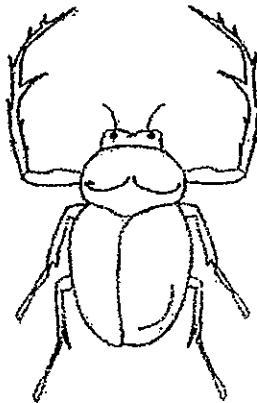
In which group should penguin be placed?

- | | |
|------------|------------|
| 1) Group A | 2) Group B |
| 3) Group C | 4) Group D |

6. Study the classification table below carefully.



Jun Heng found the animal shown below. It has a hard body covering.

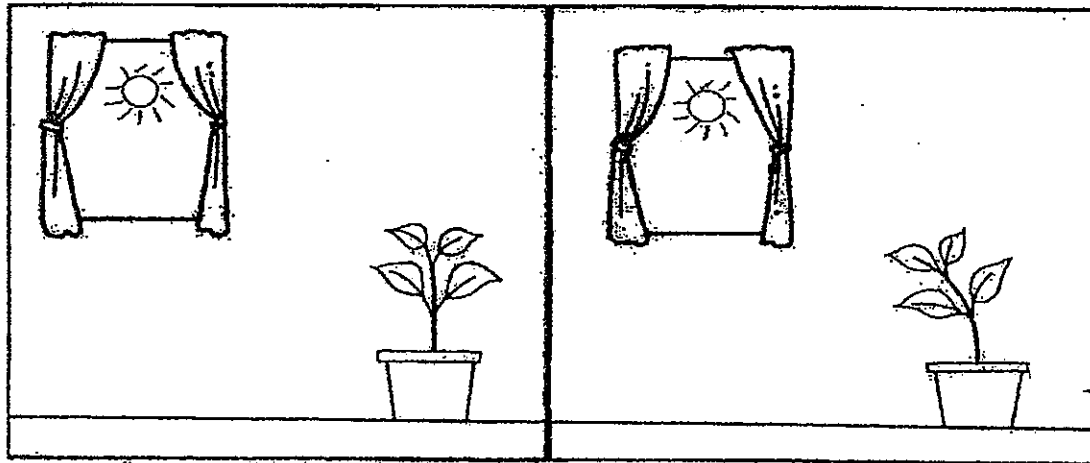


Which group, A, B, C or D, does this animal belong to?

- (1) A
(3) C

- (2) B
(4) D

7. Charmaine kept a pot of plant near a window. She watered the plant every day. After four days, she noticed that the plant had bent to one side, as shown in the diagram below.



Which one of the following statements correctly explained her observation?

- (1) The plant was withering.
 - (2) The plant was responding to sunlight.
 - (3) The plant was taking in air from the window.
 - (4) The plant had a stem which was too weak to grow upright.
8. Jané found 2 organisms, S and T, growing on a log in her garden. She brought the log with S and T into a brightly lit room and kept them there for 5 days. Then she moved the log with S and T into a dark room and kept them there for another 5 days.

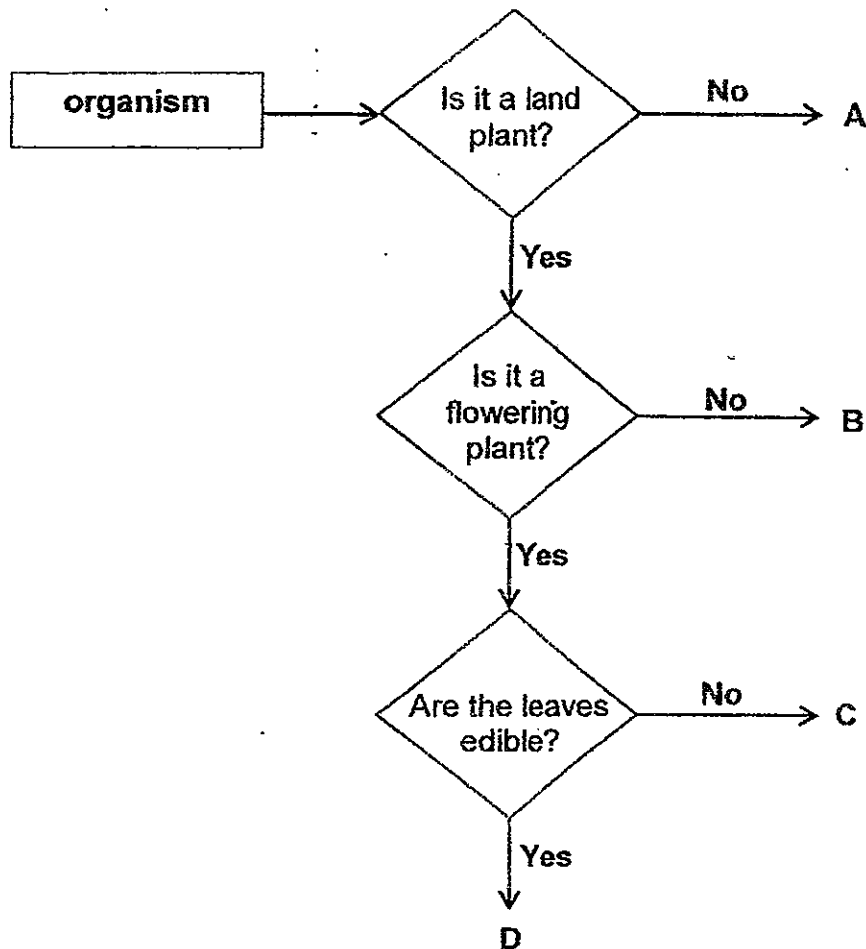
The table below shows the condition she had provided for S and T in the 2 different places and her observations of them.

	First 5 days	Next 5 days
Location	Brightly lit room	Dark room
Amount of water given daily	10 ml	10 ml
Observation of S and T	Both S and T growing well	S died and T growing well

Based on her observation, which pairs of organisms can S and T be?

	S	T
(1)	Moss	Mushroom
(2)	Mushroom	Bracket Fungus
(3)	Cactus	Rose Plant
(4)	Bird's Nest Fern	Orchid Plant

9. Study the flow chart below.



Which one of the following correctly represents A, B, C and D?

	A	B	C	D
1)	duckweed	mushroom	bird's nest fern	rose plant
2)	mushroom	bird's nest fern	dumb cane	cabbage
3)	hydrilla	water hyacinth	toadstool	periwinkle
4)	toadstool	water lily	rose plant	mushroom

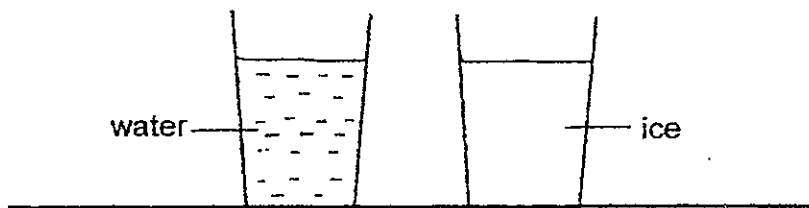
10. Which one of the following statements explains why steel is a matter?

- (1) It is magnetic.
- (2) It is waterproof.
- (3) It is shiny and hard.
- (4) It has mass and volume.

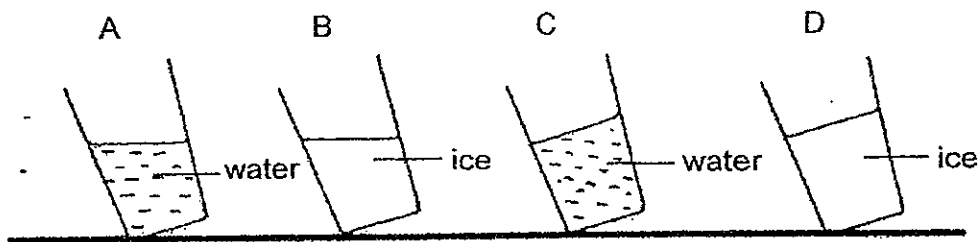
11. Which one of the following statements is true about all liquids and gases?

