

SAT

NANYANG PRIMARY SCHOOL

PRIMARY 4 SCIENCE

**SEMESTRAL ASSESSMENT 1
2005**

BOOKLET A

Date : 6TH May 2005

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 16 printed pages including this cover page.

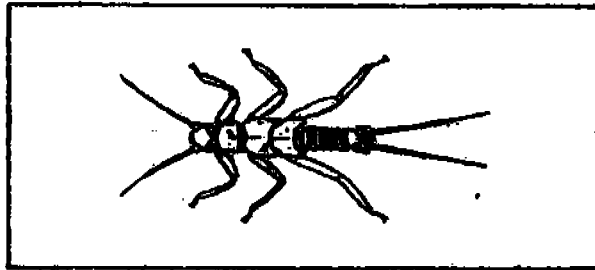
Section A (30 x 2 marks = 60 marks)

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.

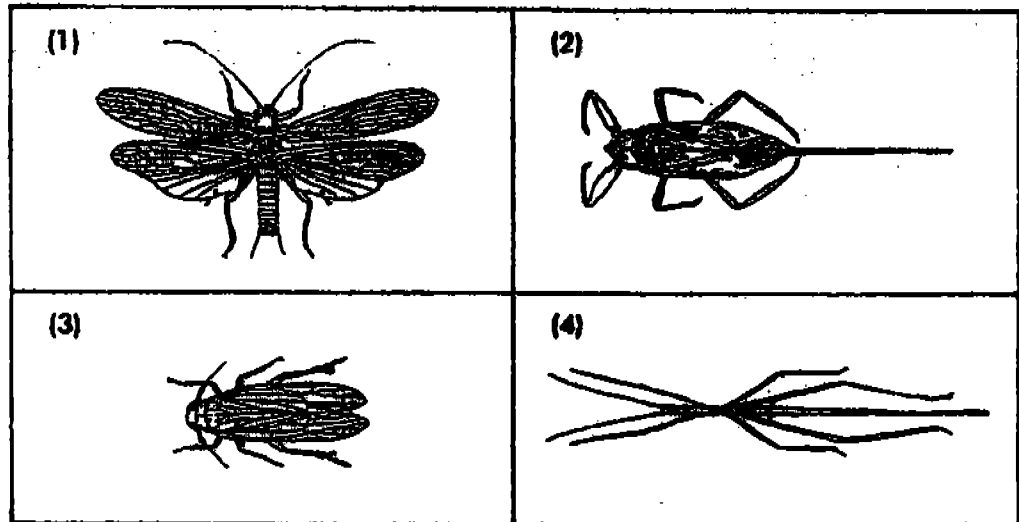
1. Which two animals have life cycles that are different from that of a mealworm beetle?

- (1) moth and chicken
- (2) frog and mosquito
- (3) housefly and butterfly
- (4) cockroach and grasshopper.

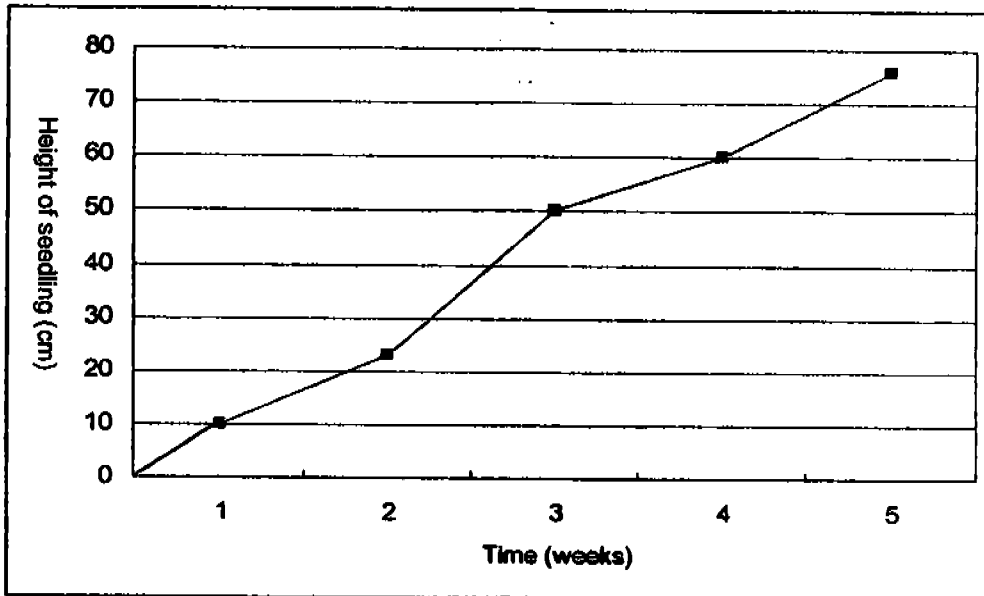
2. The diagram below shows the nymph of an insect.



Which one of the following shows how it looks like when it becomes an adult?



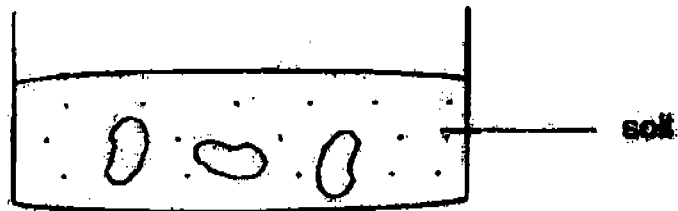
3. Meilin planted a bean seed in the garden. She decided to germinate it to find out how fast it grew. She recorded the heights of the seedling from Week 1 to Week 5 as shown in the graph below.



Based on the information given in the graph, the seedling grew the fastest between _____.

- (1) Week 1 and Week 2 (2) Week 2 and Week 3
(3) Week 3 and Week 4 (4) Week 4 and Week 5
4. Which of the following characteristics can be passed on from parents?
- A colour of the eyes
B colour of the hair
C shape of the ears
D ability to roll the tongue
- (1) A and B only (2) B and D only
(3) C and D only (4) A, B, C and D

5. Three bean seeds were placed against the side of a transparent container in a pot of soil in the positions as shown below. The seeds were left in a sunny place and watered daily.

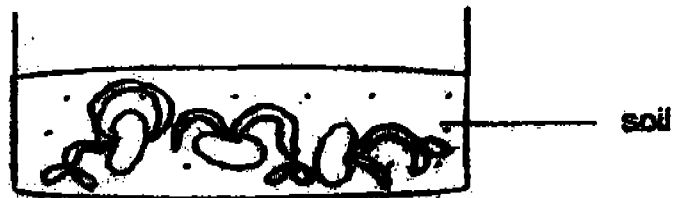


Which one of the following shows the results 5 days later?

