



NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 1
PRIMARY FOUR
SCIENCE

Name : _____ ()

Class : Primary 4 / _____

Date : _____

Duration : 1 hr 45 min

MARKS	
Sect A:	/ 60
Sect B:	/ 40
Total :	/ 100

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 statements about light are true?

- A: A burning candle gives off light.
- B: All objects allow light to pass through them.
- C: We can see things more clearly at night than in the day.
- D: We can see things when they reflect light into our eyes.

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

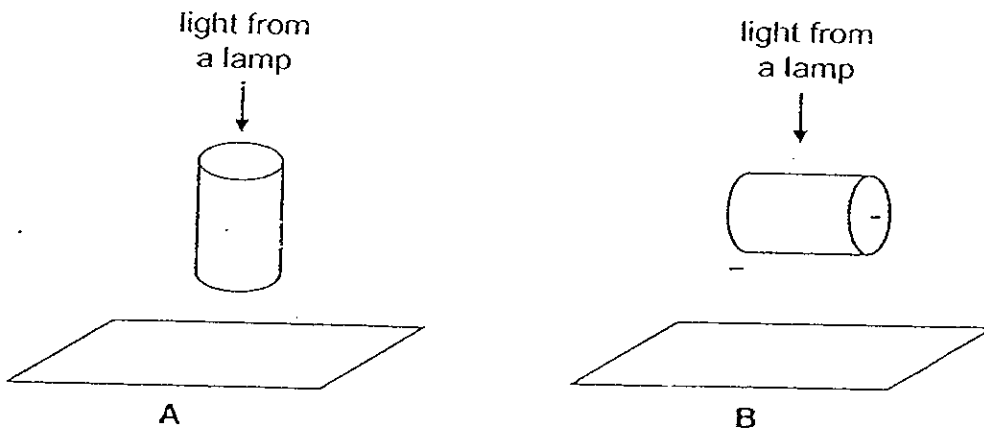
2. We can see a balsam plant because it _____.

- (1) gives out light of its own
- (2) reflects light from the sun
- (3) absorbs light from the sun
- (4) receives light from our eyes

3. Which of the following objects gives out light of its own?

- (1) Star
- (2) Moon
- (3) Mirror
- (4) Diamond

4. Jane planned to study the shadows formed by two identical metal cylinders. The cylinders were placed in different positions directly under identical light sources in a dark room. Shadows were formed on screens A and B as shown below.



Which of the following shadows would be observed for each screen?

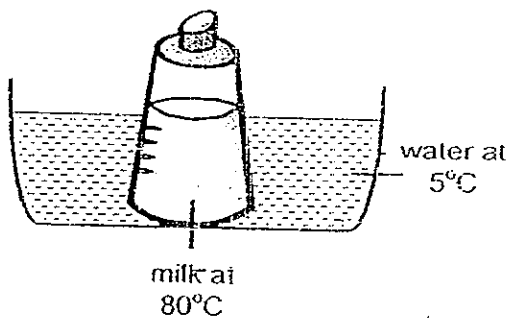
	Screen A	Screen B
(1)		
(2)		
(3)		
(4)		

5. When heat travels from one place to another, it must be from _____.

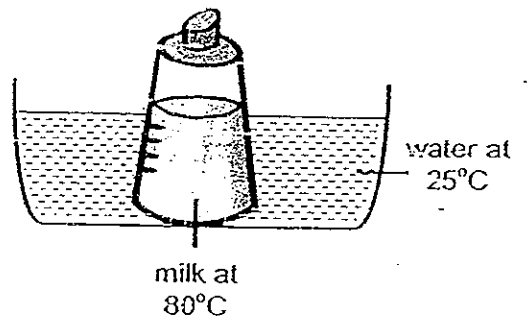
- (1) a high place to a low place
- (2) a wet place to a dry place
- (3) a bright place to a dark place
- (4) a hot place to a cold place

6. In which one of the following set-ups will the milk be cooled the fastest?

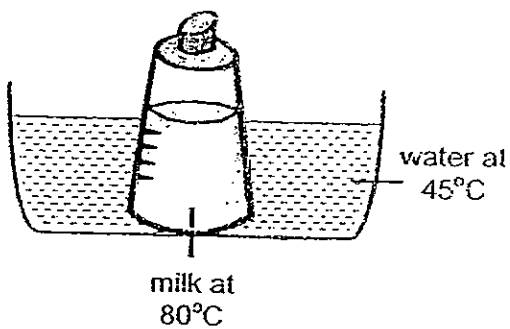
(1)



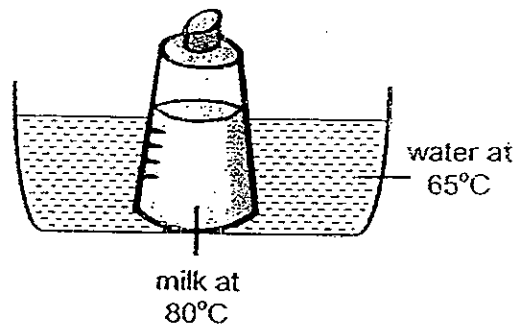
(2)



(3)



(4)

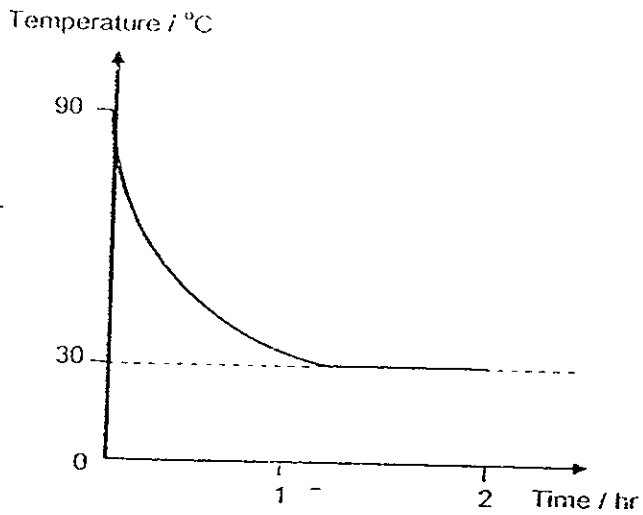




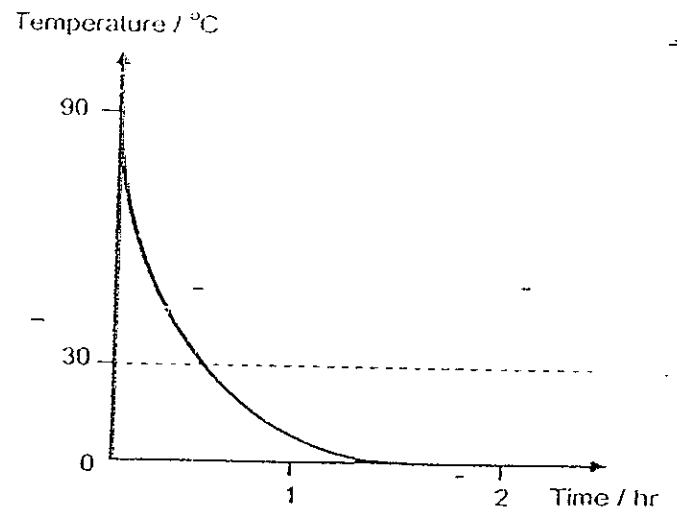


7. Which one of the following graphs shows the changes in temperature of a beaker of hot water, with an initial temperature of 90°C , when it was left in a room at 30°C for 2 hours.

