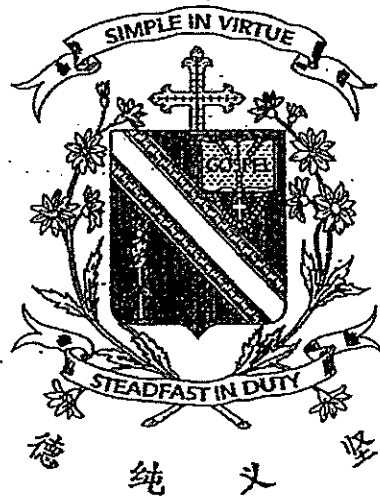


Name _____ ()

Class : Primary 4 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL



Primary 4

Semestral Assessment 2 – 2014

SCIENCE

BOOKLET A

30 October 2014

Total Time for Booklets A and B: 1 hour 45 minutes

30 questions

60 marks

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

Follow all instructions carefully.

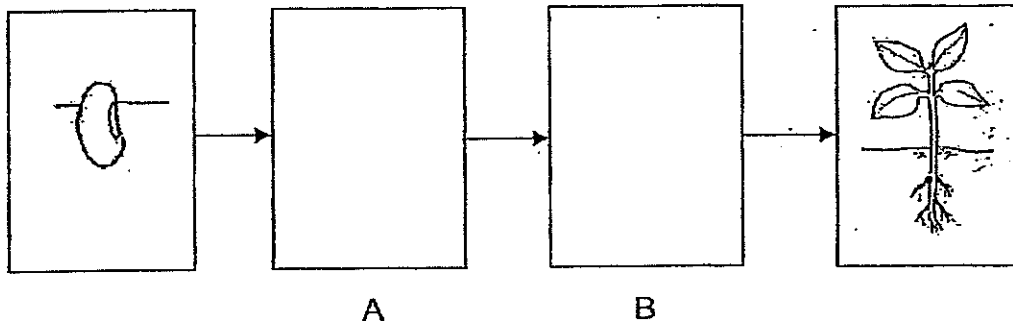
Answer all questions.

This booklet consists of 26 printed pages.

Section A : (30 x 2 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.

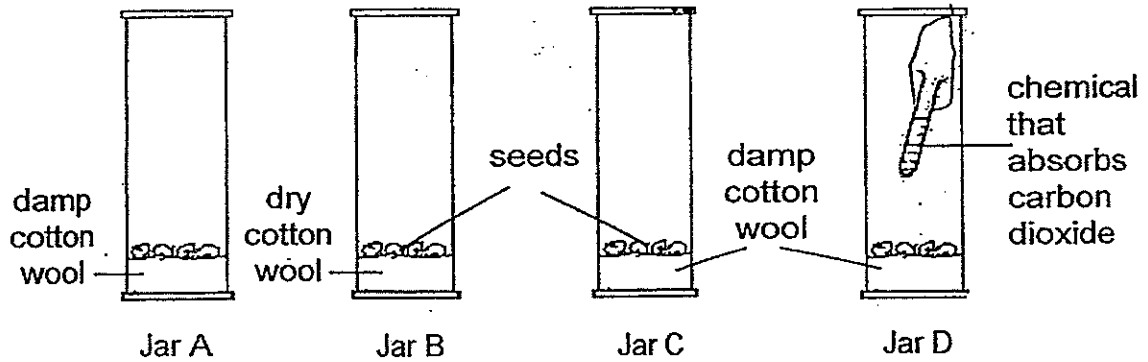
1. The diagrams below show the growth of a young plant with two missing stages A and B.



Which one of the following best represents stages A and B?

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

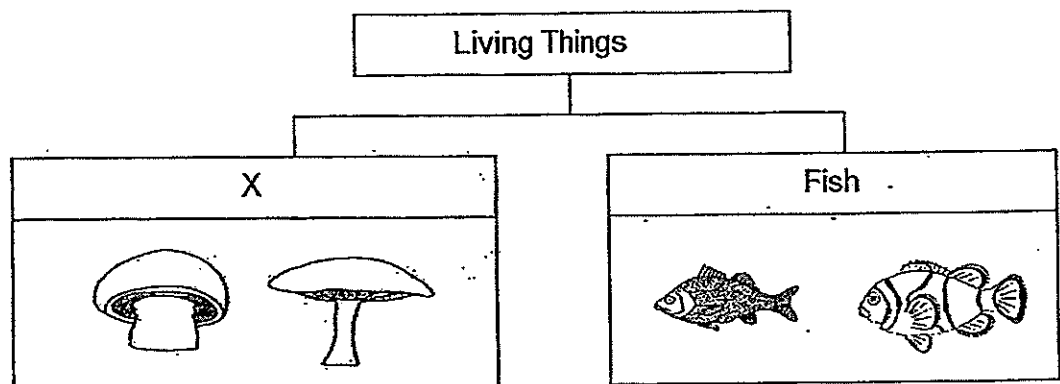
2. The diagram below shows 4 jars, A, B, C and D, each containing an equal number of seeds. Jars B, C and D are placed near the window while Jar A is placed in the refrigerator with a temperature of 2°C.



In which jar(s) will the seeds grow into seedlings?

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

3. The table below shows how some living things can be grouped.



Which one of the following is the most suitable heading for group X?

- (1) Fungi
- (2) Plants
- (3) Bacteria
- (4) Mammals

4. The pictures below show a fern and a rose plant.



Fern



Rose plant

How is the fern similar to the rose plant?

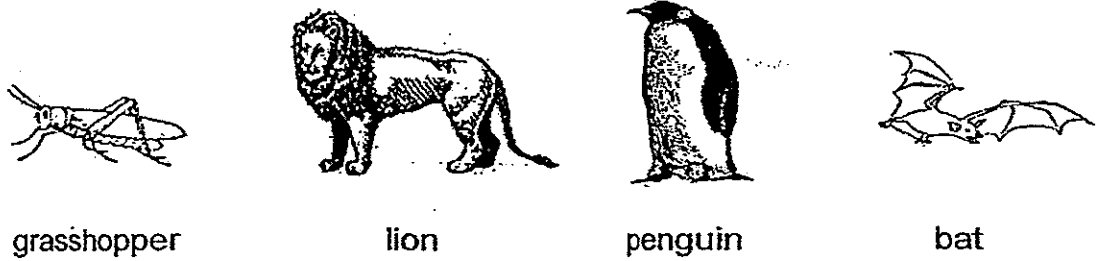
- A Both bear flowers.
- B Both need water to survive.
- C Both reproduce from seeds.
- D Both need sunlight to make food.

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

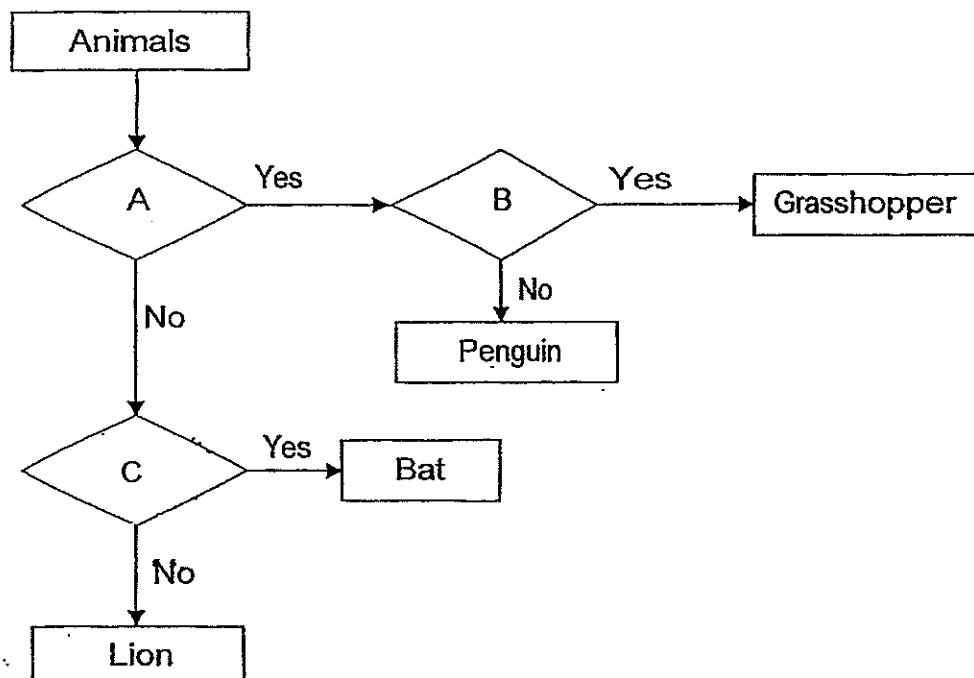
5. Which one of the following statements is not true for all birds?

- (1) They can fly.
- (2) They have wings.
- (3) They have feathers.
- (4) They have two legs.

6. Vivian had to classify the four animals as shown below.



She used the flowchart below to compare the characteristics of the four animals given.



