RED SWASTIKA SCHOOL

SCIENCE
2022 MID-YEAR EXAMINATION
PRIMARY 4

Name : _____ ( )

Class : Primary 4/ _____

Date : 13 May 2022

BOOKLET A

Total time for Booklets A & B: 1h 30min

Booklet A: 24 questions (48 marks)

Note:

1. Do not open the booklet until you are told to do so.
2. Read carefully the instructions given at the beginning of each part of the booklet.
3. Do not waste time. If the question is too difficult for you, go on to the next question.
4. Check your answers thoroughly and make sure you attempt every question.
5. In this booklet, you should have the following:
   a. Page 1 to Page 16
   b. Questions 1 to 24

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For Questions 1 to 24, choose the most suitable answer and shade its number in the OAS provided.

1. Which one of the following is a similarity between plants and animals?

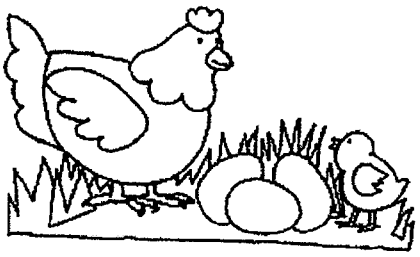
   (1) Both are non-living things.

   (2) Both need light to make food.

   (3) Both need air, food and water to survive.

   (4) Both are able to move freely from one place to another.

2. A chicken lays eggs which hatch into chicks.



Which characteristic of living things does this show?

(1) Living things can die.

(2) Living things can breathe.

(3) Living things can reproduce.

(4) Living things can respond to changes.

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3. The table below shows the characteristics of four things, A, B, C and D. A tick (✓) indicates that the thing has the characteristic.

Characteristics	A	B	C	D
Has two wings	✓		✓	
Can reproduce	✓			✓
Has four legs		✓		
Has three body parts			✓	✓

Which one of the following is an insect?

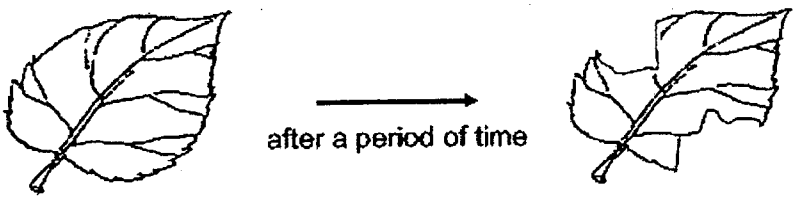
(1) A

(2) B

(3) C

(4) D

4. Shawn observed how a leaf on a plant changed over a period of time.



He noted that the change in the leaf was caused by a butterfly in one of its stages. Which stage was it?

(1) egg

(2) larva

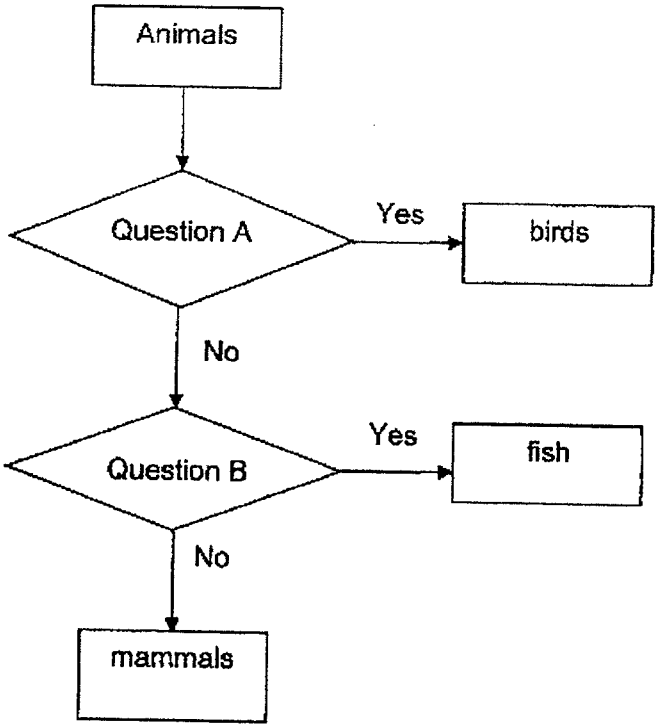
(3) pupa

(4) adult

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5. Study the flowchart below.



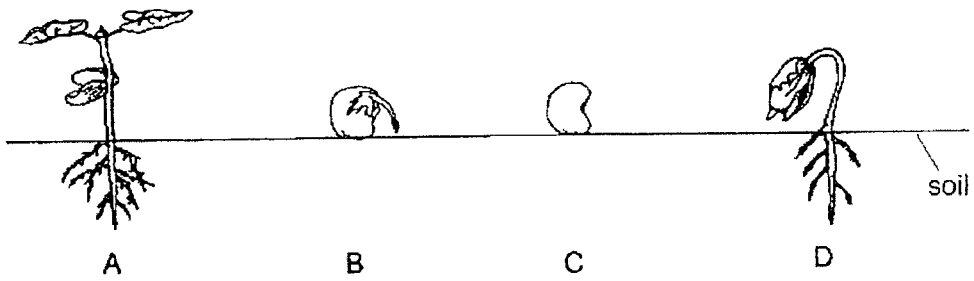
Which of the following best represent questions A and B?

	Question A	Question B
(1)	Does it have hair?	Does it have scales?
(2)	Does it have hair?	Does it have moist skin?
(3)	Does it have feathers?	Does it have moist skin?
(4)	Does it have feathers?	Does it have scales?

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6. The diagram shows the different stages in the life cycle of the green bean plant.



Which one of the following shows the correct order of growth of the seed?

(1) B → C → A → D

(2) C → D → A → B

(3) C → B → D → A

(4) A → C → B → D

7. What are the similarities between the life cycles of the cockroach and the cat?

A: Their life cycles contain a seed stage.
B: Their young do not look like the adult.
C: There are three stages in their life cycles.
D: All the stages of their life cycles are spent on land.

