南洋小學

NANYANG PRIMARY SCHOOL

PRIMARY FOUR SCIENCE

SEMESTRAL ASSESSMENT 2
2011

BOOKLET A

Date : 2 Nov 2011

Duration : 1 h 45 min

Name : _____ ( )

Class: Primary __ ___ ( )

Marks Scored:

Booklet A:		**60**
Booklet B :		**40**
Total :		**100**

Parent's signature: .....

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Booklet A consists of 23 printed pages including this cover page.

Section A (30 x 2 marks = 60 marks)

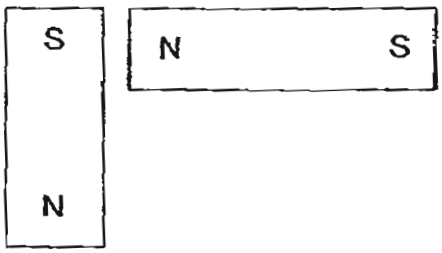
For each question from 1 to 30, four options are given. One of them is the correct answer.
Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.

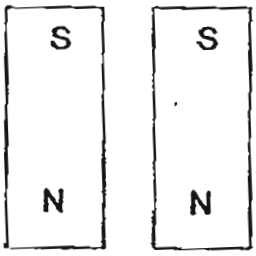
1. Iron is used to make nails because iron _____.

   (1) is shiny
   (2) is strong
   (3) is waterproof
   (4) conducts heat well

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

   (1)
   

   (2)
   

   (3)
   

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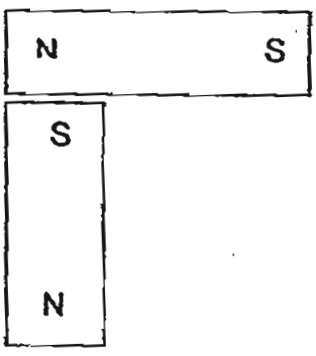
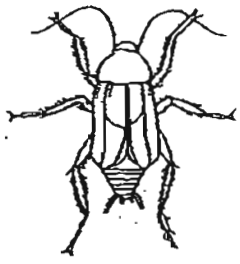
   

3. Which one of the organisms shown below is **NOT** an insect?

(1)

(2)

(3)



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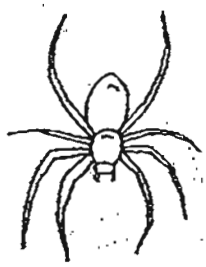
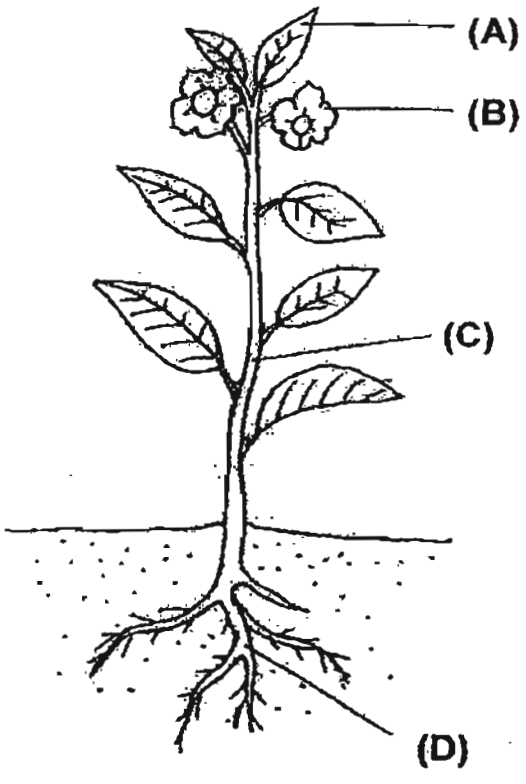


4. The diagram below shows a plant with parts labelled A, B, C and D.



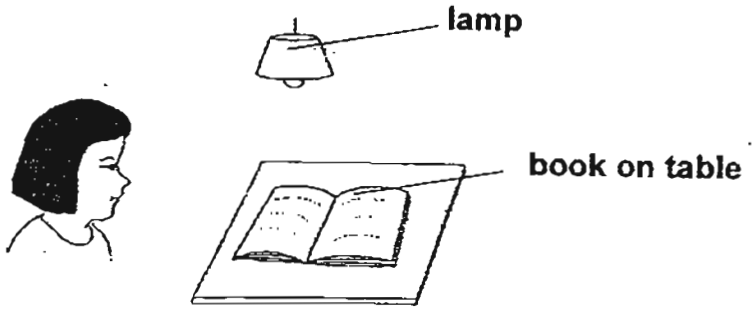
Which part is the stem?

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

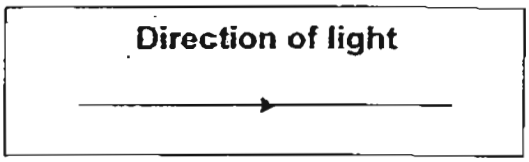
5. What is the main function of the large intestine?

(1) It removes digested food from the body.
(2) It allows water to be passed into the blood.
(3) It removes undigested food out of the body.
(4) It allows digested food to be passed into the blood.

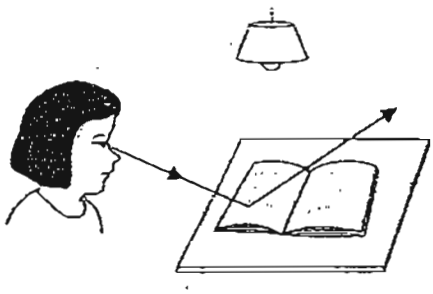
6. Look at the picture below.



Which one of the following explains why Sue can see the book on the table?



(1)



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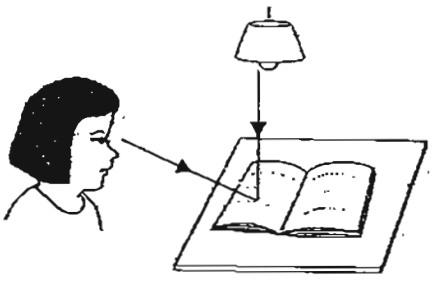

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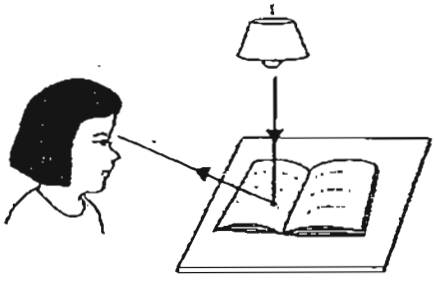

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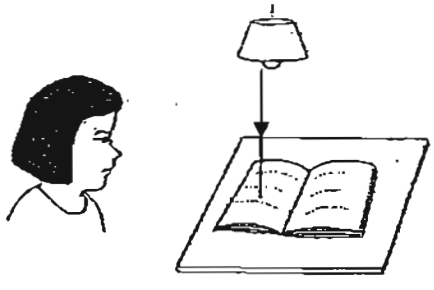
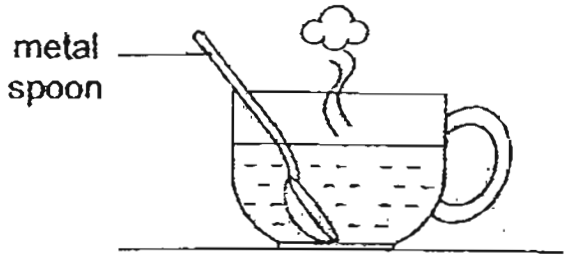


7. Ronald has placed a metal spoon in a cup of hot tea.



a cup of hot tea

The spoon becomes hot after a while.

Which one of the following explains this?

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

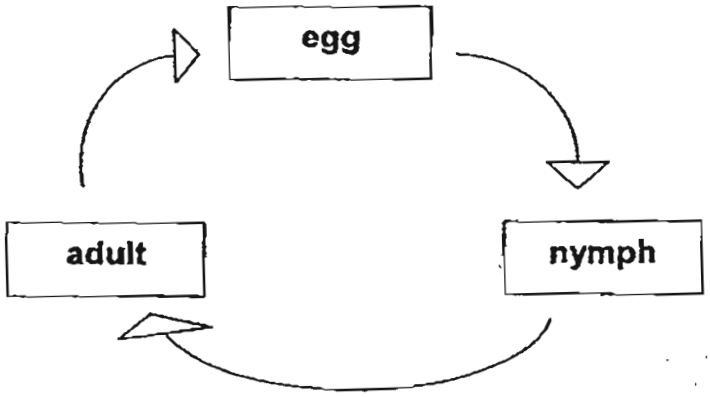
8. Which one of the following is the best conductor of heat?

(1) A glass plate
(2) A metal plate
(3) A plastic plate
(4) A wooden plate

9. Which one of the following substances has a fixed shape?

(1) air
(2) oil
(3) stone
(4) water

10. The diagram below shows the life cycle of an animal.



Which animal is likely to have the life cycle as shown above?

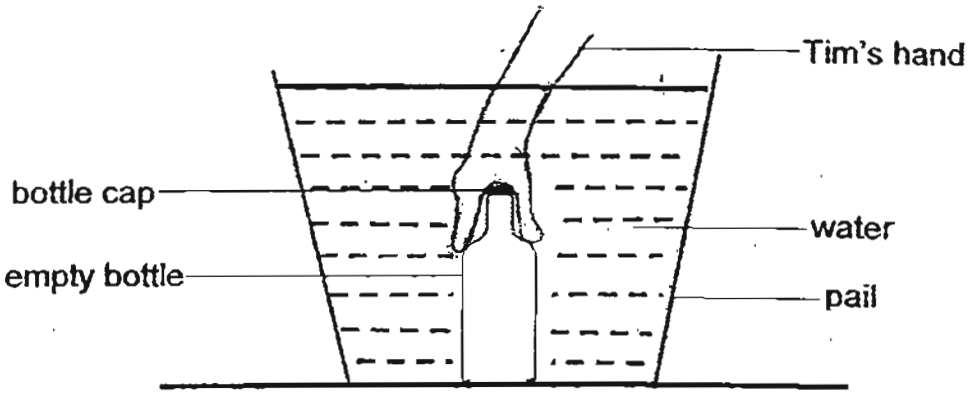
(1) frog
(2) butterfly
(3) chicken
(4) cockroach

11. Which of the following statement(s) is/are true of gases?

A Gases do not have mass.
B Gases take the shape of the containers.
C Gases can be forced to occupy a smaller volume.

