



NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 1 – 2013
PRIMARY 4

SCIENCE

BOOKLET A

30 Multiple Choice Questions (60 marks)

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

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers in the Optical Answer Sheet (OAS) provided.

Marks Obtained

Booklet A		/ 60
Booklet B		/ 40
Total		/100

Name: _____ () Class: P 4 _____

Date : 14 May 2013

Parent's Signature: _____

Section A: (30 x 2marks = 60marks)

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. Which of the following is/are source(s) of light?

A: Stars
B: The Moon
C: A lit matchstick

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

2. Which of the following sentences is/are true?

A: Rough surfaces do not reflect light.
B: White surfaces reflect more light than black surfaces.
C: If we cannot see an object, the object does not reflect light.

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

3. A building contractor wants the shopping mall he is building to have natural lighting. He also does not want passers-by to be able to see clearly what his shop owners are doing. Which one of the following materials can he use to make the walls of the mall?

(1) Brick
(2) Steel
(3) Clear glass
(4) Frosted glass

4. Which one of the following groups is made up of matter only?

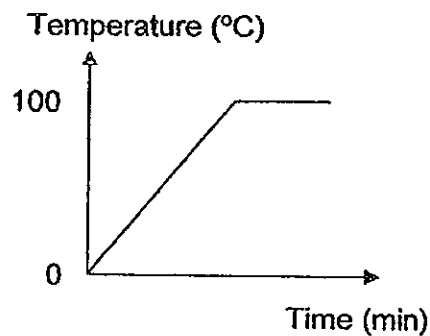
(1) Water, air, lightning
(2) Wind, honey plasticine
(3) Sponge, sound, magnet
(4) Carbon dioxide, fire, shadow

5. What is the similarity between cooking oil and stone?

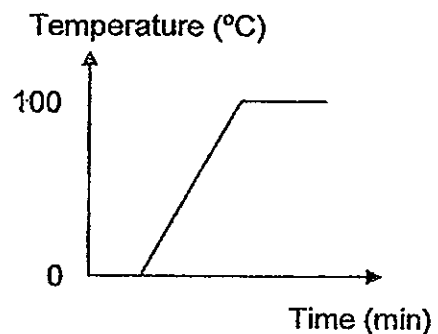
- (1) Both have definite shape.
- (2) Both are in the same state.
- (3) Both have the same mass.
- (4) Both have definite volume.

6. Which one of the following graphs shows the temperature change of heating tap water till it boils at 100°C ?

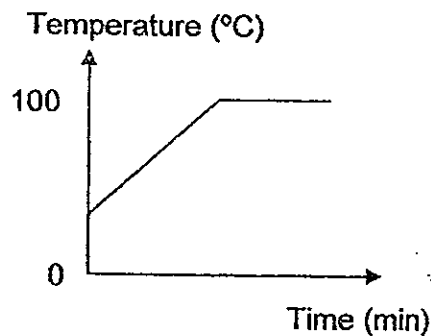
(1)



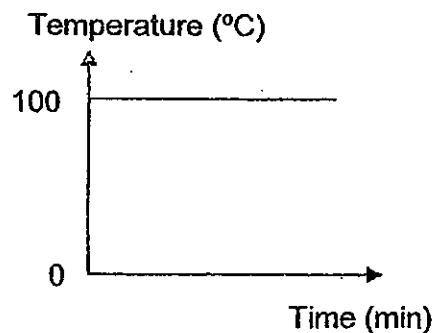
(2)



(3)



(4)



7. Which one of the following statements about heat is correct?

- (1) Heat is matter
- (2) Heat can be seen but not felt.
- (3) Heat travels from a warmer place to a cooler place.
- (4) Heat travels from a cooler place to a warmer place.

8. Some ice cubes are added to a cup of hot coffee. Which one of the following statements is correct?

- (1) The ice cubes lose heat to the cup.
- (2) The surroundings lose heat to the cup.
- (3) The cup gains heat from the hot coffee.
- (4) The hot coffee gains heat from the surroundings.

9. How do blankets, jackets and sweaters keep us warm?

- (1) The fabrics used are not conductors of heat.
- (2) The fabrics used are good conductors of heat.
- (3) The air trapped in the fabric is a poor conductor of heat.
- (4) The air trapped in the fabric is a good conductor of heat.

10. Which one of the following groups of things is obtained from living things?

- (1) wooden pencil, cotton, stone
- (2) glass window iron rod, paper
- (3) woollen shirt, plastic cup, paper box
- (4) paper, cotton shirt, wooden chopstick

11. Myra grouped some animals into 2 groups as shown below.

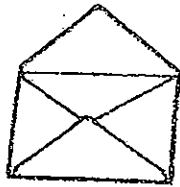
Group A	Group B
Goat	Eagle
Monkey	Mynah
Spiny Anteater	Penguin

What is/are the characteristic(s) that she used to group the animals?

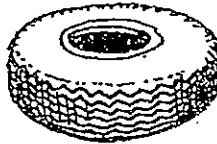
- A: The animal's body coverings.
- B: The way the animals reproduce.
- C: The way the animals move around.

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

12. Which of the following objects are made from the same material?



Envelope
A



Tyre
B



Brick
C



Eraser
D

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

13. Clarissa went window shopping with her mother. She was looking at some nice dresses through a display window. Which one of the following statements is true?

- (1) Light is not required for her to see the dresses.
- (2) Light from the window travels to her eyes and the dresses.
- (3) Light from her eyes passes through the window to the dresses.
- (4) Light is reflected from the dresses through the window into her eyes

14. Object Q does not allow light to pass through it. Which one of the descriptions about Object Q is definitely true?

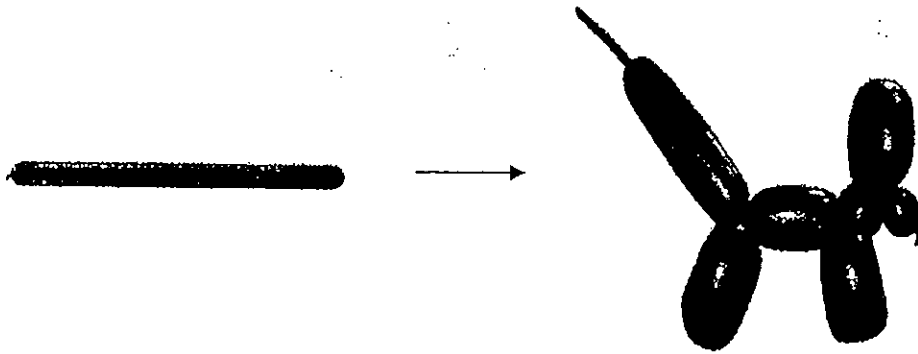
- (1) It appears black.
- (2) It cannot be seen.
- (3) It can block sunlight.
- (4) It does not reflect light.