(1) A only

(2) C and D only

(3) A, B and C only

(4) A, B, C and D

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8. Four mealworms, R, S, T and V, were placed in four different containers.10 g of food was placed in each container. The amount of food left in the containers was recorded after five days.

Mealworm	Amount of food at the start of the experiment	Amount of food left after five days
R	10 g	10 g
S	10 g	7 g
T	10 g	3 g
V	10 g	1 g

Which mealworm is likely to be in the pupa stage?

(1) R

(2) S

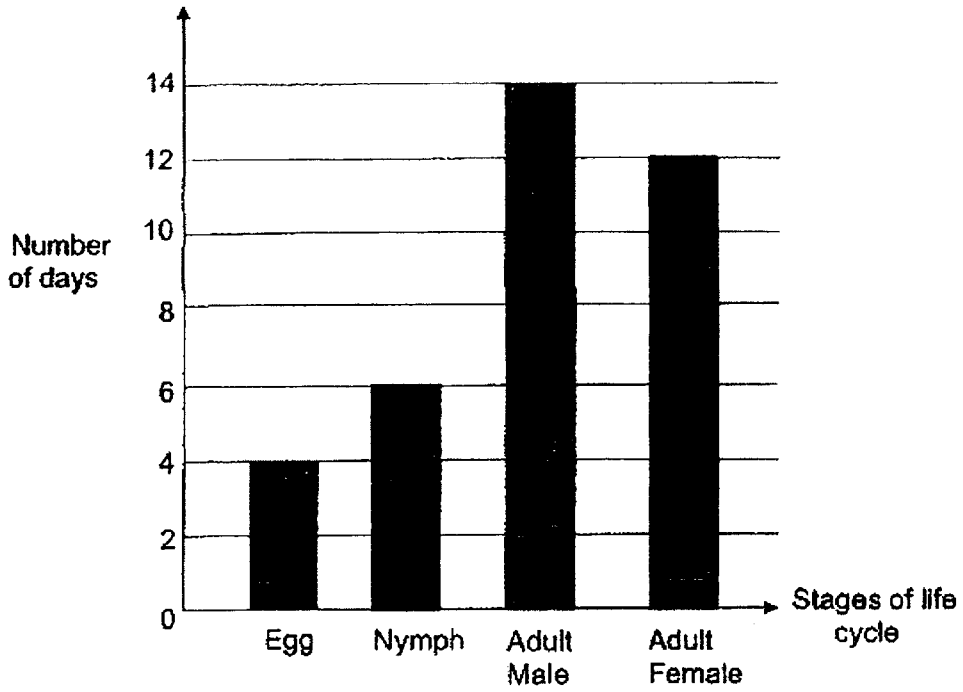
(3) T

(4) V

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9. The graph below shows the number of days in each stage of the life cycle of insect X.



Based on the graph above, which of the following statements about the life cycle of insect X is/are correct?

A: Insect X lives for 6 days as a nymph.
B: Insect X has 4 stages in its life cycle.
C: Insect X can only survive 6 days after hatching.

(1) A only

(2) A and B only

(3) B and C only

(4) A, B and C only

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10. The diagram below shows two different stages of growth of a bean plant.



Stage X Stage Y

Which of the following statement(s) is/are true about the bean plant at stage X and stage Y?

A: Both need to absorb sunlight to grow.
B: Both can absorb water through their roots.
C: Both have green leaves to make their own food.

(1) A only

(2) B only

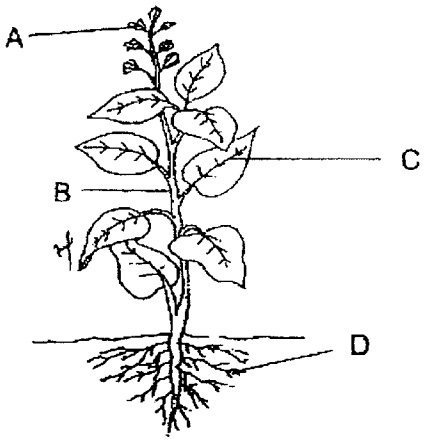
(3) B and C only

(4) A, B and C

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11. Look at the diagram below.



Which part of the plant holds it firmly to the ground?

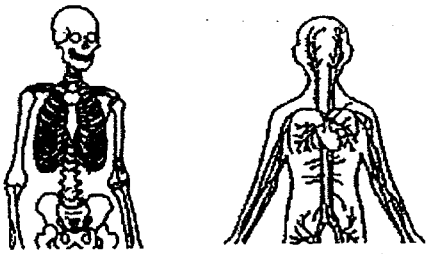
(1) A

(2) B

(3) C

(4) D

12. The picture below shows two different body systems, P and Q.



System P System Q

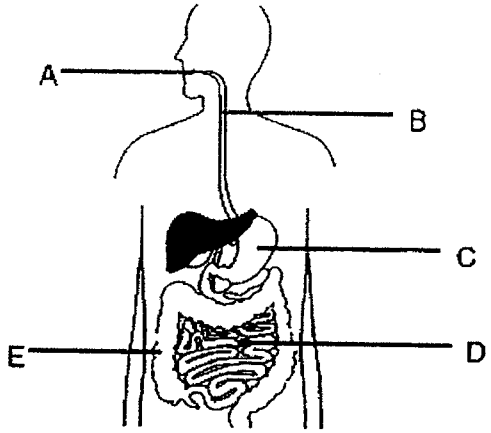
Which of the following correctly identifies P and Q?

	P	Q
(1)	Skeletal	Muscular
(2)	Muscular	Skeletal
(3)	Muscular	Circulatory
(4)	Skeletal	Circulatory

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13. The diagram below shows the human digestive system.



Which parts of the digestive system produce digestive juices?

(1) A and B only

(2) A, C and D only

(3) B, C and E only

(4) A, C, D and E only

14. Huiling carried out an experiment to find out if seeds need water to grow into seedlings. She put some seeds in each pot and watered them daily as shown below.

