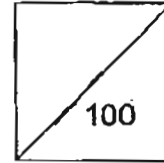




**HENRY PARK PRIMARY SCHOOL  
2011 SEMESTRAL EXAMINATION 1  
SCIENCE  
PRIMARY 4**

Duration of Paper: 1 h 45 min



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

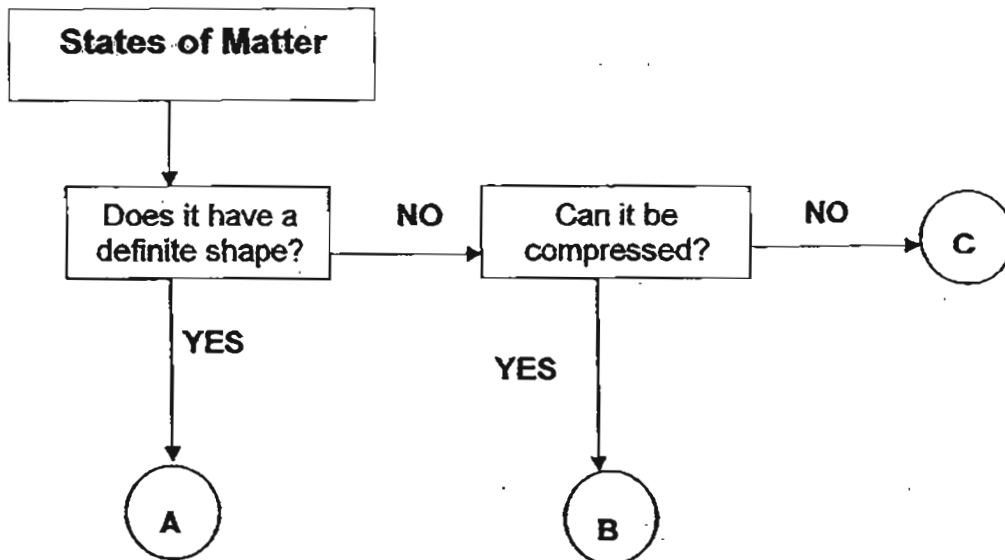
Parent's Signature \_\_\_\_\_

Class: Pr 4 \_\_\_\_\_

**Booklet A (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.

1. The flowchart below shows the properties of 3 states of matter, A, B and C.



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

	A	B	C
(1)	gas	solid	liquid
(2)	solid	liquid	gas
(3)	liquid	gas	solid
(4)	solid	gas	liquid

( )

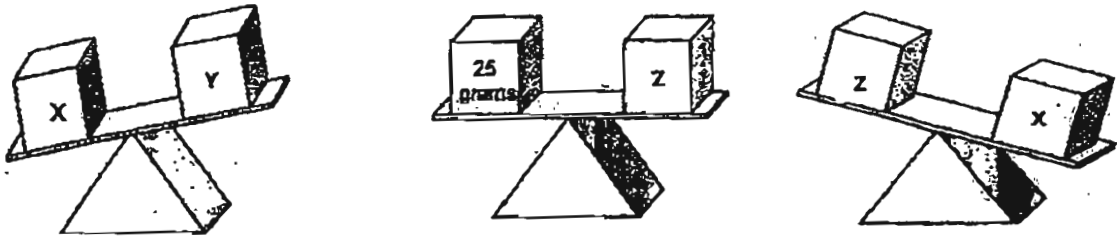


2. Which of the following is **NOT** a matter?

- (1) Apple
- (2) Wind
- (3) Sunlight
- (4) Water Vapour

( )

3. Look at the diagrams below.

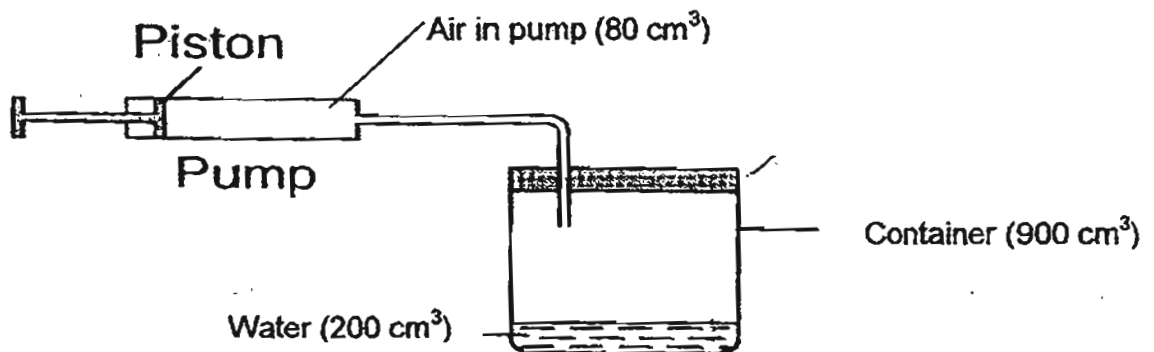


Which one of the following statements is true?

- (1) Box Y has more mass than Box X.
- (2) Both Box X and Box Y have the same mass.
- (3) Box X has a mass of more than 25 grams.
- (4) Box Z has the greatest mass.

( )

4. Sally wanted to use a piston to pump in  $80 \text{ cm}^3$  of air into a container. There is already  $200 \text{ cm}^3$  of water in the container. The volume of the container is  $900 \text{ cm}^3$ .



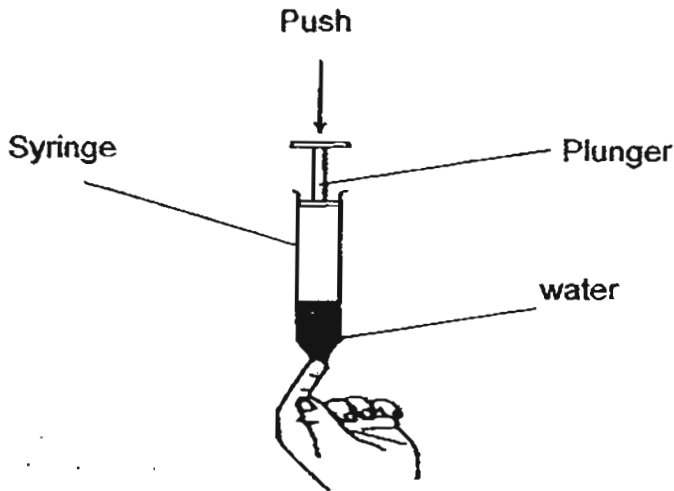
What will the volume of the air in the container be after Sally pumps the air into it?

- (1)  $80 \text{ cm}^3$
- (2)  $700 \text{ cm}^3$
- (3)  $780 \text{ cm}^3$
- (4)  $900 \text{ cm}^3$

( )

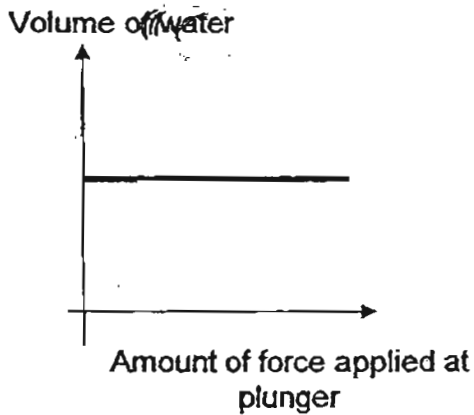


5. Megan conducted an experiment using a syringe that was partly filled with water. She covered one end of the syringe and tried to push the plunger down.

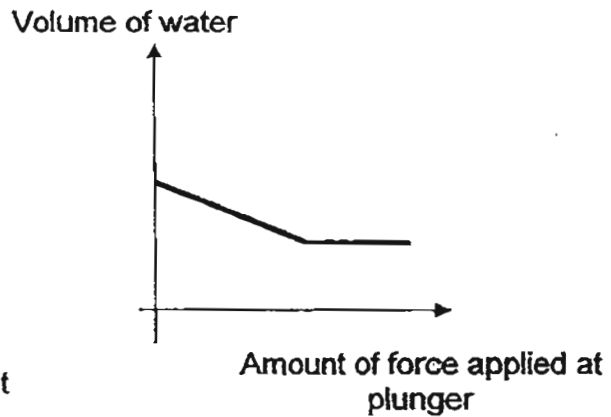


Which one of the following graphs shows the correct change in the volume of water in the syringe as the plunger is being pushed down?

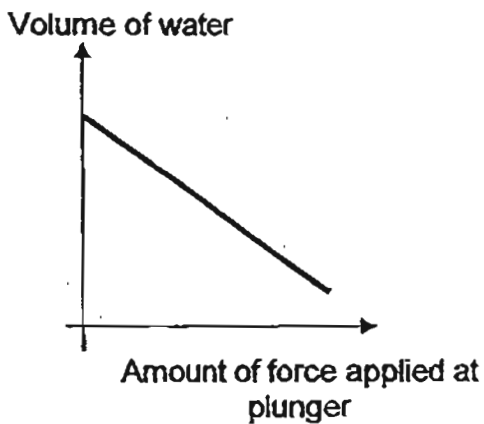
(1)



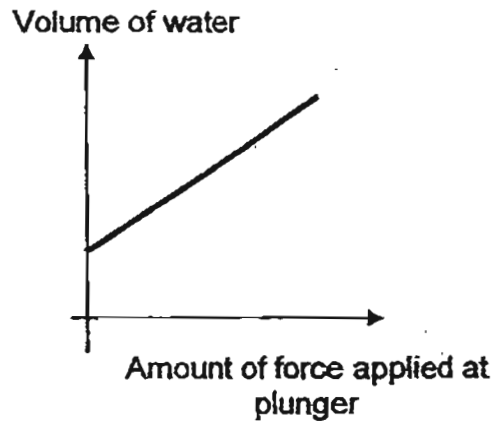
(2)



(3)



(4)

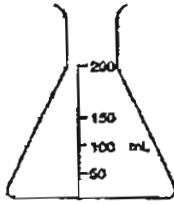


( )

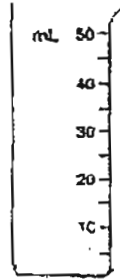


6. Which of the following instruments shown below can be used to measure the mass of an object?

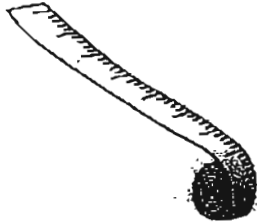
(1)



(2)



(3)



(4)



( )

7. Which of the following is the correct reading for the thermometer below?



- (1) 52 °C
- (2) 53 °C
- (3) 54 °C
- (4) 55 °C

( )

8. Which of the following statements about heat is/are correct?

- A: Heat helps living things to keep warm.
- B: ~~Heat~~ enables man and animals to see.
- C: Heat is needed to dry clothes.
- D: Heat is a kind of matter.

