

**Primary Four  
Science  
Semestral Assessment One**

**Section A**

**Choose the most appropriate answer and write your answer (1, 2, 3 or 4) in the boxes provided. (30 x 2 marks)**

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1. When the same amount of substance S is put into containers of different sizes, it will take up all the spaces. Which of the following is substance S most likely to be?

A: solid

B: liquid

C: gas

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

2. Which of the following statements about matter is TRUE?

- (1) It has mass and takes up space
- (2) It has no mass and takes up space
- (3) It has mass but it does not take up space
- (4) It has no mass but it does not take up space

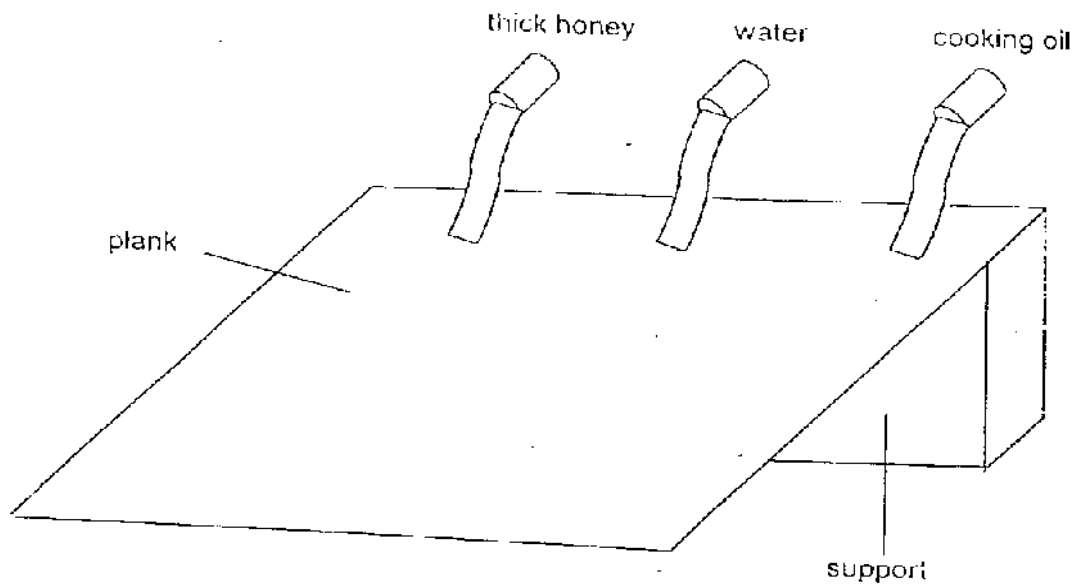
3. Which one of the following is a matter?

- (1) Heat
- (2) Light
- (3) Shadow
- (4) Smoke

4. Ali moulds a lump of plasticine into a big square block. He then cuts the block of plasticine into seven equal pieces. Which one of the following is true about the total mass and volume of the seven pieces of plasticine?

	Total Mass	Total Volume
(1)	Change	Change
(2)	No Change	Change
(3)	Change	No Change
(4)	No change	No Change

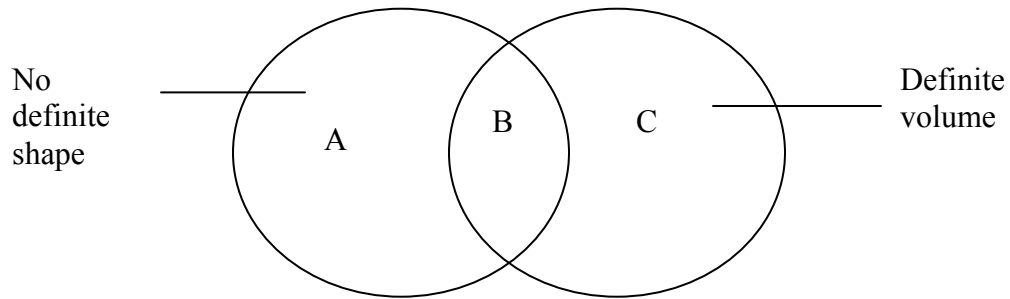
5. Look at the diagram below.



Sumei set up the above experiment to find out how fast different liquids flow. Which of the following results is likely to be correct?

	Slow	Fast	Fastest
(1)	Thick honey	Water	Cooking oil
(2)	Cooking oil	Thick honey	Water
(3)	Water	Cooking oil	Thick Honey
(4)	Thick honey	Cooking oil	Water

6. Study the Venn diagram below.



Which one of the following best represents A, B and C?

