NAN HUA PRIMARY SCHOOL
CONTINUAL ASSESSMENT 2 2011
PRIMARY FOUR
SCIENCE

Name : _____( )

Class: Primary 4 / ____

Date : 26 August 2011

Duration : 1 hr 30 min

Parent's Signature : _____

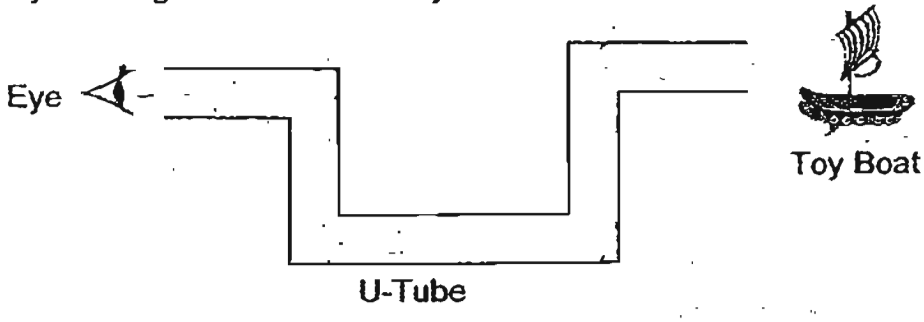
MARKS	
Sect A:	/ 40
Sect B:	/ 40
Total :	**/ 80**

Section A: (20 x 2marks = 40marks)
For each question from 1 to 20, 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 shows the correct identification of **all** the light sources?

	Sun	Moon	Torch	Firewood
(1)	✓		✓	
(2)	✓			✓
(3)	✓	✓		
(4)	✓		✓	✓

2. Study the diagram below carefully.



Peter wants to be able to see the toy boat through the U-tube as shown in the diagram above. In order to do that, what is the minimum number of mirrors he would need to place within the tube?

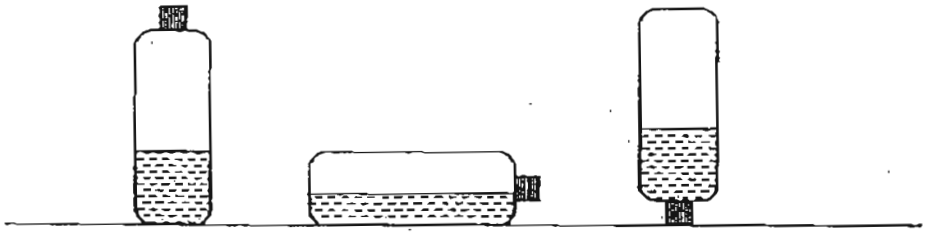
(1) 2
(2) 3
(3) 4
(4) 5

3. The table below shows four objects and their properties.
A tick (✓) represents that the item has the particular property.

Which of the following does not identify the property of the object correctly?

	Matter	Has mass?	Has a fixed volume?	Has a fixed shape?
(1)	Ice	✓	✓	✓
(2)	Milk	✓	✓	
(3)	Shadow			✓
(4)	Coin	✓	✓	✓

4. A bottle is filled up with Substance K and then it is placed in 3 different positions as shown in the diagram below.

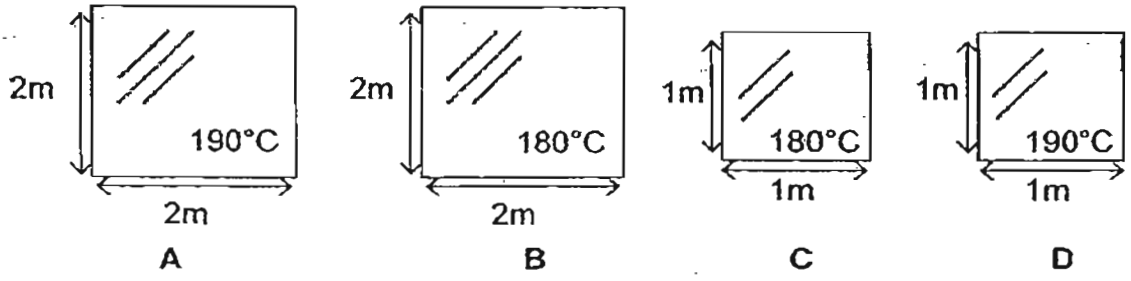


Based on the above observation, which of the following statements are definitely true about the properties of Substance K?

A	It is a liquid.
B	It occupies space.
C	It has no definite shape.
D	It has no definite volume.

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

5. The following diagrams show 4 aluminium sheets, A, B, C and D, of identical thickness. They were just rolled out of the mill so they were hot. The temperature of each aluminium sheet was recorded as shown in the diagrams below.



Based on the information provided, which one of the aluminium sheets had the most amount of heat energy?

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

6. Sally poured hot water into a cup with a teabag to make a cup of hot tea. She then added some sugar and milk and stirred the tea with a teaspoon. She found that the teaspoon became very hot after a while.

Which of the following statements about Sally's experience is true?

(1) The spoon lost its coldness to the hot tea.
(2) The stirring caused the teaspoon to heat up.
(3) Heat traveled from the teabag to the tea.
(4) Heat traveled from the hot tea to the spoon.

7. The table below shows the classification of some substances.

Group A	Group B	Group C
Steam	Rain Drops	Cloud
Water Vapour	Dew	Snow Flakes

Which one of the following substances is wrongly classified?

(1) Cloud
(2) Dew
(3) Steam
(4) Water Vapour

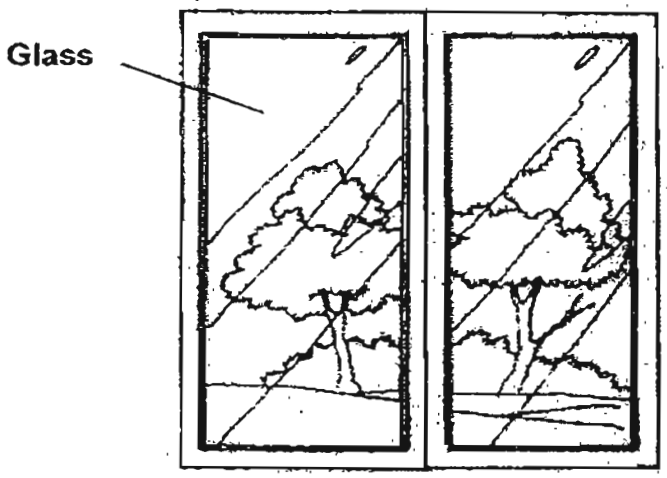
8. The table below lists some suggested ideas provided by some pupils on how to save water. However, not all the suggestions are effective.

Which of the following actions will best help to conserve our water resources effectively?

A	After brushing your teeth, rinse your mouth quickly from the tap.
B	Reuse water from the washing machine to flush the toilet.
C	Soap yourself quickly without turning off the shower to save water.
D	Wash a full load of clothes when using the washing machine.

