Rulang Primary School

SEMESTRAL ASSESSMENT 2
SCIENCE
2017

Name: _____ ( ) **Marks:** _____ / 60

Level: Primary 4 **Total Time for Booklets**

Class: Primary 4 ( ) **A and B:** 1 h 30 min

Setter: Ms Maslishah Bte Punari **Date:** 31 Oct 2017

Total Marks: /100

BOOKLET A

Instructions to pupils:

1. **Do not open this booklet until you are told to do so.**
2. You are required to answer **all** the questions in this booklet.
3. This question booklet consists of **19** printed pages, including the cover page.

Section A (30 x 2 marks)

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

1. Which one of the following properties is true for both oxygen and milk?

   (1) They can be seen.
   (2) They take up space.
   (3) They have fixed shapes.
   (4) They have fixed volumes.

2. The diagram below shows a plant.

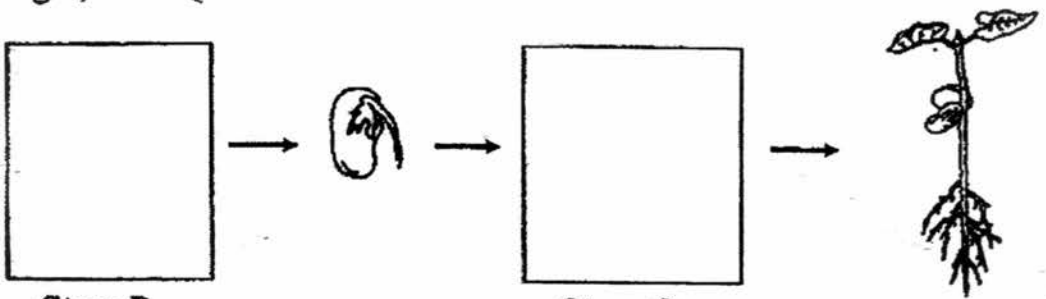
   The leaves help the plant to _____.

   (1) make food
   (2) absorb water
   (3) grow upright
   (4) absorb nutrients

3. In which part of the digestive system is food absorbed into the blood?

   (1) Gullet
   (2) Stomach
   (3) Large intestine
   (4) Small intestine

4. The diagram below shows the growth of a young plant with two missing stages, P and Q.



Stage P **Stage Q**

Which one of the following sets shows the correct stages for P and Q?

	Stage P	Stage Q
(1)		
(2)		
(3)		
(4)		

5. Which one of the following is a source of light?

(1)

A lighted candle

(2)

The moon

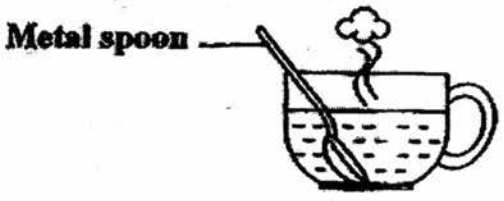
(3)

A flower

(4)

A mirror

6. Dylan places a metal spoon into a cup of hot tea.



A cup of hot tea

The spoon becomes hot after a while. Which one of the following explains this?

(1) The cup loses heat to the hot tea.
(2) The spoon loses heat to the hot tea.
(3) The hot tea gains heat from the spoon.
(4) The spoon gains heat from the hot tea.

7. Which one of the following is a living thing?

(1) 

(2) 

(3) 

(4) 

8. Which one of the animals shown below is not an insect?

(1) 

(2) 

(3) 

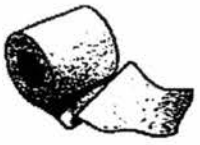
(4) 

9. Which one of the following objects is **not** made of waterproof material?

(1)

Metal spoon

(2)



Toilet paper

(3)

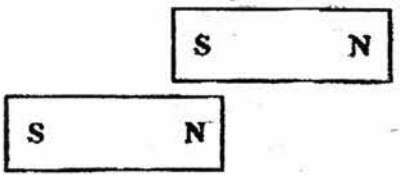
Plastic umbrella

(4)

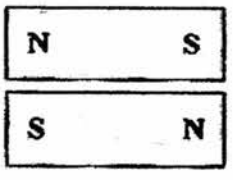
Rubber boots

10. In which of the following will the two magnets repel each other?

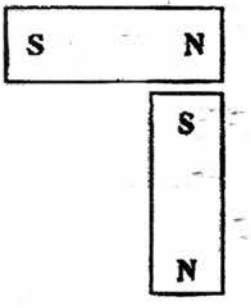
(1)



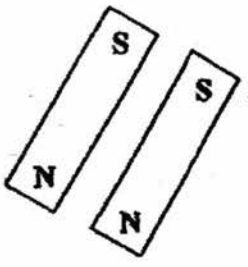
(2)



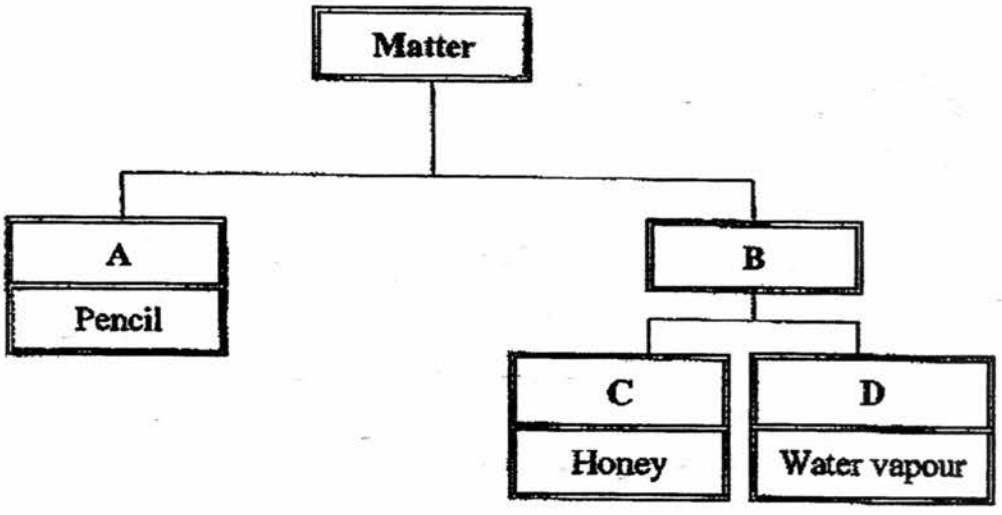
(3)



(4)



11. Study the classification chart below carefully.



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

	A	B	C	D
(1)	Definite shape	No definite volume	No definite shape	Definite volume
(2)	Definite shape	No definite shape	Definite volume	No definite volume
(3)	No definite volume	Definite volume	Definite shape	No definite shape
(4)	No definite volume	Definite shape	No definite shape	Definite volume

12. The two leaves below are grouped based on a certain characteristic.

Which of the following leaves, G, H or J, are more likely to be classified in the same group as the two leaves above?