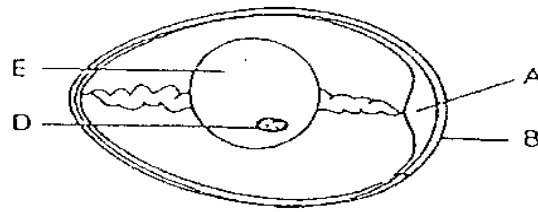
	A	B	C
(1)	Eraser	Water vapour	Carbon dioxide
(2)	Nitrogen	Fire	Perfume
(3)	Wind	Tea	Pen
(4)	Coffee	Oxygen	Brick

7. Which of the following statements are true about the life cycles of animals?

- A: The life cycles of animals are a series of stages of their growth.
- B: The young of animals have different life cycles as their parents.
- C: The life cycles of animals ensure the continuation of the same types of animals

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

8. Study the diagram below.



Which part of the hen's egg does a growing chick get its food from?

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

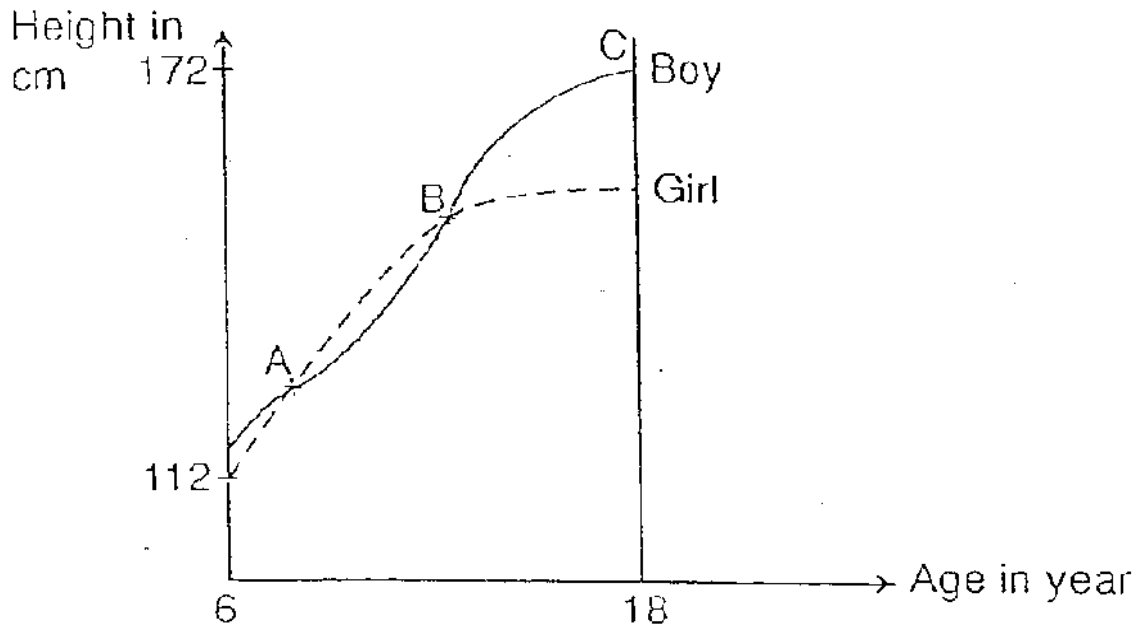
9. Which sequence of events show the growth of a long bean plant when the seed is planted?

- (1) **leaves appear** → **roots appear** → **flowers appear**
- (2) **leaves appear** → **fruits appear** → **flowers appear**
- (3) **roots appear** → **leaves appear** → **fruits appear**
- (4) **roots appear** → **leaves appear** → **flowers appear**

10. What is the difference between a nymph and an adult cockroach?

- (1) A nymph has no wings but an adult cockroach has wings
- (2) A nymph has four legs but an adult cockroach has six legs
- (3) A nymph lives in water but an adult cockroach lives on land
- (4) A nymph has no feelers but an adult cockroach has a pair of feelers

11. Study the graph below carefully.

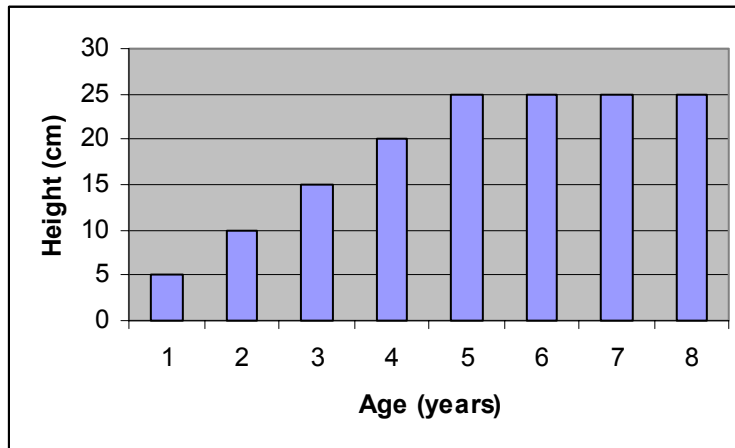


The graph shows the height of a boy and a girl from 6 to 18 years of age. Which of the following statements are true?