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

12. Tim fully submerged an empty bottle in a pail of water as shown in the diagram below.



When Tim removed the bottle cap in the water, the following observations were recorded.

- Bubbles were observed rising from the mouth of the bottle.
- Water filled up the empty bottle.
- The water level in the pail decreased.

What can Tim conclude from his observations above?

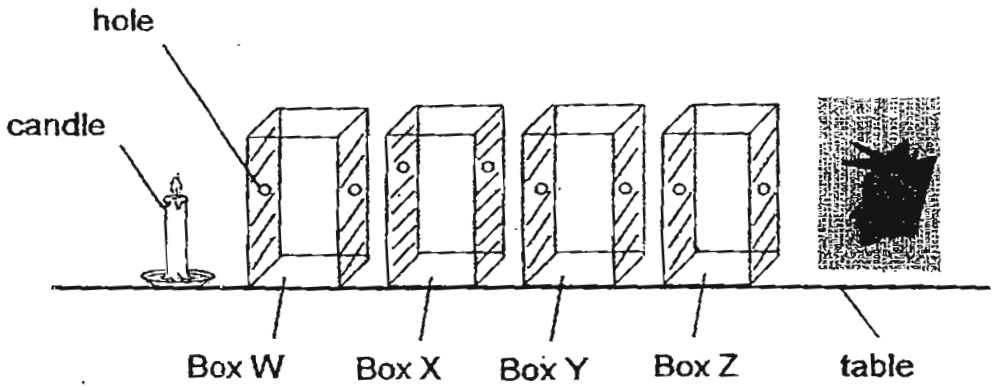
(1) Liquid has mass.
(2) Gas can be compressed.
(3) Liquid and gas occupy space.
(4) Gas and liquid have definite shapes.

13. Which of the following pairs of objects make use of light energy to function?

A Periscope and camera
B Door bell and radio
C Solar panel and microscope
D Electromagnet and printer

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

14. Mr Lim conducted the experiment in a dark room.

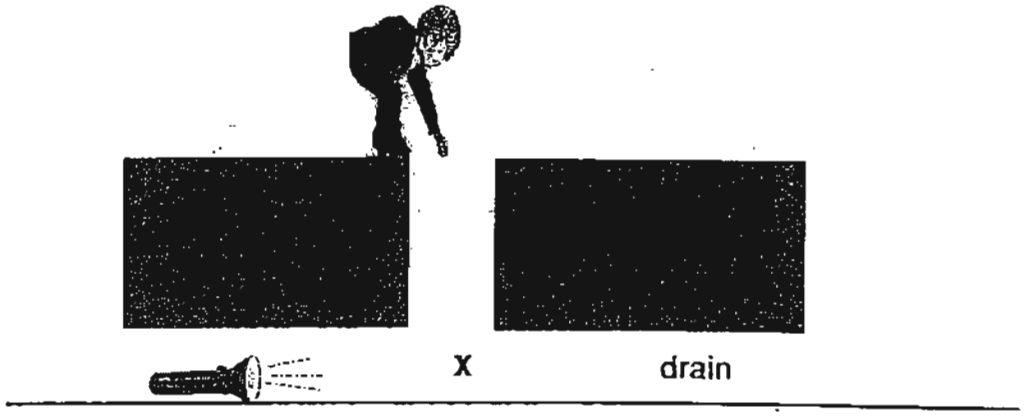


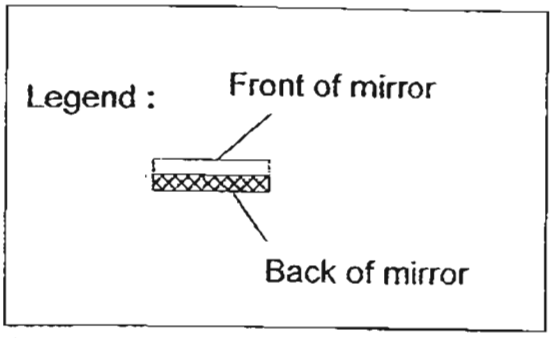
Four wooden boxes W, X, Y and Z were arranged according to the above diagram. The holes are found on the shaded sides of the boxes. When the candle was lighted, Mr Lim discovered that he could not see the light from the hole in Box Z.

Which one of the following statements correctly explains his observation?

(1) Light is blocked by Box Y.
(2) Light travels in a straight line.
(3) Light can travel short distances.
(4) Light cannot pass through small holes.

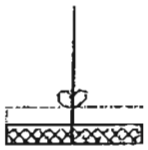
15. Aik Beng was using his torch at a camp one night when he accidentally dropped it into a drain. He tried reaching for the torch but could not see it. As the torch was still switched on, Liza suggested using a mirror to help him to locate the torch. He lowered a mirror into the drain and placed it at position X.



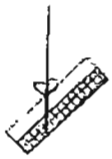


At which angle should the mirror be placed in order to see where the torch was?

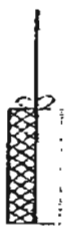
(1)



(2)



(3)



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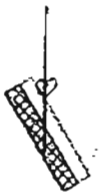


16. Devi and her friends wanted to use a datalogger to conduct a Science experiment. They decided to place the light sensor in the Science Room on the teacher's desk which was facing the direction of the window. The table below shows the data they had collected to show how the intensity of light changed with time.

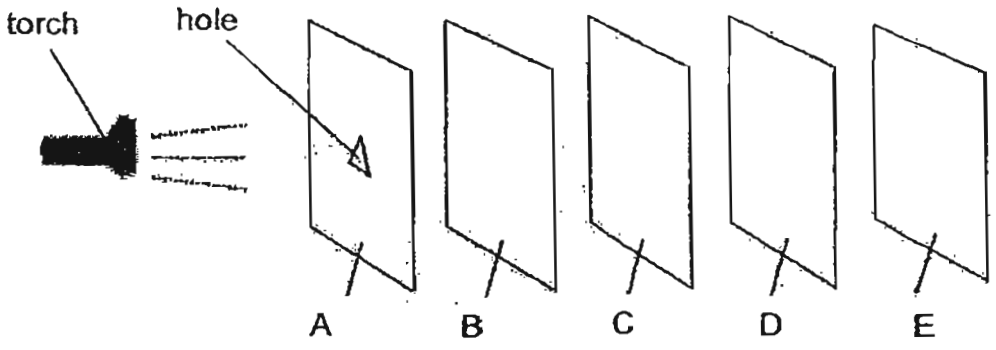
Time (minutes)	Light intensity (Lux)
0	250
1	252
2	255
3	674
4	689
5	691

Which of the following statement(s) is/are possible explanation(s) for the sudden change in the light intensity after 2 minutes?

A A light was turned on.
B A light was turned off.
C The curtains at the windows were closed fully.
D A laser beam was shone at the sensor.

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

17. A group of Primary Four pupils carried out an experiment in a dark laboratory as shown below.

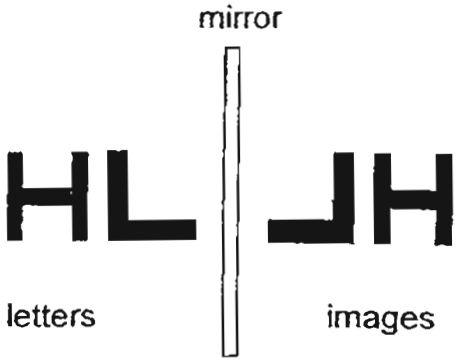


They arranged the torch and materials A, B, C, D and E in a straight line. When a pupil switched on the torch, a bright triangular light was seen on material D only.

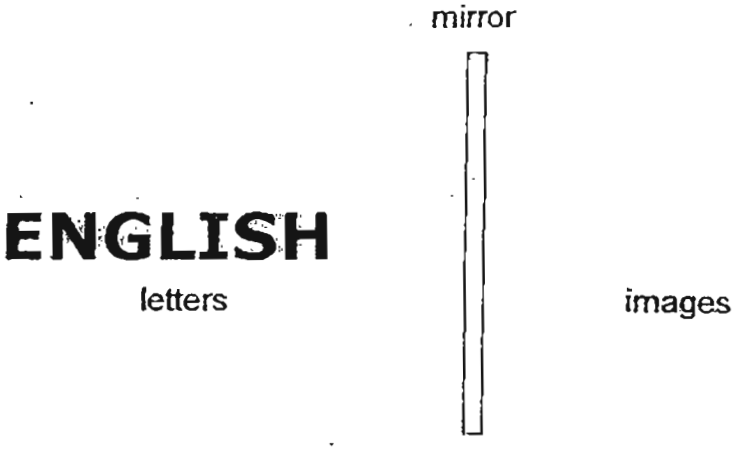
Which one of the following correctly describes the properties of the materials A, B, C, D and E?

	Materials which allow light to pass through	**Materials which do not allow light to pass through**	**Not possible to tell if the material allows light to pass through**
(1)	B and D	A and E	C
(2)	A and C	B and E	D
(3)	B and C	A and D	E
(4)	A and B	C and D	E

18. Pat looked into the reflections of the letters "H" and "L" in the mirror and saw that the image of letter "L" had been laterally inverted but not that of "H" as shown in the drawing below.



Pat then placed the word 'ENGLISH' before a mirror.