- (1) They can be seen.
- (2) They can be compressed.
- (3) They have definite volume.
- (4) They have no definite shape.

12. Joy poured a glass of water from a jug and took out a glass of ice from the freezer.

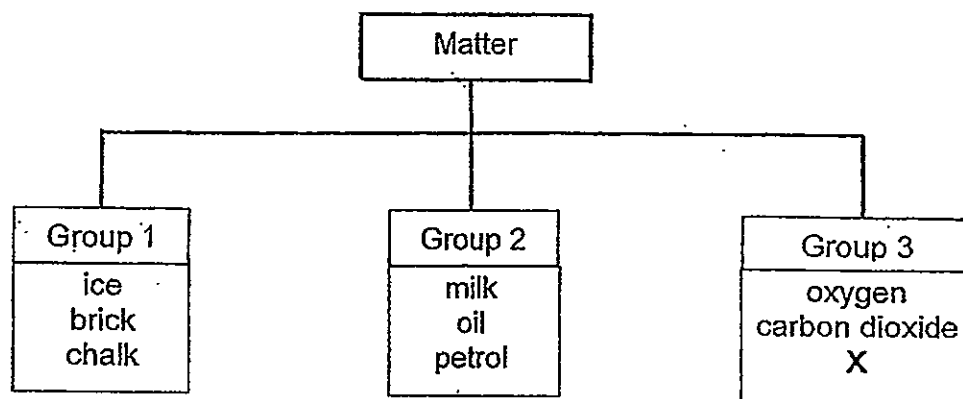


She tilted the 2 glasses at the same angle immediately.
Which of the following diagrams show what Joy observed?



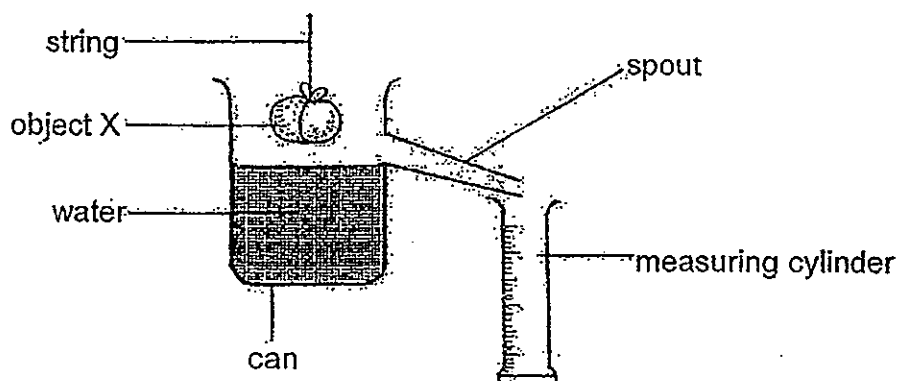
- | | |
|-------------|-------------|
| (1) A and B | (2) A and D |
| (3) B and C | (4) C and D |

13. In the diagram below, Clarice classified 8 different matters according to their properties.



Which one of the following could also be an example of Group 3?

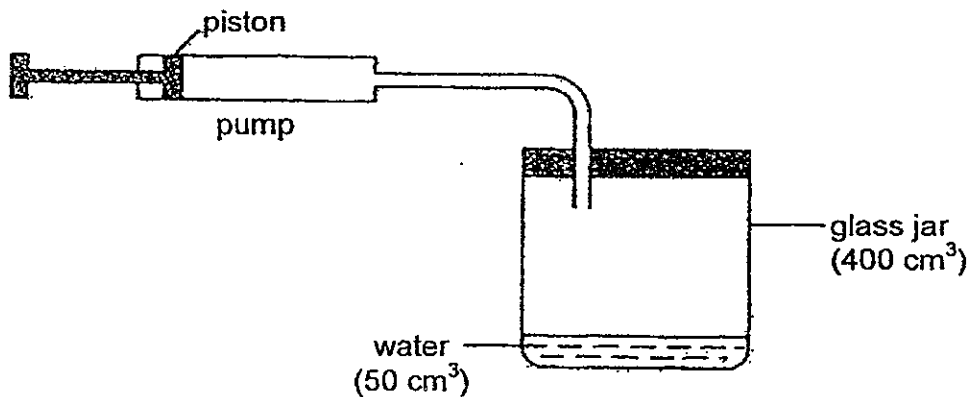
- (1) Orange juice (2) Flour
 (3) Paint (4) Water vapour
14. Study the experimental set-up below carefully. When object X is lowered into the can, water flows out into the measuring cylinder.



What can the experiment above measure?

- (1) shape of object X (2) area of object X
 (3) volume of object X (4) length of object X

- 15 The diagram below shows a pump connected to a glass jar. The volume of the glass jar is 400 cm^3 . The glass jar contains 50 cm^3 of water.



When the piston is pushed fully inward, 30 cm^3 of air will be forced into the glass jar.

What is the volume of air in the glass jar if the piston is pushed in three times?

- (1) 90 cm^3 (2) 350 cm^3
 (3) 440 cm^3 (4) 490 cm^3

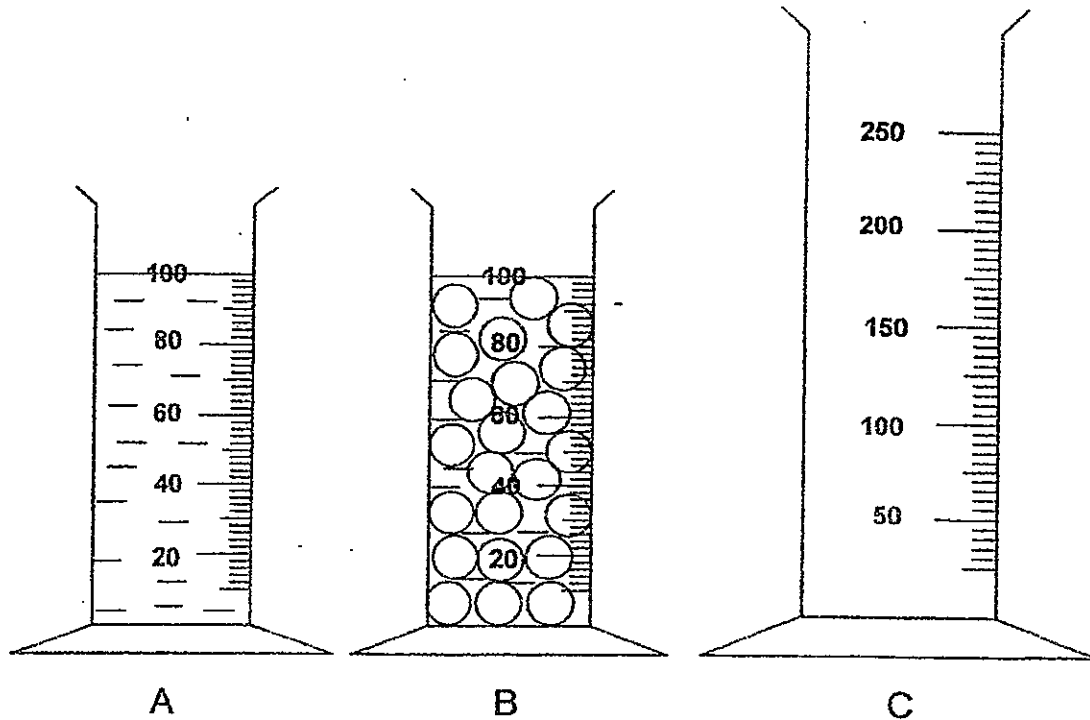
16. The table below describes the properties of X and Y.

X	Y
has mass	has no mass
occupies space	does not occupy space

Which one of the following could Y be?

- (1) seashell (2) paper clip
 (3) noise (3) ten-dollar note

17. Samantha filled measuring cylinder A with 100 cm^3 of water. She filled measuring cylinder B with small marbles and water until the water level reaches 100 cm^3 , as shown below.