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

( )



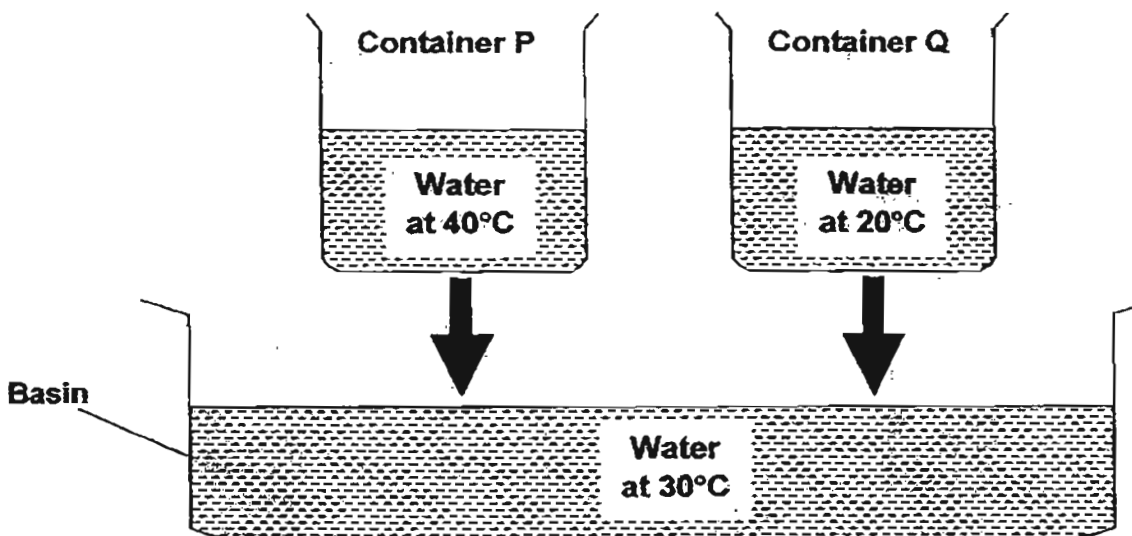
9. A few boys carried out an experiment to compare the temperature of air in the open and under the shade of a tree. They took 2 identical thermometers, placed 1 in the Sun for 10 minutes and the other in the shade for 15 minutes. They had not done a fair test because \_\_\_\_\_.

- A: they used similar thermometers
- B: the thermometers were placed in different places
- C: the duration of time for each experiment was different

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

( )

10. Two beakers, P and Q, contained the same amount of water at different temperatures. Both containers were then lowered into a basin of water that has a temperature of 30°C at the same time as shown below.



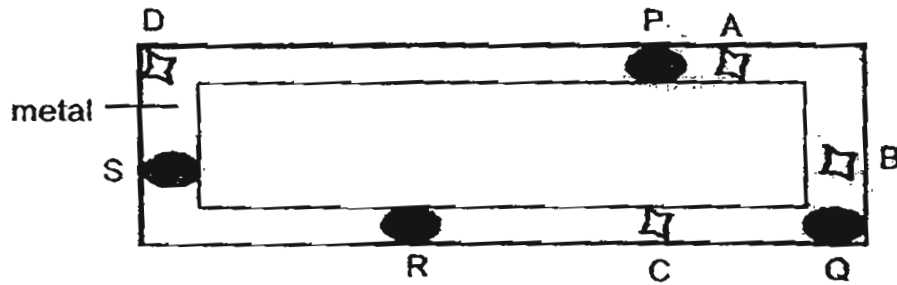
Which of the following correctly describes the temperature of both containers after 5 minutes?

	Temperature of water in beaker P (°C)	Temperature of water in beaker Q (°C)
(1)	Increase	Decrease
(2)	Decrease	Increase
(3)	Decrease	Remain the same
(4)	Remain the same	Increase

( )



11. A, B, C and D are blobs of wax on a piece of metal that is bent into the shape of a rectangle, as shown in the diagram below.

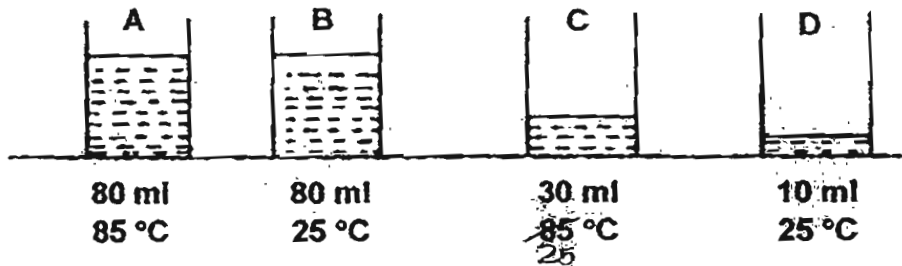


When a certain part of the metal is heated, the blobs of wax melted in the order of C, B, R and then A.  
At which point, P, Q, R or S is the metal heated?

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

( )

12. The diagram below shows four containers, A, B, C and D, that have different amounts of water with different temperatures.



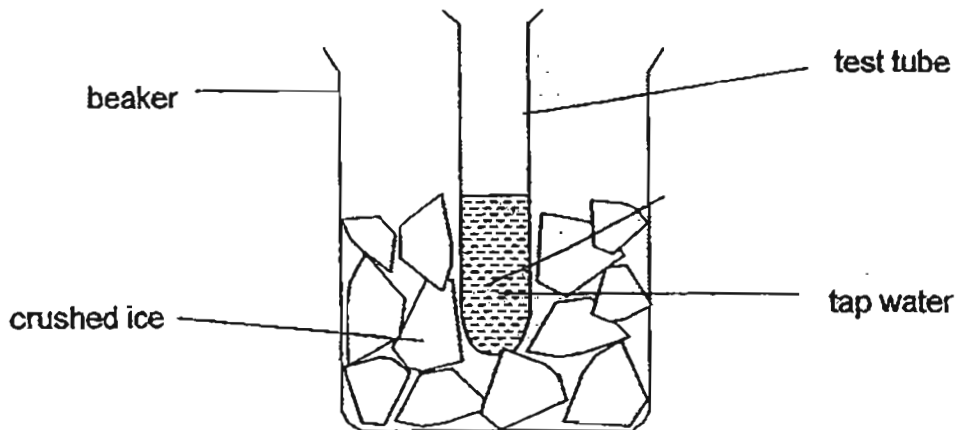
Arrange the containers that contain the most amount of heat to the least amount of heat.

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

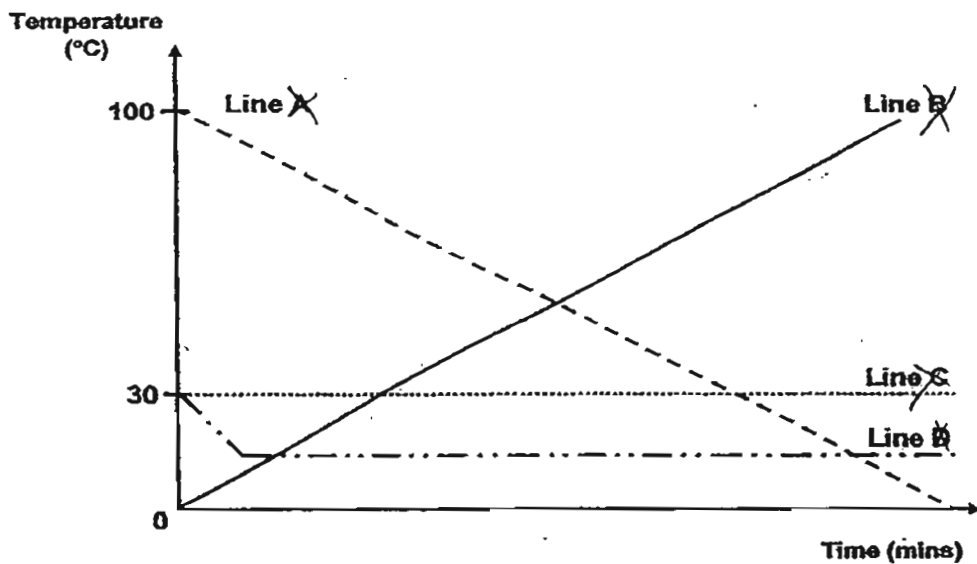
( )



13. Jeremy placed a test tube of tap water into a beaker of crushed ice as shown in the diagram below.



He used a thermometer to measure the temperature of tap water over a period of time. He then drew a line graph to show the change in the temperature of the water for 30 minutes.



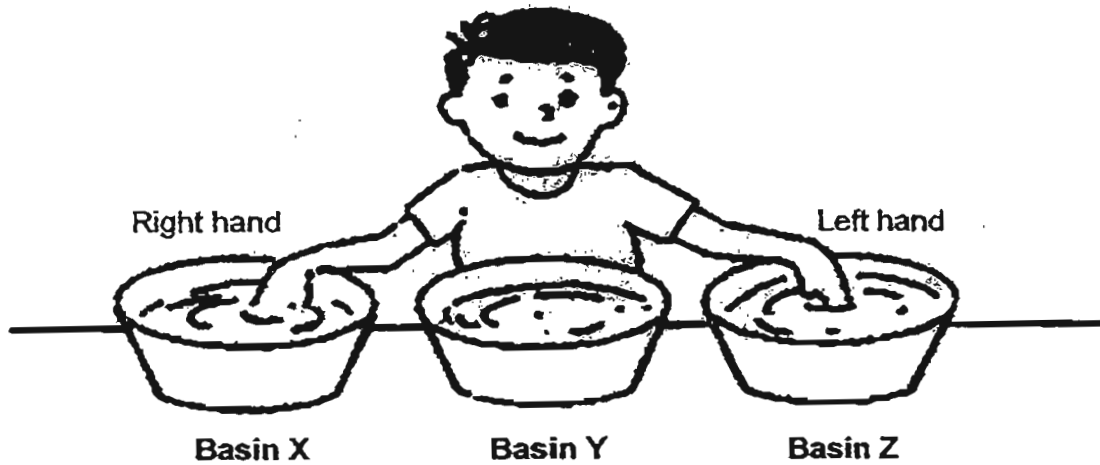
Which one of the above line graphs shows the change in temperature of water correctly?

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

( )



14. Kenji prepared three basins of water, X, Y and Z at different temperatures for an experiment. He dipped his right hand into Basin X and his left hand into Basin Z as shown below.