Pot	Amount of water given daily (cm^3)	Number of seeds in each pot
A	100	10
B	None	20
C	None	10
D	200	30

In order for the experiment to be fair, which two pots should Huiling use to find out if water is necessary for the seeds to grow into seedlings?

(1) A and C

(2) B and C

(3) B and D

(4) C and D

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15. Which one of the following properties is true for both air and a pen?

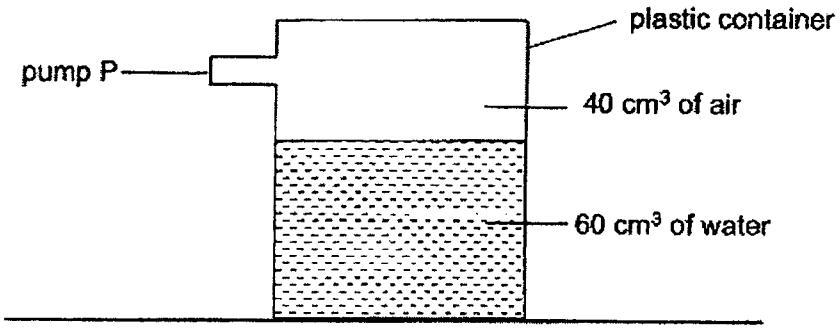
(1) They can be seen.

(2) They take up space.

(3) They have definite shapes.

(4) They have definite volumes.

16. Study the set-up below.The volume of the container is 100 cm^3.



Brenda pumped an additional 20 cm^3 of air using pump P into the container. What would be the final volume of air in the container?

(1) 40 cm^3

(2) 60 cm^3

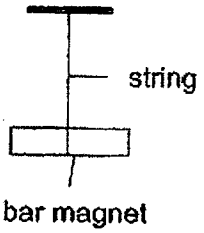
(3) 100 cm^3

(4) 120 cm^3

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17. Sam tied a string to a bar magnet and allowed it to suspend freely.



In which direction will the freely-suspended bar magnet point to when it comes to rest?

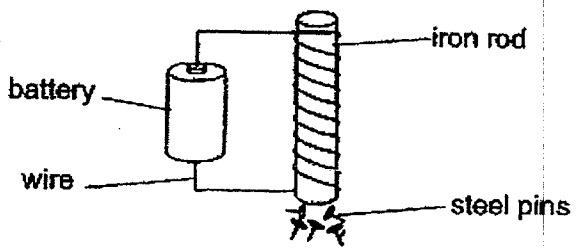
(1) South-East

(2) South-West

(3) North-West

(4) North-South

18. Donny set up an electromagnet as shown in the diagram below.



Which of the following can make the electromagnet attract more steel pins?

A: Add one battery.
B: Change the iron rod to a plastic rod.
C: Increase the number of turns of wire around the iron rod.
D: Decrease the number of turns of wire around the iron rod.

(1) A only

(2) B only

(3) A and C only

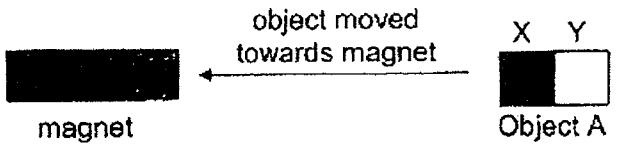
(4) B and D only

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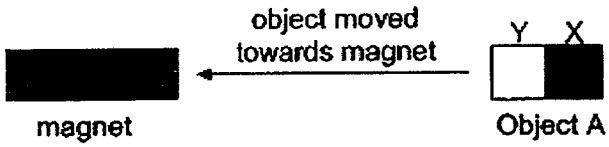
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19. Jason brought object A towards a magnet as shown in step 1 and 2.

Step 1: He brought part X of Object A near to the magnet.



Step 2: He flipped Object A and brought part Y of Object A near to the magnet again.



He repeated step 1 and 2 with objects B and C and recorded his observations in the table below.

	Position X	Position Y
Object A	Attracted to magnet	Attracted to magnet
Object B	Did not move	Did not move
Object C	Attracted to magnet	Repelled away

What could objects A, B and C be?

	A	B	C
(1)	Magnetic object	Non-magnetic object	Magnet
(2)	Magnetic object	Magnet	Non-magnetic object
(3)	Magnet	Non-magnetic object	Magnetic object
(4)	Magnet	Magnetic object	Magnet

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20. Which of the following statements about heat and temperature are true?

	Heat	Temperature
(1)	Heat is not a matter.	Temperature is a matter.
(2)	Heat is a form of energy.	Temperature is a measurement of how hot an object is.
(3)	Heat flows from a hotter place to a colder place.	Temperature is a form of energy.
(4)	Heat flows from a colder place to a hotter place.	Hot objects have a higher temperature.

21. Which of the following is a source of heat?

(1) Pot

(2) Moon

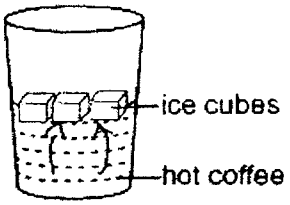
(3) Spoon

(4) Burning candle

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22. Mark put some ice cubes into his cup of hot coffee.



Which of the following changes will most likely take place?

A: The ice cubes gain heat.
B: The hot coffee loses heat.
C: The temperature of the coffee remains the same.
D: The ice cubes change its state from solid to liquid state.