15. Which of the following conditions is/are necessary for a solid object to cast a shadow?

- A: Object is opaque.
- B: Presence of a light source.
- C: Object is resting on the ground.

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

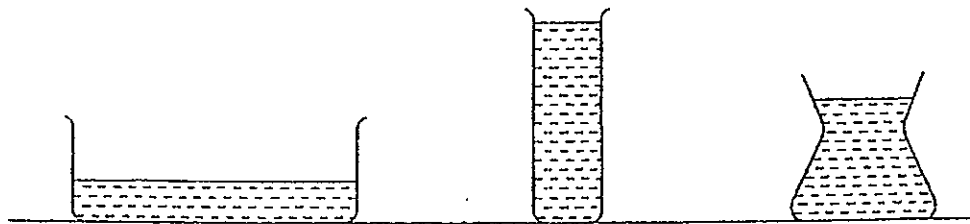
16. An inflated long balloon was twisted to make a dog as shown below.



Which of the following properties of air is/are changed as a result?

- A: Mass
- B: Shape
- C: Colour

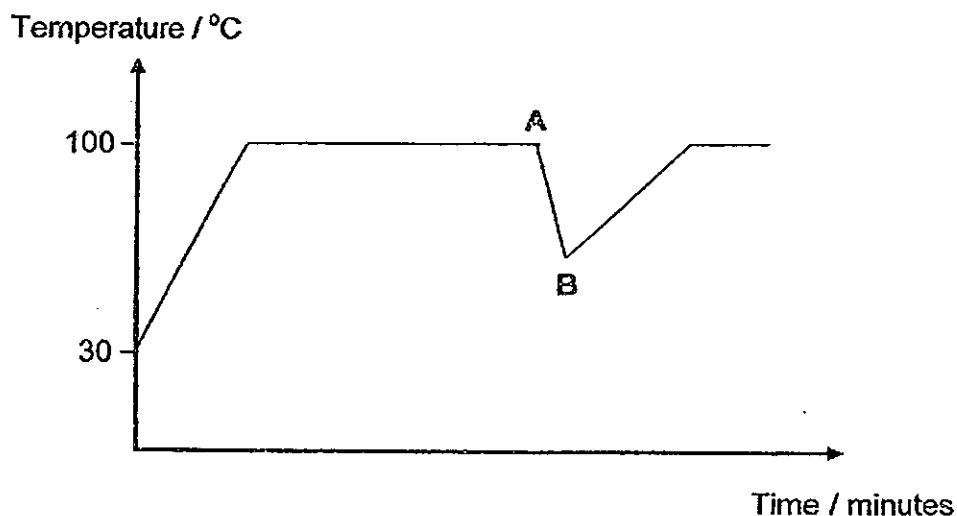
- (1) A only
 - (2) B only
 - (3) A and C only
 - (4) B and C only
17. 100ml of water was poured into each of the containers shown below.



What does this experiment show?

- (1) Water has mass.
- (2) Water can be compressed.
- (3) Water has a definite volume.
- (4) Water has no definite shape.

18. A beaker of water was heated continuously over a burner. A temperature probe connected to a computer measures and plots the temperature of the water continuously. The results are shown in the graph below. (Note: Water boils at 100°C .)



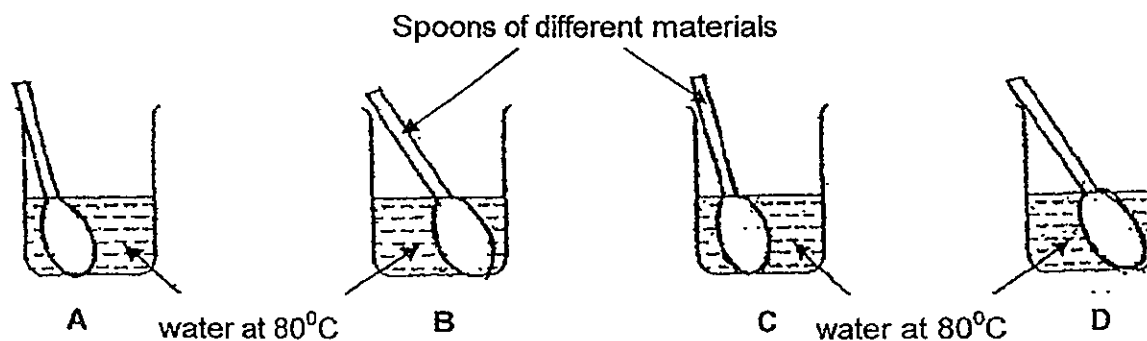
Which one of the following best explains what happened between points A and B on the graph?

- (1) The water in the beaker was stirred.
 - (2) There is no more water left in the beaker.
 - (3) Some iced water was poured into the beaker.
 - (4) Some boiling water was poured into the beaker.
19. What happens when a piece of metal is heated?
- A: It becomes bigger.
 B: It becomes heavier.
 C: It becomes warmer
- (1) C only
 - (2) A and B only
 - (3) A and C only
 - (4) A, B and C

20. Mrs Tay took a bottle of pickles out from the refrigerator and found that she could not open it. After she poured some hot water over the metal cap of the bottle, she was able to open it. Which one of the following explains her experience?

- (1) The heat from the hot water caused the bottle to crack.
- (2) The heat from the hot water caused the bottle to expand.
- (3) The heat from the hot water caused the metal cap to expand.
- (4) The heat from the hot water caused the air in the bottle to expand.