- A: At 6 years of age, the boy is taller than the girl.
- B: AB of the graph shows that the boy is shorter than the girl
- C: At point B, the boy is as tall as the girl

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

12. Study the graph below carefully.



The graph shows the relationship between the height of a bonsai tree and its age. At which year did the height of the bonsai tree stop increasing?

- (1) 2 years old
- (2) 4 years old
- (3) 5 years old
- (4) 8 years old

13. Water changes its state depending on its \_\_\_\_\_.

- (1) size
- (2) volume
- (3) shape
- (4) temperature

14. Which of the following processes does NOT take place at a fixed temperature?

- (1) boiling
- (2) freezing
- (3) melting
- (4) evaporation

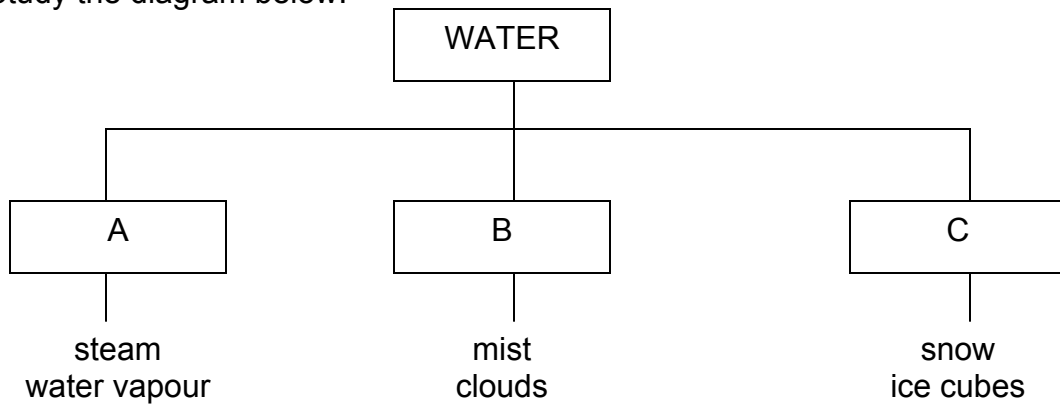
15. Study the information about Matter M carefully.

Matter M boils at a temperature of 80 °C  
Matter M freezes at a temperature of 10 °C  
Matter M melts at a temperature of 10 °C

At temperature of 5 °C, Matter M is a \_\_\_\_\_.

- (1) liquid
- (2) gas
- (3) solid
- (4) plasma

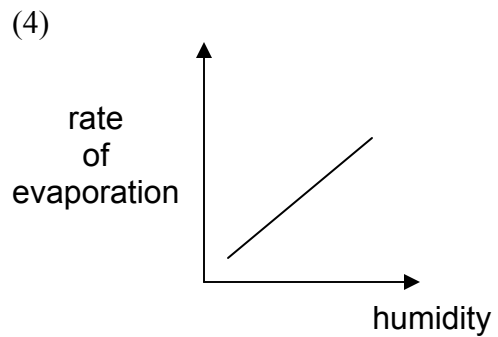
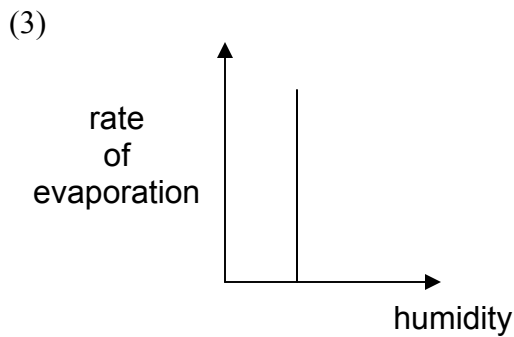
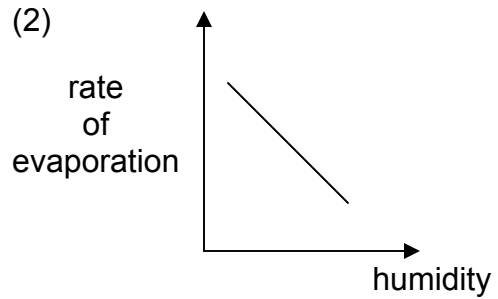
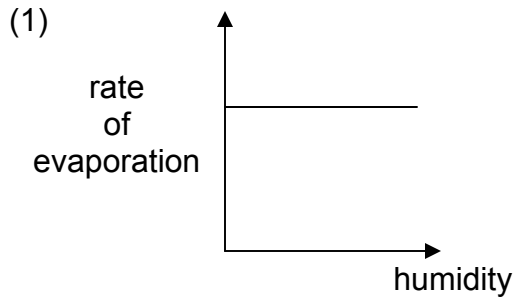
16. Study the diagram below.



