Anglo-Chinese School (Junior)

NON-WEIGHTED BITE-SIZED ASSESSMENT TWO (2024)
PRIMARY 6

SCIENCE

Monday **13 May 2024** **1 hour**

INSTRUCTIONS TO PUPILS

DO NOT TURN OVER THE PAGES UNTIL YOU ARE TOLD TO DO SO

Follow all instructions carefully.

There are 12 questions in this booklet.

Answer ALL questions.

Name: _____ ( )

Class: 6. ( )

Parent's Signature: _____

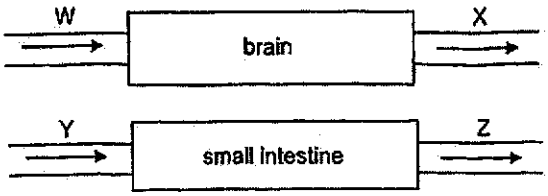
	Possible Marks	Marks Obtained
TOTAL	44	

This question paper consists of 17 printed pages. (Inclusive of cover page)

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For questions 1 to 12, write your answers in this booklet.
The number of marks available is shown in brackets [ ] at the end of each question or part question. **(44 marks)**

1. (a) The diagram shows blood entering and leaving the brain and the small intestine through blood vessels W, X, Y and Z.

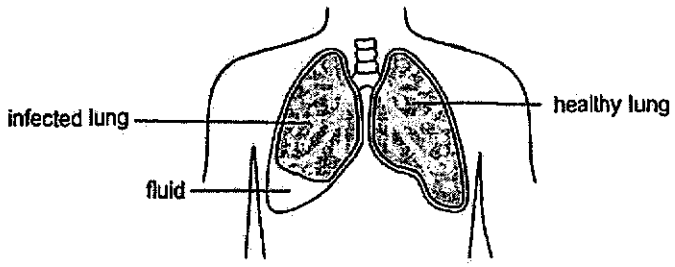


Which blood vessels carry blood rich in oxygen and digested food? Fill in the boxes with W, X, Y and/or Z. [1]

	Carries blood rich in	Blood vessel(s)
(i)	oxygen	
(ii)	digested food	

(b) In humans, the greater the size of the lungs, the greater the amount of air that can enter the lungs.

A man had a bacterial infection which caused one of his lungs to be filled with fluid (liquid). As a result, his breathing rate changed.



(i) State how his breathing rate changed due to the infection. [1]

_____

(ii) Explain your answer in (b)(i). [1]

_____

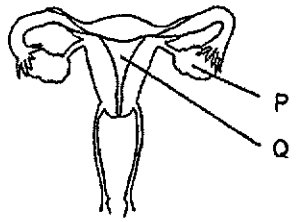
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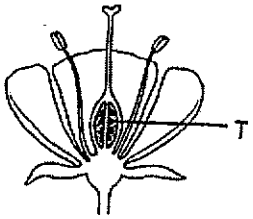
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2. The diagrams show parts P and Q of the human reproductive system and part T of the plant reproductive system.



Human reproductive system



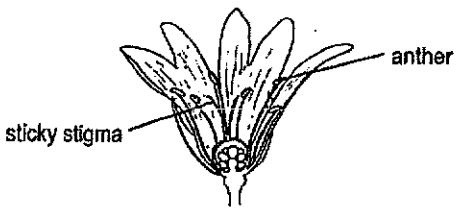
Plant reproductive system

(a) How is Part P similar in function to Part T? [1]

(b) Name part Q and state its function. [1]

The process of pollination is required for flowering plants to reproduce.

The diagram shows flower X. Its anthers and stigma are small and hidden deep inside the flower. The flower produces nectar, has large colourful petals and sticky stigma.



Flower X

(c) (i) State the likely method of pollination of flower X. [1]

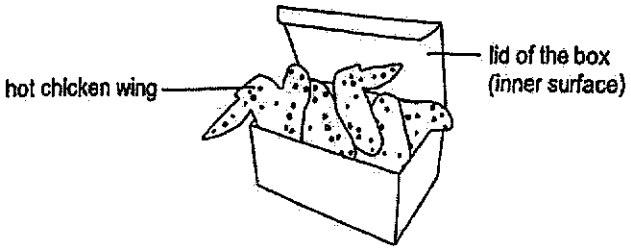
(ii) Explain how flower X is pollinated. [1]

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3 Emily bought a box of hot fried chicken wings from a food seller. When she opened the lid of the box, she noticed that the inner surface of the box was wet.



