



**NAN HUA PRIMARY SCHOOL
CONTINUAL ASSESSMENT 2 2013
PRIMARY FOUR
SCIENCE**

Name : _____ ()

Class : Primary 4 / _____

Date : 30 August 2013

Duration : 1 hr 30 min

Parent's Signature : _____

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

Section A: (20 x 2 marks = 40 marks)

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 one of the following is not a source of light?

- (1) Battery
- (2) Fire
- (3) Lightning
- (4) Sun

2. Kevin shines a narrow beam of light from a torch onto a wooden block in a dark room.



Wooden block

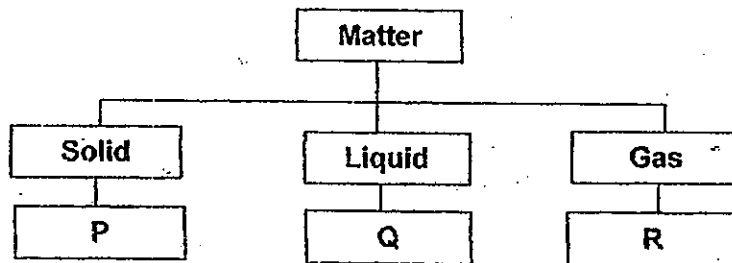
Kevin is able to see the wooden block because the _____.

- (1) torch is a light source
- (2) wooden block has a rough surface
- (3) torch reflects the light into his eyes
- (4) wooden block reflects the light into his eyes

3. Which one of the following is not a matter?

- (1) Dew
- (2) Noise
- (3) Steam
- (4) Wax

4. Study the classification chart below.



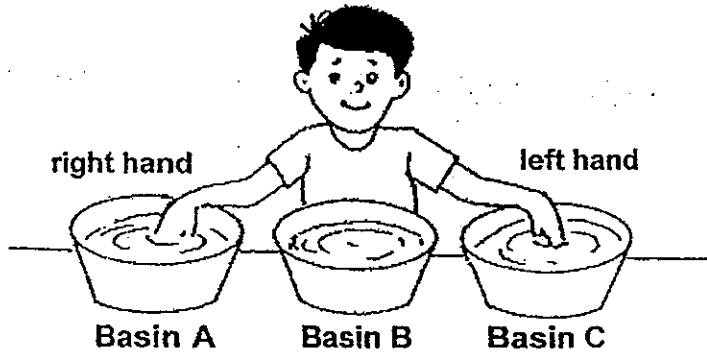
Which of the following correctly represents P, Q and R?

	P	Q	R
(1)	ice	salt	air
(2)	mist	ice	water vapour
(3)	salt	water droplets	oxygen
(4)	plasticine	water vapour	mist

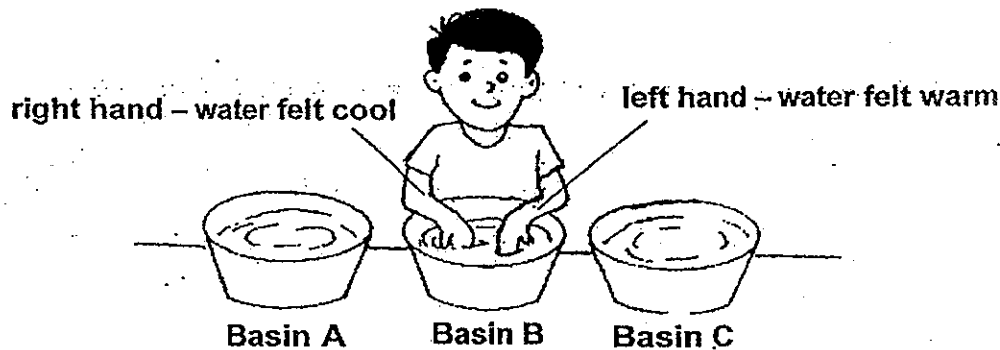
5. Siti took out a bottle of honey from the refrigerator. She could not open the bottle, so she poured some hot water over the metal cap of the bottle. This helped her to open the bottle as the heat caused the _____

- (1) bottle to expand
- (2) metal cap to expand
- (3) air in the bottle to expand
- (4) air and the bottle to expand

6. Ahmad had three basins of water, A, B and C of different temperatures. He dipped his left hand into Basin C and his right hand into Basin A as shown below.



After 3 minutes, he placed both his hands into Basin B.



He found that the water in Basin B felt cool to his right hand and felt warm to his left hand.

Based on Ahmad's observation, which of the following would most likely be the temperatures of the water in basins A, B and C?

	Basin A	Basin B	Basin C
(5)	50°C	25°C	10°C
(6)	10°C	25°C	50°C
(7)	25°C	10°C	50°C
(8)	50°C	10°C	25°C

7. Which of the following statements are true of ice, water and water vapour?

- A They take up space.
- B They have different freezing points.
- C They are in different states of matter.