Two minutes later he dipped both of his hands into Basin Y. He found that the water in Basin Y felt warm to his right hand but felt cold to his left hand.

Which of the following shows the most likely temperature for water in basins X, Y and Z?

	X	Y	Z
(1)	50°C	30°C	10°C
	X	Y	Z
(2)	10°C	30°C	50°C
	X	Y	Z
(3)	10°C	50°C	30°C
	X	Y	Z
(4)	50°C	10°C	30°C

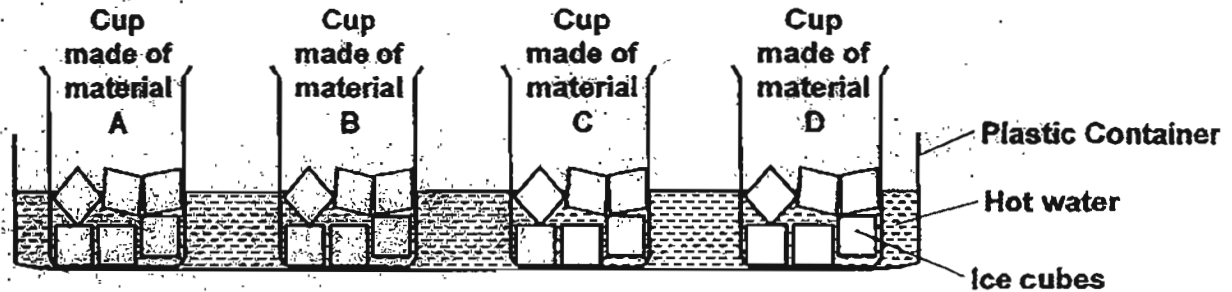
( )



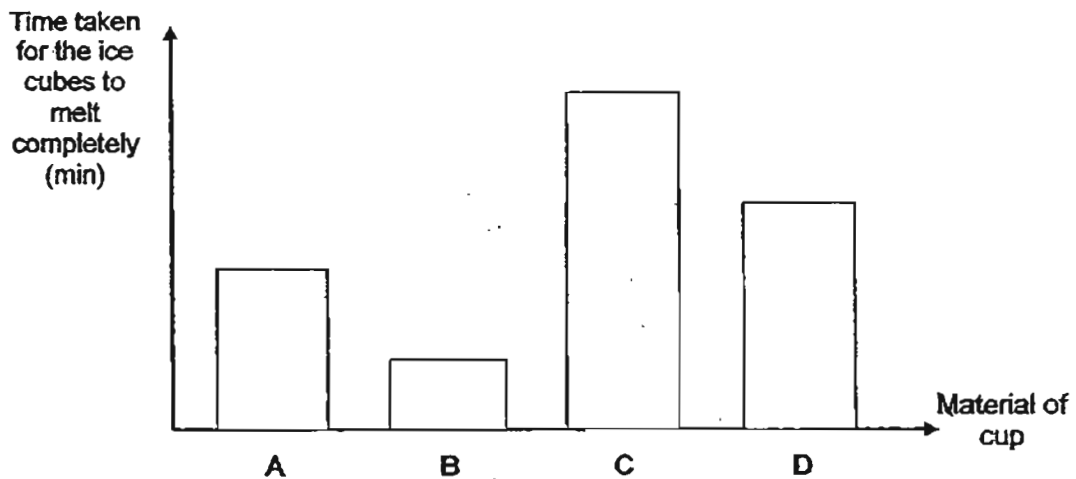


15. Christine has 4 cups made of 4 different materials, A, B, C and D. The cups are of the same size and thickness. She put an equal amount of ice cubes into each cup.

Then, Christine placed all the cups into a plastic container of hot water as shown below.



Christine recorded the time taken for the ice cubes to melt completely in each cup in the graph below.



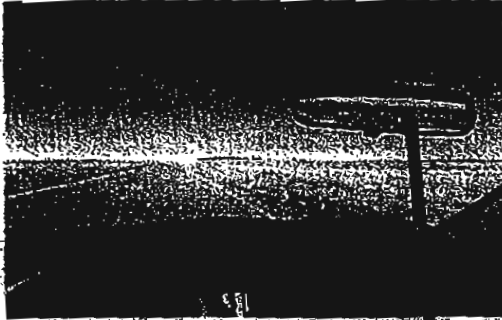
Timothy saw the results from Christine's experiment shown above and he wanted to choose one of the materials to make a pot for cooking. Which material should he use?

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

( )



16. As Matthew was driving, he looked at the rearview mirror and noticed that an ambulance was behind him.



Rearview  
mirror

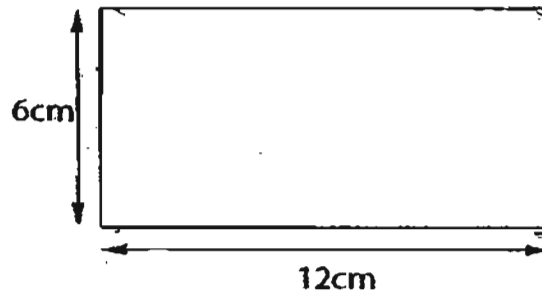
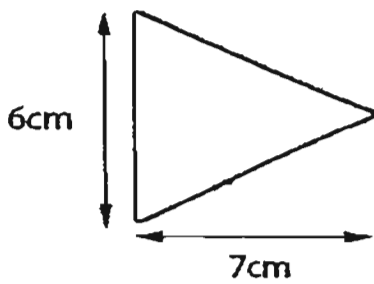


What would Matthew have seen if he had turned his head and looked at the words on the ambulance directly?

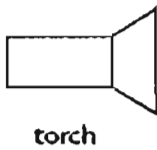
(1)	AMBULANCE
(2)	AMBULANCE
(3)	AMBULANCE
(4)	AMBULANCE



17. The diagram below shows two pieces of wood of different shapes.



The two pieces of wood are glued together and placed between a torch and a screen as shown below.



Two pieces  
of wood  
glued  
together



screen

Which one of the following shadow(s) is/are possible to be formed?

<p>A)</p>	<p>B)</p>
<p>C)</p>	<p>D)</p>

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

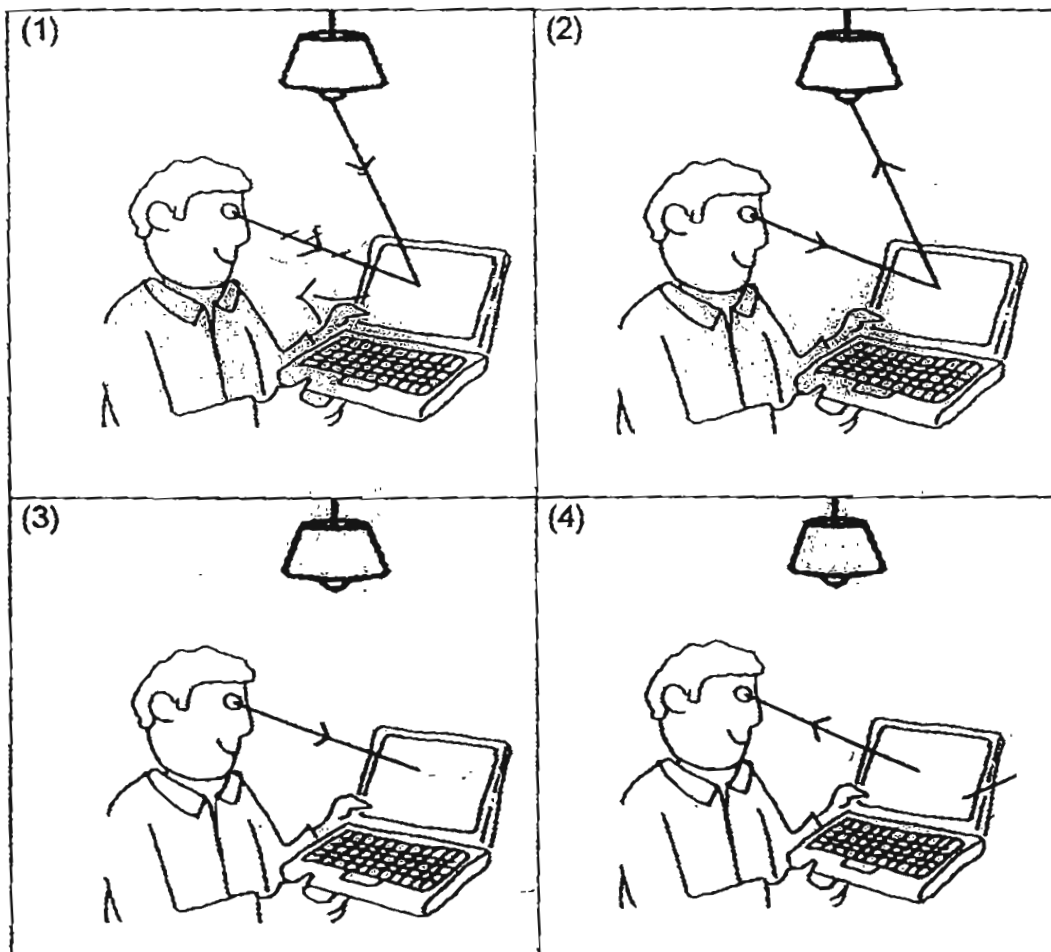
( )



18. Jack is reading his email from a laptop as shown in the picture below.



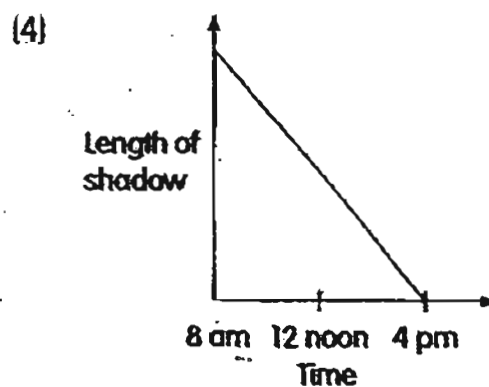
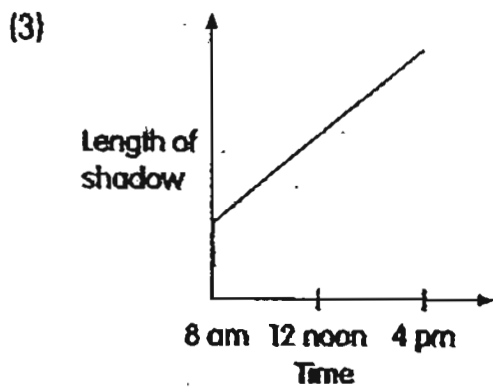
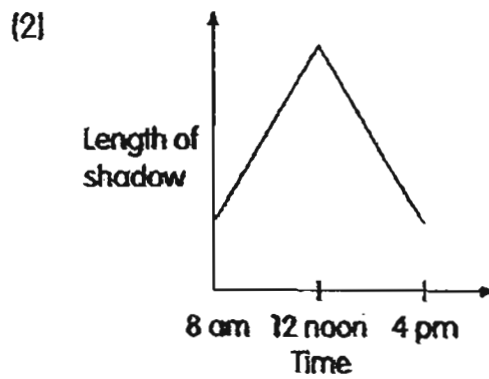
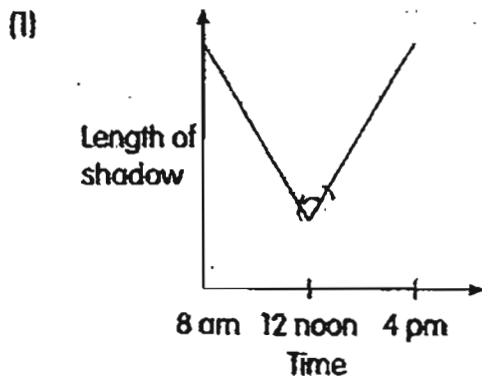
Which of the following correctly shows how light travels to enable him to read his email?