21. Nelson prepared four beakers, A, B, C and D, with water at 80°C . Then he placed a spoon in each beaker. The spoons were of different materials. He measured the temperature of the water at four equal intervals over a period of 20 minutes.



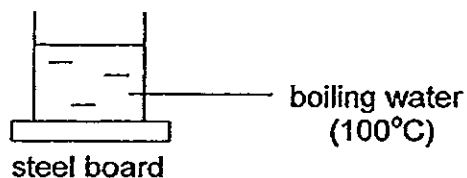
The temperature of the water was recorded in the table below.

Beakers	Temperature ($^{\circ}\text{C}$)			
A	80	70	60	50
B	80	60	40	30
C	80	70	55	45
D	80	75	65	55

Which spoon is the best conductor of heat?

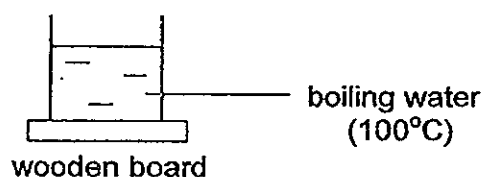
- (1) The spoon in beaker A.
- (2) The spoon in beaker B.
- (3) The spoon in beaker C.
- (4) The spoon in beaker D.

22. A pot of boiling water was placed on a steel board as shown.

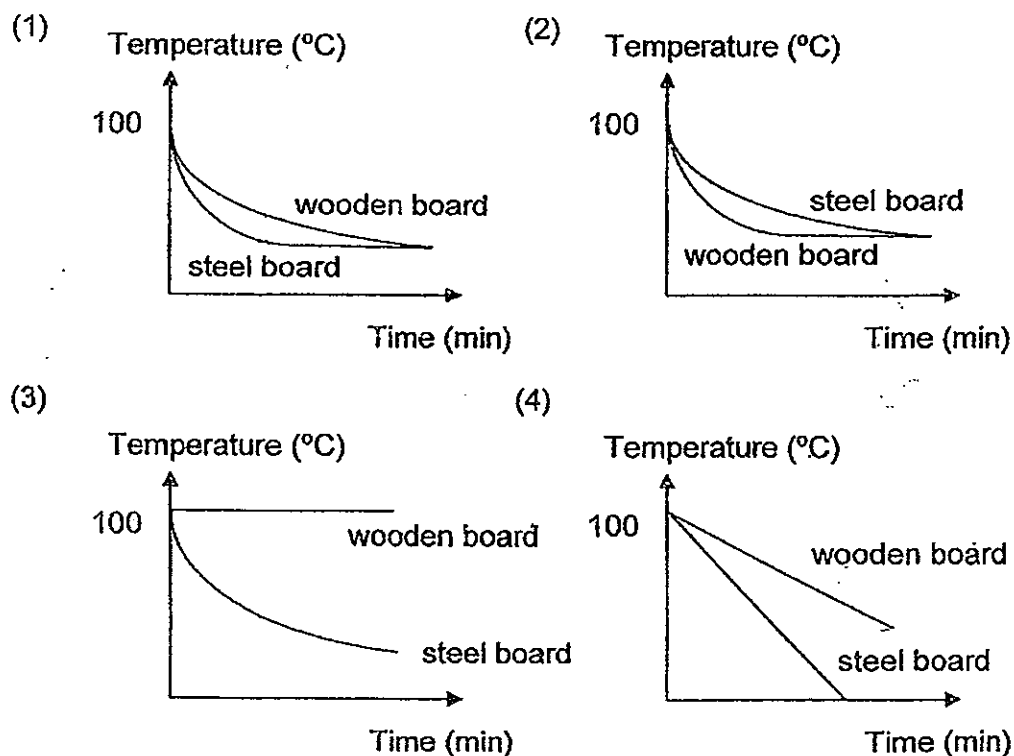


As the water cooled, its temperature was recorded using a temperature probe connected to a computer

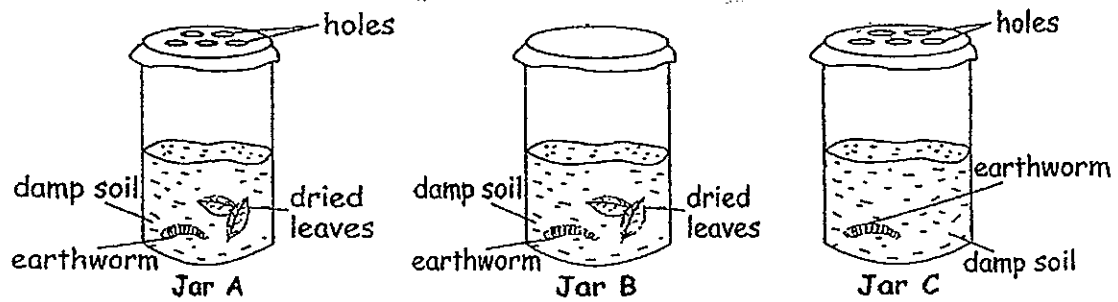
The experiment is repeated using a wooden board of the same thickness instead of a steel board.



Which one of the following shows the cooling curves for the boiling water in both experiments?



23. Luke carried out an experiment by putting three similar earthworms separately in three identical containers, under different conditions as shown below.



What is most likely to happen after one week?

- (1) The earthworms in Jars B and C will die.
 - (2) The earthworms in all three Jars will die.
 - (3) The earthworms in Jars A and C will remain alive.
 - (4) The earthworms in all three Jars will remain alive.
24. Study the table below carefully.

Thing	Move from place to place	Reproduce	Produce own food
P	No	Yes	No
Q	Yes	No	No
R	No	Yes	Yes
S	Yes	Yes	No
T	No	No	No

How many of the above things are living things?

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

25. Vivian placed some goldfish, tubifex worms, pebbles and plastic plants into an aquarium. She recorded the number of fish, worms, pebbles and plants in the next 20 days as shown in the table below.