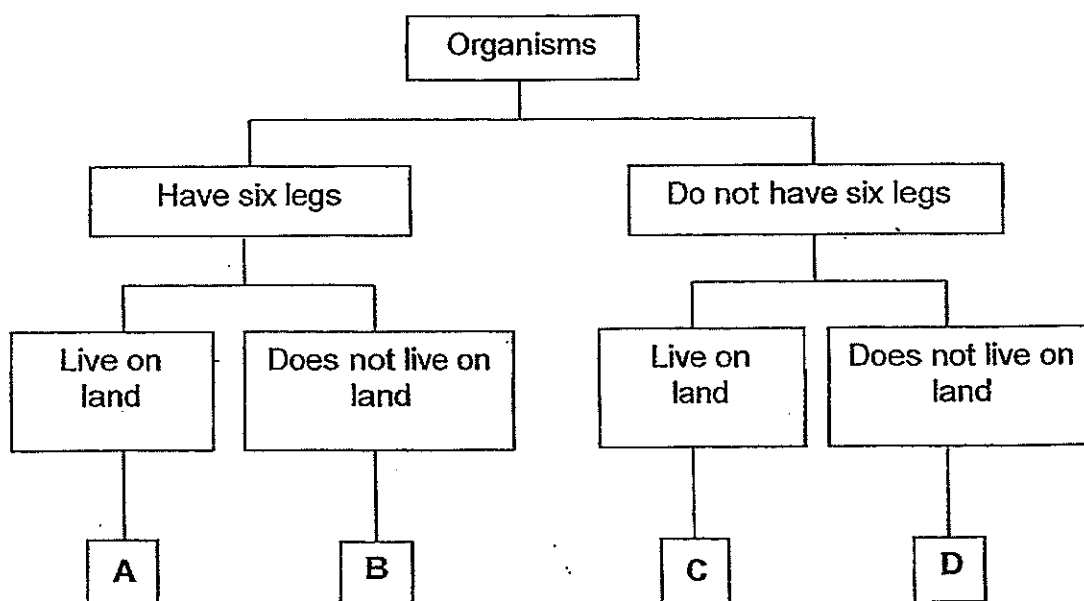
Based on the flowchart above, which one of the following best represents A, B and C?

	A	B	C
(1)	Can it swim?	Does it lay eggs?	Does it live on land?
(2)	Does it lay eggs?	Does it have six legs?	Does it have wings?
(3)	Does it live on land?	Does it have wings?	Does it have hair?
(4)	Does it have hair?	Does it live on land?	Can it swim?

7. The table below gives information about two organisms, R and S, based on two characteristics. A tick (✓) shows that the organism has the characteristic.

Organism \ Characteristics	R	S
Have six legs	✓	
Live on land		✓

Based on the information above, where letters best represent organisms R and S in the following classification table?

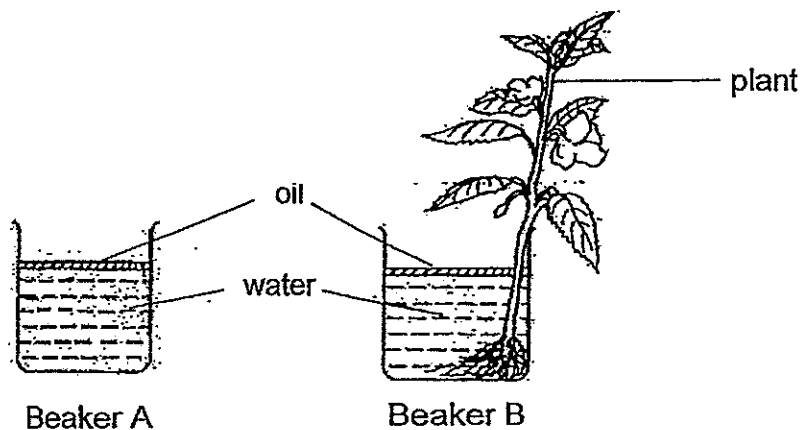


	Organism R	Organism S
(1)	A	C
(2)	B	C
(3)	C	D
(4)	D	A

8. Which one of the following is the function of a leaf on a plant?

- (1) makes food
- (2) takes in water
- (3) holds plant upright
- (4) takes in mineral salts

9. Amy filled 2 similar beakers, A and B, with the same amount of water before pouring a layer of oil on the water surface. She placed a plant in Beaker B and recorded the volume of water in each beaker at the end of 2 days.



Beaker	Volume of water in the beaker at first (mℓ)	Volume of water in the beaker after 2 days
A	200	?
B	200	?

Which one of the following best represents the volume of water in beakers A and B at the end of 2 days?

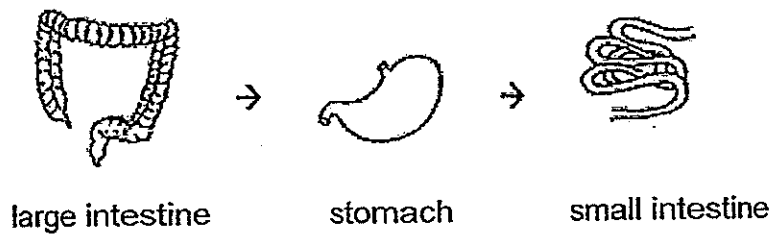
Volume of water after 2 days (mℓ)		
	Beaker A	Beaker B
(1)	200	170
(2)	180	160
(3)	200	200
(4)	150	170

10. Which one of the following shows the correct order of the movement of food through some parts of the digestive system?

(1)



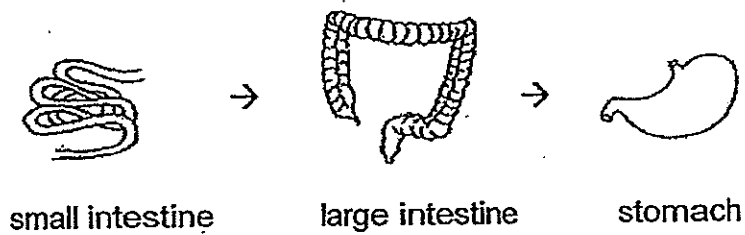
(2)



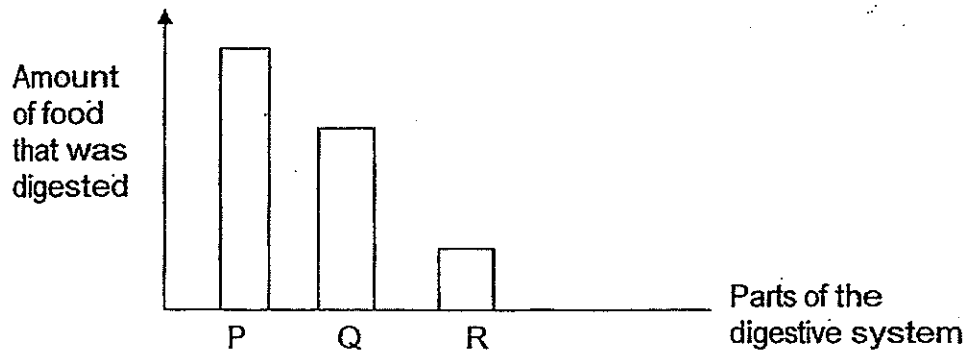
(3)



(4)



11. Timothy ate a plate of chicken rice. The graph below shows the amount of food that was digested at different parts of his digestive system.



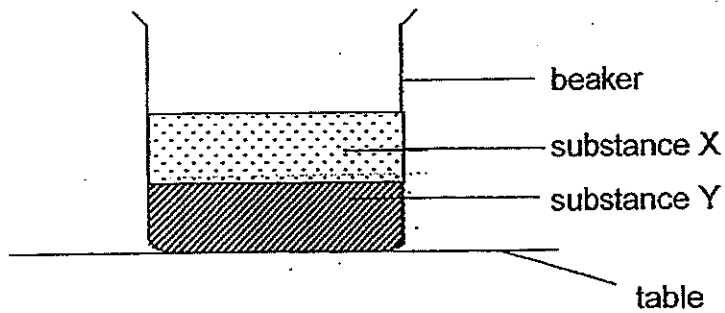
Based on the graph above, which one of the following correctly matches the part of the digestive system to the amount of food being digested?

	P	Q	R
(1)	stomach	mouth	gullet
(2)	stomach	small intestine	large intestine
(3)	small intestine	stomach	mouth
(4)	small intestine	stomach	large intestine

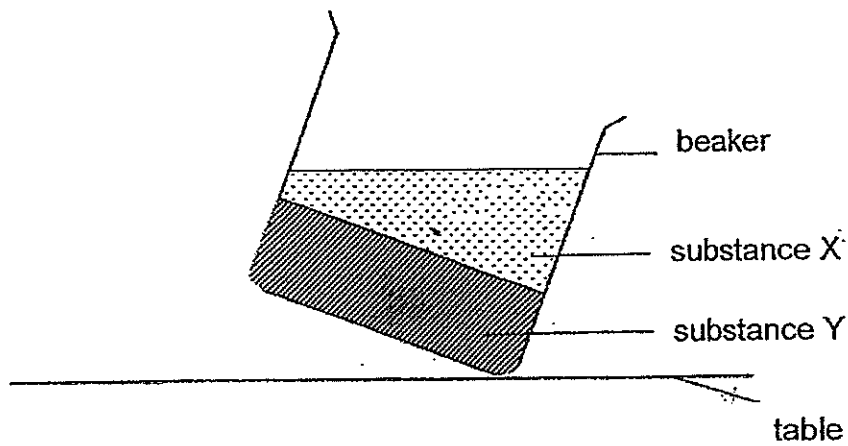
12. Which one of the following property is true for both air and a glass?