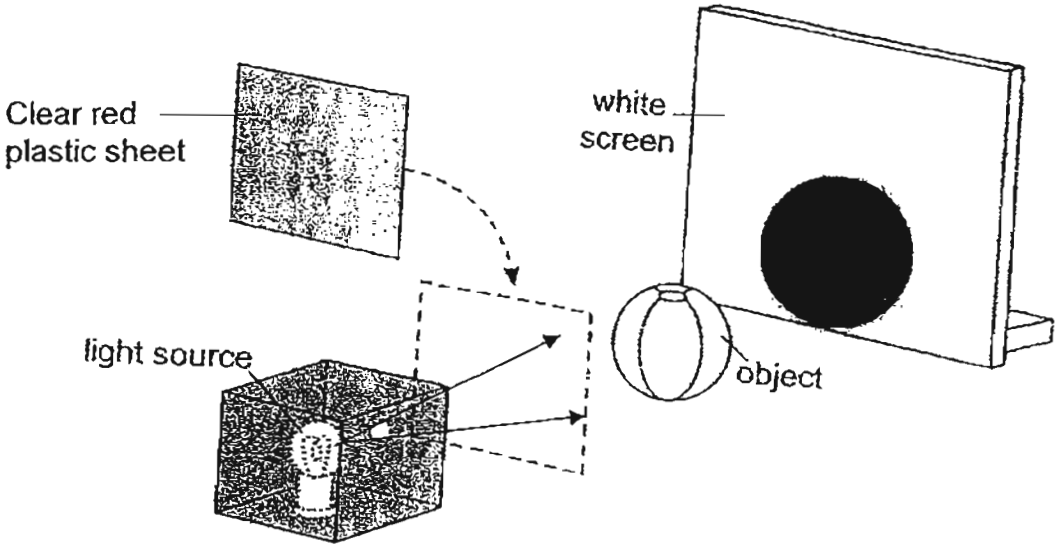
How many letters would be laterally inverted in the reflection of the word?

(1) 3 (2) 4
(3) 5 (4) 6

19. The shape of a shadow always takes after the _____ of an object.

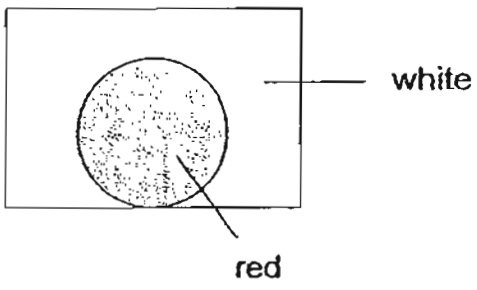
(1) size
(2) outline
(3) colour
(4) texture

20. When an object was placed between the light source and the white screen, a shadow was seen on the white screen as shown below.

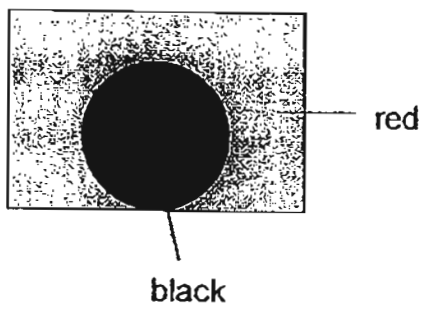


If a clear red plastic sheet was placed in front of the light source, what would be observed on the white screen?

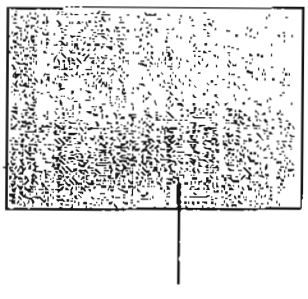
(1)



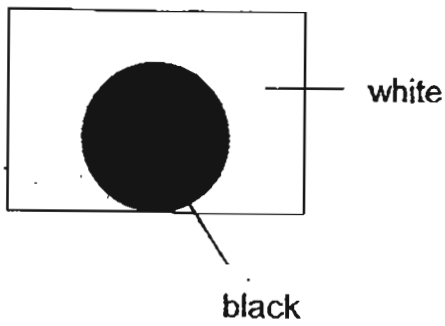
(2)



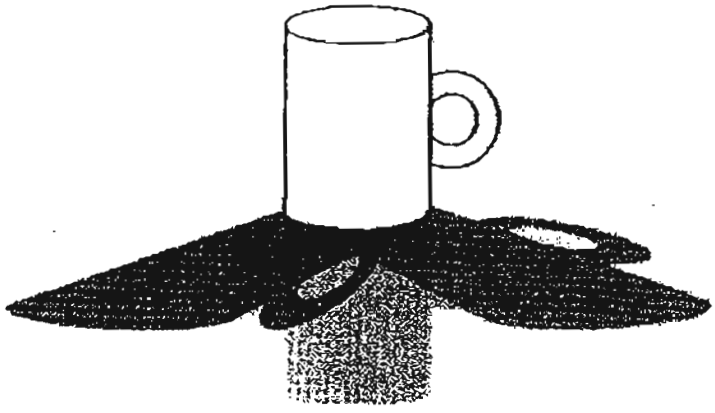
(3)



(4)



21. The diagram below shows a mug and its shadows.

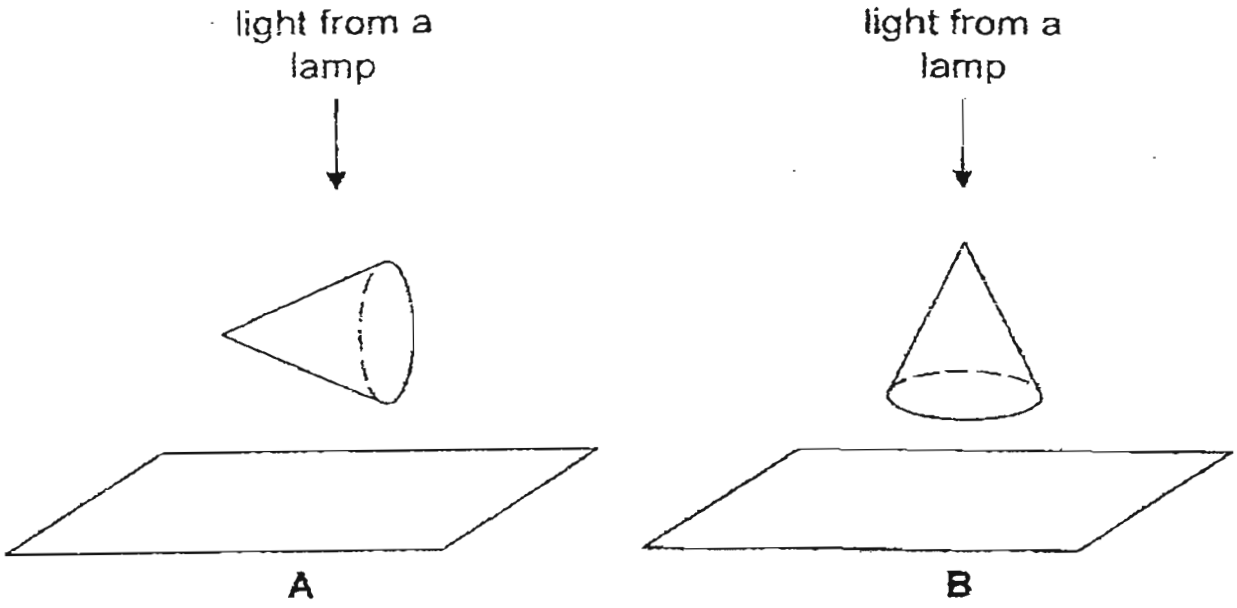


Based on the above diagram, which of the following statement(s) is/are true about how the shadows are formed?

A There are three sources of light.
B The mug is directly below a lighted lamp.
C The distances between the mug and the light sources are the same.

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

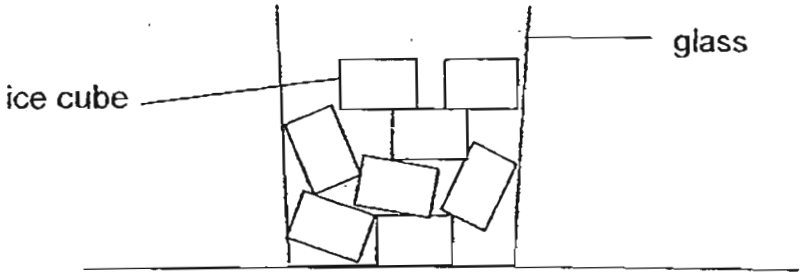
22. Julian planned to study the shadows formed by two identical cardboard cones. The cones were placed in different positions directly under identical light sources in a dark room. Shadows were formed on screens A and B as shown below.



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

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

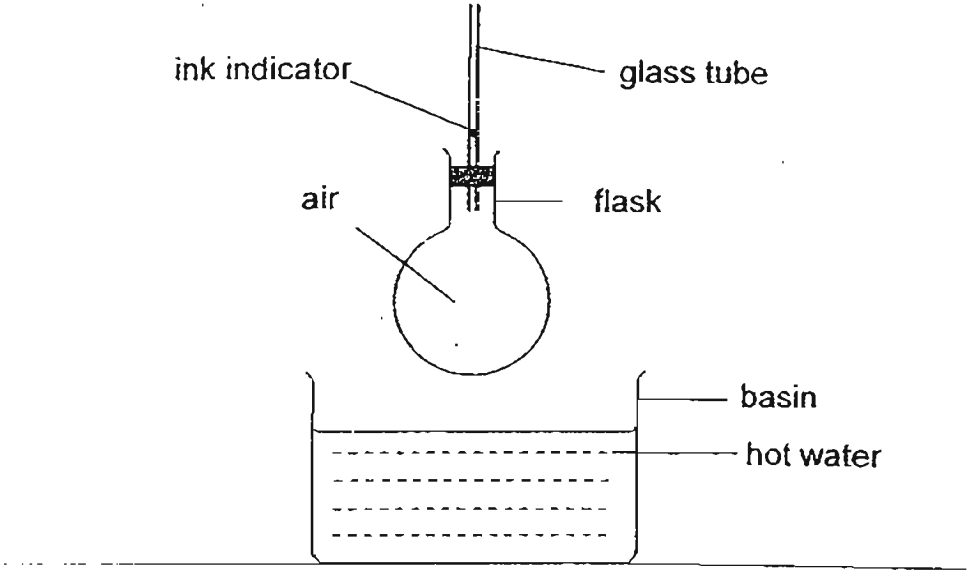
23. Jane took out a glass of ice cubes from the freezer and left it on the table top. After a while, she observed that some of the ice cubes had melted.