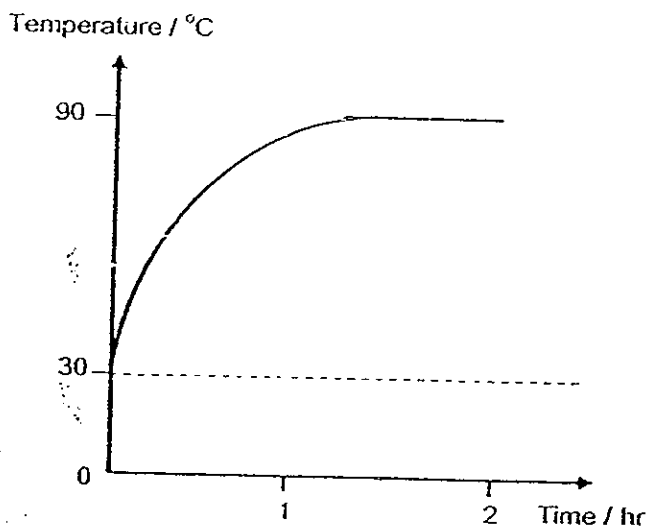
(1)



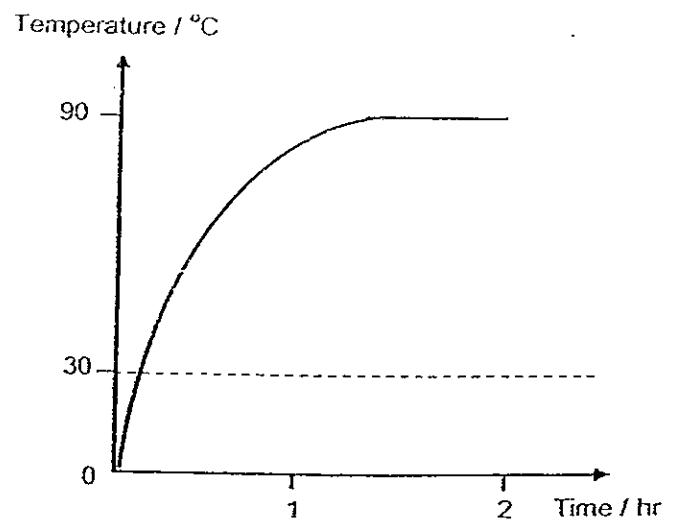
(2)



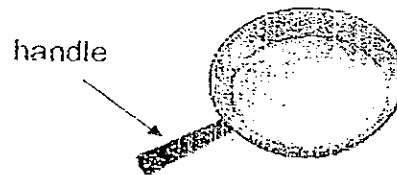
(3)



(4)

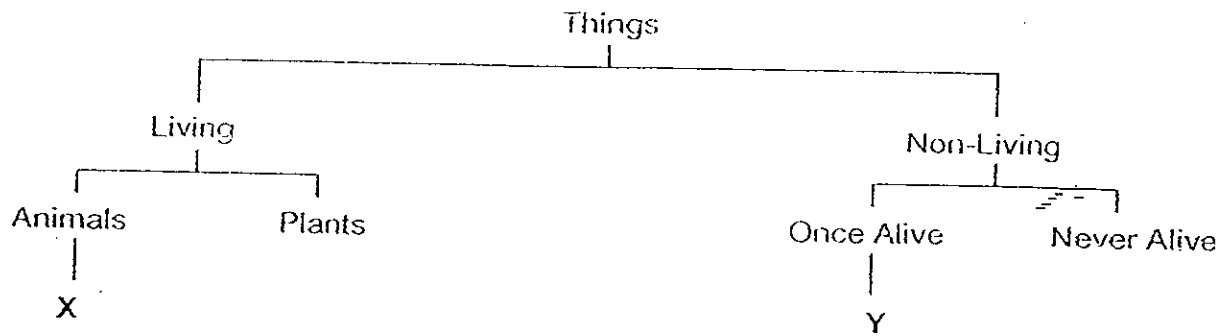


8. Look at the diagram of the cooking pan below. Which material, metal or plastic, is better for making the handle of the cooking pan? Why?



- (1) Metal is better because it is a good conductor of heat.
 - (2) Metal is better because it is harder than plastic.
 - (3) Plastic is better because it is a poor conductor of heat.
 - (4) Plastic is better because it is cheaper than metal.
9. Which one of the following statements about living things is false?
- (1) All living things can grow.
 - (2) All living things reproduce.
 - (3) All living things can make their own food.
 - (4) All living things need food, water and oxygen to survive.

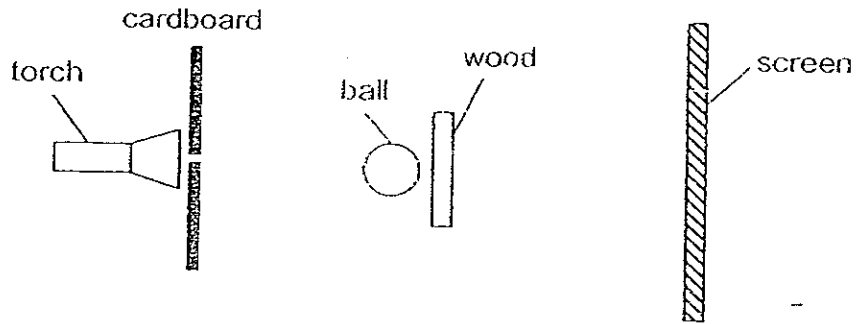
10. Study the classification table below.



Which of the following do X and Y most likely represent?

	X	Y
(1)	Hibiscus	Plastic ruler
(2)	Horse	Rubber gloves
(3)	Bat	Metal spoon
(4)	Tiger	Glass rod

11. The diagram below shows a torch shining on a rubber ball and a square piece of wood. The diameter of the ball is 5cm and the length of each side of the square is 8cm. The ball is placed at the centre and in front of the square piece of wood.

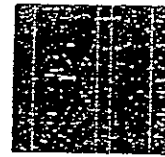


How will the shadow look like?

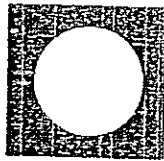
(1)



(2)



(3)

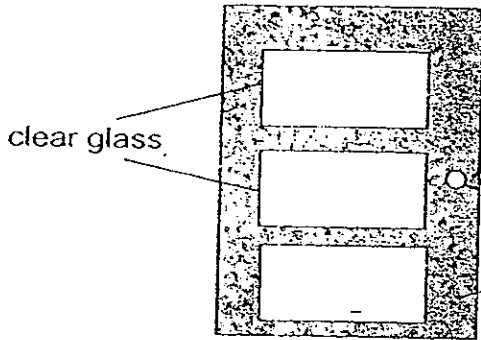


(4)

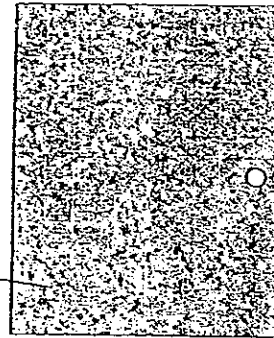


12. Mr Tan wants light to enter his study room but he does not want people to be able to look into his study room clearly.
Which one of the following doors should he use for his study room door?

(1)

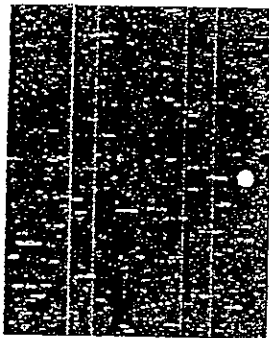


(2)



aluminium

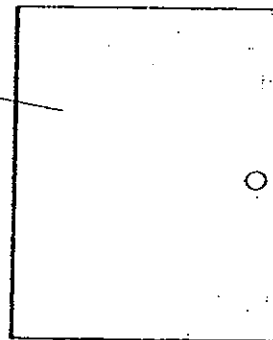
(3)



wood

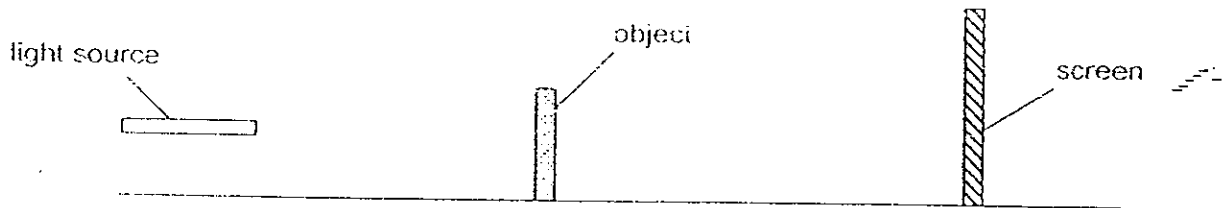
(4)

frosted glass



wrought-iron frame

13. James wanted to find out how the distance of the light source from the object affected the appearance of the shadow. He placed an object in front of a light source to form its shadow on the screen as shown in the diagram below.