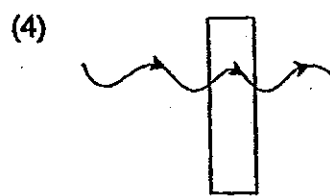
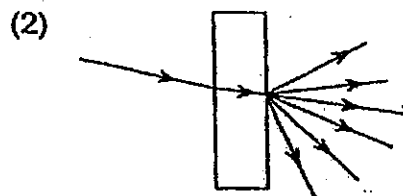
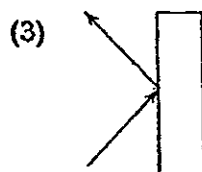
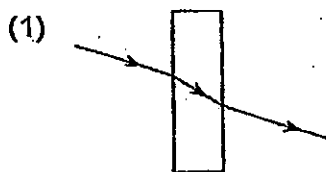
- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) All of the above

8. We should conserve water so that we will not run out of water. Which of the following are good practices that help to conserve water?

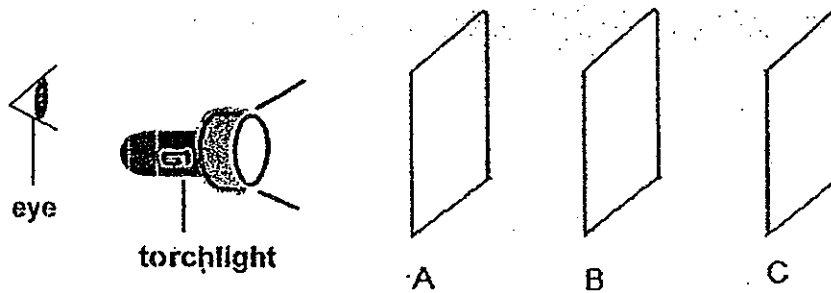
- A Grow more water plants.
- B Do not change water in vases.
- C Flush toilet with water from rinsing clothes.
- D Wash dishes in a basin of water instead of water from a running tap.

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

9. Which of the following diagrams correctly shows how light is being reflected?



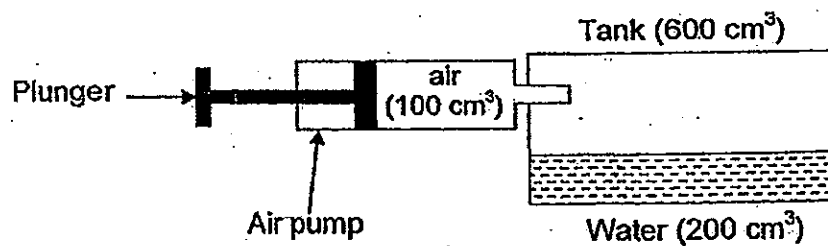
10. Bala set up the following experiment to study the ability of three objects, A, B and C, in allowing light to pass through.



Bala can see the light from the torch on Object B but not on Object C. Which of the following is the best combination of materials for objects A and B?

	A	B
(1)	clear glass	cardboard
(2)	cardboard	clear glass
(3)	tracing paper	frosted glass
(4)	clear plastic sheet	tracing paper

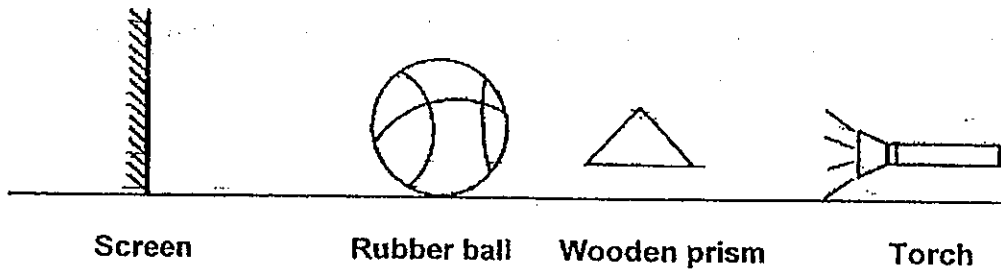
11. The diagram below shows an air pump connected to a glass tank. The volume of the empty tank is 600 cm^3 . The tank contains 200 cm^3 of water.



When the plunger of the pump is pushed in completely, 100 cm^3 of air is forced into the tank. What is the volume of air in the tank after the plunger is pushed in?

- (1) 100 cm^3
 (2) 300 cm^3
 (3) 400 cm^3
 (4) 500 cm^3

12. A torch is shone on a rubber ball and a wooden prism as shown below.



Which one of the following shows the shadow that is cast on the screen?