(a) Explain why the inner surface of the box was wet. [2]

(b) Emily told the food seller that poking some holes on the lid of the box will make the inner surface of the box less wet. Explain why. [1]

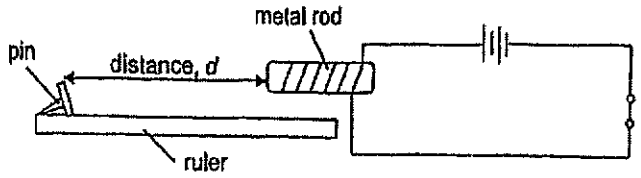
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4. Asher conducted an experiment. He wanted to find out the distance at which a pin will get attracted to the metal rod as shown.

He placed the pin at one end of a plastic ruler and moved the pin slowly towards the metal rod. He measured the distance, *d*, when the pin was attracted to the metal rod.

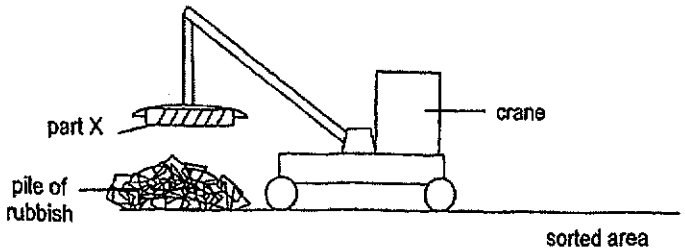


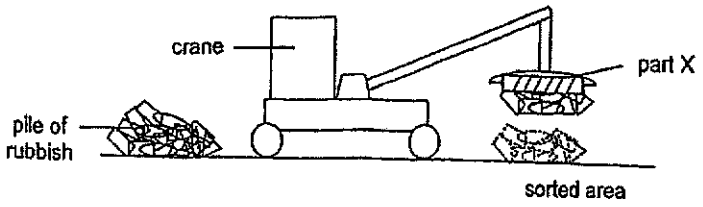
(a) Name a suitable material that the pin can be made of. [1]

_____

Using a similar method, cranes are used to collect metals for recycling. The electrical circuit is connected to part X of the crane as shown.

By making use of a switch, the scrap metals can be picked up from a pile of rubbish and brought over to the sorted area where they can be released from the crane.





(b) Explain how the scrap metals can be picked up from the pile of rubbish and released at the sorted area. [2]

_____

_____

_____

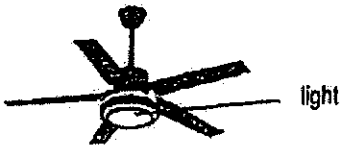
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5. Anna wanted to install a ceiling fan with a light in her living room.

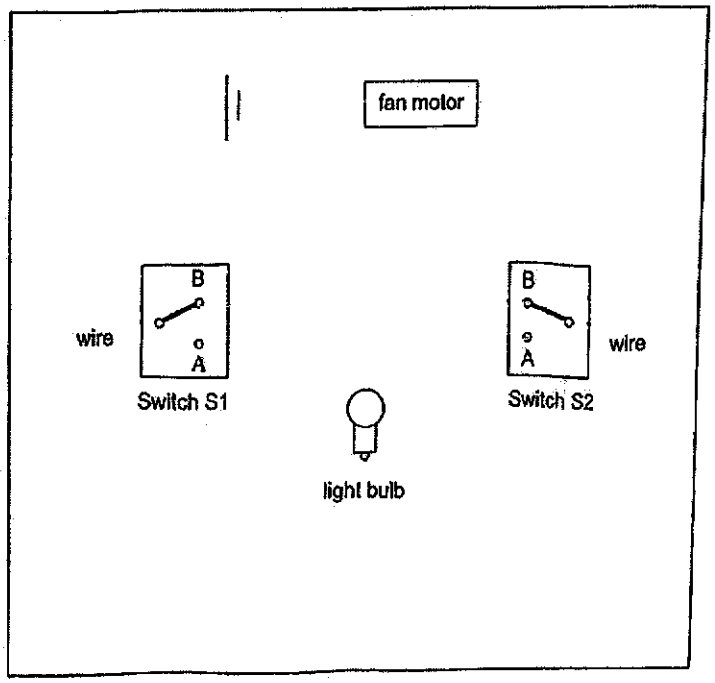


The fan comes with two switches, S1 and S2, that allows her to turn the fan on with or without light as described in the table. Each switch can be at position A or B in the circuit.