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

9. The diagram below shows a glass window pane.



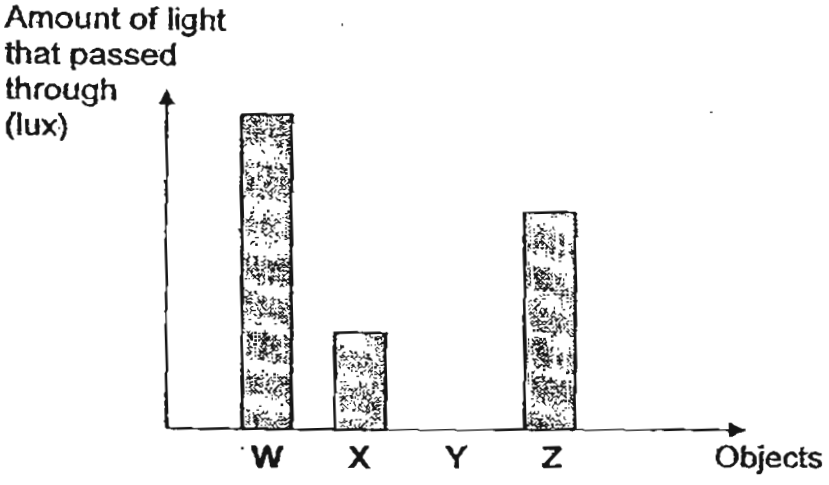
Window

We can see the trees on the other side of the glass because _____.

A	glass reflects all the light
B	light from the sun enters our eyes
C	light that falls on the trees is reflected into our eyes
D	glass allows most of the light that falls on it to pass through

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

10. Judy wanted to find out the amount of light that passes through four objects, W, X, Y and Z respectively. She shone a torch at each object and used a datalogger to measure the amount light that passed through each object. The graph below shows the result of her experiment.

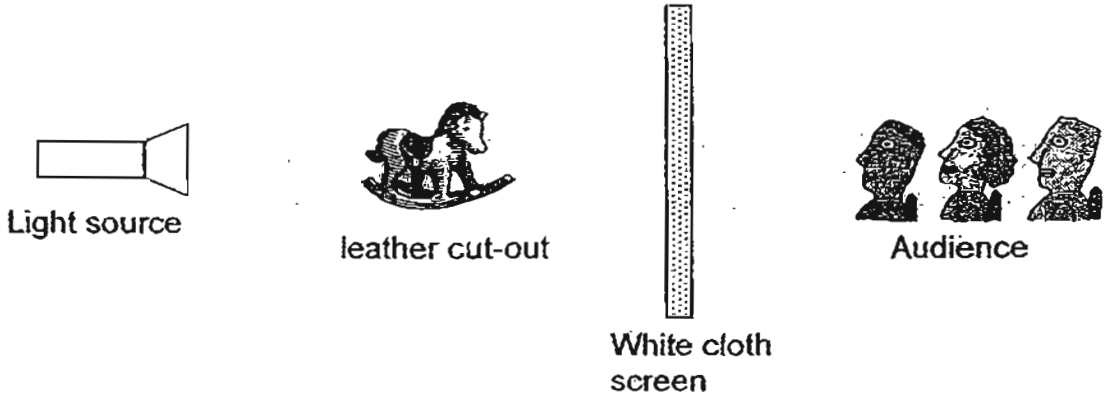


Which one of the following best represent Object, W, X, Y and Z respectively?

	W	X	Y	Z
(1)	Sunglasses	Tracing paper	Steel plate	Glass bottle
(2)	Sunglasses	Steel plate	Tracing paper	Glass bottle
(3)	Glass bottle	Tracing paper	Steel plate	Sunglasses
(4)	Steel plate	Sunglasses	Glass bottle	Tracing paper

11. Peter's teacher took his class to watch a 'wayang kulit' performance which used shadows to depict their characters.

They could not see the performers but only dark shadows of leather cut-outs on the white cloth screen. The performers were on the other side of the white cloth screen as shown in the diagram below.



Peter went back to school and decided to put up a similar performance. He decided to increase the shadow of the horse leather cut-out formed on the screen.

Which of the following actions below would help him to achieve a larger shadow of his horse cut-out on the white cloth screen?

(1) Change the light source to a brighter one.
(2) Move the animal nearer to the cloth screen.
(3) Move the animal figure nearer to the light source.
(4) Move the animal figure further away from the light source.

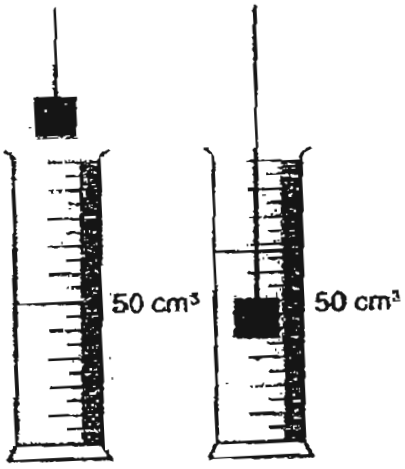
12. Jane investigated the properties of an object. She recorded the following observations:

• It has mass.
• It gives off heat and light when it burns.
• It takes up only the shape of the container

From the data given above, which one of the following is most likely to be true of the object?

(1) It can only be a liquid.
(2) It cannot be compressed.
(3) It does not have a fixed volume.
(4) It can be a liquid or a gas but not a solid.

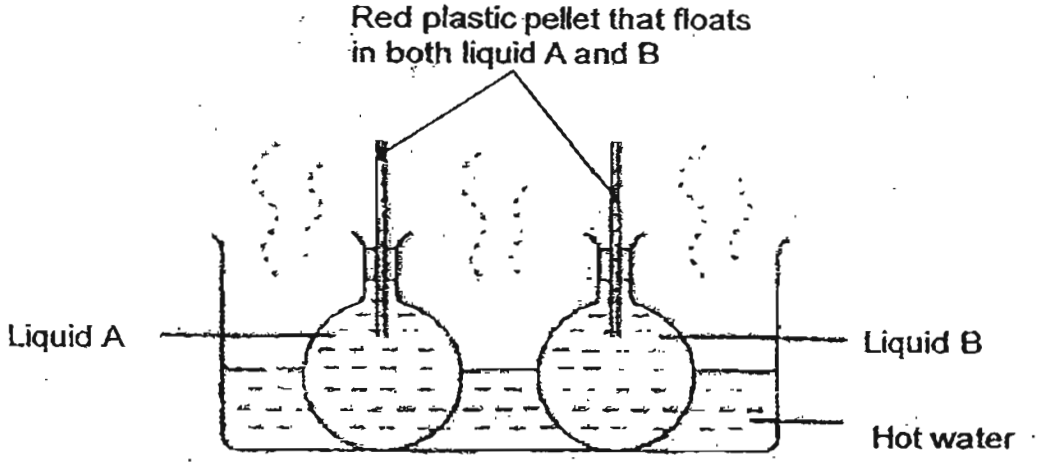
13. There is 50cm^3 of water in a measuring cylinder. When a block is put into the cylinder, the water level rises.