The headings, A, B and C are best replaced by \_\_\_\_\_.

	A	B	C
(1)	Solid	Liquid	Gas
(2)	Gas	Solid	Liquid
(3)	Gas	Liquid	Solid
(4)	Liquid	Gas	Solid

17. Which one of the following graphs shows the correct relationship between the rate of evaporation and humidity.



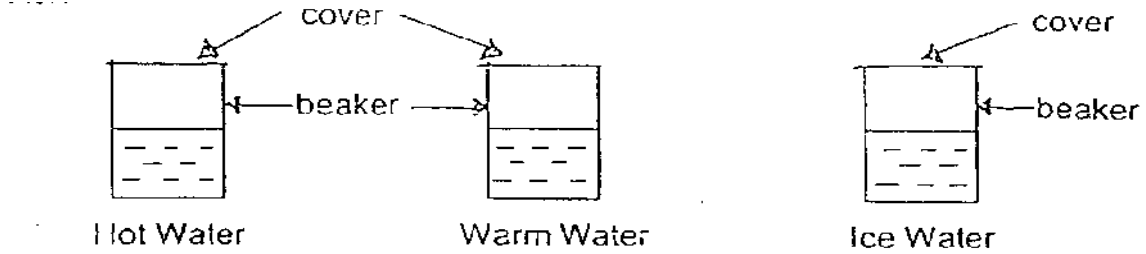

18. Complete the following sentence using the words given in the table.

The air that we breathe out is  and contains  water vapour than the air that we breathe in.

	A	B
(1) C	Warmer	Less
(2) h	Warmer	More
(3) a	Cooler	Less
(4) n	Cooler	More



19. Water droplets can be found either on the inside or outside of the following beakers of water.



Which one of the following tables shows the correct classification?

(1)

Water droplets inside beaker	Water droplets outside beaker
Warm water	Hot water
Ice water	

(2)

Water droplets inside beaker	Water droplets outside beaker
Hot water	Ice water
Warm water	

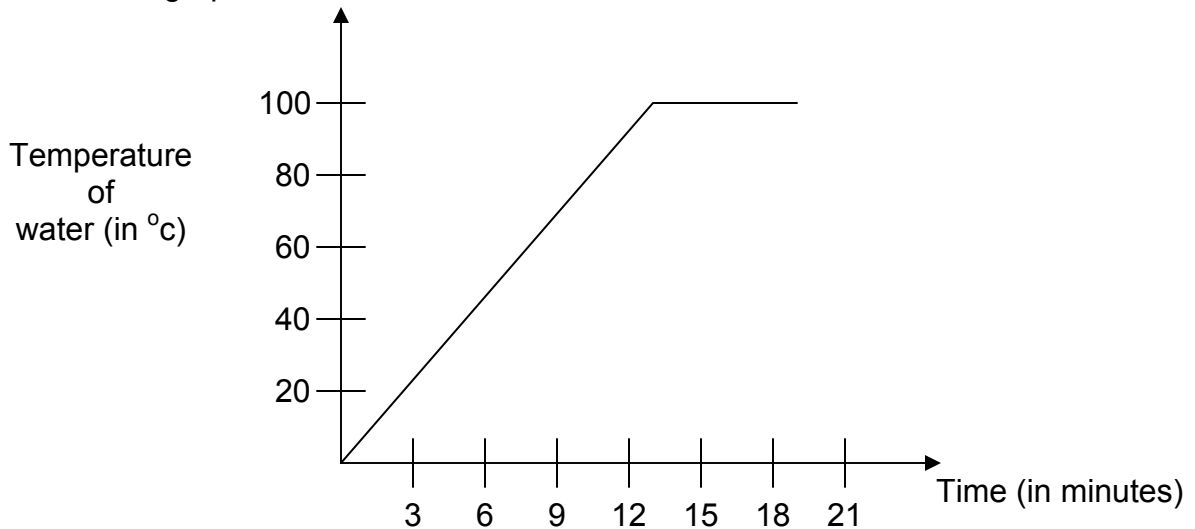
(3)

Water droplets inside beaker	Water droplets outside beaker
Ice water	Warm water
	Hot water

(4)

Water droplets inside beaker	Water droplets outside beaker
Ice water	Warm water
Hot water	

20. Some cold water at a temperature of 0 °C was heated till its temperature reaches 100 °C. The changes in the temperature of the water are shown in the graph.



Based on the graph, which of the following sentences are correct?

- A: The water took 18 minutes to reach its boiling point.
- B: The temperature of the water stopped increasing when it reaches 100 °C.
- C: The temperature of the water at the 16 minute interval was 100 °C.
- D: Between the 3<sup>rd</sup> minute and the 9<sup>th</sup> minute, the temperature of the water increased by 50 °C.