(1) A and C only

(2) B and C only

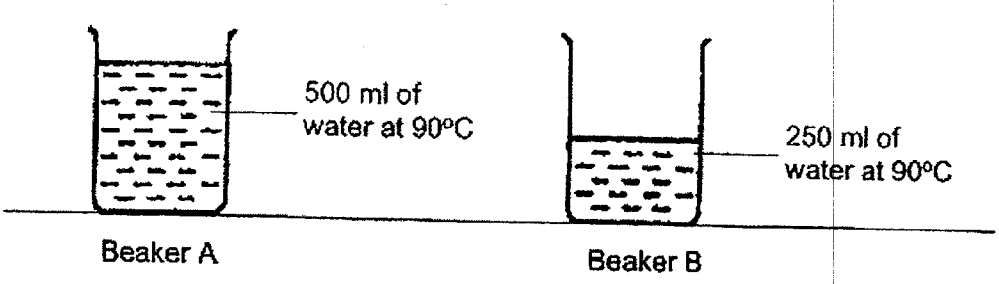
(3) A, B and D only

(4) B, C and D only

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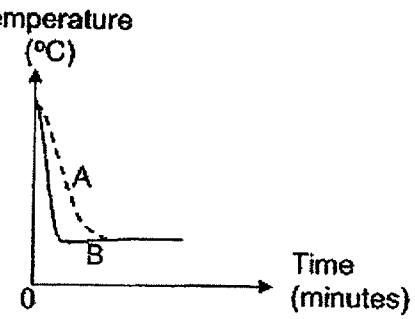
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23. Two identical beakers, A and B, were filled with some water at 90°C as shown in the diagram below. They were placed on the table for some time.

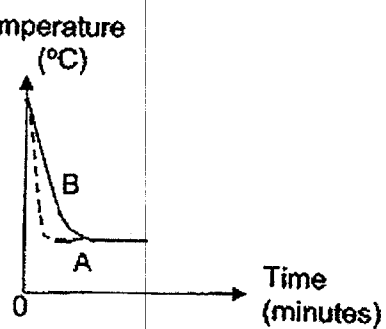


Which of the following graphs shows correctly the decrease in temperature of the water in beakers A and B over a period of time?

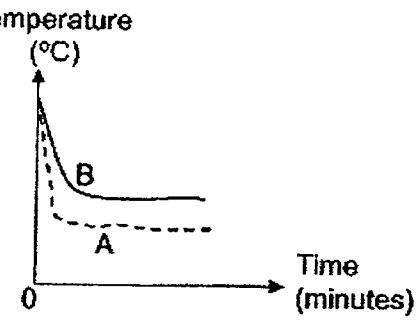
(1)



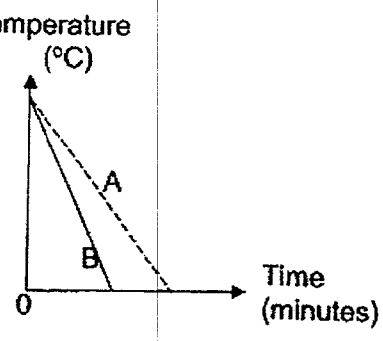
(2)



(3)



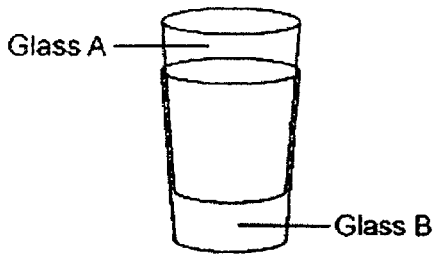
(4)



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24. Willy found two glasses, A and B, stuck together as shown in the diagram below. Glass A was inside Glass B.



Which one of the following is the best possible way for him to separate the two glasses?

(1) Pour hot water into glass A and put glass B into hot water.

(2) Pour hot water into glass A and put glass B into cold water.

(3) Pour cold water into glass A and put glass B into hot water.

(4) Pour cold water into glass A and put glass B into cold water.

End of Booklet A

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SCIENCE
2022 MID-YEAR EXAMINATION
PRIMARY 4

Name : _____ ( )

Class : Primary 4/ _____

Date : 13 May 2022

BOOKLET B

10 Questions
32 Marks

In this booklet, you should have the following:
a. **Page 17 to Page 27**
b. **Questions 25 to 34**

	MARKS OBTAINED	POSSIBLE
BOOKLET A		48
BOOKLET B		32
TOTAL		80

Parent's Signature: _____

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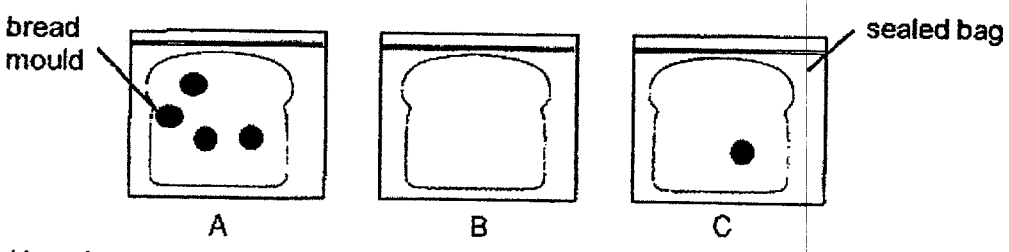
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Answer all the questions in the space provided.

25. Mrs Tay carried out an experiment to observe the amount of mould growing on a bread. She prepared three similar slices of bread in sealed bags and placed them in 3 different locations as shown in the table below.

Location	air-conditioned room	freezer	cupboard
Temperature (°C)	17	0	32

She recorded her observations after one week and found that each slice of bread had different amounts of mould as shown below.



(a) How does mould reproduce? (1m)

(b) Which group of living things can mould be classified under? (1m)

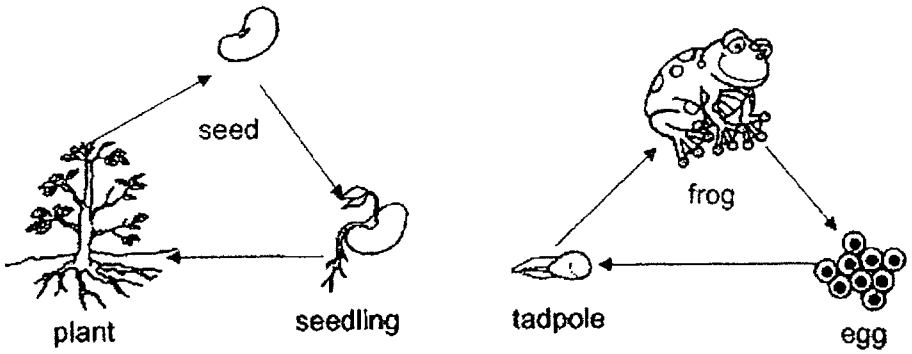
(c) Mrs Tay observed that bread A has the most amount of bread mould growing on it. Which location could bread A be possibly placed in? Explain your answer. (2m)

4

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26. The diagrams below show the life cycle of a bean plant and a frog.