19. Ted measured the length of the shadow of a lamppost as shown in the diagram below.



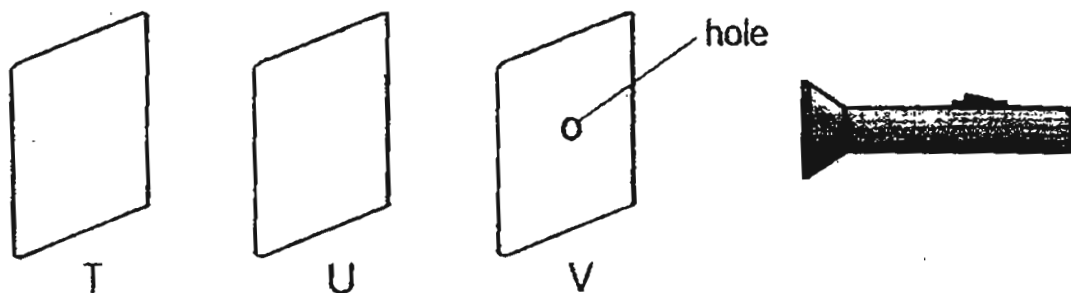
He recorded the length of the shadow at different times of a day and plotted a graph of his results. Which of the following options shows the graph he plotted?



( )



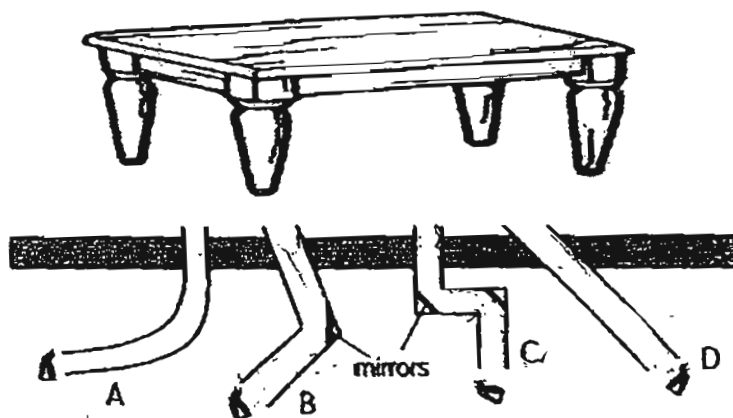
20. Three sheets of different materials T, U and V, were arranged in front of a torch as shown in the diagram below.



When the torch was switched on, a small bright circular patch was seen on sheet T only. Which of the following options best describes the materials T, U and V are made from?

	Sheet T	Sheet U	Sheet V
(1)	Wood	Clear plastic	Wood
(2)	Cardboard	Wood	Cardboard
(3)	Clear glass	Clear glass	Clear glass
(4)	Clear Plastic	Cardboard	Tracing paper

21. The diagram below shows a table placed next to a wall. The wall has 4 tubes, A, B, C and D, built into it.



Through which tubes will a person be able to see the table?

1) A and B	2) C and D
3) B, C and D	4) A, B, C and D



22. Adam and Ben were walking pass a shop selling soft toys as shown in the picture below. They were able to see the soft toys behind the window and their own reflection in the window at the same time.



Soft Toy

Reflections of  
Adam and Ben

They are able to do so because the glass window \_\_\_\_\_

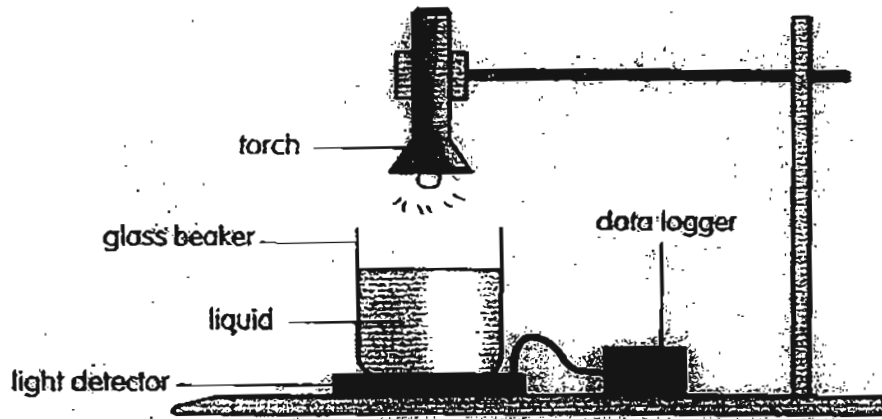
- A. allows light to pass through.
- B. reflects some light into <sup>their</sup> his eyes.
- C. does not allow light to pass through.

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

( )



23. Alex carried out an experiment to find out which liquid allowed the most amount of light to pass through it. The diagram below shows the experimental set-up.



He listed out some possible variables for the experiment. Which one of the following is correct?

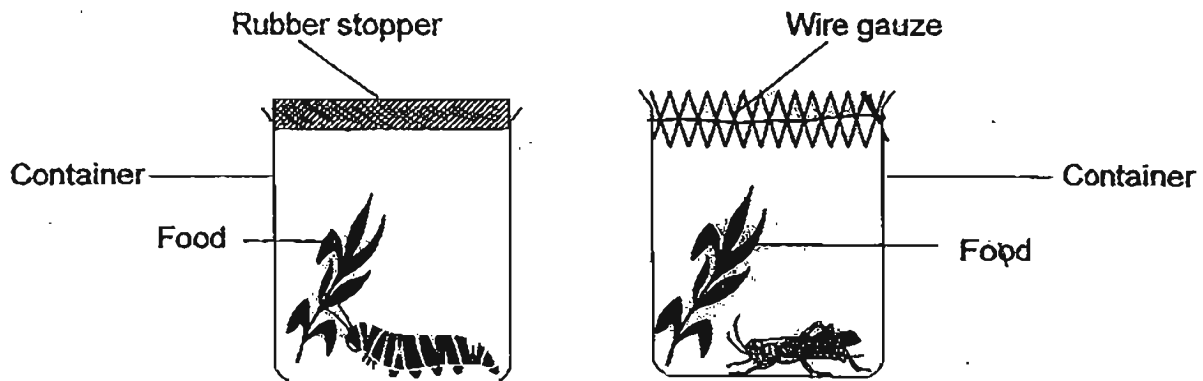
Independent (Test) Variable	Dependent (Measured) Variable
1) Type of liquid used.	Amount of light detected by the light sensor.
2) Distance of torch from the surface of the liquid.	Amount of light detected by the light sensor.
3) Type of liquid used.	Intensity of light shone from the torch.
4) Distance of torch from the surface of the liquid.	Intensity of light shone from the torch.

( )





24. Sita kept two animals in two separate tanks as shown in the diagram below. She wanted to find out if the animals can survive without air.



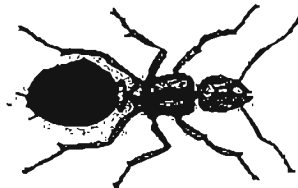
Which are the variables that she need to keep the same in order to have a fair test?

- A: The type of animals.
- B: The amount of air given.
- C: The material of the container.
- D: The amount of food given.

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

( )

25. Look at the picture of Animal A below.



Which one of the following reasons explains why Animal A is ~~NOT~~ a mammal?

- (1) It swims.
- (2) It feeds its young with milk.
- (3) It does not have an outer covering of hair.
- (4) It lives on land.

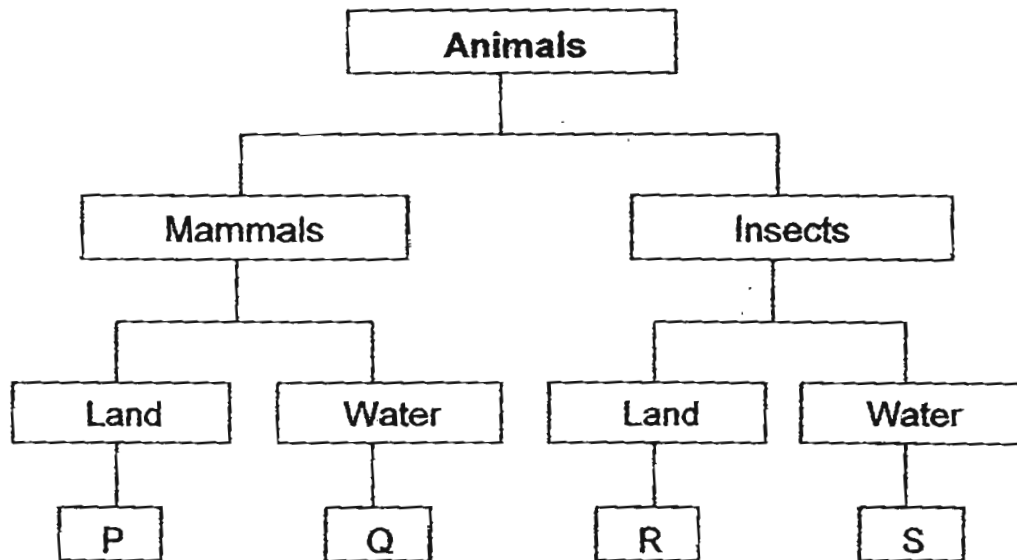
( )



26. The table below provides information on the characteristics of 3 animals, K, L and M.

Animals	K	L	M
Have fur	✓		
Feed its young with milk	✓		
Lays eggs		✓	✓
Live on land		✓	

