

TAO NAN SCHOOL

PRIMARY 4 SCIENCE MID-YEAR EXAMINATION 2011

Name : _____

Date : 12 May 2011

Class : P4 _____

Time : 8.00 a.m. to 9.³⁰~~15~~ a.m.

Booklet A

INSTRUCTIONS TO CANDIDATES

Do not open this booklet until you are told to do so.

Follow all instructions carefully.

Answer all questions.

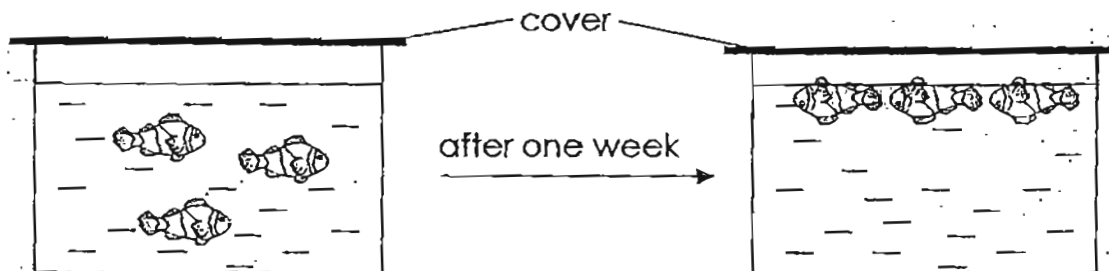
	Score	Marks
Section A		60
Section B		40
Total		100

Parent's Signature : _____

Section A (30 x 2 marks)

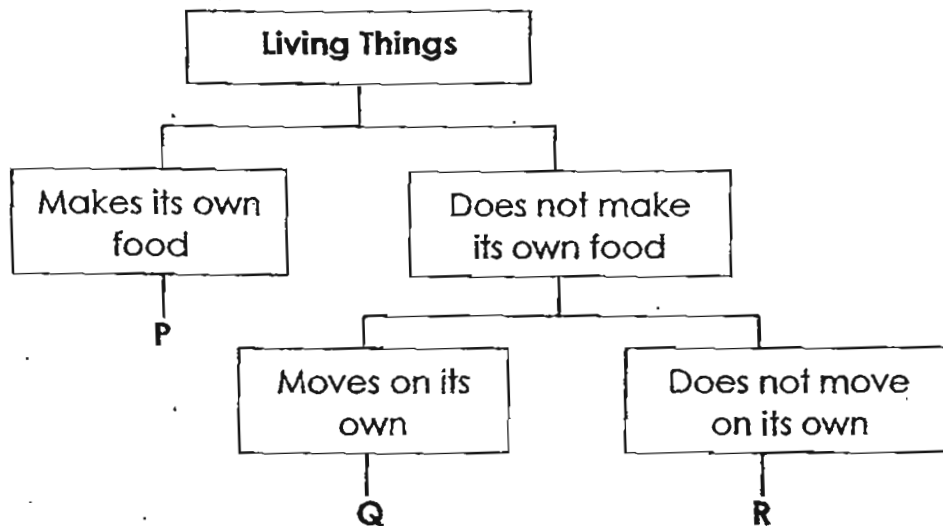
For each question, choose the most suitable answer and shade its corresponding oval (1, 2, 3 or 4) in the optical answer sheet.

1. What does the picture below show about living things?



- (1) Living things reproduce.
- (2) Living things need air to survive.
- (3) Living things need food to grow.
- (4) Living things can move on their own.

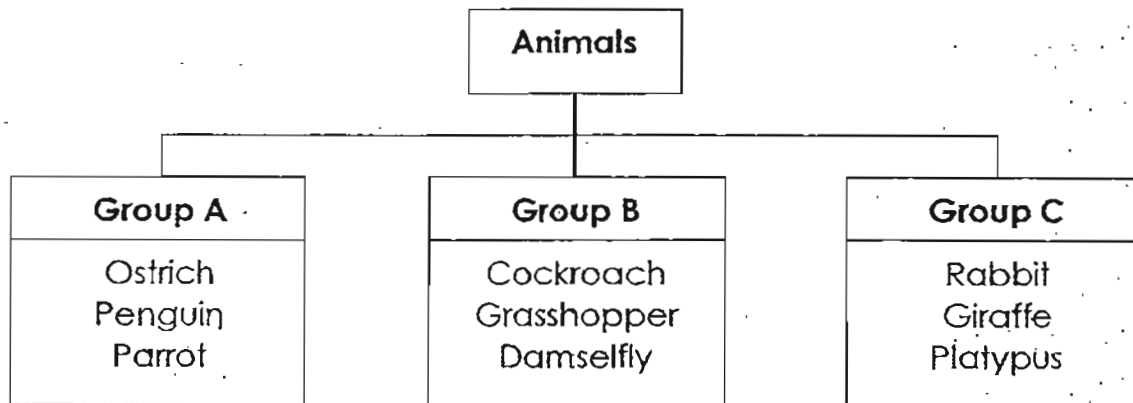
2. Study the classification chart below carefully.



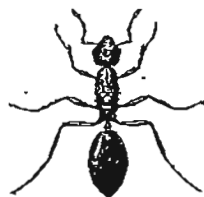
What can P, Q and R be?

	P	Q	R
(1)	Morning glory	Algae	Caterpillar
(2)	Yeast	Snake	Rose plant
(3)	Fern	Earthworm	Bread mould
(4)	Bracket fungi	Duck	Hydrilla

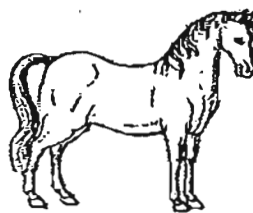
3. Study the classification chart below carefully.



Classify the animals, X and Y, in the correct groups above.



Animal X



Animal Y



Animal Z

	Group A	Group B	Group C
(1)	Y	X	Z
(2)	X	Y	Z
(3)	Z	X	Y
(4)	Y	Z	X

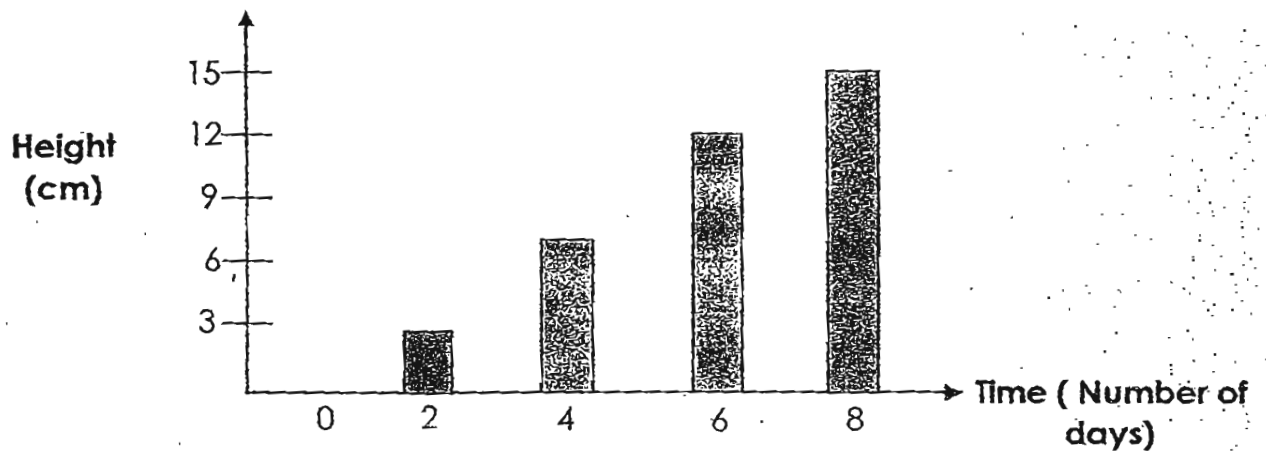
4. An animal has the following characteristics:

- Has fins
- Has thin skin
- Breathes through gills
- Feeds on other smaller organisms

What can this animal be?

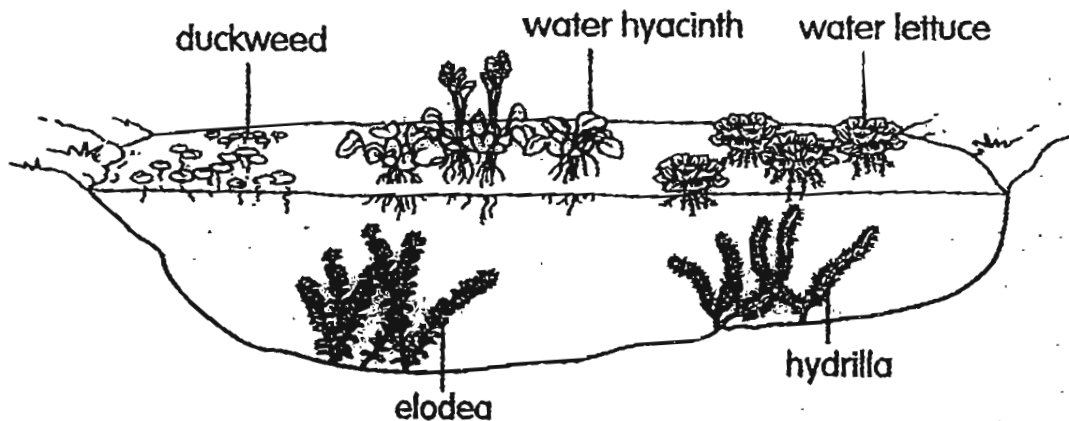
- (1) fish
- (2) bird
- (3) insect
- (4) mammal

5. The graph below shows the growth of a green bean seed to a plant over 8 days.



What can you conclude from the graph?