Which one of the following best describes the heat transfer between the ice cubes and the surroundings?

	Heat gain	**Heat loss**
(1)	Ice cubes	Surroundings
(2)	Surroundings	Ice cubes
(3)	Surroundings	Glass
(4)	Glass	Ice cubes

24. The diagram below shows a flask and a basin of hot water. The flask is lowered into the hot water and it is observed that the ink indicator drops slightly first before it starts to rise.



Which one of the following statements best explains the observation?

(1) The air expands and then contracts.
(2) The flask expands and then contracts.
(3) The flask expands before the air expands.
(4) The air expands before the flask expands.

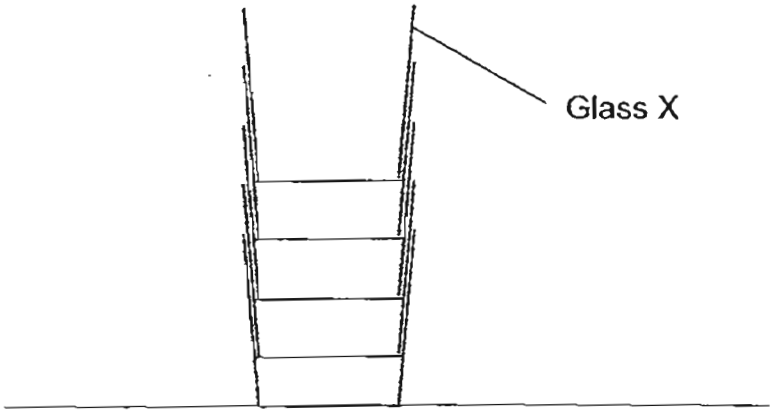
25. The following message is found on the label of a container of carbon dioxide gas.

Warning!
Container may explode if heated or exposed to flame.

Which one of the following options best describes the reason for the explosion of the container when it is heated?

(1) The gas inside the container expands to a very large extent when heated.
(2) The container expands more than the gas inside the container when heated.
(3) The gas inside the container contracts more than the container when heated.
(4) The container contracts more than the gas inside the container when heated.

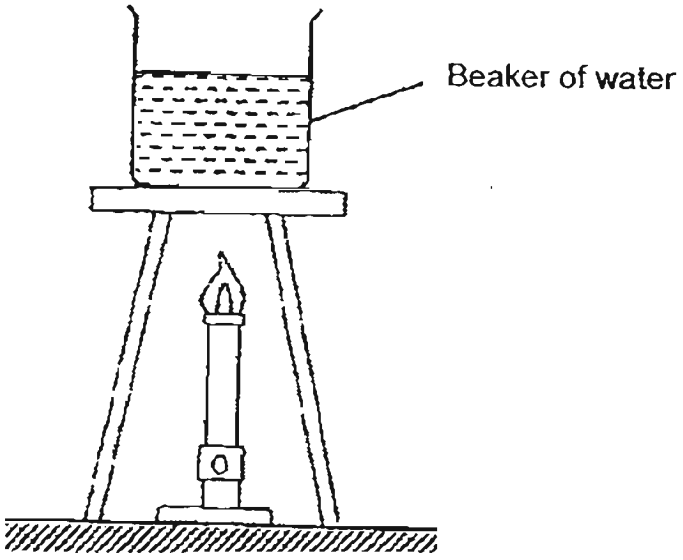
26. Mary noticed some glasses were tightly stacked on top of one another and she could not separate them.



What should Mary do in order to remove Glass X from the stack?

(1) Place the entire stack into a tub of cold water.
(2) Submerge the entire stack into a tub of hot water fully.
(3) Pour cold water into the glass X and place the stack into a tub of hot water.
(4) Pour hot water into the glass X and place the stack into a tub of cold water.

27. Jill conducted an experiment using the set-up shown below.



She recorded the time taken for the water to boil using beakers of different materials X, Y and Z. The data she collected was shown in the table below.

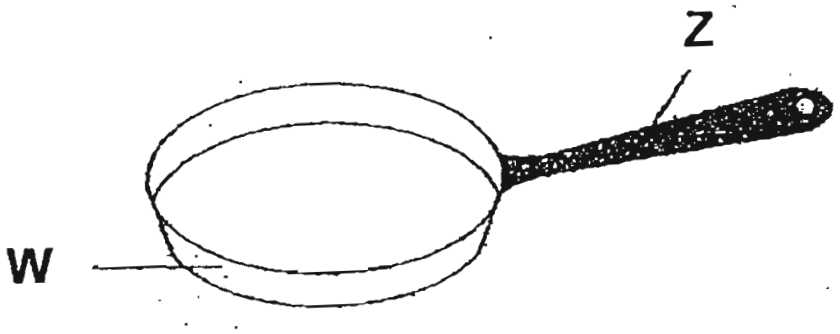
Material	Ability to conduct heat	Time taken for water to boil (min)
X	very good	10
Y	poor	10
Z	good	10

After the experiment, Jill realised that she had used different amount of water for all the set-ups.

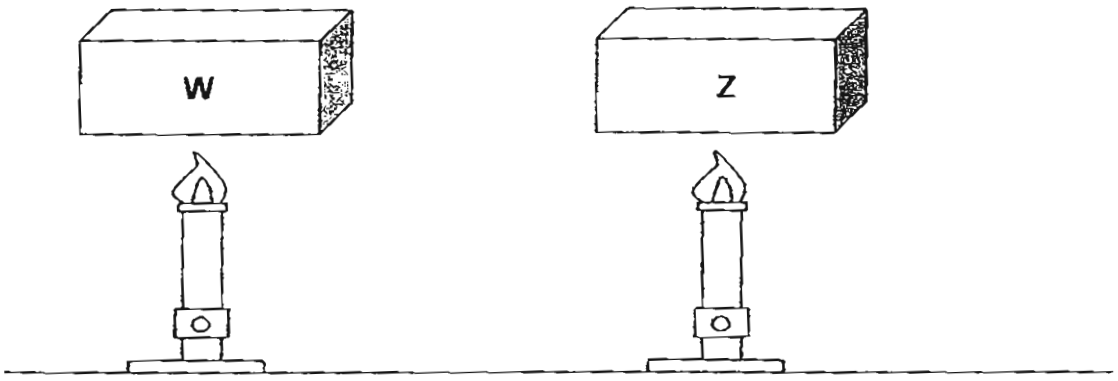
Which one of the following shows the possible volume of water used in each set-up?

	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

28. Jack conducted an experiment on two materials, W and Z. W was used to make the body of a saucepan while Z was used to make the handle.

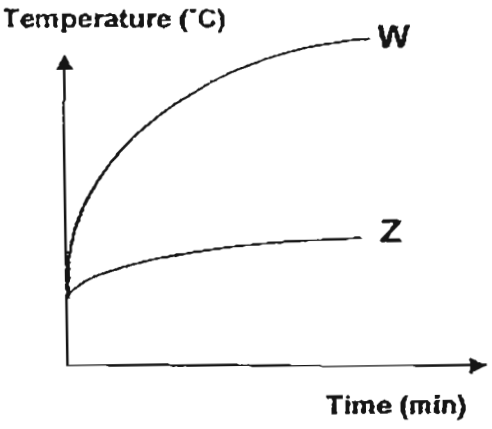


Identical blocks of materials, W and Z, were placed over a flame. He then recorded the temperature of the two materials over time and plotted the results into a graph.

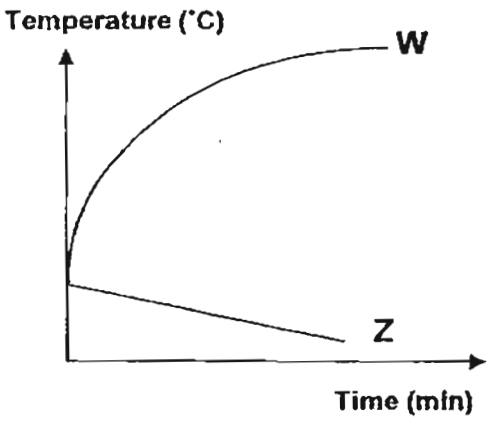


28. Which one of the following graphs best represents the temperature of materials W and Z?

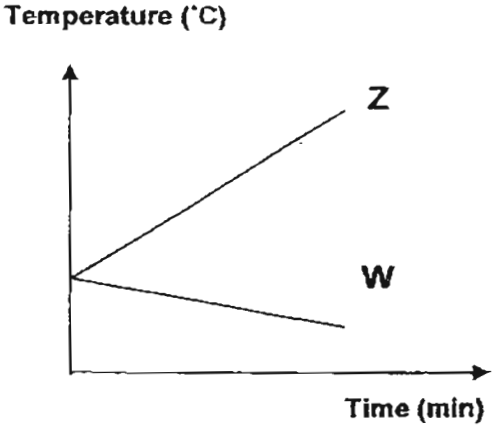
(1)