G H J

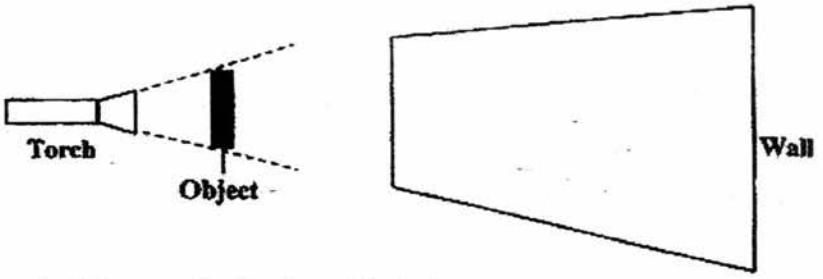
(1) H only
(2) J only
(3) G and H only
(4) G and J only

13. Which of the following statements is true?

A: The respiratory system takes in oxygen and removes carbon dioxide in the body.
B: The digestive system helps to break down food into simpler substances.
C: The circulatory system transports digested food from the digestive system to all parts of the body.

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

14. Grace conducted an experiment to find out about the transparency of materials to light, which were used to make objects X, Y and Z. She placed each object between a torch and a wall, one at a time, as shown in diagram below.



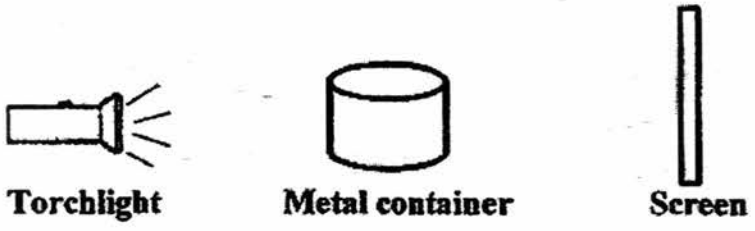
She recorded the results in the table below.

Does not allow light to pass through it	Allows some light to pass through it	Allows most light to pass through it
X	Y	Z

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

(1) Object Y forms a lighter shadow than object X.
(2) Object X forms a lighter shadow than object Y.
(3) Object Z forms a darker shadow than object X.
(4) Object Z forms a darker shadow than object Y.

15. Peter shines a torch on a metal container as shown below.

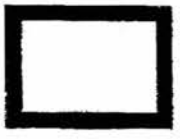


Which of the following best represents the shadow that will be formed on the screen?

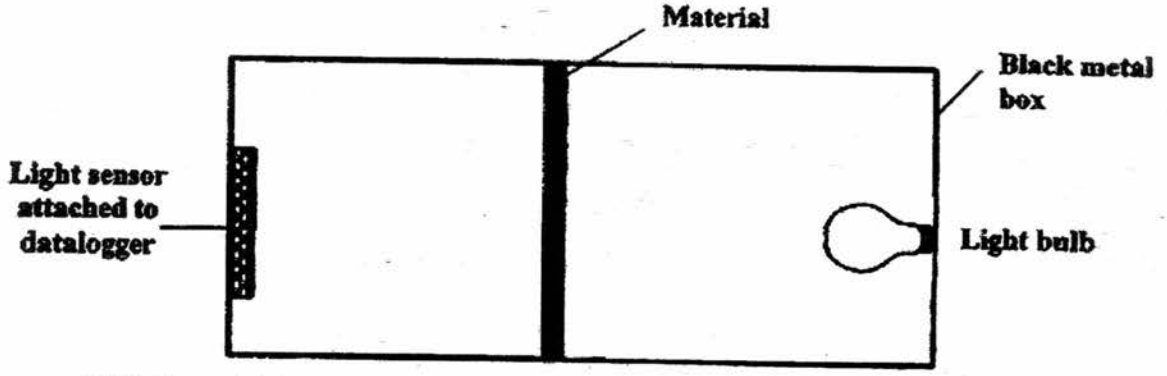
(1) 

(2) 

(3) 

(4) 

16. Julie wanted to find out which material, P, Q, R or S, blocks out the most amount of light. She placed each material, one at a time, in a black metal box and measured the amount of light detected by the light sensor attached to the datalogger as shown in the diagram below.



Which variables should Julie keep the same in order to ensure that the experiment is a fair one?

A: Brightness of bulb
B: Thickness of material
C: Position of light sensor
D: Type of material used

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

17. Three pupils made the following statements about heat and temperature.

Alden: Heat flows from a hotter object to a colder object.
Bala: Heat can only come from natural sources like the Sun.
Carol: The temperature of an object can be measured by its coldness.

Whose statement(s) is / are correct?

(1) Alden only
(2) Bala only
(3) Carol only
(4) Alden and Carol only

18. Temperature is a measurement of the _____.

(1) amount of matter of an object
(2) degree of hotness of an object
(3) amount of heat needed for an object to expand
(4) amount of heat needed for an object to contract