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

21. The two important processes that take place in the water cycle are \_\_\_\_\_ and \_\_\_\_\_.

- (1) Freezing, evaporation
- (2) Melting, condensation
- (3) Freezing, melting
- (4) Evaporation, condensation

22. Animals return water to the environment by \_\_\_\_\_.

- A: perspiring
- B: drinking
- C: urinating
- D: breathing

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

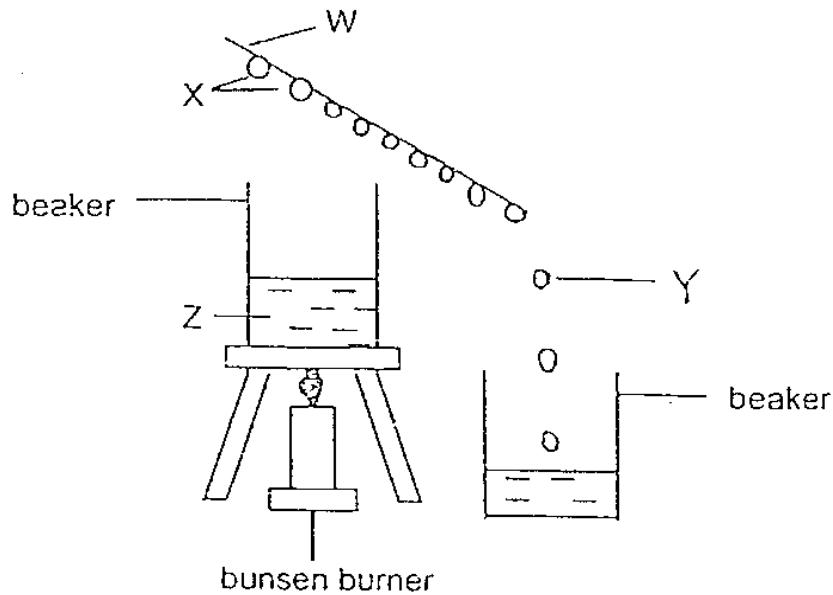
23. Sea, ocean, puddle and river are water bodies that contributes water vapour to the water cycle.

Pamela arranges the above water bodies in their order of importance, starting from the water body that contributes the least water vapour.

Which one of the following arrangements is correct?

- (1) Sea, ocean, puddle, river
- (2) River, sea, ocean, puddle
- (3) River, puddle, sea, ocean
- (4) Puddle, river, sea, ocean

24. Using the set-up shown below, Alan created an artificial water cycle.



What do you think W, X, Y and Z represent in the natural water cycle?

	W	X	Y	Z
(1)	Sky	Rainwater	Clouds	Lake
(2)	Lake	Rainwater	Clouds	Sky
(3)	Sky	Clouds	Lake	Rainwater
(4)	Sky	Clouds	Rainwater	Lake

25. Which one of the following things can be recycled?

- A: a 50-cent coin
- B: an exercise book
- C: a glass bottle

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

26. Which one of the following is a correct use of rainwater?

- (1) Use it to wash your clothes
- (2) Use it to wash the car park
- (3) Use it to rinse your vegetables
- (4) Use it to cook rice

27. Why does the government carry out water rationing exercises?

- (1) The government wants to punish those people who waste water
- (2) There is a water shortage problem in Singapore
- (3) The government has stopped buying water from Malaysia.
- (4) The government wants to remind us to use water appropriately.

28. Read the sentence below.

Waste water from the  is recycled by the   
and then stored in

Which one of the following best completes the sentence above?

	A	B	C
(1)	Jurong Industrial Waterworks	Ulu Pandan Sewage Treatment Works	Penjuru Reservoir
(2)	Jurong Industrial Waterworks	Penjuru Reservoir	Ulu Pandan Sewage Treatment Works
(3)	Penjuru Reservoir	Ulu Pandan Sewage Treatment Works	Jurong Industrial Waterworks
(4)	Ulu Pandan Sewage Treatment Works	Jurong Industrial Waterworks	Penjuru Reservoir

29. The table below shows how much water Kat uses in a day. She uses 200 litres of water each day.

How it is used	Amount (in litres)
Flushing toilet	40
Drinking	2
Bath	110
Washing dishes	?
Washing clothes	20

Based on the data given in the table, which of the following sentences are correct?

- (A) She uses 28 litres of water to wash dishes.
- (B) She uses one fifth of the water to flush toilet.
- (C) 28 more litres of water are used in taking her bath than flushing the toilets.
- (D) The amount of water that she uses to bathe is more than half of what she uses in a day.