(1)



(2)



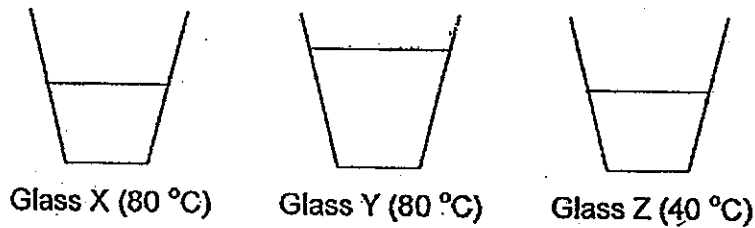
(3)



(4)



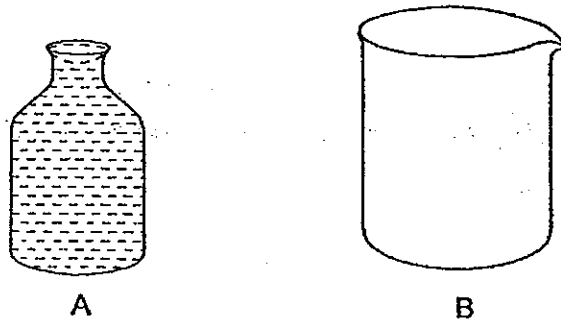
13. The glasses below are filled with different amount of water at different temperature.



Arrange the glasses in order, beginning with the one that has the most heat.

- (1) X, Y, Z
- (2) Y, Z, X
- (3) Y, X, Z
- (4) Z, X, Y

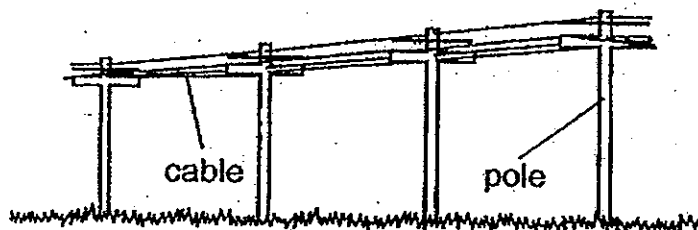
14. Mardiah has 2 containers, A and B, of the same mass. She fills container A to the brim with water as shown in the diagram below.



Which of the following will change when all the water is transferred from container A to container B?

- A water level
 - B mass of water
 - C shape of water
 - D volume of water
- (1) A and C only
(2) B and D only
(3) A, C and D only
(4) A, B, C and D

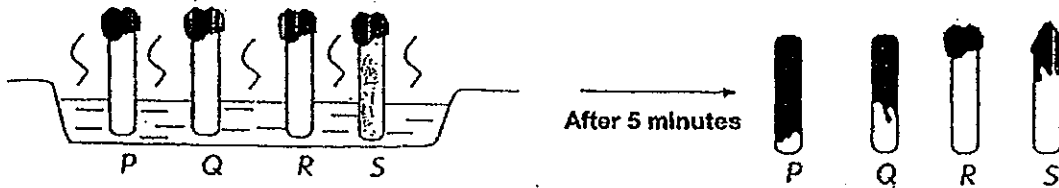
15. Some workmen fixed the electric cables as shown below. Their supervisor said that they had done the job incorrectly as the cables were joined too tightly.



Why did the supervisor say that?

- (1) The cables will expand and snap in hot weather.
- (2) The cables will expand and snap in cold weather.
- (3) The cables will contract and snap in hot weather.
- (4) The cables will contract and snap in cold weather.

16. The tips of four rods of different materials are coated with equal amounts of wax. The rods are placed in a container of hot water at 100°C for 5 minutes. The diagram below shows the results of the experiment.



Which one of the rods is likely to be the best material to make the handle of a kettle?

- (1) P
- (2) Q
- (3) R
- (4) S

17. Which of the following processes are correctly matched to the change of state in water?

	Process	Change of state
A	Freezing	Solid to liquid
B	Evaporation	Liquid to gas
C	Condensation	Gas to liquid
D	Melting	Liquid to solid

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

18. Which of the following describes the effect of evaporation in the water cycle?

- (1) Rain falling from the sky
- (2) Snow changing to water
- (3) Water in a puddle drying up
- (4) Formation of clouds in the sky

19. Oil spills from ships can cause harm to the environment. Which of the following are the possible effects of oil spills?

- A Some aquatic organisms will die due to the lack of oxygen
- B The people in the town will experience breathing difficulties.
- C Some sea mammals can no longer swim or float as their fur clump together.

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

20. Jeremy wanted to find out the effect of temperature on the rate of evaporation of water. He had the following set-ups.

Set-up	Volume of water at the start of the experiment (ml)	Exposed surface area of container (cm ²)	Temperature (°C)
A	100	50	40
B	100	70	80
C	100	70	40
D	150	50	80

Which two set-ups should he use to conduct a fair experiment?