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

13. The diagram below shows a beaker that contains two substances, X and Y.



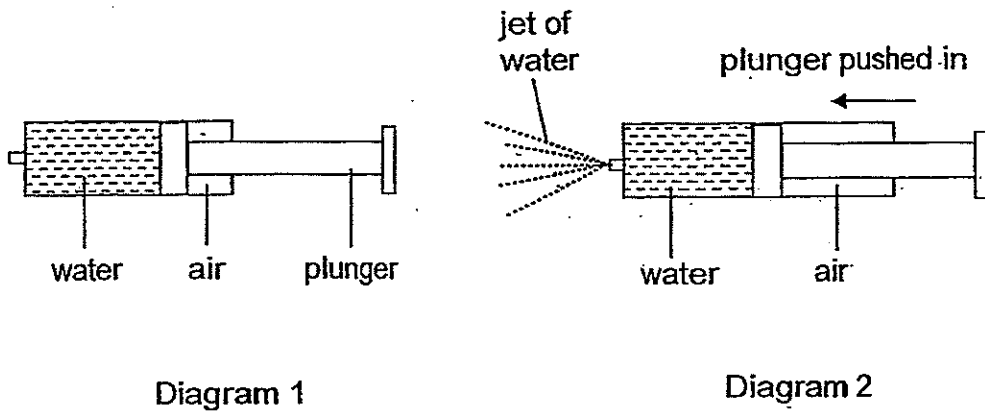
The diagram below shows what happens when the beaker is tilted.



Based on the observation, which one of the following correctly represents the states of matter of substances X and Y?

	X	Y
(1)	Solid	Solid
(2)	Liquid	Solid
(3)	Liquid	Liquid
(4)	Solid	Liquid

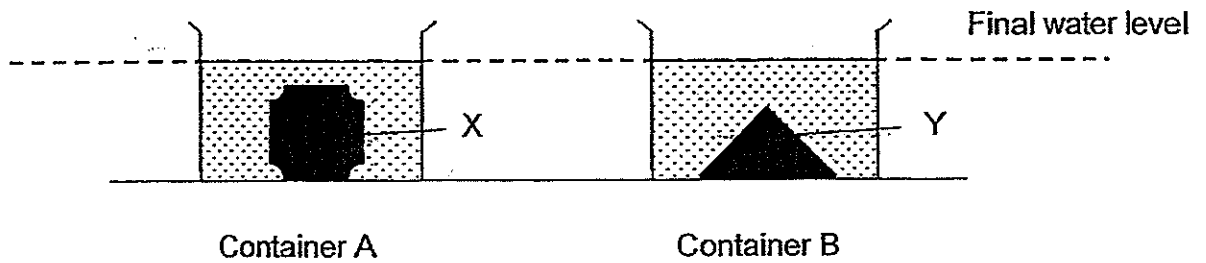
14. A syringe was filled with some water as shown in Diagram 1. When its plunger was pushed in, a jet of water shot out as shown in Diagram 2.



Which one of the following correctly shows the changes in the volume of water and air in the syringe after the plunger was pushed in?

	Volume of Water	Volume of Air
(1)	Increases	Decreases
(2)	Increases	Increases
(3)	Decreases	Increases
(4)	Decreases	Decreases

15. Fiona filled two identical containers, A and B, with the same amount of water. She then added two objects, X and Y, into containers A and B, respectively. She observed the final water level in each container as shown below.

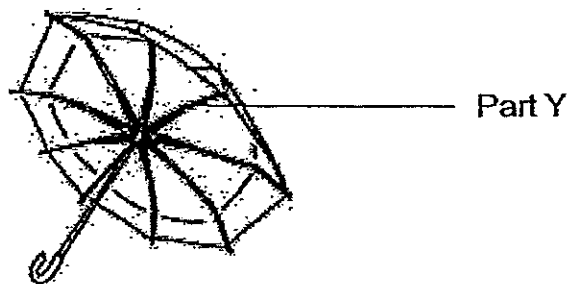


Based on her observations, which of the following conclusions can she make about objects X and Y?

- A Objects X and Y have the same mass.
- B Objects X and Y have the same volume.
- C Objects X and Y are made of the same material.

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

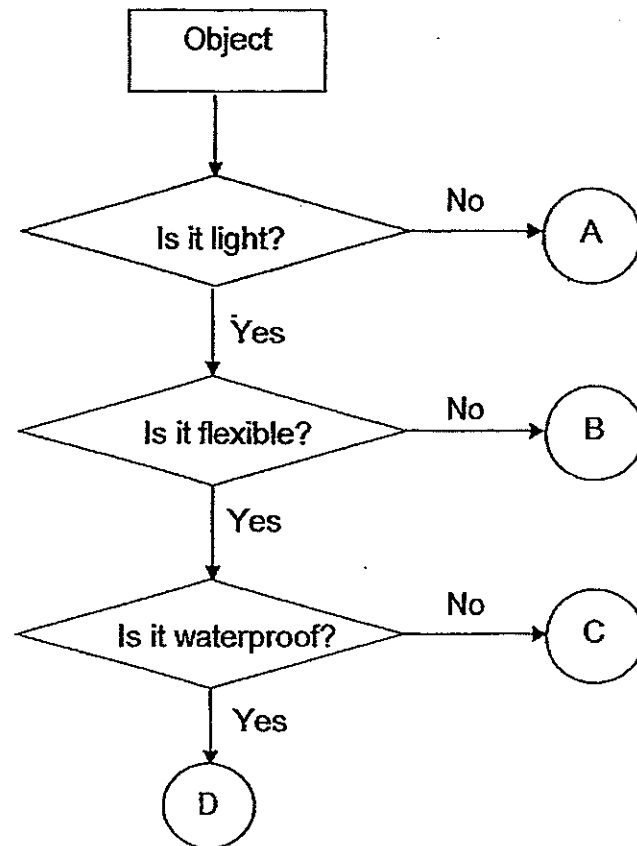
16. The diagram shows an umbrella.



iron is used to make Part Y of the umbrella because iron _____.

- (1) is shiny
- (2) is strong
- (3) sinks in water
- (4) conducts heat well

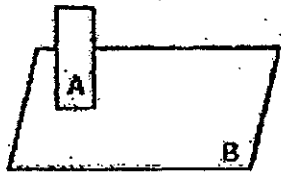

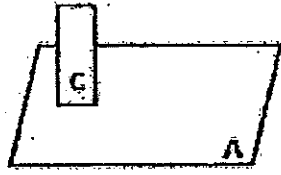
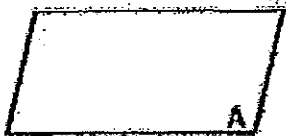
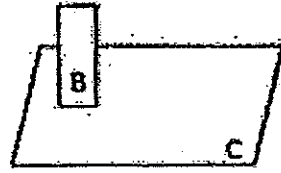
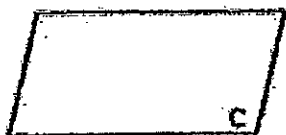
17. The flowchart below is used to classify 4 objects, A, B, C and D.



Which one of the above objects, A, B, C and D, is most likely a bath towel?

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

18. Heather carried out an experiment to test the hardness of 3 different materials, A, B and C. She used the materials to scratch one another. The table below shows how the scratch tests were carried out and the results of the tests.

Scratch Test	Results
	 Scratch Marks
	
	

Which one of the following shows the correct order of hardness of materials, A, B and C, starting with the least hard ?

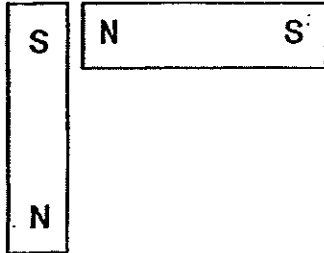
	least hard	—————>	hardest
(1)	B		A C
(2)	A		C B
(3)	B		C A
(4)	C		A B

19. In which one of the following will the two magnets push each other away?

(1)



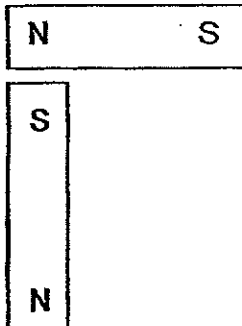
(2)



(3)

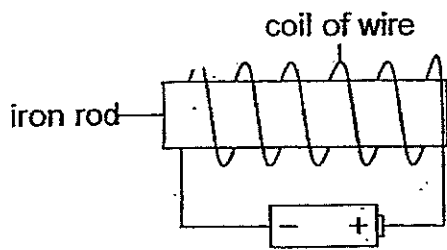


(4)

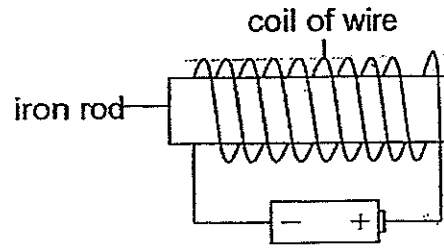


20. Tim wanted to find out whether the number of batteries affects the strength of an electromagnet.

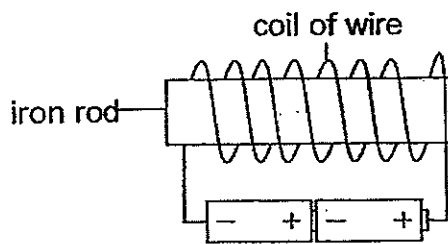
Which of the following set-ups should he use to conduct a fair experiment?