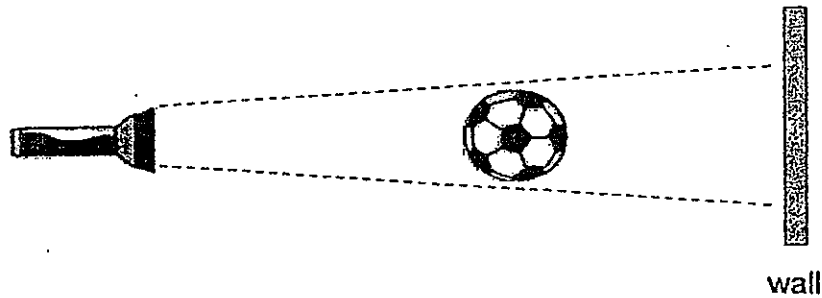


Next, she transferred only the water from the 2 measuring cylinders into measuring cylinder C.

What is the volume of water in measuring cylinder C?

- (1) 100 cm^3
- (2) 140 cm^3
- (3) 200 cm^3
- (4) 220 cm^3

18. Nadia shone a torch on the ball and a shadow was formed on the wall as shown below.



She carried out the following actions during her investigation.

- A She moved the ball nearer to the wall.
- B She moved the ball nearer to the torch.
- C She moved the torch nearer to the ball.
- D She moved the torch further away from the ball.

Which of her action(s) would cause a larger shadow to be cast on the wall?

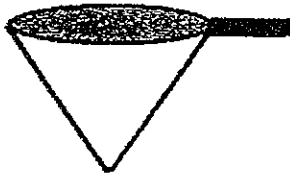
- (1) A only
- (2) B only
- (3) B and C only
- (4) C and D only

19. The diagrams below show two shadows that can be formed by the same object.



Which one of the following is the object that forms the shadows?

(1)



(2)



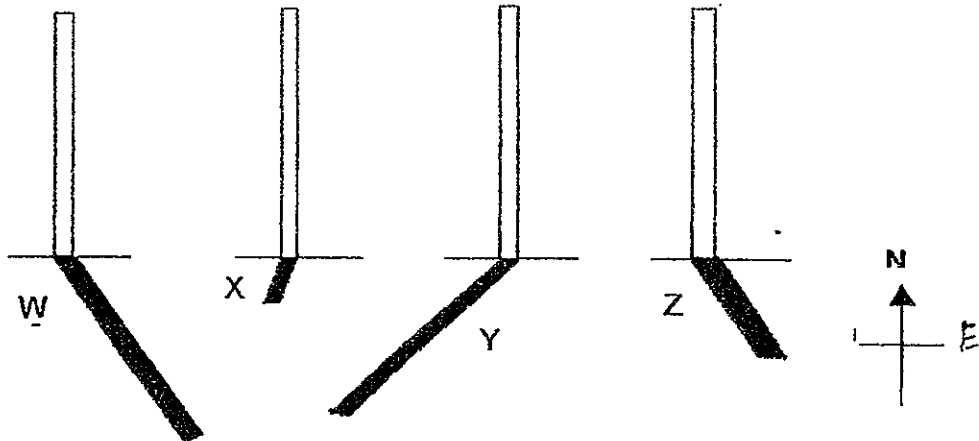
(3)



(4)



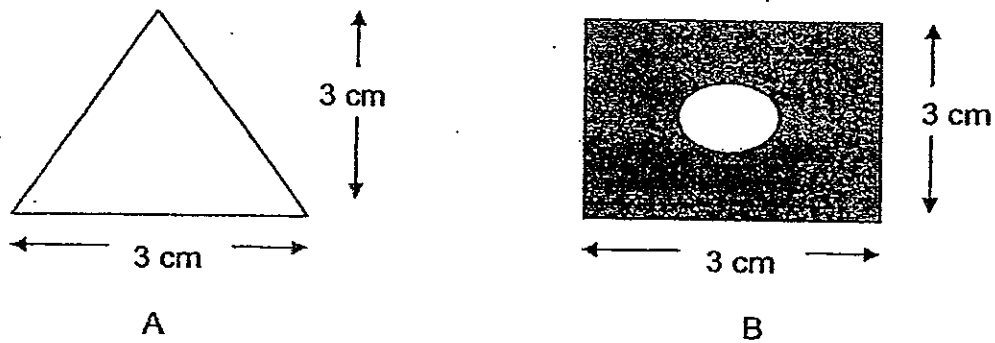
20. The diagram below shows the shadows of a pole cast at different times of the day.



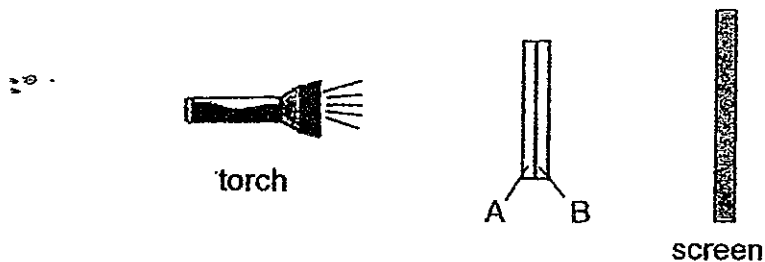
Arrange the shadows in order of time, starting with the one cast at the earliest time of the day from 8 a.m. to 6 p.m.

	8 a.m.	11 a.m.	3 p.m.	6 p.m.
1)	W	Z	X	Y
2)	W	X	Z	Y
3)	Y	X	W	Z
4)	Y	X	Z	W

21. Jonah cut out two shapes as seen below from different materials. He pasted the two cutouts together and shone a torch at them onto a screen. Shape A was cut from a translucent blue sheet and shape B was cut from a piece of cardboard with a hole cut out in the centre. A torch was used to shine onto the two shapes.



He placed the two cutouts between the torch and a white screen as shown below.



Which of the following diagrams shows what could be observed on the screen?

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

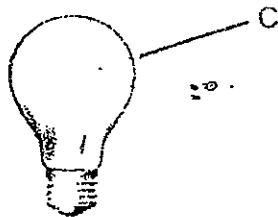
22. The diagram below shows three objects with a part of it labelled A, B and C.



sunglasses



stage curtains

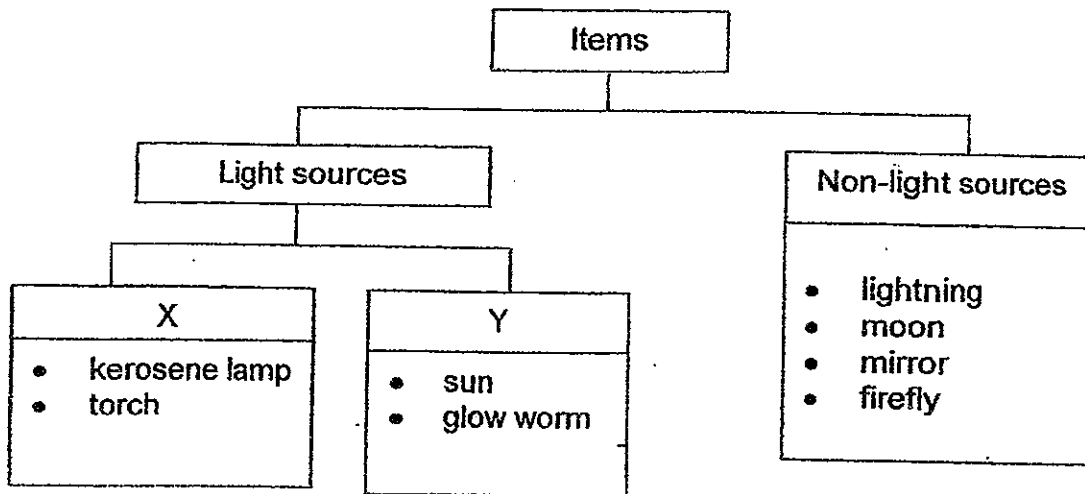


light bulb

Which of the following correctly state the property of materials A, B and C for them to be useful for the part of the object that they were made of?