What causes the water level to rise?

(1) The mass of the water increases.
(2) The volume of the water increases.
(3) The volume of the water decreases.
(4) The block takes up space in the water.

14. Matthew filled two identical flasks with the same amount of liquid, A and B. He placed both flasks into a trough of hot water as shown in the diagram below.

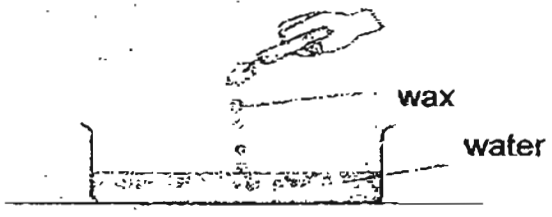


After 10 minutes, Matthew observed and recorded the change in height of red plastic pellets in each tube respectively.

Which of the following most likely explain for the difference in the height of the red plastic pellets in each tube after 10 minutes?

(1) Liquid A lost more coldness than Liquid B.
(2) Liquid A gained heat at a faster rate than Liquid B.
(3) Liquid B expanded less than Liquid A when heated.
(4) Liquid B expanded faster than Liquid A when heated.

15. Jim lighted a candle and brought it over a trough of water as shown in the diagram below.

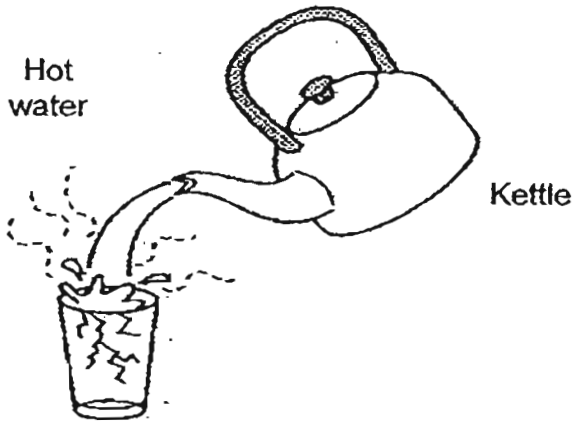


Which of the following are most likely to happen to the drops of wax when they fall onto the water surface?

A	They lose heat.
B	They gain heat.
C	There is a change in their state.
D	There is no change in their state.

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

16. Mrs. Lim was pouring some hot water rapidly into a thick glass and the glass started to crack.

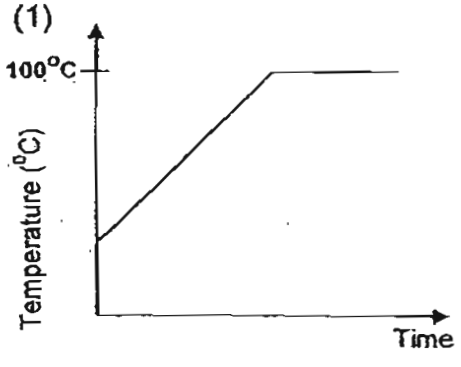


Which one of the following is most likely to be the reason for the cracking of the glass observed?

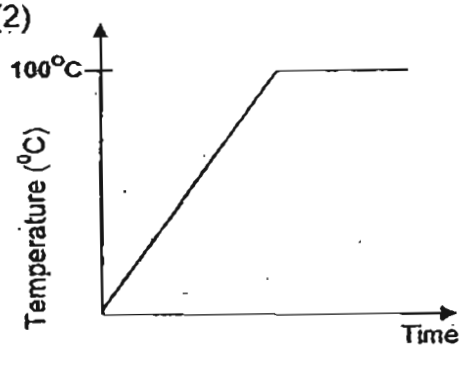
(1) There is an increase rate of evaporation of the hot water.
(2) There is a change in the state of water in the thick glass.
(3) There is uneven contraction of the glass when the hot water was poured into it.
(4) There is uneven expansion of the glass when the hot water was poured into it.

17. Which of the following graphs shows tap water being heated from room temperature until it boils for 10min?

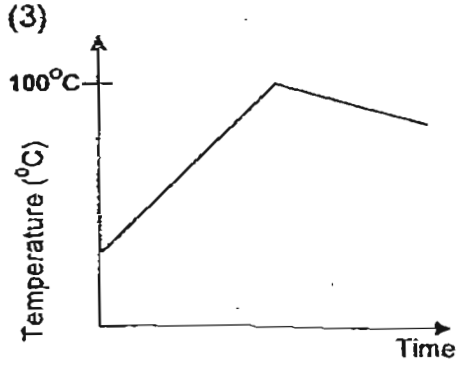
(1)



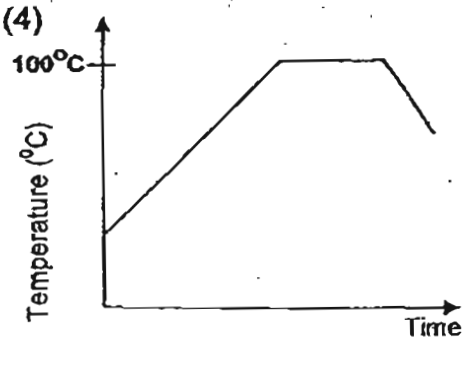
(2)



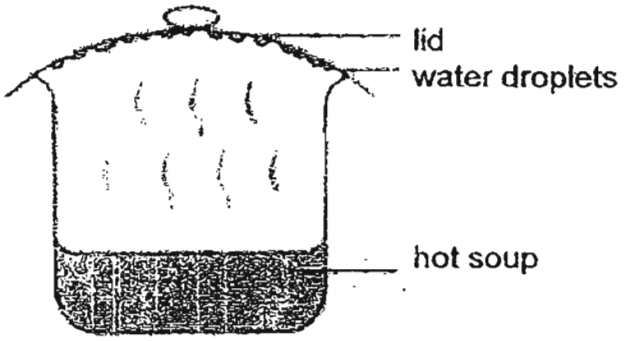
(3)



(4)



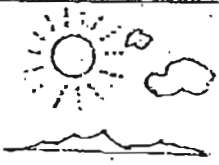
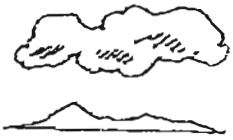
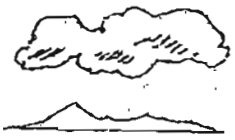
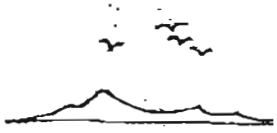
18. Chris' mother had just finished cooking dinner and placed the hot pot of soup on the dining table and covered the soup with a lid. After about 15 minutes, Chris lifted the lid of the pot to find lots of water droplets on the underside of the lid.