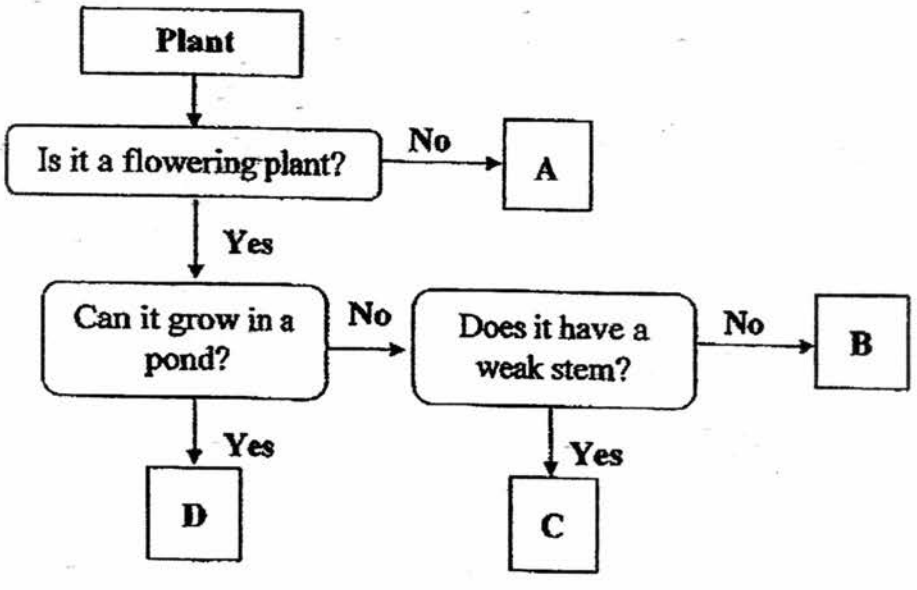
24. Study the table below carefully.

Animal	Characteristics			
	Lays eggs	Has wings	Has three body parts	Has feathers
J	×	×	×	×
K	✓	✓	✓	×
L	✓	×	×	×
M	✓	✓	×	✓

Which pair of animals is a goldfish and a parrot respectively?

(1) Animals J and K
(2) Animals J and M
(3) Animals K and L
(4) Animals L and M

25. Study the flowchart below carefully.



Which one of the following plants (A, B, C or D) is a morning glory?

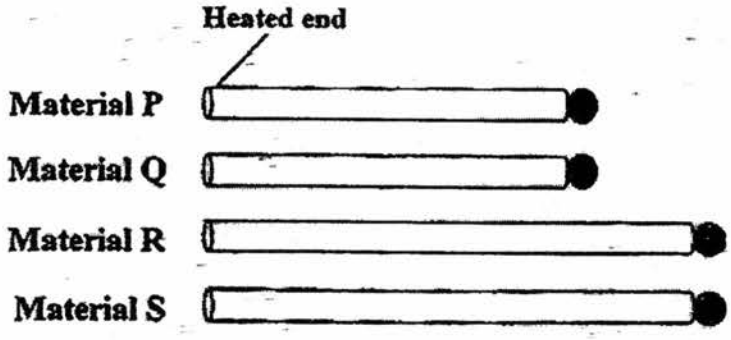
(1) A
(2) B
(3) C
(4) D

22. Ronald notices that there are gaps between the concrete slabs on the school pavement.

What is the purpose of these gaps?

(1) To allow ventilation when the children are playing.
(2) To allow the concrete slabs to dry faster after the rain.
(3) To allow for expansion of the concrete slabs on a hot day.
(4) To allow for contraction of the concrete slabs on a hot day.

23. Nina wanted to find out which material is the best conductor of heat. She used four similar rods made from different materials, P, Q, R and S, and cut them into different lengths. She then placed an equal amount of wax at one end of each rod and heated the other end of the rod with the same amount of heat as shown in the diagram below.



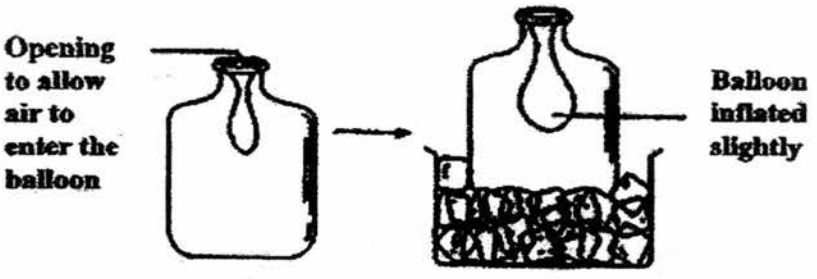
The table below show the amount of time taken for the wax to melt.

Material	Amount of time taken for the wax to melt
P	2 minutes
Q	5 minutes
R	2 minutes
S	5 minutes

Based on the table above, which material is the best conductor of heat?

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

21. Winnie carried out an experiment as shown below. She put a balloon in the bottle and stretched its end over the mouth of the bottle. She then placed the bottle in a basin of ice cubes for fifteen minutes.

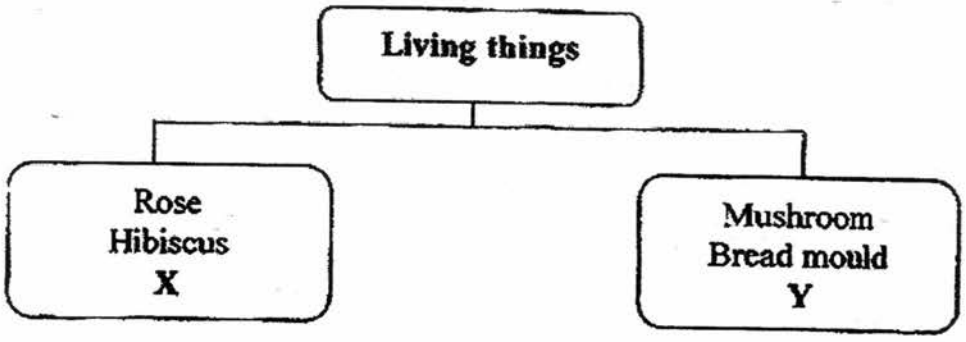


Set-up X Set-up Y

Based on your observation, which one of the following best explains why the balloon became inflated?

(1) The air inside the bottle lost heat and contracted.
(2) The air inside the balloon gained heat and expanded.
(3) The bottle contracted and caused the balloon to expand.
(4) The bottle contracted and caused the surrounding air to expand.

26. Study the classification chart below carefully. The living things are classified according to the way they reproduce.



What can be represented by X and Y?

	X	Y
(1)	Moss	Water lotus
(2)	Balsam plant	Bougainvillea plant
(3)	Orchid	Bracket fungus
(4)	Bird's nest fern	Toadstool

27. The table below shows some characteristics of animals P, Q, R and S.

Animal	Number of legs			Outer body covering			Give birth to young alive	Lay eggs
	2	4	6	Feathers	Scales	Fur		
P	✓			✓				✓
Q		✓			✓			✓
R			✓					✓
S		✓				✓	✓	

Which one of the following pairs of animals has been identified correctly?