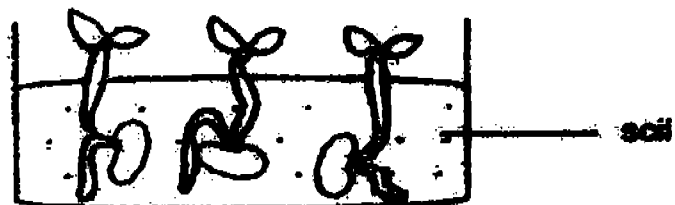
(1)



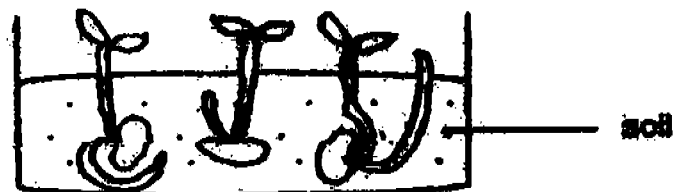
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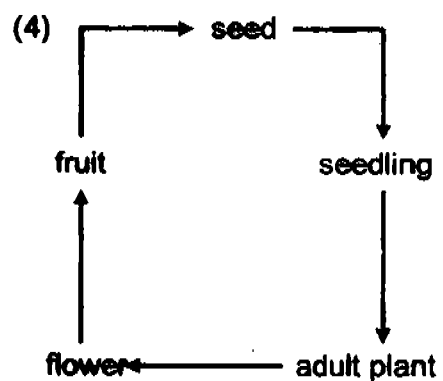
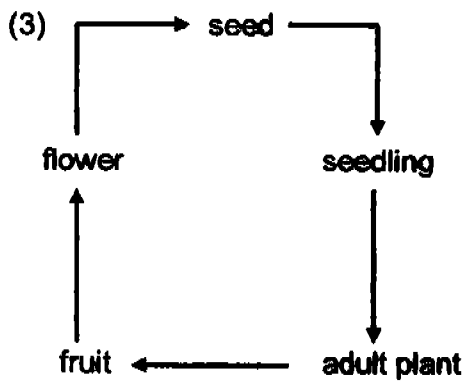
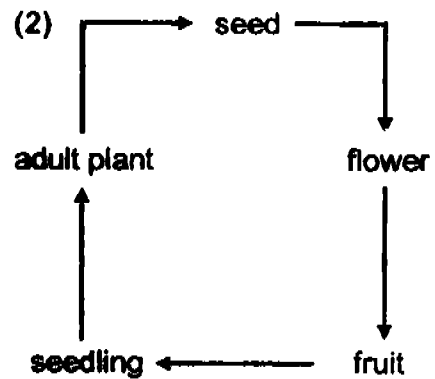
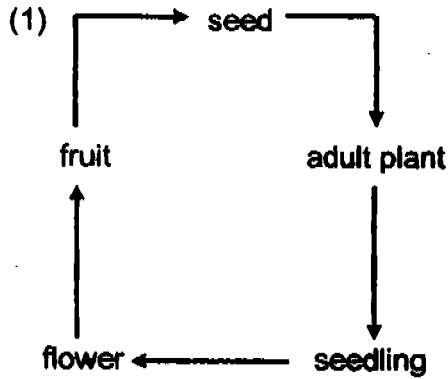
(3)



(4)



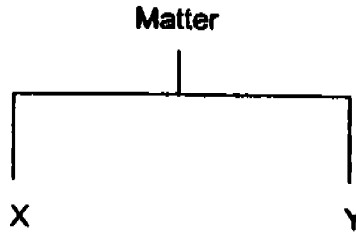
6. Which one of the following diagrams shows correctly the life cycle of the string bean plant?



7. Which one of the following groups of matter consists of a liquid, a solid and two gases?

- (1) orange juice, nitrogen, pencil, book
- (2) eraser, pencil, water vapour, oxygen
- (3) ruler, water vapour, alcohol, cooking oil
- (4) oxygen, carbon dioxide, water, plasticine

8. Peter classified matter into two groups as shown below.



Which of the characteristics below (A, B, C and D) best describe Groups X and Y?

(A)	Has mass	Has no mass
(B)	Occupies space	Does not occupy space
(C)	Has a definite shape	Has no definite shape
(D)	Can be compressed	Cannot be compressed

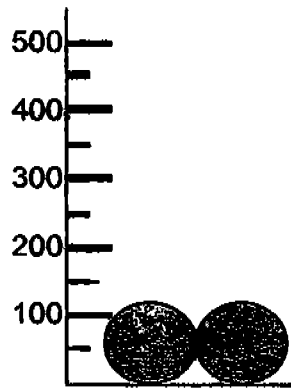
- (1) A and B only (2) A and C only
(3) B and D only (4) C and D only
9. Jane had two glass containers, a flask and a beaker. She poured all the water from the flask carefully into the beaker.



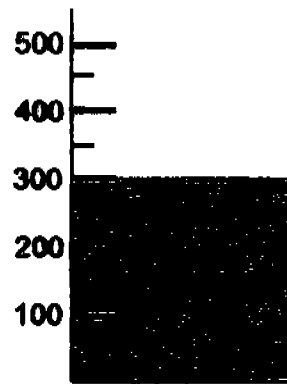
Which one of the following would she observe?

- (1) a change in the volume and shape of the water.
(2) a change in the water level and shape of the water.
(3) no change in the water level but a change in the mass of the water
(4) no change in the water level but a change in the volume of the water

10. Beaker A, as shown in the diagram below, contains 2 identical metal balls. Beaker B contains 300 ml of water.

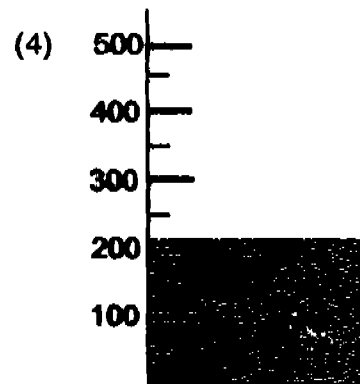
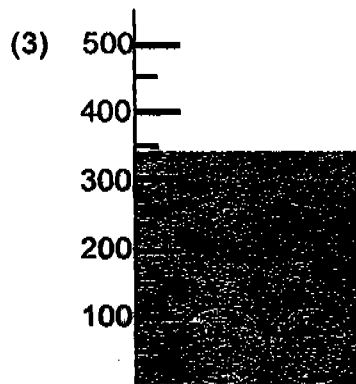
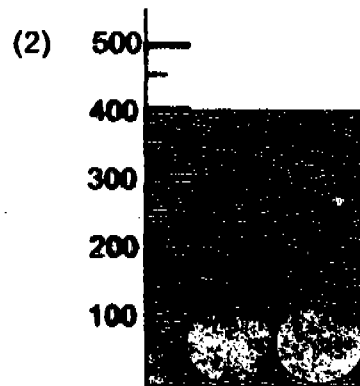
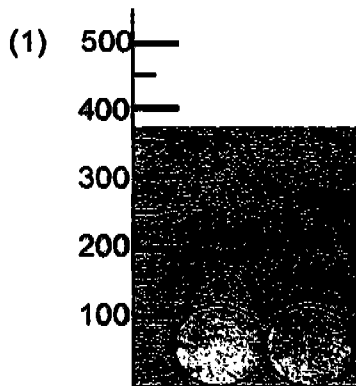


Beaker A



Beaker B

David pours all the water in Beaker B into Beaker A. Which one of the following shows the correct water level in Beaker A?