This observation happened due to two processes.
Which two processes occurred that caused the water droplets to appear on the underside of the lid?

	Process 1	Process 2
(1)	Boiling	Condensation
(2)	Boiling	Evaporation
(3)	Evaporation	Condensation
(4)	Melting	Evaporation

19. Study the weather forecast below carefully.

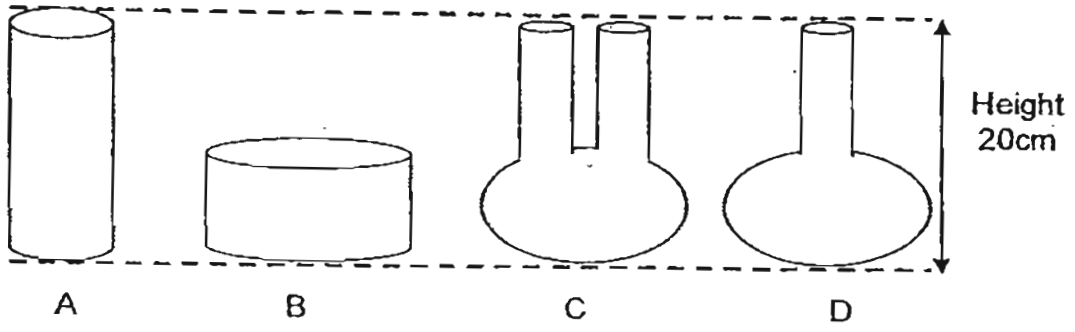
Date	Weather Forecast	
24 Jan	 Sunny	 Windy
25 Jan	 Cloudy	 Still
26 Jan	 Cloudy	 Windy
27 Jan	 Sunny	 Still

Jane wanted to have a change of bedsheets. She checks the weather forecast to decide on a day to wash her bed sheets so that they will dry the fastest within the day.

Which of the following days should Jane choose?

(1) 24 Jan
(2) 25 Jan
(3) 26 Jan
(4) 27 Jan

20. Tom had four containers, A, B, C and D, with a capacity of 2000 $m\ell$ each. He filled them to the brim with water. He left the four containers at the same location in the open space.



After 2 days, he recorded the volume of water left in each container in the table below.

Container	?	?	?	?
Volume of water left (*ml*)	950	900	800	500

Which one of the following most likely shows the correct volume of water left in container, A, B, C and D, respectively?

	Container *A*	**Container *B***	**Container *C***	**Container *D***
(1)	*950 ml*	*500 ml*	*800 ml*	*900 ml*
(2)	*900 ml*	*800ml*	*950 ml*	*500 ml*
(3)	*800 ml*	*950 ml*	*500 ml*	*900 ml*
(4)	*800 ml*	*500 ml*	*900 ml*	*950 ml*

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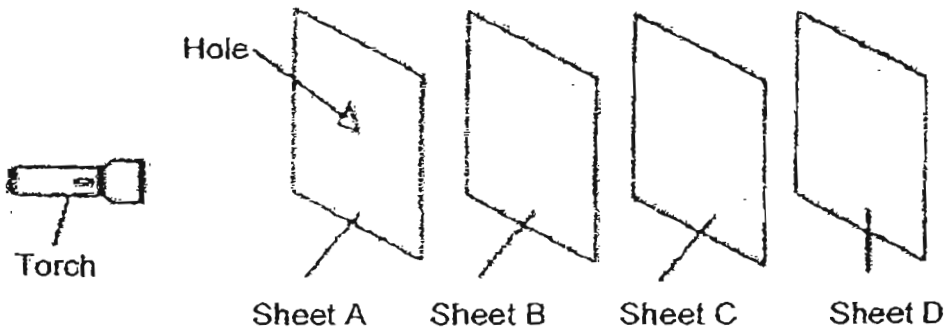
MARKS
/ 40

Section B: (40marks)
Write your answers to question 21 to 34.
The number of marks available is shown in brackets [ ] at the end of each question or part question.

21. James set up the experiment as shown below in a dark room.



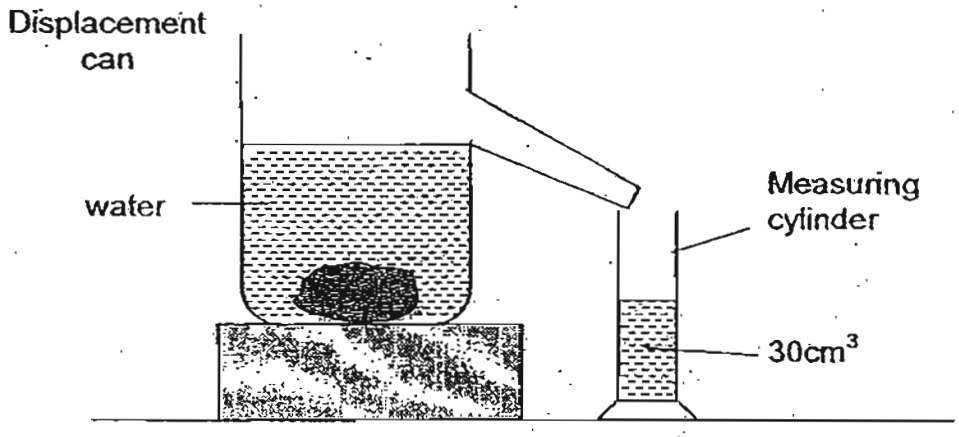
Sheets A, B, C and D are arranged in a straight line. When the torch is switched on, a bright triangular patch of light is seen on Sheet C only.

Put a tick (✓) in the correct box for each statement. [2]

	Statement	True	False	Not possible to tell
(a)	Sheet A is transparent.			
(b)	Sheet B is opaque.			
(c)	Sheet C does not allow light to pass through.			
(d)	Sheet D is transparent			

Score	/ 2

22. John carried out an experiment where he filled a displacement can with water. Then he put a stone into it and recorded the amount of water that flowed out into the measuring cylinder as shown in the diagram below.