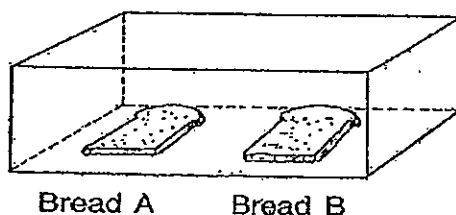
Things	Day 0	Day 5	Day 10	Day 15	Day 20
Goldfish	10	9	11	13	15
Tubifex worms	50	40	30	20	10
Pebbles	10	10	10	10	10
Plastic plants	10	10	10	10	10

What can you conclude from the information given?

- A: Living things can die.
 B: Living things can grow.
 C: Living things can reproduce.

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

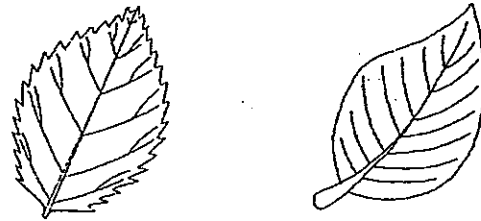
26. Bobby conducted an experiment. He toasted Bread A and added water to Bread B. Then he put both pieces of bread in a box.



After a few days, Bobby saw that Bread B had mould while Bread A remained the same. He concluded from the experiment that fungi cannot grow without _____.

- (1) light
 (2) food
 (3) water
 (4) warmth

27. The diagrams below show two leaves from two different plants.

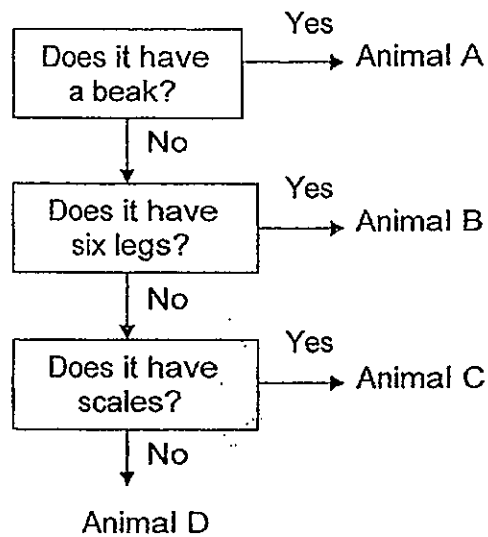


Based only on what you can observe from the pictures, which of the following statements is/are correct?

- A: Both are green.
 B: Both have smooth edges.
 C: Both have network veins.

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

28. Study the diagram below.



Which of the following is the correct match for Animals A, B, C and D?

	A	B	C	D
(1)	Chicken	Grasshopper	Goldfish	Cow
(2)	Penguin	Spider	Frog	Dog
(3)	Eagle	Earthworm	Snake	Cockroach
(4)	Turtle	Ant	Whale	Cow

29. The diagram below shows a drill bit used to make holes in walls.



What properties must the material used to make the drill bit have?

- A: hard
B: strong
C: flexible

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

30. Jerry noted down the properties of two objects, A and B. He put a tick (✓) for the property that each object has in the table below.

Property	A	B
It is flexible.		✓
It breaks easily.	✓	
It sinks in water.	✓	✓
It is hard.	✓	

Which of the following correctly identifies objects A and B?

	A	B
(1)	Metal ruler	Plastic ruler
(2)	Newspaper	Key
(3)	Wooden pencil	Eraser
(4)	Ceramic bowl	Rubber band



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SCIENCE

BOOKLET B

14 Open-ended questions (40 marks)

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

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in this booklet.

Marks Obtained

Section B

	/40
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Name: _____ () Class: P 4 _____

Date : 14 May 2013

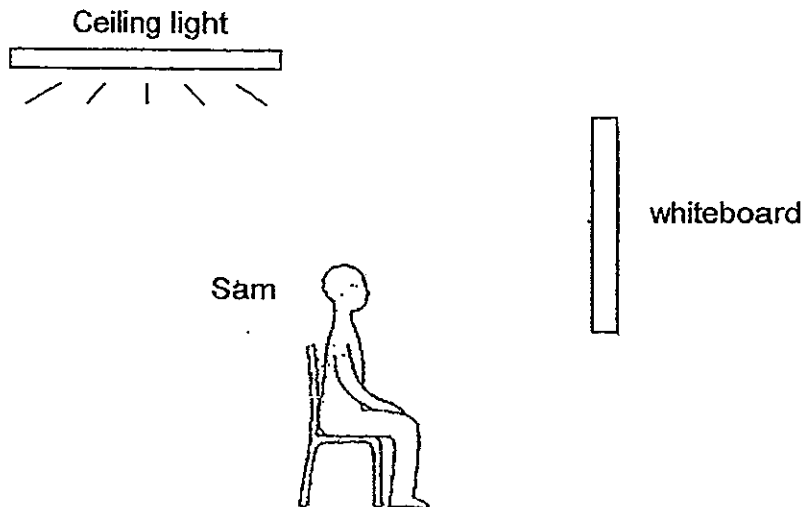
Parent's Signature: _____

Section B: (40marks)

Write your answers to questions 31 to 44.

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

31. In a classroom, Sam was able to see what was written on the white board.



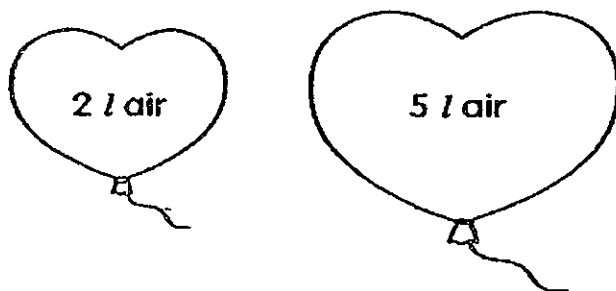
- (a) Draw the path of light in the above diagram to show how Sam is able to see the words on the whiteboard. [1]

- (b) Describe how Sam is able to see the words on the whiteboard. [1]

- (c) During a thunderstorm, the electrical supply tripped and the ceiling light went off. Sam, however, can still see the words on the whiteboard. Explain how this is possible. [1]