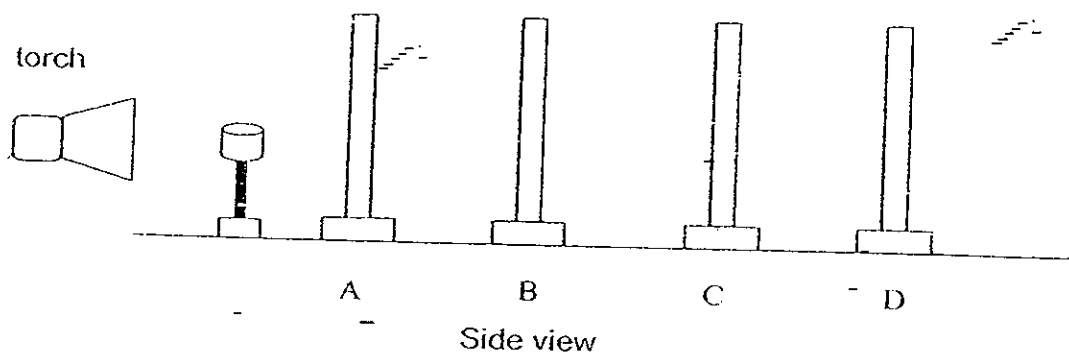
He conducted his experiment using the following set-ups A, B, C, D and E.

Set-up	Distance of light source from object / cm	Distance of object from screen / cm	Shape of object
A	5	5	rectangular
B	5	10	circular
C	8	5	circular
D	10	5	rectangular
E	10	10	rectangular

Which of the above set-ups should he use to obtain reliable results for a fair test?

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

14. The experiment shown below was carried out in a dark room. A clear plastic, a tracing paper, a clear glass and an aluminium foil were placed at various distances from the source of light. An opaque object was placed between the torch and material A.

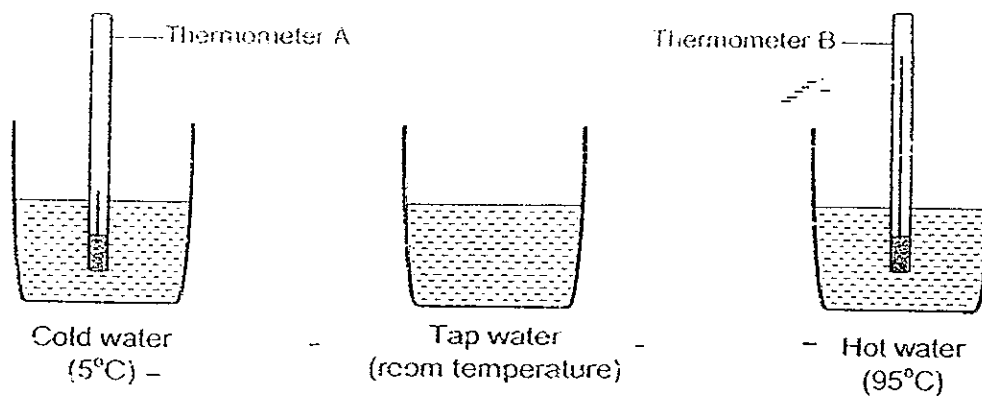


When the torch was switched on, a dark shadow was seen on material C only.

Which one of the following shows a possible arrangement of the materials?

	A	B	C	D
(1)	Clear Plastic	Tracing Paper	Clear Glass	Aluminium Foil
(2)	Clear Glass	Clear Plastic	Tracing Paper	Aluminium Foil
(3)	Clear Glass	Aluminium Foil	Clear Plastic	Tracing Paper
(4)	Clear Plastic	Clear Glass	Aluminium Foil	Tracing Paper

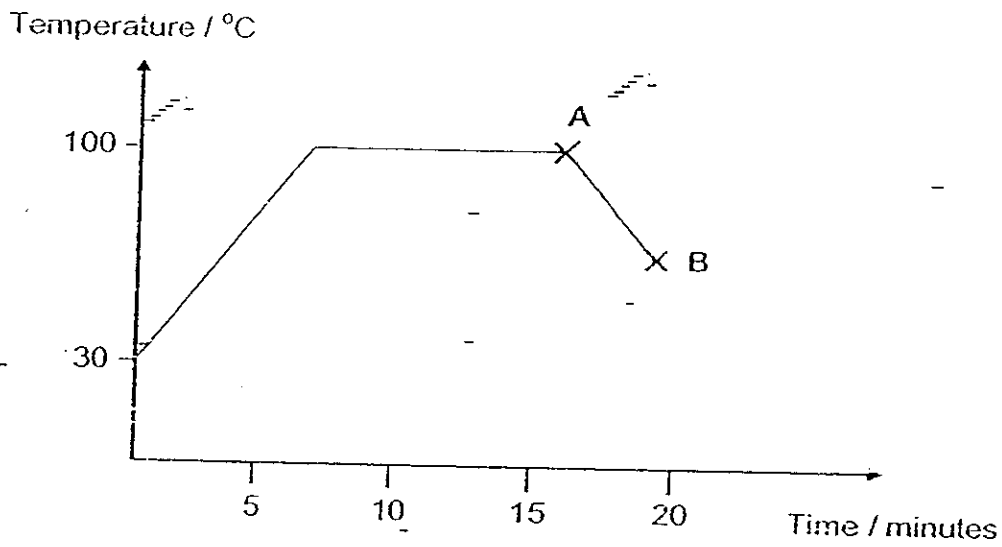
15. Two similar thermometers A and B were initially placed in a beaker of hot and cold water respectively as shown below. Thermometers A and B were then transferred to a beaker of tap water at room temperature.



Which one of the following sets of readings shows the most likely temperature on thermometers A and B in the beaker of tap water after 10 minutes?

Temperature / °C		
	Thermometer A	Thermometer B
(1)	5	95
(2)	15	85
(3)	28	28
(4)	50	50

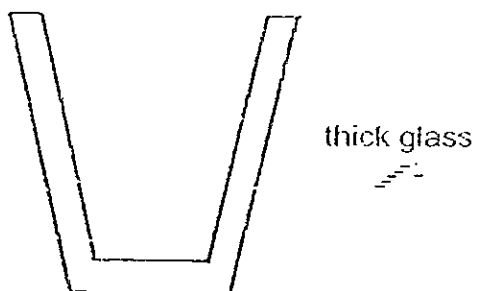
16. Some water was heated continuously in a beaker for 20 minutes. The temperature of the water was measured every 5 minutes. The results are shown in the graph below.



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

- (1) The water in the beaker was boiling.
- (2) The water in the beaker was stirred.
- (3) More tap water was poured into the beaker.
- (4) Some water was removed from the beaker.