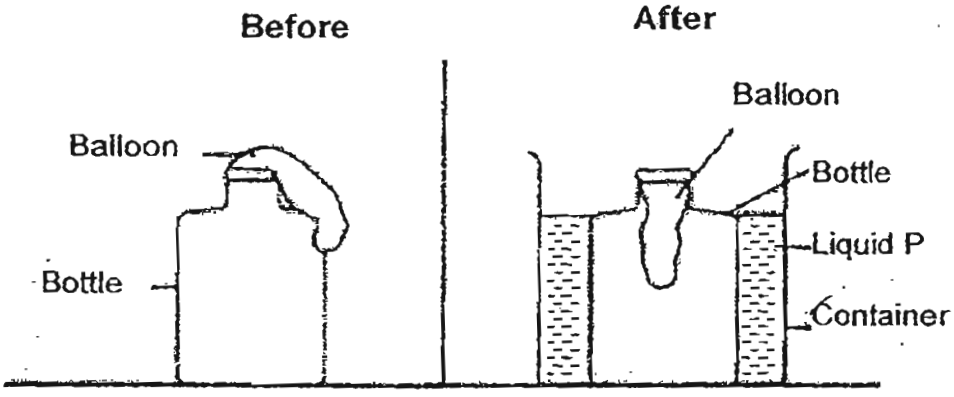


(a) Explain clearly why the water flowed out into the measuring cylinder. [2]

(b) What is the volume of the stone? [1]

Score	3

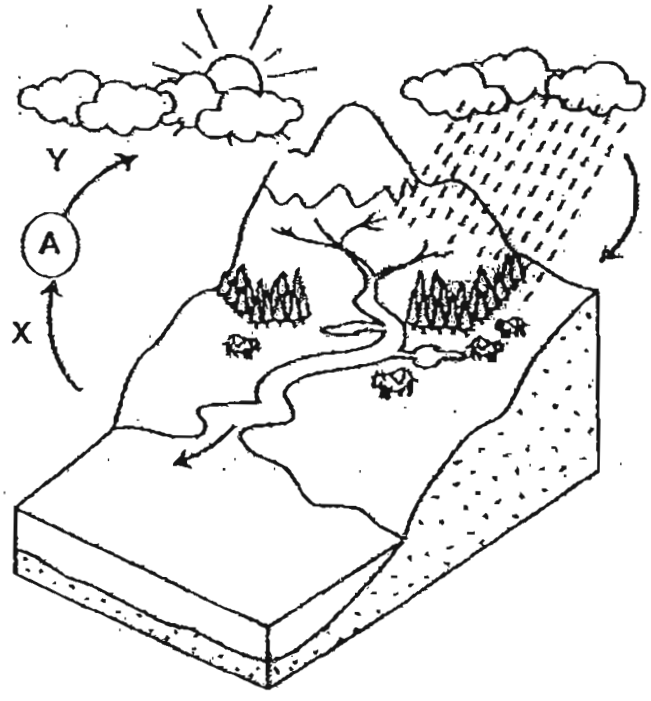
23. Ramesh attached a balloon to a bottle as shown in the diagram below. He then placed the bottle into a container filled with Liquid P. The balloon was gradually sucked into the bottle.



Based on the observation above, do you think Liquid P is hot water or cold water? Give a reason for your answer. [2]

Score	2

24. The diagram below depicts the water cycle.



(a) Fill in the table below to identify substance **A**, processes **X** and **Y** respectively. [2]

Substance A	
Process X	
Process Y	

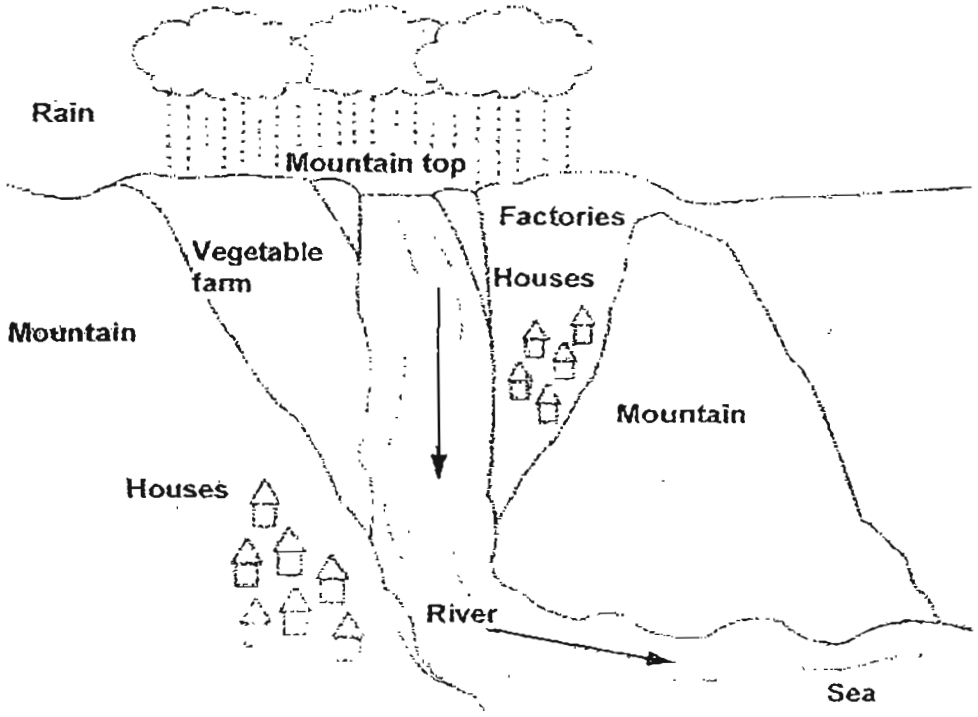
(b) How does the water cycle seen in the diagram above benefit the cows? [1]

_____

_____

Score	3

25. The diagram below shows a place at a mountain where some people live. The river coming down the mountain is the main source of water for people living there.
However, the people were concerned about water pollution when a vegetable farm and factories were built further upstream.



(a) The box below contains examples of pollutants.

pesticide	insecticide	toxic waste water	fertiliser

Identify the pollutant(s) that come from the farm and factories respectively. [2]
USE EACH WORD ONCE ONLY.

Farm : _____

Factories : _____

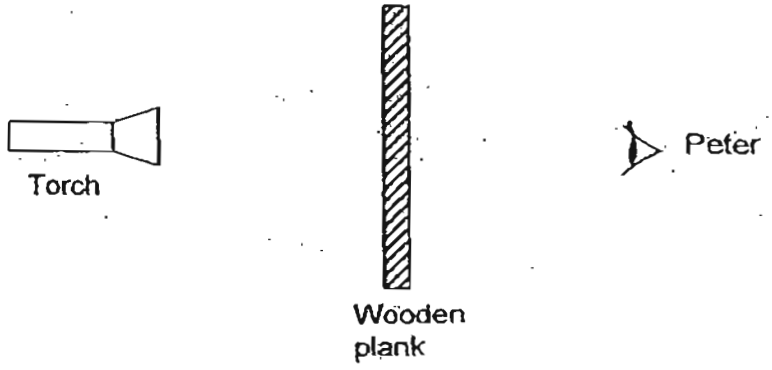
(b) Suggest one way the factories can reduce water pollution. [1]