Properties of Materials			
	A	B	C
(1)	Opaque	Transparent	Translucent
(2)	Translucent	Opaque	Transparent
(3)	Transparent	Opaque	Translucent
(4)	Opaque	Translucent	Transparent

Answer Question 23 and 24 based on the classification chart below.



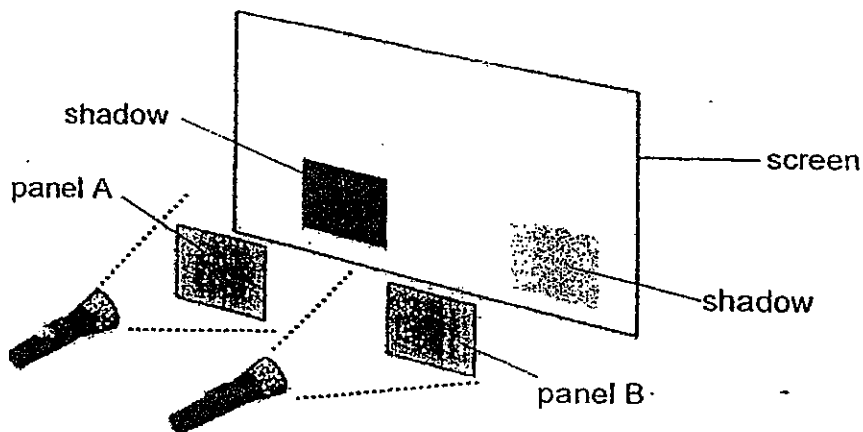
23. Based on the classification chart above, which of the following best represent X and Y?

X	Y
Use batteries	Do not use batteries
Use electricity	Do not use electricity
Natural	Man-made
Man-made	Natural

24. Based on the classification chart above, which of the items had been classified wrongly?

- (1) Moon and firefly
- (2) Mirror and Moon
- (3) Lightning and firefly
- (4) Lightning and mirror

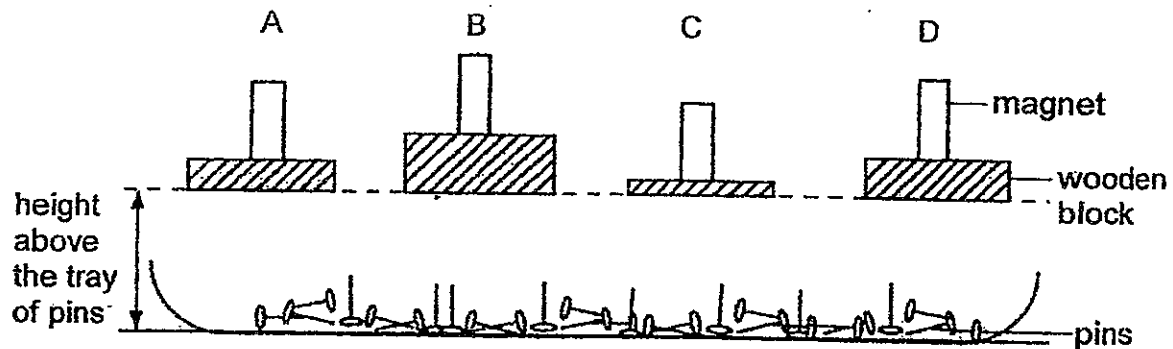
25. Two rectangular panels A and B were placed between two torches and a screen. The diagram below shows what Tom observed when the torches were switched on.



Based on the shadows cast on the screen, what could Tom conclude about the property of panel A and panel B?

- (1) Panel A was opaque and panel B was translucent.
- (2) Panel A was translucent while panel B was opaque.
- (3) Panel A was opaque while panel B was transparent.
- (4) Panel A was transparent while panel B was translucent.

26. Justin conducted an experiment to compare the strength of four magnets as shown below. He placed the four magnets of similar size but different strength, A, B, C, D, on four wooden blocks. The blocks were of the same material but of different thickness and at the same height over a tray of pins.



Justin recorded his finding as shown in the following table.

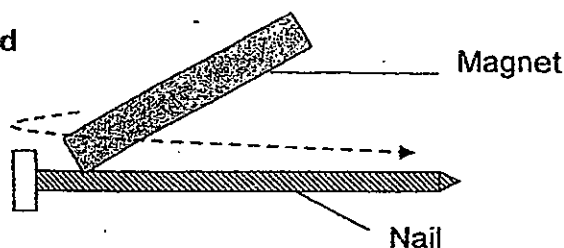
Magnet	Number of pins attracted
A	3
B	2
C	5
D	3

Which one of the following statements is true about the strength of the magnets?

- (1) Magnet B is the weakest magnet.
- (2) Magnet C is the strongest magnet.
- (3) Magnet A is weaker than magnet D.
- (4) Magnet A is not as strong as magnet B

27. Three identical iron nails P, Q and R were made into temporary magnets by stroking them with different number of strokes using the same magnet.

Stroking Method



P, Q and R were then hammered 20 times each and tested to find out if they could still attract paper clips. The procedure was repeated for each magnet by increasing the total number of times they were hammered.

The table below shows the results collected.

Magnet Number of times hammered	P	Q	R
20	✓	✓	✗
30	✓	✗	✗
50	✗	✗	✗

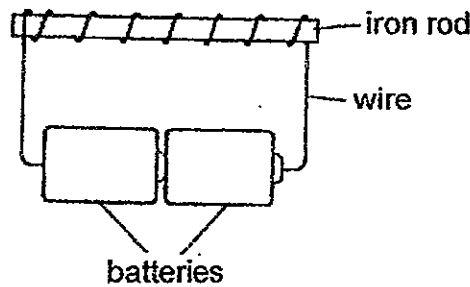
✓ - attracts some paper clips

✗ - does not attract any paper clips

Based on the above results, which one of the following statements is correct?

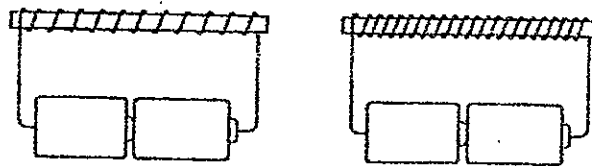
- (1) Magnet R is the weakest magnet.
- (2) Magnet P is as strong as magnet Q.
- (3) Magnet Q has been stroked the most number of times.
- (4) Magnet P is stronger than magnet R but weaker than magnet Q.

28. Jun Meng wants to show that the pull of an electromagnet can be increased by changing both the number of batteries and the number of turns of wire around an iron rod. The diagram below shows one of Jun Meng's three set ups.

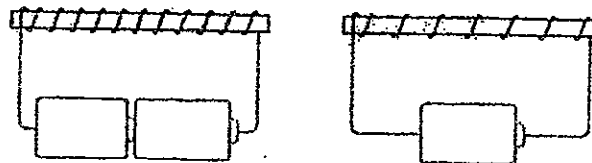


Jun Meng needs two more set-ups for his experiment. Which one of the following pairs of set-ups can he use if the iron rods in each pair are identical?

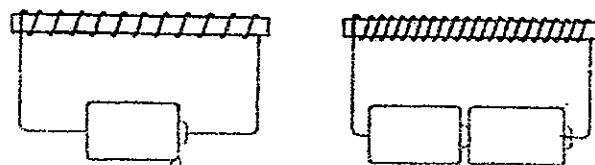
(1)



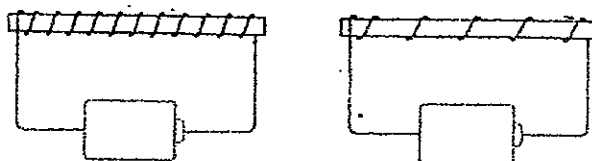
(2)



(3)



(4)

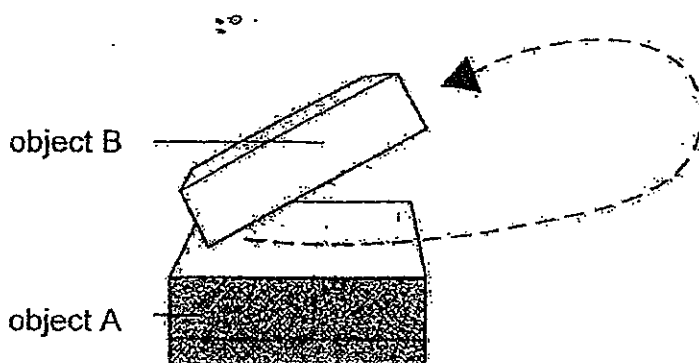


29. Ravi wants to leave a note for his brother. With a piece of magnet, he can stick the note onto the _____

- A wooden door
- B door of the refrigerator
- C aluminium grille

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

30. Object B was used to stroke object A from one end to the other for 50 times as shown in diagram below.



Object B was then used again to stroke object C for 50 times using the same method. Objects A and C were then placed near a small steel needle immediately after repeated stroking. It was found that only object ~~B~~^A could attract the needle but not object C.