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

30. In some undeveloped areas of India, how do people obtain underground water?

- (1) from ponds
- (2) from streams
- (3) by digging drains
- (4) by digging wells

**Section B**

**Answer the following questions in the spaces provided. (40 marks)**

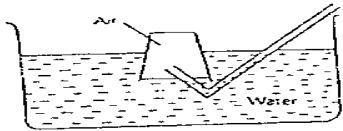
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31. Fill in the blanks with the helping words given in the box. [2m]

sand	sponge
soy sauce	hydrogen

solid	liquid	gas

32. Look at the diagram below.



(a) What happens to the water level in the glass when some air is being sucked out of the glass? [1m]

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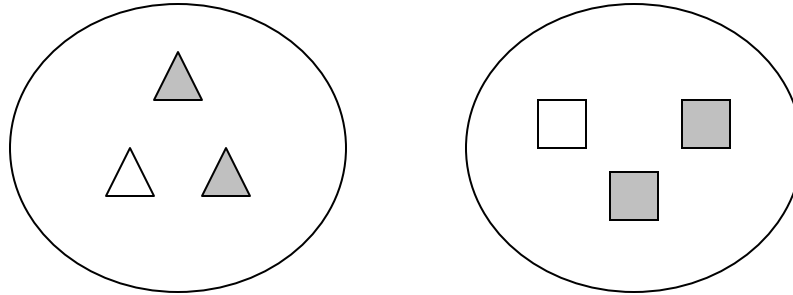
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(b) Give a reason for your answer in (a)? [1m]

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33. Study the two pictures below carefully and answer the questions that follow.



- (a) Give one similarity between the two types of shapes from the two circles. (Do not mention height, weight and size) [1m]

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- (b) Give one difference between the two types of shapes from the two circles. (Do not mention height, weight and size) [1m]

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34. Sundram measures the volume and the mass of a ball under different conditions. The results are recorded in the table below. Study it carefully and answer the questions that follow.

Condition of the ball	Mass (g)	Volume (cm <sup>3</sup> )
1) When the ball is flat.	680	2
2) Air is pumped into the ball until it is round.	800	8
3) Air is pumped into the ball until it is very hard	980	8



- (a) Under conditions(2) and (3), the volume of the ball remains unchanged. What does this say about the air in the ball? [1m]

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- (b) What are two other properties of air that Sundram can gather from the readings in the table? [1m]

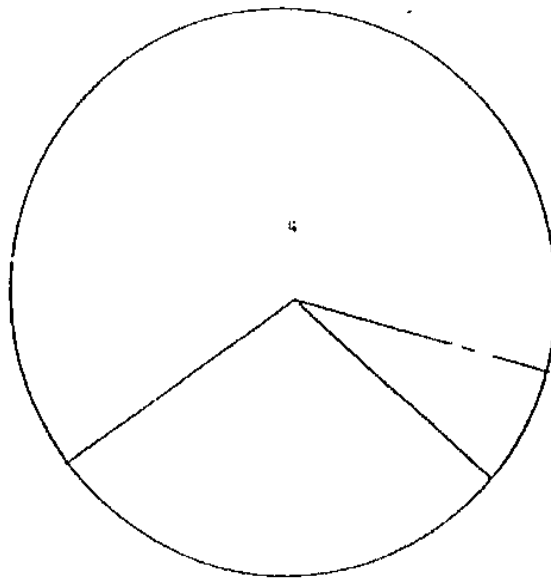
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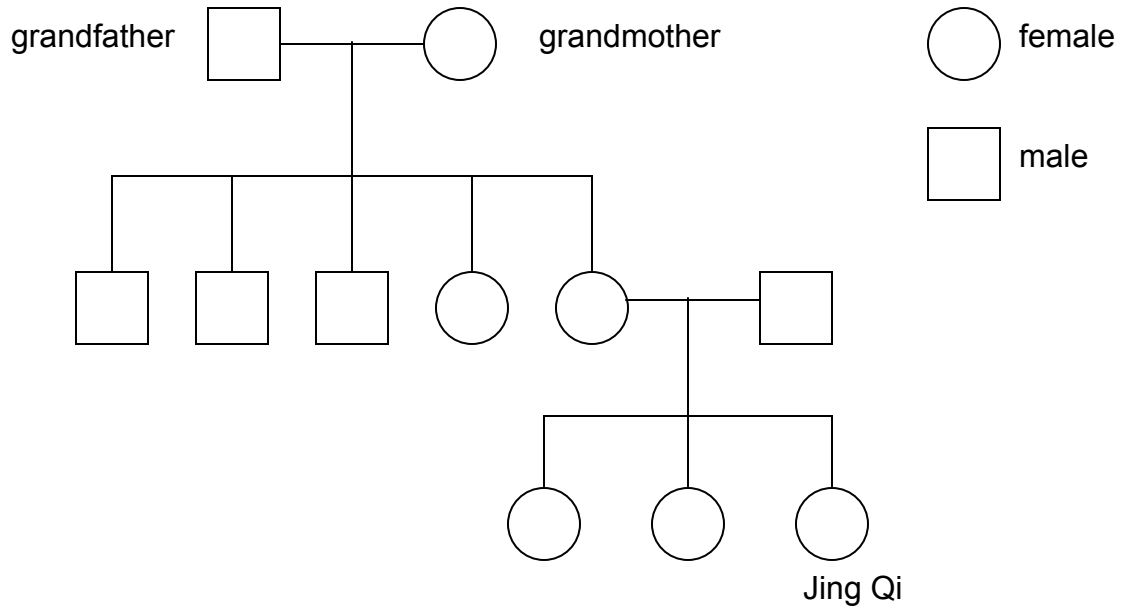
35. Natasha has collected some data about the life cycle of an insect and then she put them into a table as shown below.