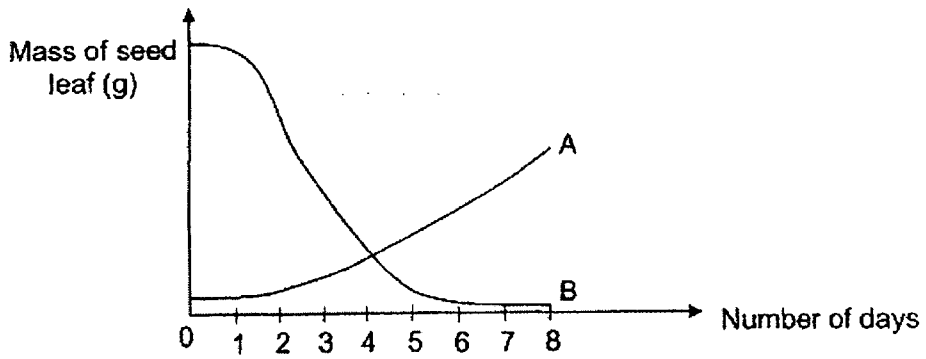


(a) Based on the diagrams above, state one similarity between the life cycles of a bean plant and a frog? (1m)

_____

_____

Ethan planted a seed in his garden. He observed the growth of his seedling every day and recorded the mass of the seed leaf in the graph shown below.



(b) Which line, A or B, shows how the mass of the seed leaf changes during the experiment? Give a reason for your answer. (1m)

_____

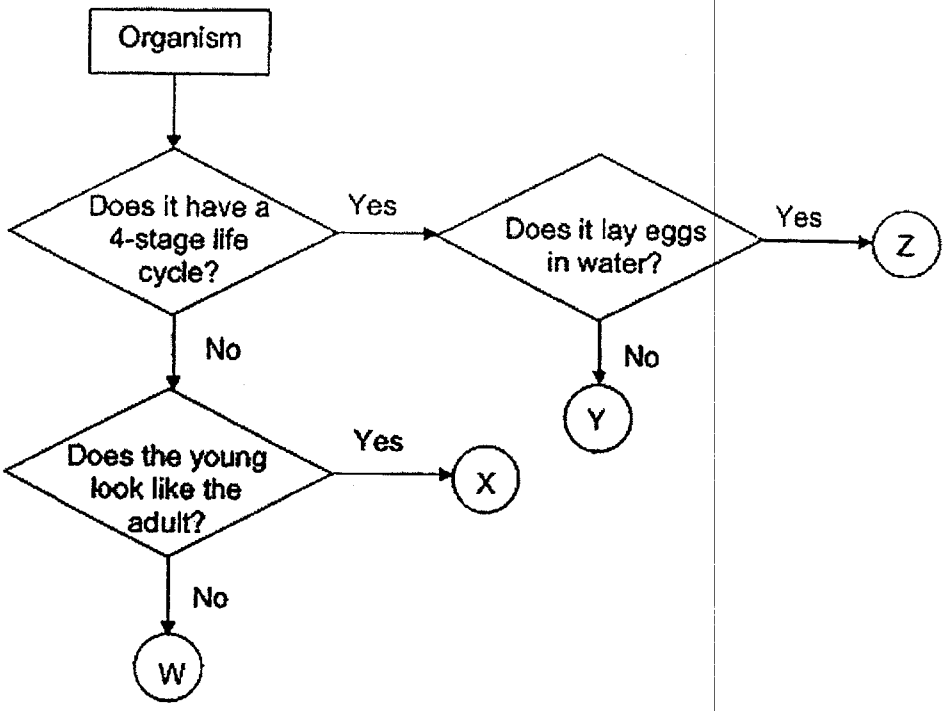
_____

2

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27. Study the flow chart below.



(a) Based on the flow chart, which letter (W, X, Y or Z) represents a chicken and a butterfly? (2m)

chicken: _____

butterfly: _____

2

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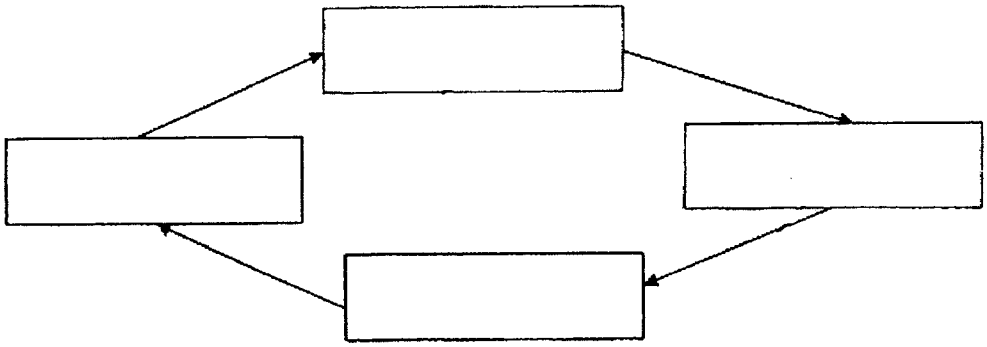
27. Daniel described the stages in the life cycle of Animal X as shown below.



Animal X

Stage A: It moults several times and eats a lot.
Stage B: It emerges with wings and feeds on blood.
Stage C: Eggs are laid in water.
Stage D: It does not move or eat at all.