**Classification Table**



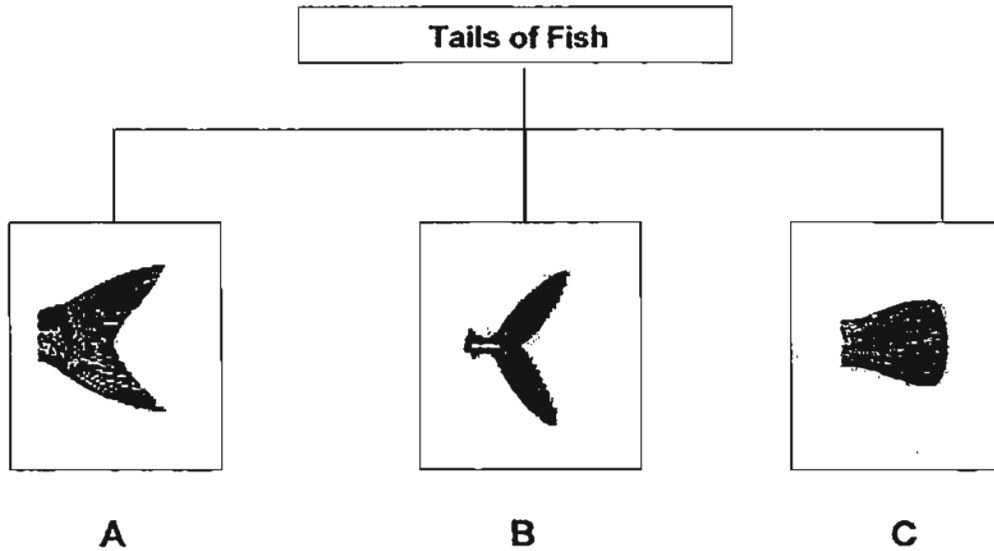
Based on the table above, which group, P, Q, R and S, in the classification table would best represent animals K, L and M?

	K	L	M
(1)	Q	R	S
(2)	P	Q	R
(3)	R	S	Q
(4)	S	P	Q

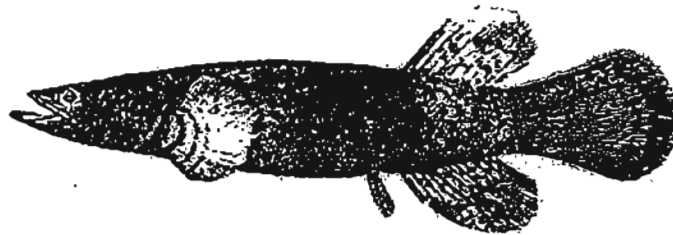
( )



27. Ben saw some fish. He classified them into three groups, A, B and C according to their tails.



In which group will the fish below belongs to?



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

(   )



28. Alison found living thing X in her garden. She observed it for a week and wrote down her observations as shown below.

- X does not move from place to place.
- ~~• X can make its own food.~~
- X can reproduce.
- X needs water.

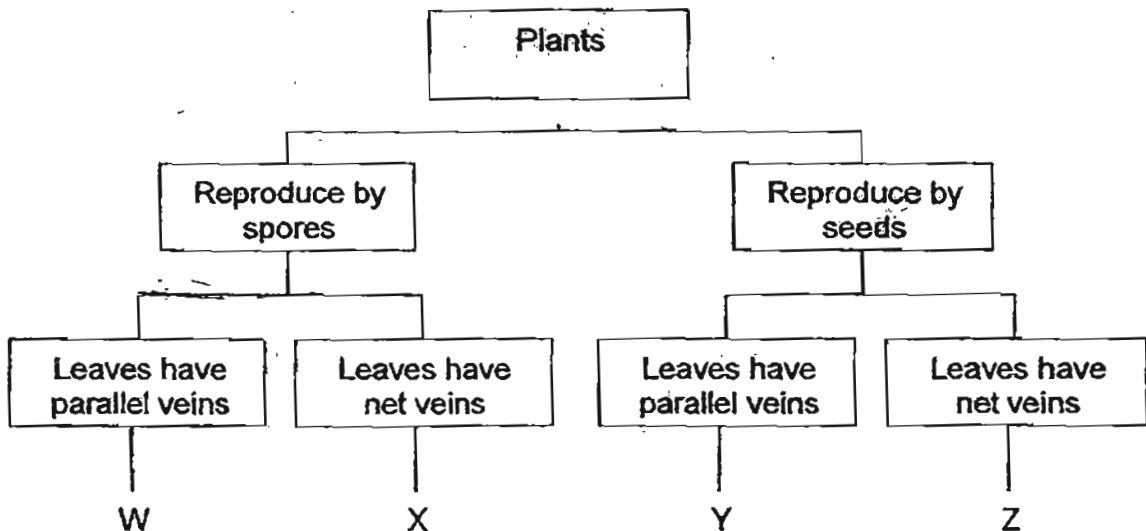
She then showed John her observations and he concluded immediately that living thing X is a plant.

Which observation tells John that Living Thing X can only be a plant?

- (1) It needs water.
- (2) It can reproduce.
- ~~(3) It can make its own food.~~
- (4) It does not move from place to place.

( )

29. The flowchart below shows the characteristics of 4 plants, W, X, Y and Z.



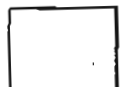
Sam saw 2 plants, A and B and recorded his observations below.

Characteristics	Plant	
	A	<del>B</del>
Produces flowers	Yes	No
Has parallel veins on leaves	No	Yes

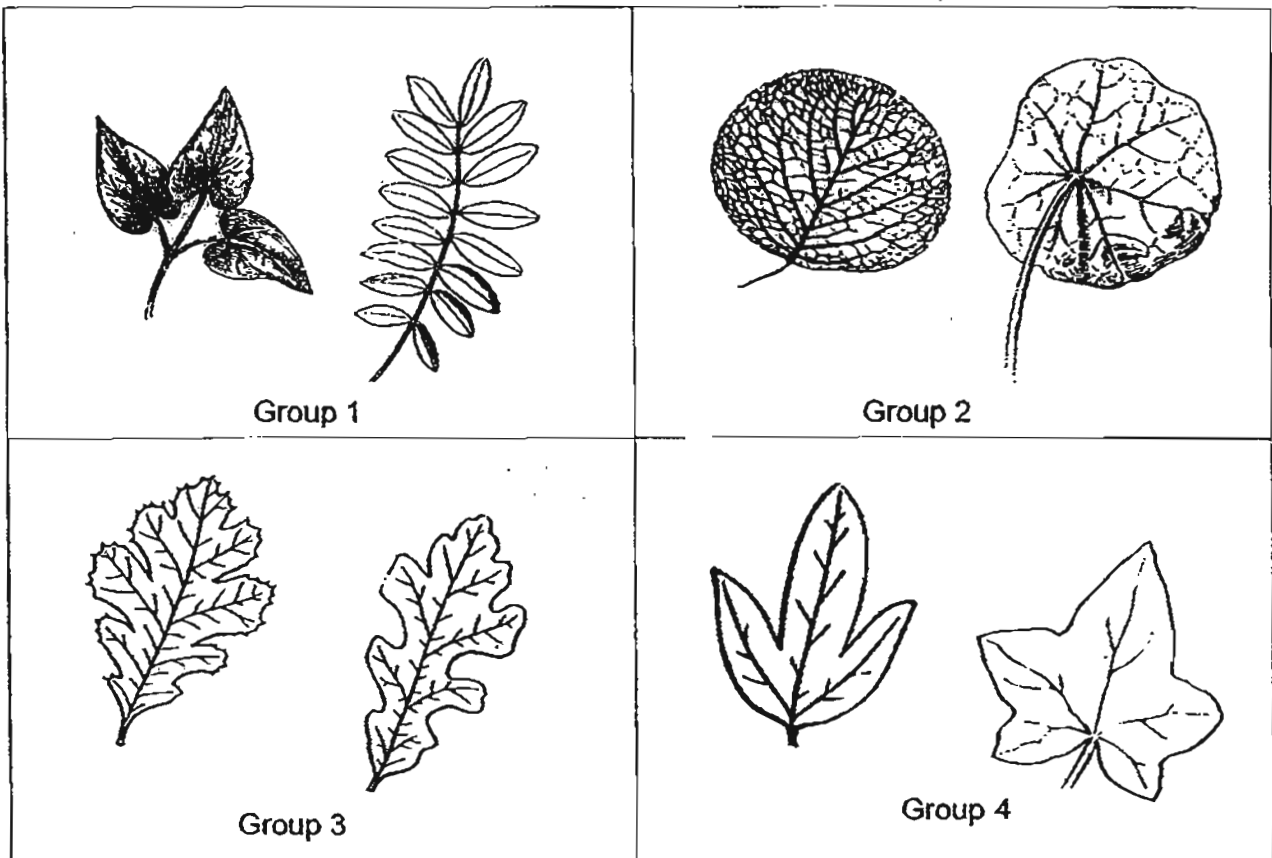
Which plant, W, X, Y or Z could Sam group ~~Plant B~~ with?

- (1) W
- (2) X
- (3) Y
- (4) Z

( )



30. Arjun went for a nature walk in a park and observed some leaves. He then classified them as shown below.



Arjun then saw Leaf V as shown below.



Leaf V

In which group should he classify Leaf V?

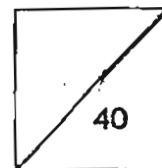
- (1) 1
- (2) 2
- (3) 3
- (4) 4

( )

End of Booklet A



**HENRY PARK PRIMARY SCHOOL  
2011 SEMESTRAL EXAMINATION 1  
SCIENCE  
PRIMARY 4**



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

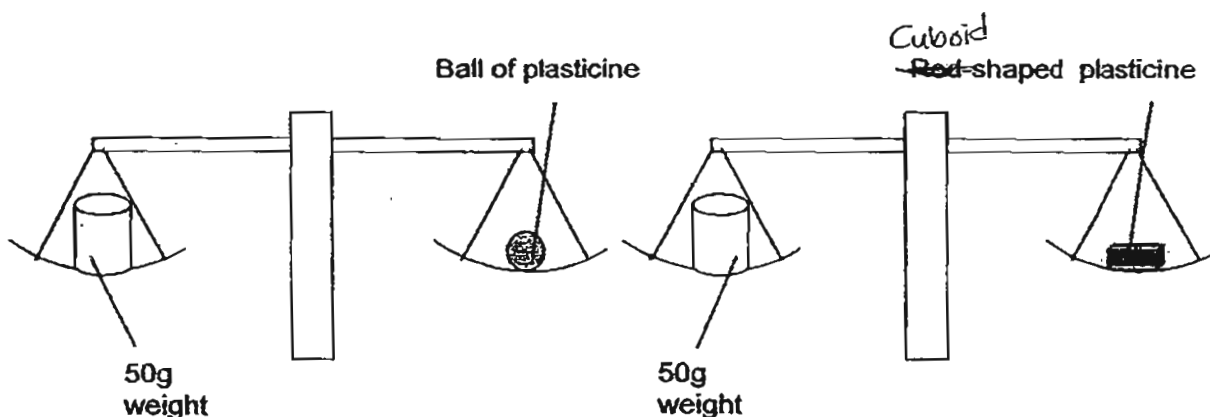
Class: Pr 4 \_\_\_\_\_

11 MAY 2011

**Booklet B (40 marks)**

Write your answers to questions 31 to 44 in the spaces given.