Which of the following correctly shows what object A, B and C could be made of?

	A	B	C
1)	magnet	copper rod	iron rod
2)	iron rod	magnet	aluminum rod
3)	steel rod	copper rod	magnet
4)	magnet	magnet	steel rod



**PRIMARY FOUR SCIENCE
SEMESTRAL ASSESSMENT 1**

2012

BOOKLET B

Date : 9 May 2012

Duration : 1 h 45 min

Name : _____ ()

Class: Primary 4 (A)

Marks Scored:

Booklet A:		60
Booklet B :		40
Total :		100

**Any query on marks awarded should be raised by
We seek your understanding in this matter as any delay in the
confirmation of marks will lead to delays in the generation of results.**

Parent's signature:

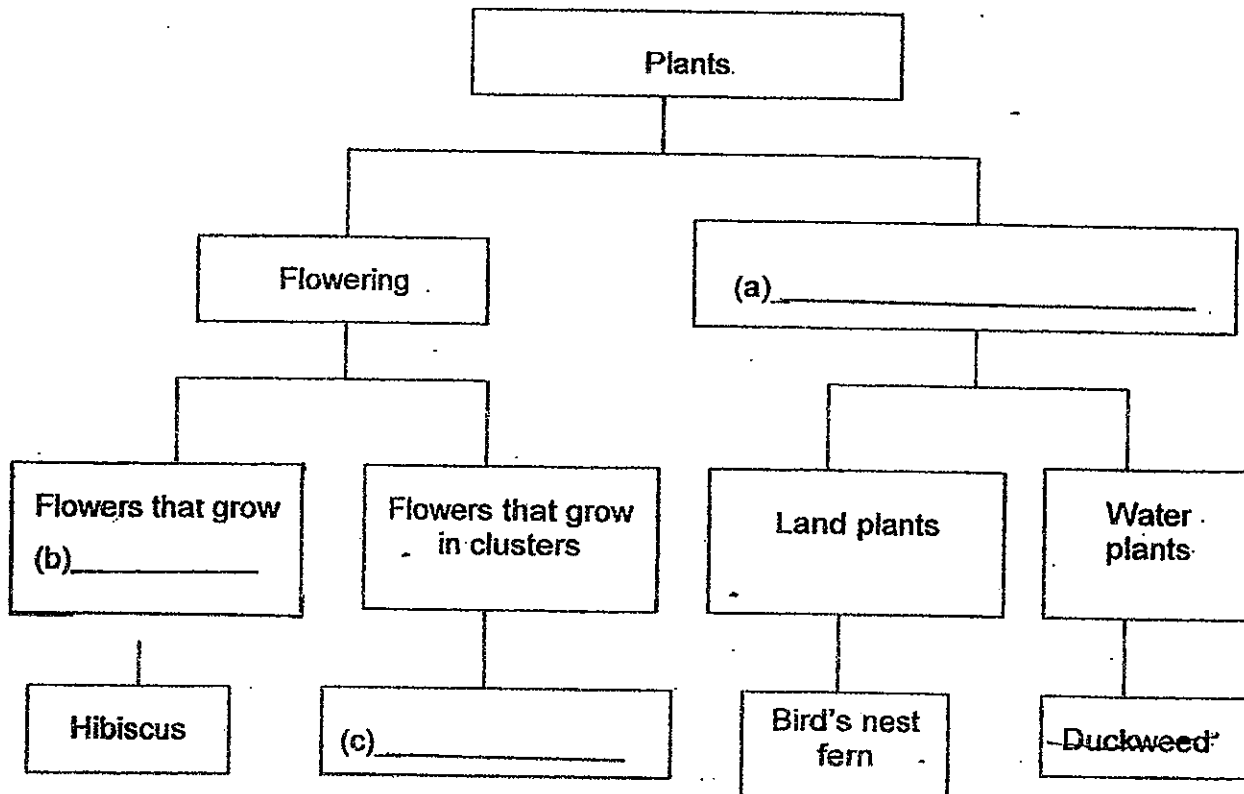
**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.**

Booklet B consists of 14 printed pages including this cover page.

Section B (40 marks)

Write your answers to questions 31 to 44 in the spaces provided.
Marks will be deducted for misspelt key words.

31. Look at the classification table on plants below and complete it by filling in the correct word in the boxes provided. [3]



32. The table below shows how some organisms had been classified. Study the table and answer the questions that follow.

Mammals	Insects	Birds
Cat	Butterfly	Hawk
Dog	Ladybug	Duck
Hamster	Spider	Goose

- (a) i) Name the animal which has been classified wrongly in the table above. [1]

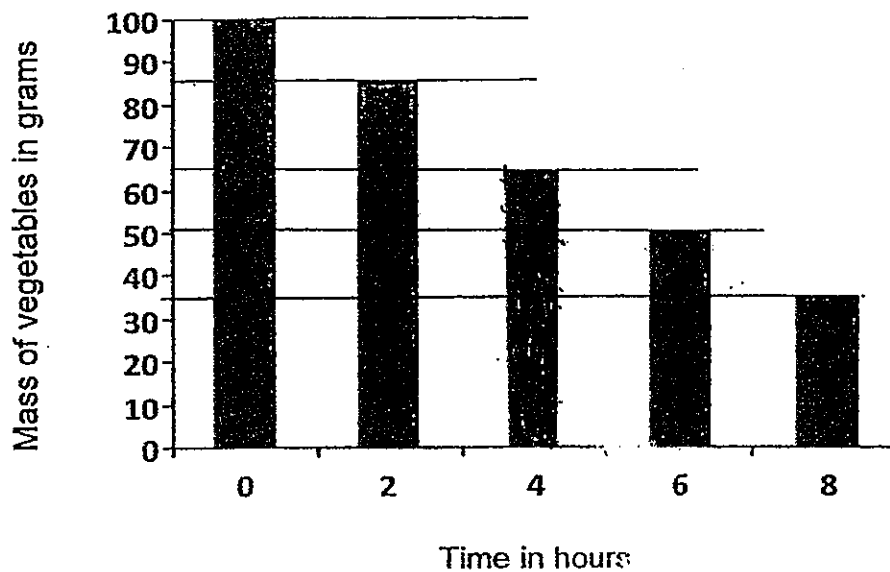
- ii) State a characteristic of the animal in (i) to explain why it has been classified wrongly. [1]

- (b) Name one characteristic of birds. [1]

33. Louis put some vegetables and some minced meat into a box. He then placed an animal X into the box. He recorded the mass of the vegetables and meat in the table as shown below.

