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SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

PRIMARY SIX PRELIMINARY ASSESSMENT 2020

NAME: \_\_\_\_\_ (     )

DATE: 20 August 2020

CLASS: PRIMARY 6 SY / C / G / SE / P

Parent's Signature:

\_\_\_\_\_

**SCIENCE**

**BOOKLET A**

28 questions

56 marks

Total time for Booklets A & B: 1 h 45 min

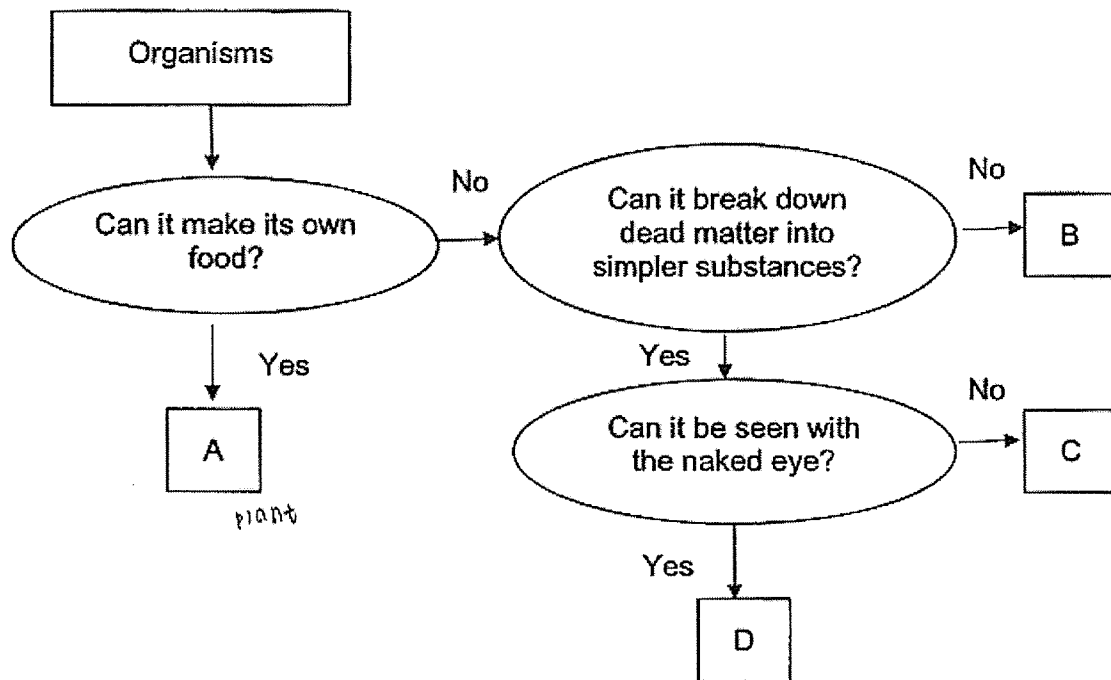
**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

**FOLLOW ALL INSTRUCTIONS CAREFULLY.**

**Booklet A (56 marks)**

For each question from 1 to 28, 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. Observe the flow chart below.



Which of the organisms above is likely a mushroom?

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

2. Jasmine wants to find out the difference between birds and mammals. Which one of the following questions should she ask?

- (1) Does it fly?
- (2) What does it eat?
- (3) Does it live in water or on land?
- (4) What is its outer body covering?

3. The table below shows the properties of Materials W, X, Y and Z.

Materials	Waterproof	Flexible	Strong	Transparent
W	✓		✓	✓
X		✓		✓
Y			✓	✓
Z	✓	✓	✓	

Which of the materials is most suitable for making the tent cover for camping as shown below?



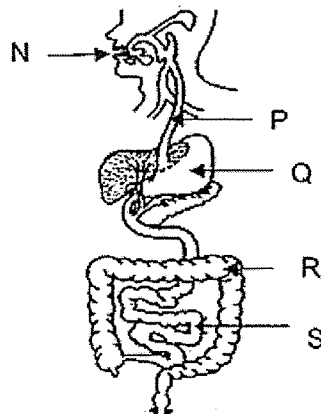
- (1) Material W
- (2) Material X
- (3) Material Y
- (4) Material Z

4. The table below shows a classification of organisms.

Group 1	Group 2	Group 3
Shark Guppy Goldfish	Mosquito Grasshopper Butterfly	Seal Polar bear Penguin

The animals are grouped by their outer body covering. Which of the following is wrongly classified?

- (1) Shark  
(2) Guppy  
(3) Penguin  
(4) Grasshopper
5. The diagram below shows the human digestive system.



Which of the following is correct?

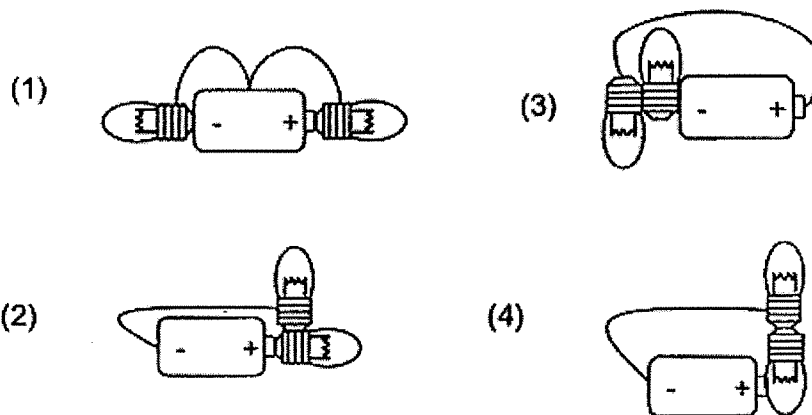
	Contain digestive juices	Where excess water is absorbed from the undigested food
(1)	N and R	S
(2)	P and Q	R
(3)	N and S	R
(4)	Q and R	S

6. Sarah hid in a cupboard during the game of hide-and-seek with her friends.

Which of the following correctly shows the amount of gases in the cupboard after 10 minutes?