_____

_____

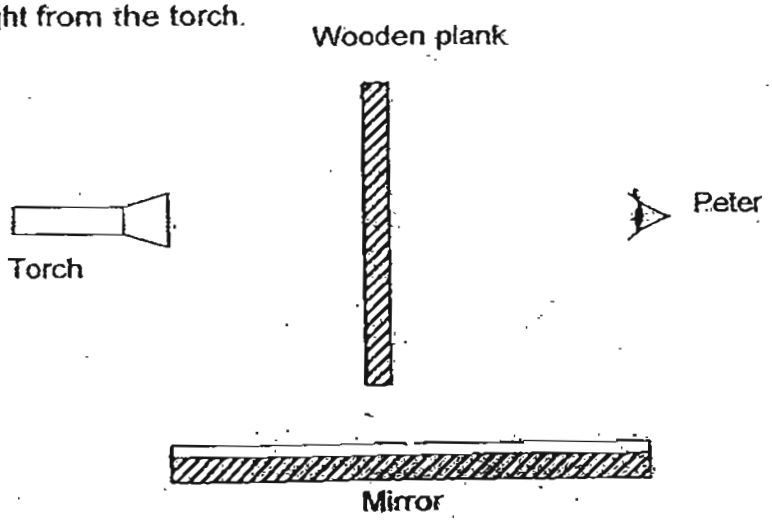
Score 3

26. Peter placed a wooden plank between him and the torch.



(a) Peter realised that he could not see the light from the torch when it was switched on.
Explain clearly why Peter could not see the light from the torch. [1]

He then placed a mirror under his original setup and found that he could see the light from the torch.

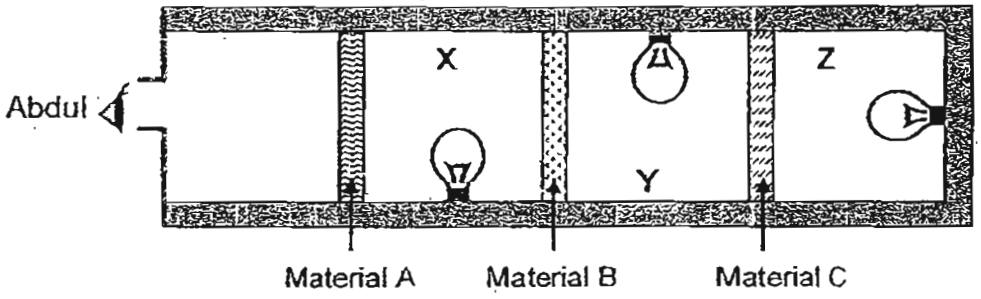


(b) **Draw the path of the light in the diagram above that enabled Peter to see the light.** [1]

(c) What property of light can you conclude based on your answer in (b)? [1]

Score	3

27. Abdul set up a box with a lamp in each compartment X, Y and Z as shown in the diagram below.



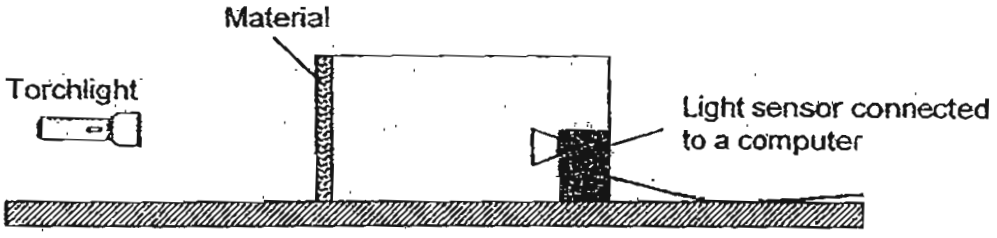
Abdul placed three different materials, A, B and C, to form the walls in between each compartment and looked in. When he switched on all three bulbs, he could only see a blur image of one bulb on top of one compartment and one bulb at the bottom in another compartment.

If the materials he used were aluminium foil, tracing paper and clear glass, fill in the table below the materials that represent material A, B and C respectively. [3]

Material A	
Material B	
Material C	

Score	
	3

28. Eddie wanted to choose a material to be made into curtain for his room. The curtain has to block out some sunlight and yet, does not make his room become too dark.
He conducted an experiment to test 3 materials, P, Q and R, to measure how much light passed through each material, as shown in the diagram below.



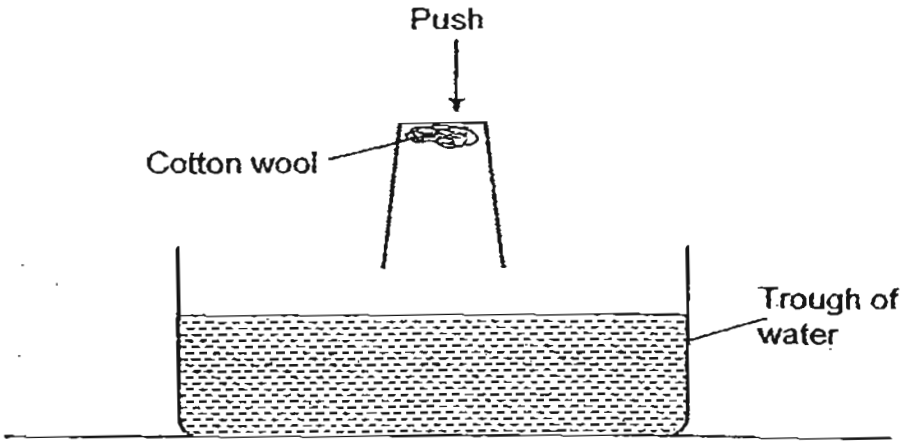
The table below shows the constant and independent variables that he had determined for his experiment.

Variable	Constant	Independent
Distance between the torch and the material	✓	
Distance between the light sensor and the material	✓	
Thickness of material		✓
Type of material		✓
Torch	✓	

(a) Eddie's classmate commented that he did not carry out a fair test. Do you agree? Give a reason for your answer. [2]

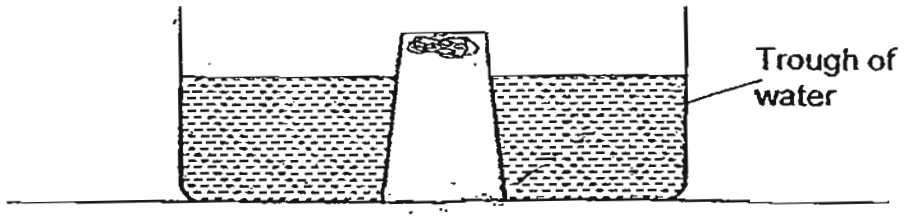
Score	2

29. May filled a trough with water and placed a piece of cotton wool at the bottom of a clear glass cup. She then inverted the clear glass cup and prepared to push the inverted cup into the trough of water as shown in the diagram below.



(a) The diagram below shows the inverted glass cup after May had pushed the inverted cup straight into the trough of water without tilting it.