	Vegetables	Minced meat
Beginning	100 g	100 g
After 2 hours	85 g	100 g
After 4 hours	?	100 g
After 6 hours	50 g	100 g
After 8 hours	35g	100 g

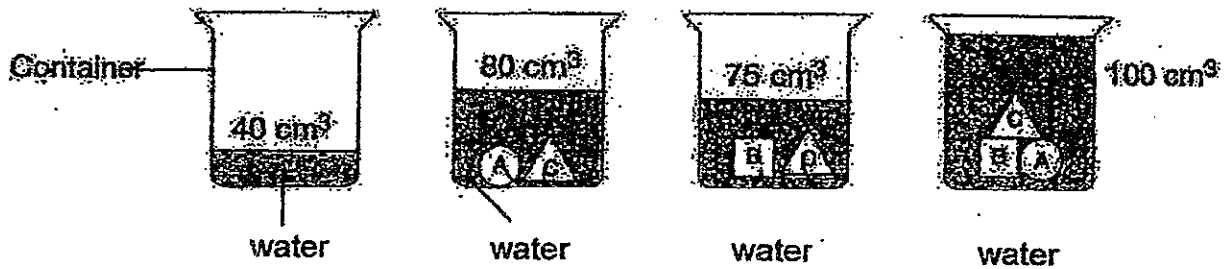
- (a) On the bar graph below, using a pencil and ruler, draw a bar to indicate the amount of vegetables after 4 hours. [1]



- (b) After his experiment, Louis concluded that animal X is a plant eater. Based on the table above, give a reason for his conclusion. [1]

- (c) Name an animal which could represent animal X. [1]

34. The set-up below shows different phases of an investigation.

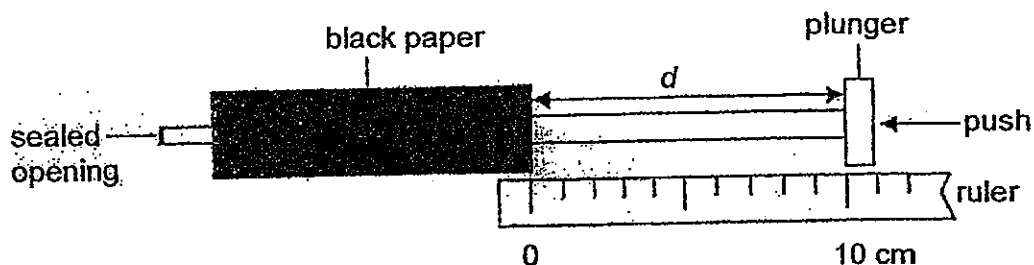


The container above holds 40 cm³ of water. Objects A, B and C are put into the container and the water level rises as shown in the diagrams above.

- (a) What is the volume of object C? [1]

- (b) Based on the investigation above, what is the common property that both solids and liquids have? [1]

35. Edison conducted an investigation on two substances X and Y using two identical syringes. Each syringe was covered with black paper and completely filled with either substance X or Y.



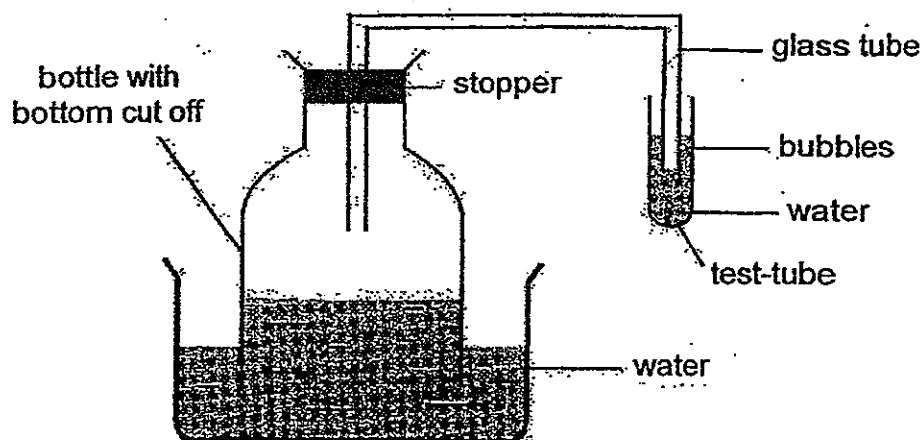
He pushed each plunger as hard as he could. He then measured the distance, d . The table below shows his results.

Distance d (cm)	
Syringe with X	Syringe with Y
10	4

- (a) Based on his result, identify the **state** of substance X. [1]

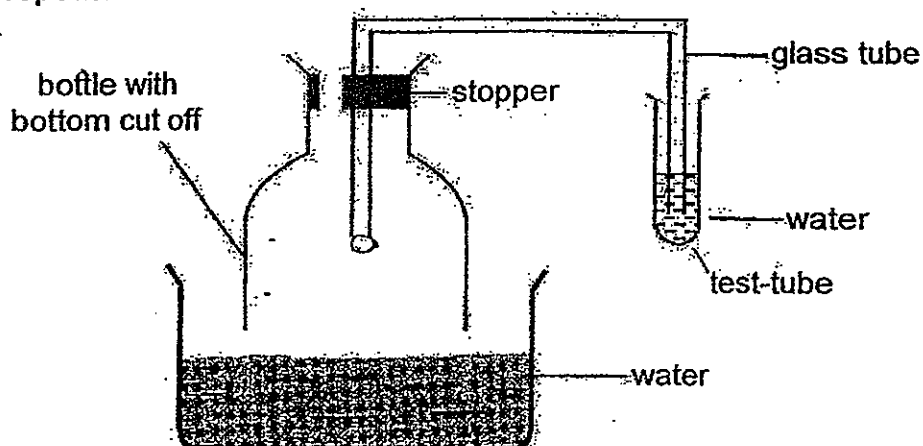
- b) Based on his result, identify the **state** of substance Y and explain your answer [2]

36. In the experiment below, the bottom of the bottle is cut and the bottle is pushed into a basin of water. Bubbles can be seen coming out of the water in the test tube.



- (a) Explain why the bubbles were seen in the test tube? [1]

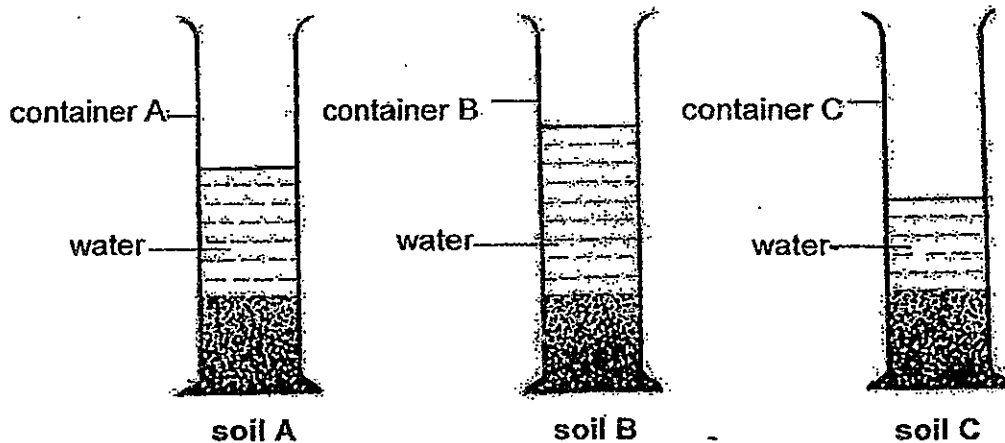
A hole is then made in the stopper as shown below and the experiment is repeated.



- b) i) Describe what would be observed in the test tube. [1]

37. Alexander was told that there are some air spaces between soil particles. He conducted the following experiment to find out which type of soil contained the most air spaces between the soil particles.

He placed 50g of soil A, B and C each into 3 separate containers. He then poured 100ml of water into each of the 3 containers. The result of his experiment is shown below.



- (a) i) Which soil, A, B or C, had the most air spaces? [1]

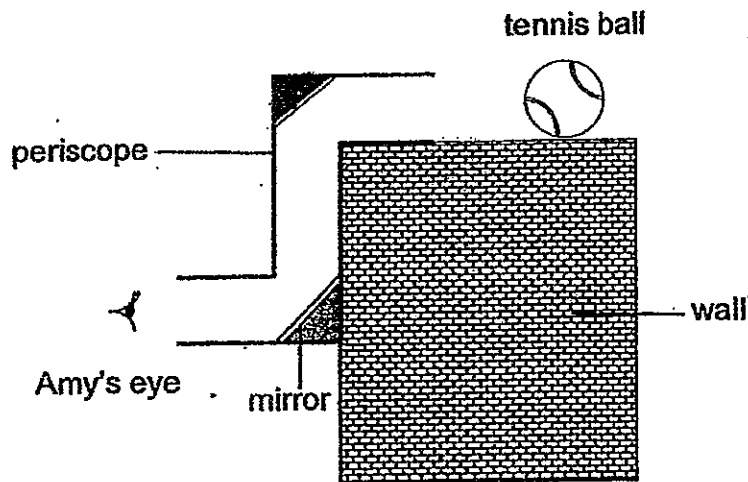
Soil _____

- ii) Explain your answer in (a) [2]

- (b) In order for Alexander's experiment to be a fair one, which of the following conditions must be kept the same and which must be changed? Put a tick (✓) in the correct column. [2]

Conditions	Kept the same	Changed
Size of container		
Type of soil		
Amount of soil		
Amount of water		

38. Amy made a periscope as shown below.



When she tried to use the periscope to see the tennis ball on the wall, she was unable to do so.