	Oxygen	Carbon dioxide	Water vapour
(1)	Increase	Decrease	Decrease
(2)	Increase	Decrease	Increase
(3)	Decrease	Increase	Decrease
(4)	Decrease	Increase	Increase

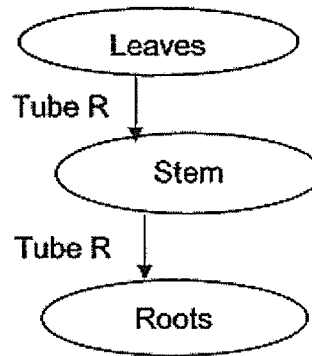
7. Study the circuits below.  
Which of the following will have only one bulb lighted up?



8. The diagrams below show a human circulatory system and the plant transport system.



Human circulatory system



Plant transport system

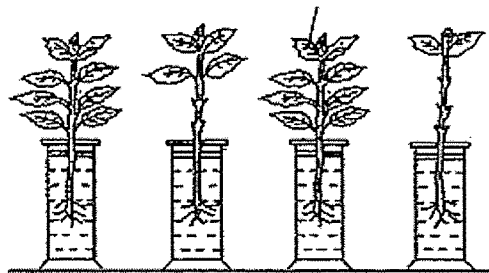
Which of the following is/are transported in both the human circulatory system and in Tube R?

- A: Food  
B: Water  
C: Mineral salts

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

9. The diagram below shows 4 set-ups with similar plants used.

Leaves coated with oil

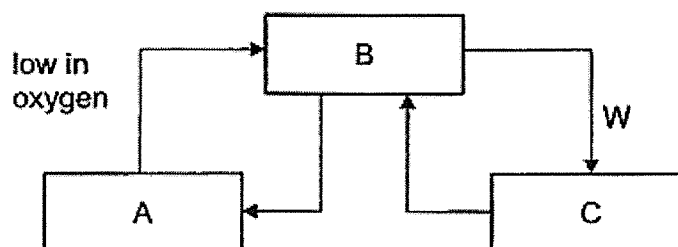


Set-up W   Set-up X   Set-up Y   Set-up Z

Which of the following will have the least amount of water left after 3 days?

- (1) Set-up W  
(2) Set-up X  
(3) Set-up Y  
(4) Set-up Z

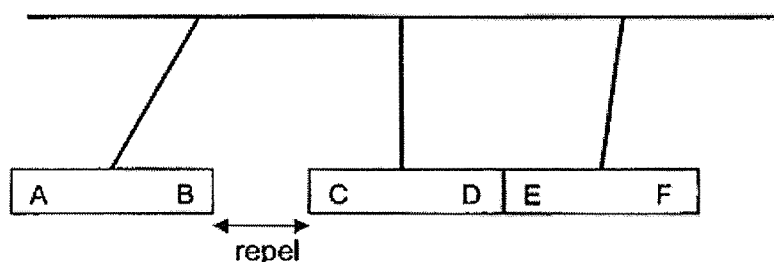
10. The diagram below shows the human circulatory system. A, B and C are organs and W is a blood vessel.



Which of the following correctly identifies A, B, C and W?

	A	B	C	W
(1)	Stomach	Heart	Lungs	Low in oxygen
(2)	Lungs	Heart	Stomach	High in oxygen
(3)	Heart	Lungs	Stomach	Low in oxygen
(4)	Stomach	Lungs	Heart	High in oxygen

11. Arvin set up the experiment below involving 3 magnets.



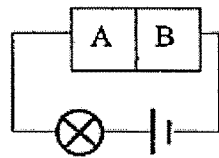
He then predicted some reactions between some of the poles of the 3 magnets if they were brought close together and presented his predictions in the table below.

	Poles of magnets	Reaction
V:	A and D	Attract
W:	A and E	Attract
S:	B and D	Repel
Y:	C and F	Attract

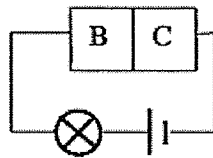
Which of Arvin's predictions is/are correct?

- (1) X only  
 (2) V and X only  
 (3) W and Y only  
 (4) W, X and Y only

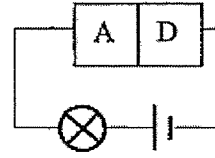
12. Pamela set up the following circuits with 4 different materials, A, B, C and D and recorded her results below.



Bulb lights up

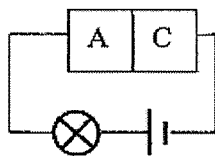


Bulb does not  
light up

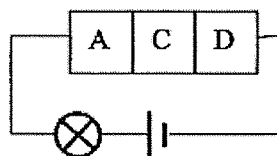


Bulb lights up

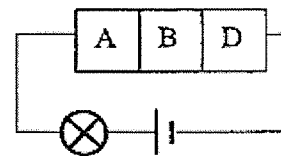
Which of the following arrangements will allow the bulb to light up?



Circuit X



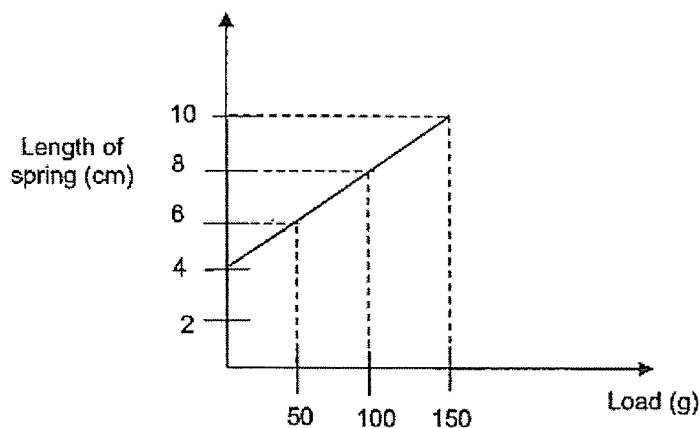
Circuit Y



Circuit Z

- (1) Circuit X only  
(2) Circuit Z only  
(3) Circuits X and Y only  
(4) Circuits Y and Z only

13. Balam hung different masses of weight onto a spring. He recorded the length of spring and plotted the graph below.

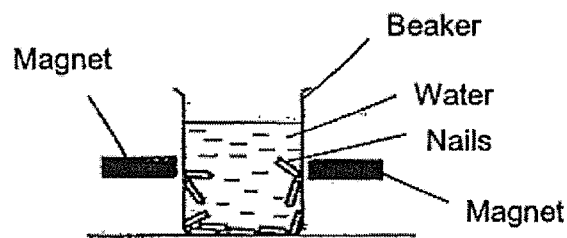


What is the extension of spring when 250g of weight is added to it?