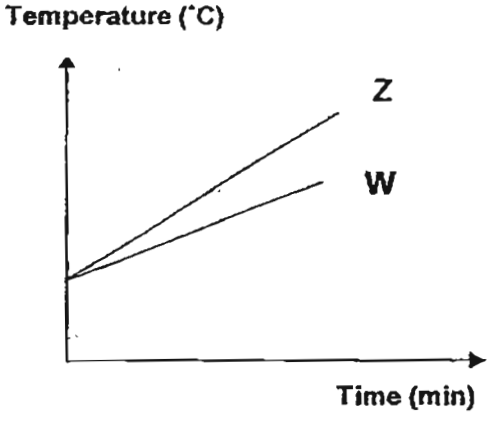
(2)



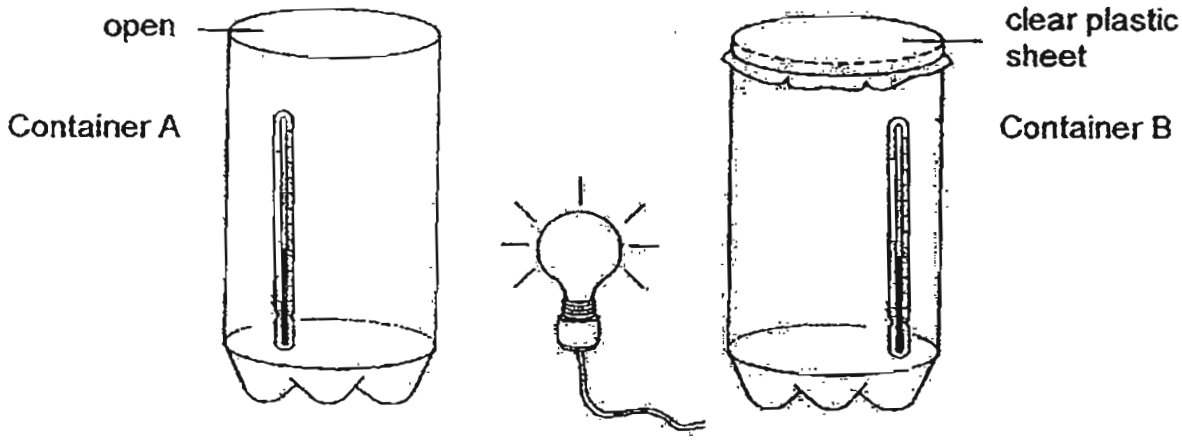
(3)



(4)



29. The diagram below shows a lamp placed at the same distance between two identical glass containers, A and B. Container A was left opened while Container B was covered with a clear plastic sheet. After one hour, it was discovered that the temperature inside Container B was higher than the temperature inside Container A.



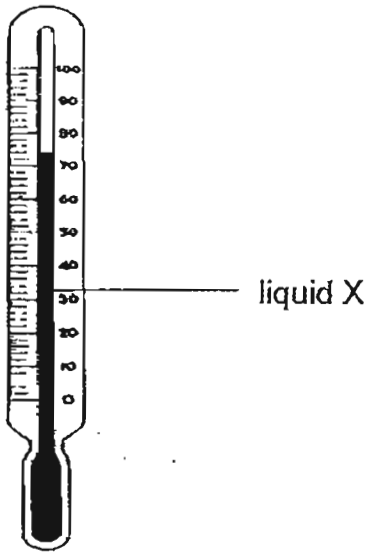
Start of the experiment

Which of the following statement(s) best explains why the temperature inside Container B was higher than the temperature inside Container A?

A The plastic sheet attracted heat to Container B.
B Container A was placed further from the light source.
C The plastic sheet trapped the heated air inside Container B.

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

30. The apparatus shown below is used to measure temperature.



Which one of the following properties of liquid X allows us to measure temperature?

(1) X has mass.
(2) X floats on water.
(3) X has a definite volume.
(4) X expands when heated and contracts when cooled.

南洋小学

NANYANG PRIMARY SCHOOL

PRIMARY FOUR SCIENCE

SEMESTRAL ASSESSMENT 2

2011

BOOKLET B

Date : 2 Nov 2011

Duration : 1 h 45 min

Name : _____ _____ **( )**

Class: Primary _____ **( )**

Marks Scored:

Booklet A:		**60**
Booklet B :		**40**
Total :		**100**

Parent's signature: _____

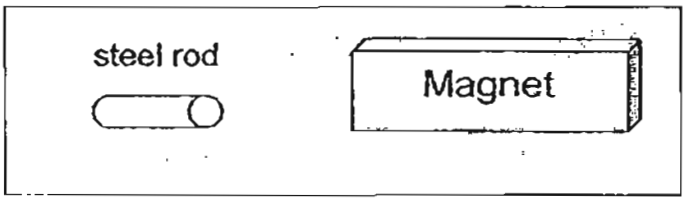
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Booklet B consists of 17 printed pages including this cover page.

Section B (40 marks)

Write your answers to questions 31 to 44 in the space provided.
Marks will be deducted for misspelt key words.

31. Sui Choon places a magnet near an steel rod. The steel rod moves towards the magnet.



(a) The magnet exerts a _____ on the steel rod. [1]

(b) Choose the correct word from the box to answer the question below. [1]

hard	magnetic	strong

Sui Choon's observation shows that steel is a _____ material.

32. Choose the correct words from the box to answer the questions below.

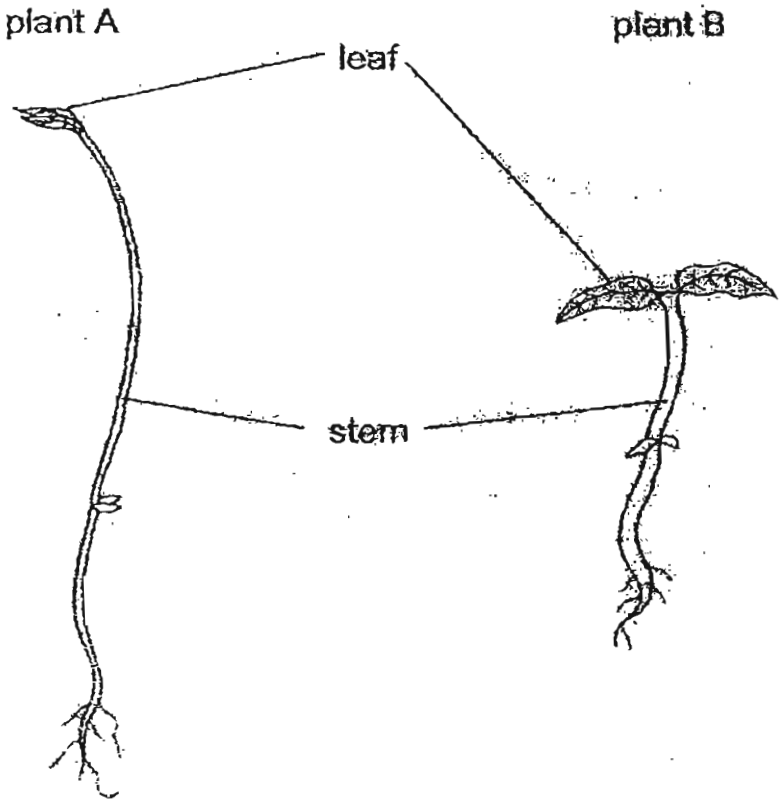
gullet	large intestine	mouth	stomach	small intestine

In a human digestive system, name the part where

(a) digestion first takes place : _____ [1]

(b) digestion is completed : _____ [1]

33. The diagram below shows two plants.

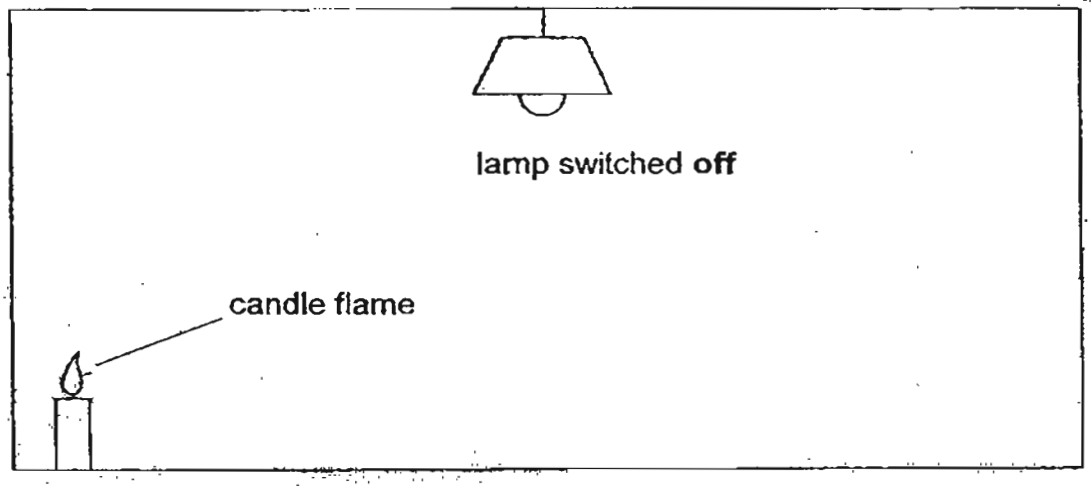


(a) What is one difference between the stem of plant A and the stem of plant B? [1]

The stem of plant A is _____ than the stem of plant B.