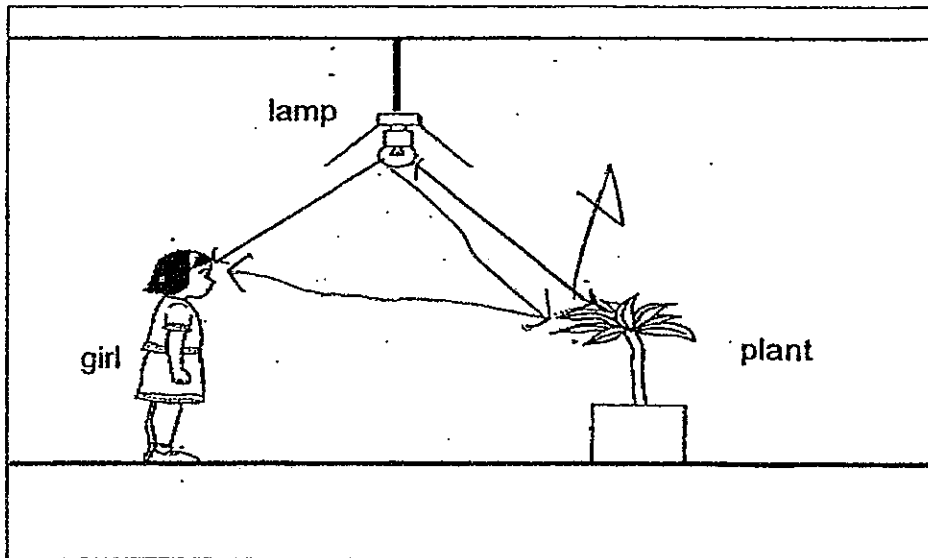
(a) Draw and label another mirror in the diagram above to make her periscope work. [1]

(b) State 2 properties of light which allow the image of an object to be seen through a periscope. [2]

(i) _____

(ii) _____

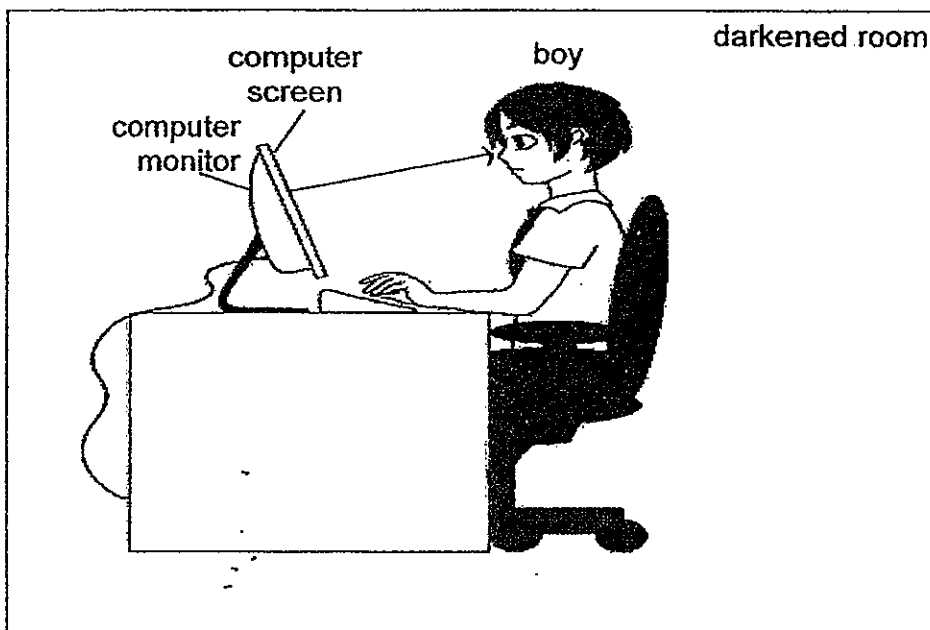
- 39 The diagram below shows a girl in a brightly lit room with a pot of plant.



- (a) On the diagram above, draw the light rays using line(s) with arrowhead(s) to show how the girl was able to see the plant.

[1]

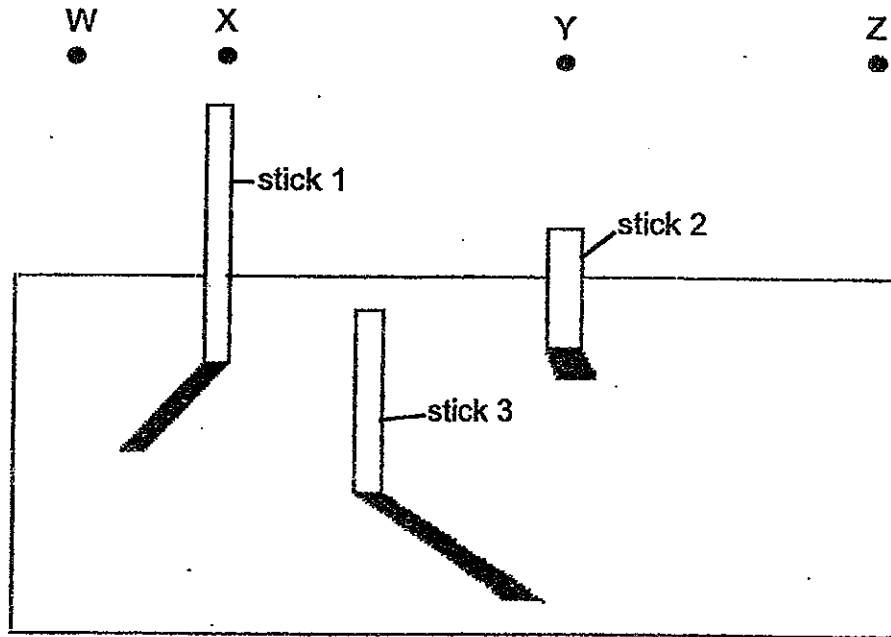
The diagram below shows a boy looking at a document on a computer screen while in a dark room.



- (b) On the diagram above, draw the light rays using line(s) with arrowhead(s) to show how the boy could see the document on the computer screen.

[1]

40. The diagram below shows wooden sticks 1, 2 and 3 and the shadows they formed.
W, X, Y and Z are directions that a torch could be shining from to cast the shadows shown in the diagram.



- (a) In the table below, indicate the direction W, X, Y or Z which the light was shining from to form the shadow of wooden stick 1, 2 and 3. [1]

Shadow of wooden stick	Direction of Torchlight
1	
2	
3	

- (b) Based on the experiment above, explain how a shadow is formed. [2]

41. Study the group of objects below.

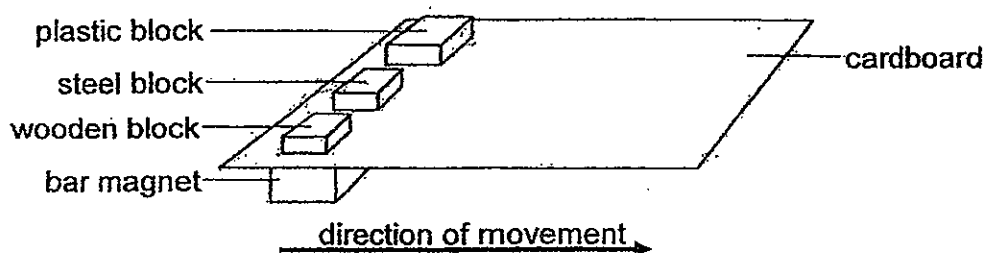
Clear spectacle lens	Cardboard	Coloured cellophane paper
Wooden chair	Rubber ball	Frosted window pane

Classify the objects above according to the properties stated in the table below.