- (1) 8 cm  
(2) 10 cm  
(3) 12 cm  
(4) 14 cm



14. An experiment is set up below and the magnets could only attract a few nails.

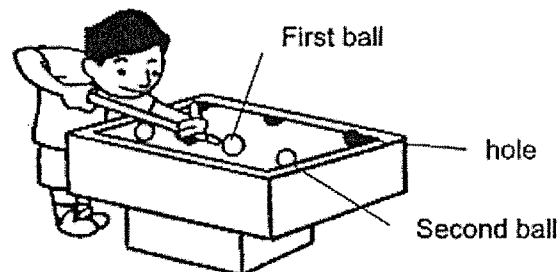


Based on the observations above, which of the following statements is/are likely to be correct?

- A: Some of the nails are not magnetic.
- B: The magnets are repelling one another.
- C: The magnets are attracting one another.
- D: The magnets are not strong enough to attract all the nails.

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

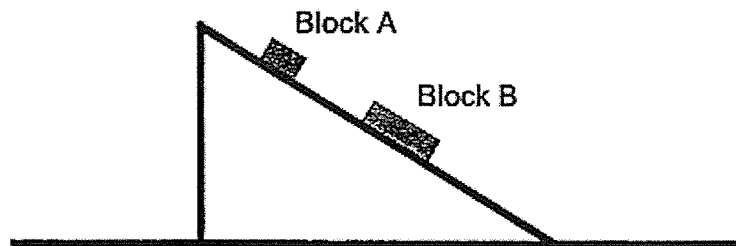
15. Leonard played the game below where he has to use a stick to hit a ball which will hit another ball. He wins the game when the second ball drops into a hole.



Which of the following shows the effect of the force acting on the second ball?

- (1) A force can change the shape of an object.
- (2) A force can cause a moving object to stop moving.
- (3) A force can cause an object to start moving.
- (4) A force can change the direction of a moving object

16. Hannah placed 2 objects, A and B, at different positions on a slope. Object B is bigger and heavier than Object A. Both are stationary until Block A is moved nearer to Block B. When Object A is moved nearer to Block B, Block B moves downwards.



Hannah made the following statements:

A: Magnetic force is acting on both Blocks A and B.

B: Block A has greater gravitational force acting on it than Block B.

C: There is no frictional force acting on the blocks when they are not moving.

Which of the following statements is/are correct?

- (1) A only  
(2) A and B only  
(3) B and C only  
(4) A, B and C
17. 4 similar cups with an equal number of seeds were placed under 4 different conditions as shown below.

Cups	Light	Soil	Appearance of seeds	
			Root	Shoot
A	Absent	Wet	Yes	Yes
B	Absent	Dry	No	No
C	Present	Wet	Yes	Yes
D	Present	Dry	No	No

Based on the experiment above only, what can be concluded?

- (1) Soil is needed for germination.  
(2) Water is needed for germination.  
(3) Light and water are needed for germination.  
(4) Air, warmth and water are needed for germination.

18. Min wanted to find out if the number of petals of Flower X will affect the number of bees attracted to it. He set up the experiment as shown in the table below.

	A	B	C	D
Location	Garden	Open field	Open field	Open field
Number of petals on Flower X	8	8	5	2
Colour of petals	Red	Yellow	Red	Yellow

Which of the following pair of set-ups should he compare to meet the aim of his experiment?

- 1) A and B  
2) A and D  
3) B and C  
4) B and D
19. Jerome took down notes on the life cycles of a butterfly and mealworm beetle during Science lesson.

L: The young moults.

M: Eggs are laid on land.

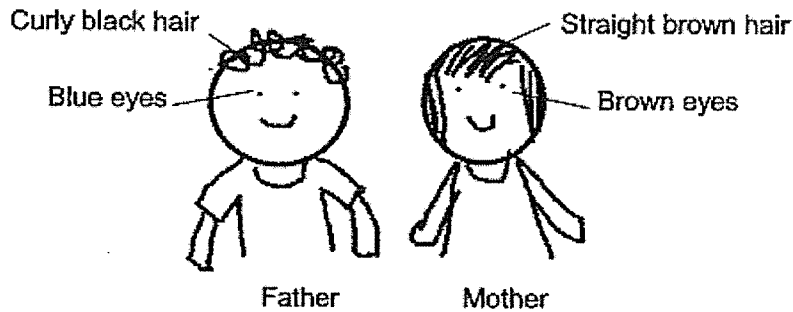
N: The young resembles the adult.

O: No feeding takes place at the larva stage.

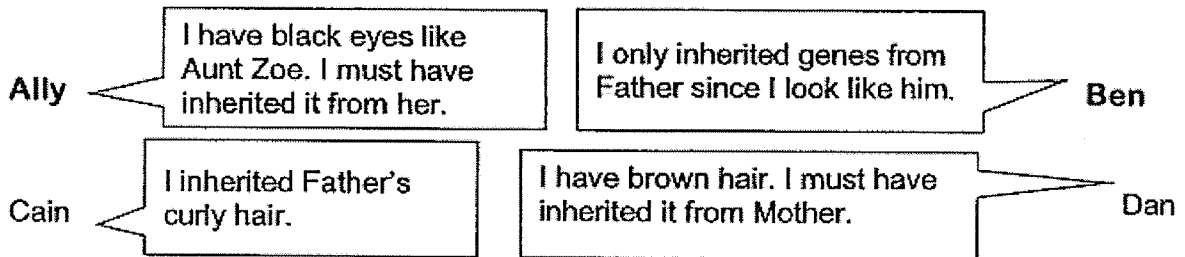
Which of the statements are true for both life cycles?