(1)

Animal P	Animal Q
Chicken	Angelfish

(2)

Animal Q	Animal S
Crocodile	Cow

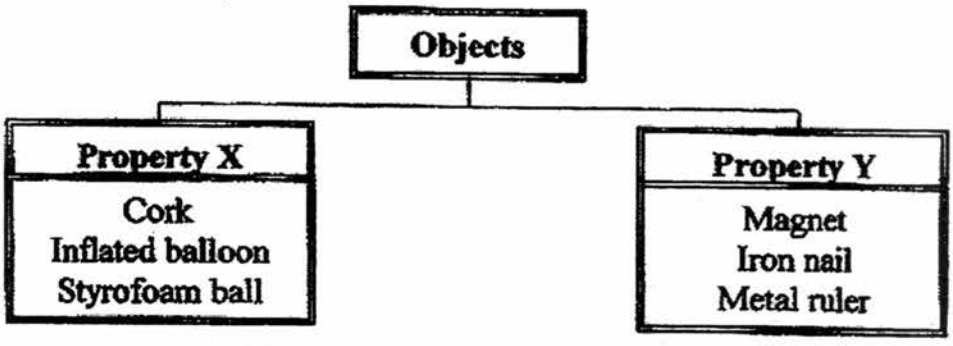
(3)

Animal Q	Animal S
Snake	Spider

(4)

Animal R	Animal S
Lion	Pond skater

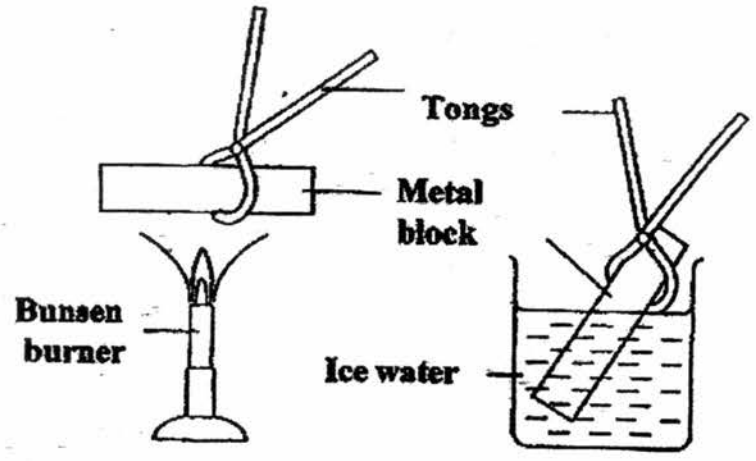
28. The chart below shows some objects classified based on a certain property of the materials they are made of.



Which one of the following sets best represents properties X and Y?

	Property X	Property Y
(1)	Flexible	Not flexible
(2)	Float on water	Sink in water
(3)	Do not break easily	Break easily
(4)	Waterproof	Not waterproof

20. Joel heated a metal block for five minutes. Then, he used a pair of tongs to dip the metal block into a beaker of ice water.

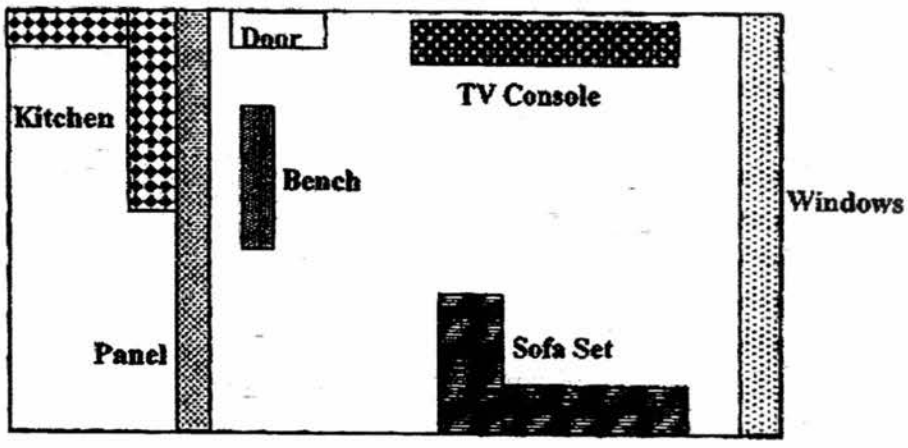


Which of the following statements are true about the experiment above?

A: The metal block would lose heat to the ice water.
B: Heat would flow from the ice water to the metal block.
C: The metal block would gain heat from the Bunsen burner.
D: The temperature of the water would increase as it gained heat from the metal block.

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

29. Mr Lim wants to construct a panel facing the living room to ensure that his wife can see their children clearly when she is in the kitchen. The panel should not break easily. It should also be easily washed and cleaned from the grease that results from his wife's cooking.

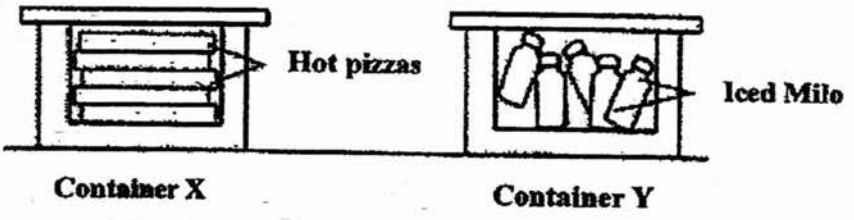


Plan of Mr Lim's Living Room

Based on the information given above, which one of the following sets of properties should the panel have?

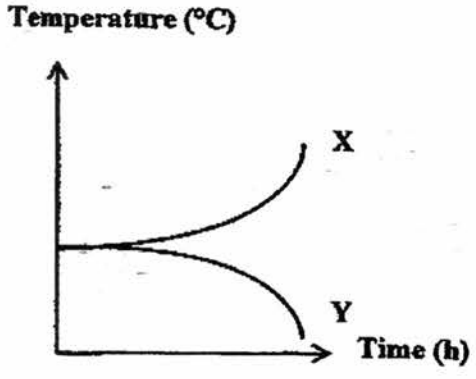
	Properties			
	Strong	**Flexible**	**Waterproof**	**Transparent**
(1)	✓	×	✓	✓
(2)	×	✓	✓	×
(3)	×	×	×	✓
(4)	✓	✓	✓	×

19. Lucy wanted to find out the temperature change of the contents in the two containers, X and Y, after 3 hours. She placed a few boxes of hot pizzas in container X and a few bottles of iced Milo in container Y as shown in the diagram below.