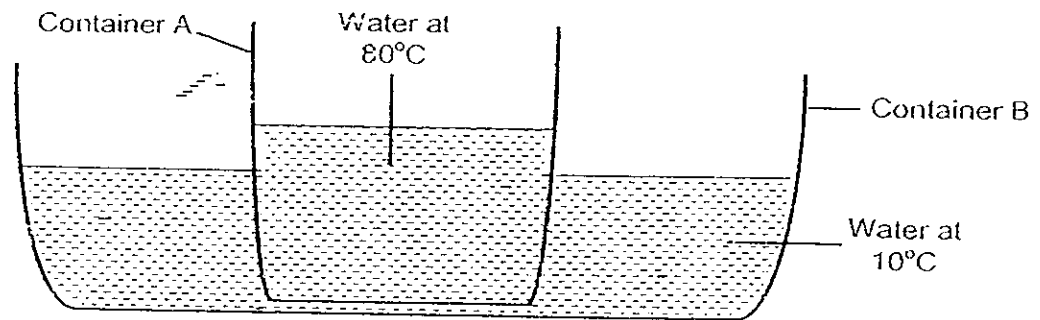
17. David was holding a thick glass like the one shown in the diagram below.



Why did the thick glass crack when he poured boiling water into it?

- (1) The air in the glass expanded.
- (2) The glass expanded unequally.
- (3) The boiling water was too hot.
- (4) The glass contracted and then expanded.

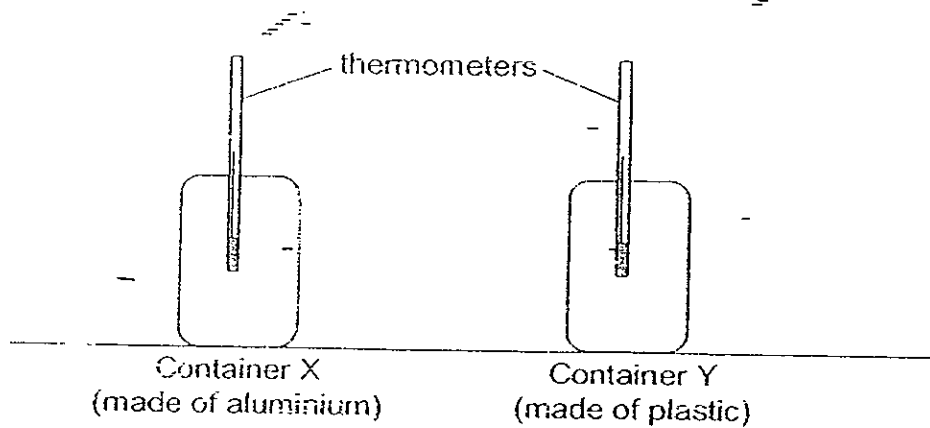
18. Study the diagram below. Container A with hot water at 80°C is put into container B with cold water at 10°C . The containers are placed on a table in a room. The room temperature is 30°C .



Which of the following statements are true?

- A: Water in both containers loses heat to the surrounding air.
- B: - The temperature of the water in container A drops while the temperature of the water in container B rises.
- C: The temperature of the water in both containers will eventually be the same.
- (1) A and B only
(2) A and C only
(3) B and C only
(4) A, B and C
19. Air was pumped into a balloon in an air-conditioned room at 20°C to inflate it to as big as possible. Later, when the balloon was placed under the hot sun, it burst.
- Which of the following factors account for why the balloon burst?
- A: The balloon gained heat and expanded.
- B: The balloon lost heat and contracted.
- C: The air in the balloon gained heat and expanded.
- D: The air in the balloon lost heat and contracted.
- (1) A and C only
(2) A and D only
(3) B and C only
(4) B and D only

20. Two empty containers, of identical size, were placed under the sun together with a thermometer in each container as shown in the diagram below. Container X was made of aluminium while Container Y was made of plastic. The readings on the thermometer were taken every 2 minutes and recorded in the table below.

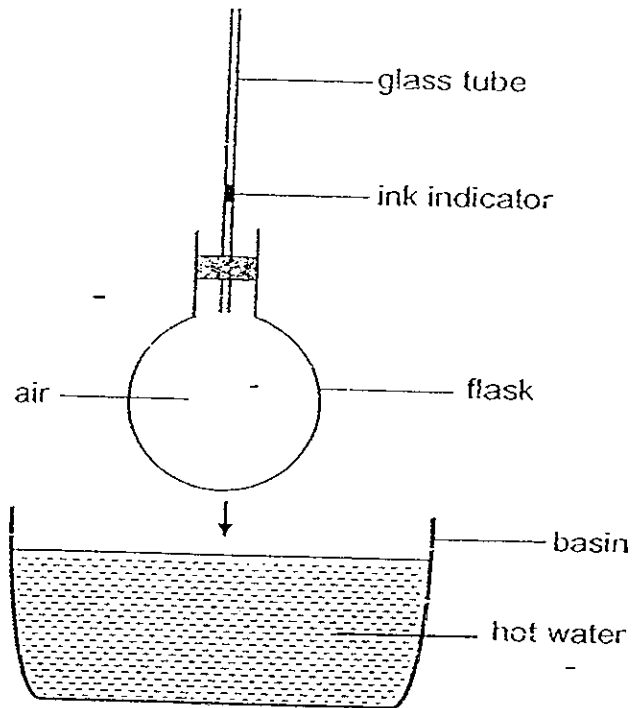


Time (min)	0	2	4	6	8	10
Thermometer reading in Container X ($^{\circ}\text{C}$)	28	30	32	34	35	36
Thermometer reading in Container Y ($^{\circ}\text{C}$)	28	29	30	31	32	33

Based on the information above, which one of the following statements is a possible explanation of the observation?

- (1) Container X gained heat from Container Y.
- (2) Aluminium produced more heat than plastic.
- (3) Container Y has absorbed more heat than Container X in 10 minutes.
- (4) The air in Container X has gained more heat than the air in Container Y.

21.



The diagram shows a flask and a basin of hot water. Air is trapped in the flask by the ink indicator. When the flask is lowered into hot water, it is observed that the ink indicator falls first and then rises. This is because

- (1) the flask expands before the air expands
- (2) the flask expands first and then contracts
- (3) the air is compressed first and then expands
- (4) the downward movement of the flask causes the indicator to fall before the air expands.

22.

A mimosa plant closes its leaves when it is touched. Which characteristic of a living thing does it show?

- (1) Living things can grow.
- (2) Living things can reproduce.
- (3) Living things can move from one place to another.
- (4) Living things can respond to changes around them.

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



(1) an extracted tooth



(2) a dried leaf



(3) a newly hatched chick



(4) a milk bottle

24. The table below shows the classification of non-living things. Which one of the following is classified correctly?

NON-LIVING THINGS		
	Once Alive	Never Alive
(1)	Rubber eraser	Glass marble
(2)	Clay pot	Fifty-cents coin
(3)	Chicken meat	Book
(4)	Clouds	Key

25. Jane saw an animal in the school garden and noted down its characteristics as shown below:

- A: Has six legs
- B: Has a pair of feelers
- C: Body is divided into three parts

The animal which Jane saw is most probably a _____.

- (1) spider
- (2) rabbit
- (3) chicken
- (4) grasshopper

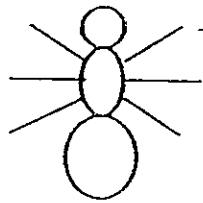
26. Look at the two groups of plants below:

Group A	Group B
sunflower	fem
hibiscus	moss
orchid	conifers

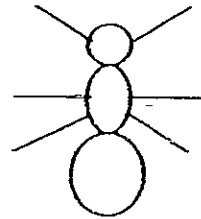
The plants are classified according to whether they _____.

- (1) bear flowers
- (2) grow on land
- (3) give us food
- (4) provide shade

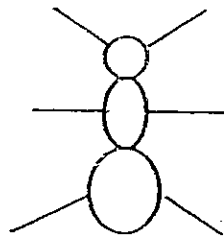
27. Which picture below shows correctly where the legs of the insect are joined to its body?