- (1) L and M only  
(2) M and N only  
(3) N and O only  
(4) L, M and O only

20. The diagram below shows the parents of 4 siblings.



The 4 siblings made the statements below.



Which of the siblings are correct?

- (1) Ally and Ben only
  - (2) Ben and Cain only
  - (3) Cain and Dan only
  - (4) Ally, Cain and Dan only
21. Which of the following statements is/are true about sexual reproduction in both animals and plants?

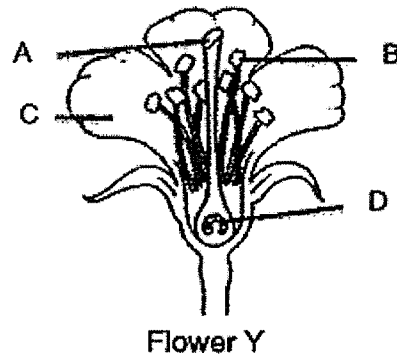
P: The female sex cell is the ovule.

Q: Pollination must take place before fertilisation.

R: Genetic information is passed down in the sex cells.

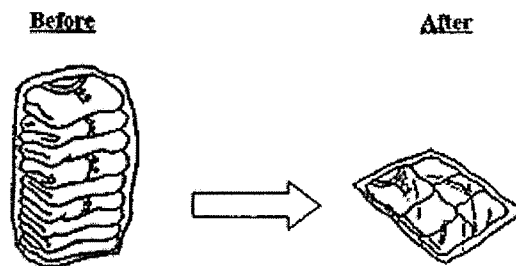
- (1) R only
- (2) Q only
- (3) P and R only
- (4) All of the above

22. 2 parts of the flower below have been removed before pollination took place. After a week, a fruit developed from the flower.



Identify the 2 parts that were most likely removed from Flower Y.

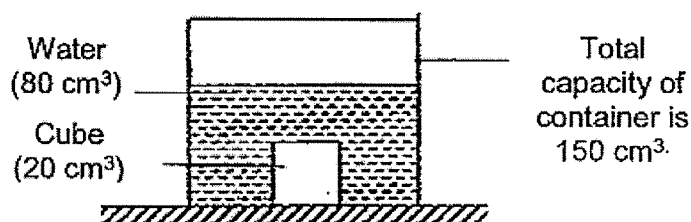
- (1) A and B  
(2) A and D  
(3) B and C  
(4) C and D
23. Layla placed all her clothing into a bag then she removed most of the air trapped inside by pushing it out.



Which of the following shows the changes in the mass and volume of the bag after the air was removed?

	Mass of the bag	Volume of the bag
(1)	Decrease	Increase
(2)	Decrease	Decrease
(3)	Remains the same	Increase
(4)	Remains the same	Decrease

24. Mei set up the experiment as shown below. There was  $80 \text{ cm}^3$  of water, a  $20 \text{ cm}^3$  cube and  $50 \text{ cm}^3$  of air in the container originally.



What is the volume of the air in the container when she adds another  $20 \text{ cm}^3$  cube into the container?

- (1)  $20 \text{ cm}^3$  (3)  $40 \text{ cm}^3$   
 (2)  $30 \text{ cm}^3$  (4)  $50 \text{ cm}^3$
25. The table below shows the states of 4 substances, A, B, C and D, at different temperatures.

Substance	State at $5^\circ\text{C}$	State at $50^\circ\text{C}$	State at $100^\circ\text{C}$
A	liquid	liquid	gas
B	gas	gas	gas
C	solid	liquid	liquid
D	solid	solid	solid

Based on the information above, which of the substances have the highest melting point?

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

26. Sherry poured the same amount of Liquid X but at different temperatures into 2 identical cups. She then placed a metal spoon into each cup and measured the temperature of the spoon after 5 minutes.

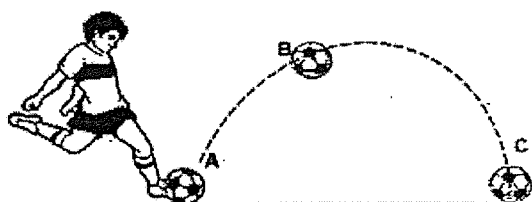


	Before the experiment	After the experiment
Spoon A	30°C	41°C
Spoon B	30°C	20°C

Which of the following shows the likely temperatures of liquid X in Cup A and B?

	Temperature of Liquid X in Cup A (°C)	Temperature of Liquid X in Cup B (°C)
(1)	60	11
(2)	60	40
(3)	15	15
(4)	15	40

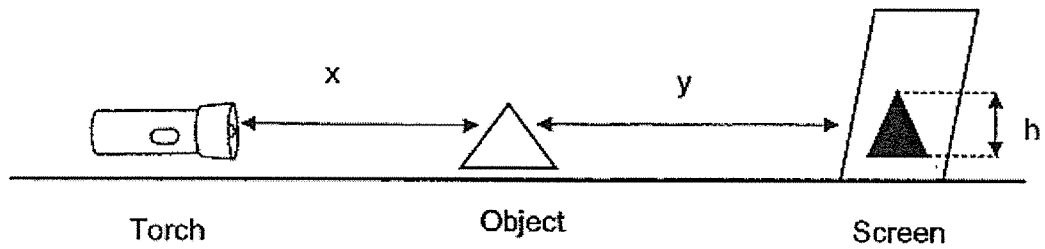
27. Xavier kicked a ball from point A to point C as shown in the diagram below. The ball continued to roll after reaching point C.



