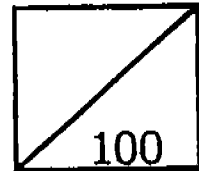




S A 2

**Rosyth School**  
**Second Semestral Assessment for 2005**  
**SCIENCE**  
**Primary 4**



Name: \_\_\_\_\_

Total  
Marks:

Class: P4- \_\_\_\_\_

Register No. \_\_\_\_\_

Duration: 1 h 30min

Date: 27<sup>th</sup> October 2005

Parent's Signature: \_\_\_\_\_

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## Booklet A

Instructions to Pupils:

1. Do not open the booklets until you are told to do so.
2. Follow all instructions carefully.
3. This paper consists of 2 Booklets A and B.
4. For questions 1 to 30 in Booklet A, shade the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.
5. For questions 31 to 46, give your answers in the spaces given in the Booklet B.

	Maximum	Marks Obtained
Booklet A	60 marks	
Booklet B	40 marks	
Total	100 marks	

\* These booklets consist of 31 pages altogether .

**Part I (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.**

1. What do solids, liquids and gases have in common?

- (1) All of them occupy space and have mass.
- (2) All of them occupy space but have no mass.
- (3) All of them have definite shape and definite volume.
- (4) All of them have definite volume but no definite shape.

( )

2. Study the table below carefully.

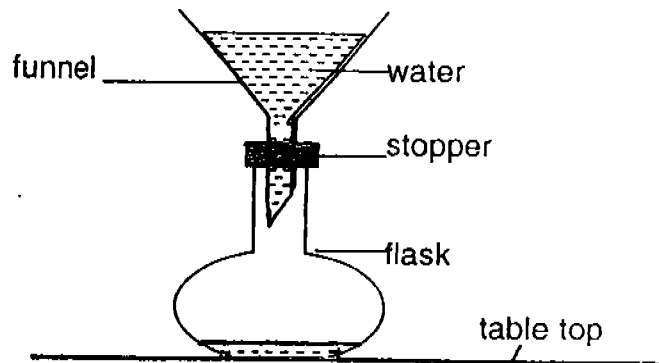
	Matter	State
<input checked="" type="checkbox"/>	Honey	Solid
<input type="checkbox"/>	Pebble	Solid
<input type="checkbox"/>	Cloud	Liquid
<input type="checkbox"/>	Ash	Gas
<input type="checkbox"/>	Snow	Liquid

Which of the following matters (A, B, C, D and E) have its state correctly identified?

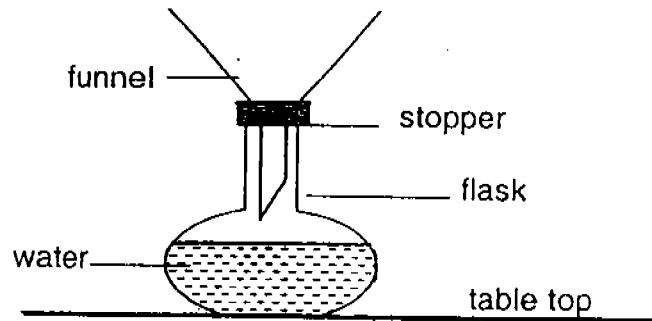
- (1) A and C only
- (2) B and C only
- (3) A, D and E only
- (4) B, C and E only

( )

3. John's teacher set up the experiment shown in the diagram below. When she poured some water into the funnel, a few droplets of water flowed into the flask while the rest of the water remained in the funnel.



John then set up a similar experiment. When he poured water into the funnel, all the water flowed into the flask as shown below.

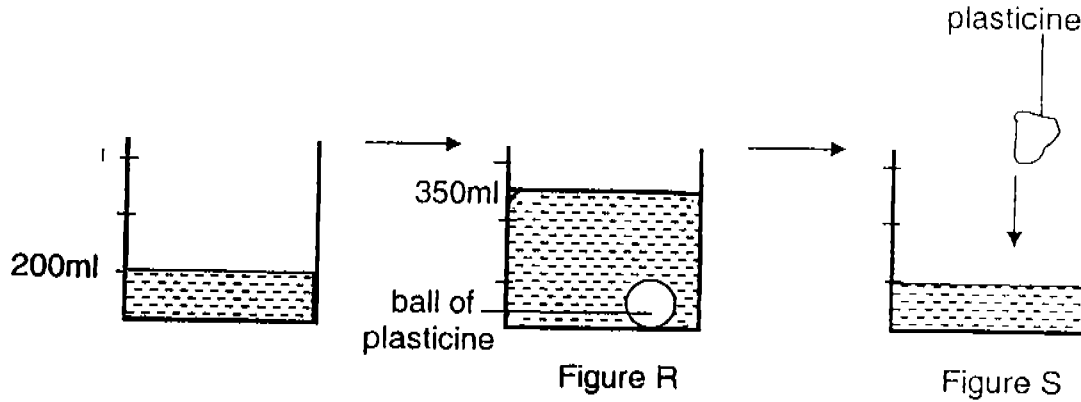


Which one of the following reasons could be the cause for his result to be different from that of his teacher?

- (1) He poured the water in quickly.
- (2) The water that John used was hot.
- (3) John had fixed the stopper loosely.
- (4) He did the experiment on a cooler day.

( )

4. A ball of plasticine was put into a beaker containing 200 ml of water. The water rose to the level 350 ml, as shown in Figure R.



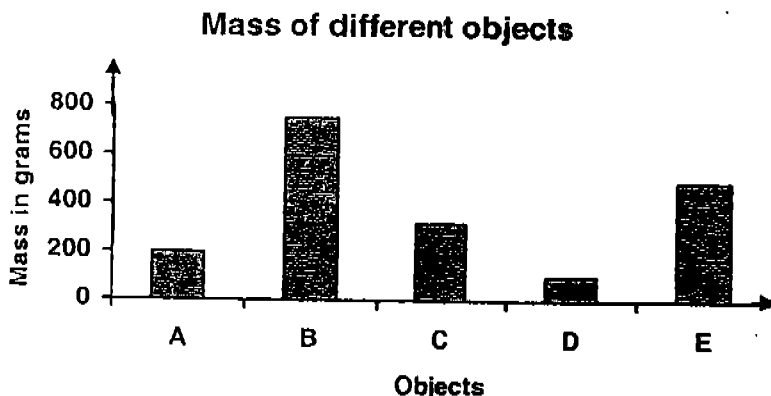
The plasticine was then taken and moulded into another shape. It was put back into the beaker as shown in Figure S.