31. Aisha placed a ball of plasticine on a balance to measure its mass. She then shaped the ball of plasticine into a cube. She measured the mass of the plasticine again. The diagrams below show the results of her experiment.



- (a) From the experiment above, what was Aisha trying to find out? (1m)

---



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- (b) If Aisha tries to change the shape of the plasticine from the cuboid shape to a rod shape, will the mass of the plasticine change or remain the same? Explain your answer. (2m)

---



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32. Farel observed three substances, X, Y and Z. He recorded his findings in the table below.

Substance	Takes up space	Has a definite shape	Can be seen	Fixed Volume
X	✓	✓	✓	✓
Y	✓	X	✓	✓
Z	✓	X	X	X

(a) From his observation, which substance is in the solid state? (1m)

\_\_\_\_\_

(b) State two characteristics of the substance from the table above, to support your answer in (a). (1m)

\_\_\_\_\_

\_\_\_\_\_

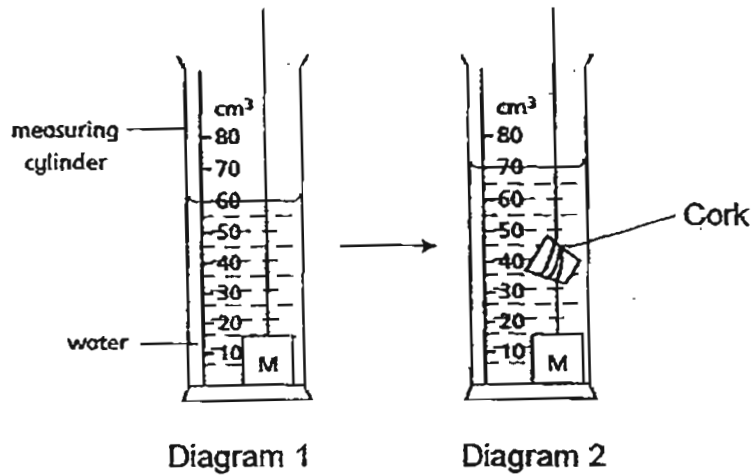
(c) State one similarity between Substance Y and Z from Farel's findings. (1m)

\_\_\_\_\_

\_\_\_\_\_



33. Alice poured  $40 \text{ cm}^3$  of water into a measuring cylinder. She then placed object **M** into the measuring cylinder as shown in Diagram 1 below.



- (a) Alice then added a cork into the measuring cylinder as shown in Diagram 2. What is the volume of the cork? (1m)

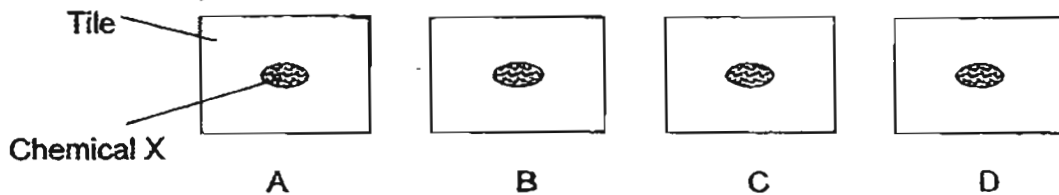
- (b) From this experiment, Alice made two conclusions about matter. Put a tick (✓) against the correct conclusion in the table below. (1m)

	Conclusion	Tick (✓)
(1)	Water has no definite volume as the level of water changed when more objects are added.	
(2)	Water cannot be compressed and when the objects are added, they take up the space occupied by water.	





- 34) Henry carried out an experiment to investigate which tile can absorb the most heat. 4 tiles of the same size with different surfaces were used in the experiment as shown below. A drop of Chemical X was placed on each tile before they were heated at a temperature of 70°C.



Chemical X is white at room temperature and its colour would change when there is a change in temperature. The table below shows how the colour of Chemical X changes.

Temperature	Colour of Chemical X
30° C to 39° C	white
40° C to 50° C	yellow
51° C to 70° C	orange
71° C to 80° C	red

After the tiles were heated for 5 minutes, Henry recorded his observations in the table below.

Tile	Colour of Chemical X after 5 minutes
A	orange
B	white
C	yellow
D	orange

- a) Which tile, A, B, C or D, should Henry use on a roof so that the house would not be hot during the day? (1m)

---

- b) Explain your answer in (a). (1m)

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- c) What should Henry do to find out which tile, A or D, absorbs more heat? (1m)

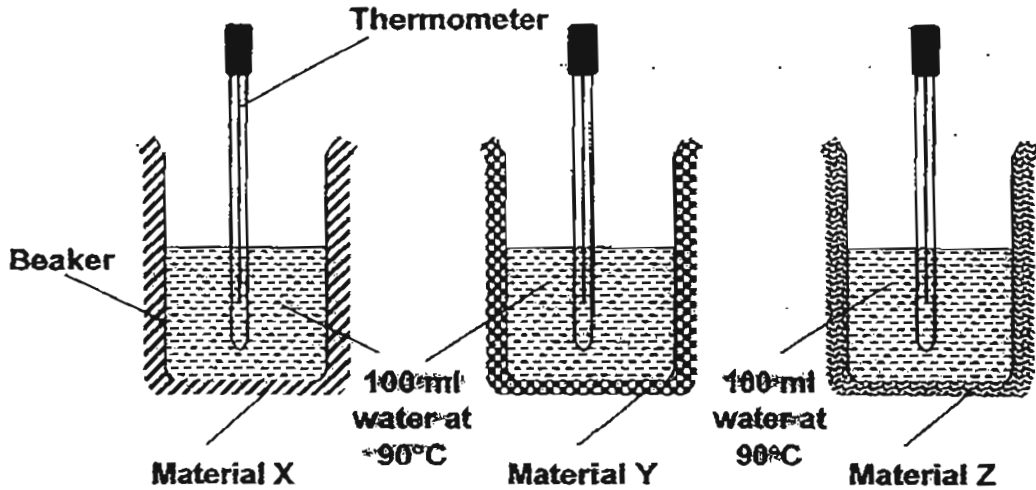
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35) Trisha wants to find out which Material X, Y or Z is the best conductor of heat. She prepares her setup as shown below.



Trisha placed the beakers on the same table in the kitchen. She then took the temperature of the water every 5 minutes for 30 minutes. She presented her findings in a table below:

Time Interval	Temperature of water recorded at different intervals		
	Material X	Material Y	Material Z
0 min	90	90	90
5 min	88	80	75
10 min	86	72	69
15 min	83	64	54
20 min	80	53	44

a) What is another variable that she must keep the same throughout this experiment? (1m)

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b) Trisha wishes to make a pouch for her water bottle to keep her drinks cold for a long time. Which is the best material to make the pouch for the water bottle? (1m)

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c) Using the results from Trisha's experiment, explain your answer in (b). (1m)

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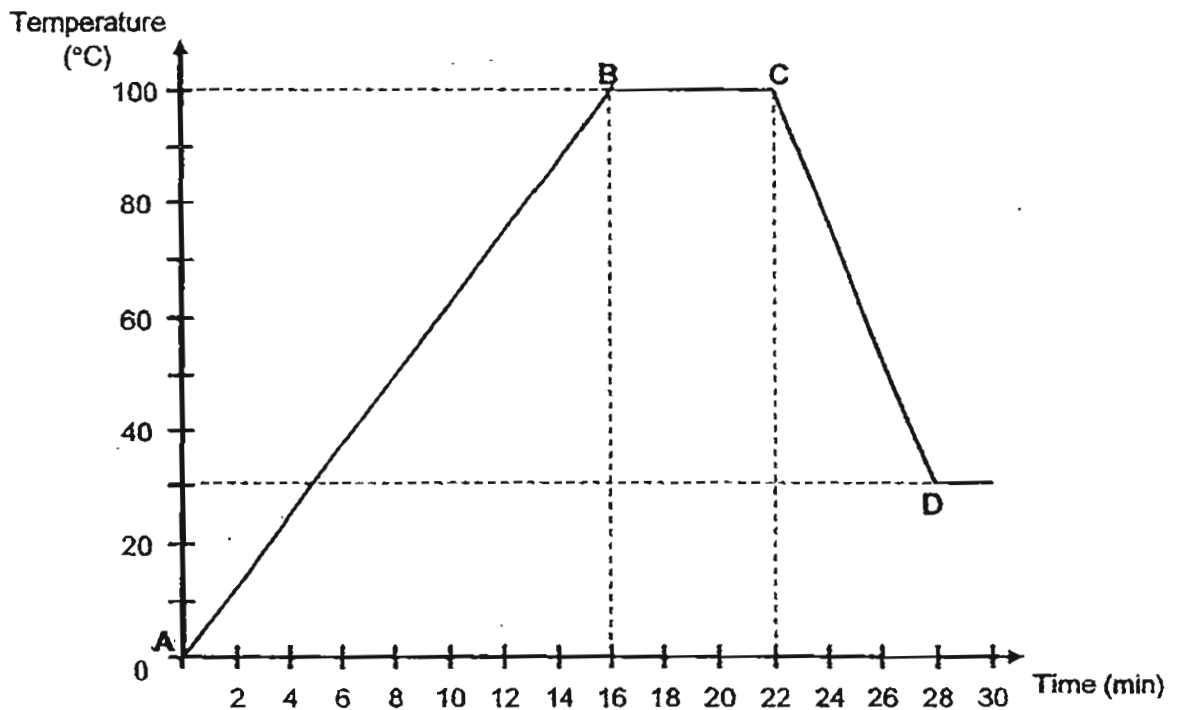
- d) What can Trisha do to ensure that the experiment is not affected by 'heat loss to the surrounding air'? (1m)

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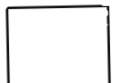
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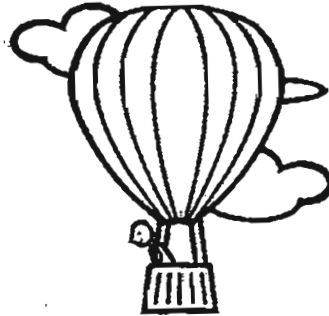
- 36) Janet takes a few ice cubes from the freezer and immediately heats them in a beaker over a gas stove. After a while, she stops the heating and let the beaker cool down to room temperature. The graph below shows the temperature of the ice-cubes after Janet took them out from the freezer.