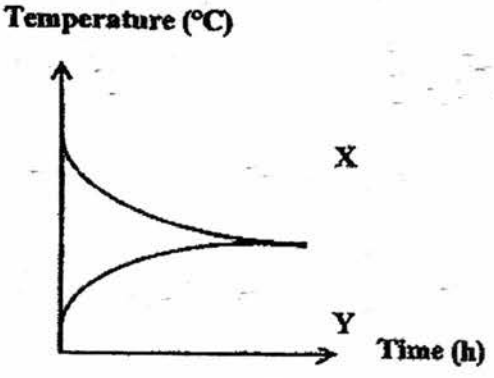


Based on your observations, which one of the following graphs most likely represents how the temperature of the contents changed over time?

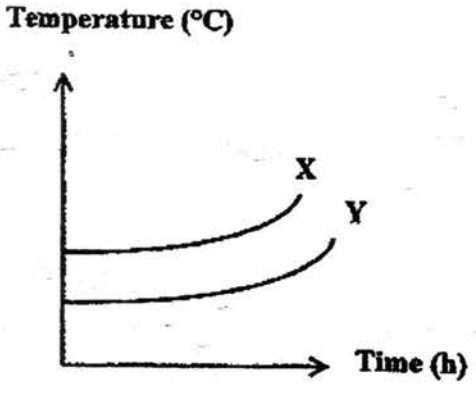
(1)



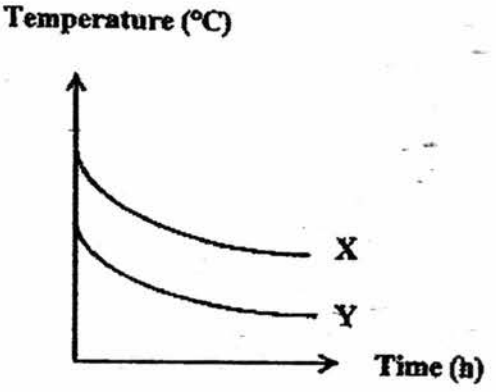
(2)



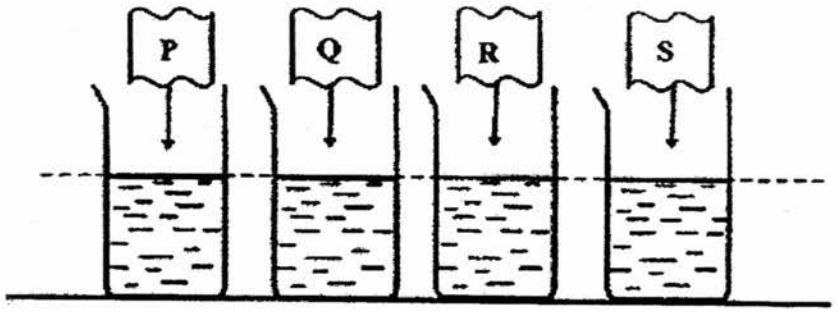
(3)



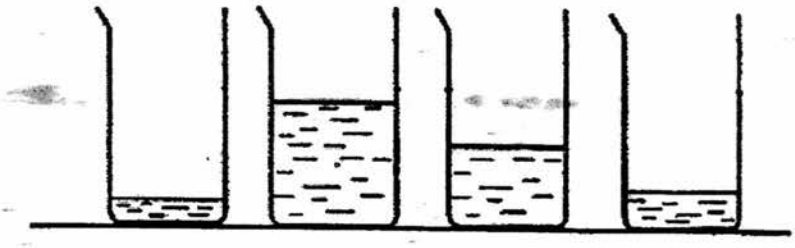
(4)



30. Jeremy filled up four similar beakers with 100ml of water and placed four different materials, P, Q, R and S, of the same size into each of them as shown below.



He removed the materials after 10 minutes and measured the remaining water in each beaker as shown in the diagram below.



He then recorded the amount of water left after 10 minutes in the table below.

Beaker	Amount of water after 10 minutes
P	15 ml
Q	100 ml
R	65 ml
S	45 ml

Based on the information above, which material will be the most suitable for making a raincoat?

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

SEMESTRAL ASSESSMENT 2
SCIENCE
2017

Name:	_____ ( )	**Marks:**	_____ / 40
Level:	**Primary 4**	**Date:**	**31 Oct 2017**
Class:	**Primary 4 ( )**	**Parent's Signature:**	_____

BOOKLET B

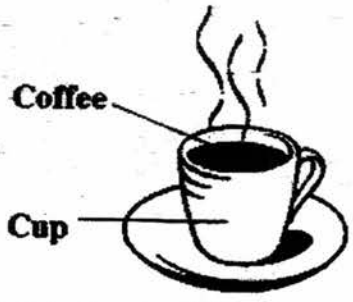
Instructions to pupils:

1. **Do not open this booklet until you are told to do so.**
2. You are required to answer **all** the questions in this paper using your own words / expressions as far as possible.
3. All drawings / diagrams must be clearly shown and labelled.
4. Marks will be deducted for wrongly spelt key words.
5. This question booklet consists of **12** printed pages, including the cover page.

Section B (40 marks)

Write your answers to questions 31 to 44 in this booklet.

31. The picture below shows a cup of hot coffee.

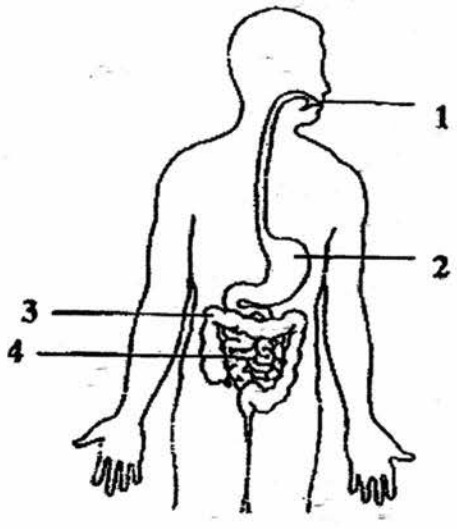


Circle the correct state for the following:

(a) Cup: **solid** / liquid / gas (1 m)

(b) Coffee: **solid** / liquid / gas (1 m)