Score	3
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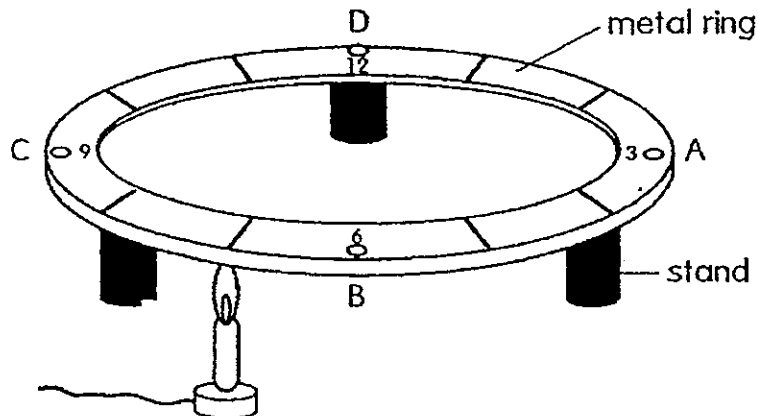
32. Rick had two similar heart-shaped balloons. He blew one up with 2 litres of air and the other with 5 litres of air as shown below.



- (a) From his observation, he concluded that air has a definite shape. Do you agree with his conclusion? Explain. [2]

Score	
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33. The diagram below shows a circular metal ring with markings following a clock face. Four pieces of wax A, B, C and D are placed at the 3, 6, 9 and 12 o'clock positions of the ring respectively. The ring is raised above the ground on stands that are made of a material that is a poor conductor of heat.



- (a) A flame is set as shown at the 7 o'clock position of the ring. State the order in which the wax will melt, starting with the first. [1]

- (b) What property of heat does this experiment show? [1]

- (c) State one variable that must be kept the same for the experiment to be a fair test. [1]

Score	
	3

34. Mathias carried out an experiment to find out what Animal Q needs to stay alive. He placed 5 Animal Q in each of the four identical containers.

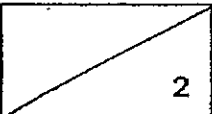
The conditions of each container are shown in the table below.

Container	Holes on lid	Food	Water
A	X	✓	✓
B	✓	X	✓
C	✓	✓	X
D	✓	✓	✓

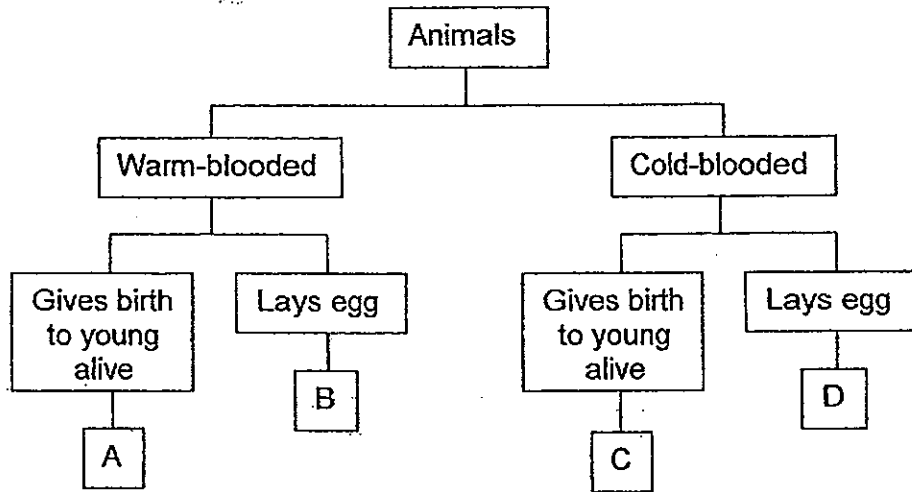
One week later, he observed that only Animal Q in Container D survived.

- (a) What can he conclude from this investigation? [1]

- (b) Without changing any of the conditions, he observed that the number of Animal Q has increased in Container D after two months. Explain his observation. [1]

Score	
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35. Study the classification chart below.



(a) Based on the chart above, state the characteristics of Animals A and D. [2]

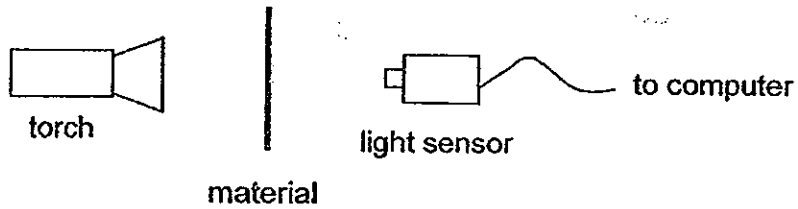
A: _____

D: _____

(b) Based in the chart above, can a dog be classified in Group B? State your reason. [1]

Score	3
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36. Joanne wants to investigate if the type of material affects the amount of light that passes through. She sets up her apparatus as shown below.



- (a) What is the dependent variable in her investigation? [1]
- _____
- (b) Identify the independent and constant variables needed for a fair test by putting a tick (✓) in the respective columns. [2]

Variables	Independent Variable	Constant Variable
Distance between the torch and the material		
Type of material		
Thickness of material		
Intensity of light from torch (lux)		

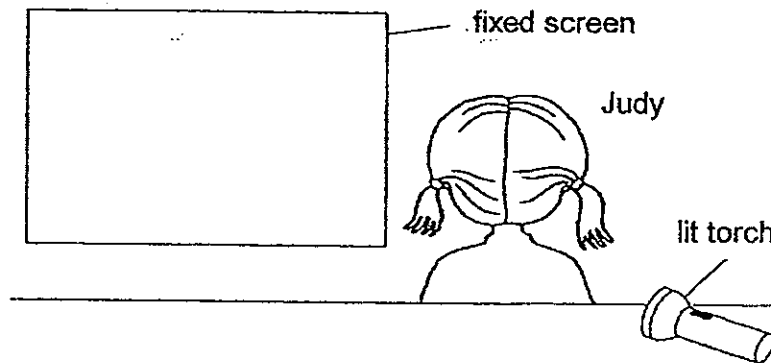
- (c) The results from the experiment is shown in the table below