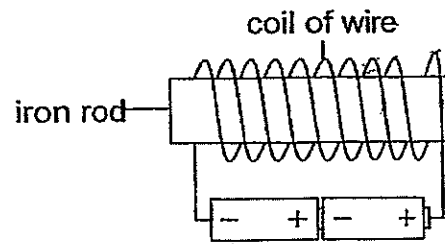
A



B



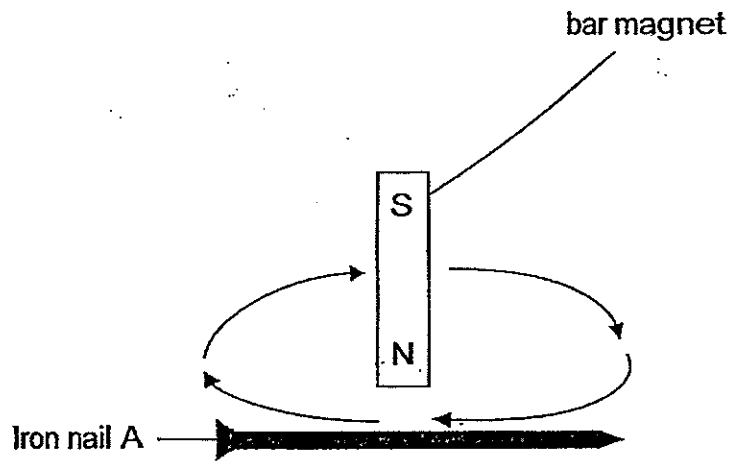
C



D

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

21. Sam used a bar magnet to stroke Iron nail A 30 times in the direction shown below.



He then placed the magnetised iron nail near some paper clips and recorded the number of paper clips attracted. He repeated his experiment using 2 similar iron nails, B and C, and recorded his results in the table as shown below.

Nail	Number of strokes	Number of paper clips attracted to the iron nail
A	30	8
B	50	15
C	70	29

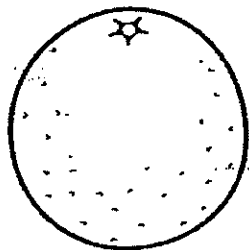
What was the aim of his experiment?

He wanted to find out if _____.

- (1) the magnetic pole of the nail will be affected by the magnet
- (2) the material of the nail would affect the number of paper clips attracted
- (3) the nail could be magnetised by the magnet using the 'Stroke' method
- (4) the number of strokes made would affect the magnetic strength of the nail

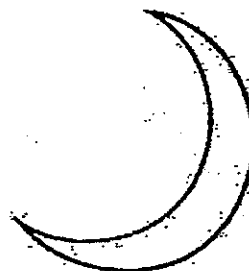
22. Which one of the following is a source of light?

(1)



an orange

(2)



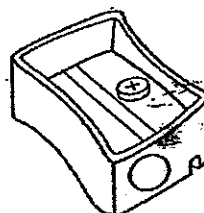
the moon

(3)



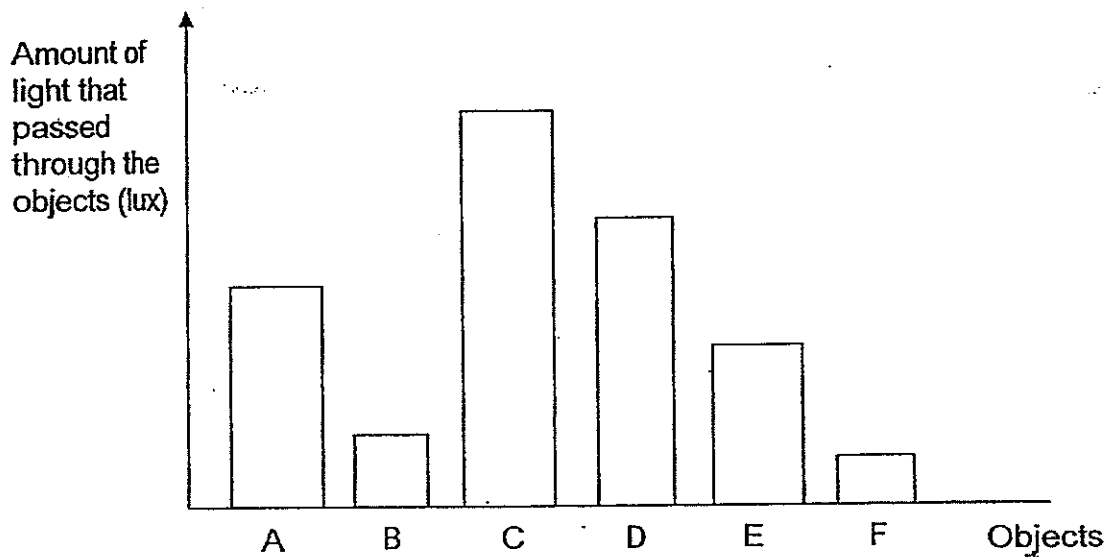
a campfire

(4)



a sharpener

23. 4 pupils, Annie, Beth, Chris and Dale, used a light sensor connected to a datalogger to measure the amount of light that could pass through six different objects, A, B, C, D, E and F. They recorded their results in the bar graph below.



Based on their experimental results, the pupils made the following conclusions about objects, A, B, C, D, E and F.

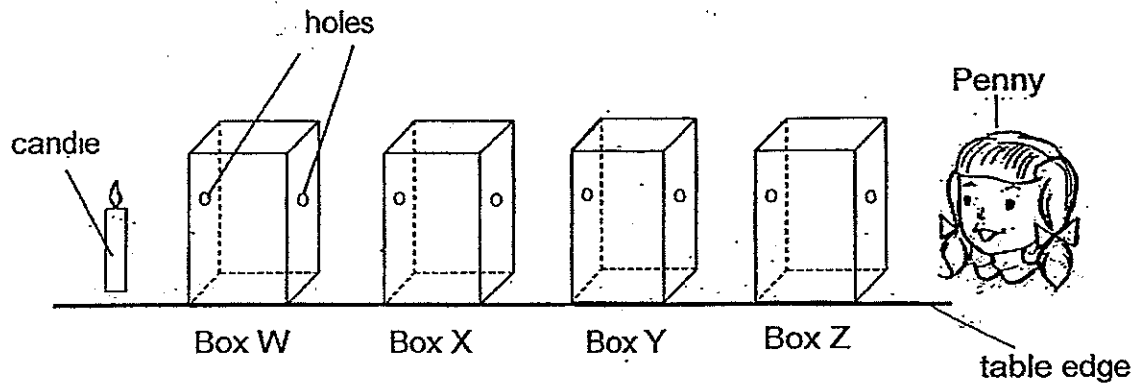
- Annie: Object C is transparent.
Beth: Object F is able to block light completely.
Chris: Object D is more translucent than Object A.
Dale: Object B would cast a darker shadow than Object E.

Which of the above pupils' conclusions are definitely correct?

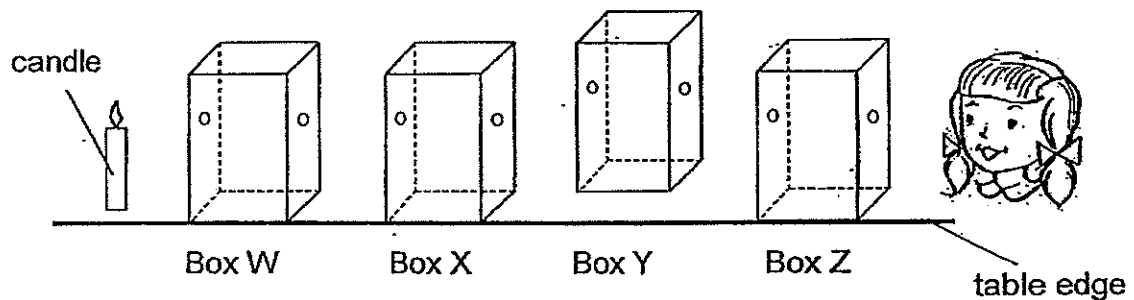
- (1) Beth and Dale
- (2) Chris and Dale
- (3) Annie and Beth
- (4) Annie and Chris

24. Penny conducted an experiment in a dark room as shown below. She placed 4 wooden boxes, W, X, Y and Z, on a table edge. There are holes made to the boxes as shown below.

When the candle was lighted, Penny could see the light from the hole in Box Z.



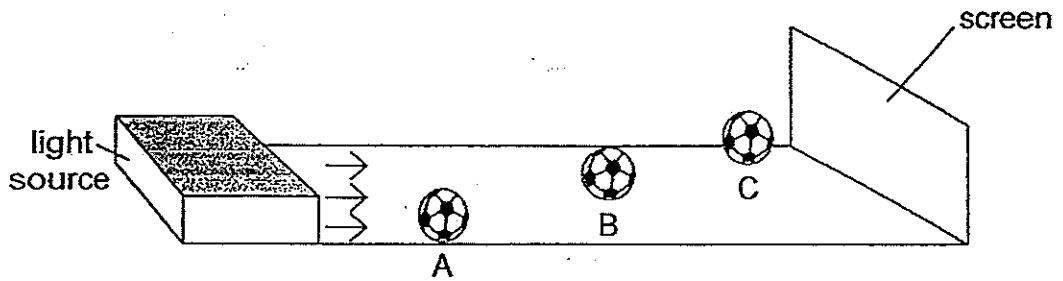
Penny moved Box Y such that Box Y is away from the table edge. She discovered that she could no longer see the light from the hole in Box Z.



Which one of the following statements best explains her observation?