Stage	Description	Time taken
A	Egg to larva	2 days
B	Larva to pupa	1 month
C	Pupa to adult	1 week

Complete the pie chart below to show the time taken at each stage of the life cycle with the letters A (for stage A), B (for stage B) and C (for Stage C) [2m]



36. The diagram below shows Jing Qi's family tree. Use it to answer the following questions.



- (a) How many aunt/s does Jing Qi have? [1m]

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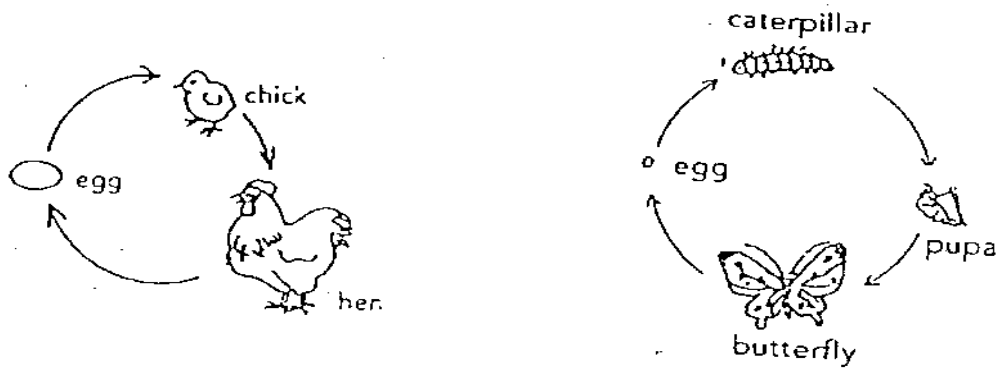
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- (b) How many brother/s does Jing Qi's have? [1m]

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37.



(a) Based on the above diagram, state two ways in which the two life cycles are the same. [2m]

(i) \_\_\_\_\_

\_\_\_\_\_

(ii) \_\_\_\_\_

\_\_\_\_\_

(b) Based on the above diagram, state two ways in which the two life cycles are different. [2m]

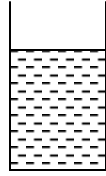
(i) \_\_\_\_\_

\_\_\_\_\_

(ii) \_\_\_\_\_

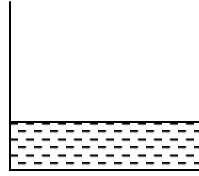
\_\_\_\_\_

38. John sets up the apparatus as shown below to find out how the area of exposed surface affects the rate of evaporation by finding out the volume of water left after 5 hours.



Beaker A

Temperature of water = 50°C  
Volume of water = 400ml



Beaker B

Temperature of water = 50°C  
Volume of water = 400ml



Beaker C

Temperature of water = 50°C  
Volume of water = 200ml

- (a) What is ONE variable that John should control to make it a fair test? [1m]

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- (b) If all the variables are controlled correctly, what is the effect of exposed surface area on the rate of evaporation? [1m]

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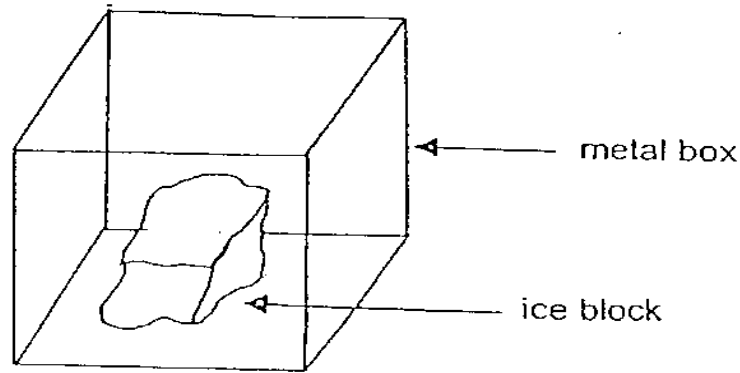
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- (c) What will happen to the rate of evaporation if a fan is used to blow at all the three containers? [1m]

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39. A small block of ice is put into a metal box as shown in the diagram below.