32. The diagram below shows the human digestive system.



Identify the part where

(a) digestion first takes place : _____ (1 m)

(b) there is no digestion taking place: _____ (1 m)

33. The diagram below shows a pot.

(a) The handle is made of plastic because it is a _____ conductor of heat. (1 m)

(b) The pot is made of metal because it is a _____ conductor of heat. (1 m)

34. Jasmine observed and grouped some things as shown in the table below.

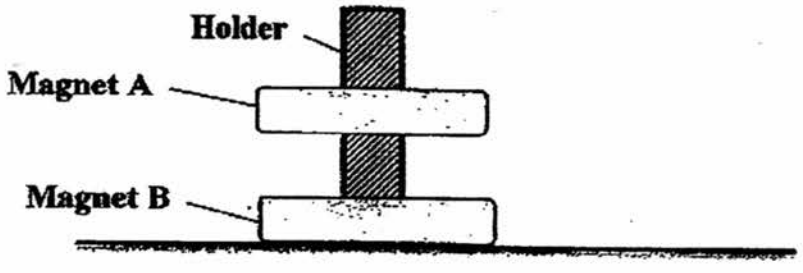
Group F	Group G
Car	Tree
Rock	Ant
Pen	Mushroom

What are the suitable headings for F and G? (2 m)

Group F: _____

Group G: _____

35. Ali placed two ring magnets, A and B, through a holder as shown below.

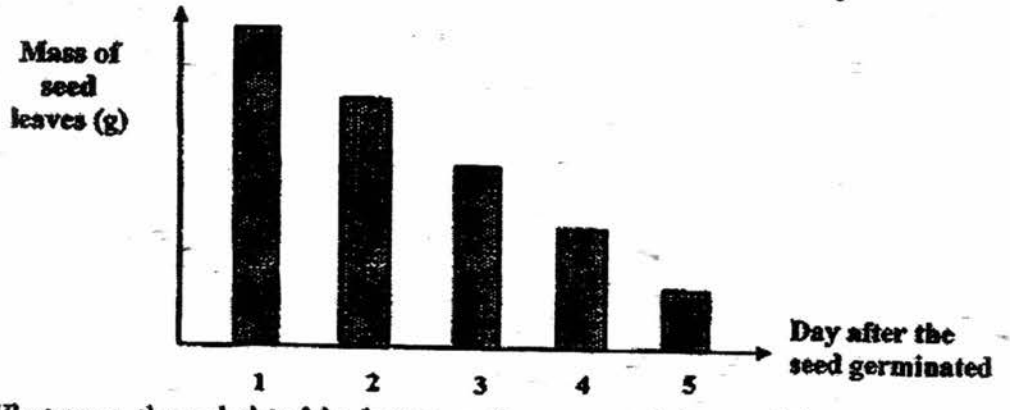


(a) The holder was made of wood and did not attract the magnets.
Wood is a _____ material. (1 m)

(b) Why was magnet A floating above magnet B?
Magnet B was _____ magnet A. (1 m)

36. Jessica planted a seed and recorded the mass of its seed leaves as it was germinating to become a seedling.

The table below shows the mass of the seed leaves over five days.



(a) What was the relationship between the mass of the seed leaves and the number of days after the seed germinated? (1 m)

_____

_____

(b) Where did the seedling get its food after the seed leaves had dropped off? (1 m)

_____

_____

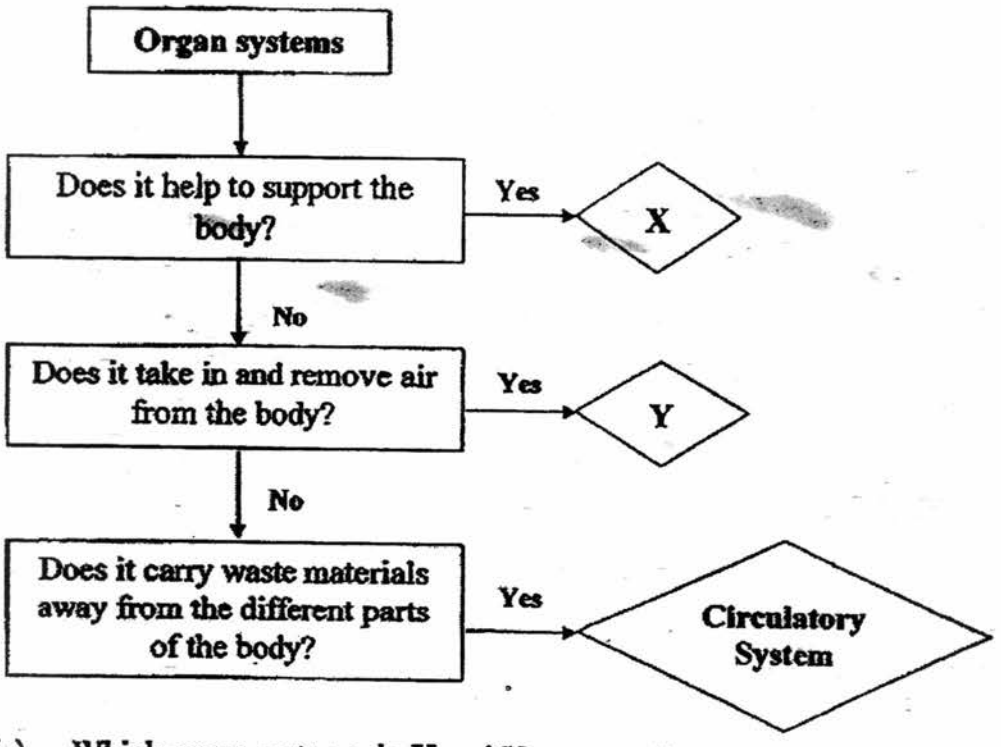
(c) What would happen to an adult plant if all its leaves are removed? Explain why. (2 m)

_____

_____

_____

37. Study the flowchart below carefully.



(a) Which organ systems do X and Y represent? (1 m)

X: _____

Y: _____

(b) Which two organ systems work together to provide oxygen to all parts of the body? (1 m)

_____

_____

(c) Which other organ system works with X to enable the body to bend, stretch and move? (1 m)

_____

_____

38. Eunice carried out an experiment as shown below.

Torch

Black box

White screen

The black box was fixed in its position while the torch was moved nearer or further away from the box. She recorded the height of the shadow formed on the screen in the table below.