In the diagram below, use your ruler to draw a line to indicate the water level inside the glass cup. [1]



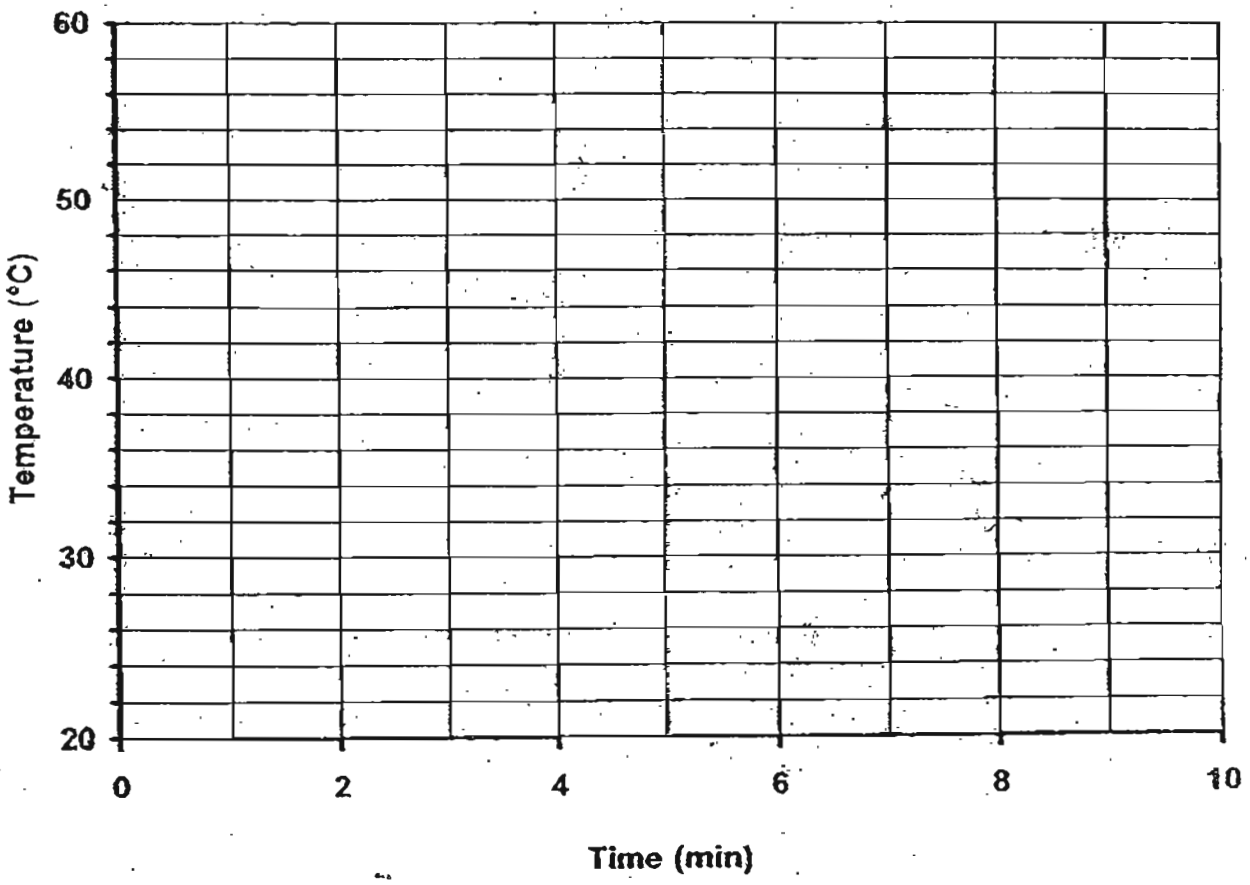
(b) May lifted the clear glass cup out of the water and checked the cotton wool to find that it was not wet at all.
Explain clearly why the piece of cotton wool was not wet at all. [2]

Score	
	3

30. Fred wanted to observe how the temperature of water changed when he poured hot water into Cup A and Cup B, which are made of different materials. He filled each cup with 100ml of water at 50°C. He measured the temperature of the water in each cup at an interval of 2 minutes and recorded in the result table below. He conducted the experiment in a room with a constant temperature of 28°C.

Time (min)	Temperature (°C)	
	Cup A	Cup B
2	44	46
4	40	44
6	36	40
8	32	38
10	30	36

(a) Plot a line graph according to the results shown in the table above. [3]



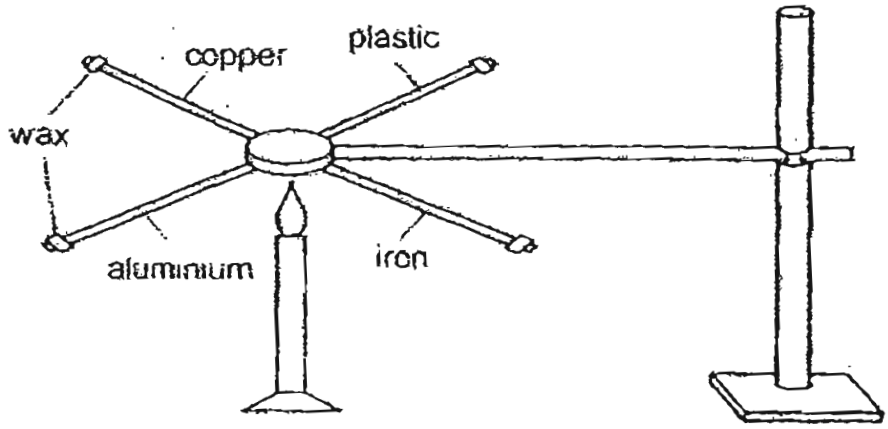
(b) ~~Predict which cup, (A or B), of hot water will reach room temperature first.~~
Give a reason for your answer. [2]

_____

_____

Score	
	5

31. Sally setup an experiment as shown in the diagram below. Each rod has the same length and thickness, with a piece of wax hung at the same distance from the flame.



Sally observed the time taken for each piece of wax to drop and recorded the results in the table below.