- (a) The block of ice starts to melt after a while. Ice melts at a temperature of \_\_\_\_\_ . [1m]
- (b) Complete the sentence below with these words:

Increases	Decreases	Remain unchanged
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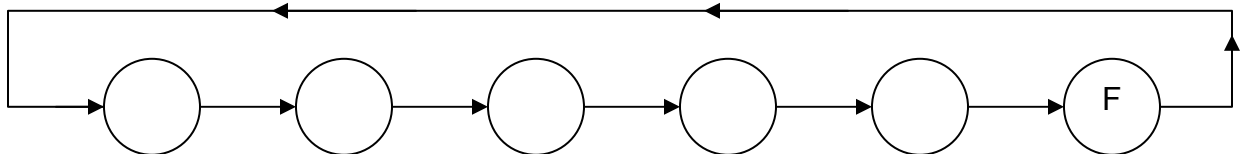
As the block of ice melts, the temperature of the ice \_\_\_\_\_ .

The temperature of the air in the metal box \_\_\_\_\_ . [2m]

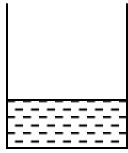
40. The following sentences tell us how rain is formed.

- (A) Tiny droplets of water gather to form bigger droplets of water.
- (B) Water changes into water vapour.
- (C) Water vapour changes into tiny droplets of water.
- (D) Water vapour rises and then cools.
- (E) Bigger droplets of water gather to form clouds.
- (F) Rain falls when the droplets of water get too big.

Complete the diagram below to show the correct order. [2m]

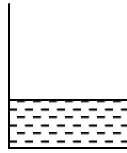


41. Study the diagrams below carefully.



Beaker A

100 ml of water at a temperature 60°C



Beaker B

100 ml of water at a temperature 80°C



Beaker C

The water in the 2 beakers is poured into beaker C. The water is then stirred and mixed thoroughly.

(a) What is the volume of water in beaker C? [1m]

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(b) The temperature of the mixture of water obtained immediately after the stirring is \_\_\_\_\_. [1m]

(c) The mixture of water is left on a table in the room for about 2 hours. Predict the temperature of the mixture after 2 hours. [1m]

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42.

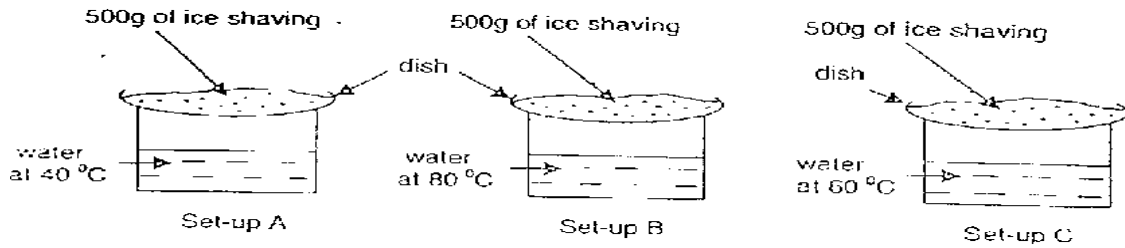
(a) Is the water cycle important to living things? [1m]

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(b) Give a reason to support your answer. [1m]

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43. David prepares the following sets-up to 'make' rain. Study them carefully.



(a) Which one of the following sets-up will form the most 'rain'? [1m]

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(b) Give a reason to support your answer in (a). [1m]

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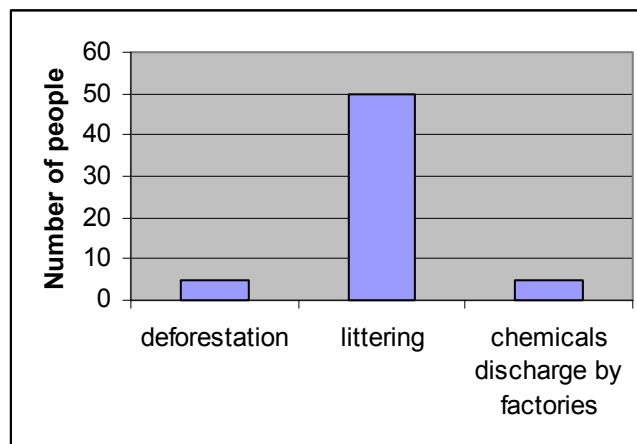


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44. Complete the following paragraph. [3m]

It is possible to obtain drinking water from the sea using the process of \_\_\_\_\_. In this process, \_\_\_\_\_ is removed from sea water using the process of \_\_\_\_\_.

45.



(a) Based on the results of the survey, what are the causes of the pollution? [2m]

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(b) Identify the main cause of pollution of River Mine. [1m]

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(c) With reference to the main cause of pollution, what would you do to help the people who live near River Mine to solve the pollution problem? [1m]

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46.

(a) Give a reason to explain why there is a need to conserve water. [1m]

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(b) Suggest a way to conserve water when you are brushing your teeth.[1m]

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