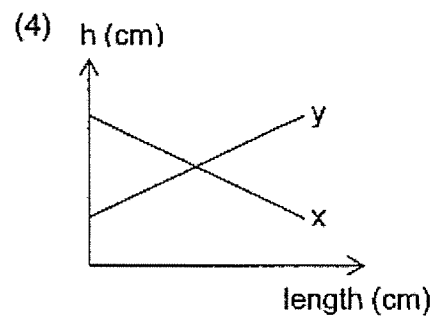
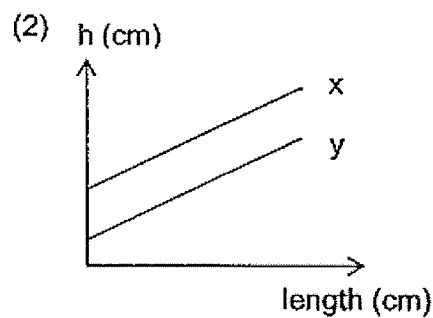
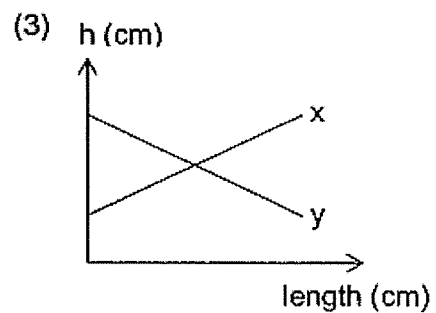
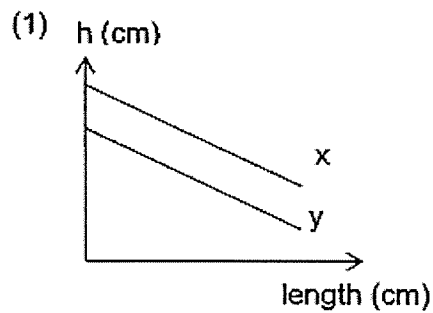
Which one of the following statements is true?

- (1) The ball has no more energy at point C.
- (2) The ball has both kinetic and potential energy at point B.
- (3) There is no gravitational force acting on the ball at point A.
- (4) Gravitational force increases when the ball moves from A to B.

28. An object is placed between a torch and a screen.



Which of the following graphs shows the correct relationship between  $x$ ,  $y$  and  $h$ ?



End of Booklet A  
Please check your work.



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SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

PRIMARY SIX PRELIMINARY ASSESSMENT 2020

NAME: \_\_\_\_\_ (     )

DATE: 20 August 2020

CLASS: PRIMARY 6 SY / C / G / SE / P

Parent's Signature:

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**SCIENCE**

**BOOKLET B**

	Total Actual Marks	Total Possible Marks
Booklet A		56
Booklet B		44
Total		100

12 questions

44 marks

Total time for Booklets A & B: 1 h 45 min

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

**FOLLOW ALL INSTRUCTIONS CAREFULLY.**

**Booklet B (44 marks)**

29. Sally observed 3 different cells, C, D and F, under the microscope and drew how they looked like as shown below.



Cell C



Cell D



Cell F

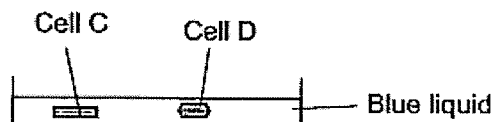
- (a) Which of the cells above is/are animal cells? Explain your answer. (1m)

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Sally then placed Cells C and D into a petri dish containing a blue liquid.



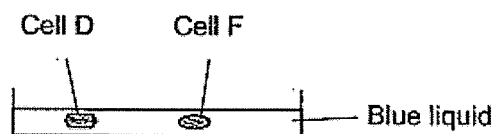
- (b) After an hour, Cell C increased in size and turned blue but not Cell D. Explain why. (1m)

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Sally then placed Cells D and F into another petri dish containing a blue liquid.

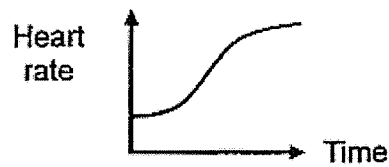


- (c) After some time, Cell F burst but Cell D did not. Which cell part prevented Cell D from bursting? (1m)

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3

30. The graph below shows Ken's heart rate during his swim.



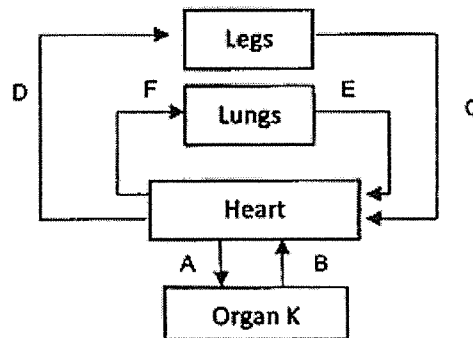
- (a) Explain why his heart rate increases during his swim. (1m)

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- (b) The diagram below shows the circulatory system. A-F are blood vessels.



- (i) Digested food is released into the bloodstream by Organ K.

Identify Organ K. (1m)

Organ K: \_\_\_\_\_

- (ii) Which 2 blood vessels in the diagram above are involved in the transport of digested food to the legs? (1m)

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- (c) The diagram below shows a whale.



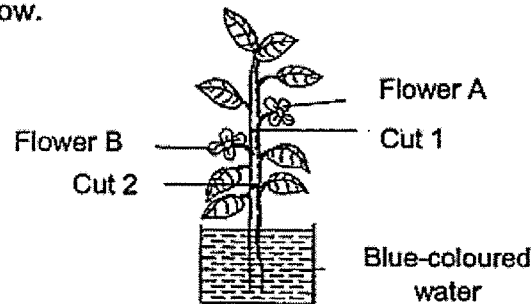
Unlike sharks, a whale needs to come up for air from time to time even when they live underwater. Why? (1m)

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2

4

31. Mrs Gomaz placed a plant with 2 white flowers into a beaker containing blue-coloured water. She made 2 cuts on the stem as shown in the diagram below.