(b)(i) Arrange the stages in the life cycle of Animal X in the correct order. (1m)



(ii) Based on the life cycle above, at which stage does the animal not live in water? (1m)

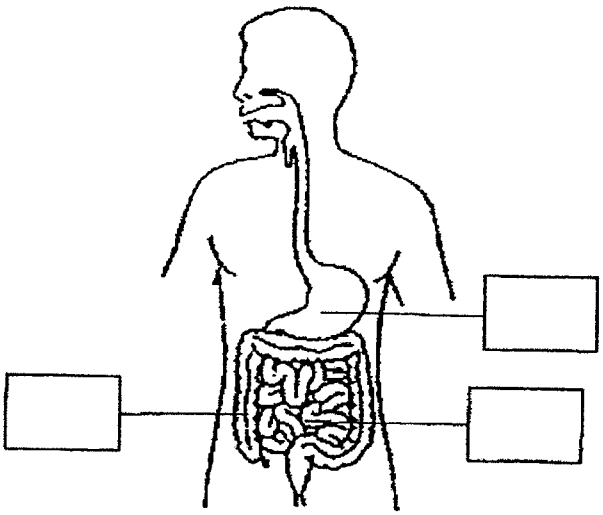
Stage _____

2

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28. The diagram below shows the human digestive system.



(a) On the above diagram, put a tick (✓) in the box that shows digestion being completed.(1m)

(b) The following statements describe the process in digesting an apple in different parts of the digestive system.

A: Here, the digested food is passed into the blood stream.
B: The undigested parts of the apple are stored here to be removed from the body.
C: The apple is broken into smaller pieces through chewing motion.
D: The apple travels down a muscular tube.

Arrange the processes (A, B, C and D) in the correct order of sequence. (2m)

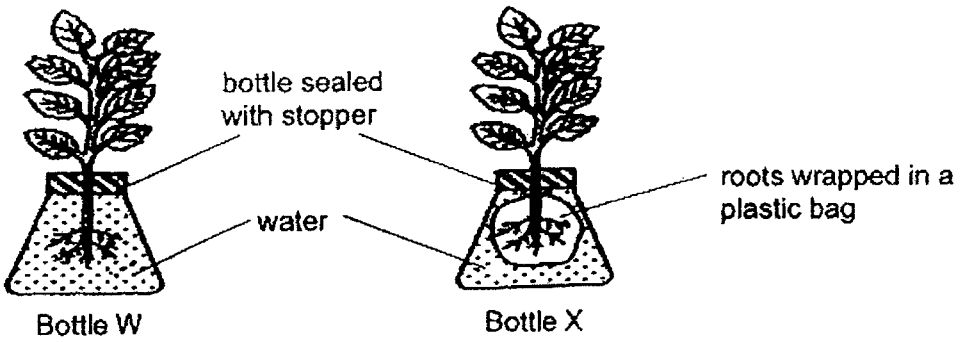


3

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29. Yianwei placed two similar plants into bottle W and bottle X. The roots of the plant in bottle X was wrapped with a plastic bag. He sealed each bottle with a stopper as shown below. After a week, Yianwei observed that the water level in one bottle remained the same, while the water level in the other bottle decreased.



(a) Based on the set-ups above, what was the aim of Yianwei's experiment? (1m)

_____

_____

(b) In which bottle did the water level remain the same? (1m)

Bottle _____

(c) Give a reason for your answer in (b). (1m)

_____

_____

3

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30. Sam filled syringes A and B with substances X and Y respectively in diagram 1.

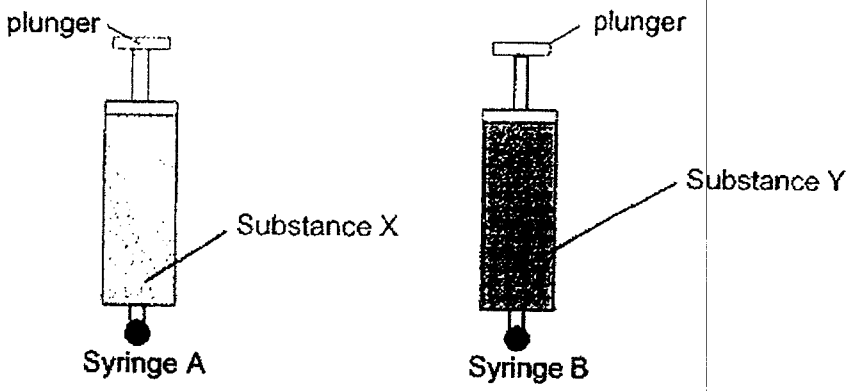


Diagram 1 (before the plunger was pushed)

When Sam pushed the plungers, he could push the plunger of Syringe A but could not push the plunger of Syringe B as shown in diagram 2.

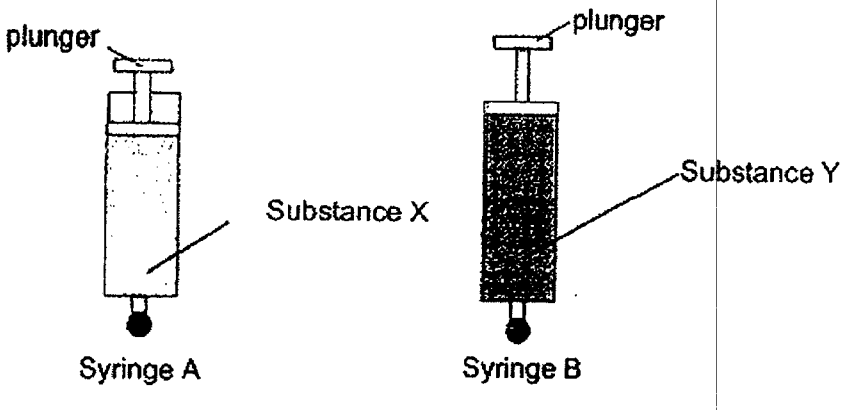


Diagram 2 (after the plunger was pushed)

(a) Based on the diagram 2 above, name the correct state of matter of Substance X. (1m)

Substance X: _____

(b) State a property of substance X that allows you to obtain your answer in (a). (1m)