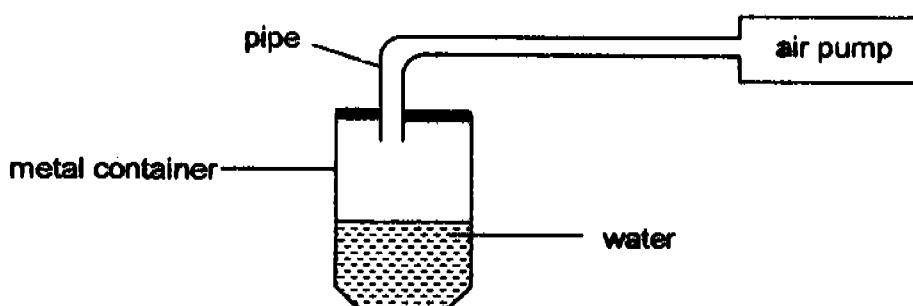


11. Which of the following are not examples of matter?

- A snow
- B feather
- C light
- D sound

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

12. George set up the apparatus as shown below.



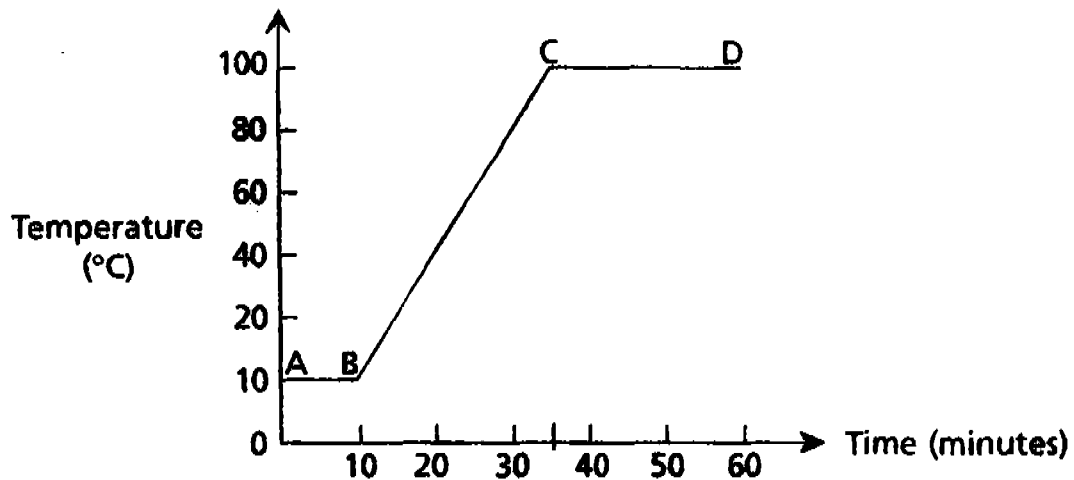
He pumped some air into the metal container. Then, he made some statements about the air and water in the container.

- A The volume of the air has increased.
- B The volume of the water has increased.
- C The mass of the air has remained unchanged.
- D The mass of the water has remained unchanged.

Which of the statements above are incorrect?

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

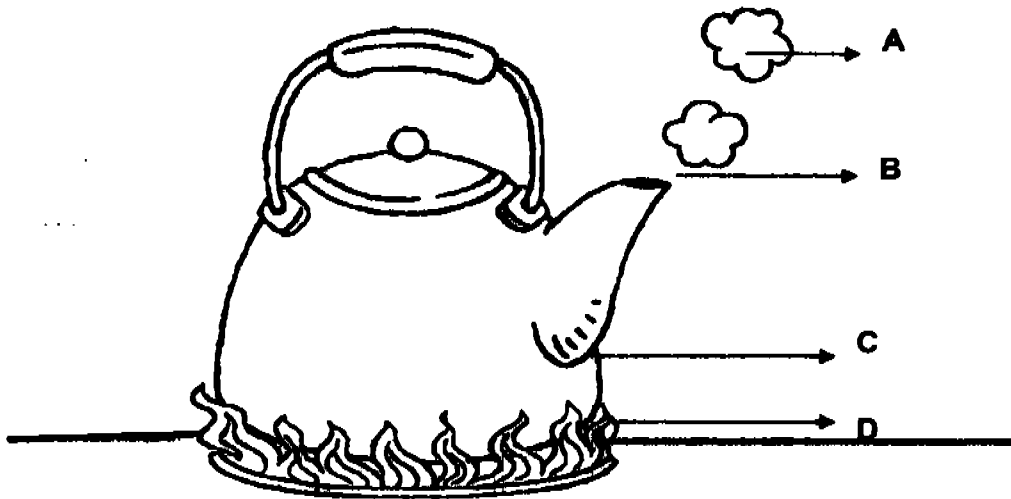
13. The graph below shows the temperature change of water over an hour. Study the graph below and answer Questions 13 and 14.



Which one of the following caused the temperature change at BC?

- (1) The water was heated.
 - (2) Boiling water was added.
 - (3) The water was taken out of the refrigerator.
 - (4) The water was left on the table at room temperature.
14. Which part(s) of the graph involves / involve a gain of heat by water?
- (1) BC only
 - (2) CD only
 - (3) AB and BC only
 - (4) BC and CD only

Amy boiled a kettle of water as shown in the diagram below.
Use the diagram to answer Questions 15 and 16.