What would the new water level be?

- (1) 300 ml  
(2) 350 ml  
(3) 450 ml  
(4) 500 ml

( )

5. Judy has five different objects A, B, C, D and E. She measured the mass of each object and plotted their masses in a bar graph.



Based on the graph, rank the five objects according to their masses in ascending order, starting with the lightest.

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

( )

6. Which one of the following is true about the difference between water and steam?

Water	Steam
Has different colours	Is white
Has a definite volume	Does not have a definite volume
Is in gaseous state	Is in liquid state
Takes the shape of its container	Does not take the shape of its container

( )

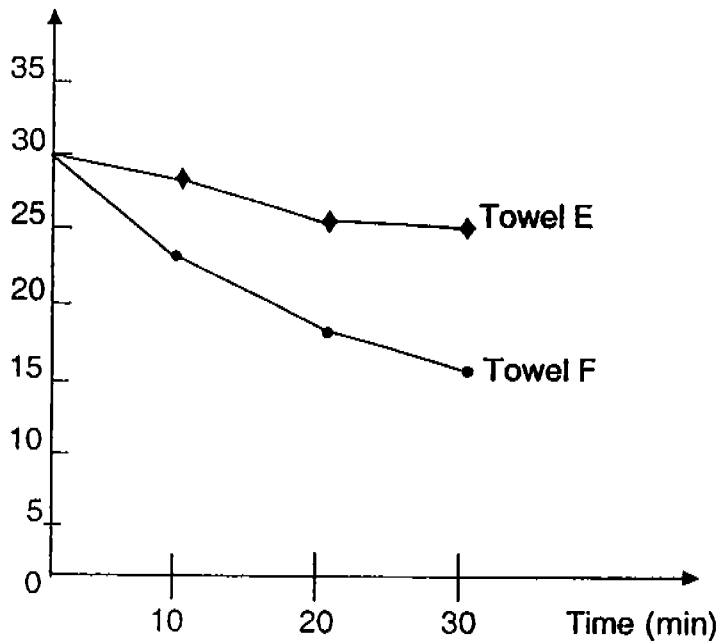
7. Which one of the following processes causes water to change from a state with no definite shape to a state with definite shape?

- (1) Melting
- (2) Freezing
- (3) Evaporation
- (4) Condensation

( )

8. Two identical wet towels, E and F, were hung outside a house to dry. The graph below shows the mass of the wet towels as they dried up.

Mass of  
Towel (g)



Based on the above results, what can you conclude from the experiment?

- (1) Both E and F were hung in the sun.
- (2) Both E and F were hung in the shade.
- (3) E was hung in the shade and F was hung in the sun.
- (4) E was hung in the sun and F was hung in the shade.

( )

9. Johan and Firzanah were playing a game. They were given an ice-cube each to see whose ice-cube would take a longer time to melt completely. Each child chose a container made of different materials to place their ice-cubes.

For their game to be a fair one, which of the following variables should they keep constant?

- A: The size of their ice cubes.  
 B: The material of containers in which they placed the ice-cubes.  
 C: The number of ice cubes.

- (1) A and B only
- (3) B and C only

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

( )

10. At which part of the respiratory system are dust and bacteria removed from the air we breathe in?

- (1) Nose  
 (2) Lungs  
 (3) Air sacs  
 (4) Windpipe

( )

11. Which of the following are produced during photosynthesis in plants?

- Sugar  
 Oxygen  
 Water vapour  
 Carbon dioxide

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

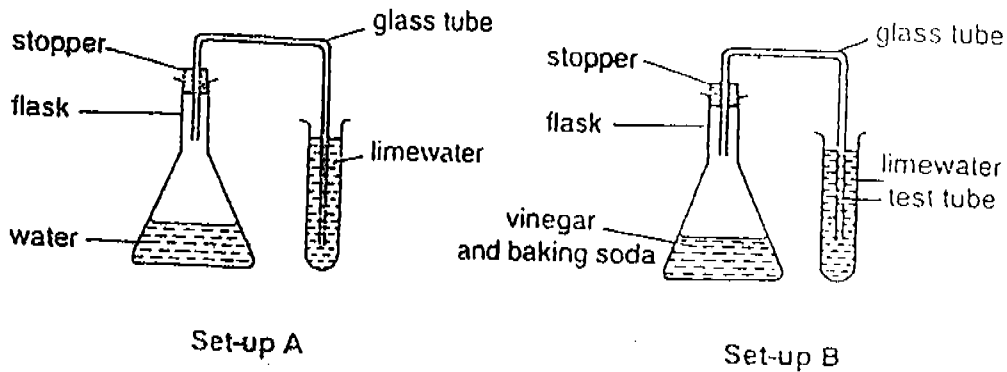
( )

12. Which pair of statements best describe what happens to our chest and diaphragm when we breathe in?

	Chest	Diaphragm
<input checked="" type="checkbox"/>	Moves upwards and outwards	Moves upwards
<input checked="" type="checkbox"/>	Moves upwards and outwards	Moves downwards
<input checked="" type="checkbox"/>	Moves downwards and outwards	Moves upwards
<input checked="" type="checkbox"/>	Moves downwards and outwards	Moves downwards

( )

13. Derick set up an experiment using two sets of apparatus as shown below.



He observed that there was no visible change in the limewater in set-up A while the limewater in set-up B turned chalky.

What can Derick conclude from his experiment?

- (1) Water contains carbon dioxide.
- (2) Water contains oxygen.
- (3) Baking soda and vinegar interact to produce oxygen.
- (4) Baking soda and vinegar interact to produce carbon dioxide.

( )

14. Which one of the following differences between the plant transport system and the human transport system is true?

	Human Transport System	Plant Transport System
<del>(A)</del>	Does not have tubes to transport materials	Has tubes that transport materials
<del>(B)</del>	Transports oxygen, digested food, carbon dioxide, water and other materials	Transports only water to other parts of the plant
<del>(C)</del>	Transports food that has been digested	Transports food produced by the leaves
<del>(D)</del>	Has lungs to pump blood through the blood vessels	Has veins to pump the materials through the tubes

( )



15. The table below shows the average pulse rate of Jerri as she grows older. Study the table and answer the following question.