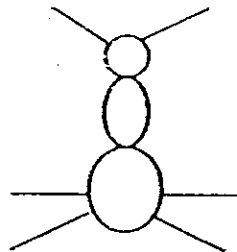
(1)



(2)



(3)



(4)

28. Which one of the following objects can float in water?

- (1) cork
- (2) coin
- (3) magnet
- (4) metal spoon

29. The picture below shows an umbrella.
The two materials used to make the umbrella are _____

A: glass
B: metal
C: plastic
D: ceramic



- (1) A and B
(2) B and C
(3) C and D
(4) A and D
30. Mrs Lim bought some freshly cut flowers from the florist. She needs a vase containing some water to hold the flowers. Which one of the following materials cannot be used to make the vase?

(1) clay
(2) glass
(3) cloth
(4) plastic



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MARKS	
	40

Name : _____ ()

Class : Primary 4 / _____

Section B: (40marks)

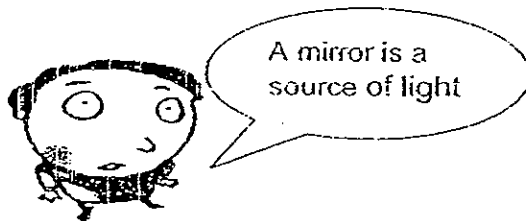
Write your answers to question 31 to 46.

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

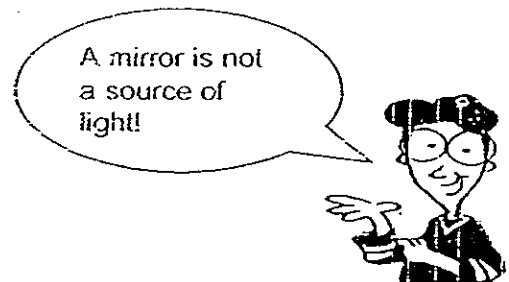
31. Ali is standing in a dark room looking through a window. He can see Siti who is standing outside in the daylight very clearly. However, Siti is not able to see Ali clearly.

(a) Explain why Siti is not able to see Ali clearly. [1]

(b) Stanley and Mitch each made a statement about light.



Stanley



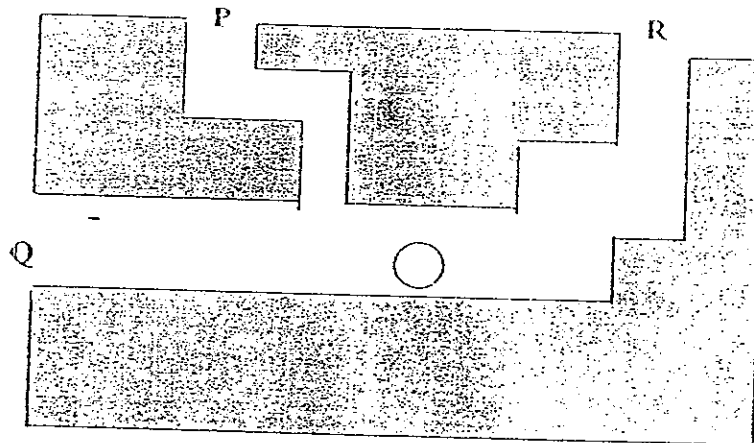
Mitch

Who made a wrong statement? Explain your answer.

[2]

Score	3
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32. A ping pong ball is placed in a box with three openings: P, Q and R. The diagram below shows the cross-section of the box.



- (a) Name the opening(s) through which you cannot see the ping pong ball.

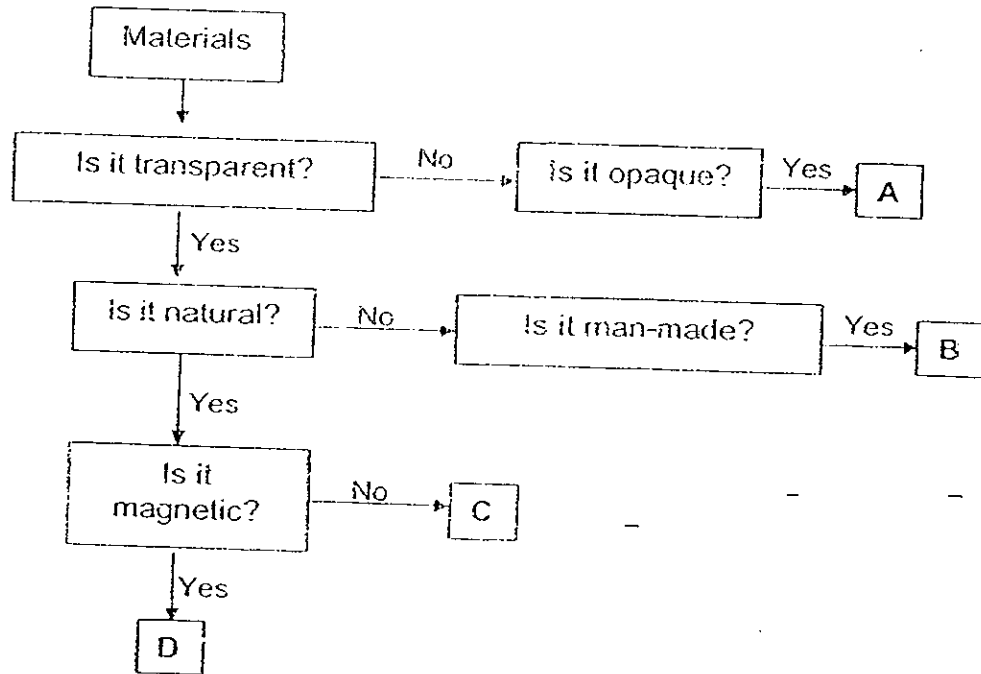
[1]

- (b) Explain why you are unable to see the ping pong ball through the opening(s) mentioned in part (a).

[1]

Score	2
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33. The chart below shows the characteristics of some materials.



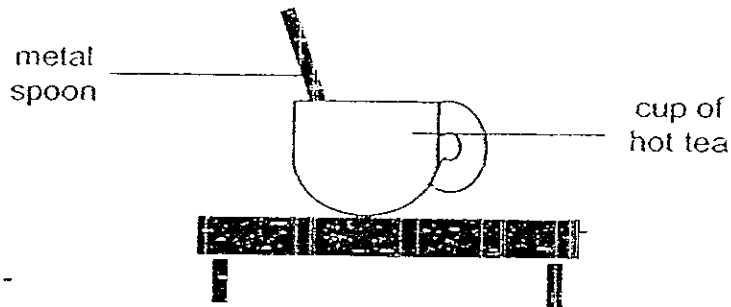
Which alphabet A, B, C or D represents the following materials? [2]

(a) Rubber : _____

(b) Clear plastic : _____

Score	2
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34. A metal spoon was placed in a cup of hot tea as shown below. After a while, the metal spoon became hot.



(a) How did the spoon become hot?

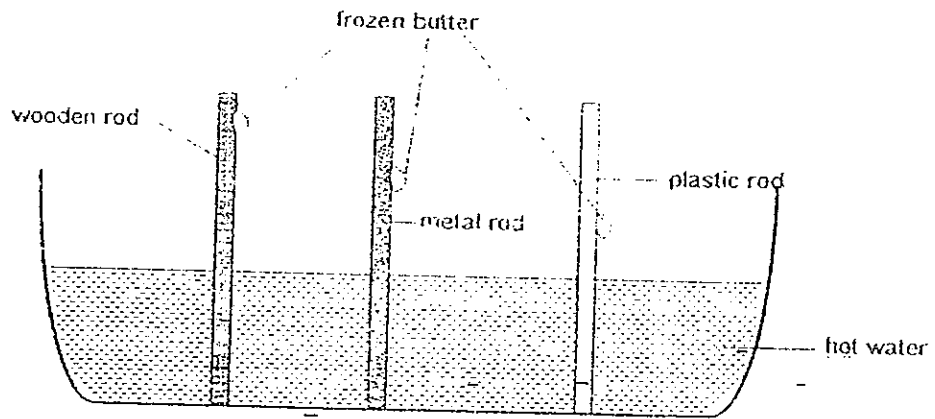
[1]

(b) What conclusion can you make from this experiment about the property of heat?

