

rafflesgirlsprimaryschool_p6_sa2_2024



**RAFFLES GIRLS' PRIMARY SCHOOL
PRELIMINARY EXAMINATION
PRIMARY SIX
2024**

**SCIENCE
(BOOKLET B)**

Name: _____ ()

Date : 21 August 2024

INSTRUCTIONS TO CANDIDATES

1. Write your name, class and index number in the spaces provided above.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. For questions 29 – 41, write your answers clearly in the spaces provided.
6. The number of marks is shown in brackets[] at the end of each question or part question.

Score	44
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29. Annie found animal A as shown in the diagram.

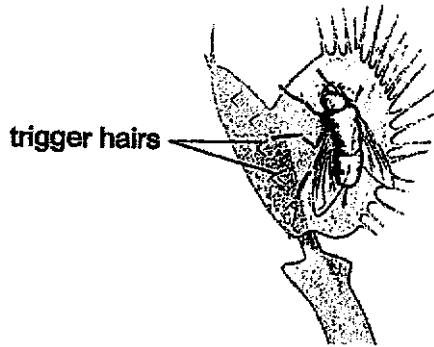


Animal A

Her classmate told her that animal A is an insect.

- (a) Based on your observation, do you agree with Annie's classmate? Give two reasons for your answer. [2]

Animal A lands on plant Y. When animal A touches the trigger hairs of plant Y, its leaves snap shut rapidly and trap animal A as shown in the diagram.



Animal A landing on plant Y



Leaves of plant Y snap shut

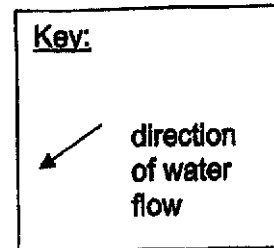
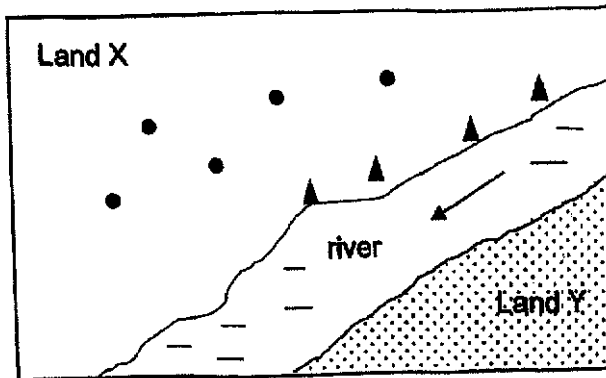
- (b) State the characteristic of living things as shown by plant Y. [1]

Score	3
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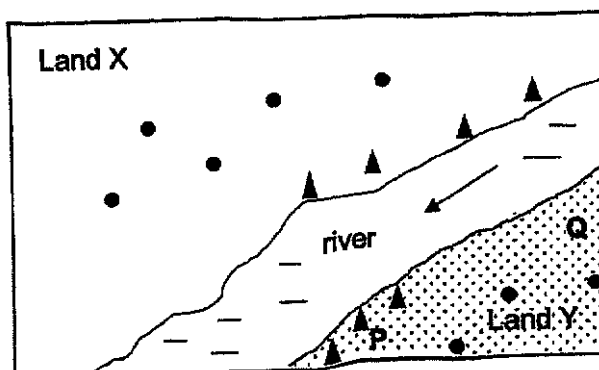
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30. Land X has some plants (● and ▲) and animals, but land Y does not have any plants or animals.



After a few months, plants were growing on land Y and several months later, animals were found on it.



- (a) Based on the above observation, state two structural adaptations that allowed the fruit of plant ▲ to be dispersed. [2]

- (b) Give a reason why plant ▲ is found at part P and not at part Q of land Y. [1]

Continue on page 23

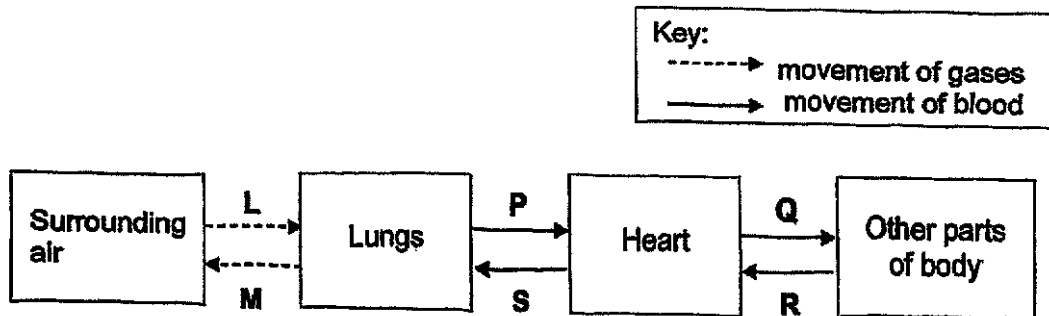
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Continued from page 22

- 30(c) Explain why animals could be found living on land Y after plants started growing there. [1]

31. The diagram shows the movement of gases and blood in the respiratory and circulatory system of a body.



- (a) Describe one difference between the amount of oxygen at L and M. [1]