Age (years)	1	10	18	30
Average pulse rate (beats/min)	110	90	?	70

What is the average pulse rate when Jerri was 18 years old?

- (1) 62 beats/min  
 (2) 82 beats/min  
 (3) 95 beats/min  
 (4) 120 beats/min

( )

16. Which of the following statements about the stomata are true?

- A Water enters the plant through the stomata.  
 B Water vapour escapes through the stomata.  
 C Stomata allow the exchange of the gases in the plant.  
 D Stomata transport food made in the leaves to the other parts of the plant.

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

( )

17. Four pots of balsam plants are placed under different conditions as shown in the table below.

Plants	Conditions			
	Air	Sunlight	Water	Fertilizers
A	No	Yes	Yes	Yes
B	Yes	No	Yes	Yes
C	Yes	Yes	No	Yes
D	Yes	Yes	Yes	No

Which of the plants will die after a week?

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

( )

18. Which one of the following is/ are source(s) of energy?

- A Food
- B Wind
- C Petrol
- D Charcoal

(1) A only

(3) A, B and C only

(2) B and C only

(4) A, B, C and D

( )

19. Which of the following statements explain why the sun is an important source of energy for living things on earth?

- A) Energy from the sun keeps all living things warm.
- B) Energy from the sun enables animals to see things around them.
- C) Without energy from the sun, green plants cannot make food.

(1) A and B only

(3) B and C only

(2) A and C only

(4) A, B and C

( )

Refer to the table below to answer questions 20 and 21.

People of Different Age Groups	Estimated amount of energy required daily (kcal/ day)
children 1 year	30
children 2- 3 years	60
children 5 - 7 years	75
girls 12 – 15 years	95
boys 12 – 15 years	120
Adult women 21 -30 years	130
Adult men 21 -30 years	150

20. What can you deduce from the information given in the table above?

- (1) A boy uses less energy than a girl in one day.
- (2) A younger child requires more energy than an older child.
- (3) Females usually need less energy than males of the same age.
- (4) Adult men and women require same amount of energy in one day.

( )

21. Four pupils were asked to write a statement each to describe the relationship between age of the person and the amount of energy required by the person in a day. The pupils wrote the following sentences.

Ashley: A boy needs more energy than a girl.

Brian: When the person is young, he needs less energy.

Cedric: The older the person is, the greater is the amount of energy required by the person in a day.

Donovan: The more active the person, the greater is the amount of energy required by the person in a day.

Read the four sentences above carefully and pick the pupil who wrote the most accurate statement to describe the relationship.

(1) Ashley

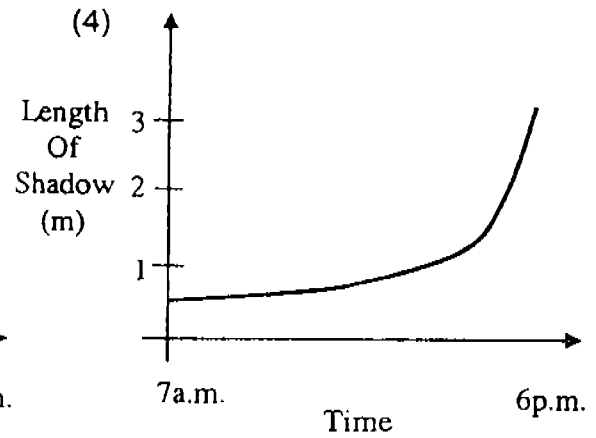
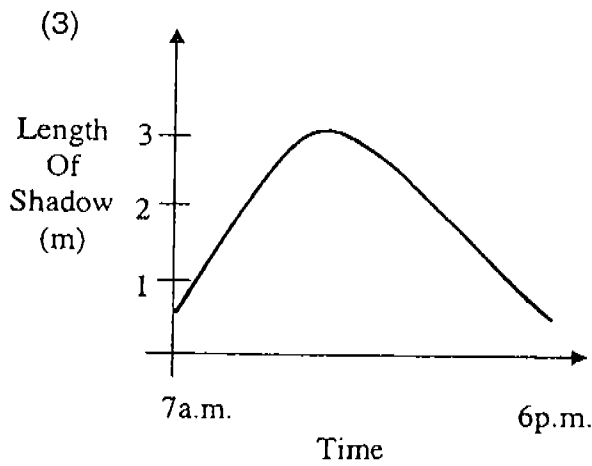
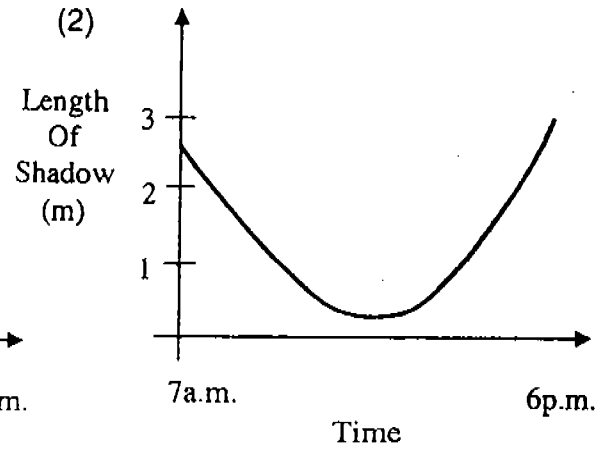
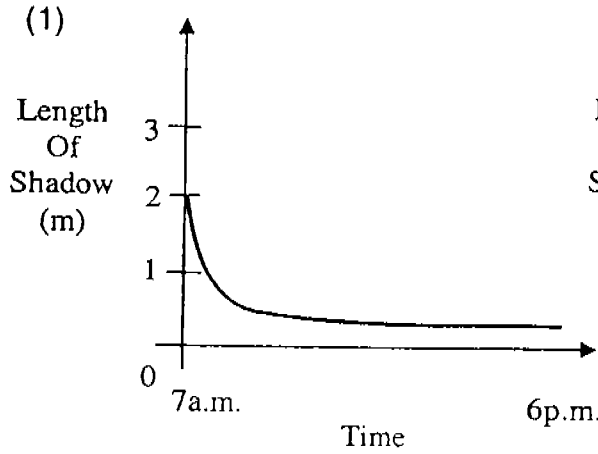
(2) Brian

(3) Cedric

(4) Donovan

( )

22. Study the 4 graphs below.  
Which one of the following graphs shows the length of Gou Wei's shadow from 7 a.m. to 6 p.m. on a certain day?