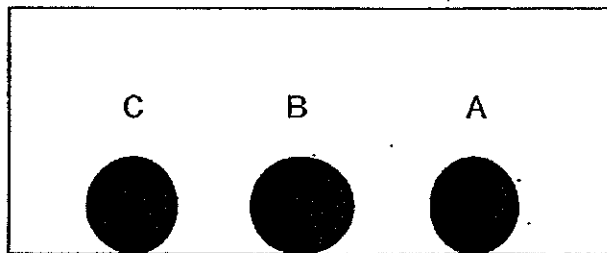
- (1) Light travels in a straight line.
- (2) Light cannot pass through small holes.
- (3) Light cannot be reflected into her eyes.
- (4) Light is reflected away from the candle and into other directions.

25. The diagram below shows three similar soccer balls, A, B and C, placed at different distances in front of a screen. An even light source was switched on and the shadows of the soccer balls were cast on the screen.

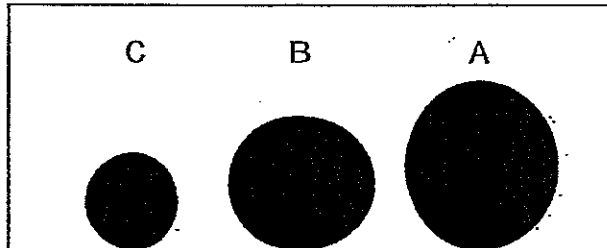


Assuming the soccer balls do not block one another, which one of the following diagrams correctly shows the shadows of the soccer balls A, B and C, on the screen?

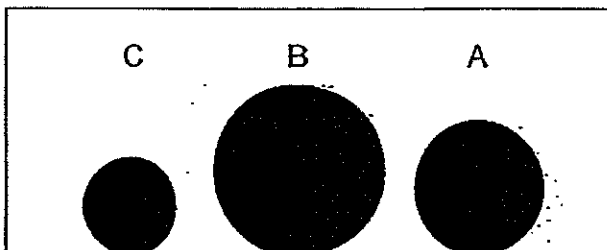
(1)



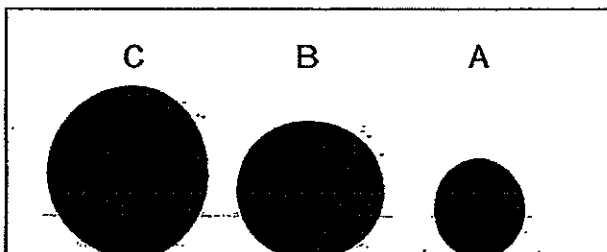
(2)



(3)



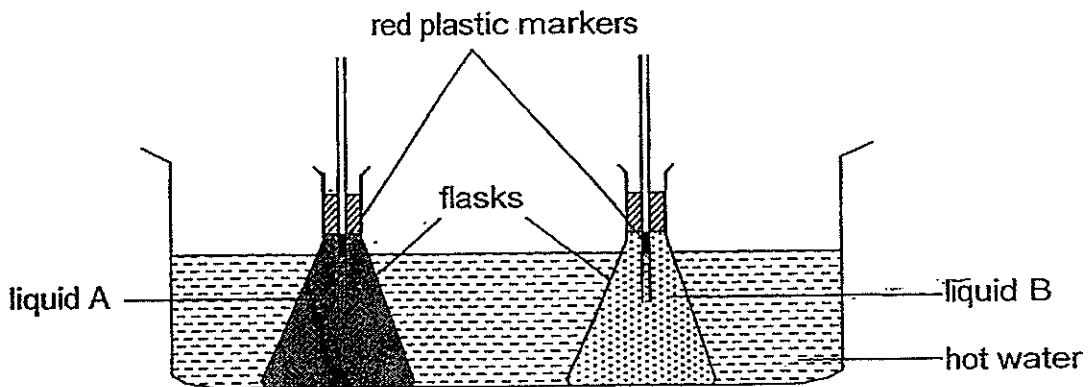
(4)



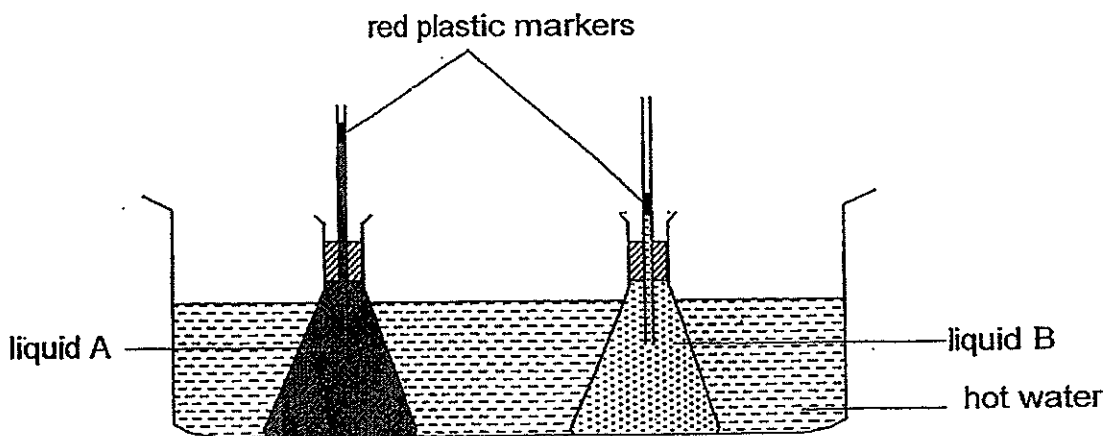
26. Which one of the following is not a source of heat?

- (1) The Sun
- (2) A lighted bulb
- (3) A candle flame
- (4) A bright red cap

27. Larry filled two identical flasks with the same amount of liquid A and B. He placed both flasks into a container of hot water as shown in the diagram below.



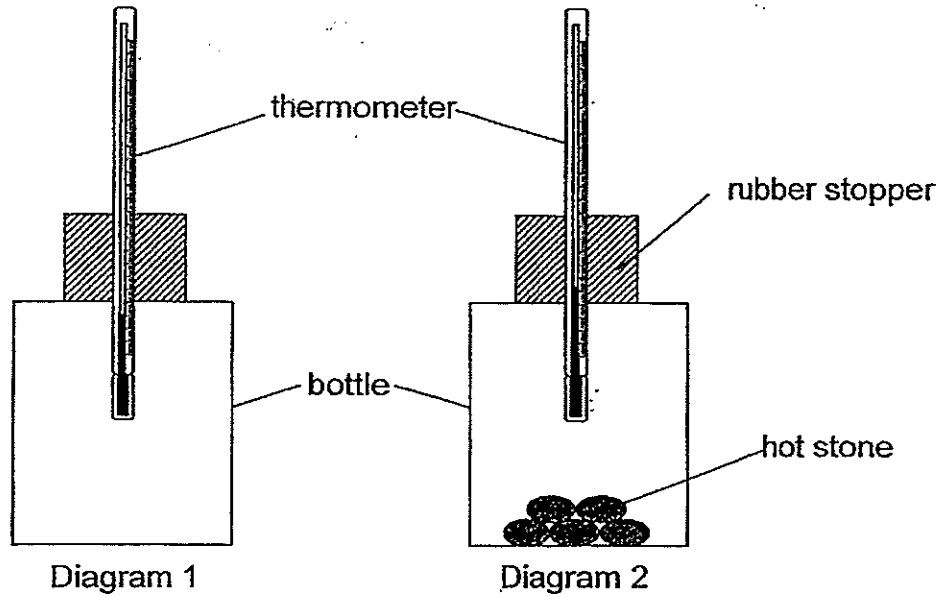
After 20 minutes, Larry observed the change in height of the red plastic marker in each tube.



Which one of the following statements best explains the change in the height of the red plastic marker in each tube after 20 minutes?

- (1) Less heat was conducted to liquid A.
- (2) Liquid A lost more coldness than liquid B.
- (3) Liquid A has a higher temperature than liquid B.
- (4) Liquid B expanded less than liquid A when heated.

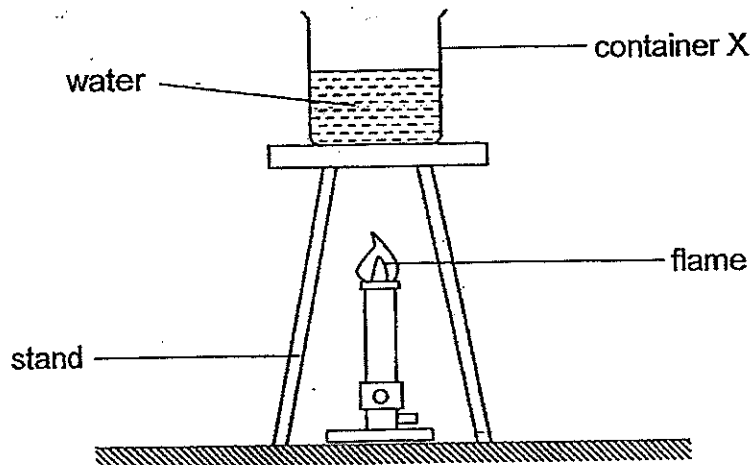
28. Sally wanted to find out more about heat. She recorded the temperature of air in a bottle as shown in diagram 1. She placed some hot stones in the bottle and sealed it with a rubber stopper as shown in diagram 2. After 5 minutes, she noticed that the temperature of air in the bottle increased.



Which one of the following best explains the increase in the temperature of air in Diagram 2?

- (1) Air is a poor heat conductor.
- (2) Heat is being conducted to the thermometer.
- (3) Air in the bottle gains heat from the surrounding air.
- (4) Heat is conducted from the stones to the air in the bottle.