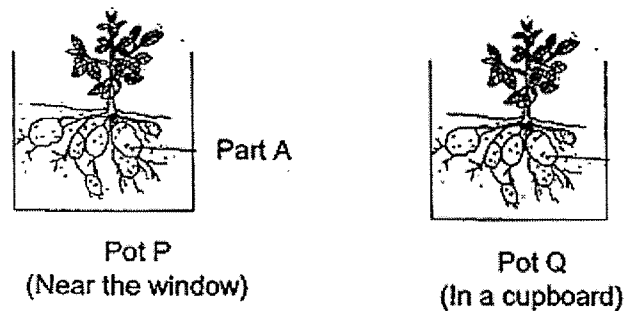
- (a) A few days later, Mrs Gomaz observed that Flower A had withered while Flower B turned blue. Explain Mrs Gomaz's observations. (2m)

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The diagram below shows 2 pots of plants which store food in Part A. Pot P was placed near the window while Pot Q was placed in a cupboard.

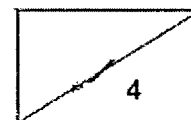


- (b) Which pot, P or Q, will have a bigger Part A after some time? Explain your answer. (2m)

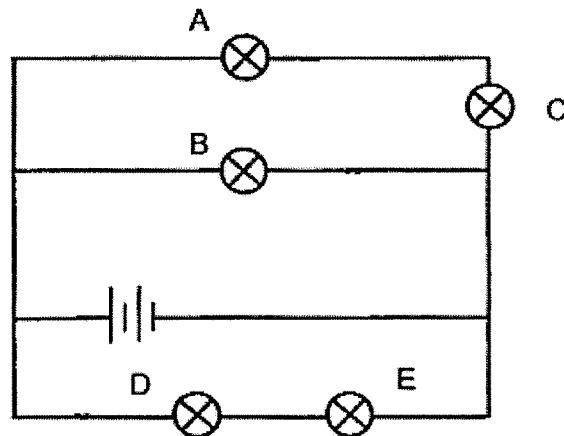
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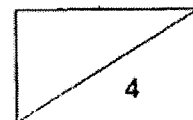
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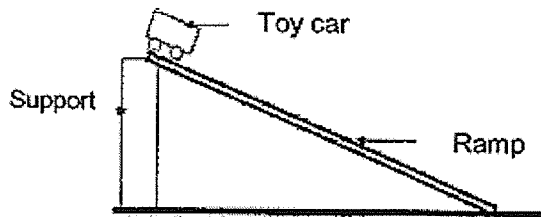
32. The diagram below shows how 5 identical bulbs are arranged in a room.



- (a) Draw 2 switches (Using 'X') on the diagram above such that when the switches are open, only Bulbs A and C remain lit up. (1m)
- (b) State the bulbs that have the same brightness as Bulb D. (1m)
- (c) Which of the bulbs will continue to light up if Bulb C is fused. (1m)
- \_\_\_\_\_
- (d) Will Bulb D light up if Bulb E is fused? Explain your answer. (1m)
- \_\_\_\_\_
- \_\_\_\_\_



33. Leon set up the experiment below. He recorded the time taken for the toy car to travel down the ramp on 3 different surfaces P, Q and R.



Surfaces	Average time for toy car to reach the bottom of ramp (sec)
P	10.6
Q	4.5
R	8.7

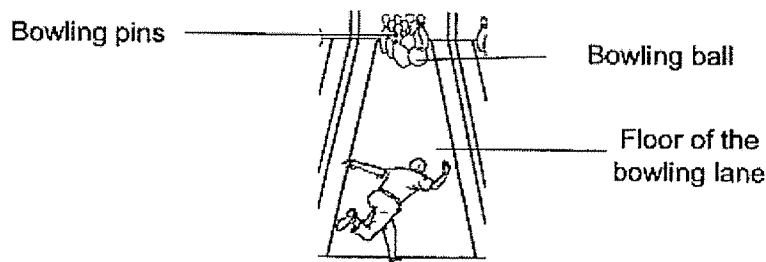
- (a) Besides using the same toy car, state another 2 variables that Leon should keep the same to ensure a fair test? (1m)

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The picture below shows a bowling game. The bowling ball is released before hitting the pins at the end of the lane.



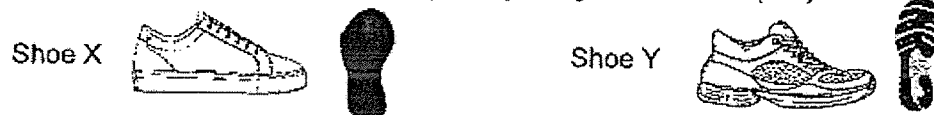
- (b) Leon found that Surface Q allows him to hit the most number of pins. Explain why, based on the results in the table. (2m)

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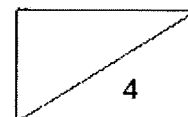
- (c) Which pair of shoes, X or Y, should Leon wear on the surface that he has chosen in (b) so that he will not slip? Explain your answer. (1m)




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34 (a) Why do seeds have to be dispersed? (1m)

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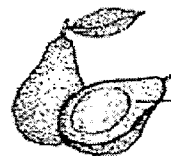
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The diagram below shows 2 different types of fruits, P and Q.

The whole of Fruit P is eaten by birds and it contains many indigestible seeds. Fruit Q, also eaten by birds, has a big indigestible seed in the middle.



Fruit P



Fruit Q

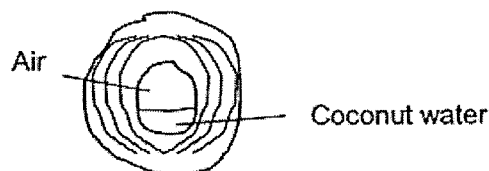
(b) State the advantage of the method of seed dispersal of Fruit P over Fruit Q. (2m)

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(c) The diagram below shows the cross-section of a coconut fruit.