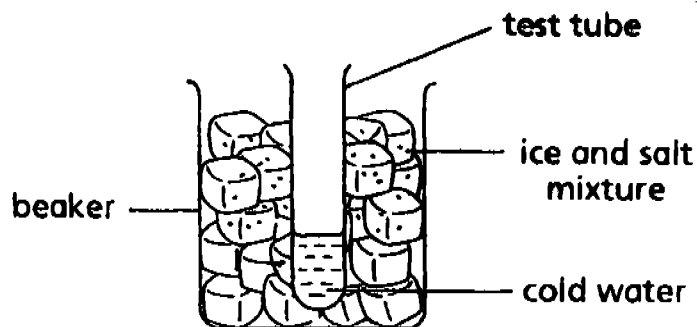
15. Which one of the positions A, B, C or D could she find steam?
- | | |
|-------|-------|
| (1) A | (2) B |
| (3) C | (4) D |
16. When Amy placed a metal tray near the spout of the kettle, she observed water droplets on the underside of the tray. Which one of the processes had taken place?
- | | |
|-----------------|------------------|
| (1) Freezing | (2) Melting |
| (3) Evaporation | (4) Condensation |
17. What are clouds made of?
- | | |
|--------------------|------------------|
| (1) Air | (2) Steam |
| (3) Water droplets | (4) Water vapour |
18. ^{Which.} ~~Why~~ one of the following explains the importance of the water cycle?
- | |
|--|
| (1) It ensures that there will be no flood. |
| (2) It ensures that it cools people down on a hot day. |
| (3) It ensures that there is water for the fish to survive. |
| (4) It ensures that there is a continuous supply of water for living things. |

19. Which of the following events/actions form part of the water cycle?

- A. Bathing
- B. Swimming
- C. Boiling soup
- D. Thunderstorm
- E. Drinking water

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

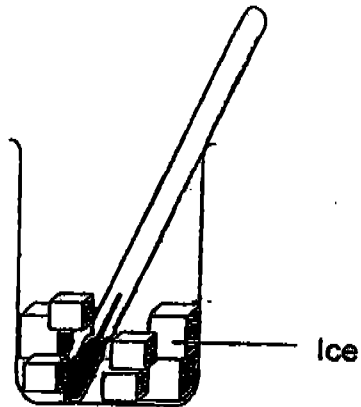
20. Sam wanted to freeze some water in a test tube using the set-up below. After 15 minutes, he observed that the water in the test tube turned into ice.



Which one of the following explains why it was possible for the water in the test tube to freeze?

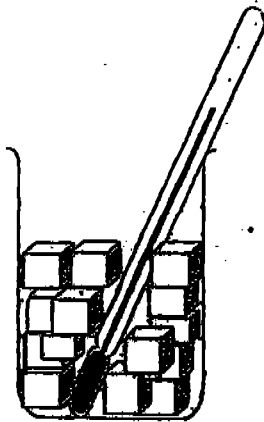
- (1) Water in the test tube lost heat to the ice mixture.
- (2) Water in the test tube gained heat from the ice mixture.
- (3) Water in the test tube lost heat to the surrounding air.
- (4) Water in the test tube gained heat from the surrounding air.

21. Tom placed a thermometer in a beaker of ice. The thermometer in the diagram below shows the reading after 2 minutes.

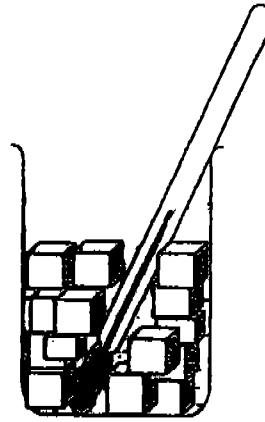


Which one of the following shows the reading on the same thermometer when more ice is added?

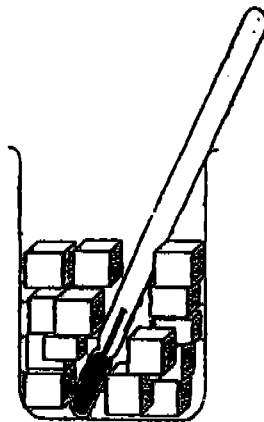
(1)



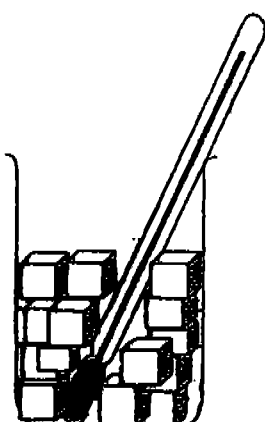
(2)



(3)



(4)



22. Which one of the following correctly describes the two processes, boiling and evaporation of water?

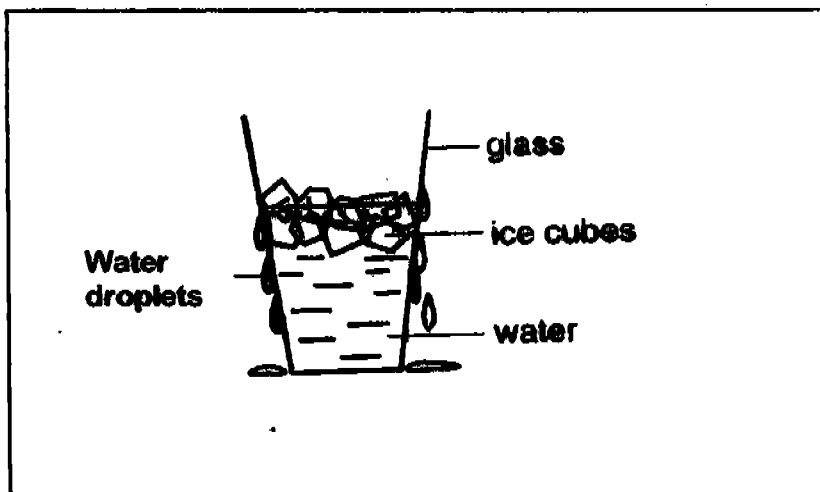
Boiling

- (1) Occurs in the day
- (2) Occurs at 100°C
- (3) Heat is gained by water
- (4) Change from liquid to gaseous state

Evaporation

- Occurs all the time
- Occurs at all temperatures
- Heat is lost by water
- Change from gaseous to liquid state

23. Jessie left a cup of iced water in her classroom. After a while, she observed water droplets form on the glass as shown in the diagram below.



Without removing the cup of iced water from the classroom, how could Jessie increase the number of water droplets?

- A. Add tap water
- B. Add more ice into the water
- C. Add some salt into the water

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

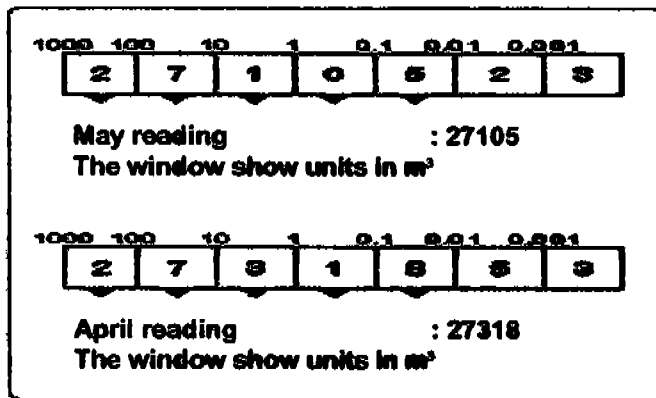
24. Which one of the following activities requires water to be in the gaseous state?

- (1) Swimming
- (2) Cooking fish
- (3) Putting out fire
- (4) Keeping fish fresh

25. Which one of the following explains why Singapore has a limited water supply?

- (1) There is no reservoir in Singapore.
- (2) There is no natural water source in Singapore.
- (3) There is no water treatment plant in Singapore.
- (4) Singapore does not buy water from neighbouring countries.