29. Jill has 3 containers, X, Y and Z, made of different materials. She poured some water into container X as shown below and recorded the time it took for the water to boil.



She then repeated the experiment using containers, Y and Z, and recorded the results in the table below.

Container	Ability to conduct heat	Time taken for water to boil (min)
X	very good	10
Y	poor	10
Z	good	10

Jill had poured different amounts of water into the containers.

Which one of the following best represents the volume of water poured into each container?

	Volume of water in X (cm ³)	Volume of water in Y (cm ³)	Volume of water in Z (cm ³)
(1)	100	200	300
(2)	300	100	200
(3)	100	300	200
(4)	300	200	100

30. Shirley filled four cups of the same size and thickness with the same amount of hot tea. The cups are made of different materials.

She measured the temperature of the tea in the cups, A, B, C and D, at the start and after 20 minutes and recorded them as shown in the table below.

Material	Temperature of tea at the start (°C)	Temperature of tea after 20 minutes (°C)
A	60	50
B	60	30
C	80	40
D	80	60

Based on the above results, which material, A, B, C or D, is most suitable for making a container to store cold drinks?

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

Name : _____ ()

Class : Primary 4 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL



Primary 4
Semestral Assessment 2 – 2014
SCIENCE
BOOKLET B

30 October 2014

Total Time for Booklets A and B: 1 hour 45 minutes

14 questions
40 marks

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

This paper consists of 16 printed pages.

Booklet A	60
Booklet B	40
Total	100

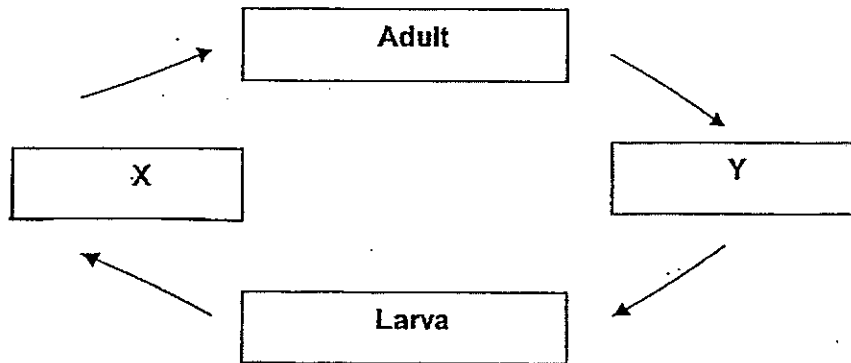
Parent's Signature/Date

Section B (40 marks)

For questions 31 to 44, write your answers in this booklet.

The number of marks available is shown in the brackets at the end of each question or part question.

31. The diagram below shows the stages in the life cycle of a butterfly.



Choose the correct words from the box to answer the question below.

Caterpillar	Egg	Pupa	Seed
-------------	-----	------	------

Name the two stages X and Y.



[2]

X : _____

Y : _____



32. Delia found some animals in her garden and classified them into two groups, X and Y, as shown below.

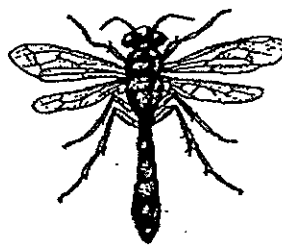
Group X	Group Y
	

(a) Suggest suitable headings for X and Y.

[1]

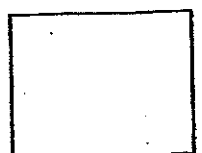
X : _____
 Y : _____

Delia then found another animal P in the garden as shown below.

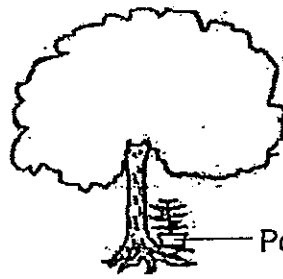


Animal P

(b) Based on your observation, in which group, X or Y, does animal P belong to? Suggest 2 reasons for your answer. [2]



33. The pictures below show two similar potted plants, each placed under a different tree.



Tree A



Tree B

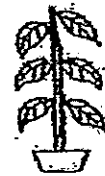
Potted plant

Potted plant

The potted plants were given the same amount of water every day. After 3 weeks, it was observed that one potted plant had wilted while the other potted plant continued to grow healthily.



Healthy plant with green leaves



Wilted plant with yellow leaves

(a) What is the aim of this experiment?

[1]

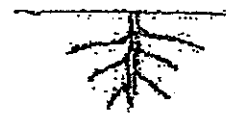
(b) Under which tree, A or B, was the wilted plant with yellow leaves placed? Explain your answer.

[1]

The pictures below show the roots of trees A and B.

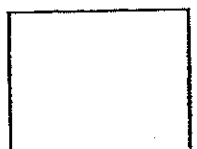


Roots of Tree A

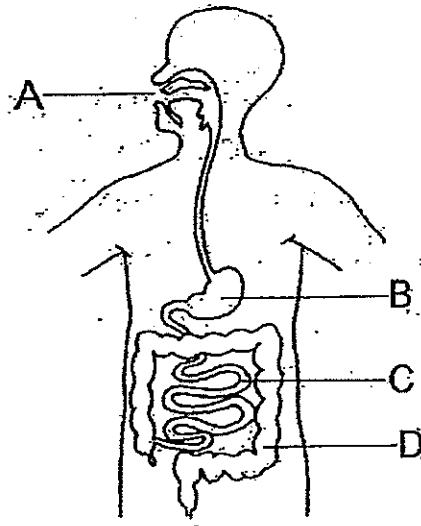


Roots of Tree B

(c) During a storm, which tree, A or B, is more likely to be uprooted? Explain your answer.



34. The diagram below shows the human digestive system.



Identify the part where

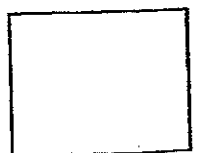
- (a) digestion first begin : _____ [1]
- (b) there is no digestion : _____ [1]

35. The diagram below shows a bottle of food-colouring. A food-colouring is a substance that adds colour to food or drink.

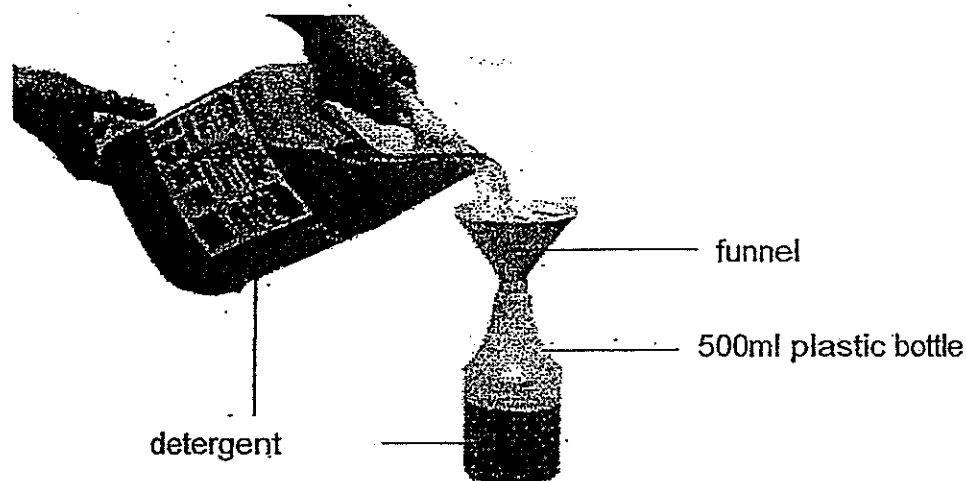


Complete the sentences below to state whether the parts are solid, liquid or gas.

- (a) The cover is a _____ [1]
- (b) The food-colouring is a _____ [1]



36. Jason poured some detergent from a container into a smaller plastic bottle using a funnel as shown in the diagram below.



- (a) Jason noticed that initially the detergent was able to flow into the bottle easily. After a while, the detergent in the funnel could not flow into the bottle even though it was not full. Suggest reasons for his observations.

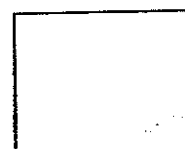
[2]

(i) Initially: _____

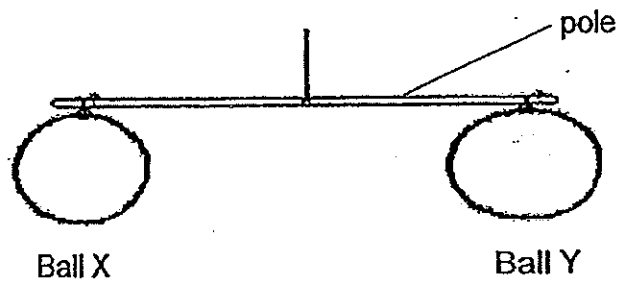
(ii) After a while: _____

- (b) Using the same apparatus as above, suggest what Jason could do to enable the detergent to continue flowing into the bottle.