The table shows the positions of switches, S1 and S2, and if the fan and/or light is/are turned on.

Switch S1 at	Switch S2 at	Fan is turned on	Light is turned on
A	A	yes	yes
A	B	no	no
B	A	no	no
B	B	yes	no

(a) The diagram shows part of the circuit. Complete the circuit by drawing wires so that the circuit will work as described. [2]

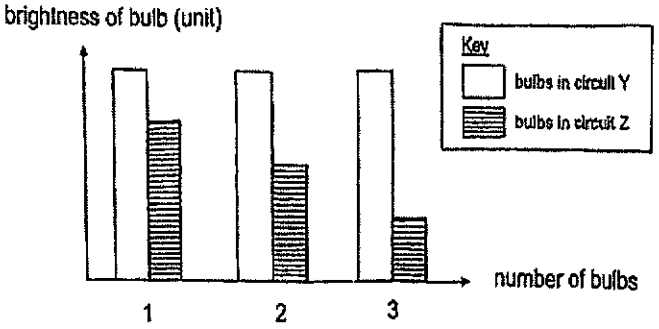


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SCORE 2

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(b) Anna set up another two electrical circuits, Y and Z, with different bulb arrangements. She added a bulb to each circuit and recorded the brightness of the bulbs in a graph as shown.



(i) Based on the graph, state the arrangement of bulbs for each circuit. [1]

Circuit Y: _____

Circuit Z: _____

(ii) Besides changing the number of bulbs and arrangement of bulbs, suggest what Anna can do to increase the brightness of the bulbs in circuit Z. Explain your answer. [2]

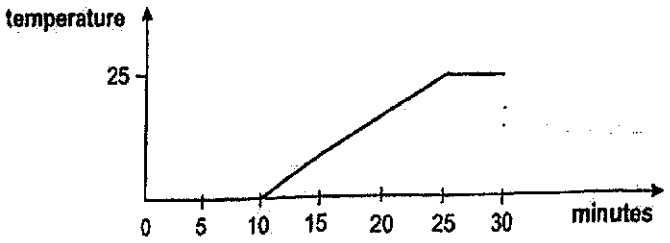
Suggestion	Explanation

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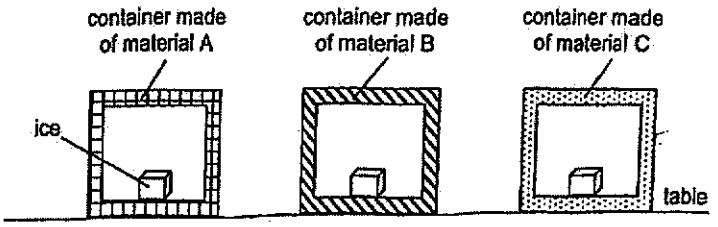
6. Tom measured the temperature of ice as it melts and drew a graph of his results.



(a) How long did it take for the ice to melt completely?

_____ [1]

(b) Tom set up the experiment shown to find out how the material of a container affects the time taken to completely melt 100 cm^3 of ice.



He recorded his results in the table.

Container made of material	Time taken for the ice to melt completely (s)
A	40
B	55
C	70

(i) Explain why using the same volume of ice ensures that the experiment is a fair test. [1]

_____

_____

(ii) A delivery rider wants to deliver cooked food in a container to a customer's house. Which material, A, B or C should he use for the container such that the food remains warm for the longest time? Explain your answer.

_____ [2]

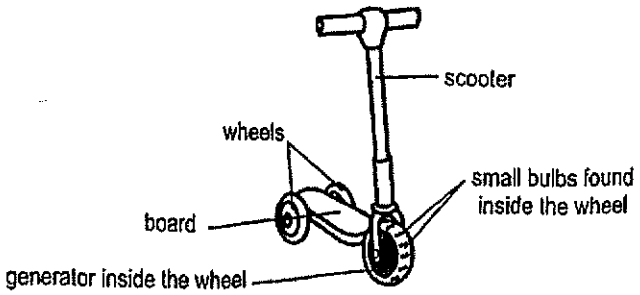
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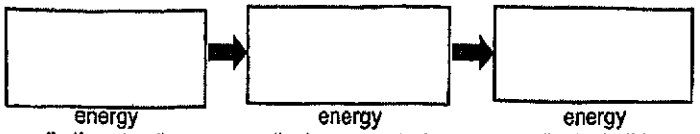
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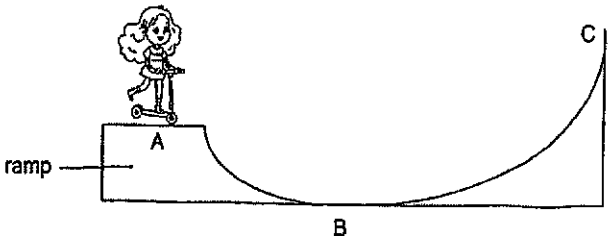
7. The diagram shows Jessica's scooter. When she steps on the board with one foot while holding the handles and pushes herself forward with her other foot, the scooter will move and the small bulbs inside the wheels will light up.