? 26. The diagram below shows the Lim family's water meter reading in April and May.



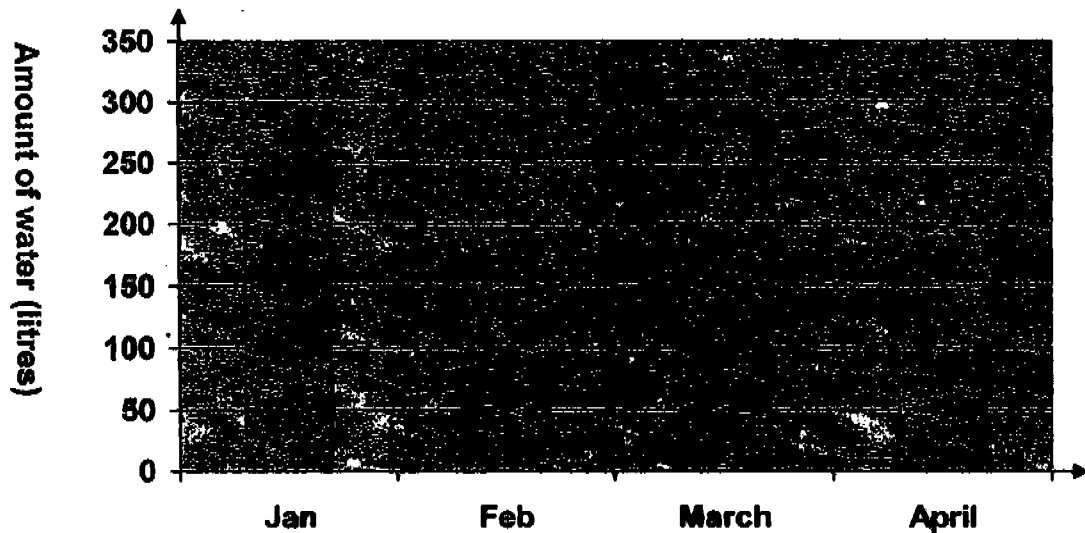
Which of the following reasons cause the change in water usage in the Lim family in May?

- A. Reuse rinse water from laundry for washing vegetables
 - B. Reuse the water from washing plates to water plants
 - C. Handwash clothes in a basin of water instead of under a running tap
 - D. Machine wash a full load of clothes on alternate days instead of a half-load of clothes daily
- (1) A and B only (2) A and D only
(3) B and C only (4) C and D only

27. Hao Ren and his family had a picnic beside a pond. Before leaving, his siblings disposed off some unwanted materials into the pond. There are two consequences of their actions.
- A. The fish were floating on the surface, dead.
 - B. The turtles were suffocated.

Which of the following materials could have been disposed off by his siblings that caused the above?

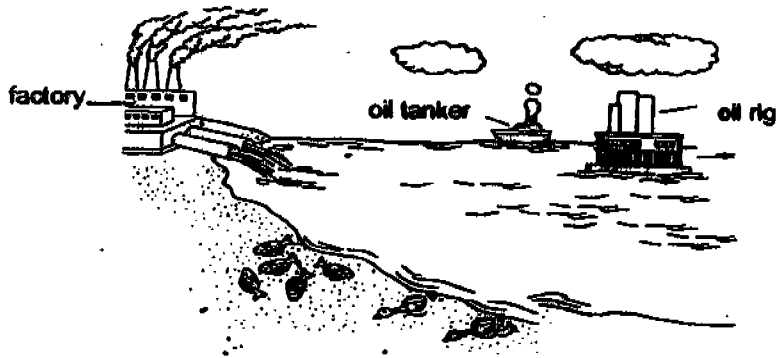
- (1) oil and plastic spoons
 - (2) canned drinks and food
 - (3) plastic bags and leftover food
 - (4) satay sticks and leftover food
28. The chart below shows the monthly water consumption measured at the end of January, February, March and April for the Lee family.



Which of the following are possible actions or events carried out in these months?

- | | Action / Event | Month |
|----|--------------------------------------|--------------|
| A. | Save Water campaign | February |
| B. | Water Rationing Exercise | March |
| C. | A 2 week-vacation for the Lee family | April |
- (1) A and B only
 - (2) B and C only
 - (3) A and C only
 - (4) A, B and C

29. The picture below shows some dead fish and dead birds swept on the shore after the water was polluted.



How does the water pollution cause the fish and birds to die?

- A. The oil spill increases the water temperature, thus killing the fish.
- B. The oil spill causes the feathers of the birds to clump together, causing them to freeze to death.
- C. The chemicals from the factory poison the water, causing the birds and fish to die after drinking it.

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

30. Which one of the following processes removes salt from seawater?

- (1) Recycling
- (2) Conservation
- (3) Desalination
- (4) Purification

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PRIMARY 4 SCIENCE

**-SEMESTRAL ASSESSMENT 1
2005**

BOOKLET B

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Booklet B consists of 15 printed pages including this cover page and a blank page.

Section B (40 marks)

Write your answers to Questions 31 to 46 in the spaces provided.
Marks will be deducted for misspelt key words.

31. Study the animals given in the box carefully.

moth, chicken, mealworm beetle
grasshopper, mosquito, cockroach

- (a) Identify the animal that spends part of its life cycle in water and part of it on land. (1 mark)

- (b) For the animal identified in (a), name the stage(s) in its life cycle that is/are spent

(i) in water : _____ (1 mark)

(ii) on land : _____ (1 mark)

32. Study the descriptions of the life cycles of Animal X and that of Animal Y carefully.

Life Cycle of Animal X

Animal X has three stages in its life cycle. It spends the first 2 stages of its life cycle in a pond. The adult stage is spent on land. It takes about 14 days to complete its life cycle. The adult looks completely different from its young.