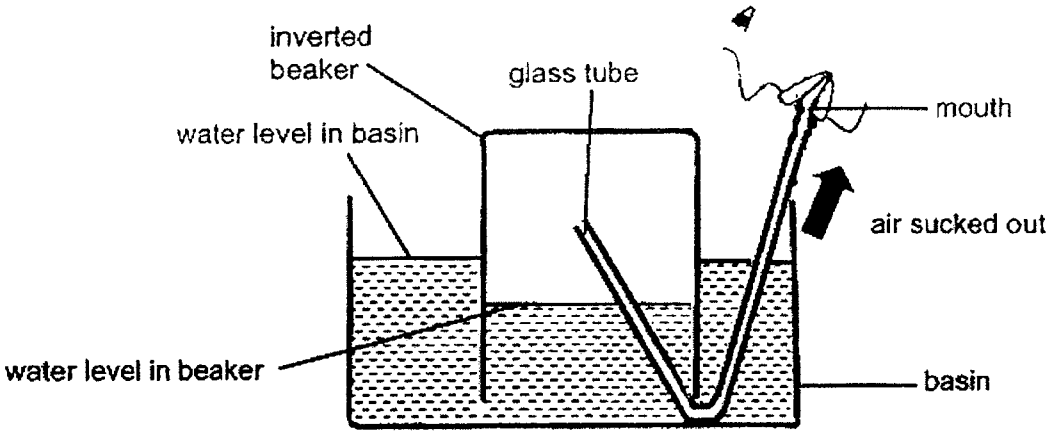
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2

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31. A beaker was inverted into a basin of water. One end of a glass tube was placed under the beaker as shown below.



(a) The water level in the beaker increased when the air was sucked out from the beaker using the glass tube. Explain why this happened. (2m)

_____

_____

(b) Without changing the set-up or adding more water, what can be done to increase the water level in the basin? (1m)

_____

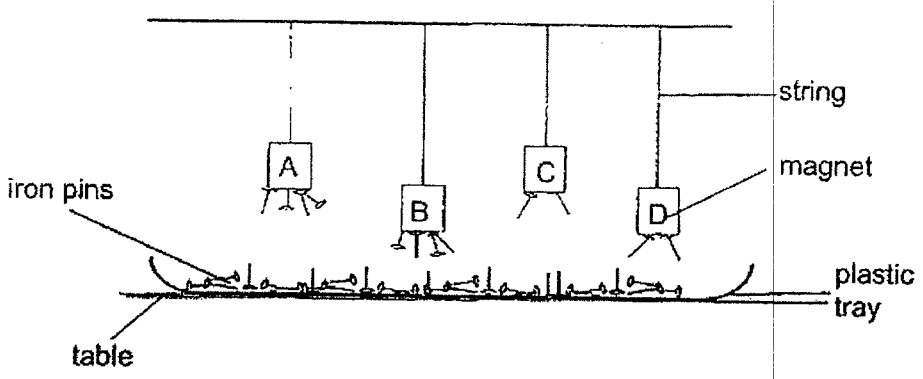
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3

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32. Lilian used four similar magnets A, B, C and D to find out which magnet could attract more iron pins in the set-up below.



Iron pins were placed below the magnets and different numbers of iron pins were attracted to the magnets.

(a) Based on the diagram, which magnet has the greatest magnetic strength? (1m)

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

(c) Lilian repeated the experiment by replacing the tray of iron pins with aluminium pins.

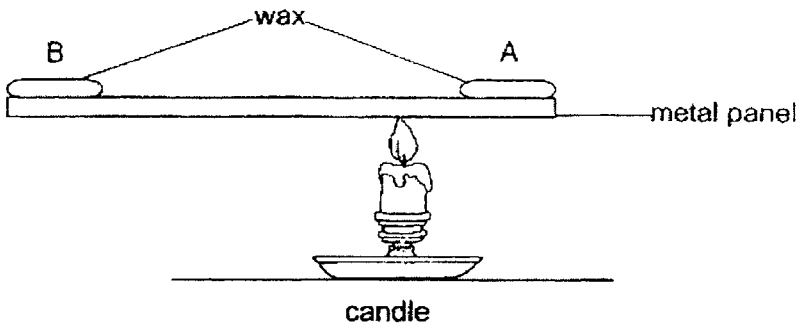
Predict the number of aluminium pins attracted to the magnets. Explain your answer. (2m)

4

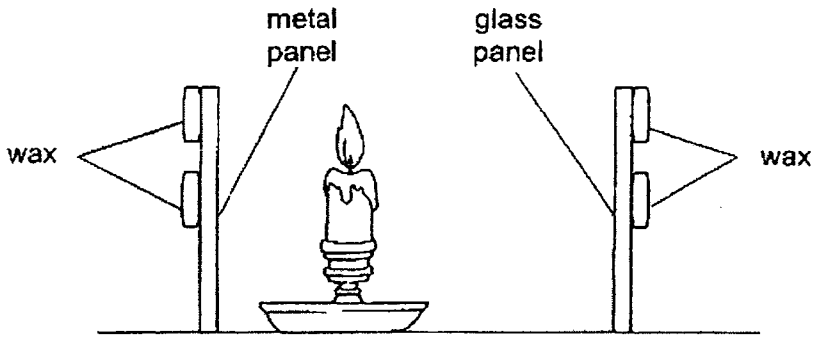
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33. Eileen heated the metal panel with a candle. There were two pieces of wax, A and B, on the metal panel as shown below.



(a) Which wax would be the first to melt? Explain your answer. (2m)



(b) Eileen set up another experiment as shown above to find out if the material of panels would affect the time taken for the wax to melt. Her friend, Ella, said that the set-up was unfair.