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



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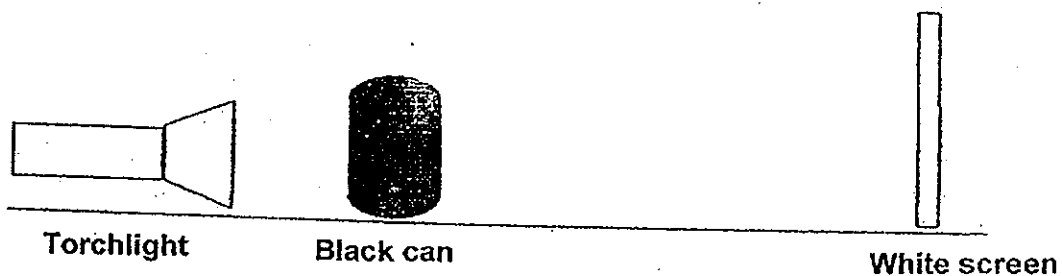
MARKS
40

Section B: (40marks)

Write your answers to questions 21 to 34.

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

21. Jonathan carried out an investigation to find out if the position of an object affects the height of its shadow. He placed a black can in between a torchlight and a white screen as shown in the diagram below. Then he measured the height of the shadow cast on the screen.

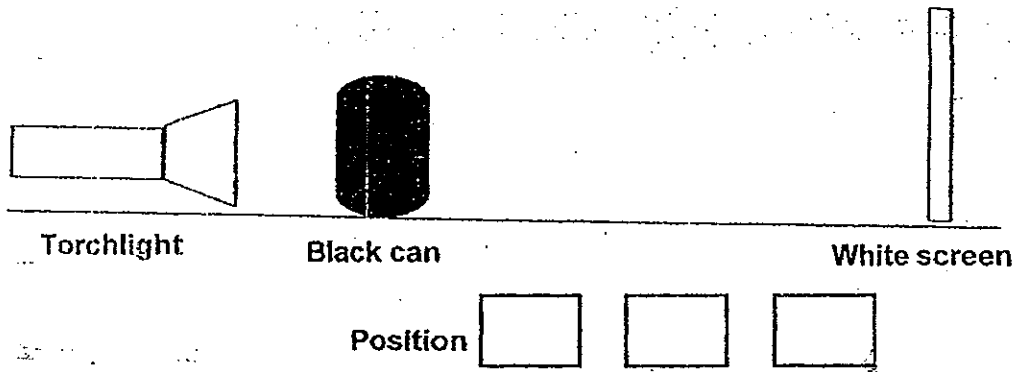


Next, he repeated the experiment in different positions by adjusting the distance between the screen and the black can only. The torchlight remained stationary throughout the experiment.

Jonathan recorded his results in the table below.

Position	Height of the shadow on the screen (cm)
A	19
B	24
C	13

- (a) Based on the results in the table provided on the previous page, label the different positions (A, B and C) of the black can in the diagram below. Write them in the boxes provided. [1]

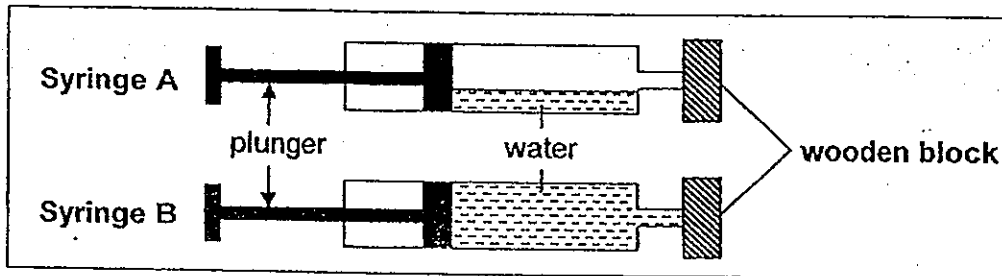


- (b) Based on the results in the table, what is the relationship between the distance of the black can from the screen and the height of the shadow cast? [1]

- (c) Based on the experiment conducted above, state one property of the black can that caused a dark shadow to be formed on the white screen at all three positions. [1]

Score	3
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22. Study the diagram below.



- (a) Which one of the above syringes (A or B) can the plunger be pushed in?
Write your answer in the blank below.

Syringe _____

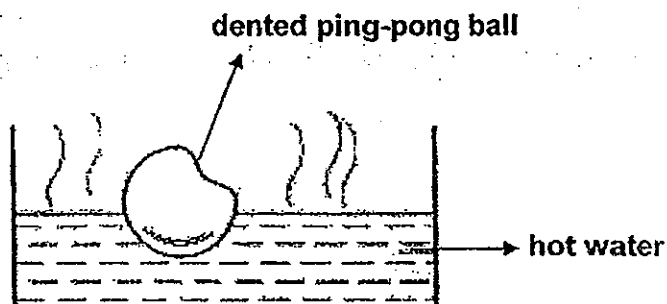
[1]

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

[1]

Score	2
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23. Study the diagram below.