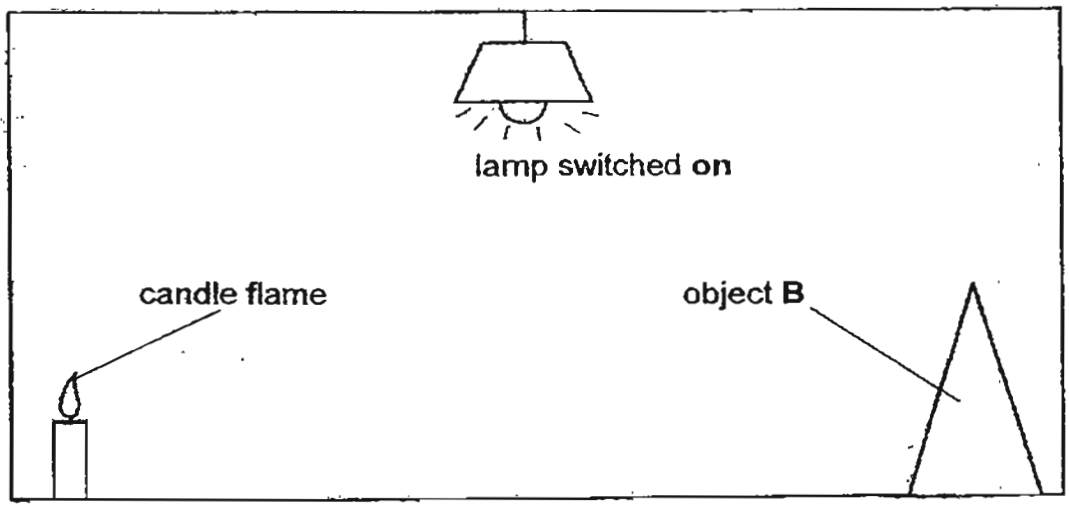
(b) The leaves help both plants make _____ in the light. [1]

34. Bala sees **only** a candle flame at the corner when he enters a completely dark room.



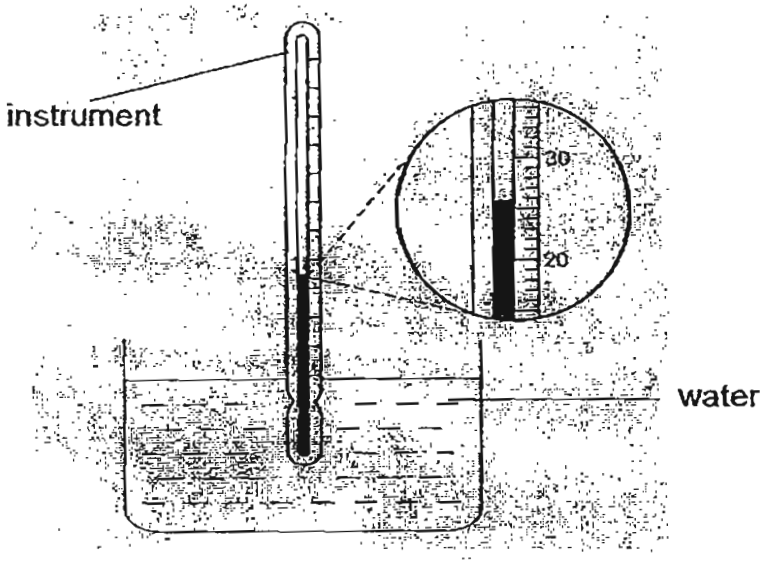
(a) Bala can see the candle flame because it _____ light. [1]

When he switches on the light in the room, he sees both the candle flame and object **B**.



(b) Bala can see object **B** because it _____ light from the lamp. [1]

35. Naomi used an instrument to measure the temperature of water in a glass.



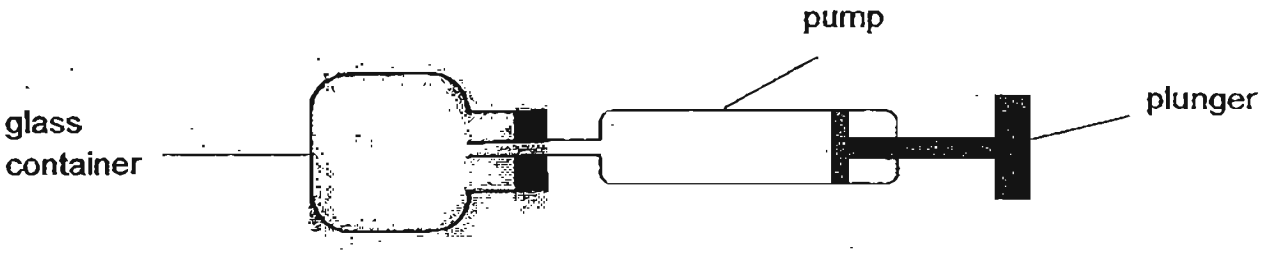
(a) What is the instrument called? [1]

_____

(b) What is the temperature of the water in the glass? [1]

_____ °C

36. In an experiment, Zach fitted a pump to a glass container with a capacity of 100 cm^3. Each time he pressed the plunger, 100cm^3 of air would enter the glass container. The plunger was pressed 3 times. Zach collected the data in a table as shown below.



Number of pumps of air	Volume of air in glass container (cm^3)
First	100
Second	
Third	

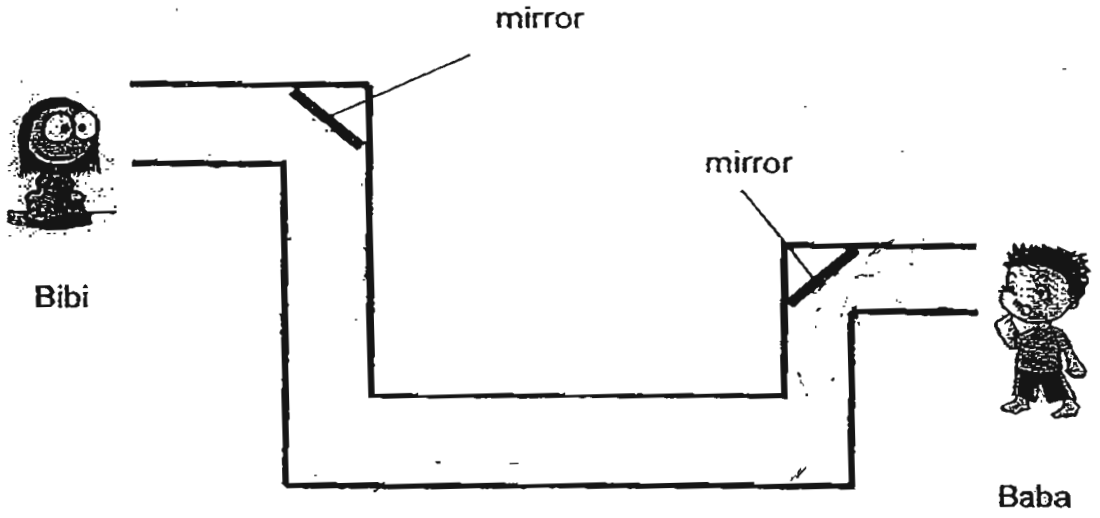
(a) Fill in the volumes of air in the glass container for the second and third pumps in the table above. [1]

(b) Give a reason for your answers in (a). [1]

_____

_____

37. Bibi and Baba are at the opposite ends of a maze.



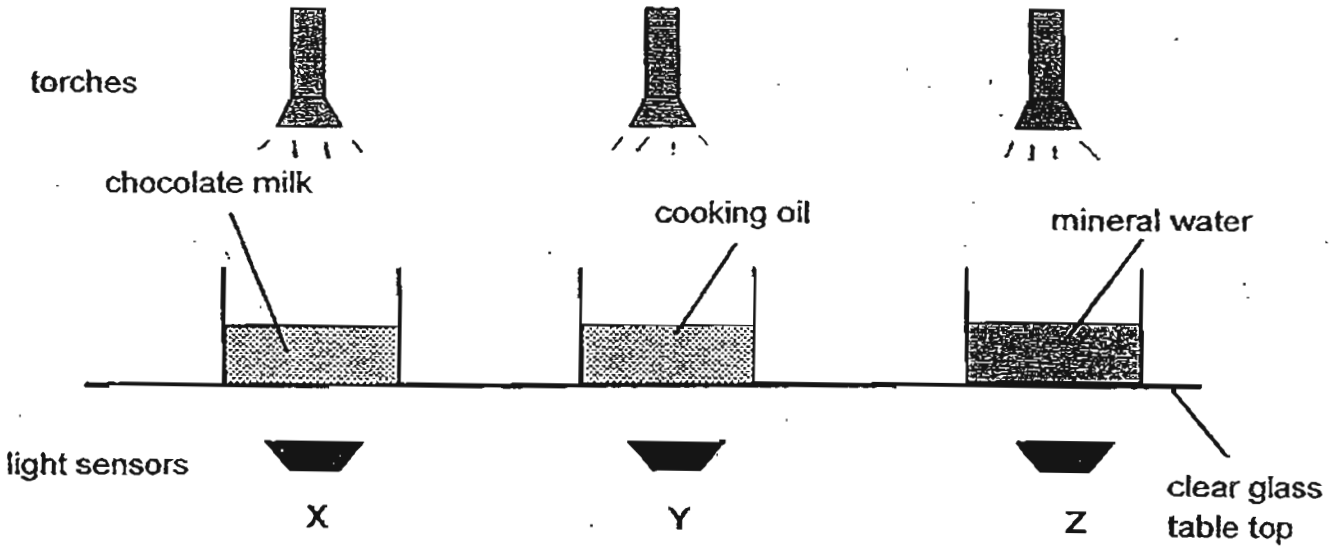
(a) Draw 2 more mirrors in the maze in order for Baba to see Bibi. [1]

(b) Using a pencil, complete the light path from Bibi to Baba using **lines and arrows**. [2]

(c) State one property of light which enables a periscope to function. [1]

_____

38. The experimental set-up below was prepared by Dora, Jen and Bob. They were carrying out an experiment in a dark room.



They used light sensors X, Y and Z to measure the light that passes through each of the three liquids. The results were recorded in a table as shown below.