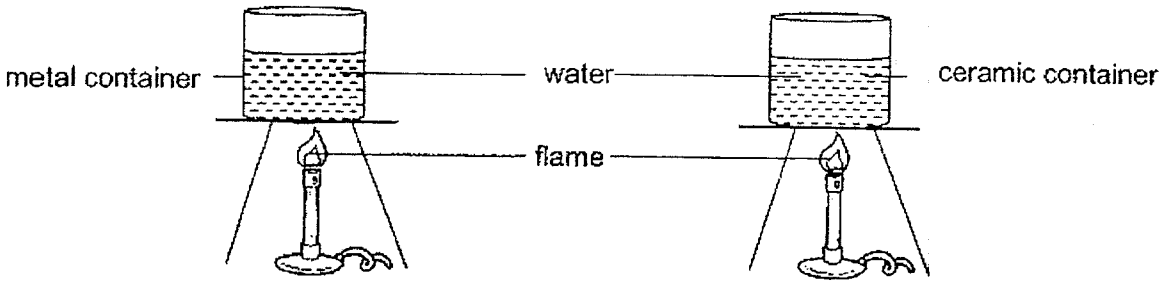
Suggest how she could make the experiment a fair one. (1m)

3

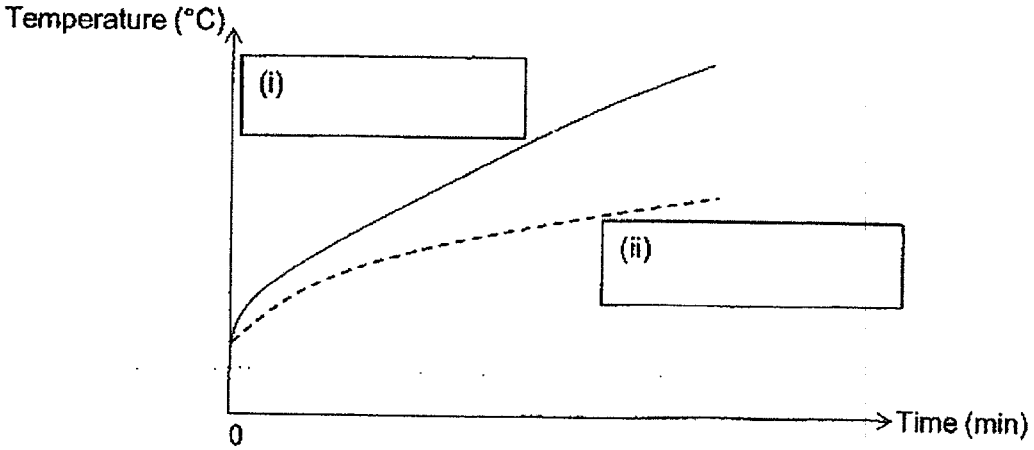
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34. The set-up below shows two similar containers made of different materials. The containers were of the same size and thickness. They were filled with the same amount of water and were heated over a flame.



The temperatures of the water in both containers were measured every minute for some time. The results of the experiment were recorded in the graph below.



(a) In the graph above, fill in the appropriate boxes with the words "metal" or "ceramic". (2m)

(b) Mrs Tan cooked some soup for her daughter. She wanted to use a container that would keep the soup warm for a longer time.

Based on the answer in part(a), which material of the bowl should Mrs Tan choose and why? (2m)

End of Booklet B
Please check your answer.

4

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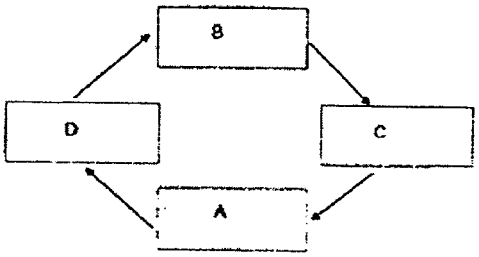
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P4 Science Mid-Year Examination 2022
Correction Template

Name: _____ ( ) Class: P4/_____ Date: _____

Section A: Multiple Choice Questions (MCQ)

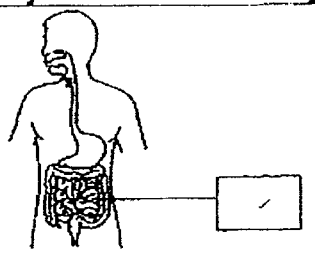
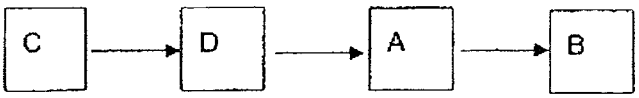
1	(3)	6	(3)	11	(4)	16	(1)	21	(4)
2	(3)	7	(2)	12	(4)	17	(4)	22	(3)
3	(4)	8	(1)	13	(2)	18	(3)	23	(1)
4	(2)	9	(1)	14	(1)	19	(1)	24	(3)
5	(4)	10	(2)	15	(2)	20	(2)		

Section B: Open-ended Questions

Qn	Answer
25a	**Key Idea: Able to know the condition for mould to grow** It reproduces by spores.
25b	Fungi
25c	In the cupboard. It has the highest temperature which allows the most amount of mould to grow.
26a	**Key Idea: Able to understand and differentiate the life cycle of plants and animals.** Both the bean plant and the frog have three stages in their life cycle.
26b	Line B. The food stored in the seed leaf was use up for the plant (to grow / develop).
27a	**Key Idea: Infer information from a flow chart and describe the organism based on the characteristics stated.** Chicken: X Butterfly: Y
27b(i)	
(ii)	Stage B

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28a	**Key Idea: Able to identify and state functions of the digestive system**
	
28b	
29a	**Key idea: Able to state the plant parts and their functions.** To find out if roots absorbs water.
29b	Bottle X
29c	The roots were wrapped in plastic and could not take in water.
30a	**Key Idea: Air can be compressed** Substance X: gas
30b	Air can be compressed
31a	**Key Idea: Matter occupies space** When the air was sucked out from the inverted beaker, water entered the beaker to take up the space previously occupied by the air.
31b	He could blow air through the glass tube into the inverted beaker.
32a	**Key Idea: Magnets attract magnetic materials and do not attract non-magnetic materials.** Magnet A
32b	Magnet A attracted the most number of pins from the furthest distance.
32c	0. Aluminium is a non-magnetic material so the aluminium pins cannot be attracted to the magnet.
33a	**Key Idea: Show an understanding that heat flows from a hotter region to a colder region/place.** Wax A will melt first. Since it is closer to the candle flame than Wax B, it will gain heat faster and melt.
33b	The distance between the candle to each panel should be the same.
34a	**Key Idea: Metal is a better conductor of heat than ceramic** (i) metal (ii) ceramic
34b	Ceramic as it gains heat slower / poorer conductor of heat.

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