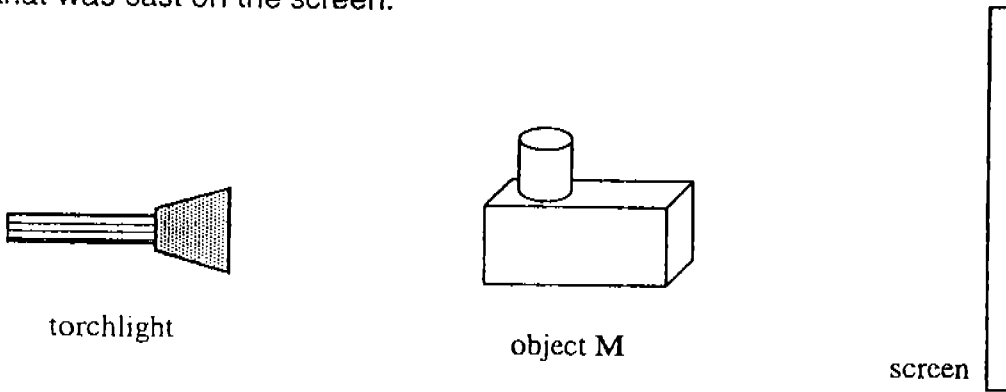
( )

23. Which one of the following objects does not allow you to see through it?

- (1) A piece of tracing paper.
- (2) A piece of aluminum foil.
- (3) A piece of thin white cloth.
- (4) A piece of clear coloured glass

( )

24. John shone the torch on object M as shown below. He drew the shadow that was cast on the screen.

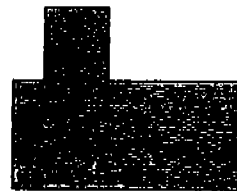


Which one of the following shows the correct shadow of object M?

(1)



(2)



(3)



(4)



( )

25. Pei Ying wanted to use a short metal spoon to stir a cup of hot milo. Her mother advised her to use a longer metal spoon. Why do you think her mother recommended a longer metal spoon?

- (1) A longer metal spoon does not melt easily.
- (2) A longer metal spoon is heavier than a shorter metal one.
- (3) When a longer metal spoon is used, the heat from the hot milo takes a longer time to reach Pei Ying's fingers.
- (4) When a longer metal spoon is used, the heat from the hot milo takes a shorter time to reach Pei Ying's fingers.

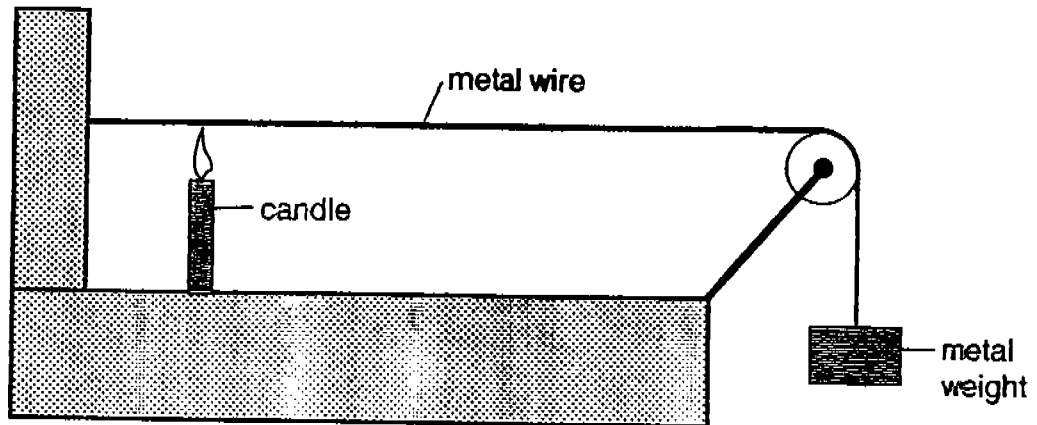
( )

26. The pupils of Primary 4A of Rosyth School explored different places in their school and measured the temperatures. Which one of the following is most likely to be the result of their exploration?

	Garden	Science Room	Corridor
(1)	30°C	35°C	33°C
(2)	33°C	35°C	30°C
(3)	35°C	30°C	33°C
(4)	30°C	33°C	35°C

( )

27. Study the diagram below carefully.  
A piece of metal wire was stretched tight by a metal weight. A candle was lit at the position shown in the diagram for some time.



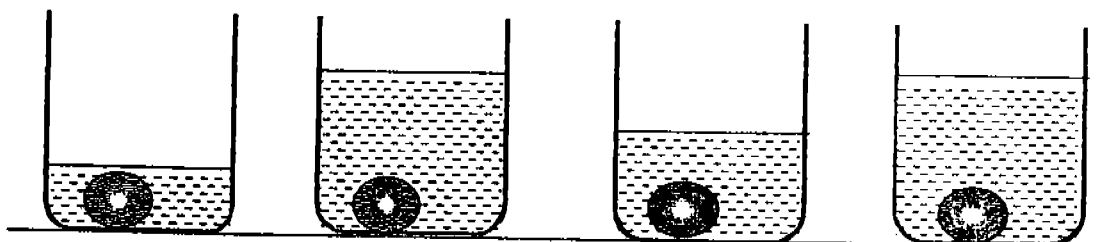
What happened to the metal weight after the wire was heated for sometime?

- (1) It became lighter.
- (2) It moved slightly upwards.
- (3) It moved slightly downwards.
- (4) Nothing happened to it.

( )



28. Study the 4 set ups L, M, N and P below carefully.  
 The four beakers in the set up below were filled with different amounts of water at different temperatures as shown in the diagram below. Four identical eggs were each gently put into each of the beakers. They were left in the beakers for 5 minutes. After 5 minutes, the eggs were taken out and cracked to see how cooked each of the eggs was.



**Set up L**  
 50ml of water at  
 40°C

**Set up M**  
 150ml of water at  
 40°C

**Set up N**  
 100ml of water at  
 40°C

**Set up P**  
 150ml of water at  
 80°C

Arrange the set-ups above according to the set up with the egg that was most cooked to the set up with the egg that was least cooked.  
 Which one of the following shows the correct arrangement?