[1]

Score	2
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35. Tom conducted an experiment to find out which rod is the best conductor of heat.



- (a) Why was Tom's experiment not fair?

[1]

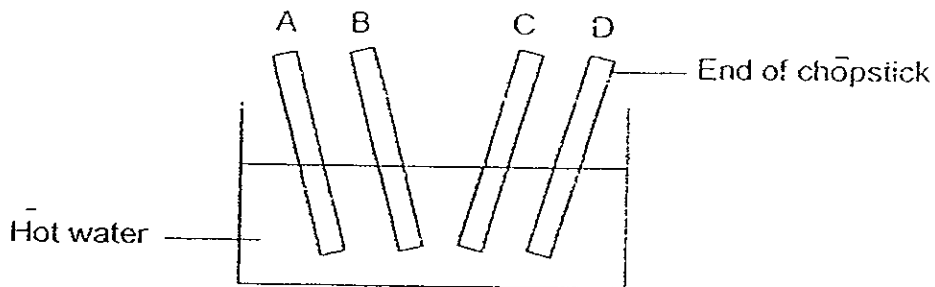
- (b) If the experiment was a fair one, the frozen butter on which rod will melt first?

[1]

Score	2
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36. Four pairs of chopsticks were made of different materials. They were placed in a pot of hot water. The table below shows the temperature change for each pair of chopsticks after 1 minute.

Material of the chopsticks	Temperature at the beginning	Temperature after 1 minute
A	27°C	45°C
B	27°C	30°C
C	27°C	52°C
D	27°C	40°C



- (a) Which pair of chopsticks would you use to take food out from hot oil? [1]

Chopsticks _____

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

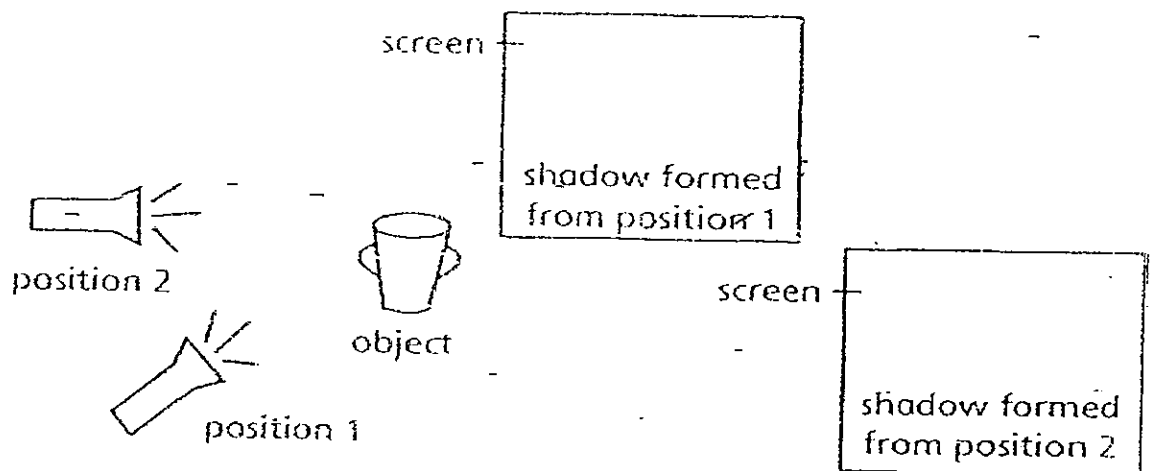
- (c) Suggest a material that the pair of chopsticks used to take out food from the hot oil should be made of. [1]

Score	3
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37. (a) Name one natural source of light.

[1]

(b) Sili conducted an experiment to observe the shadow of an object when the light source falls on the same object from different angles. First, she shone a torch at an object from position 1. Next she shifted the torch to position 2 and shone it at the object.

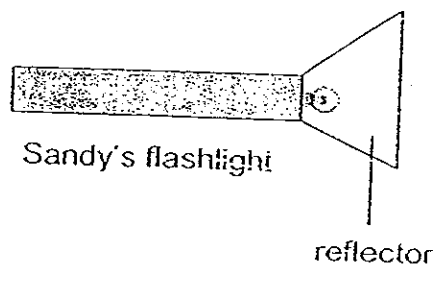
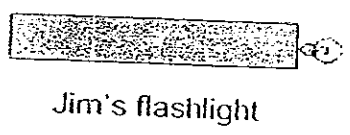


(i) Draw on the screens above, the shadows formed when the torch is shone from position 1 and 2. [1]

(ii) Write down one way in which you can make the shadow formed from position 1 become smaller without moving the screen. [1]

Score	3
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38. Jim and Sandy each made a flashlight from identical batteries and bulbs. Sandy's flashlight contains a reflector which is made up of a material that reflects light, while Jim's flashlight does not.

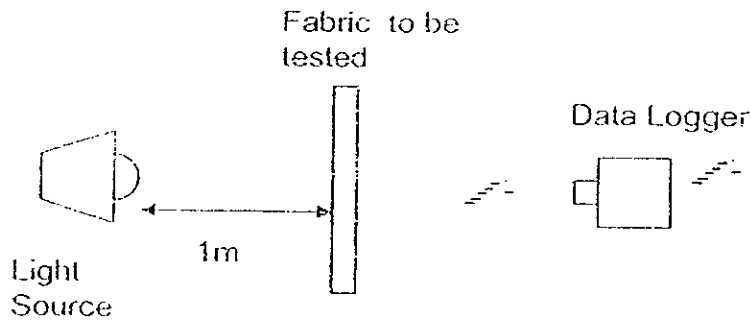


(a) Which flashlight shines more light on a wall 5 metres away? [1]
_____ 's flashlight _____

(b) Explain your answer in part (a) [1]

Score	2
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39. Xin Xin did an experiment with the setup as shown below.



She was taught by her Science teacher that the unit of measurement for the amount of light is known as Lux. Higher Lux reading means more light is detected by the datalogger.

Xin Xin recorded the data collected in the table below.

Fabric	Amount of Light - (Lux)
A	59
B	63
C	77
D	11

(a) Referring to the data above, which fabric is most suitable to be used as curtains to keep as much sunlight out as possible from her room? Explain your answer. [1]

(b) What would likely be the reading for Fabric B when the light source is more than 1 m away from the fabric? Explain your answer. [2]

Score	3
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40. Two children held two different objects, a cardboard and a blue cellophane sheet between a lamp and the wall. They observed that a dark shadow was formed for the cardboard while the blue cellophane sheet formed a faint shadow.

(a) Explain why the different shadows formed are different. [2]

(b) In the list below, tick (✓) the objects that would make a faint shadow. [1]

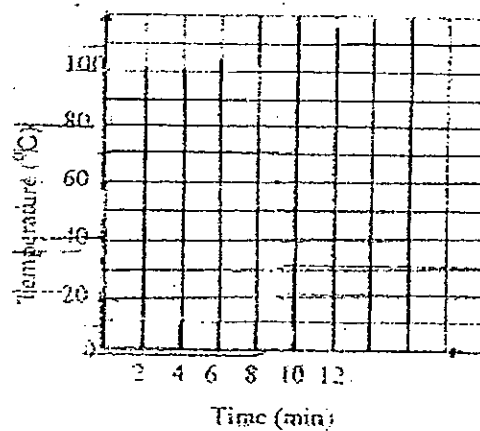
Objects	Tick (✓) the objects that would make a faint shadow
A Wooden toy	
Piece of tracing paper	
A book	
A mirror	
A frosted glass cup	

Score	3
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41. Kassim filled a beaker with some pure water. He heated the water continuously for 12 minutes and recorded the temperature of the water in the table below.