Distance between the torch and the black box (cm)	Height of the shadow formed on the screen (cm)
25	4
20	8
10	16
5	20

(a) Based on the results above, how did the distance between the torch and the black box affect the height of the shadow formed on the screen? (1 m)

_____

_____

(b) Estimate the height of the shadow when the distance between the torch and the black box is 15cm. (1 m)

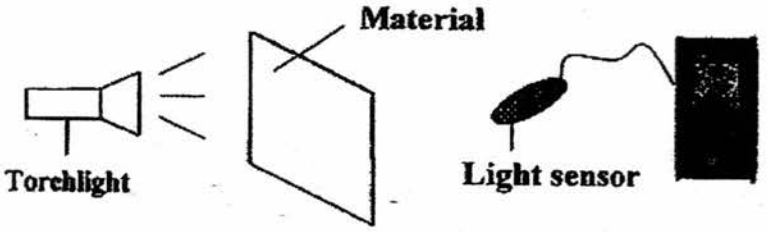
_____

(c) Eunice then replaced the black box with another box made of a different material. This time, she did not see any shadows formed on the screen. Explain why no shadow was formed on the screen. (1 m)

_____

_____

39. Elton carried out the following experiment in a dark room. He used a torchlight to shine on each of the 3 different pieces of fabric materials, A, B and C. The different amounts of light passing through the materials were recorded on a datalogger as shown in the diagram below.



The table below shows the results recorded on the datalogger.

Type of material	Amount of light detected by the datalogger (unit)
A	167
B	33
C	209

(a) Which one of the materials (A, B or C) is most suitable if Elton wants to make a curtain that blocks the most amount of sunlight? Explain your answer clearly. (2 m)

_____

_____

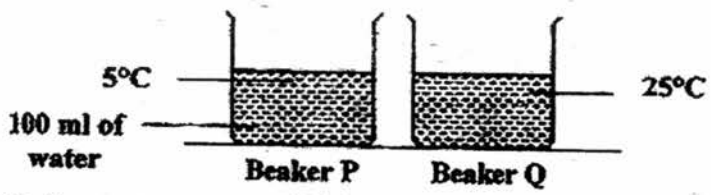
_____

(b) Explain why Elton carried out the experiment in a dark room. (1 m)

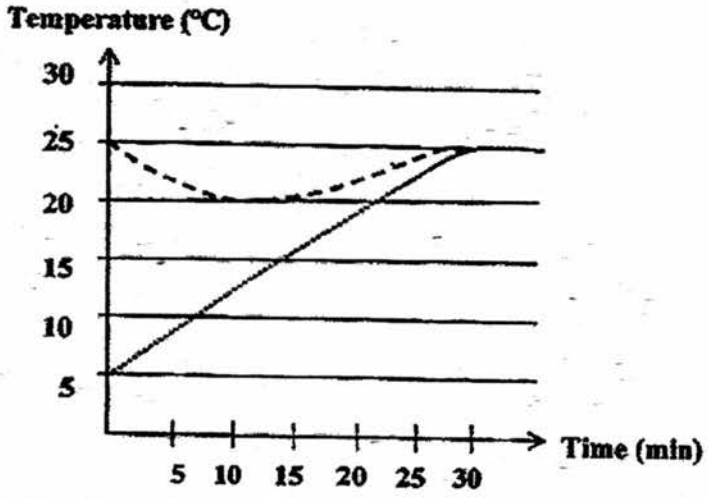
_____

_____

40. Amy poured 100ml of water at different temperatures into each of the two beakers, P and Q, and placed them in a room at 25°C room temperature.



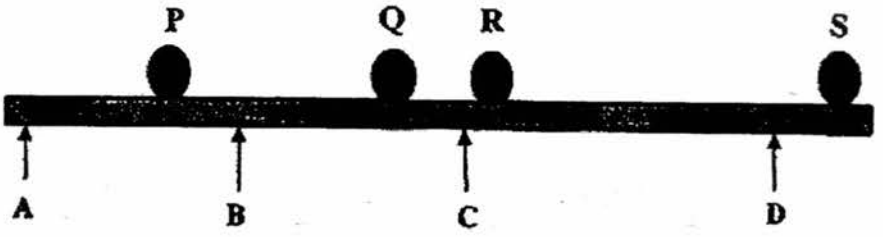
She added some water at 15°C to one of the beakers and measured the temperature of the water in both beakers at five minute intervals for a duration of 30 minutes. She then recorded her results in the graph below.



(a) Which beaker, P or Q, was the water at 15°C added to? Explain your answer by comparing the changes in temperatures of water in both beakers. (2 m)

(b) Explain clearly why the water in both beakers reached the same temperature after some time. (2 m)

41. During a Science lesson demonstration, Bob stuck four identical blobs of wax, P, Q, R and S, on a metal pole as shown below.



(a) When the pole was heated, the blobs of wax were observed to start melting in the following order:

First to melt → Last to melt			
R	Q	P	S

At which spot, A, B, C or D, was the heat source applied? (1 m)

Spot _____

(b) After the experiment, Bob realised that the metal pole had increased in length. Why was that so? (1 m)