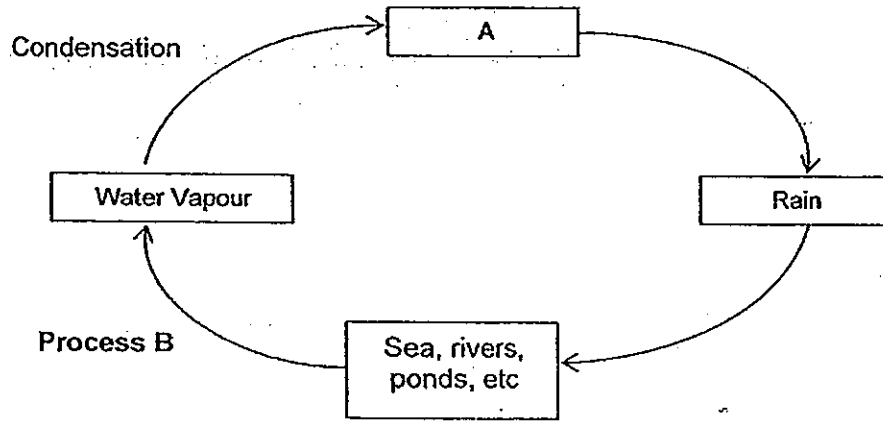


- (a) What happens to the shape of the dented ping-pong ball when it is placed into a beaker of hot water? [1]

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

Score	2
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24. Study the diagram of the water cycle below.



(a) What do the letters A and Process B represent? [1]

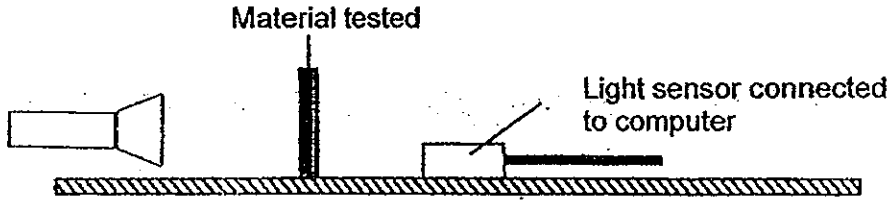
A: _____

Process B: _____

(b) Explain why the water cycle is important to Man. [1]

Score	2
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25. Jamie used a light sensor connected to a computer to measure the amount of light that was able to pass through different materials, A, B and C, as seen in the diagram below.



Jamie recorded the results in the table below.

Material	Amount of light (Lux)
A	95
B	0
C	230

- (a) Arrange the materials (A, B and C) according to the degree of transparency starting with the most transparent material in the boxes provided below. [1]

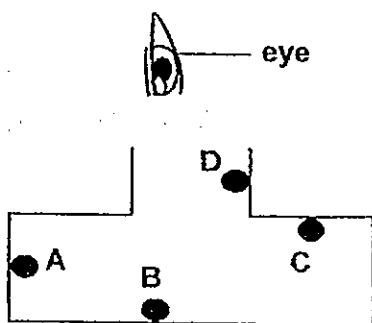
Materials		
Most		Least
Degree of transparency		

- (b) Which material will produce the darkest shadow when placed in between a light source and a screen? [1]

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

Score	3
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26. In the setup below, Jane stuck some blu-tac at different spots on the inner surface of a container.



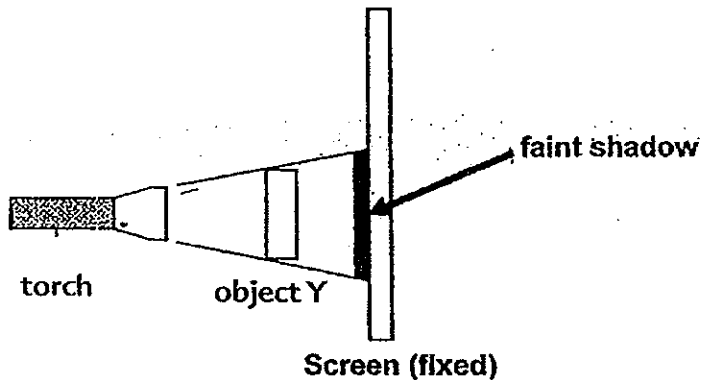
- (a) Which pieces of the blu-tac, A, B, C and D, can be seen and which cannot be seen by the eye in the set-up above?
Write the letters (A, B, C and D) correctly in the table below. [2]

Can be seen	Cannot be seen

- (b) Based on the set-up above, explain why some pieces of blu-tac can be seen by the eye while others cannot. [1]

Score	3
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27. Study the diagram below carefully.



When object Y is placed in front of a torch, a faint shadow is seen on the screen.