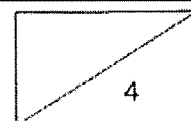


State 2 characteristics of the coconut fruit that allow it to be dispersed by water. (1m)

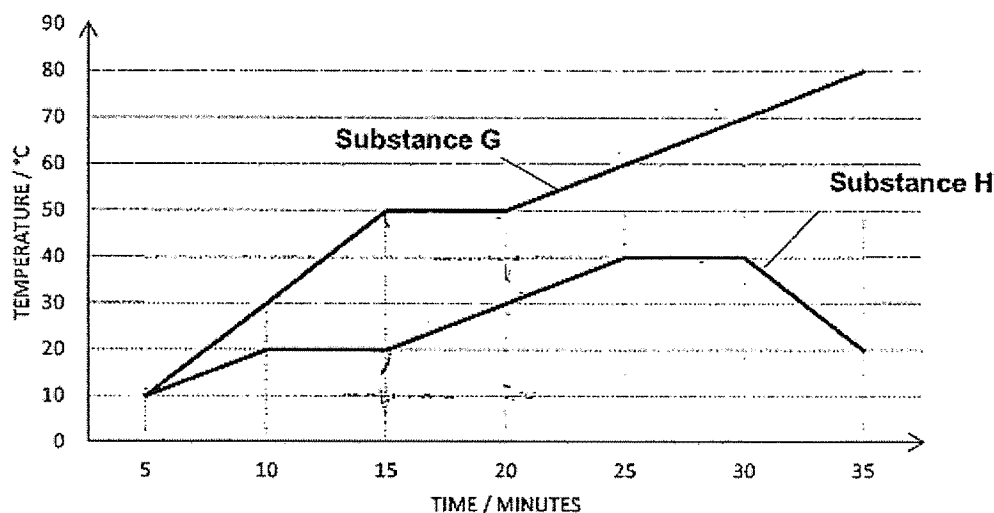
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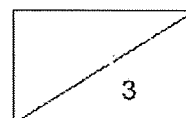


35. Mrs Henderson heated 2 substances, G and H, and their temperature changes were plotted on the graph below.



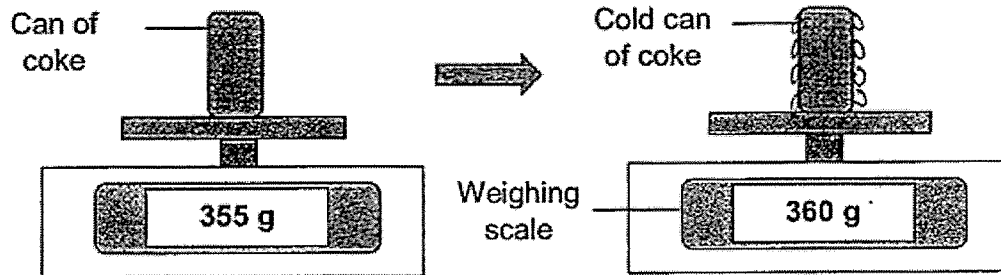
Based on the graph above, answer the following questions.

- (a) Substances G and H are in the solid state at the 5th min.  
What are the states of Substances G and H at the 28th min? (1m)  
Substance G: \_\_\_\_\_  
Substance H: \_\_\_\_\_ and \_\_\_\_\_
- (b) Describe what is happening to Substance G between the 15th and 20th min. (1m)
- (c) State the freezing point of substance H. (1m)





36. Diana took a cold can of coke (355g) from the refrigerator and placed it on the weighing scale. After 10 minutes, she observed that the can of coke became heavier as shown below.



- (a) Explain why the cold can of coke became heavier. (2m)

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Diana placed the same can of coke into the freezer. The next day, she took out the can from the freezer on the weighing scale.

- (b) Circle the most likely mass of the can of coke 10 minutes after it was taken out of the freezer. (1m)

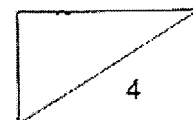
350g	360g	366g
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- (c) Explain your answer in (b). (1m)

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37. Xavier was drenched in the rain as he did not have an umbrella.



- (a) He managed to find a shelter after a while but he was soaking wet. Explain why he felt colder even when he was no longer in the rain. (1m)

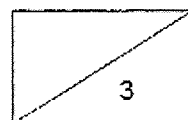
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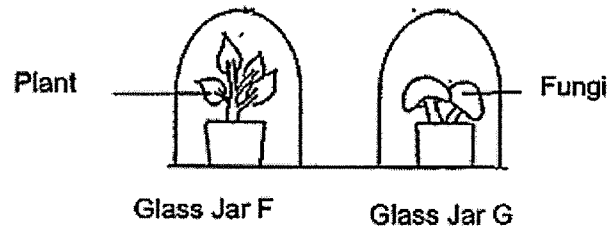
- (b) When the wind blew, Xavier felt even colder. Explain why he felt colder. (2m)

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38. A plant and fungi are placed in 2 separate clear glass jars, F and G, and given the same amount of water at the start of the experiment. They are placed near the window.



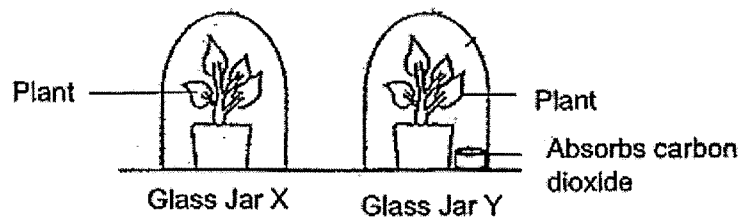
- (a) Will Glass Jar F have more, less or an equal amount of oxygen, as compared to Glass Jar G after some time? Explain your answer. (2m)

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Another experiment was carried out at the same place. 2 similar plants are placed in separate glass jars, X and Y, and given the same amount of water at the start of the experiment. A solution that absorbs carbon dioxide is placed in Glass Jar Y. The amount of oxygen in each jar was measured at the end of the experiment.



- (b) What is the aim of the experiment? (1m)

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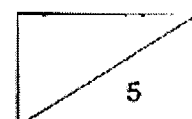
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- (c) Which glass jar, X or Y, will have more oxygen after some time. Explain your answer. (2m)

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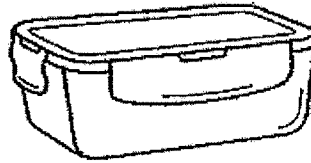
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39. Magdalene has 2 containers, J and K, as shown below. They are of similar size but are made of different materials. She poured the same volume of hot soup ( $80^{\circ}\text{C}$ ) into both containers.