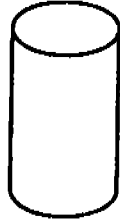
- (1) P, N, M, L  
 (3) L, M, N, P

- (2) L, N, M, P  
 (4) P, M, N, L

( )

Read this carefully and answer question 29 and 30.

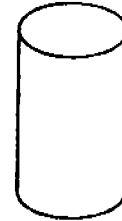
Ali's teacher gave him 3 containers as shown below. He was asked to conduct an experiment to find out in which container would the water remain the hottest after 10 minutes.



plastic container



styrofoam container



ceramic container

29. Which one of the following apparatus is not needed for Ali to conduct the experiment?

- 1) A stopwatch
- 2) A glass container
- 3) A kettle of boiling water
- 4) A laboratory thermometer

( )

30. Which of the following variable(s) would Ali need to keep constant so that the experiment was a fair one?

- The volume of the water.
- The starting temperature of the experiment.
- The type of material the container is made of.

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

( )

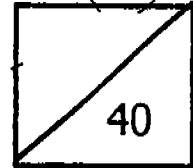
End of Part 1



**Rosyth School**  
**Second Semestral Assessment for 2005**  
**SCIENCE**  
**Primary 4**

Name: \_\_\_\_\_

Total  
Marks:



Class: Pr 4-\_\_\_\_\_

Register No. \_\_\_\_\_

Duration: 1 h 30 min

Date: 27<sup>th</sup> October 2005

Parent's Signature: \_\_\_\_\_

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## Booklet B

Instructions to Pupils:

1. For questions 31 to 46, give your answers in the spaces given in this Booklet B.

\* This booklet consists of 14 pages .

**Part II (40 MARKS)**

For questions 31 to 46, write your answers in this booklet.

31. Sumei wanted to find out the states of three matters, S, T and U. She tested on their properties and recorded her results in the table below. She put a tick (✓) if the matter has the property and a cross (X) if it does not show the property.

Properties	Matter		
	S	T	U
Flows easily	✓	X	X
Can form drops	✓	X	X
Can be compressed	X	X	✓

Based on the results in the table above, identify the **states** of the following matters:

- (a) S: \_\_\_\_\_ (1m)
- (b) T: \_\_\_\_\_ (1m)
- (c) U: \_\_\_\_\_ (1m)

32. 500 ml of air is pumped into each of 4 balls of different sizes as shown in the table below.

Ball	Capacity of ball
A	350 ml
B	400 ml
C	500 ml
D	600 ml

- (a) Which of the balls (A, B, C or D) can hold all the 500 ml of air? (1m)

---

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

---



---

33. Which 'R' (Reuse, Reduce and Recycle) do the following water conserving activities fall under? Put a tick (✓) in the correct column. (2m)

		Reuse	Reduce	Recycle
(a)	Use a pail of water to wash the car instead of the hose.			
(b)	Water used to wash rice and vegetables can be used to water plants.			
(c)	Purify water from households so that it can be used once more.			
(d)	Taking a shower instead of a bath.			

34. Jailani put some ice cubes in a beaker and observed what happened. He also recorded the temperature of the ice every five minutes.

Time (min)	Temperature (°C)
0	0
5	0
10	0
15	0
20	2
25	10

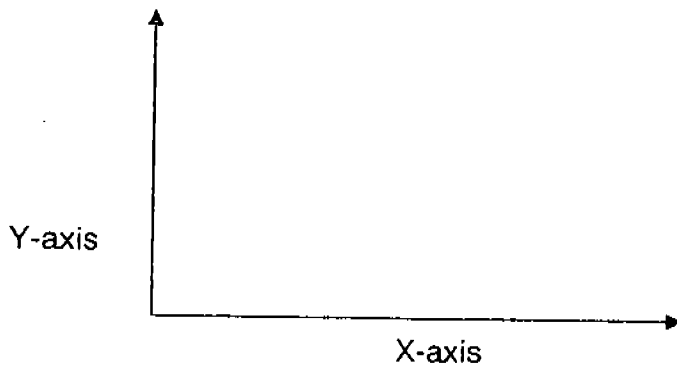
- (a) What is the change of state that took place during the first 15 minutes? (1m)

\_\_\_\_\_

- (b) What caused the ice to melt? (1m)

\_\_\_\_\_  
 \_\_\_\_\_

- (c) The data in the table above can also be represented in a graphical form.



Provide the name for the X and Y axes. (2m)

- (i) X-axis: \_\_\_\_\_

- (ii) Y-axis: \_\_\_\_\_

35. Mr Chan wrote a story about a drop of water called Timmy. He wanted to teach his pupils about the water cycle. The story is all jumbled up. Event 1 and 2 of the story has been identified.

Put the story in order by writing 3 to 6 in the boxes. (2m)

(a)	Timmy fell back to Earth as a raindrop.	
(b)	The higher he rose, the colder it was. Then he found himself becoming a drop of water.	
(c)	Timmy lazed around with his friends in the open sea. He felt warm as the Sun was shining brightly.	1
(d)	The cloud got bigger and heavier as more friends joined Timmy.	
(e)	Timmy suddenly changed into gas and floated in the air.	2
(f)	He became part of a wispy cloud.	

36. Tommy, Mickey and Donald wanted to find out whether exercise affects their breathing rates.

The boys recorded their breathing rates before and after they had done some exercise. The results are shown in the table below.

	Breathing rates (breaths per minute)	
	Before Exercising	After Exercising
<b>Tommy</b>	16	35
<b>Mickey</b>	18	24
<b>Donald</b>	15	29

- (a) What can you conclude from the results shown above? (1m)

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

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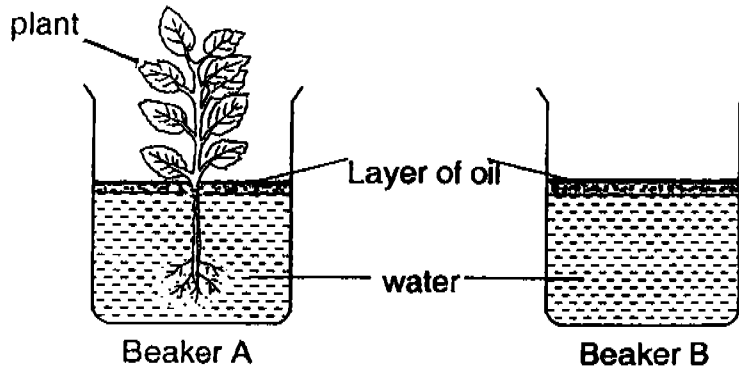
- (c) Give a possible reason why Tommy's breathing rates after exercising is much higher than Mickey and Donald? (1m)

---

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37. Rudy carries out an experiment as shown below. He put a balsam plant in beaker A and no plant in beaker B. Both beakers of water have a layer of oil covering it. He then left both set-ups out in the sun for a week.