- (1) The plant was 12cm tall on Day 6.
 - (2) The plant will be 18cm tall on Day 10.
 - (3) The plant grows taller by 3cm daily.
 - (4) The plant needs air, food and water to grow.
6. Study the diagram below carefully.



Based on the diagram above, which statement about the pond above is **true**?

- (1) There are three types of partially submerged plants.
- (2) The duckweed reproduces faster than the water lettuce.
- (3) There are a total of two different types of plants in the pond.
- (4) There are more types of floating plants than submerged plants.

7. Sue made some observations about 4 unidentified materials, **A, B, C** and **D**.

- Material A is a poorer conductor of heat than Material B.
- Material C does not cast a shadow.
- Material D casts a light shadow.

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

	A	B	C	D
(1)	Cardboard	Clay pot	Frosted glass	Glass window
(2)	Clay pot	Steel pot	Glass window	Frosted glass
(3)	Tracing Paper	Wooden block	Mirror	Clay pot
(4)	Glass window	Frosted glass	Black Cloth	Clear Plastic

8. Study the table below carefully.

Group X	Group Y
Monkey Whale Goat	Parrot Penguin Eagle

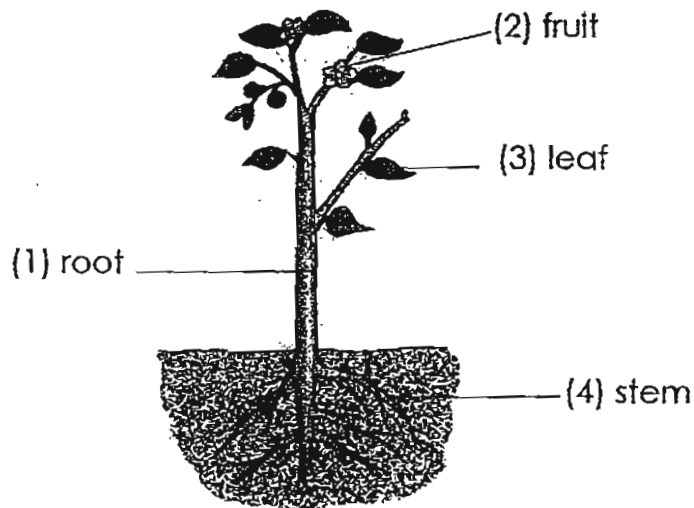
How are the animals grouped?

- (1) Where they live.
- (2) The food they eat.
- (3) How they move about.
- (4) Their outer body covering.

9. Which of the following statements shows a similarity between a plant and an animal?

- (1) They can make their own food.
- (2) They respond to changes around them.
- (3) They need only food and water to survive.
- (4) They reproduce by giving birth to their young alive.

10. Study the diagram of the plant below carefully. Which part is labelled correctly?



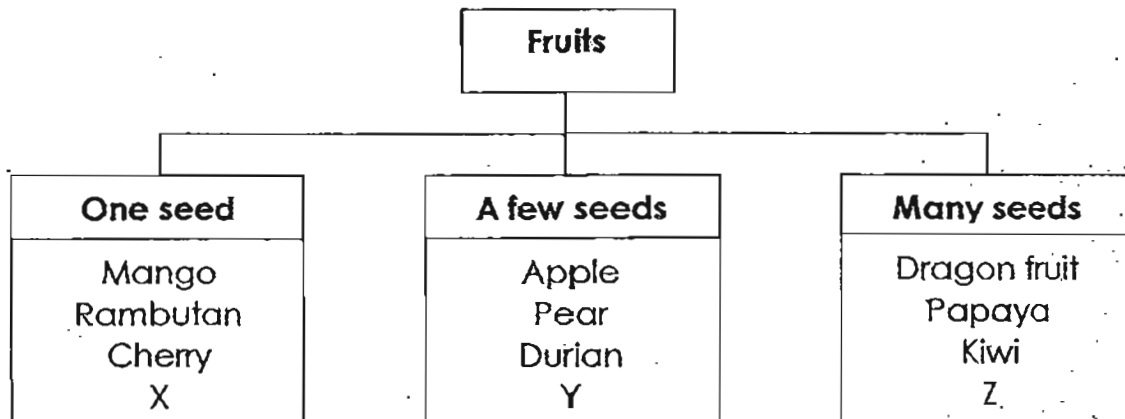
11. Paul wanted to find out if the location of the pots of plants, P, Q and R, affects the growth of the plants.

Variables	Beaker P	Beaker Q	Beaker R
Number of plants in each pot	6	6	6
Size of pot	small	small	big
Location of pot	dark room	open field	garden
Duration of the experiment	7 days	7 days	7 days

Paul's teacher said that he did not conduct a fair test. What change must he make to the set-ups?

- (1) Use pots of the same size.
- (2) Put all the pots at the same location.
- (3) Conduct the experiment over 5 days..
- (4) Use a different number of plants for each pot.

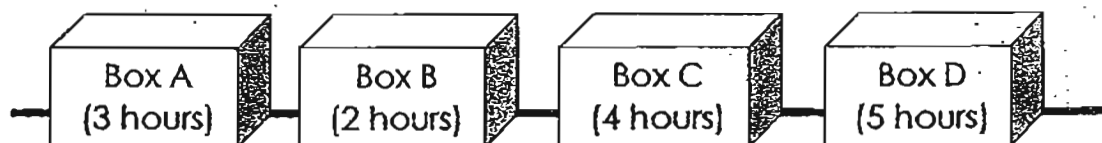
12. Study the classification table below carefully.



What can fruit X, Y and Z be?

	X	Y	Z
(1)	Pear	Longan	Grapefruit
(2)	Peach	Mangosteen	Tomato
(3)	Honeydew	Starfruit	Jackfruit
(4)	Lychee	Strawberry	Mangosteen

13. Mr Tan placed an identical piece of butter in each of the four boxes below and placed them in the sun. The boxes were made of different materials. He recorded the time taken for the butter to melt completely in each box.



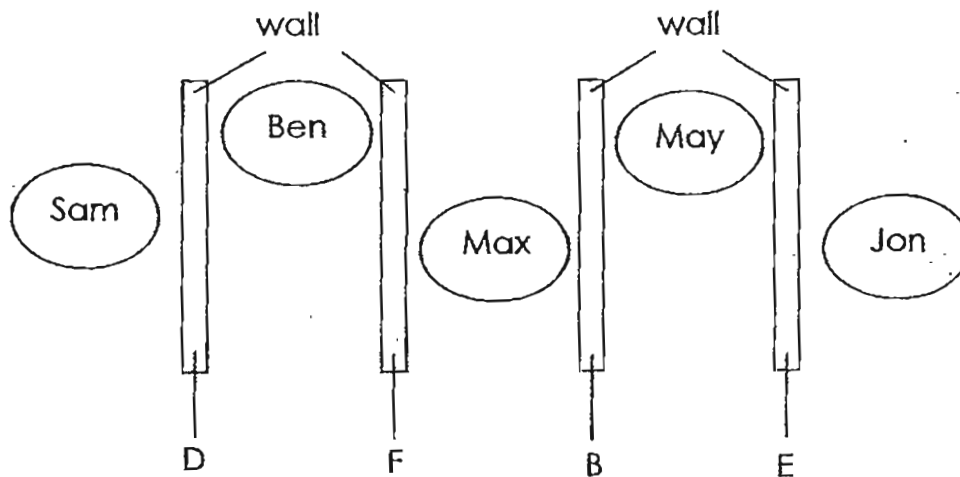
Mr Tan wanted to pack some cold drinks for a picnic. Which box should he use to contain the cold drinks?

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

14. The table below shows how six types of materials are classified.

Does not allow light to pass through	Allows most light to pass through
A	B
C	D
F	E

A designer chose four materials from the table above to build walls inside a playroom. He asked five children to stand behind the walls, as shown in the diagram below.