- (a) Which one of the following materials is object Y likely to be made of? Circle your answer in the box below. [1]

Aluminium	Clear plastic	Frosted glass
-----------	---------------	---------------

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

- (c) Which of the following variable(s) can you change to obtain a bigger shadow of object Y. Put a tick (✓) in the correct box(es). [1]

i) Size of the torch	
ii) Size of the screen	
iii) Distance between the torch and the screen	
iv) Distance between object Y and the screen	

Score	3
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28. Angela carried out an experiment on 4 different materials. She used 4 identical sized beakers and filled each one with the same amount of water. The temperature of water in all the beakers was 60 °C. She then wrapped each beaker with the 4 different materials respectively.

After 10 minutes, she took the water temperature in each beaker and recorded it in the table below.

Material used to wrap the beaker	Temperature of water (°C) after 10 minutes
W	45
X	40
Y	50
Z	55

- (a) Based on the table above, which (W, X, Y or Z) material used by Angela is the best for keeping the water warm for the longest possible period of time? [1]

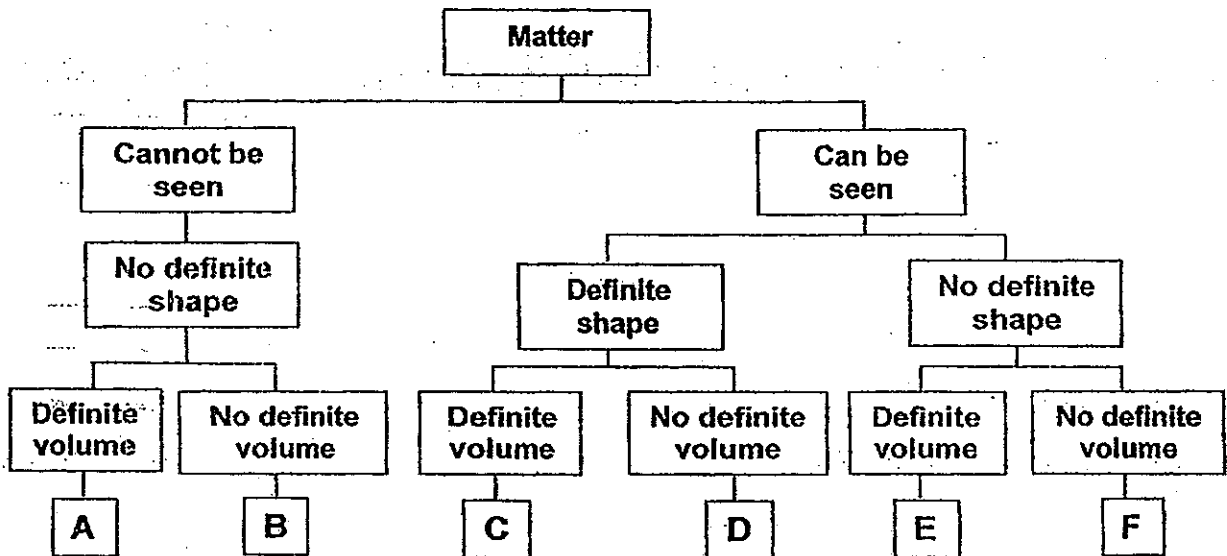
- (b) Explain your answer in (a)? [1]

- (c) Identify the independent and dependent variables in the experiment above. Put a tick (✓) in the correct columns. [2]

Variables	Independent	Dependent
Size of beakers		
Material used to wrap the beaker		
Amount of water in each beaker		
Temperature of water after 10 minutes		
Temperature of water at the start of the experiment		

Score	4
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29. Study the classification chart below.



(a) Based on the classification chart above, state two characteristics of matter D? [2]

(b) B and E are both matter. State another similar characteristic of B and E from the classification chart above. [1]

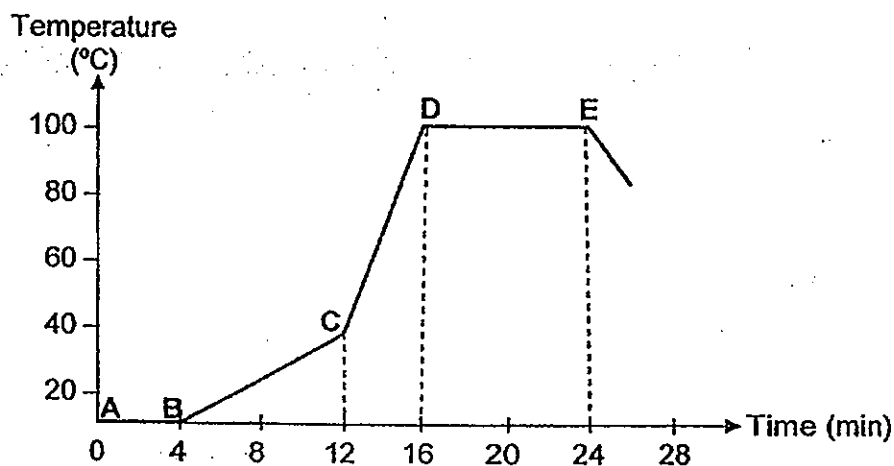
(c) Using the classification chart above, write the letter that represents each of the following: [1]

i) Air: _____

ii) Coffee: _____

Score	4
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30. The graph below shows some ice cubes being heated.