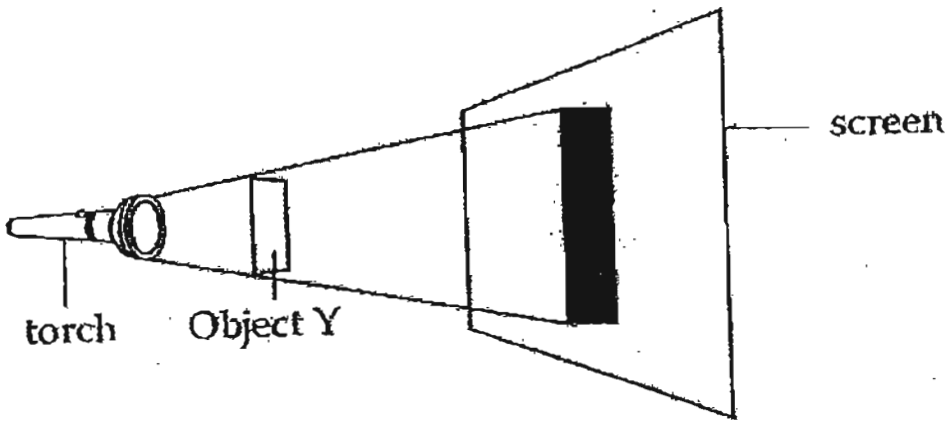
Number of times	Light intensity (Lux)		
	X	Y	Z
First	60	130	221
Second	63	133	223
Third	62	131	221
Fourth	61	132	222

38. (a) State the aim of the experiment. [1]

(b) Identify **two** variables which must be kept constant in this experiment. [2]

(c) Explain why the experiment was conducted four times for each type of liquid. [1]

39. Jun Xi placed a rectangular Object Y in front of a torch. When the torch was turned on, a shadow was seen on the screen.



(a) What would happen to the size of the shadow if Object Y was moved further away from the screen? [1]

_____

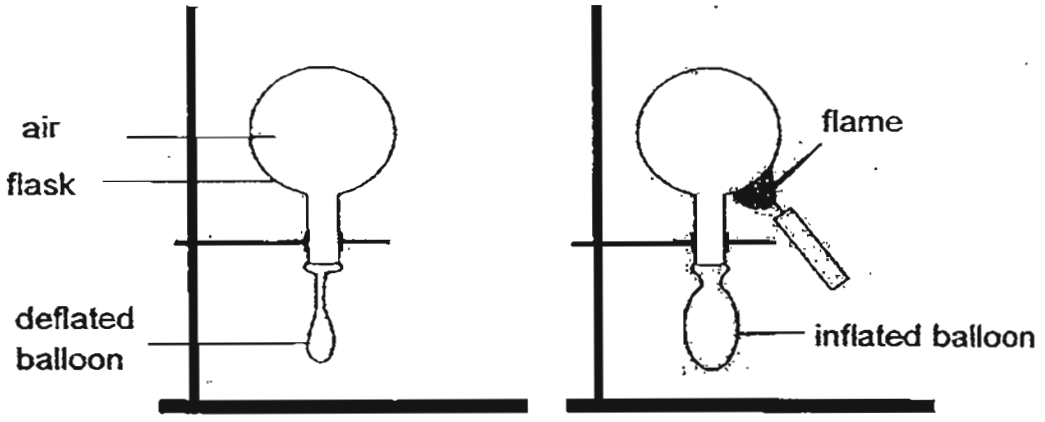
_____

(b) Jun Xi said that Object Y was a clear glass sheet. Do you agree with him? Give a reason for your answer. [2]

_____

_____

40. Study the experiment shown in the following diagram.



Before flask was heated **After flask was heated**

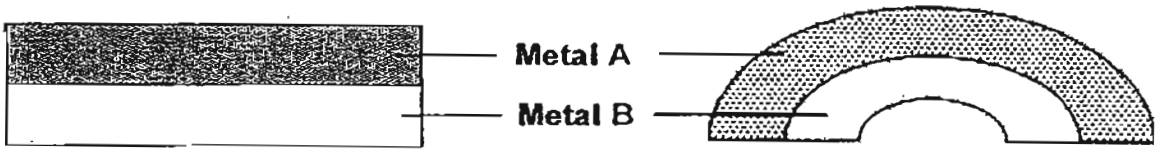
(a) What does this experiment show about the property of air? [1]

Joan had a ping-pong ball. She accidentally dented it when she pressed it strongly between her fingers. There was no crack or hole on the ball.

(b) State a method which Joan could use to return the ping-pong ball to its original shape without squeezing it? [1]

(c) Explain how your method in (b) works. [1]

41. Jim was going to make a fire alarm for his Science project. The fire alarm made use of a bimetallic strip which was made of two pieces of metal strips screwed tightly together. He heated the bimetallic strip and observed it curved downwards after a while.



Before heating **After heating**

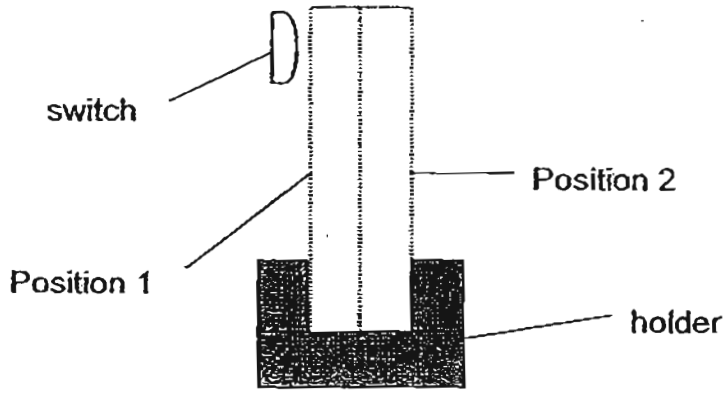
(a) Why did the bimetallic strip curve downwards? [1]

Jim disassembled the bimetallic strip when it was cooled and heated each strip separately. He then measured the length of each strip at 25°C and 40°C and recorded the results in the table below.

(b) Fill in the table below to identify the two metals, A and B. [1]

Metal	Length of metal when the temperature is at 25°C (cm)	Length of metal when the temperature is at 40°C (cm)
( )	4.0	4.1
( )	4.0	4.5

41.



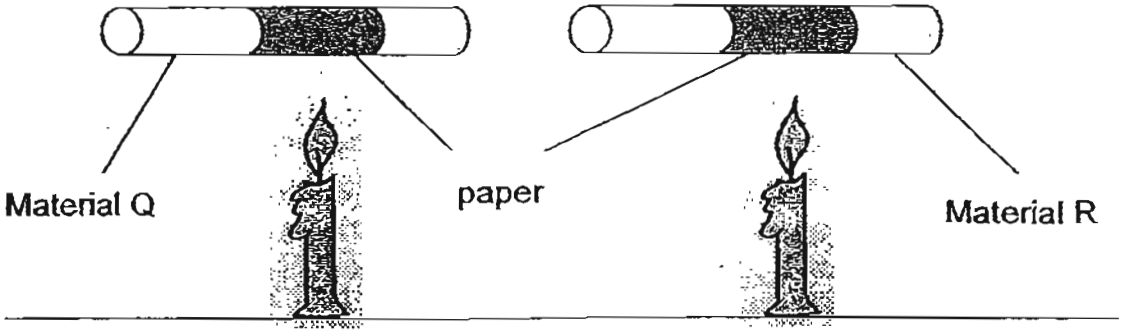
(c) The above diagram shows how the two metal strips, A and B, are used in Jim's fire alarm. When the piece of two metal strips is heated, it will bend and touch the switch. This will then trigger the fire alarm. Jim wanted to fit the two metal strips into the holder but he had forgotten their position. Based on his earlier observation, how should Jim place the metal strip? [1]

Position 1 – Metal ☐

Position 2 – Metal ☐

(d) Jim tried to replace the two strips of metal with one single piece of material. Will it still work? Explain your answer. [1]

42. In the diagram below, two rods each made of two different materials, Q and R, were placed above a candle flame. A piece of paper was wrapped around each rod and was positioned above each flame. The temperature at the two ends of each rod was recorded in the table below.



Time (min)	Temperature of Material Q (°C)	Temperature of Material R (°C)
0 (Start)	28	28
10	34	37
20	41	48

(a) Between the two materials, Q and R, which was a better conductor of heat? Explain your choice. [2]

_____

_____

It was observed that the paper wrapped around the rod made of material Q was scorched (lightly burnt) more quickly than the paper that was wrapped around the rod made of material R.

(b) Explain why the paper wrapped around the rod made of material Q scorched more quickly. [1]

_____

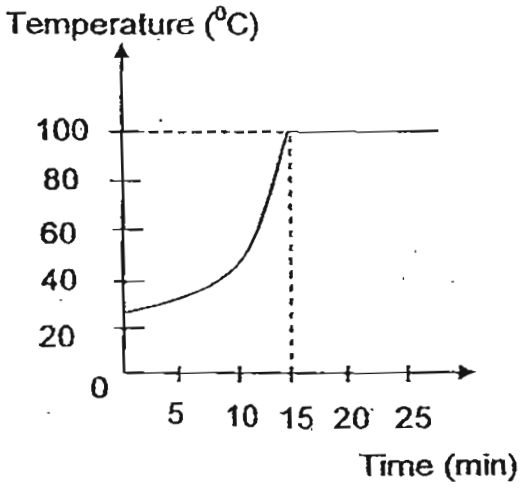
_____

(c) Explain why the paper wrapped around the rod made of material R did not scorch quickly. [1]

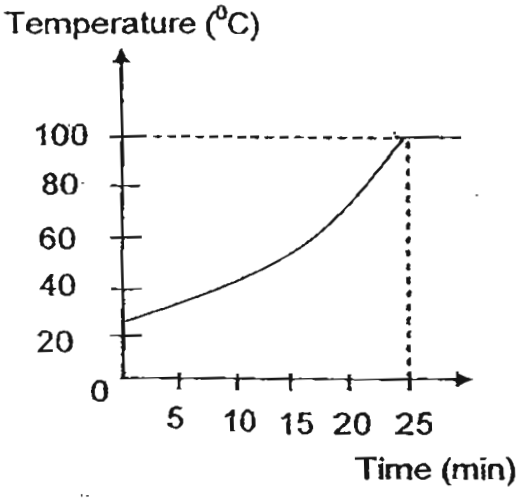
_____

_____

43. Two identical beakers of water were heated using the same bunsen burner. The temperature of water in each beaker was recorded over a period of 25 minutes and shown in the graphs below.