He recorded the water level in both beakers at the start of the experiment and at the end of the week. The results are shown in the table below.

Beaker	Volume of water at the beginning (1 <sup>st</sup> September 2005)	Volume of water at the end (8 <sup>th</sup> September 2005)
A	100 ml	85 ml
B	100 ml	?

- (a) What do you think is the \_\_\_\_\_ in Beaker B at the end of the experiment? (1m)

\_\_\_\_\_

- (b) Give reasons for your answer in (a). (2m)

\_\_\_\_\_

\_\_\_\_\_

38. For each statement, determine whether it is true or false. Write 'True' or 'False' in the boxes next to the sentences. (2m)

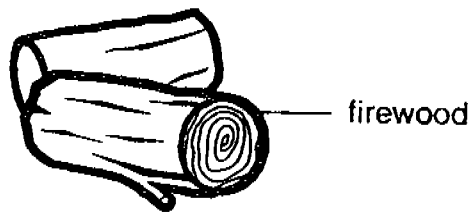
(a) Air that we breathe in contains more dust particles and oxygen than the air we breathe out.

(b) Blood is transported in tubes called blood vessels which are found throughout the body.

(c) The lungs pump blood to all parts of the body.

(d) Plants need oxygen for respiration all the time, even when it is making food.

39. David burnt some firewood to make a campfire.



(a) Name the two forms of energy that he will get when the firewood is burning. (1m)

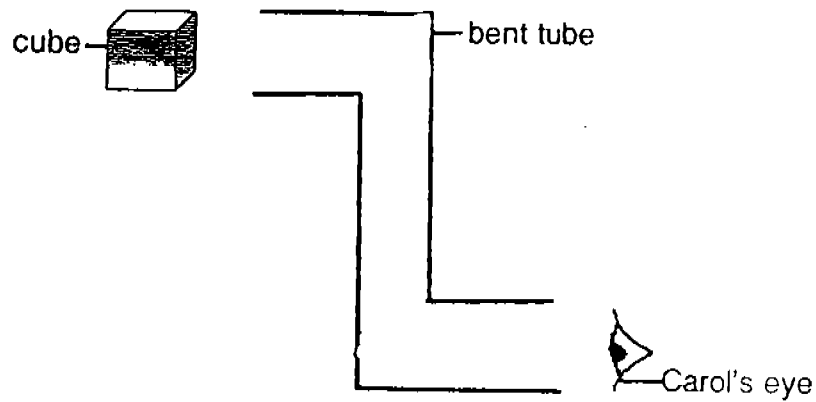
\_\_\_\_\_

(b) Where do the firewood get its energy from? (1m)

\_\_\_\_\_

\_\_\_\_\_

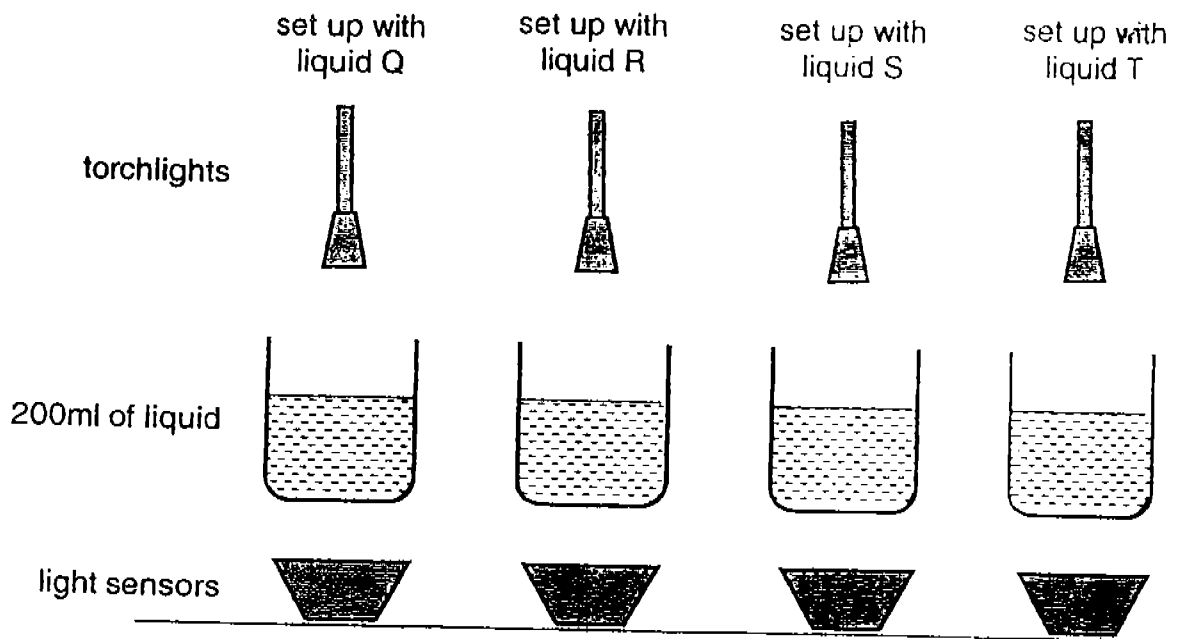
40. Carol's teacher asked her to look at the cube through the bent tube. However, she could not see the cube..



- (a) Suggest a reason why she could not see the cube. (1m)
- 
- (b) Her teacher gave her 2 glass mirrors to place in the bent tube so that she could see the cube. Where should the mirrors be placed?  
**Draw 2 lines** in the diagram above to represent the mirrors. (1m)

41. The drawings below show 4 set-ups in an experiment conducted by the pupils in a certain school. They wanted to find out how much light can pass through different liquids. They were given a special instrument that can measure the amount of light called light sensor. They used the following apparatus.

- 4 torch lights
- 4 beakers
- 4 different liquids Q, R, S and T
- 4 light sensors



The measurement shown on the light sensors were recorded in the table below.