(a) Fill in the boxes to show the energy conversion in the wheel when the scooter started moving. [1]



(b) Jessica rode her scooter on a ramp from point A to point C at a skate park.



Which of the following statement(s) is/are true? Write the letter "T" for true and "F" for false. [1]

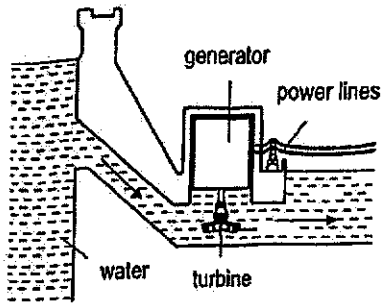
	Statement	T or F
i.	Jessica had the most gravitational potential energy at point A.	
ii.	Jessica had the most kinetic energy at point B.	

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SCORE	/ 2

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(c) While Jessica was scooting, she also saw a hydroelectric station where water is stored behind a dam.



(i) State the source of energy of the hydroelectric station. [1]

_____

(ii) State one disadvantage of building hydroelectric stations. [1]

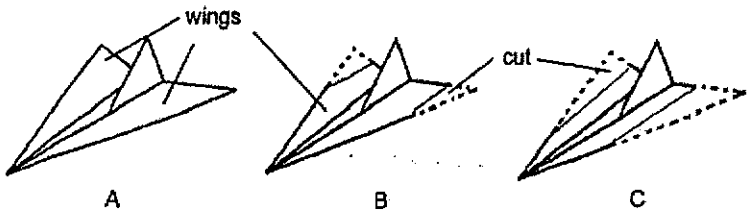
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8. Aiden prepared three identical paper planes, A, B and C, made of the same material, for an experiment. He then cut the wings of planes B and C as shown.



He released the planes from the same height and recorded the distances that they travelled in the table. There was no wind present during the experiment.

Plane	Surface area of the wings of the plane (cm^3)	Distance travelled (cm)
A	100	32
B	80	25
C	50	16

(a) State the aim of Aiden's experiment. [1]

_____

_____

(b) State one other variable that he has to keep the same for a fair test. [1]

_____

(c) Fill in the boxes below. [1]

Force that caused the plane to:	Force
(i) fall to the ground	_____
(ii) slow down	_____

(d) State what Aiden should do so that his results are more reliable and accurate. [1]

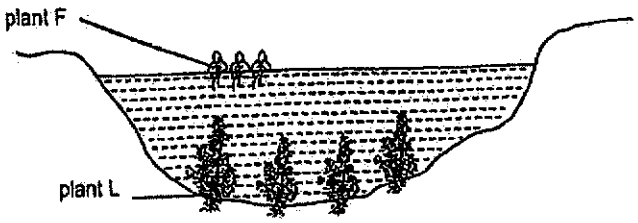
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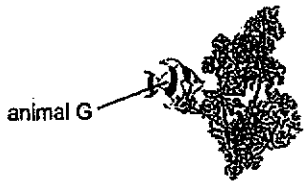
9. Plants F and L, are found in the same pond as shown.



When there are heavy rains, soil is washed into the pond, increasing the amount of mineral salts in the water. This causes the population of plant F to increase quickly.

(a) An increase in the population of plant F will cause a decrease in the population of plant L. Explain why. [1]

Animal G lives among the leaves of plant L as shown.

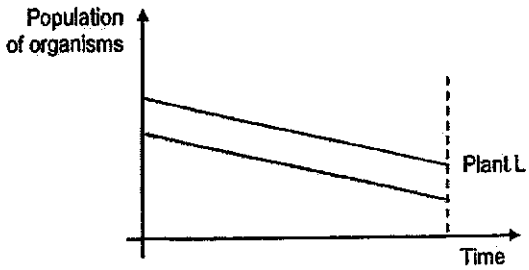


(b) Animal G feeds on the leaves of plant L.