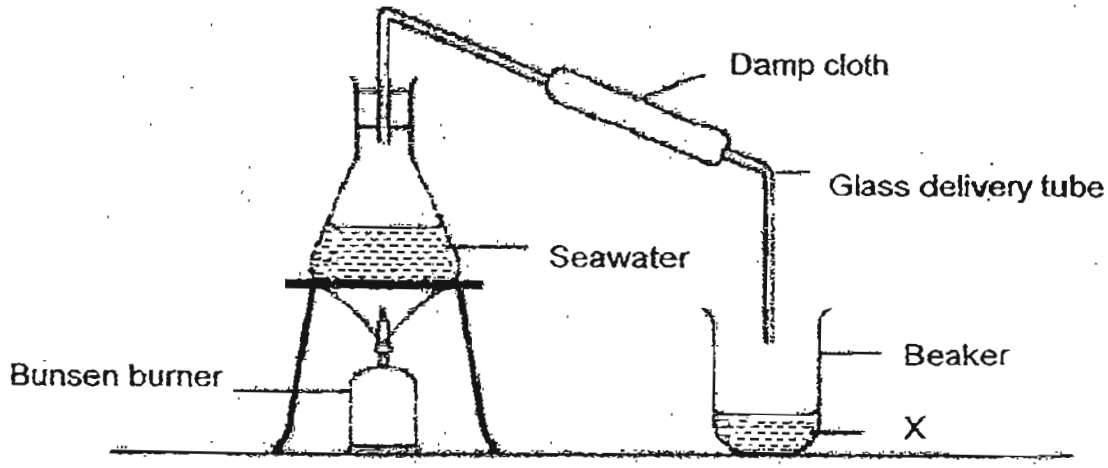
Rod	Time taken for the piece of wax to drop off (min)
Copper Rod	3
Iron Rod	5
Plastic Rod	8
Aluminium Rod	4

(a) State 2 variables that Sally must keep the same in order to conduct a fair experiment. [2]

(b) Based on the results, what conclusion can she draw on the 4 rods respectively? [1]

Score	/ 3

32. Study the experimental setup below.



After some time, some liquid is seen dripping from the glass delivery tube into the beaker.

(a) What is liquid X? [1]

_____

(b) Explain clearly the purpose of wrapping the cloth damped with tap water around the glass delivery tube. [2]

_____

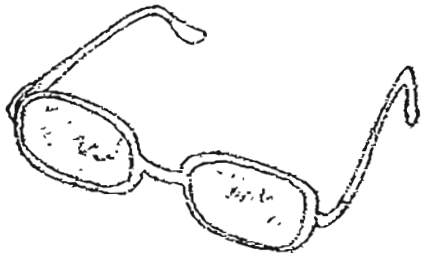
_____

_____

_____

Score	
	3

33. A cold room is a huge warehouse-like freezer where frozen foods are shipped in and kept before being transported to the supermarkets.
Mr. Mak had just started his first day of work in the cold room. At lunch time, he needs to leave the cold room for the canteen.



(a) When Mr. Mak came out of the cold room, his spectacles suddenly fogged up and he could not see a thing. Explain clearly why this happened. [2]

_____

_____

_____

(b) Blind as a bat without his spectacles, Mr. Mak immediately took out his handkerchief to wipe his spectacles and put them on again.
Explain why wiping his spectacles does not solve the problem. [1]

_____

_____

Score	/ 3

34. Joe set up a terrarium. Terrarium is little garden where plants grow in covered container. After the terrarium is set up, Joe gave it a first watering and capped the container as shown in the diagram below. He put it near the window and he observed that the plants in the terrarium continued to survive even without being watered for 3 weeks.

Explain how the terrarium was able to get its continuous supply of water for 3 weeks even without being watered by Joe. [2]

Score	/2

End of Paper

ANSWER SHEET

EXAM PAPER 2011

SCHOOL : NAN HUA
SUBJECT : PRIMARY 4 SCIENCE

TERM : CA2

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

Q18	Q19	Q20
3	1	4

21)a)F b)F c)T d)Not

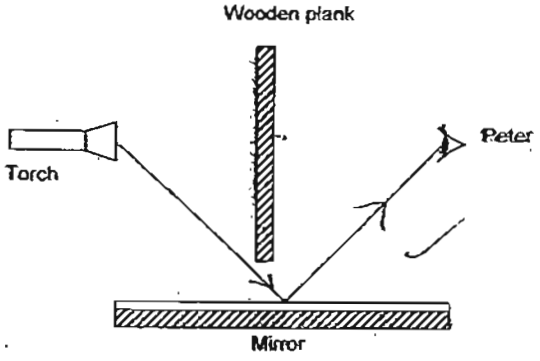
22)a)The rock is a solid that occupies space so it displace some water out of the can water and the rock cannot occupy the same space.
b)30cm3

23)Liquid P is cold water. When the bottle was placed into cold water, the air in the bottle lost heat to the cold water and contracted.

24)a)A: Water vapour X: Evaporation Y: Condensation
b)Water cycle ensure a constant supplies fresh water.

25)a)Farm: Fertiliser, insecticide, pesticide
Factories: Toxic waste water
b)The factory should treat the water they use before reusesing them back into the river.

26)a)The wooden plank is opaque and block all the light from the torch from entering his eyes.
b)

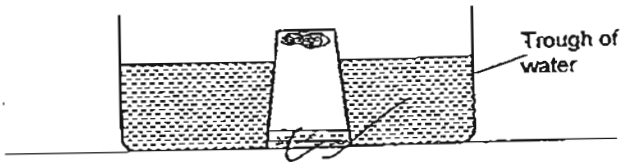


c)Light can be reflected.

27)A: tracing paper
B: clear glass
C: aluminium foil

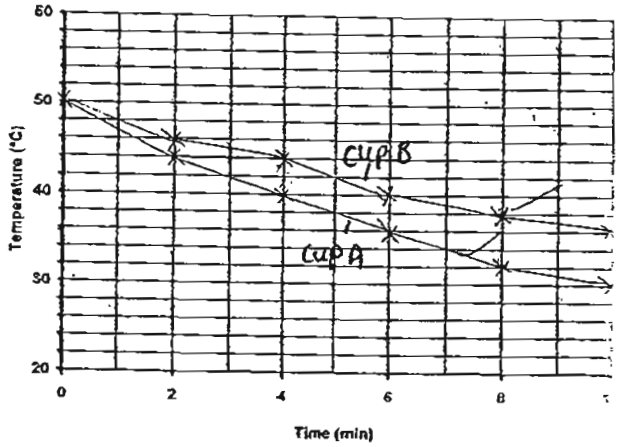
28)a)Yes. I agree. There are 2 independent variables in his experiment. He should only change the type of material and keep the thickness of the material the same, so that it will not affect the result of the experiment.

29)a)



b)Air in the cup occupies space in the cup and prevented the water from riding to wet the cotton wool.

30)a)



b)Cup A. It is a better conductor of heat than Cup b because it conducts more heat away from the hot water at the end of minutes.

31)a)Same amount of wax and same type of wax.
b)The copper rod is the best conductor of heat, followed by the aluminium rod and the iron ro. The plastic rod poorest conductor of heat.

32)a)Water.
b)It is to keep the glass tube cool so that steam will lose heat to the cooler surface of the tube and condense on it to form water droplets.

33)a)Water vapour in the air lose heat and condensed on the cooler surface of the spectacles lens.
b)His spectacles were still cold and warmer water vapour in the surrounding air continues to lose heat to it and condensed on his spectacles.

34)The plants will absorb water in the soil and give out water through transpiration. Some of the water in the moist soil will gain heat and evaporate into water vapour too. These water vapour rises and condensed on the cooler inner walls of the container and inner cover into tiny water droplets which will accumulate into big droplets and falls back into the soil. This process will repeat itself.