[3]

Allows no light to pass through	Allows some light to pass through	Allows most light to pass through

42. Magdalene placed three blocks of different materials on a thin piece of cardboard. She then put a bar magnet under the cardboard and moved the bar magnet to the other end of the cardboard as shown below.



Magdalene noticed that only the steel block moved with the magnet to the other end of the cardboard.

- (a) Explain why the plastic and wooden block did not move. [1]

- (b) The experiment was not a fair test. State what Magdalene should do to ensure a fair test. [1]

43. Jack was given the following materials.

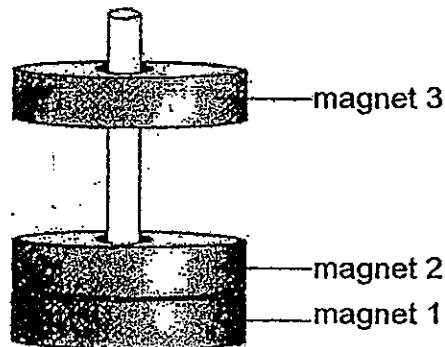
- one wooden ruler
- one paper clip
- 2 bar magnets T and U

He was told to use all the above materials to find out which magnet, T or U has greater magnetic strength.

Jack recorded his procedure in the table below. Steps 1, 2, 4 and 5 had been written for you. **Write down steps 3 and 6** which he need to conduct to complete his experiment.

Steps	Actions	
1	Place magnet T next to the ruler	
2	Place a paper clip along the ruler about 20 cm away from magnet T	
(a) 3		[1]
4	Measure maximum distance between magnet and clip that still allows clips to be attracted.	
5	Repeat steps 1 – 4 for magnet T to get reliable results.	
(b) 6		[1]

44. Ben put three ring magnets through a vertical wooden rod, one above the other. He observed that magnet 2 rested on top of magnet 1 while magnet 3 'floated' above magnet 2.



- (a) Explain his observation.

[2]

- (b) What could Ben do such that the three magnets were attracted to one another?

[1]

~ END OF PAPER ~
Have you checked your work? -

Nanyang Primary School
Semestral Assessment 1 – 2012
Answer Key for P4 Science

1)	3	6)	2	11)	4	16)	3	21)	1	26)	3
2)	3	7)	2	12)	2	17)	2	22)	2	27)	1
3)	2	8)	1	13)	4	18)	3	23)	4	28)	2
4)	1	9)	2	14)	3	19)	1	24)	3	29)	1
5)	1	10)	4	15)	2	20)	4	25)	1	30)	2

31. (a) Non-flowering

(b) Singly

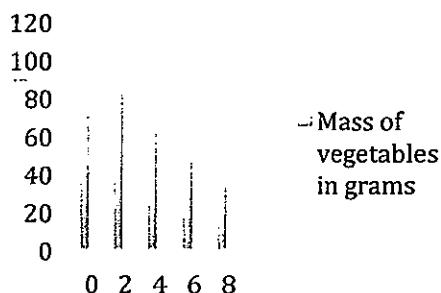
(c) Ixora

32. (a) i. Spider

ii. An insect has three body parts but a spider only has two body parts.

(b) They all lay eggs.

33. (a)



(b) Animal X did not eat any minced meat but it only ate vegetables.

(c) Giraffe

34. (a) 15 cm^3

(b) Solids and liquids occupy space.

35. (a) Liquid state

(b) Gaseous state. d has become shorter hence it shows that Y can be compressed.

36. (a) The air in the bottle has to escape through the tube and water enters the bottle to take up the space left by the air.

(b) i. The water level inside and outside the bottle will be the same and there will be no bubbles formed in the test tube.

ii. The air in the bottle can escape through the hole and there is no need for the air to escape through the test-tube.

37. (a) i. C

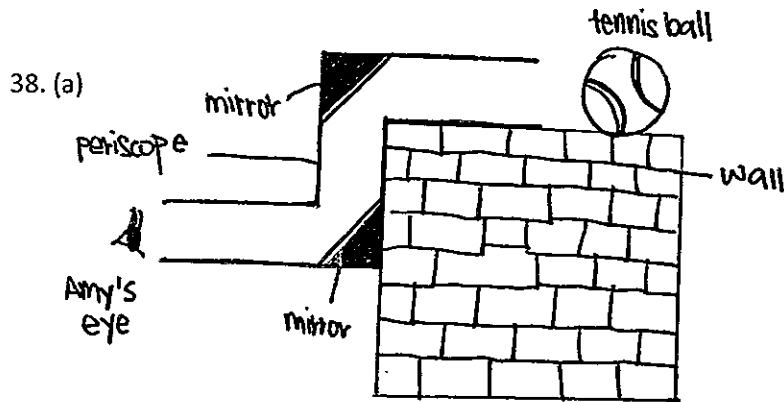
ii. Soil C has the most air spaces because the water level in this is the lowest.

(b) Kept the same

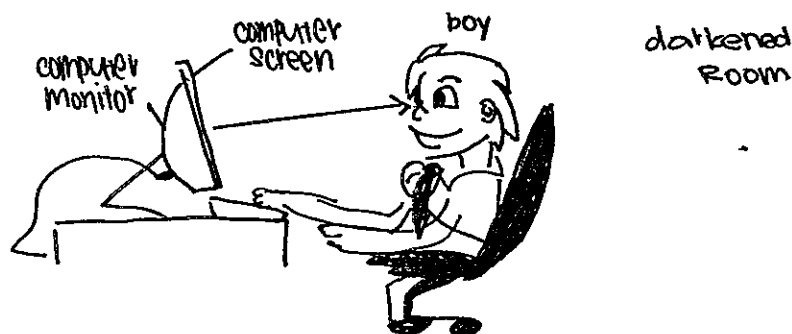
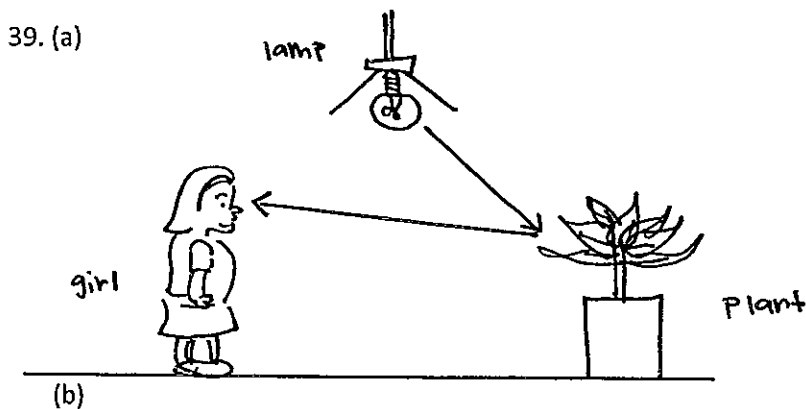
Changed

Kept the same

Kept the same



- (b) i. Light travels in a straight line.
ii. Light can be reflected.



40. (a) Y
Y
W

(b) A shadow is formed when light is blocked by an object that does not allow light to pass through.

41. Allows no light to pass through → wooden chair, rubber ball, cardboard
Allows some light to pass through → coloured cellphone paper, frosted window pane
Allows most light to pass through → clear spectacle lens

42. (a) They are not magnetic materials.
(b) Make the blocks have the same size.

43. (a) Step3 → Put the magnet closer to the paper clip until it is attracted.
(b) Step6 → Repeat experiment for magnet U.

44. (a) The unlike poles of magnet 1 and 2 are facing each other so they are attracted to each other. The like poles of magnet 2 and 3 are facing each other so they repel each other.

14.