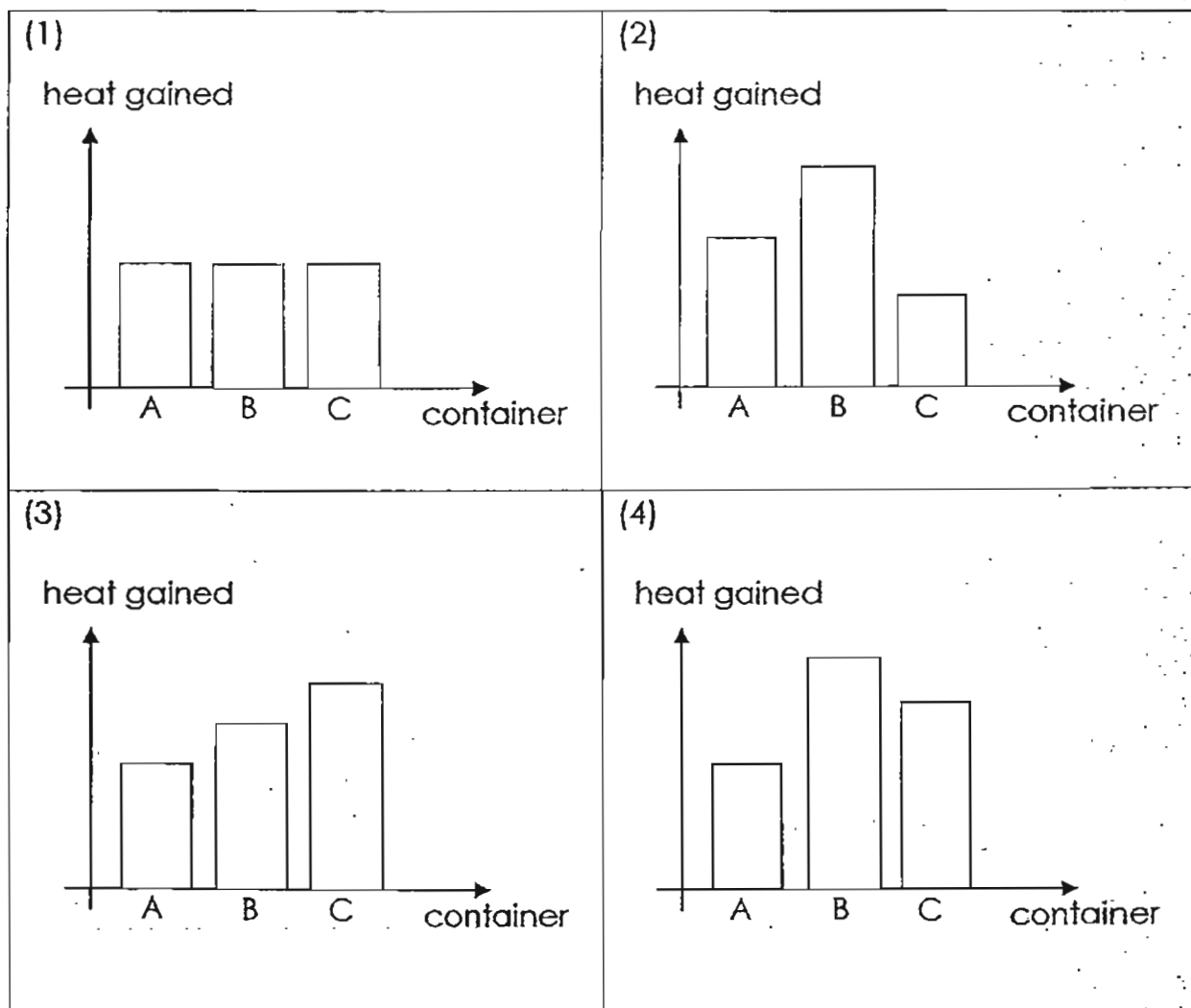
Which of the following is **true**?

- ☒ (1) Jon can see Sam.
- ☒ (2) Ben can see May.
- ☒ (3) Max cannot see Jon.
- ☒ (4) Sam cannot see May.

15. Three containers of water were heated together, in the same heater, for 5 minutes. The table below shows the amount of water in each container and the temperature of the water in each container before and after they were heated.

Container	Amount of water (ml)	Starting temperature ($^{\circ}\text{C}$)	Ending temperature ($^{\circ}\text{C}$)
A	200ml	25	60
B	300ml	25	60
C	100ml	25	60

Which of the following graphs shows the amount of heat gained by the water in the containers after 5 minutes of heating?



16. Which of the following **correctly** describes the difference between the small and large intestines?

	Small Intestine	Large Intestine
(1)	Does not contain digestive juice	Contains digestive juice
(2)	Absorbs food and water only	Absorbs food only
(3)	Digestion takes place	No digestion takes place
(4)	Digestion begins here	Digestion ends here

17. The lungs take in oxygen and remove carbon dioxide from the body. Which of the following systems helps to enable the function mentioned?

- (1) Skeletal system
- (2) Digestive system
- (3) Muscular system
- (4) Respiratory system

18. Ali conducted an experiment to find out if the amount of water affects the growth of Plant T.

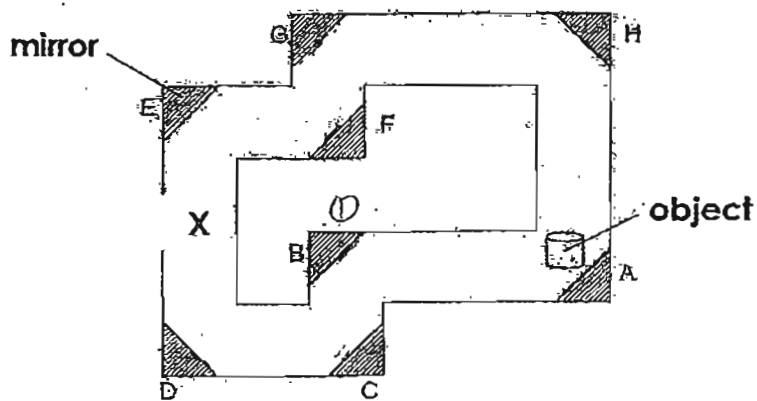
He used two identical pots, Y and Z, for his experiment. The variables for his experiment are shown in the table below.

Pot	Amount of water (ml)	Number of plant T in the pot	Number of hours in the sun daily (hours)
Y	200	8	3
Z	A	B	C

Which should A, B and C be if Ali had conducted a fair test?

	A	B	C
(1)	100	8	3
(2)	100	6	2
(3)	200	8	3
(4)	200	6	2

19. Look at the set-up below. Cindy saw the object when she was asked to stand at position X.



What was the smallest number of mirrors Cindy required to see the object?

- (1) 3
- (2) 4
- (3) 5
- (4) 8

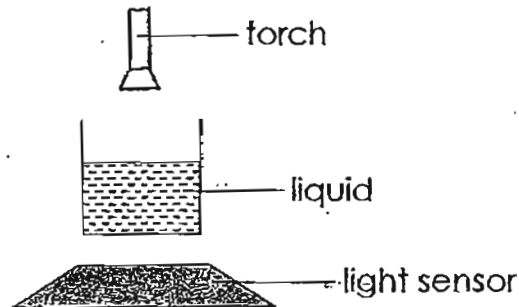
20. The diagram below shows a shadow formed by a wooden pole.



Based on the diagram, at what time was the shadow formed?

- ~~(1) 8 a.m~~
- ~~(2) 11 a.m~~
- ~~(3) 1 p.m~~
- ~~(4) 3 p.m~~

21. Amy set up the following experiment. She shone a torch at three different liquids. She placed a light sensor below the three liquids to measure the amount of light passing through each of them as shown below.



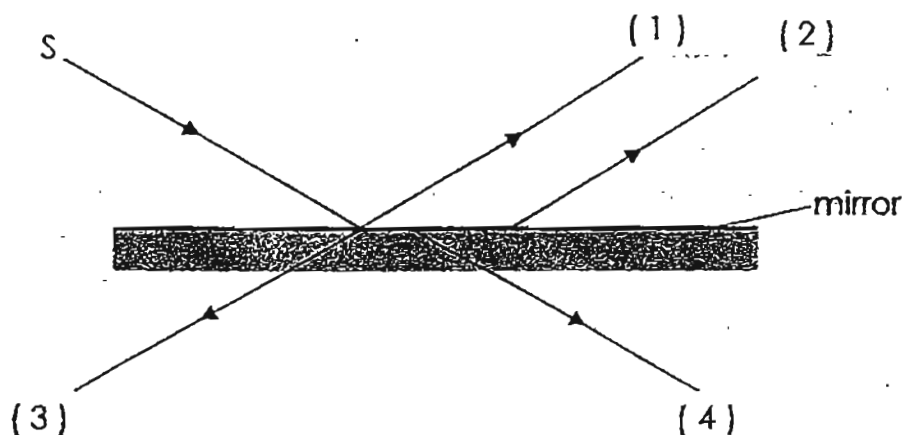
She recorded the readings in the table below.

Liquid X	Liquid Y	Liquid Z
220 lux	400 lux	50 lux

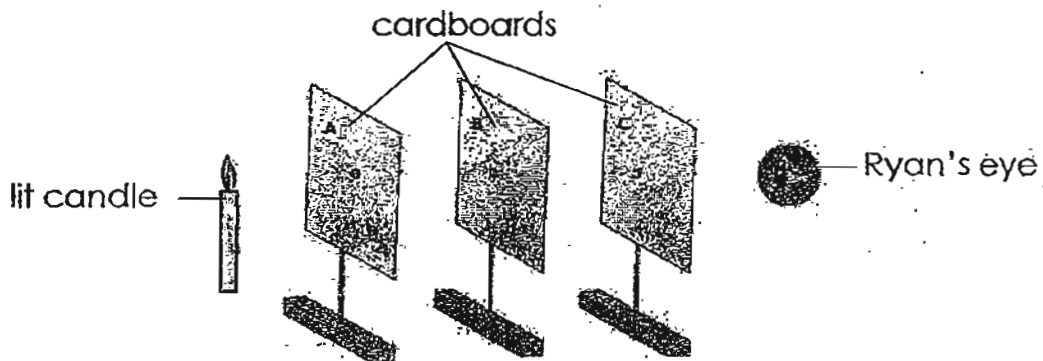
What liquids could X, Y and Z be?