(a) Which point on the graph shows that all the ice cubes have melted completely?

Point _____

[1]

(b) Which part of the graph shows that the water is gaining heat very quickly?

[1]

Point _____ to Point _____

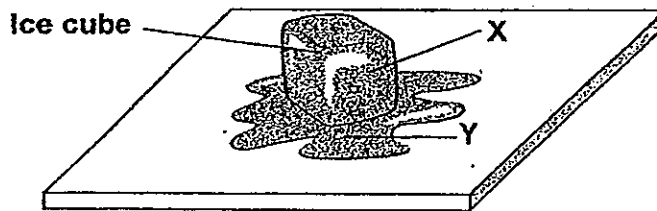
(c) For how long did the water boil?

_____ minutes

[1]

Score	3
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31. Jenny took out an ice cube from the freezer and left it on a table at room temperature of 30°C . She went out of the room for a few minutes and when she came back, she saw the following changes as shown in the diagram below.



- (a) Name the state of matter-labelled X and Y. [1]

X: _____

Y: _____

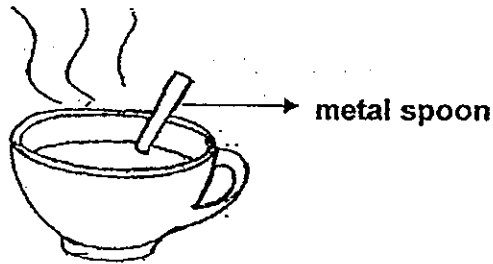
- (b) Based on your answer in (a), state a difference between the property of state X and state Y. [1]

- (c) Based on the diagram above, what process has taken place that resulted in the change of state from X to Y? [1]

- (d) Explain why the ice cube changed from state X to Y. [1]

Score	4
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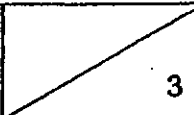
32. A cold metal spoon is placed in a cup of hot Milo as shown in the diagram below.



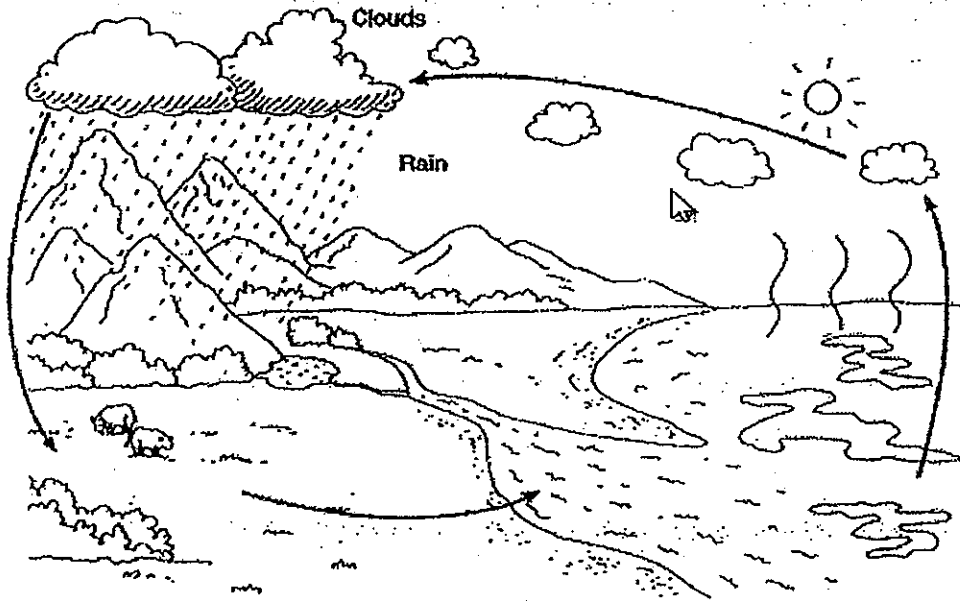
- (a) Describe how the handle of the spoon feels like when you touch it after five minutes. [1]

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

- (c) What can you infer about the property of heat from this activity? [1]

Score	
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33. Water from the Earth is constantly on the move and changing its state. The diagram below shows the movement of water from Earth to the sky and back to Earth in the water cycle.