_____

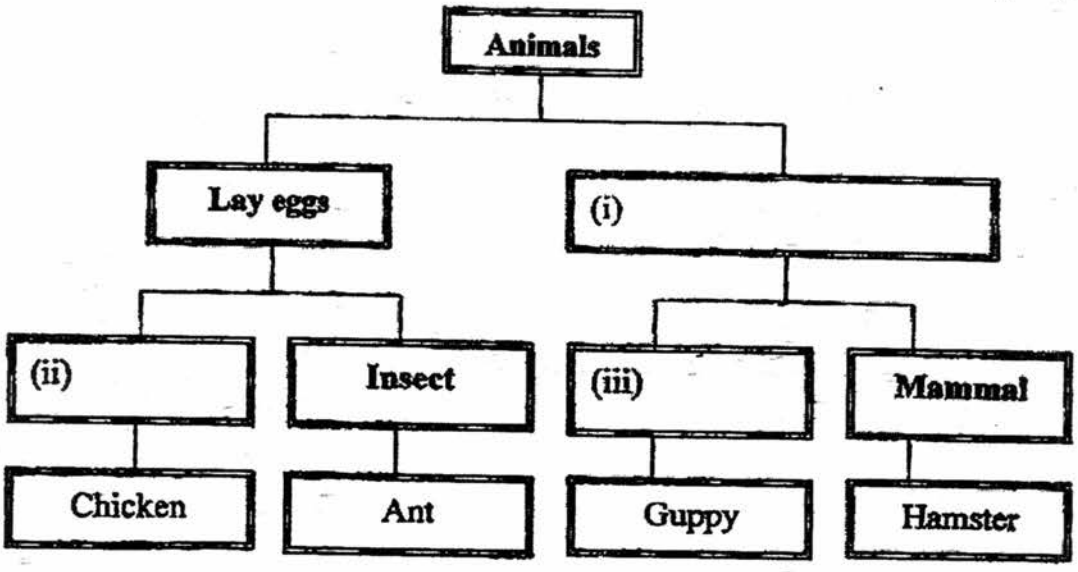
_____

(c) It took about ten minutes for all the blobs of wax to melt. Bob decided to replace the metal pole with a glass pole. How would this affect the time taken for all the blobs of wax to melt? Explain your answer. (1 m)

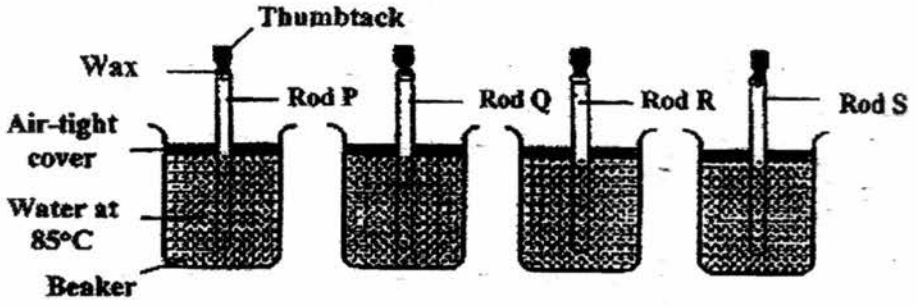
_____

_____

42. Study the classification chart below carefully. Fill in the blanks with suitable headings. (3 m)



43. Janna set up the experiment below to find out the heat conductivity of four rods, P, Q, R and S, which are made of different materials.



Each of the rods was placed in identical beakers of hot water at 85°C. A thumbtack was stuck to a piece of wax at the end of each rod. The time taken for the thumbtack to fall off was recorded in the table below.

Rod	P	Q	R	S
Time taken for thumbtack to drop (min)	8	15	12	5

(a) Based on the results in the table above, arrange the rods in order, starting with the best conductor of heat. (1 m)

_____

(b) Explain why the thumbtacks fell off from all the rods after some time. (1 m)

_____

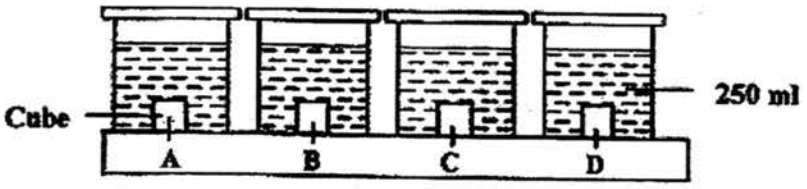
_____

(c) Based on the experiment above, state two variables that should be kept constant to ensure a fair test. (1 m)

Variable 1: _____

Variable 2: _____

44. Ramu wanted to find out how well four cubes made of different materials, A, B, C and D, could absorb water. He placed the cubes into four similar containers filled with 250ml of water each.



An hour later, he removed the cubes and recorded the amount of water left in each container in the table below.

Material	A	B	C	D
Amount of water left in the container (ml)	250	190	170	185

(a) Based on the results in the table above, which material absorbed the most amount of water? (1 m)

Material _____

(b) Which material is most suitable to make an umbrella? Explain your answer. (2 m)

_____

_____

_____

(c) Tick (✓) the variables that must be kept the same in order for this experiment to be a fair test. (1 m)

Variable	Kept the same
Size of cube	
Material that the cube is made of	
Duration of experiment	
Amount of water left in containers	

END OF PAPER

SCHOOL : RULANG PRIMARY SCHOOL

LEVEL : PRIMARY 4
SUBJECT : SCIENCE
TERM : 2017 SA2

CONTACT :

SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
2	1	4	4	1	4	4	3	2	4

Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	3	4	1	2	4	4	2	2	3

Q 21	Q22	Q23	Q24	Q25	Q 26	Q27	Q28	Q29	Q30
1	3	3	4	3	3	2	2	1	2

SECTION B

Q31)	a) solid b) liquid
Q32)	a) 1 b) 4
Q33)	a) poor b) good
Q34)	Group F: Non-living things Group G: Living things

Q35)	a) Non-magnetic b) Repelling
Q36)	a) As the mass of the seed leaves decreases, the number of days after the seed germinated increases. b) The leaves that had grown will make food for the plant under the presence of sunlight. c) The adult plant will die when the leaves are removed as the plant will not be able to make food.
Q37)	a) X: Skeletal system Y: Respiratory system b) Y and the circulatory system work together to provide oxygen to all parts of the body. c) The muscular system works with X to enable the body to bend, stretch and move.
Q38)	a) As the distance between the torch and the black box decreases, the height of the shadow formed on the screen increases. b) 12 cm c) The material of the box may be transparent and allow all light to pass through. Thus, no shadow was formed.
Q39)	a) Material B is most suitable if Elton wants to make a curtain that blocks the most amount of sunlight as it allows the least amount of light to pass through. b) Elton carried out the experiment in a dark room so that other light sources that affect the amount of light detected by the data logger and he will have the most accurate results.
Q40)	a) The water at 15 b) Water in both beakers gain heat from the surrounding air until they reach

Q41)	a) C b) The metal pole gained heat from the heat source and expended. c) Metal is a good conductor or heat but a glass pole is a poor conductor of heat and it slows down the time taken for the wax to melt.
Q42)	(i) Give birth to young alive (ii) Bird (iii) Fish
Q43)	a) Rod S, Rod P, Rod R and Rod Q. b) The rods gained heat from the water at 85 and the wax melted. c) Variable 1: Amount of wax used Variable 2: Thickness of rods
Q44)	a) Material C b) Material A is most suitable to make an umbrella. It does not absorb any water at all. c) Size of Cube √ Amount of water left in containers √