Besides food, state another benefit of plant L to animal G to ensure its survival. [1]

(c) The graph shows the population of plant L over time.

In the graph, draw another line to show the population of animal G over the same period of time. [1]

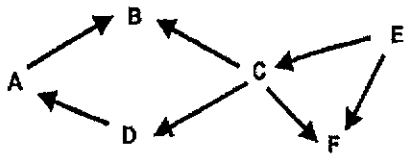


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10. Study the food web.



(a) Based on the food web, fill in the boxes with the correct organism(s). [1]

		Organism(s)
(i)	Producer	
(ii)	Both a prey and a predator	

(b) Organism X is introduced into the habitat. They feed on organism E and are preyed on by organism D.

(i) Draw the food relationship of organism X in the food web above. [1]

(ii) How will the introduction of Organism X affect the population of organism C? Explain your answer. [1]

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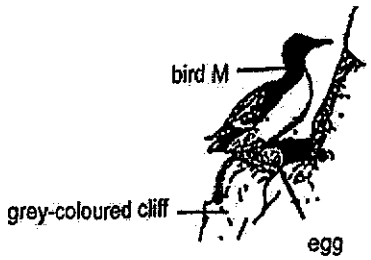
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11. Bird M lives in groups on rocky cliffs. The adult bird M lays its egg directly on the narrow grey-coloured cliff ledge as shown.



The egg of bird M is pointed at one end. When pushed, it will roll in a small circular path and return to its original position, as shown in Diagram 1.

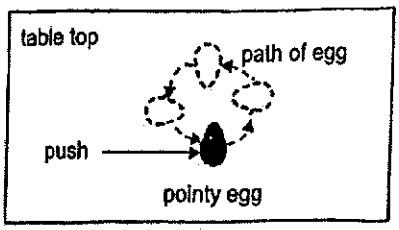


Diagram 1

This is different from some birds like owls, which lays eggs that are rounder. When pushed, round eggs will roll in a straight path, as shown in Diagram 2.

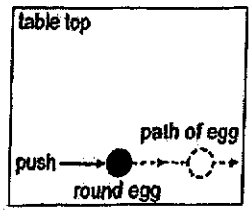


Diagram 2

(a) State how the pointed shape of the egg is an advantage when the egg is laid on the cliff. [1]

_____

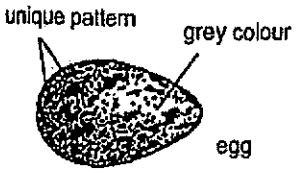
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(b) The adult bird M lays only one egg each year. Most bird M adults lay their eggs close to one another during the same month of the year and on the same cliff. Although all eggs are grey-coloured, each egg has a unique pattern as shown.



(i) Explain how its grey colour gives the eggs a higher chance of hatching. [2]

(ii) For the eggs to hatch, the eggs need to be incubated. This requires the parent birds to return to their own eggs and sit on them.

Explain how having unique patterns on the eggs is an advantage to the adult bird M. [1]

(c) Bird M hunts for food in the sea. As it dives into the water, it folds its wings close to the body as shown.



Explain how this action allows the bird to hunt for their prey more easily. [1]

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12. (a) State what matter is. [1]

_____

_____

(b) Sam wants to find the volume of a stone.

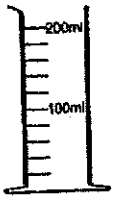
He found the following items in the Science lab.



stone



container with
100 ml of water



200 ml measuring cylinder

Describe how Sam can find the volume of the stone using these items. You may draw diagram(s) with labels or list the steps for Sam to carry out his experiment. [2]