	X	Y	Z
(1)	Milk tea	Tap water	Coca-cola
(2)	Orange juice	Milo	Black coffee
(3)	Milk	Watermelon juice	Soya milk
(4)	Apple juice	Tap water	Chocolate milk

22. The diagram below shows a ray of light, S, falling on a plane mirror. Which arrow correctly shows the direction of the ray of light when it falls on the mirror?

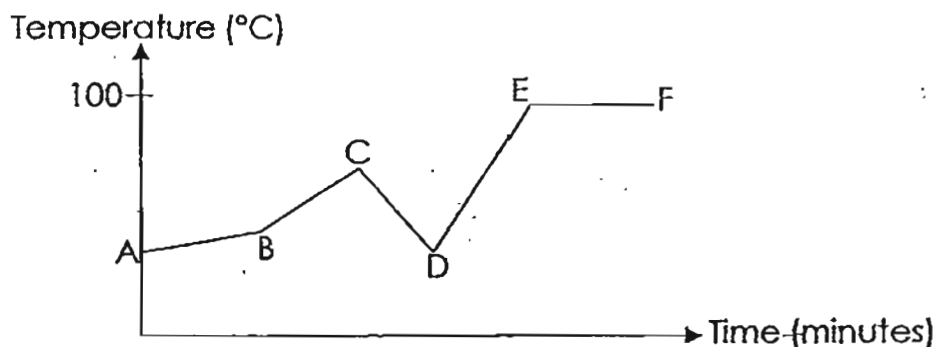


23. Ryan conducted the following experiment using 3 identical cardboards. He had to line the cardboards up before he could see the candle flame.



What was Ryan trying to find out from the experiment shown above?

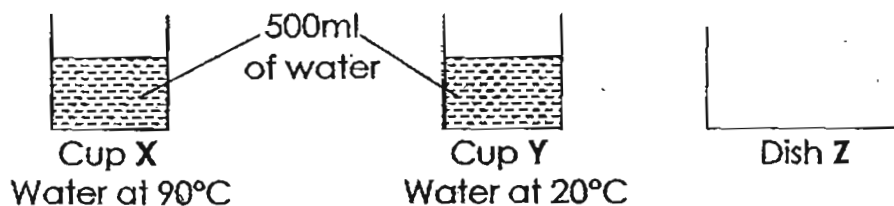
- (1) Whether light travels in a straight line.
 - (2) How fast the light travels.
 - (3) The brightness of the candle flame.
 - (4) Whether light can pass through an opaque object.
24. The graph below shows the change in temperature of a beaker of water over a period of time.



Which part of the graph shows that ice cubes were added to the beaker of water?

- (1) AB
- (2) BC
- (3) CD
- (4) EF

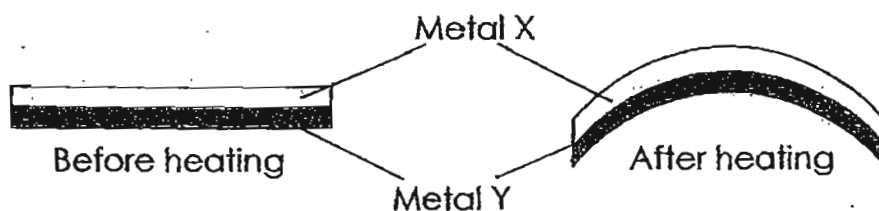
25. Mary carries out an experiment as shown below. Cups X and Y each contains 500ml of water. The water in Cups X and Y is poured into Dish Z.



What is likely to be the temperature of the water in the Dish Z?

- (1) 25°C
- (2) 50°C
- (3) 85°C
- (4) 110°C

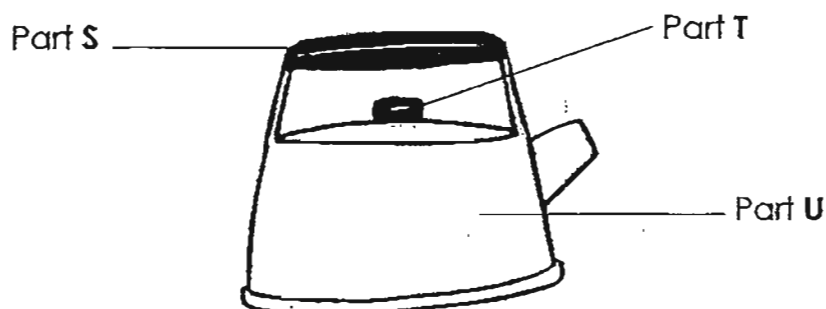
26. The diagram below shows a bimetallic strip made of Metal X and Y.



Which of the following best explains the above observation?

- (1) Metal X and Metal Y are flexible.
- (2) Metal X expands more than Metal Y when heated.
- (3) Metal Y is a better conductor of heat than Metal X.
- (4) Metal X and Metal Y are good conductors of heat.

27. The kettle below is made of parts, S, T and U.



Which of the following correctly shows the type of heat conductor parts, S, T and U, are made of?

	Part S	Part T	Part U
(1)	Good conductor	Good conductor	Good conductor
(2)	Poor conductor	Good conductor	Poor conductor
(3)	Good conductor	Poor conductor	Poor conductor
(4)	Poor conductor	Poor conductor	Good conductor

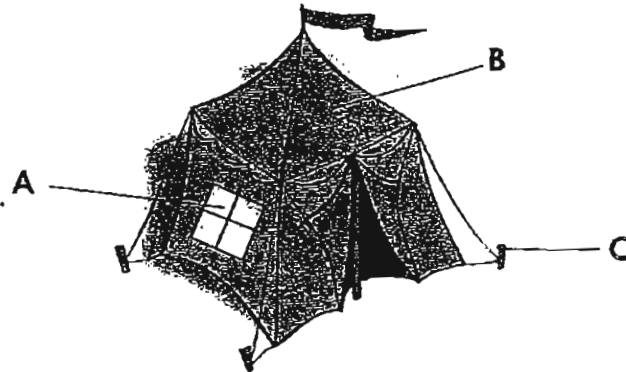
28. Candy carried out an experiment on four different types of materials, E, F, G and H. She used a rock to scratch these materials and recorded her observations below.

Material	Observation
E	There was a deep scratch mark.
F	There was no scratch mark.
G	There was a slight scratch.
H	There was a fine scratch.

Based on her observations, which of the following will produce the deepest scratch?

- (1) Using H to scratch F
- (2) Using G to scratch H
- (3) Using E to scratch G
- (4) Using F to scratch E

29. Mr Lim came up with the following sketched design for his circus tent which had a 'window'.



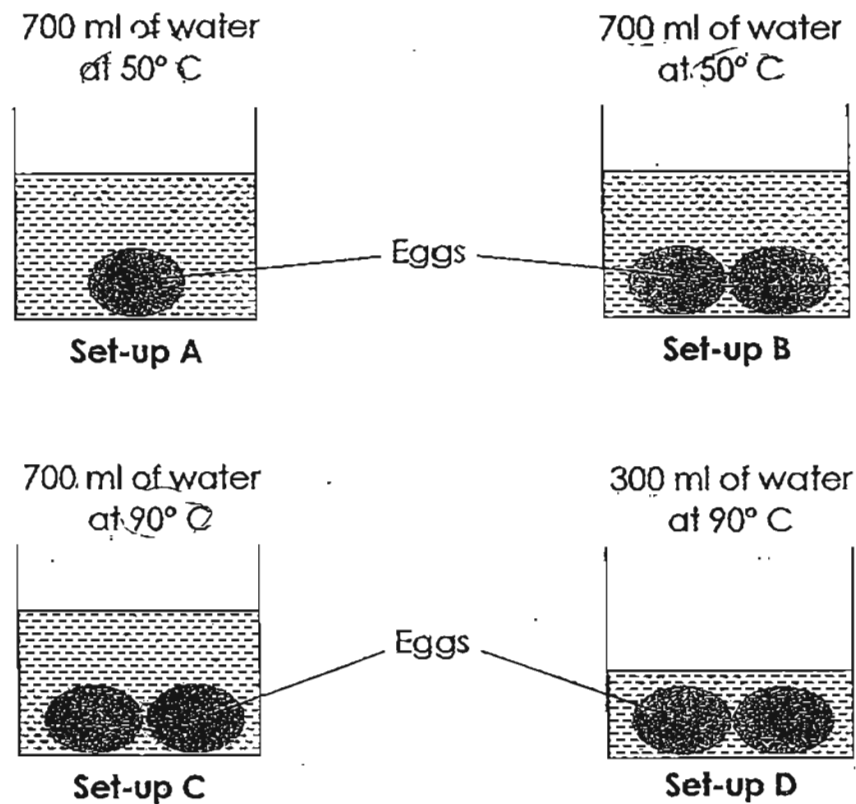
He chose three materials for each of the parts, A, B and C, based on their properties indicated in the table below.