Life Cycle of Animal Y

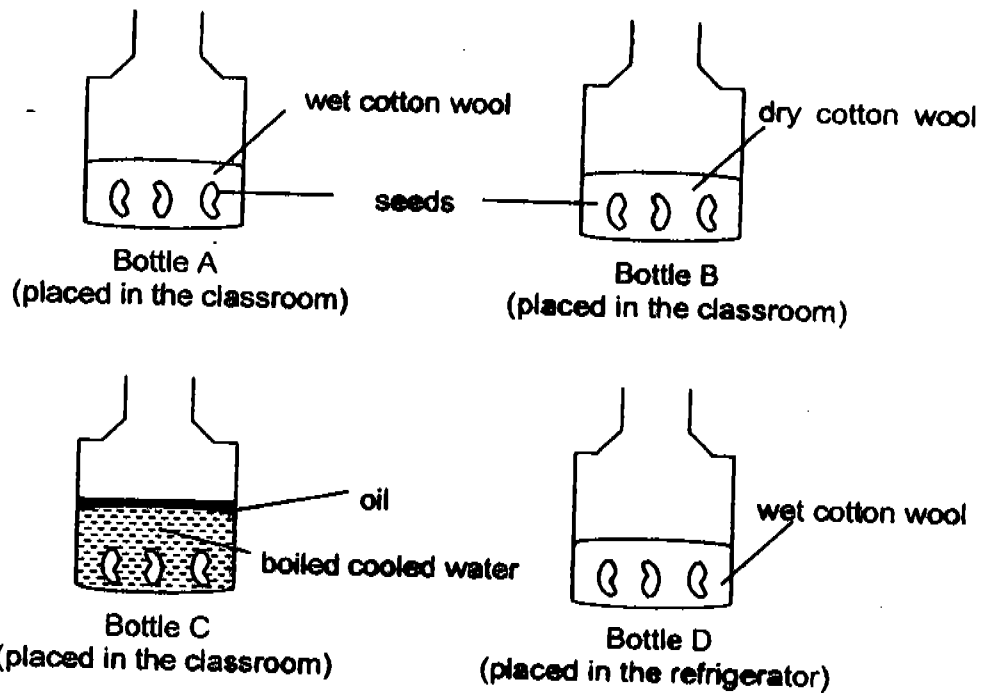
Animal Y has a 4-stage life cycle. Its young hatches from an egg. The first 2 stages of its life cycle are spent in water. Its young looks very like its adult. It takes about 2 weeks to complete its life cycle.

Based on the descriptions given above,

- (a) Write down ONE similarity between the two life cycles. (1 mark)

- (b) Write down TWO differences between the two life cycles. (2 marks)

33. Sharon prepared the following set-ups and she put soya bean seeds into four similar bottles.



- (a) Based on the above set-ups, write down what she was trying to find out. (1 mark)

- (b) In which of the bottle(s) would the seeds grow into seedlings? (1 mark)

34. Study the details about X, Y, W and Z carefully.

W : Mass = 1 g
Volume = 4 cm³

Y : Mass = 0 g
Volume = 0 cm³

X : Mass = 3 kg
Volume = 20 cm³

Z : Mass = 0.5 kg
Volume = 6 cm³

(a) Which of the following W, X, Y and Z can be classified as matter? (1 mark)

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

35. The following is a list of matter:

nitrogen, plasticine, oxygen, wine, book, apple juice

(a) Classify the above into 3 groups of 2 as shown. (2 marks)

Group 1

Group 2

Group 3

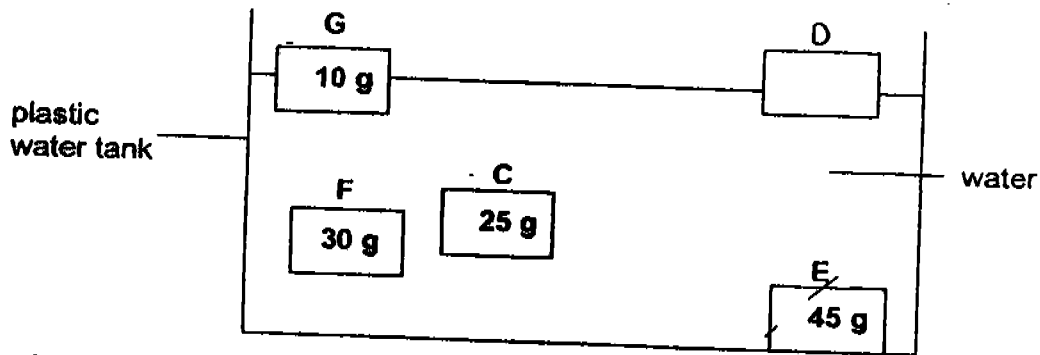
(b) Give suitable headings for each group. (1 mark)

Group 1: _____

Group 2: _____

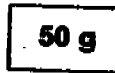
Group 3: _____

36. George puts five rectangular blocks, C, D, E, F and G into a plastic water tank filled with water. The blocks are similar in size but have different masses. The positions of the blocks are indicated in the diagram below.



- (a) What is the most probable mass of Block D? (1 mark)

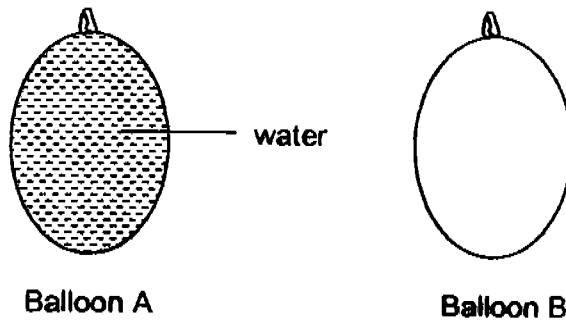
- (b) George puts another rectangular block, H (as shown in the diagram below), into the tank. It has the same size as the other blocks but a mass of 50 g.



Rectangular Block H

Show, by drawing, the probable position of Block H in the diagram of the tank above. (1 mark)

37. Newton conducted a simple activity as shown below. He filled up Balloon A with water and inflated Balloon B with air.



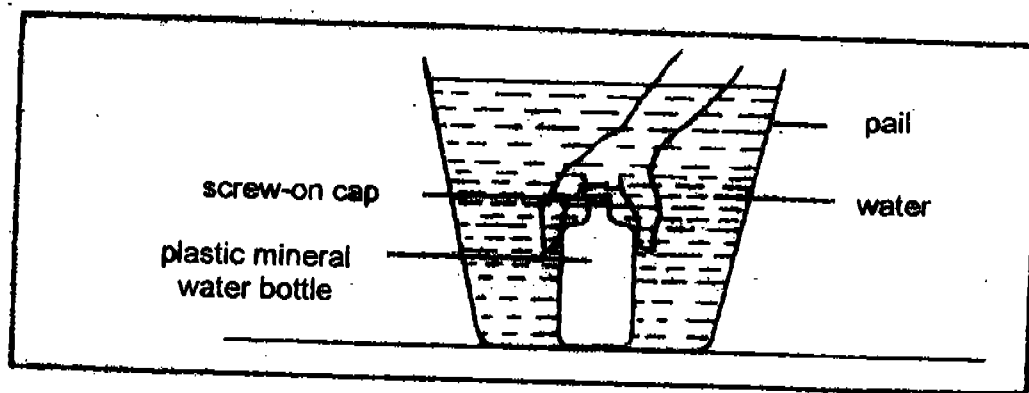
- (a) What is the common property that he has found out about water and air? (1 mark)
-
- (b) Newton blew more air into Balloon B without bursting it. Has the volume of air in the balloon increased? Explain your answer? (2 marks)
-
-

38. David conducted an experiment to find out the relationship between the mass and the volume of Matter X. The table below shows the results of the experiment.