Container J



Container K

After a few hours, the soup in Container J is still warm but that in container K is cold.

- (a) Explain Magdalene's observations. (2m)

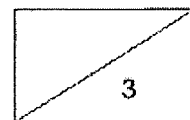
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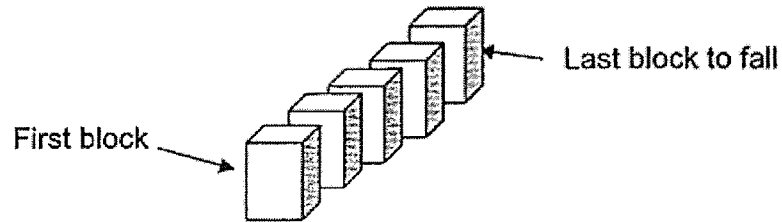
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- (b) Which container, J or K, is more suitable for keeping cold desserts cold for a longer period of time? (1m)

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40. Dave arranged some similar blocks as shown below. He then pushed only the first block and the rest of the blocks fell as well.



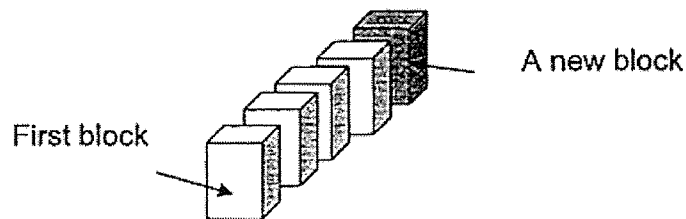
- (a) Explain, in terms of energy, how the last block fell. (1m)

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- (b) Dave then replaced the last block with a block that was 3 times heavier than the original block as shown in the diagram below.



- (i) When the first block was pushed, the rest of the blocks fell but not the last block. Explain why. (1m)

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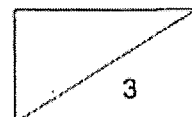
- (ii) What can Dave do to ensure that the last block falls when the first block is pushed? (1m)

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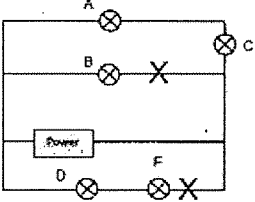
End of Booklet B  
Please check your work.



**SINGAPORE CHINESE GIRLS' SCHOOL**  
**PRIMARY 6 SCIENCE PRELIMINARY EXAMINATION 2020**

**Booklet A**

1) 4	6) 4	11) 3	16) 1	21) 1	26) 1
2) 4	7) 3	12) 2	17) 2	22) 3	27) 2
3) 4	8) 1	13) 2	18) 4	23) 2	28) 4
4) 3	9) 1	14) 2	19) 1	24) 2	
5) 3	10) 1	15) 3	20) 3	25) 4	

No.	Booklet B Suggested Answers
29a	Cell F. It does not have a cell wall.
29b	The cell membrane of Cell C allowed the blue liquid to enter the cell but the cell membrane of Cell D did not.
29c	Cell wall
30a	His body needs more oxygen and digested food during exercise so the heart needs to pump oxygen and digested food at a faster rate to all parts of the body.
30bi	Small intestine
30bii	B and D
30c	A whale breathes through lungs, not gills.
31a	Flower A withered because the water-carrying tubes were cut at Cut 1 so the blue water cannot be transported to Flower A. Flower B turned blue as the water-carrying tubes were not cut so the blue water can still be transported to Flower B.
31b	Pot P. The plant in Pot P was exposed to light but the plant in Pot Q was not. The plant in Pot P can make food but the Plant in Pot Q cannot. Food made by the plant in Pot P can be transported to Part A and be stored there but the plant in Pot Q used the stored food in Part A.
32a	
32b	A, C and E
32c	B, D and E
32d	No. D and E are <u>arranged in series</u> so when E is fused, there will be an <u>open circuit</u> and D will not light up.
33a	Height of support / Length of ramp/ Position of release of the toy car / Steepness of the ramp
33b	There is the least friction between the ball and floor as the toy car / ball as it moved fastest on surface Q (as shown by the results).

33c	Shoe Y. The soles of Shoe Y is rougher than the soles of Shoe X so there is more friction between the soles of Shoe Y and the surface.
34a	To travel further away from parent plant to avoid overcrowding.
34b	Seeds of Fruit P get mineral salts from the bird droppings to grow better.
34c	Fibrous husk, waterproof surface, air spaces inside
35a	Substance G: <u>Liquid</u> Substance H: <u>Liquid and Gas</u>
35b	Substance G is gaining heat and melting.
35c	20°C
36a	Warmer water vapour in the surrounding lost heat to the cooler outer surface of the can and condensed into water droplets (which stayed on the can), increasing the mass of the can.
36b	366g
36c	The can became much colder which increased the temperature difference between the can and the warmer water vapour from the surroundings, allowing the rate of condensation to increase.
37a	Water on his skin gained heat from his body in order to evaporate.
37b	The presence of wind increased the rate of evaporation and the water gained more heat from his body.
38a	More amount of oxygen. Glass Jar F has a plant which will photosynthesize and produce oxygen but the fungi in Glass Jar G cannot photosynthesize and cannot give out oxygen.
38b	To find out if carbon dioxide is needed for photosynthesis.
38c	Glass Jar X. There is carbon dioxide in Jar X but not in Jar Y. Carbon dioxide is needed for photosynthesis, thus the plant in Glass Jar X can photosynthesize and give out oxygen but the plant in Glass Jar Y cannot.
39a	Container J is a poorer conductor of heat than Container K so the soup in Container J lost heat to the surrounding air more slowly.
39b	Container J
40a	Kinetic energy from the first block is transferred to the next block and eventually to the last block to make the last block fall.
40bi	There is not enough kinetic energy to push the last block.
40bii	Replace the first block with a block that is heavier than the last block. / Push the first block with more force.