Material	Properties
P	● Hard ● Durable
Q	● Waterproof ● Transparent
R	● Waterproof ● Durable

Which of the following shows the best material used for parts, A, B and C, of the tent?

	A	B	C
(1)	R	Q	P
(2)	Q	P	R
(3)	Q	R	P
(4)	P	R	Q

30. Devi wants to find out if the temperature of water affects how fast eggs are cooked.



Which 2 set-ups should she use to ensure a fair test?

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

TAO NAN SCHOOL

PRIMARY 4 SCIENCE MID-YEAR EXAMINATION 2011

Name : _____

Date : 12 May 2011

Class : P4 _____

Time : 8.00 a.m. to 9.15³⁰~~15~~ a.m.

Booklet B

INSTRUCTIONS TO CANDIDATES

Do not open this booklet until you are told to do so.

Follow all instructions carefully.

Answer all questions.

	Score	Marks
Section B		40

Parent's Signature : _____

Section B (40 marks)

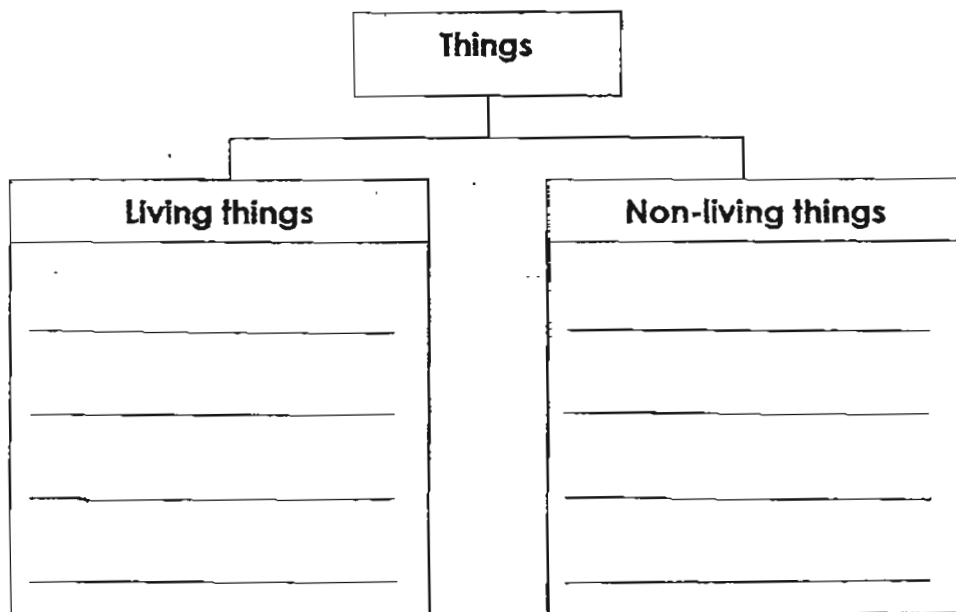
Write your answers in the space provided.

31. Study the classification chart below carefully.

a) Fill in the blanks with the helping words provided.

(2m)

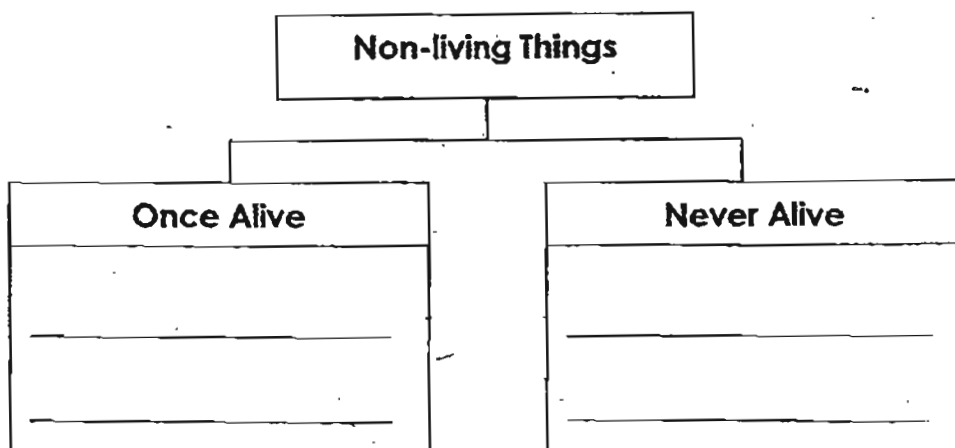
roast chicken	tadpole	orchid plant
paper	moss	plastic bag



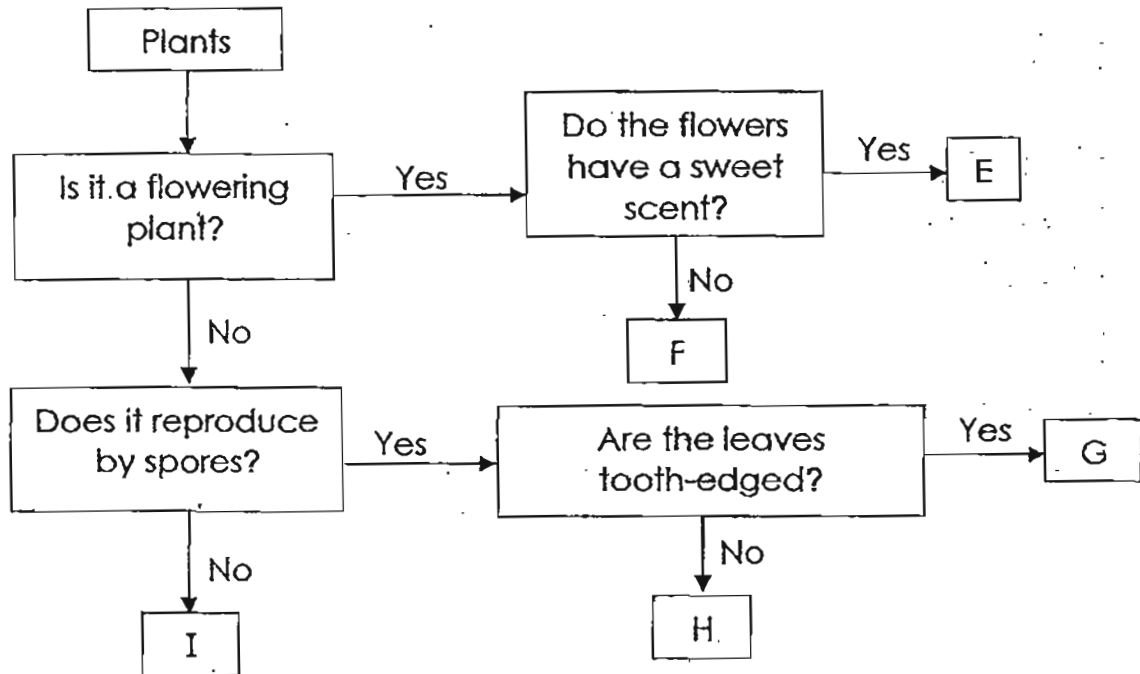
b) The items in the group, 'Non-living Things', can be further classified using the chart below.

Based on your answer in (a), fill in the blanks with the correct words.

(1m)



32. Study the flow chart below carefully.

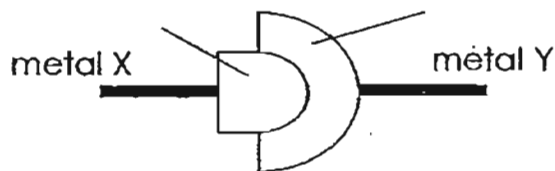


a) What is the difference between plants **E** and **F**? (1m)

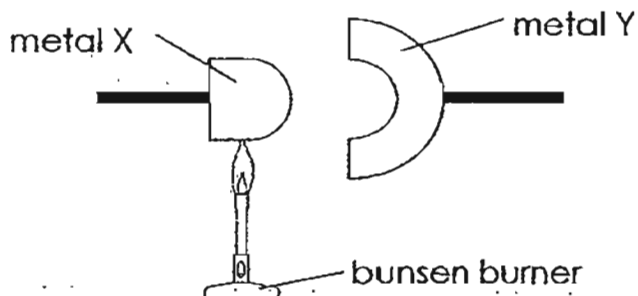
b) How are plants **G** and **H** similar? (1m)

c) Describe plant **I**. (1m)

33. The diagram below shows two pieces of metals, X and Y, fitted together at room temperature.



- a) A bunsen burner is placed below metal X for 15 minutes as shown in the diagram below.