Beaker A



Beaker B

(a) How much longer did the water in Beaker B take to boil as compared to the water in Beaker A? [1]

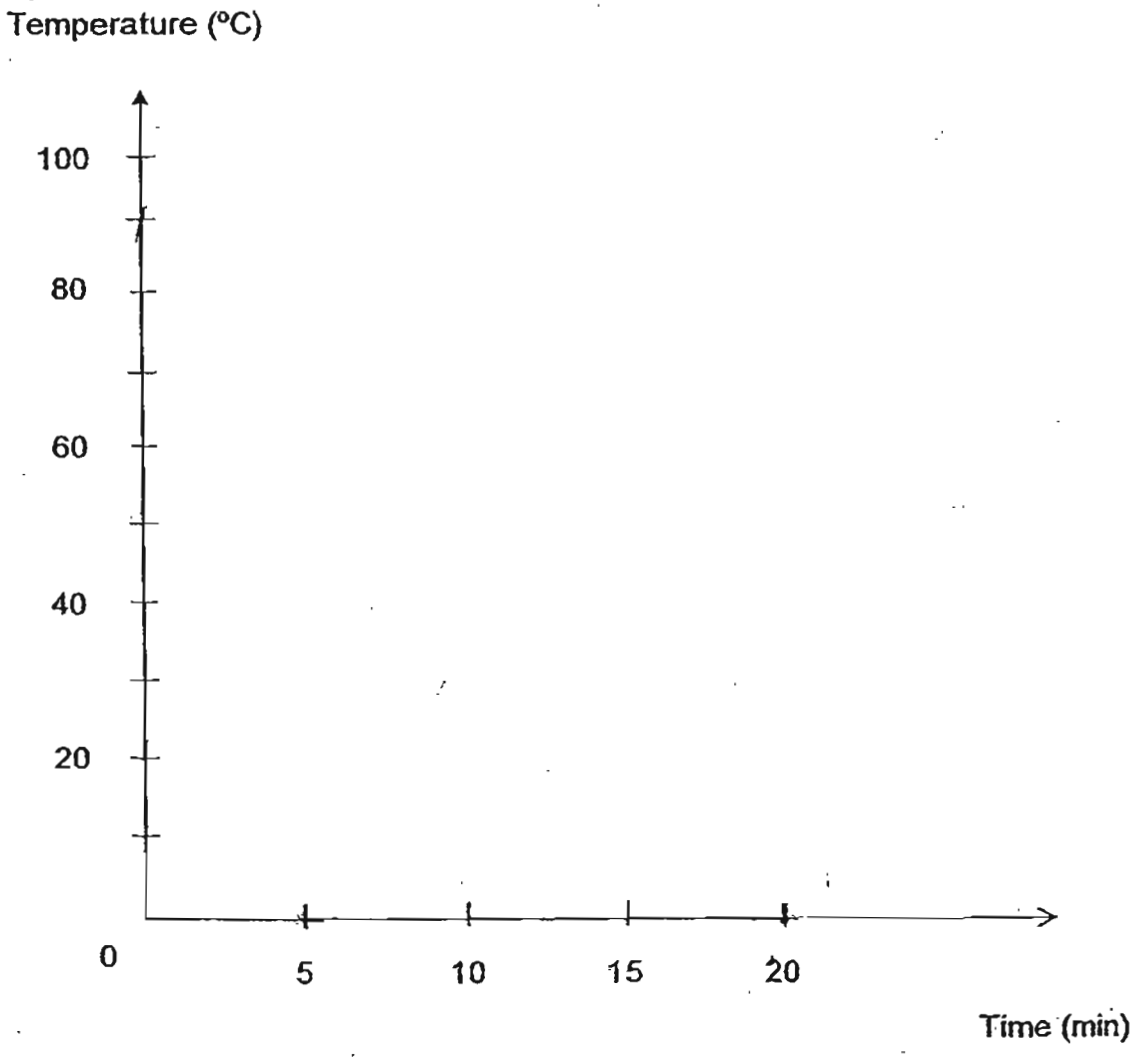
_____

(b) Give one possible explanation why the water in Beaker B took a longer time to boil. [1]

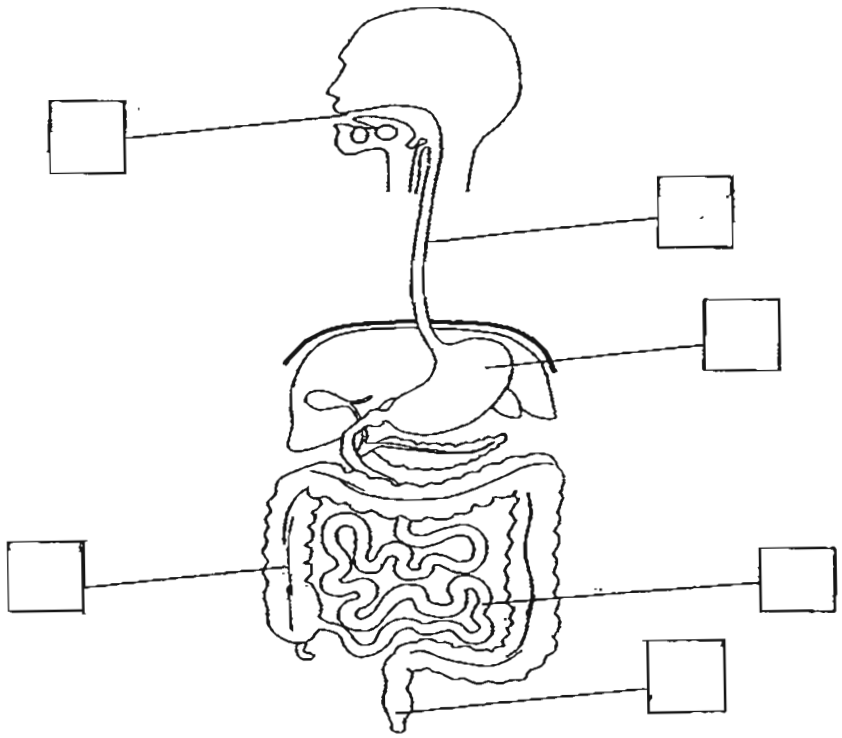
_____

_____

43. (c) A beaker of ice at 0° C was taken out from the freezer and heated. The ice melted completely after 5 minutes and the water started to boil 15 minutes later. A part of the graph that shows the first five minutes has been drawn for you below. Complete the rest of the graph, **using ruler and pencil,** to show the change in the temperature of water for the whole experiment. [2]



44. The diagram below shows the human digestive system.



Indicate on the diagram by marking 'X' in the correct boxes where no digestion takes place. [2]

Setters: Mrs Nancy Lum
Mrs Ng Yee Ping
Mr Yeong Hoong Munn

Answer Ke

EXAM PAPER 2011

SCHOOL : NANYANG
SUBJECT : PRIMARY 4 SCIENCE

TERM : SA2

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

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

31)a)force b)magnetic

32a)mouth b)small intestine

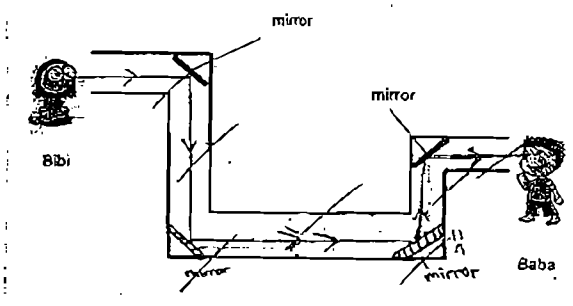
33)a)thinner b)food

34)a)gives out b)reflects

35)a)thermometer b)26℃

36)a)100, 100 b)Gas can be compressed

37)a)b)



c)Light travels in a straight line.

38)a)To find out which liquid allows most light.
b)1)The height of the torch.
2)The amount of the liquid.
c)They repeated the experiment to obtain reliable results.

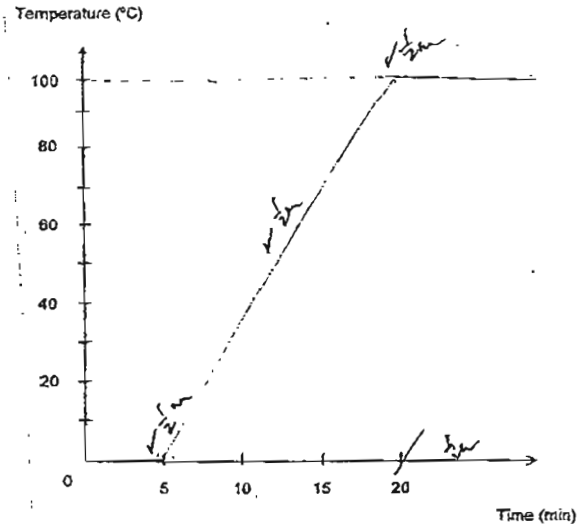
39)a)The size of the shadow will increase.
b)No, A clear glass sheet is transparent, Hence it will not cast a shadow on the screen.

40)a)Air expands when heated.
b)Joan should place the dented ping-pong ball into a basin of hot water.
c)The heat in the basin of hot water makes the air in the dented ping-pong ball to expand and pushes the dent out.

41)a)Metal expanded more then Metal B.
b)B, A
c)B, A
d)I will not work. When you heat one singe piece of material it will just expand and the material will not to torch the switch.

42)a)R. The temperature was higher than Material Q after heating.
b)The paper on Q gained heat from the flame and it would get hot easily.
c)R is a good conductor of heat, so Material R takes heat.

43)a)10 minutes.
b)It has more water than A.
c)



44)