- a) Name the process that is taking place along AB. (1m)
- 
- b) At which point, A, B, C or D was the gas stove switched off? (1m)
- 
- c) How long did Janet heat the ice cube before the temperature reached 100°C? (1m)
- 



- 37) In a hot air balloon, heat is used to expand the air in the balloon which causes the big balloon to inflate. When air in the balloon is heated, this hot air pushes the balloon upwards into the sky.



Mike went to Taiwan and saw a Kong Ming Lantern shown below in Diagram B. Diagram A shows the parts of the Kong Ming Lantern.

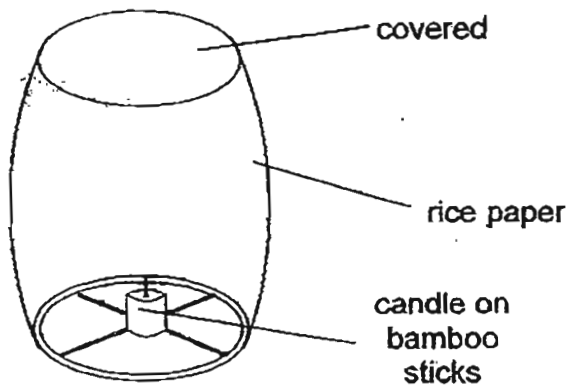


Diagram A

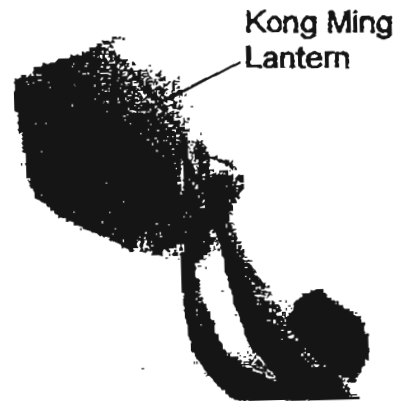


Diagram B

- a) What must Mike do to make the lantern lift and float in the air? (1m)

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- b) Using the information given, explain how the method mentioned in (a) will enable the lantern to lift and float in the air. (1m)

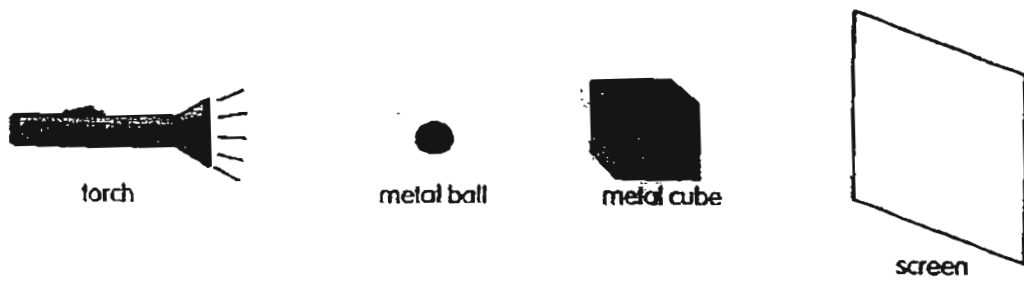
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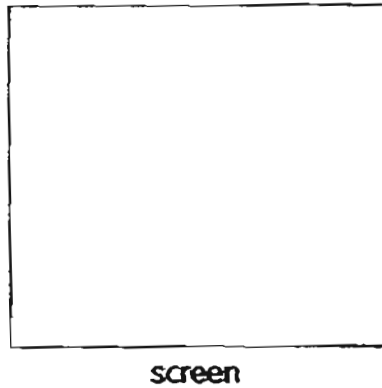
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38) Study the set-up below.



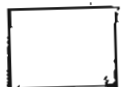
a) In the box below, draw the shadow that will be observed on the screen. (1m)



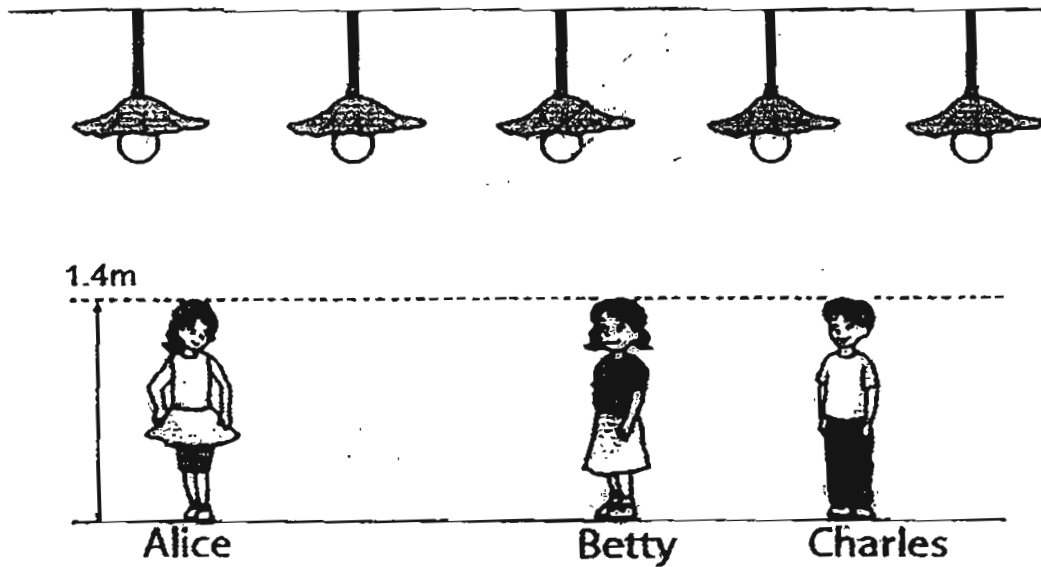
b) The metal ball was removed and the metal cube was left in the set-up. Describe one action you would take in order to make the shadow of the cube larger. (1m)

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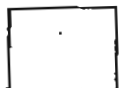
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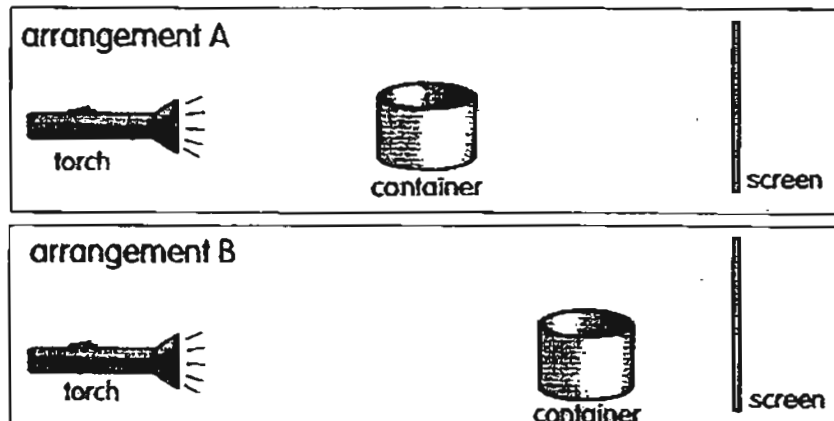
- 39) The picture below shows 3 children standing at various positions in a room with 5 lamps. The lamps are turned off.



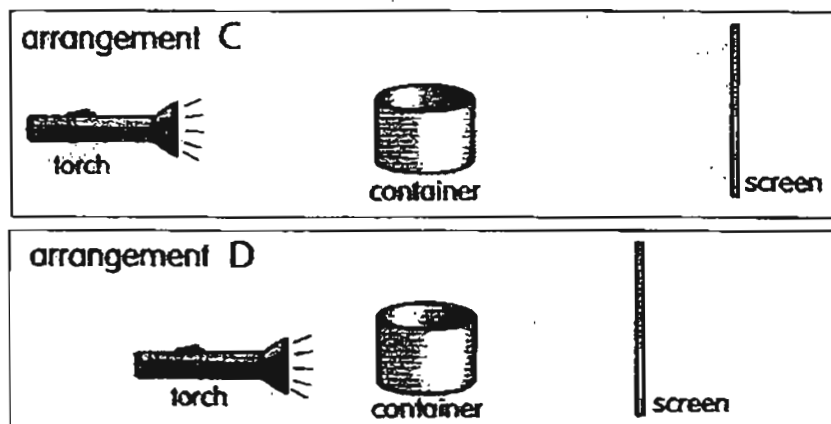
- a) Mark a "X" on one of the lamps to turn it on such that: (1m)
- Alice has the longest shadow.
  - Charles has the next longest shadow.
  - Betty has the shortest shadow.
- b) Name a property of light that allows shadows to be formed. (1m)



- 40) A metal container is arranged in 2 different ways in between a light source and a screen.



- a) State one similarity between the shadows in arrangement A and arrangement B. (1m)



- b) Jack set up the above arrangements C and D to investigate how the distance between the torch and the container affects the size of the shadow. (2m)
- Is Jack's setup in arrangement D correct? Explain your answer.

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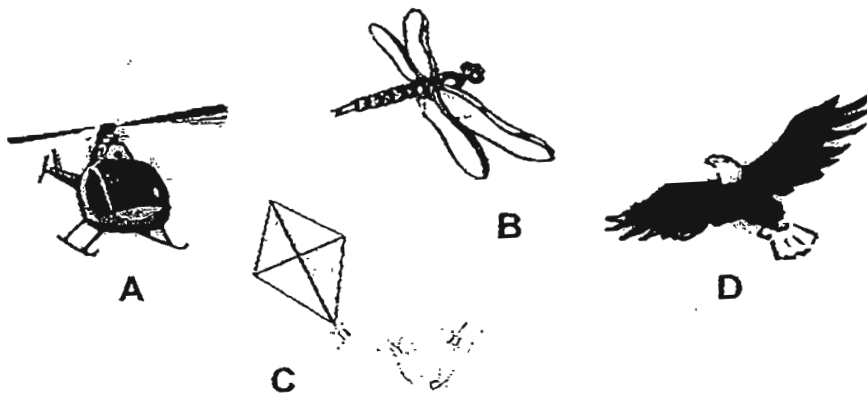
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41) The diagrams below shows objects A, B, C and D.