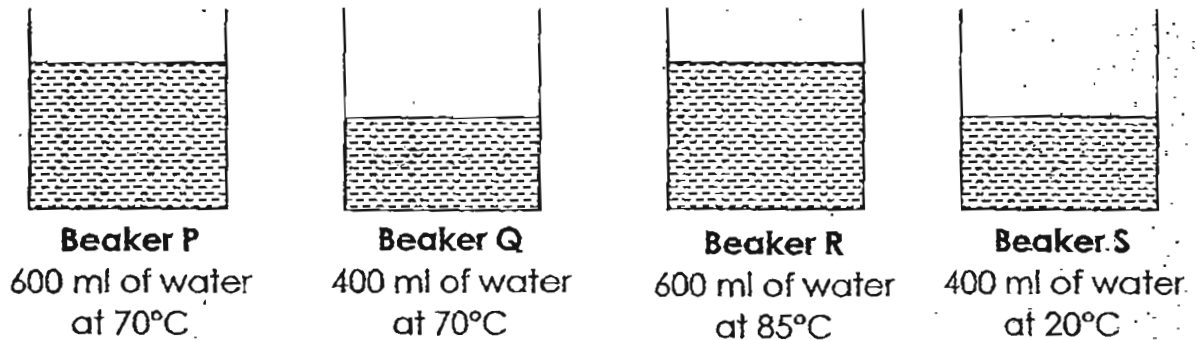


- i) What will happen when metals X and Y are put together again after metal X has been heated for 15 minutes? (1m)

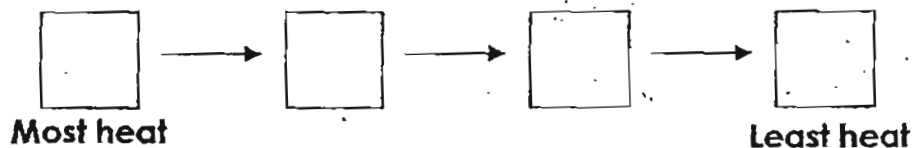
- ii) Explain your answer in (ai). (1m)

- b) You are given a bowl of ice water. What can you do to make metals X and Y fit in the shortest possible time? Explain. (2m)

34. John has 4 beakers of water as shown below.



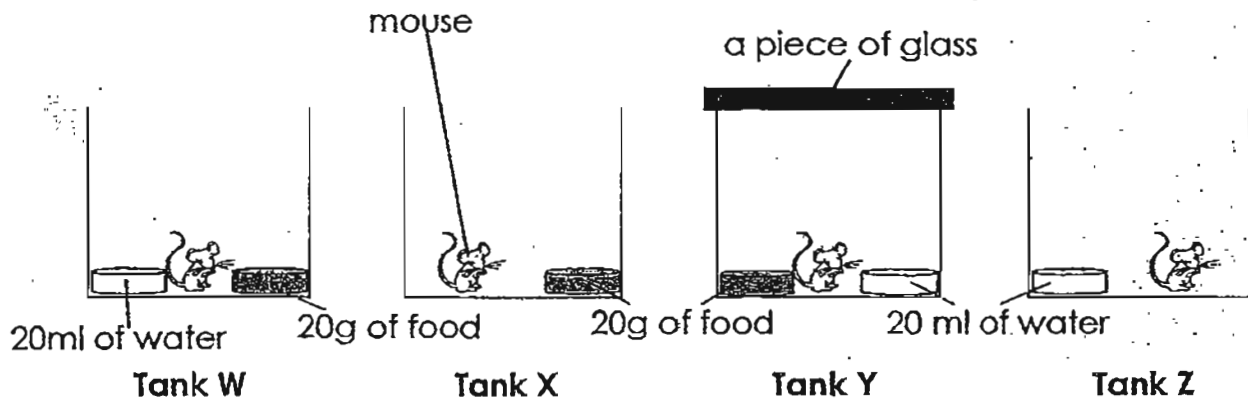
- a) Arrange the beakers, P, Q, R and S, in descending order according to the amount of heat they contain. (1m)



- b) John wants to find out if the amount of water affects the amount of heat in each beaker. Which two set-ups should he use? (1m)

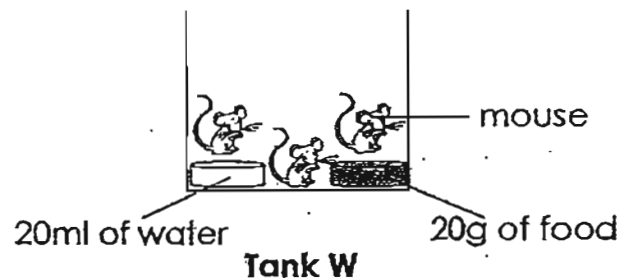
- c) What is/are the factor(s) that determine the amount of heat in each beaker? (1m)

35. The diagram below shows an experimental set-up. Jay wants to investigate how long a mouse can survive under different conditions.



- a) Which mouse will survive the longest? Explain. (1m)

- b) Two more mice were placed in Tank W as shown in the diagram below.

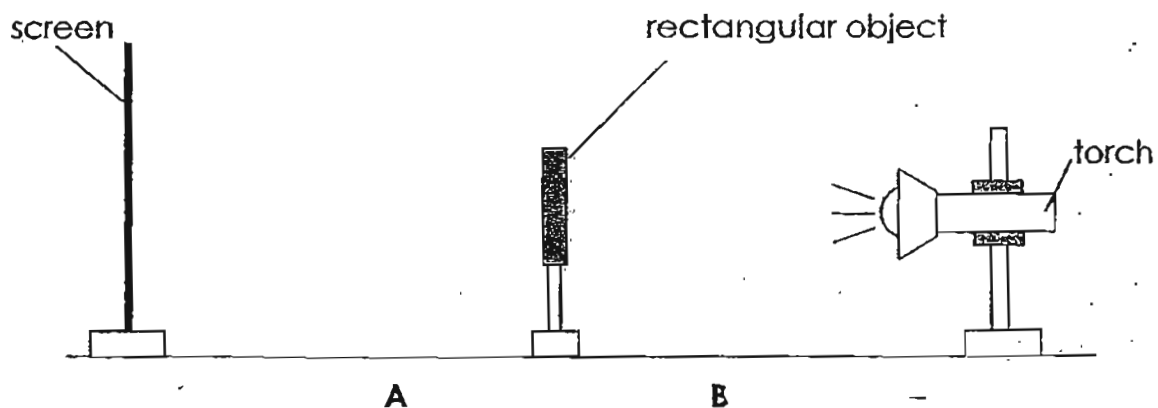


What must be done to Tank Y so that the mouse in it can survive longer than those in Tank W? (1m)

- c) Jay wanted to find out how each of the conditions below affects the survival of a mouse. Fill in the table below with the 2 tanks he should use for each condition. (2m)

Condition	Tanks
Food	
Water	

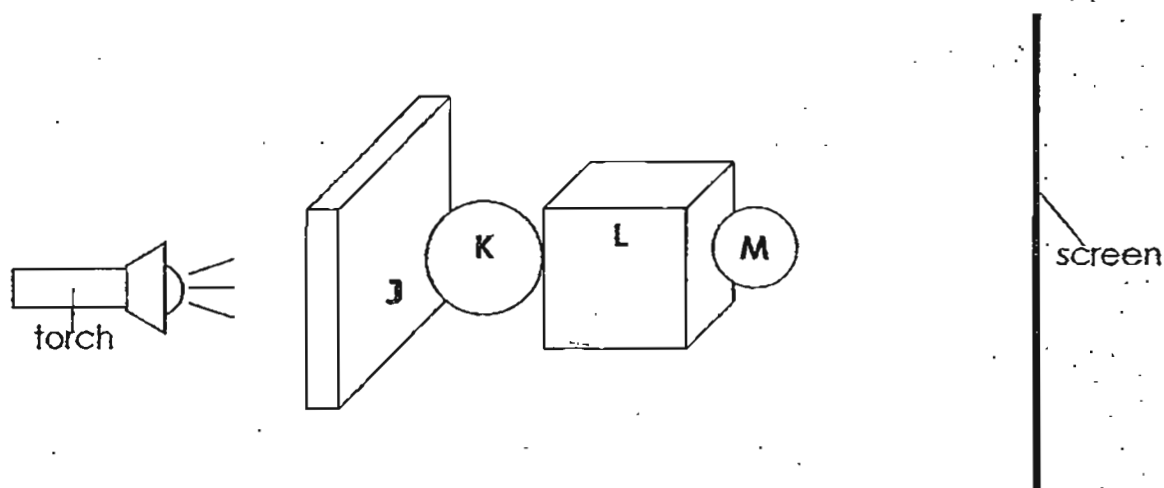
36. Study the experimental set-up below.