Time (min)	Temperature (°C)
0	20
2	40
4	60
6	80
8	100
10	100
12	100

- (a) Plot a line graph showing the change in temperature throughout the experiment in the grid below. [1]

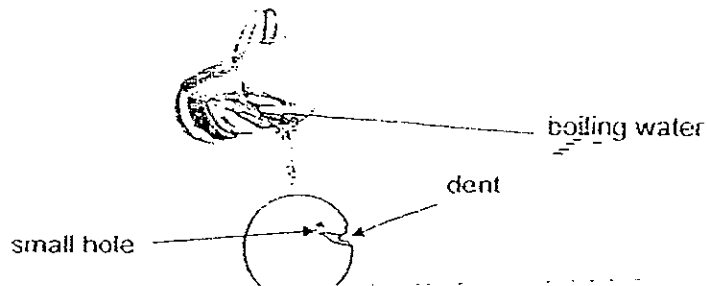


- (b) Kassim then placed some ice cubes into the beaker of water. Did the water and ice cubes gain or lose heat when the ice cubes were added? Tick (✓) the correct box below. [2]

	Gained heat	Lost heat
Water		
Ice cubes		

Score	3
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42. Patricia was told that hot water would help a dented ping pong ball return to its original shape. She decided to pour some boiling water onto it.



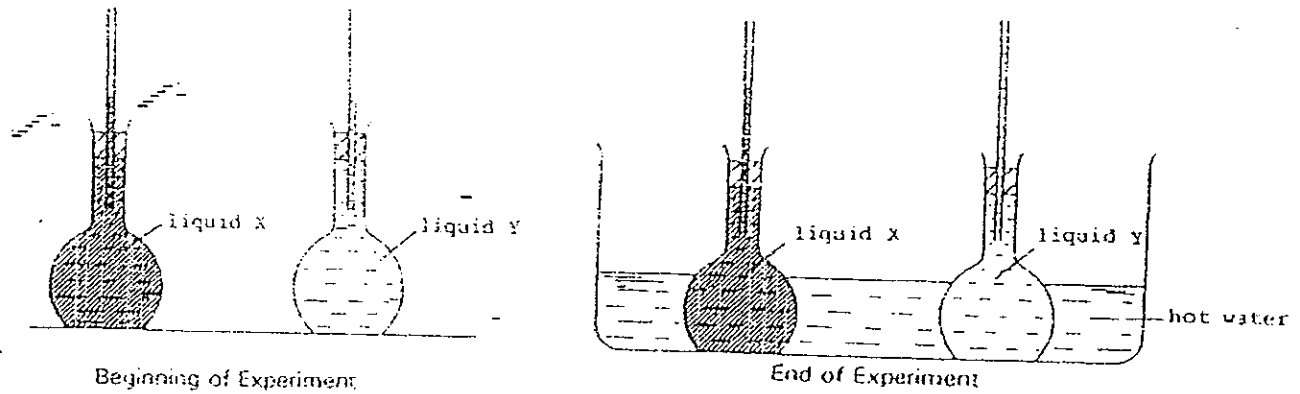
- (a) Explain how this action would help inflate the dented ping pong ball.

After pouring the boiling water, Patricia found that the ping pong ball remained slightly dented. She also noticed a small hole near the dent.

- (b) Why did the ping pong ball not return to its shape? [1]

Score	2
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43. Ahmad did an experiment to compare the expansion of two different liquids, X and Y. He filled one flask with liquid X and another with liquid Y. The levels of the liquids in the similar glass tubes were the same at first.



The similar flasks were then placed in a container of hot water. After some time, the liquids rose in the tubes as shown in the diagram above.

- (a) Besides the initial levels of the liquids in the tubes, name another variable that must be kept the same for the experiment. [1]

- (b) What conclusion can Ahmad make from his experiment? [1]

Score	2
-------	---

44. Sheba had four identical containers, W, X, Y and Z, made from different materials. She placed an ice cube into each of the containers and recorded the time taken for the ice cube to melt completely.

She tabulated her data as shown below.

Container	W	X	Y	Z
Time taken for the ice cube to melt completely	7 min	11 min	5 min	9 min

- (a) What is the purpose of Sheba's experiment?

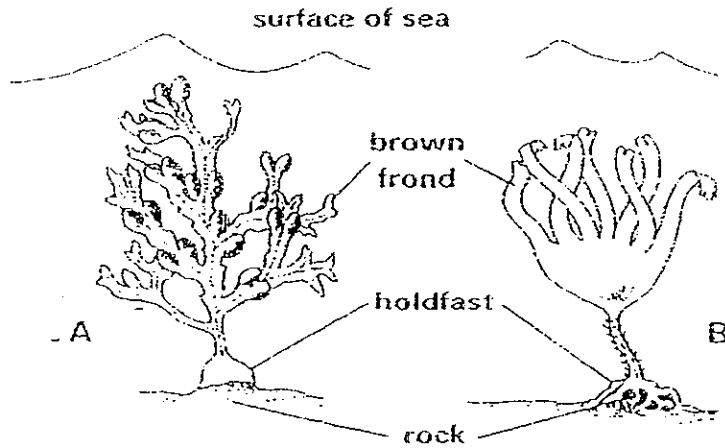
[1]

- (b) If Sheba needs to keep cold drinks cool for a long period of time, which container should she use? Why?

[2]

Score	3
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45. Seaweeds are plants found in the sea. One of the types of seaweeds is known as brown seaweeds.

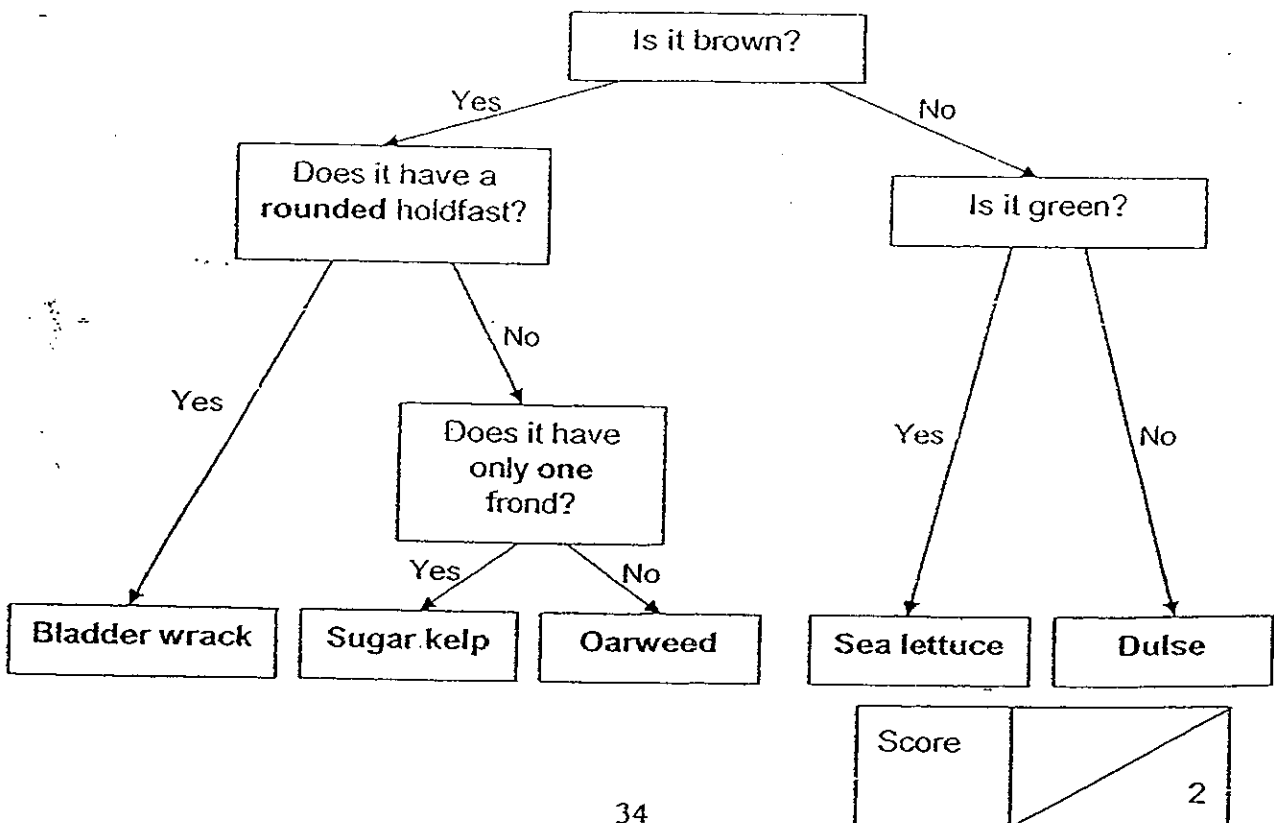


Use the classification chart below to name brown seaweeds A and B.