(a) The four objects above can be classified into **ONE** group based on one similarity. What is the similarity? (1m)

\_\_\_\_\_

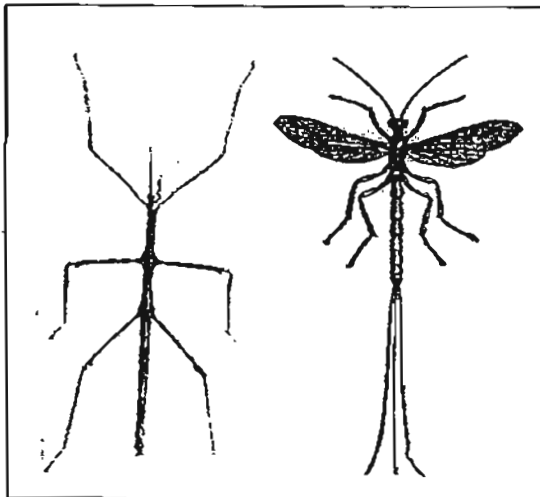
(b) The four objects also can be classified into two groups. Complete the table below (by filling in the letters only) to show how they can be classified. Write also suitable headings for the two groups. (2m)

Heading: _____	Heading: _____

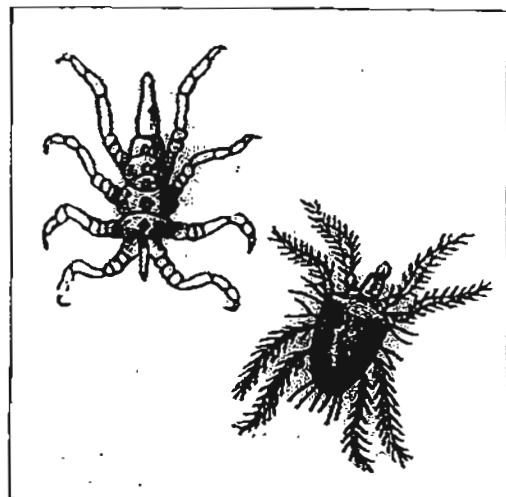




42) Sam found some animals in his garden. The two pictures below show how Sam has classified them into two groups, X and Y.



Group X



Group Y

(a) Based on the pictures above, state two differences between the animals in Group X and Y. (2m)

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(b) In which group, X or Y, would you put Animal Z in? Give only **ONE** reason for your answer. (2m)



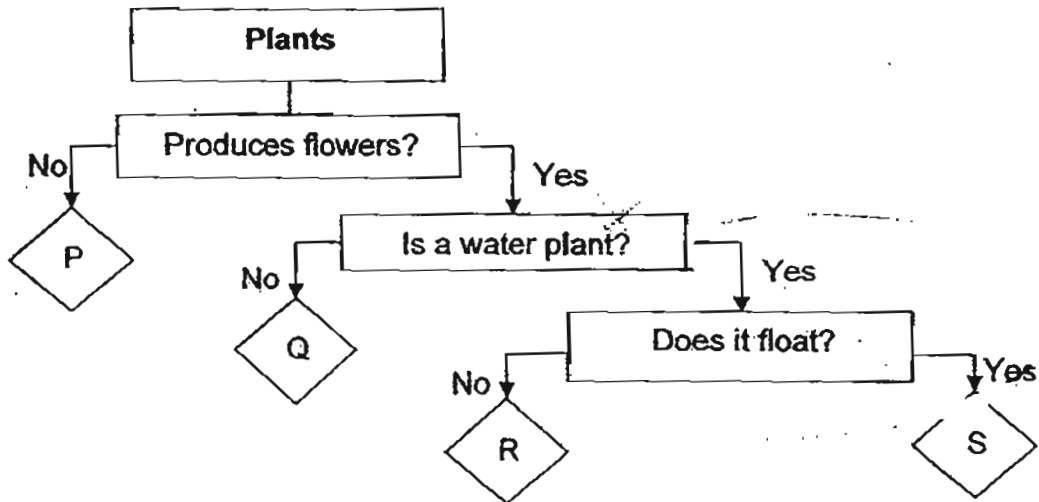
Animal Z

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43. The flow chart below shows the characteristics of Plants P, Q, R and S.



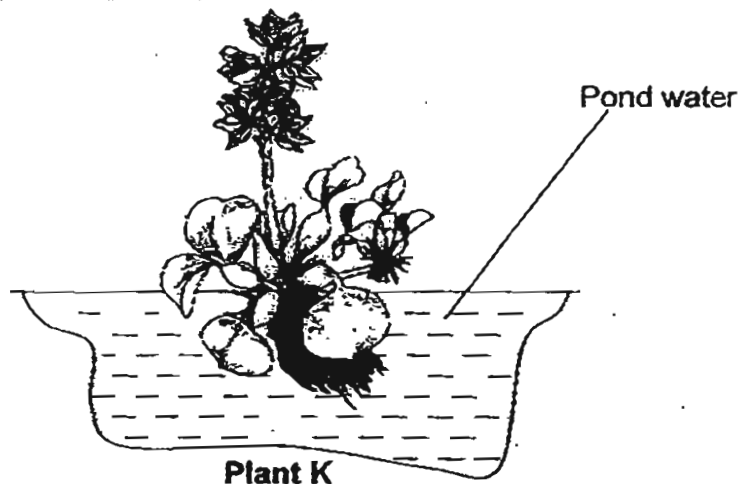
Kate observed a living thing, J, and recorded her observations in her science journal.

- J does not produce flowers.
- J grows on water.

a) Which plant, P, Q, R or S is J most likely to be? (1m)

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Kate found another plant K growing in her garden as shown below.



b) Which plant, P, Q, R or S can Plant K be grouped with? (1m)

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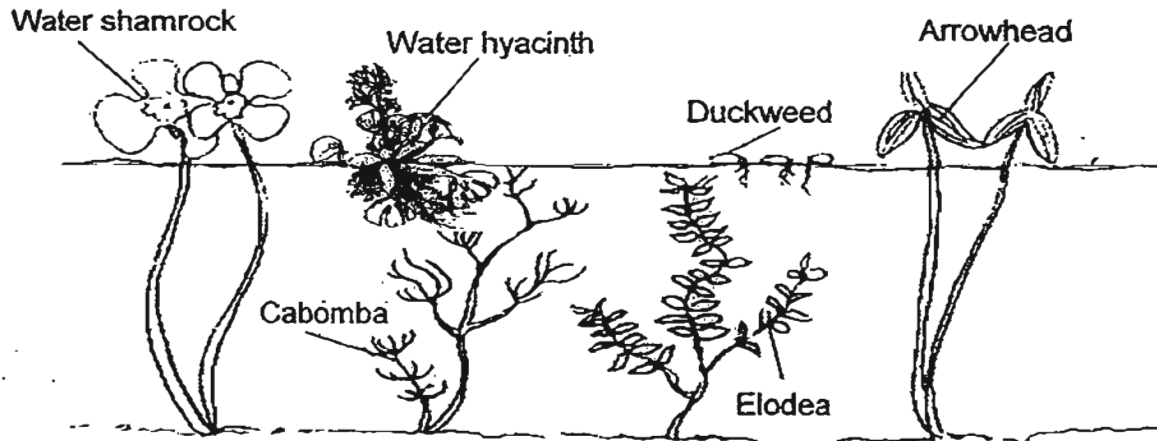
c) Using information from the chart above; give two reasons for your answer in (b).

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44. Plants can be classified in many ways. One of the ways is to classify them according to how they grow in water.

The picture below shows some water plants.



Based on what you observe from the pictures, fill in the rest of the names of the plants in the correct columns in the table below. (2m)

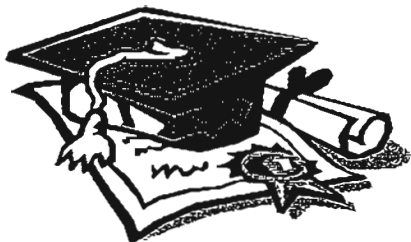
Floating Plants	Partially-submerged plants	Fully-submerged plants
Duckweed		Elodea

End of Booklet B

Setters:  
 Mdm Fathlon Taufik  
 Mr Nelson Tong  
 Mr Ephrem Chong







# ANSWER SHEET

## EXAM PAPER 2011

SCHOOL : HENRY PARK  
SUBJECT : PRIMARY 4 SCIENCE

TERM : SA1



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

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

31)a)She was trying to find out whether the ball of plasticine when moulded into a different shape still has the same mass.

b)It will remain the same. Plasticine when moulded into a different shape still has the same mass.

32)a)Substance X is in the solid state.

b)It has a definite shape and has a fixed volume.

c)Both of them takes up space.

33)a)10cm<sup>2</sup>.

b)2

34)a)He should use tile B.

b)Tile B had the lowest temperature at the end of the experiment and, so it is the poorest conductor of heat.

c)He should heat the tile at a higher temperature.

35)a)She should use the same type of thermometer to measure the temperature of the water in the beaker.

b)Material X,

c)Material X had the highest temperature after 20min, followed by Material Y, then Material Z. Therefore, Material X is the worst conductor of heat among the three material as it was able to keep the water the warmest after twenty minutes so it will also be able to keep the water the coldest among the three material.

d)She could cover each of the container with a rubber stopper.

36)a)The process of heat gaining.

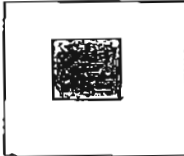
b)The gas stove switched off at point C.

c)She heated it for sixteen minutes.

37)a) He must light a small fire on the candle.

b) The fire will heat up the air and it will become hot and expand. The hot air will rise but cannot escape as the lantern is covered. Eventually the lantern will rise and float in the air.

38)a)



b) I would move the metal cube nearer to the torch.

39)a) 0 0 X 0 0

b) Light travels in a straight line.

40)a) They will have the same shape.

b) No, it is not. Jack should have everything the same except for the test variable if it is the fair test. In this case, the test variable is the distance between the torch and the container. Only that should be changed and nothing else but the screen in arrangement D should be put at the same position as the screen in arrangement C.

41)a) All of them can fly.

b) Heading: Living things

B

D

Heading: Non-living things

A

C

42)a) The animals in Group X have six legs while the animals in Group Y have eight legs. The animals in Group X have three body parts while the animals in Group Y have two body parts.

b) I would put animal Z in Group X. All of them have six legs.

43)a) J most likely is P.

b) It can be grouped with plant S.

c) It produced flowers and is a water plant and it floats.

44)

Floating Plants	Partially-submerged plants	Fully-submerged plants
Duckweed	Water shamrock	Elodea
Water hyacinth	Arrowhead	Cabomba