Volume(in cm^3)	20	20	20	20
Mass(in g)	20	40	60	80

- (a) Based on the readings above, identify one state of Matter X. (1 mark)
-
- (b) Explain your answer in (a). (2 marks)
-
-

39. Xiuyun immersed an empty capped plastic water bottle in a pail of water as shown in the diagram below.



With the bottle still immersed in water, she unscrewed and removed the cap. When she released the opened bottle, she observed bubbles rising to the water surface. Write down 2 other observations that she would make. (2 marks)

- (a) _____

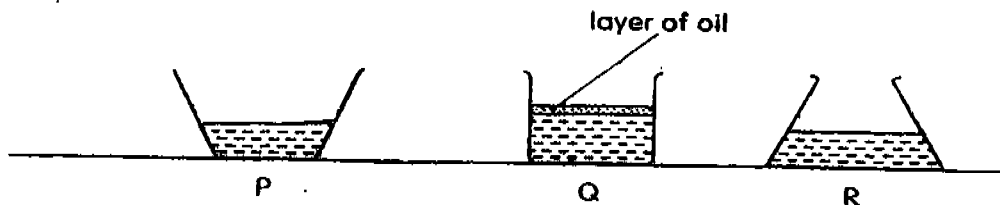
- (b) _____

40. Fill in the blanks with appropriate words. (2 marks)

Water is important to all living things. It is needed for living things to stay (a) _____. Other than that, water can also be used in industries and our (b) _____. Water can be used for (c) _____, washing clothes, watering plants and many more in our homes. In addition, water is also used for leisure activities such as surfing and (d) _____.

Joseph.

41. Joseph placed three containers, P, Q and R, with 50 ml of tap water each, in his garden.



- a) After 5 hours, Joseph measured the volume of water left in the beakers and recorded the volume in the table below. Predict the amount of water left in Beaker Q. (1 mark)

Beaker	Volume of water (ml)	Volume of water after 5 hours (ml)
P	50	30
Q	50	
R	50	20

- b) Based on his observation in beaker Q, what could he conclude? (1 mark)

42. The table below shows a list of different substances, A, B, C, D, E, and their respective freezing points.

Substance	Freezing Point (°C)
A	0
B	-1
C	2
D	-2
E	4

- (a) Which substance above has the highest freezing point? (1 mark)

- (b) Identify 2 substances above that are likely to be salt water? (1 mark)

43. A beaker of clear water was given to Terry and he was instructed to conduct an experiment to determine if it contained salt. (He was not allowed to taste it.) The following materials were provided for his experiment.

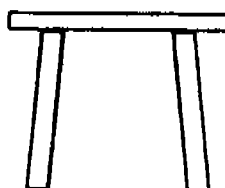
i) aluminium foil



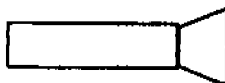
ii) beaker of water



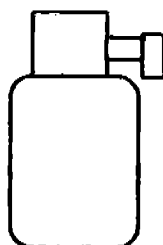
iii) tripod stand



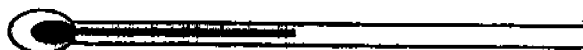
iv) torch



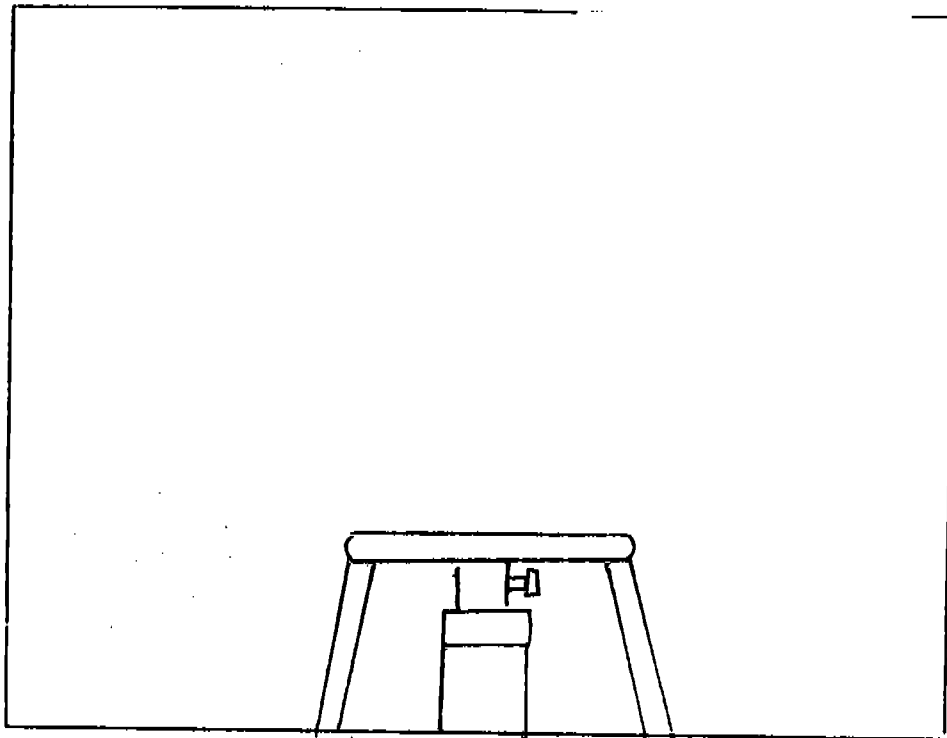
v) bunsen burner



vi) thermometer

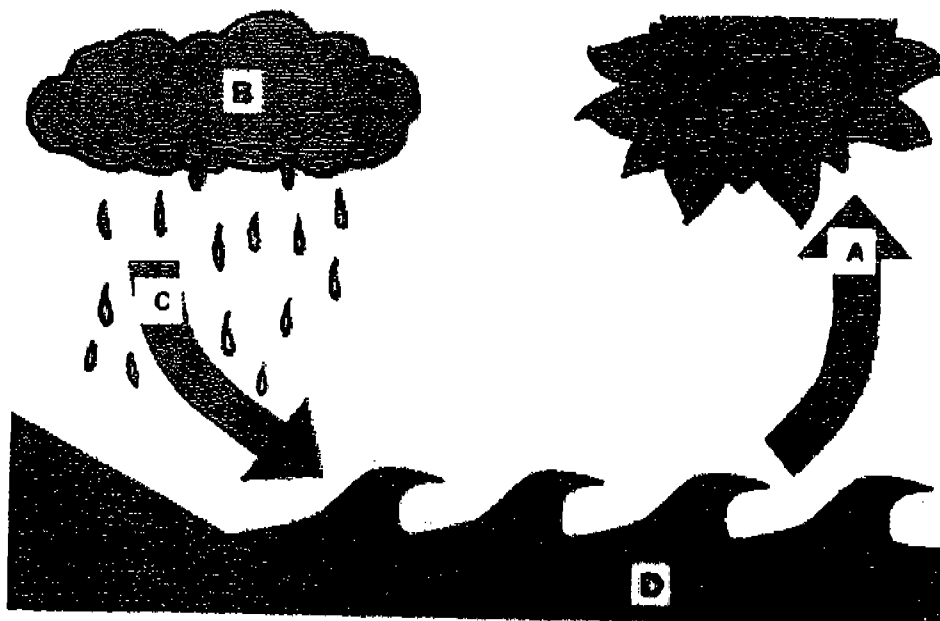


- a) Draw and label the experiment set-up in the space below. You need not use all the apparatus shown above. (2 marks)