[1]



37. The diagram below shows two fully inflated beach balls, X and Y, balanced on a pole.

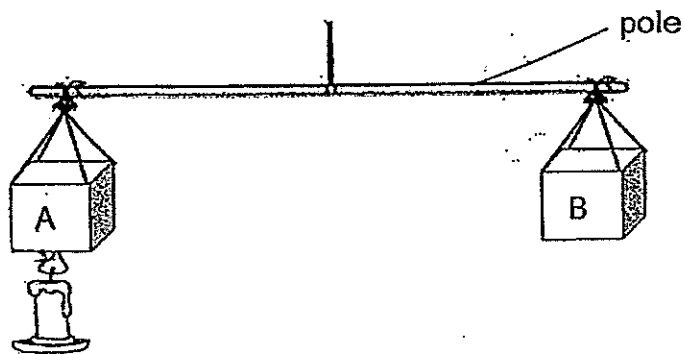


- (a) When more air is pumped into ball X, what will you observe about the pole? [1]

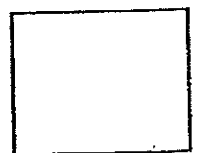
- (b) State the property of matter that you use to obtain the answer in (a). [1]

- (c) Will there be a change in the size of ball X? Explain your answer. [1]

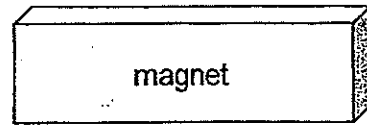
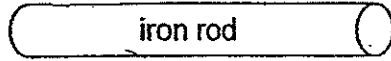
In another experiment, two metal cubes, A and B, are balanced on a pole and a flame is placed under cube A as shown below.



- (d) After 10 minutes, will the pole remain balanced? Explain your answer. [1]



38.



Susan places a magnet near an iron rod as shown above. The iron rod moves towards the magnet.

- (a) The magnet exerts a _____ on the iron rod. [1]
- (b) Choose the correct word from the box to answer the question below.

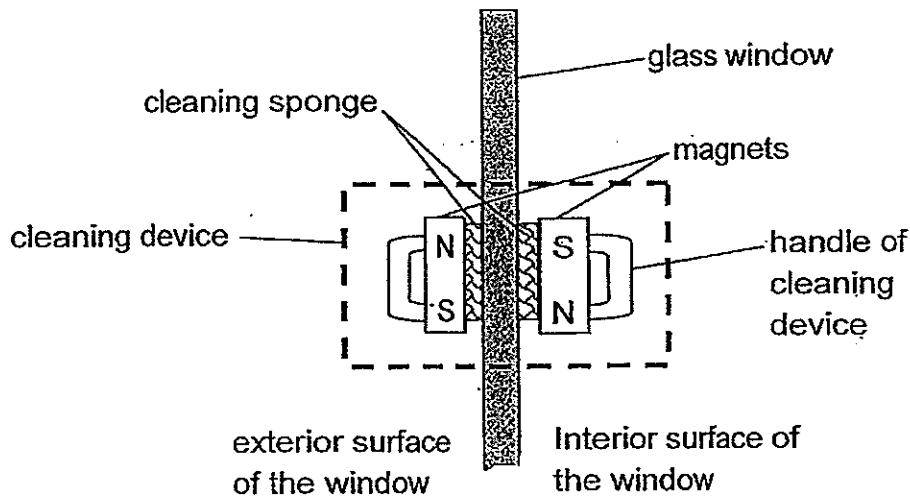
hard	magnetic	strong
------	----------	--------

Susan's observation shows that iron is a _____ material. [1]



39. Martha bought a cleaning device to clean the exterior of the windows of her house.

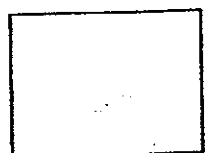
When Martha held the handle of the cleaning device that is on the interior surface of the window and slid it up and down, the two cleaning sponges moved together.



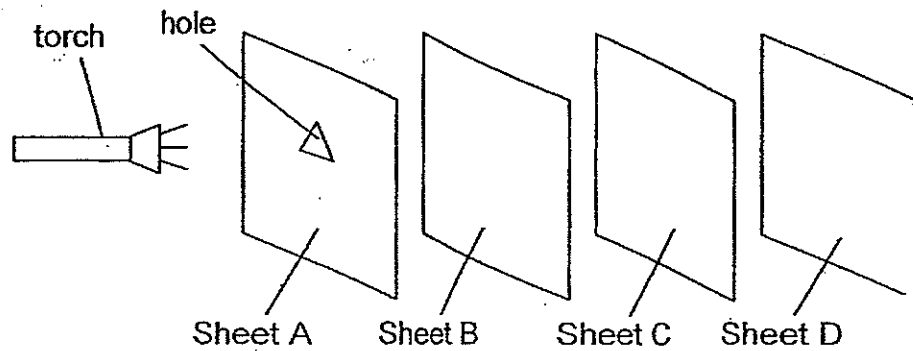
- (a) What property of magnets does this device work on? [1]

- (b) Martha noticed a warning sign on the cleaning device which states that it could only be used on windows with a thickness of not more than 3cm. Suggest a possible reason why the cleaning device could not be used to clean windows more than 3cm thick. [1]

- (c) Martha accidentally dropped the cleaning device several times from a great height and she found that it could no longer work. What could be a possible reason for her observation? [1]



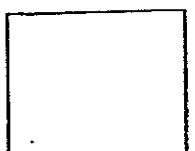
40. Izzie set up the experiment as shown below in a dark room.



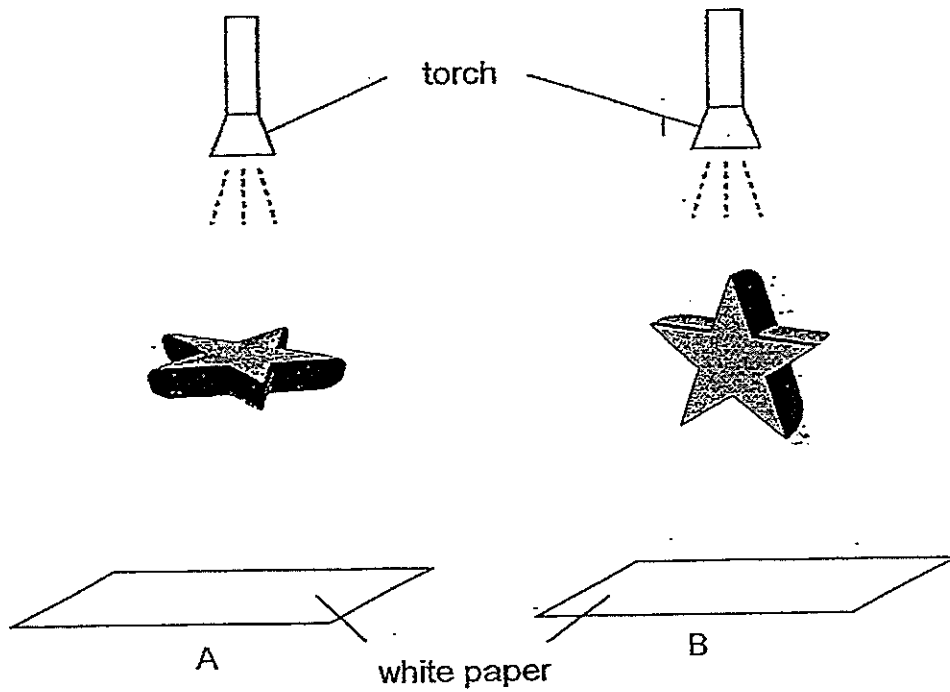
Sheets A, B, C and D are arranged in a straight line. When the torch is switched on, a bright triangular patch of light is seen on Sheet C only

- (a) Based on Izzie's observation, put a tick (✓) in the correct box to indicate if each of the following statements is 'True', 'False' or 'Not possible to tell'. [2]

	Statement	True	False	Not possible to tell
(i)	Sheet A is transparent.			
(ii)	Sheet B is opaque.			
(iii)	Sheet C does not allow light to pass through.			
(iv)	Sheet D is transparent.			



Izzie then conducted another experiment by shining a torch on two identical stars made of styrofoam as shown below. She observed that shadows were formed on white paper A and B.

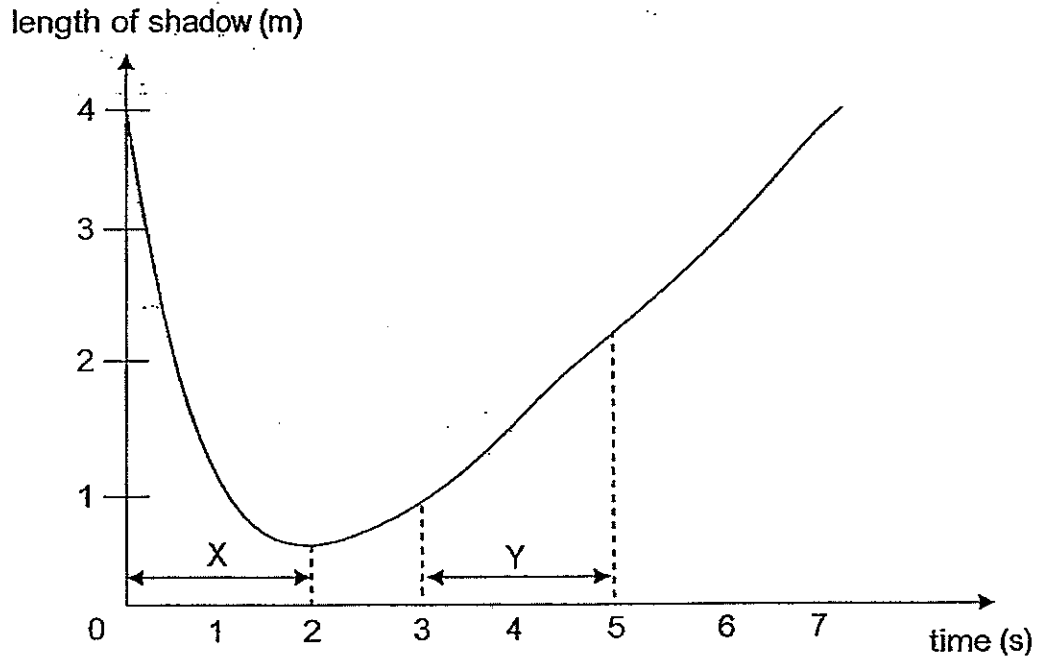


(b) Draw in the boxes provided below the shadows observed on paper A and B. [2]

A	B



41. The graph below shows how the length of Daisy's shadow changes over a period of time as she walks in a straight line near a street lamp at night.