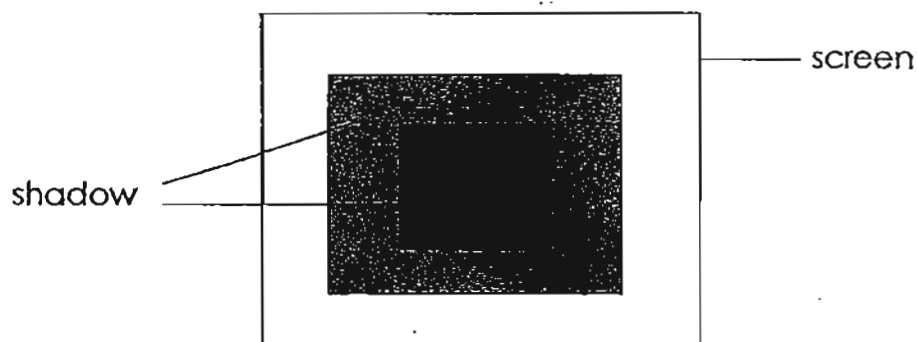
- a) At which position, A or B, should the rectangular object be placed so that it would cast a longer shadow on the screen? (1m)

- b) If the shadow cast by the object at Position B is 20cm, write down one way in which the shadow cast by the object could still be 20cm when it is moved to Position A. (1m)

37. Objects, **J**, **K**, **L** and **M**, are placed one in front of the other as shown below.



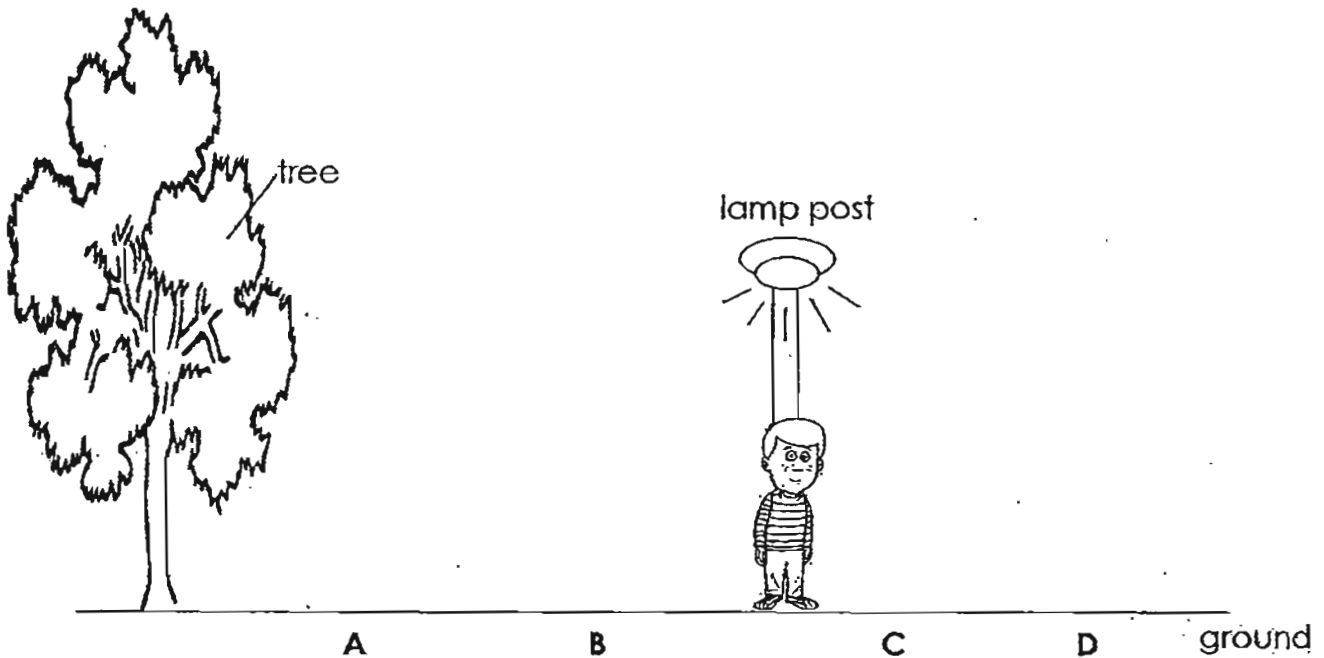
A torch is placed in front of Object **J** and a shadow is formed on the screen as shown below.



Based on the shadow formed, indicate if each statement is 'True', 'False' or 'Not possible to tell' by putting a tick (✓) in the appropriate boxes below. (3m)

	Statement	True	False	Not possible to tell
a)	Object J is transparent.			
b)	Object M is translucent.			
c)	Object L is opaque.			

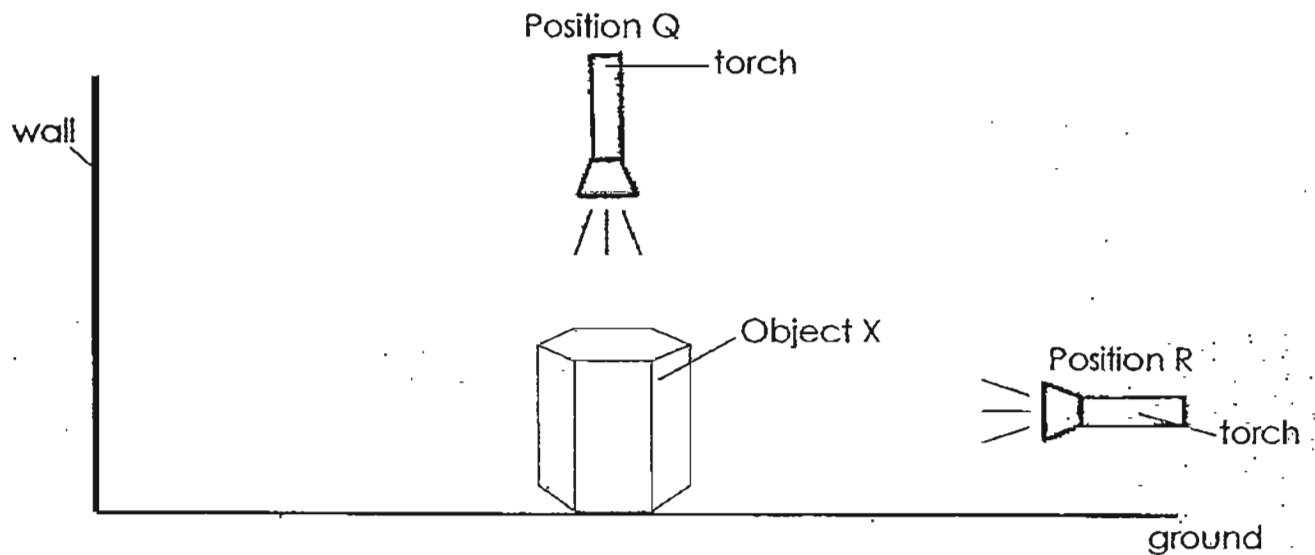
38. Ken walked towards a brightly lit lamp post and realised that the length of his shadow changed.



- a) At which point, A, B, C or D, should Ken stand in order to cast the longest shadow? (1m)

- b) Ken walks towards the tree. When he stops, facing the tree, will his shadow be in front of him or behind him? Explain your answer. (2m)

39. Mrs Tan used a torch to shine on object X from positions Q and R.



a) Draw the shadow

i) cast on the ground when she shone the torch from position Q.

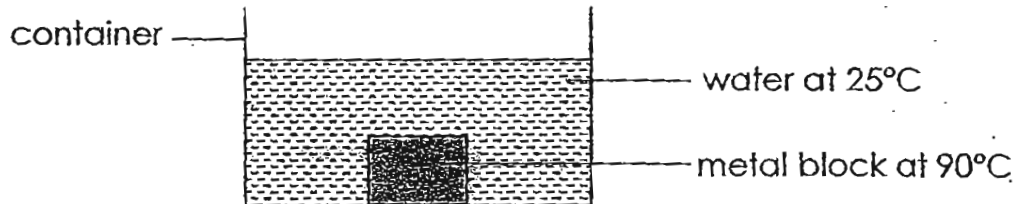
(1m)

ii) cast on the wall when she shone the torch from position R.

(1m)

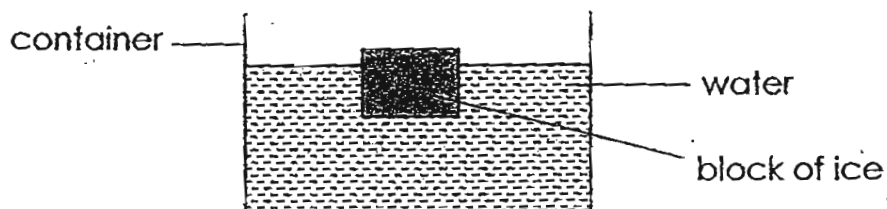
i) Shadow cast on the ground	ii) Shadow cast on the wall

40. Sandy carried out an experiment as shown below.
She put a metal block that had been heated to 90°C into the container of water.