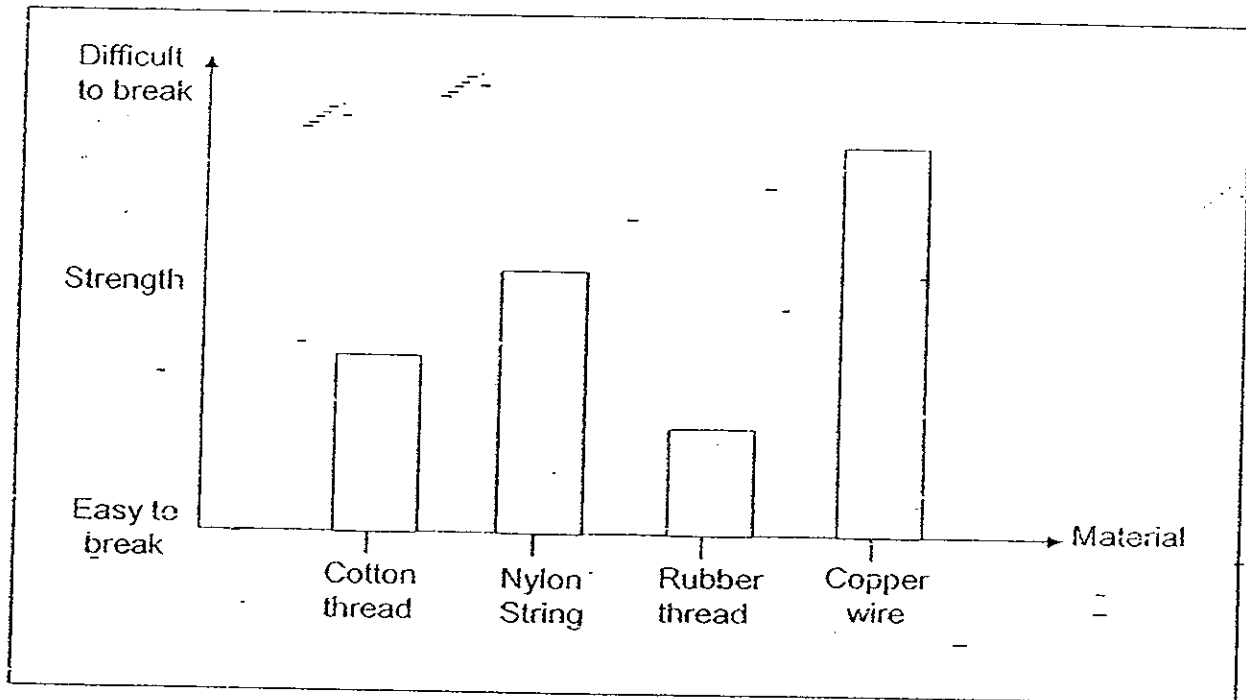
(a) A: _____

(b) B: _____

[2]



46. Mary did an experiment to compare the strength of different materials. She then drew a graph to show the results of her experiment as shown below.



- (a) From the graph, which is the strongest material? [1]

- (b) If Mary wanted to make a fishing line, would she use cotton or nylon? [1]

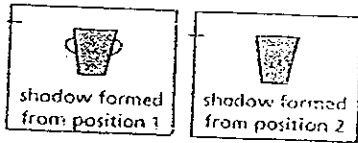
- (c) Give a reason for your answer in (b). [1]

END OF PAPER

Score	3
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P4 SA1 Science – Corrections for Specific Questions

37b



Drawings must have:

1. Straight lines
2. Be in proportion
3. Accurately drawn

38. The answer to part (a) is dependant on the answer to part (b). If no mark is awarded for part (b), no mark can be awarded for part (a).

The answer to this question is **EITHER**:

(a) Sandy's flashlight

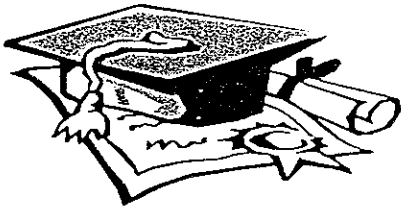
(b) The reflector in Sandy's flashlight reflects all the light towards the wall.

In Jim's flashlight, the light shines in all direction

OR

(a) Jim's flashlight

(b) Sandy's reflector will reflect the light rays back towards the torch light



ANSWER SHEET

EXAM PAPER 2008

SCHOOL : NAN HUA PRIMARY SCHOOL
SUBJECT : PRIMARY 4 SCIENCE

TERM : SA 1

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
2	2	1	3	4	1	1	3	3	2	2	4	2	4	3	3	2
Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30				
3	1	4	1	4	3	1	4	1	1	1	2	3				

31)a) There is not enough light being reflected off Ali in the room, thus cannot see Ali clearly.

b) Stanley. A mirror is not light because a mirror only reflects light.

32)a) They are P and R.

b) Path of light has been blocked as light travels in a straight line.

33)a) A b) B

34)a) Heat had traveled from the hot tea to the spoon.

b) Heat travels from a place/region of higher temperature /hotter place/region of lower temperature/colder place.

35)a) Tom's experiment was not fair because the frozen butter was put at different position.

b) The frozen butter on the metal rod will melt first.

36)a) chopstick D

b) The temperature increase was the least within the amount of time, thus it is a worst conductor of heat.

c) The material is wood.

37)a) The sun

b) ii) I can make the shadow formed from position 1 smaller by prating the object closer to the screen.

39)a) Fabric D. The reason is fabric D had the lowest amount of Lux.

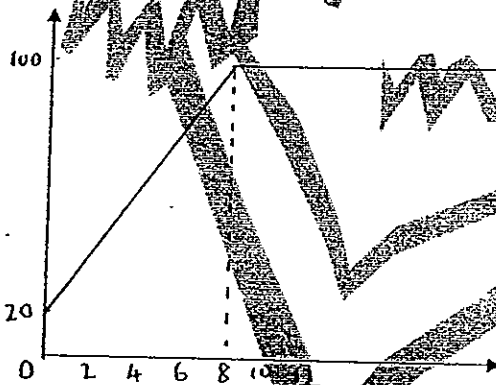
b) 53 Lux. The reason is the farther the distance, the less Lux.

40)a) The cardboard is opaque/does not allow light to pass through, therefore the shadow formed is dark. The blue cellophane sheet is translucent/ allows some light to pass through, so the shadow formed is light.

b) piece of tracing paper.

A frosted glass cup.

41)a)



b) Water = Lost heat

Ice cubes = Gained heat

42)a) The air expanded upon heating causing the dent to be pushed out.

b) The ping pong ball did not return to its original shape because the hot kept coming out from small hole.

43)a) The size of the flats.

b) Liquid Y expanded more/faster than X on heating.

44)a) To find out which material is the best/worst conductor of heat.

b) Container X. It keeps the ice frozen for the longest period of time.

45)a) A: Bladder wrack .

b) B: Oar weed.

46)a) From the graph, copper wire is the strongest material.

b) She should use nylon.

c) It is stronger than the cotton string therefore able to hold the weight of the first.

---end---