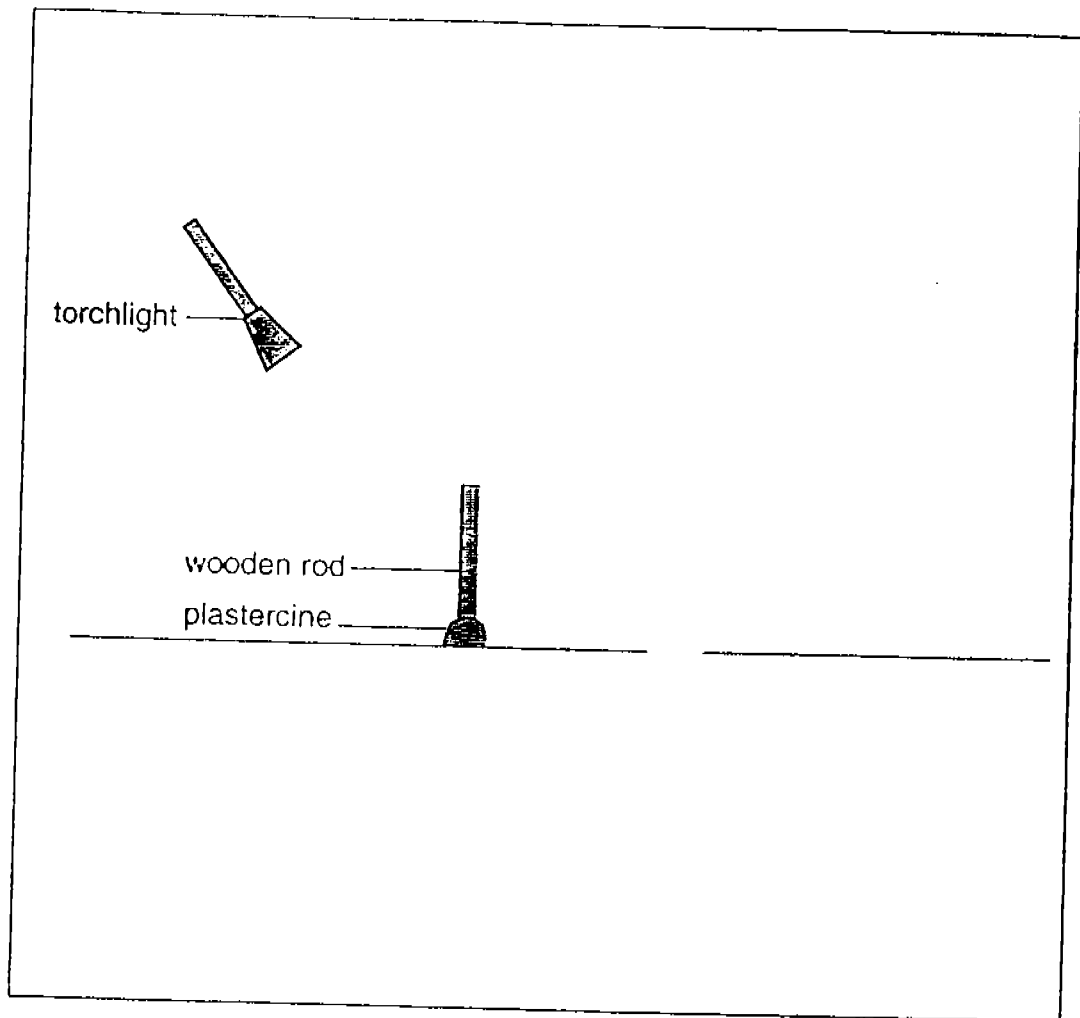
Liquid	Q	R	S	T
Amount of light (units of light)	40	100	250	0

- (a) Study the table above carefully. Match the liquid to the set-up that would give the most possible reading. (1m)

	<u>Set up</u>	<u>Types of liquid</u>
(i)	Q ♦	♦ mineral water
(ii)	R ♦	♦ cooking oil
(iii)	S ♦	♦ coca-cola

- (b) Suggest a liquid for T. (1m)
-

42. The diagram below show a torchlight shining on a wooden rod that was held up by a piece of plasticine. A shadow of the wooden rod is formed.



- (a) How was the shadow of the wooden rod formed? (1m)
- \_\_\_\_\_
- \_\_\_\_\_
- (b) Draw the shadow that is formed in the diagram above. (1m)
- (c) Draw a torchlight in the diagram above to show where it should be placed in order to get the shortest shadow. (1m)

43. A little wax was melted on the handles of 2 spoons. The wax was allowed to cool and harden on the handles. Spoon U was made of porcelain while spoon W was made of metal. Both spoons were then placed into a beaker of hot water. After sometime, the wax on both spoons melted.

(a) On which spoon would the wax melt first? (1m)

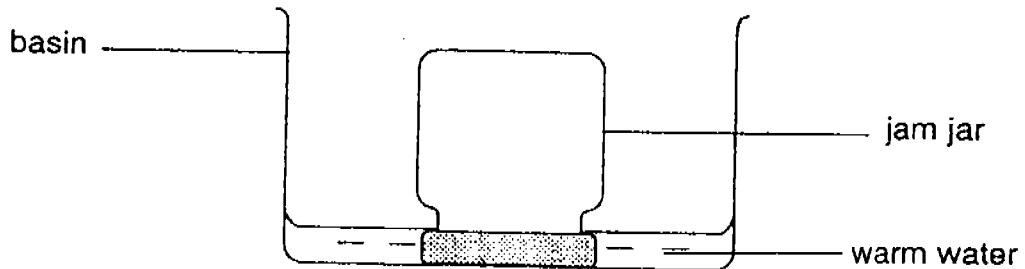
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(b) Explain your answer in (a). (1m)

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44. Mrs Lim could not open the lid of her jam jar that she had just taken out of the refrigerator. She placed the jam jar into a basin of warm water as shown in the diagram below. After a short while, she took the jar out and was able to open the lid.