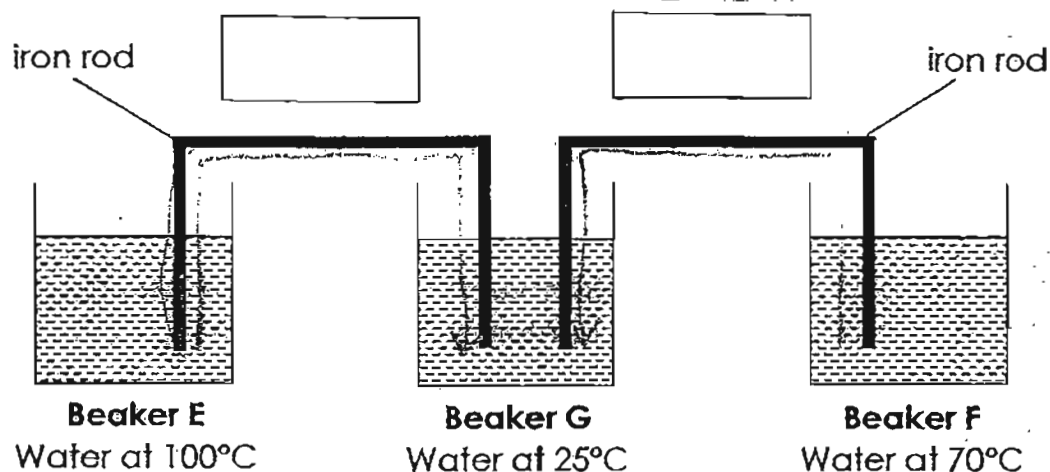
- a) What would happen to the temperature of the water after Sandy had put the metal block into the container? Give a reason for your answer. (2m)

After 10 minutes, Sandy removed the metal block and added a block of ice into the same container of water as shown below.



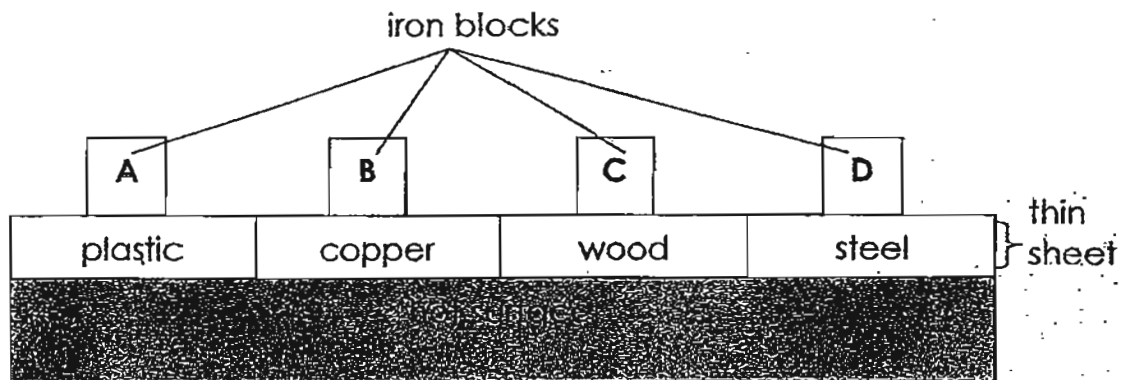
- b) What would happen to the block of ice after Sandy had added it into the water? Give a reason for your answer. (1m)

41. Three beakers containing the same amount of water at different temperatures were prepared. There were iron rods put into the 3 beakers of water as shown in the diagram below.



- a) Draw an arrow in each of the boxes above to indicate the flow of heat through the iron rods at the start of the experiment. (1m)
- b) Explain your answer in (a). (1m)

42. Mark sets up an experiment as shown below. He uses a thin sheet made by joining four different materials of the same thickness together. Four iron blocks, A, B, C and D, are placed on top of each material over a hot surface as shown.

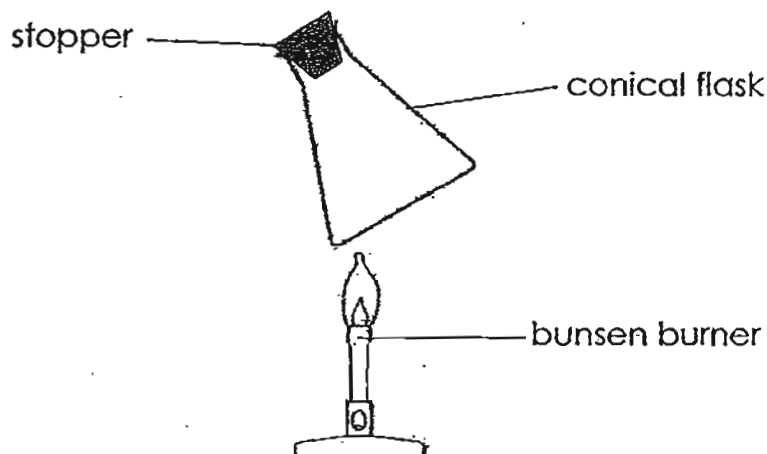


- a) Which two iron blocks, A, B, C or D, will Mark be able to pick up with his bare hands after 10 minutes? Explain your answer. (2m)

- b) Which of the following variables have to be kept the same to ensure a fair test? Tick your answer. (1m)

Variables	Tick(✓)
The size of the iron blocks.	
The materials the iron blocks are placed.	
The amount of heat used.	
The thickness of the sheet.	

43. An empty conical flask with a stopper was heated over a flame as shown in the diagram below.



- a) What will happen to the stopper after 30 minutes of constant heating? (1m)

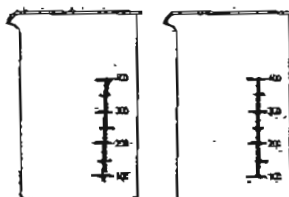
- b) Explain your answer in (a). (1m)

- c) Suggest **one** way to shorten the time required to observe the same reaction in (a). (1m)

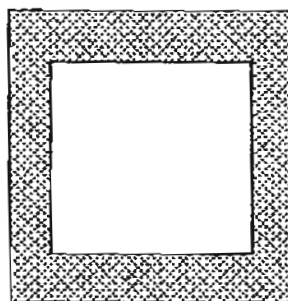
44. Andy was instructed by his teacher to conduct an experiment to find out which material, E or F, is better at keeping the water warm. He was given hot water and the following apparatus. He was asked to order the steps to be taken before he conducted the experiment:



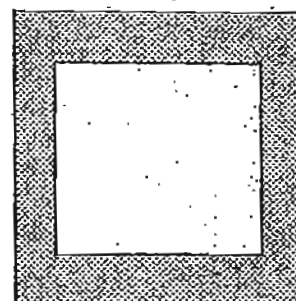
2 thermometers



2 beakers



Box (material E)



Box (material F)

Help Andy by ordering the steps of the experiment. Write numbers 1 to 5 in the boxes provided.

(2m)

Description of step	Step
Repeat the experiment 3 times.	
Place one beaker of hot water in the box made of material E and the other in the box made of material F.	
Fill 2 similar beakers with hot water at 100°C.	
Record the reading on the thermometers every 5 minutes without taking out the thermometers.	
Place a thermometer into each beaker of water.	

End of paper

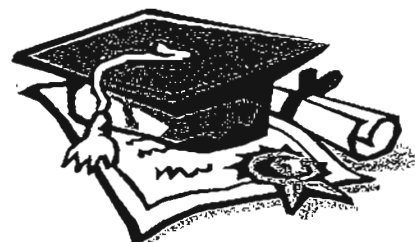


ANSWER SHEET

EXAM PAPER 2011

SCHOOL : TAO NAN
SUBJECT : PRIMARY 4 SCIENCE

TERM : SA1



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

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

31)a) Living things

Tadpole
Orchid plant
Moss

Non-living things

paper
roast chicken

b) Once Alive

roast chicken
paper

Never Alive

plastic bag

32)a) Plant E have a sweet scent but Plant F does not have a sweet scent.

b) They are not flowering plants and can reproduce by spores.

c) It is not a flowering plant and it does not reproduce by spores.

33)a)i) Metal X will not be able to be put in Metal Y.

ii) It is because when Metal X is heated, heat is gained and it will expand. Thus, Metal X could not be able to fit into Metal Y.

b) I can put Metal X into a bowl of ice water. When I put it in, heat is lost and it will contract. Thus, Metal X will be able to fit into Metal Y.

34)a) $R \rightarrow P \rightarrow Q \rightarrow S$

b) Set-up P and set-up Q.

c) Whether the amount of water affects the amount of heat in each beaker & temperature of the water.

35)a) The mouse in Tank W. It is because it has air, food and water to survive.

b) The piece of glass in Tank Y should be removed.

c) Air: W and Y

Food: W and Z

Water: W and X

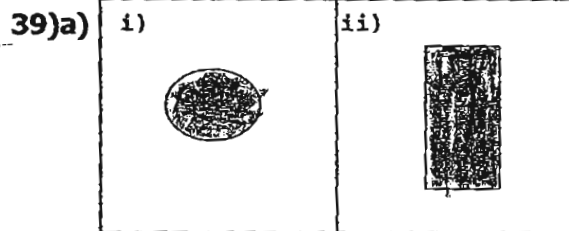
36)a)Position B.

b)By moving the torch to position B.

37)a)F b)Not c)T

38)a)Point A.

b)His shadow will be in front of him as the light source is behind him so it will cast a shadow in the opposite direction.



40)a)The temperature of the water will increase, because it gains heat from the metal block.

b)The block of ice will melt, because it lost coldness to the water.

41)a) → ←

b)Heat will travel from a hotter region to a colder region.

42)a)A and C. It is because plastic and wood are poor conductor of heat.

b)✓

✓

✓

43)a)The stopper will pop out.

b)As the conical flask is heated, the air in the flask will expand causing the stopper to pop out.

c)Use a smaller conical flask.

44)52143