- (a) Two properties of light caused shadows to be formed. One of these properties is light travels in a straight line. State the other property.

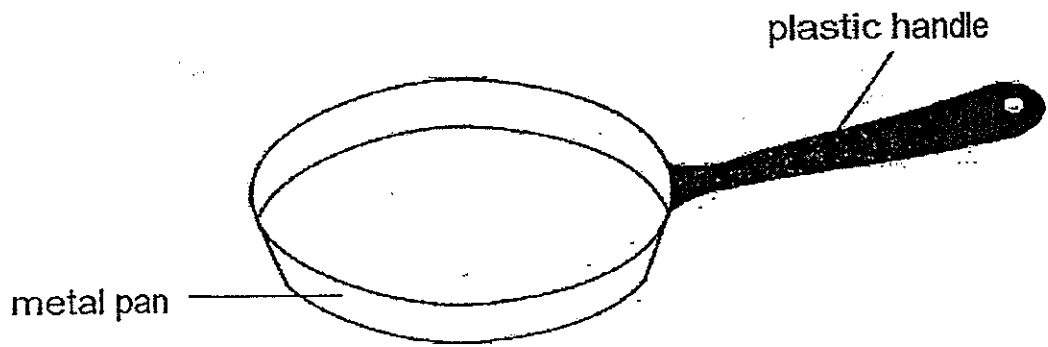
[1]

- (b) Is Daisy walking towards or away from the lamp during the period Y shown in the graph above? Give a reason for your answer.

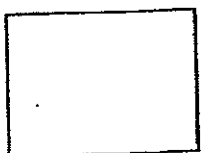
[2]



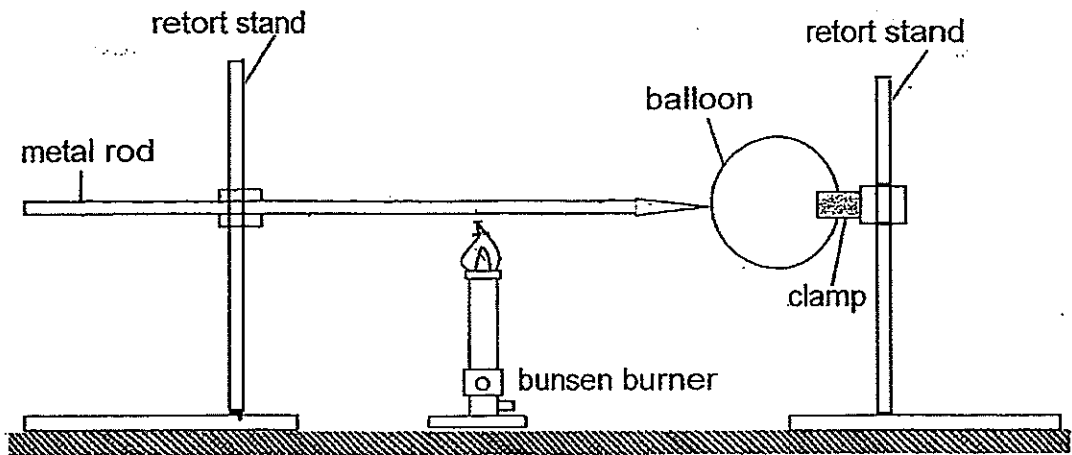
42. The diagram below shows a frying pan.



- (a) The handle is made of plastic because it is a _____ [1]
conductor of heat.
- (b) The pan is made of metal because it is a _____ [1]
conductor of heat.

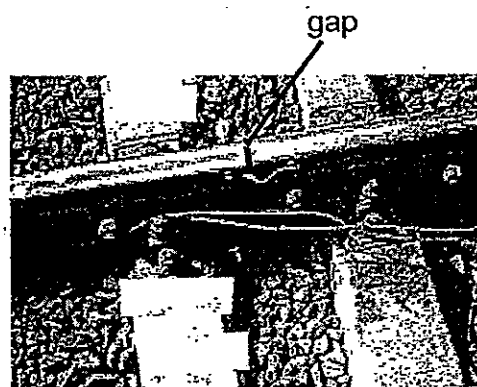


43. Sandy set up the experiment below.



(a) What will happen to the balloon after the metal rod is heated for 20 minutes? Explain your answer. [2]

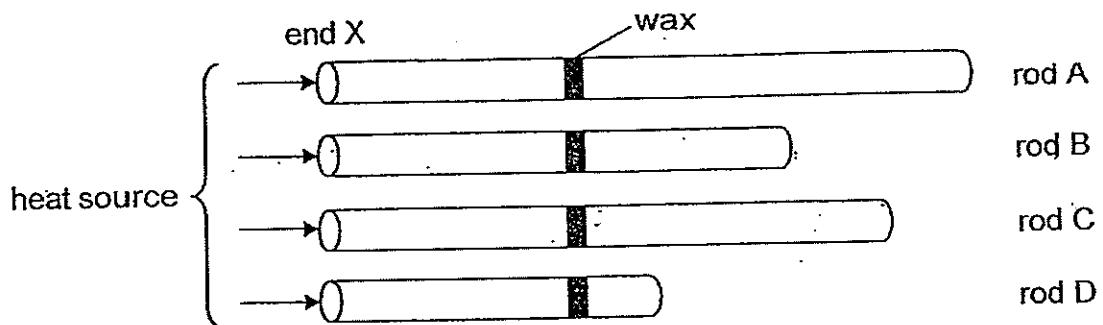
An MRT track has gaps as shown below.



(b) Suggest a reason why MRT tracks have gaps. [1]



44. Kenny used four rods, A, B, C and D, of identical diameters for an experiment. The rods were made of different materials. He put a ring of wax around each of them and heated each rod at end X with the same amount of heat. He recorded the time it took for each ring of wax to melt completely.



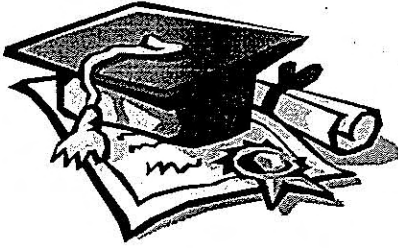
Rod	Time taken for wax to melt completely (minutes)
A	12
B	15
C	6
D	21

- (a) What do you think was the aim of Kenny's experiment? [1]

- (b) Compare the results for rod B and rod D. Which rod is a better conductor of [2]

- (c) If he increased the thickness of rod C and repeated the experiment, would the time taken for the ring of wax to melt completely be longer, shorter or remained the same? Explain your answer. [1]





ANSWER SHEET

EXAM PAPER 2014

SCHOOL : CHIJ

PRIMARY : P4

SUBJECT : CHIJ

TERM : SA2

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

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

31)X: Pupa Y: egg

32)a)X: Animals with 8 legs and 2 body parts.

Y: Animals with 6 legs and 3 body parts.

b)Animal P belongs in Group Y. Animal P has 6 legs and 3 body parts like the animals in group Y. Thus animal P belongs in group Y.

33)a)To find out if amount of light affects plant growth.

b)Tree A. There is lesser sunlight to make food.

c)Tree B. B has roots that are not widely spread out so it cannot hold the plant find out.

34)a)A

b)D

35)a)solid

b)liquid

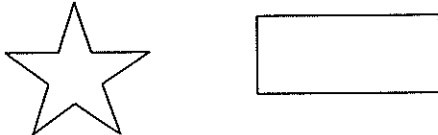
- 36)a)i)Air in the bottle can be compressed.
 ii)The air could not escape from the bottle and occupies space.
 b)Poke a tiny hole on the bottle neck. Air can escape and detergent can flow in easily again.

- 37)a)It will tilt towards Ball X.
 b)Matter has Mass.
 c)No, the air in ball X could be compressed as air does not have a definite volume.
 d)Yes, it will remain balanced. Metal cube A gains heat and expanded but mass remained the same.

- 38)a)magnetic force
 b)magnetic

- 39)a)Unlike poles attract.
 b)Magnetic strength will be too weak to pass through thicker materials.
 c)The magnetic in Martha's device have lost their magnetism and can no longer work.

- 40)a)i)F ii)F iii)T iv)Not
 b) A B



- 41)a)When path of light is blocked by an opaque object, a shadow is formed.
 b)Walking away. When Daisy was walking away from the lamp, Daisy's shadow is long and casted in front of her.

- 42)a)poor
 b)good

- 43)a)The balloon will burst. The balloon gained heat from the Metal rod which gained heat from the Bunsen burner and expanded, thus the balloon burst after 10 minutes.

b)To allow space for the track to expand on a hot day that it will not buckle.

- 44)a)To find out which rod is a better conductor of heat.
 b)Rod B, B takes a shorter time to melt the wax. Heat is conducted to the wax faster.
 c)Longer time. More heat is needed to melt the wax.