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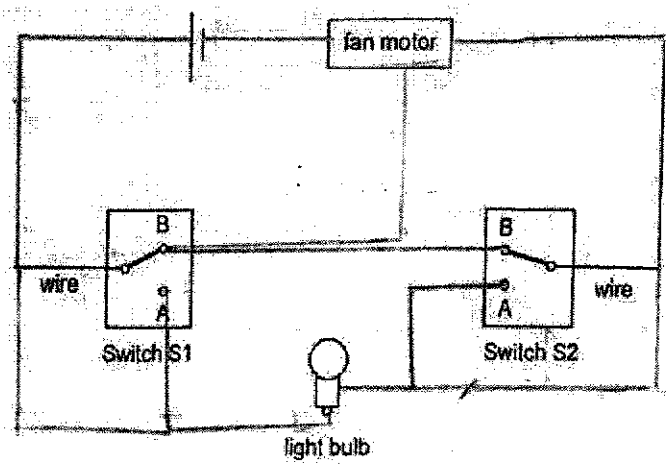
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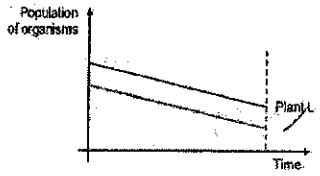
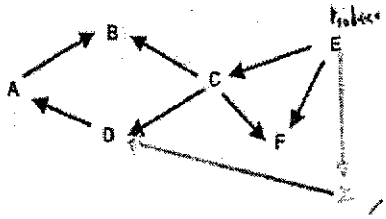
SCHOOL : ACS (J) SCHOOL
LEVEL : PRIMARY 6
SUBJECT : SCIENCE
TERM : 2024 WA2

1)	a)i)W,Y ii)Z, W b)i)His breathing rate increased. ii)The hard decreased the amount of exposed surface area of the air sacs and his lungs, so he had to increase his breathing rate to attain the same amount of oxygen.
2)	a)Both parts produce the female reproduction cells. b)Part Q is the womb. After the egg has been fertilised, it develop at part Q. c)The pollen grains from the anther can be carried on the insect's body and is transferred to the stigma.
3)	a)Water from the chicken wings gained heat and evaporated to form water vapour which lost heat to the cooler inner surface of the box and condensed to form water droplets. Now, when the surrounding air gains heat from the hot chicken wing, it can escape through the holes of the lid, hence it will become less wet.
4)	a)Steel b)When part Z hovers over the pile of rubbish contusing metal, the switch can be closed. Then electricity can flow through the circuit and the metal rod will become an electromagnet. It them attract the magnetic/scrap metal from the pipe of rubbish, and turns the other way to put the metal to the sorted area. The switch can be opened .The electromagnet is no longer one and also no longer attract the metal. The metal will then full to the sorted area as it is magnetic.

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5)	a)  b)i)Circuit : Parallel Circuit: Series ii)Suggestion : She can increase the number of batteries in circuit 2. Explanation : By increasing the number of batteries in circuit 2 , the amount of electricity that flows through the circuit will also increase so the brightness of the bulbs will also increase.
6)	a)10 minutes. b)i)By using the same volume of ice, it ensures that the time taken for the ice to melt completely is only attested by the material of the container, not other variable. ii)Material C. As the ice in material C took the longest lime to melt completely, it menus that material C is the poorest conductor of heat among the three materials. Therefore, it will keep the cooked food warm for the longest time.
7)	a)Kinetic energy →Electrical energy →Light energy b)i)T ii)T c)i)water / rain water ii)if there is no water, the generator cannot generate electricity.
8)	a)To find out if the surface are of the wings of the plane affects the distance travelled by the plane. b)Force at which he released the paper plane. c)i)Gravitational Force. ii)Frictional Force. d)He should repeat the experiment a few more time so that his results are more reliable and accurate.
9)	a)When the population of plant F increases, it will cover up most of the pond, blocking most of the sunlight. Hence, plant L will not be able to

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	photosynthesis to make food as there is not much light, and its population will decrease. b)Animal G can hide behind plant L so that predators will not easily spot it. c) 
10)	a)i)E ii)D,A b)i)  ii)The population of organism C will decrease. When organism X is introduced there will be less food for C as both C and X compete for E.
11)	a)When pushed, the pointed egg will roll in a small circular path and returned to its original position and will not roll on. So it will not fall of the cliff. b)i)When the eggs are grey in colour, its predators will mistake it as one of the cliff's rocks, and will not consume it. This will increase the number of eggs that hatch every year. ii)As each egg has a unique pattern, the parent of it will not mistake other egg for its own. c)When bird M fold's wings, it decreases the amount of area is in contact with the water, and this increases its speed, there it is able to hunt for its prey more easily.
12)	a)Matter is anything that has mass and occupies spare. b)First step: put both the 100ml of water and the stone inside the 200ml measuring cylinder. Then measure the volume inside the measuring cylinder. Finally subtract the volume by 100 and you will yet the volume of the stone.

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