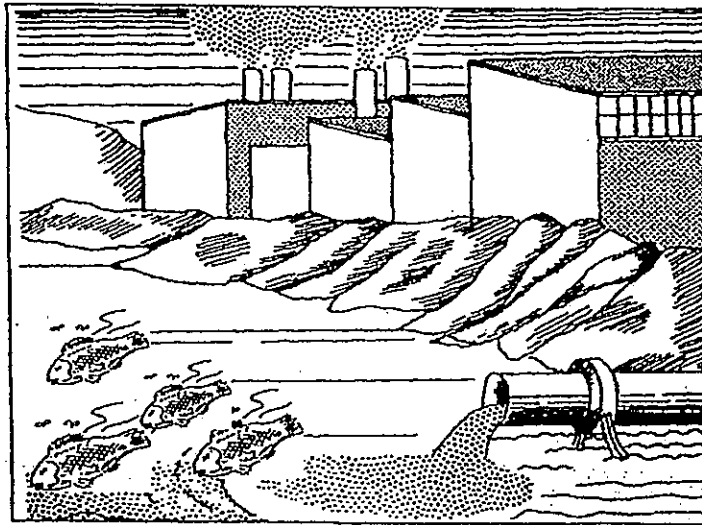
- (a) Why is the formation of clouds important in the water cycle? [1]

- (b) What energy enables this water cycle to take place?

Score	2
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34. The diagram below shows a scenario of untreated sewage waste and chemical discharge such as fertilisers from nearby farms and factories. These chemical discharges can be toxic and pollute the water.

In addition, the sewage waste and fertilisers can cause large amount of algae growth in the water which is harmful to the environment especially to the aquatic plants.



Listed below are the effects when the water is polluted with untreated sewage waste and chemical discharge such as fertilisers from nearby farms and factories. Arrange them in the correct order by numbering them 1 to 5. The first one has been done for you. [2]

Effects	Order of effects
These untreated sewage waste and fertilisers cause large amount of algae growth in these rivers and lakes.	
Factories and farms disposed untreated sewage waste and fertilisers into nearby rivers and lakes.	1
In turn, these algae growth will start to cover the surface of rivers and lakes.	
Without aquatic plants, the animal feeding on these plants will die too.	
When the surface of the rivers and lakes is covered with algae, sunlight will not be able to reach the aquatic plants growing in the water. In due time, these aquatic plants will die.	

Score	2
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ANSWER SHEET

EXAM PAPER 2013

SCHOOL : NAN HUA PRIMARY

SUBJECT : PRIMARY 4 Science

TERM : CA2

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

Q18	Q19	Q20
3	2	2

SECTION B

Q21

- a) B,A,C
- b) The nearer the black can to the torchlight, the longer the shadow would be
- c) The black can cannot reflect the light

Q22

- a) A
- b) There is air in syringe A and since air can be compressed, plunger A can be pushed in

Q23

- a) The dented ping-pong ball will turn back to its original shape
- b) The air in the ping-pong ball gains heat from the hot water and expands. The expanding air pushes the dent outwards

Q24

- a) A: Clouds, Process B: Evaporation
- b) We need a continuous supply of fresh water for our daily lives in order for survival.

Q25

- a) C, A, B
- b) Material B
- c) The amount of light deflected was zero. This shows it does not allow any light to pass through unlike materials A and C, which allows light to pass through.

Q26

- a) Can be seen: D, B
Cannot be seen: C, A
- b) Light travels in straight lines and only Blu-Tac B and D are able to reflect the light into the eye

Q27

- a) Frosted Glass
- b) Frosted glass is translucent and partially blocks the path of light.
- c) III and IV

Q28

- a) Material z
- b) As least heat is lost, Material Z is the poorest conductor of heat and conduct heat away the slowest among the materials
- c)

Variables	Independent	Dependent
Size of beakers		√
Material used to wrap the beaker	√	
Amount of water in each beaker		√
Temperature of water after 10 minutes		√
Temperature of water at the start of the experiment		√

Q29

- a) Matter D has a definite shape but no definite volume
- b) Both B and E have no definite shape
- c) i) B ii) E

Q30

- a) B
- b) Point C to Point D
- c) 8 minutes

Q31

- a) X: Solid, Y: Liquid
- b) X has a definite shape but Y does not have a definite shape
- c) Melting has taken place
- d) When the ice cube is left at room temperature, it will gain heat and melt thus changing from X to Y.

Q32

- a) It will be hot
- b) As the metal spoon is a good conductor of heat, it will gain heat very quickly from the milo, so it will be hot.
- c) Heat travels from a hotter to a cooler region

Q33

- a) the formation of clouds is important because it ensures that water changes back to liquid and falls back to Earth's surface
- b) Heat enables this water cycle to take place

Q34

Effects	Order of Effects:
These untreated sewage waste and fertilisers cause large amount of alagae growth in these rivers and lakes	2
Factories and farms disposed untreated sewage waste and fertilisers into the nearby rivers and lakes	1
In turn, these algae growth will start to cover the surface of rivers and lakes	3
Withour aquatic plants, the animal feeding on these plantswill die too	5
When the surface of the rivers and lakes is coveres with algae, sunlight will not be able to reach the aquatic plants growing in the water. In due time, these aquatic plants will die	4