Type of material	Amount of light that passes through (lux)
A	35
B	0
C	20
D	12

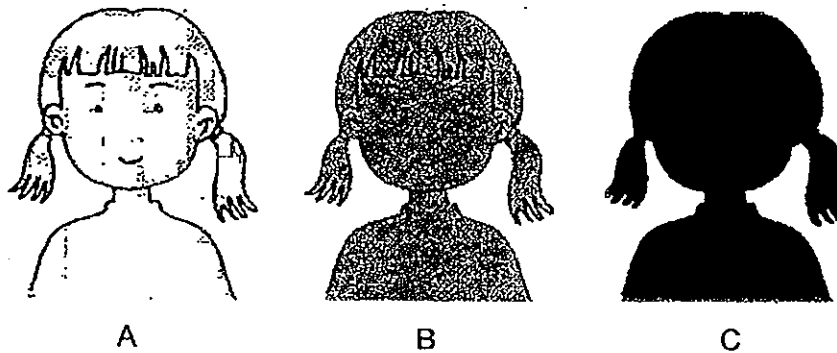
Which material (A, B, C or D) is the best for making the front door of a house? Give a reason for your answer. [1]

Score	4
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37. Study the diagram below.



3 students (A, B and C) drew Judy's shadow as shown in the diagram below.



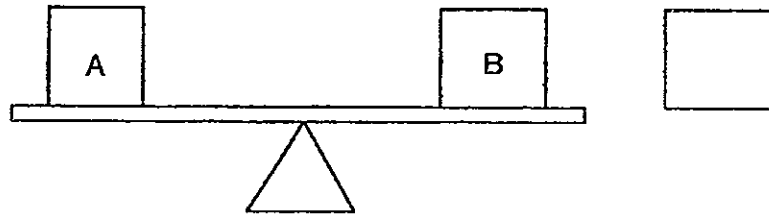
(a) Which student (A, B or C) has drawn the shadow correctly? Why? [1]

(b) State two things that Judy can do if she wants to cast a smaller shadow of herself on the screen. [2]

(c) What will happen to her shadow if the screen is turned upside down? [1]

Score	4
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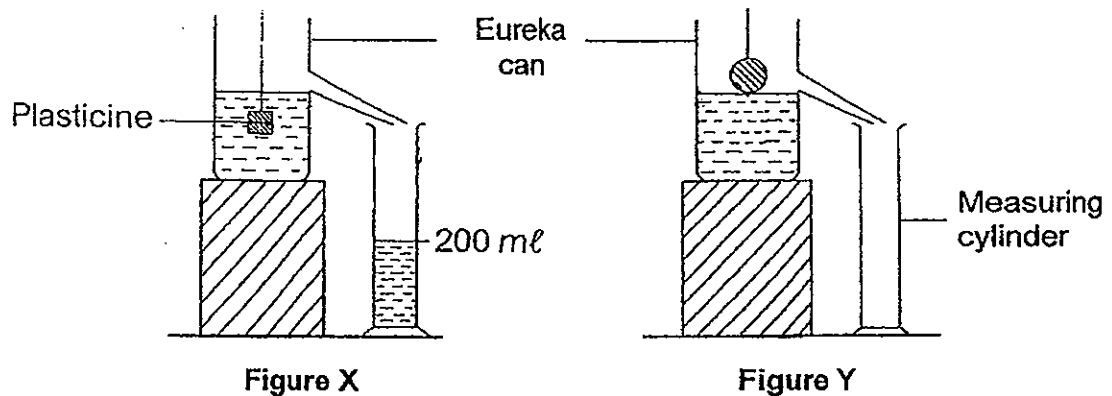
38. Two glass containers, A and B, have the same mass and contain 7 litres of air each. The containers are stuck to either end of a plank and balanced as shown in the diagram below.



- (a) Draw an arrow in the box to indicate the direction of movement of the plank at B if another 2 litres of air were pumped into Container A. [1]
- (b) State two properties of air that are shown in this experiment. [2]

Score	3
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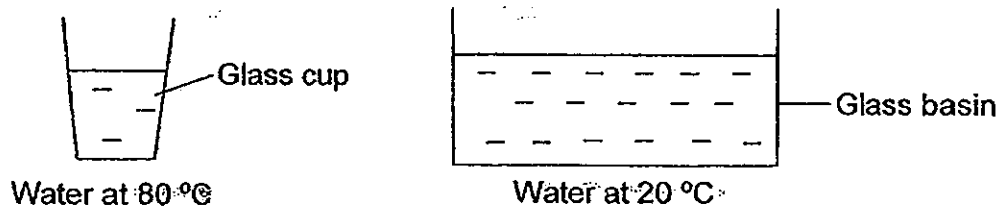
39. Ting Ting filled up a Eureka can with water and lowered a cube of plasticine into the can. She collected the water that flowed out from the Eureka can into a measuring cylinder as shown in Figure X. She then removed the plasticine and filled up the Eureka can till water just reached the opening of the spout again. She reshaped all the plasticine into a ball and lowered it into the Eureka can again as shown in Figure Y.



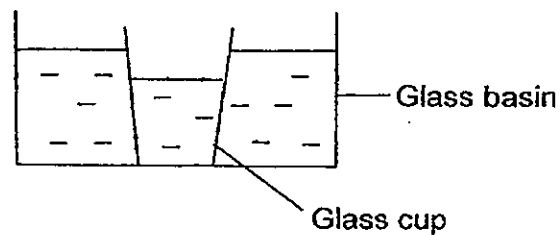
- (a) What will be the volume of water collected in the measuring cylinder in Figure Y? [1]
-
- (b) Explain your answer in (a). [1]
-
- (c) State one difference between the properties of the plasticine and the water. [1]
-

Score	3
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40. Lisa filled a glass cup with water at 80°C and a glass basin with water at 20°C as shown in the diagram below.



She then placed the glass cup into the glass basin as shown in the diagram below.



Noting the room temperature as 30°C , she left the containers as shown for some time until the water in both containers reached the same temperature.