- b) State the results / observations of his experiment. (1 mark)

44. The diagram below shows the water cycle.



(Adapted from <http://www.kidzone.ws/water/>)

(a) Identify the change in state of water from: (1 mark)

i) D to A _____

ii) A to B _____

(b) Name 2 sources of water. (1 mark)

- _____
- _____

45. The picture below shows deforestation for farming in French Guiana.

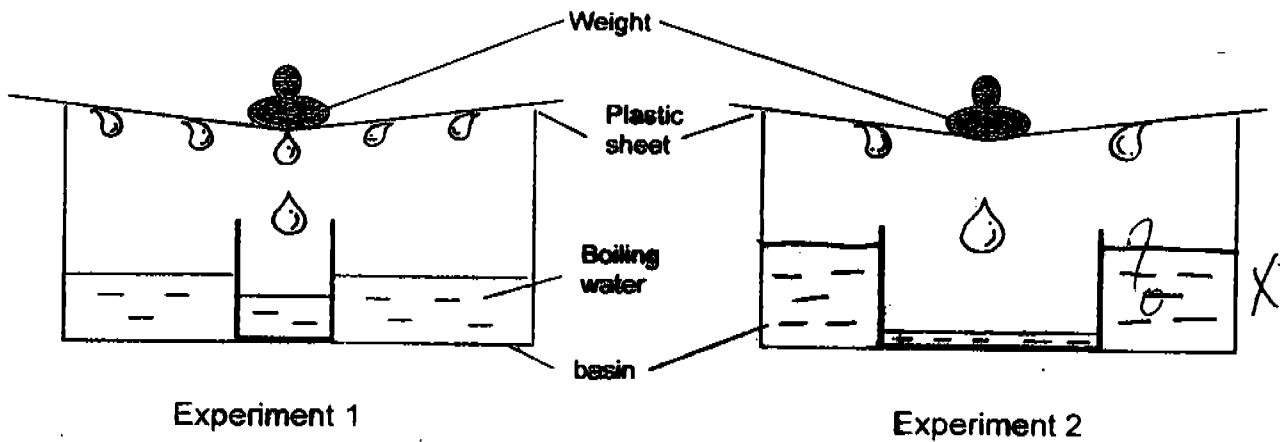


(Extracted from <http://www.ddbstock.com/deforestation.html>)

a) How does deforestation cause water pollution? (1 mark)

b) How does deforestation affect the water cycle? (2 marks)

46. Tina collected some boiling water and set up Experiment 1 as shown below. She left the set-up in the sun for a few hours.



Experiment 1

Experiment 2

In Experiment 2, Tina conducted the same experiment but this time, she replaced the cup with a bigger container. She used the same amount of water and left the set-up in the sun for the same duration.

- (a) Draw in experiment 2 above, the new water level in the basin. (1 mark)
- (b) Would Tina collect more or less water in the container in Experiment 2? (½ mark)

- (c) Explain your answer in (b). (1½ marks)

-----END OF PAPER-----

Setters: MR LEE KIN LEONG
ELAINE HO

Nanyang Primary School

Primary 4 Science SA1 Exams (2005)

Exam Paper

Answer Sheets

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

31a. It is the mosquito

31b. (i) Larva , egg, pupa
(ii) adult

32a. Both spend their first stage so their life cycle in a pond.

32b. Animals X has three stages in its life cycle while Animal Y has four stages in its life cycle.

33a. She was trying to find out if seeds can germinate without air, warmth and water.

33b. It is bottle A.

34a. They are W, X and Z.

34b. All matter has mass and occupies space.

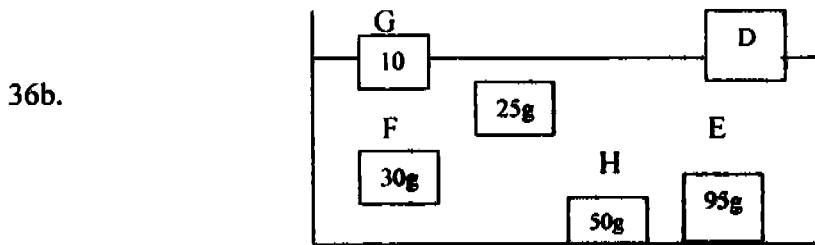
35a.

Group 1	Group 2	Group 3
nitrogen	Plasticine	Wine
oxygen	Book	Apple juice

35b.

Group 1	:	Gas
Group 2	:	Solid
Group 3	:	liquid

36a. It could be 5g



37a. Both of them occupied space.

37b. The balloon is made of rubber which is elastic. Therefore the balloon became bigger as more air was blown into it, increasing the volume of air in the balloon.

38a. It is gas.

38b. When the mass of matter 'X' increases, the volume remain unchanged. This shows that it is a gas as gases have no definite volume.

39a. Water filled the bottle as air bubbles escaped.

39b. Air occupies space; the bottle will rise to the surface.

40a. Alive

40b. Homes

40c. bathing

40d. swimming

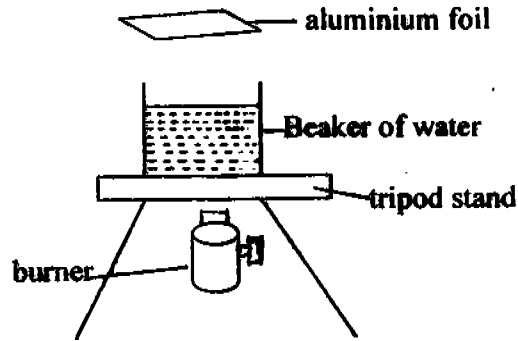
41a. 50ml

41b. Oil from water from evaporating

42a. E

42b. B and D

43a.



43b. You should burn until beaker is dry, if it salted, there should be salt left in the beaker.

44a. (i) Liquid to Gas
(ii) Gas to Liquid

44b. Lakes, seas

45a. When trees are chopped, their roots lose grip of the soil, therefore soil dropped into the river, so the river is polluted.

45b. There will be less water vapour give out by tree.

46b. She would collect less water.

46c. The exposed surface area of the experiment 2 is smaller. Therefore, the rate of evaporation slower, less water vapour will be collected.