(a) Why was Mrs Lim able to open the lid? (1m)

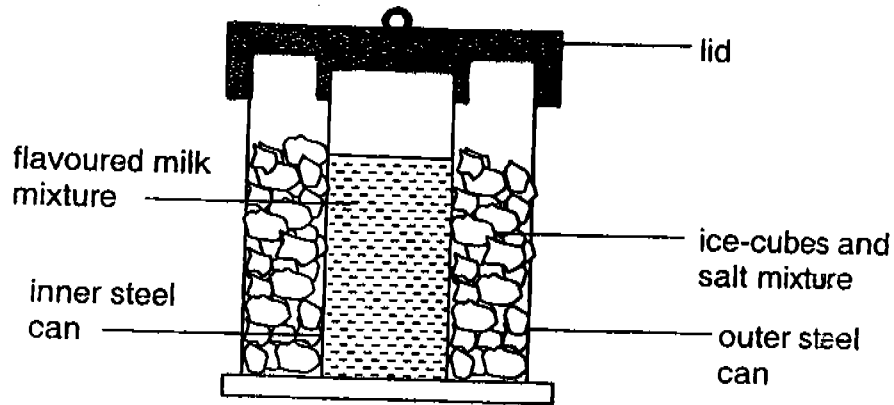
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(b) Explain your answer in (a). (1m)

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45. Mrs Lim wanted to make some ice-cream. She used the ice-cream maker shown in the diagram below.



- (a) Explain how the flavoured milk mixture became ice-cream. (2m)

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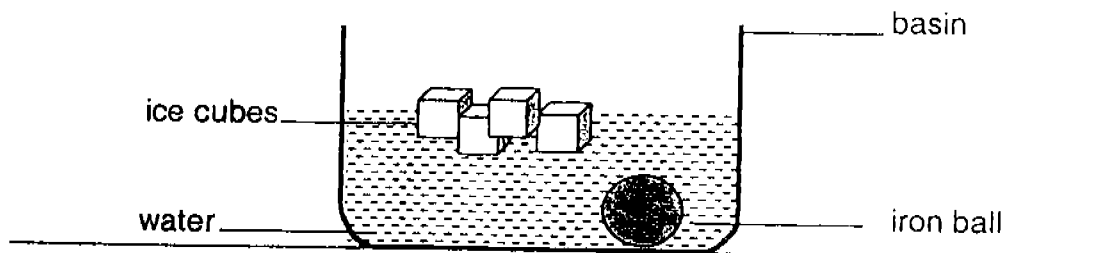
- (b) Why is the inner can made of steel? (1m)

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46. Mrs Kumar, a Science teacher, put an empty basin on the table in front of her class. She poured some water that was heated to  $40^{\circ}\text{C}$  into the basin. Then she dropped a few ice cubes into the basin of water. After about 5 minutes, she put an iron ball that was heated to  $60^{\circ}\text{C}$  into the basin of water.



- (a) Explain what would happen to the temperature of the water after the ice cubes were added. (1m)

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- (b) Throughout the whole experiment, the various apparatus and substances had either gained or lost heat. Study the table below and tick the appropriate box to indicate whether heat was gained or lost by them. (2m)

	Apparatus/ substances	Heat gain	Heat loss
(i)	Basin (after the water was poured in)		
(ii)	Ice cubes (after they were put into the basin of water)		
(iii)	Water (after the iron ball was put in)		
(iv)	Iron ball (after it was put into the basin of water)		

End of Paper

ROSYTH SCHOOL  
SECOND SEMESTRAL ASSESSMENT FOR 2005  
SCIENCE  
PRIMARY 4

S1A2

- 1) 1                    28) 4  
2) 2                    29) 2  
3) 3                    30) 2  
4) 2                    31) a) Liquid  
                              b) Solid  
5) 4                    c) Gas  
6) 2  
7) 2                    32) a) All the balls, A, B, C, D  
                              b) Air can be compressed into the ball.  
8) 3  
9) 2                    33) a)  
10) 1                    b) 

	✓	
✓		
		✓
	✓	

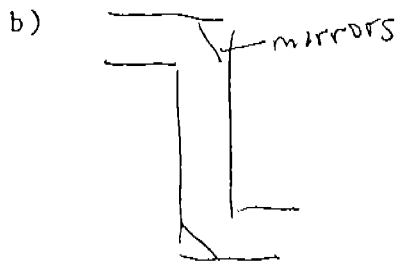
  
c)  
d)  
11) 3  
12) 2  
13) 4  
14) 3                    34) a) Solid to liquid  
                              b) The heat from the surrounding air.  
15) 2                    c) i) Time taken for ice to melt (min)  
                              ii) The temperature of the ice cube ( $^{\circ}\text{C}$ )  
16) 3  
17) 3                    35) a) 6  
18) 4                    b) 3  
19) 4                    c) 1  
20) 3                    d) 5  
21) 3                    e) 2  
22) 2                    f) 4  
23) 2  
24) 4                    36) a) After Tommy, Mickey and Donald exercise,  
                              their breathing rates increase.  
25) 3                    b) The body needs to take in oxygen and  
                              breathes out carbon dioxide.  
26) 3                    c) He may have done a more strenuous  
27) 3                    exercise than them

- 37) a) 100 ml of water will be in Beaker B.  
 b) The layer of oil prevents the water from evaporating. Since there is no plant in beaker B, water will not be needed.

- 38) a) True  
 b) True  
 c) False  
 d) True

- 39) a) Heat and light  
 b) The tree it grew from.

- 40) a) Light travels in straight lines

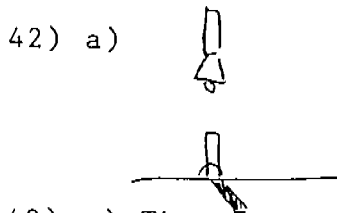


- 46) a) The temperature of the water decreased because it lost heat to the ice cubes.

- b) i) Heat gain  
 ii) Heat gain  
 iii) Heat gain  
 iv) Heat loss

- 41) a) i) Q : coca-cola  
 ii) R : cooking oil  
 iii) S : mineral water

- b) Dark coffee



- b) The wooden rod and plasticine prevented light from passing through them and the objects casted a dark space where little or no light reaches.

- 43) a) The wax on spoon W would melt first.  
 b) Metal is a good conductor of heat so heat can travel quickly and let the wax melt whereas porcelain cannot conduct heat quickly so the wax on spoon U will need a little more time to melt.

- 44) a) The lid expanded and turned loose.  
 b) The lid expanded due to the heat from the warm water. Since it expanded, the lid turned loose.

- 45) a) The ice cubes went below 0°C because of the salt mixture. Since it was lower than 0°C, the milk mixture froze after a while.

- b) Steel is a good conductor of heat so it can conduct heat quickly. 46) see above