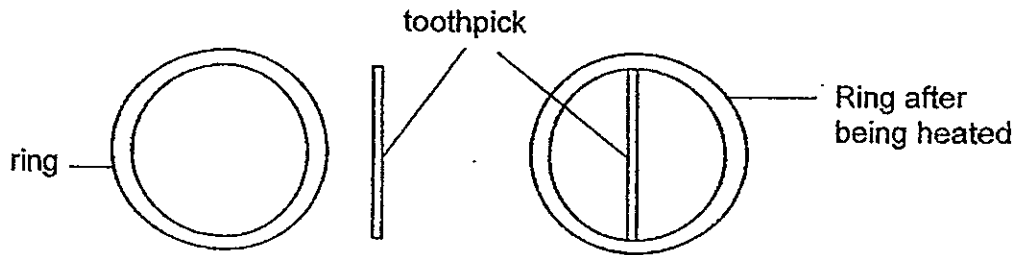
- (a) What is the final temperature of the water in the basin after one day? [1]

- (b) Explain your answer in (a). [1]

- (c) if Lisa started with water at 80°C in the glass basin and water at 20°C in the glass cup, would the final temperature of the water in the basin after one day be different from your answer in (a)? Explain your answer. [1]

Score	
	3

41. The diagram below shows an iron ring just after being heated for a long time. A piece of toothpick that just fits the inside of the hot ring is cut to size and placed as shown

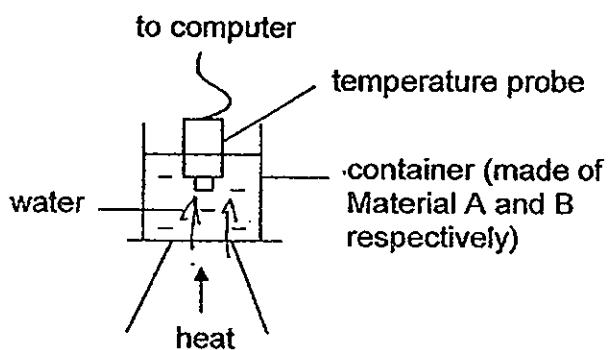


- (a) What will happen to the toothpick after some time? [1]

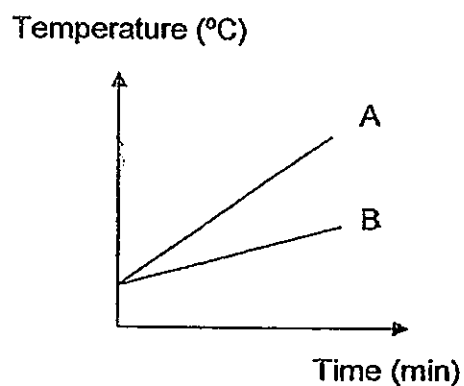
- (b) Explain your answer to (a) above. [1]

Score	2
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42. 2 identical containers made of Materials A and B are used to contain the same amount of water. The containers are then heated using a Bunsen flame and the temperature of the water is recorded using a temperature probe connected to a computer.



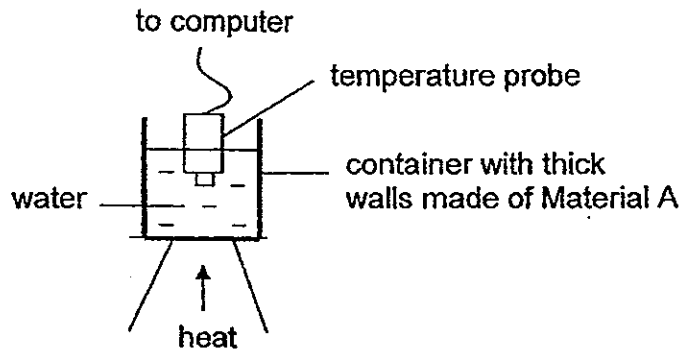
The computer then plots the change in temperature of the water versus time. The following graph is obtained for the two materials A and B.



- (a) Which material is the better conductor of heat? Explain. [1]

Score	1
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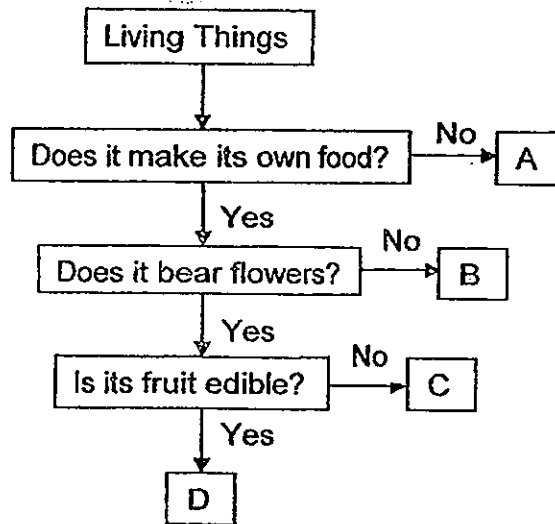
Debbie repeated the experiment using a container of thicker walls made of Material A as shown below.



- (b) If she kept the amount of heat supplied and the duration of experiment constant, would the temperature of the water at the end of the experiment be lower, higher, or the same as the previous experiment using the container with thin walls made of material A? Give a reason for your answer. [1]

Score	
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43. Study the flow chart below carefully.



- (a) Given that A is not an animal, which group of living things could A be? [1]

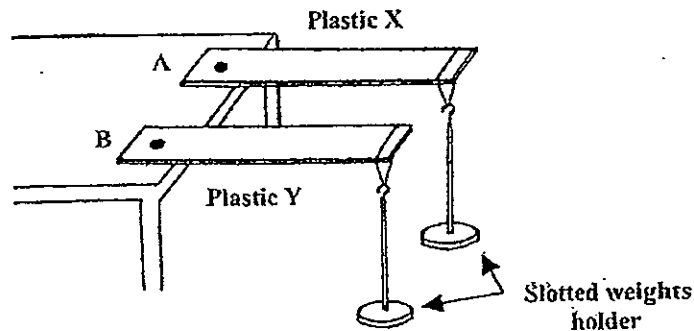
- (b) State how B reproduces. [1]

- (c) Based on the chart above, state a similarity between Living Things B and D. [1]

Score	3
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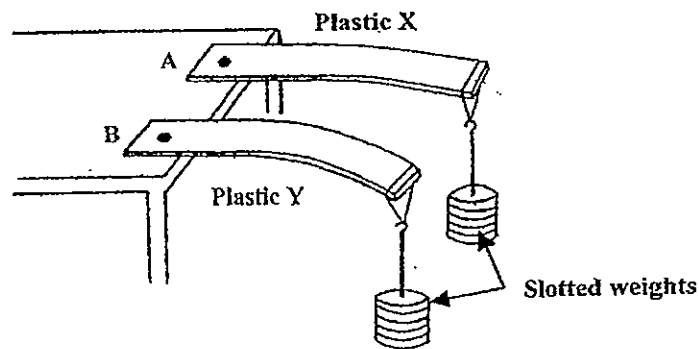
44. Paul secured two thin rulers, A and B, of the same length to a table using a nail each. Ruler A was made of Plastic X and Ruler B was made of Plastic Y as shown in Diagram 1 below.

Diagram 1



He then added slotted weights, one at a time, to one end of each plastic ruler and recorded the number of slotted weights the rulers could hold before they broke as shown in Diagram 2 below.

Diagram 2



The table below shows the results of Paul's experiment.

Material of Ruler	Result
Plastic X	Ruler broke when 7 th slotted weight was added.
Plastic Y	Ruler did not break when 7 th slotted weight was added.

Answer the questions that follow based on the diagrams and results given.

- (a) What happened to the rulers when the slotted weights were hung on them as shown in Diagram 1? [1]

- (b) Paul wrote down a few conclusions based on his results in the table. Indicate with a tick (✓) whether his conclusions are true, false, or not possible to tell. [2]

Conclusion	True	False	Not possible to tell
Plastic Y is lighter than Plastic X.			
Plastic Y is harder than Plastic X.			
Plastic X is stronger than Plastic Y.			
Plastic X is more flexible than Plastic Y.			

End of paper

Score	2
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ANSWER SHEET

EXAM PAPER 2013

SCHOOL : NAN HUA PRIMARY SCHOOL

SUBJECT : PRIMARY 4 SCIENCE

TERM : SA1

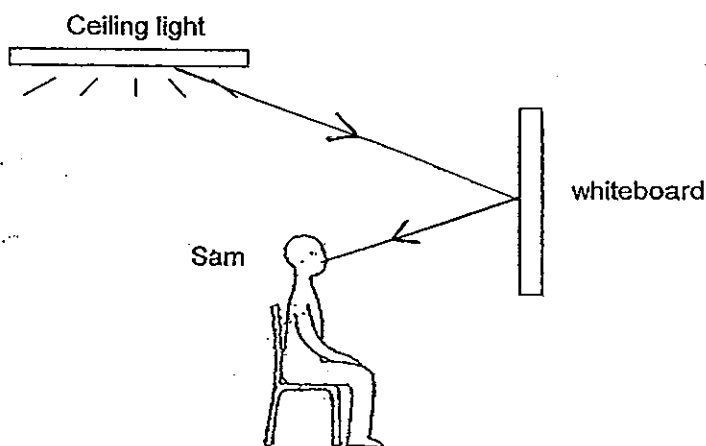
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
2	1	4	2	4	3	3	3	3	4	1	4	4	3	2	2	4

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

Section B

Q31

(a)



(b) The whiteboard reflects the light from the ceiling light into his eyes.

(c) Light from the surrounding falls on the words on the whiteboard and is reflected into Sam's eyes.

Q32

(a) No air does not have a fixed shape so it takes the shape of the balloon.

Q33

- (a) First wax to melt is B followed by C, A and D
- (b) Heat flows from a hotter place to a cooler place.
- (c) The amount of wax should be the same

Q34

- (a) Living things needs air, food and water.
- (b) The animal Q in container D had reproduced.

Q35

- (a) A: It is warm-blooded and gives birth to young alive
B: It is cold- blooded and lay eggs
- (b) No, because a dog gives birth to young alive, not by laying eggs.

Q36

- (a) The distance between torch and material, the thickness of material and the intensity of light from the torch.
- (b)

Variables	Independent Variables	Constant Variables
Distance between the torch and the material		✓
Type of material	✓	
Thickness of material		✓
Intensity of the light from the torch (lux)		✓

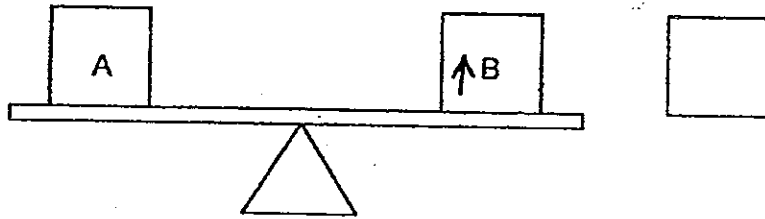
- (c) B. Because no light should pass through the front door.

Q37

- (a) Student C has drawn correctly because when an object is opaque, it will block all the light. A shadow does not have features such as eyes, nose and mouth.
- (b) She can either move herself closer to the screen or move the torch further from her.
- (c) Her shadow will remain the same.

Q38

(a)



(b) Air has mass and can be compressed.

Q39

(a) 200 ml

(b) The plasticine is a solid and its volume remained even when the shape has changed.

(c) Solid has a definite shape but liquid has no definite shape.

Q40

(a) It will be 30°C.

(b) The water in the glass basin gains heat from the water in the glass cup and the surrounding air until the water in both containers reach room temperature.

(c) No, the water in the glass basin loses heat to the water in the glass cup and the surrounding until the water in both container reach room temperature.

Q41

(a) It will break.

(b) because when the iron ring cools down, it will contract and the toothpick will drop out.

Q42

(a) Material A. The temperature of the water rises faster than that of B.

(b) Lower, the water in the container with the thicker wall will require more time to heat up to the same temperature as before as heat travels through a thicker wall slowly.

Q43

(a) It could be a fungi

(b) It reproduces by spores

(c) Both B and D make it own food.

Q44

(a) They bent

(b)

Conclusion	True	False	Not possible to tell
Plastic Y is lighter than plastic X			✓
Plastic Y is harder than Plastic X			✓
Plastic X is stronger than Plastic Y		✓	
Plastic X is more flexible than Plastic Y		✓	