Continue on page 24

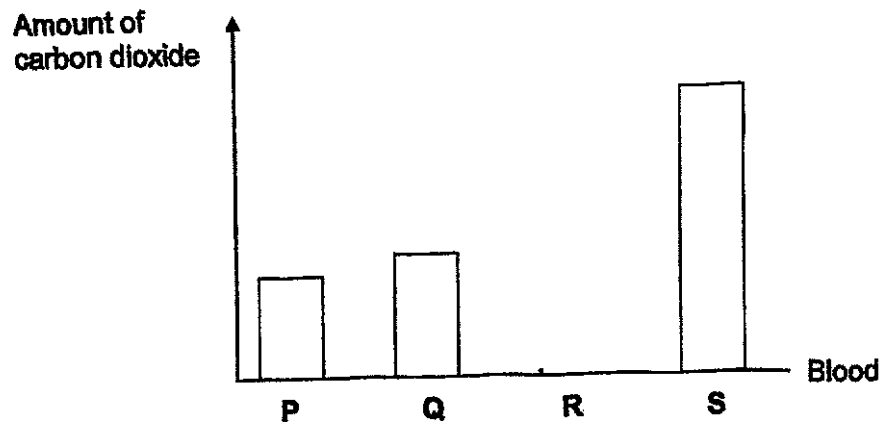


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Continued from page 23

- 31(b) The bar graph shows the amount of carbon dioxide in the blood at P, Q and S.

Complete the bar graph to show the amount of carbon dioxide at R correctly. [1]



- (c) Will the greatest amount of oxygen be found in the blood at P, Q, R or S? Explain your answer. [2]

Score	3
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32. Some organisms, W, X, Y and Z, are found on plant T. The following are some information about organisms W, X, Y and Z and plant T.

Organism W feeds on the leaves of plant T.

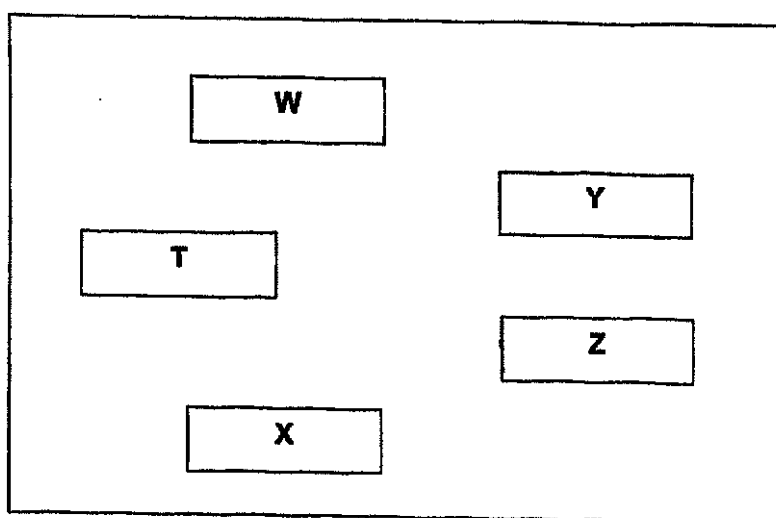
Organism X feeds on the fruits of plant T.

Organism Y feeds on W.

Organism Z feeds on Y and the fruits of plant T.

- (a) Using the above information, draw arrows to complete the food web correctly.

[1]



- (b) Explain why the herbivores that feed on plant T do not need to compete for food.

[1]

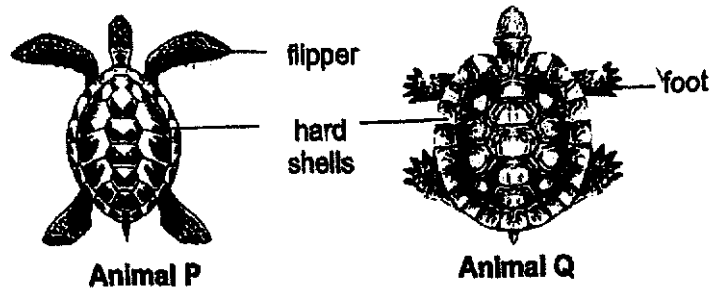
- (c) Besides providing food and shelter, explain why plants are important to animals.

[1]

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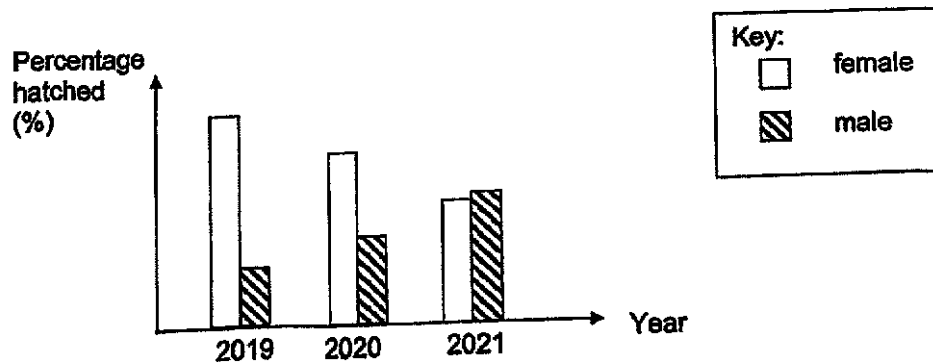
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33. The diagrams show the top view of animals P and Q. Both animals have a hard shell.



- (a) Based on your observation, which animal, P or Q, survives better in water? Explain your choice. [2].

The graph shows the percentage of males and females hatched from the eggs of a species of turtle in a particular habitat over a period of time. The temperature in this habitat increased gradually over this period of time.

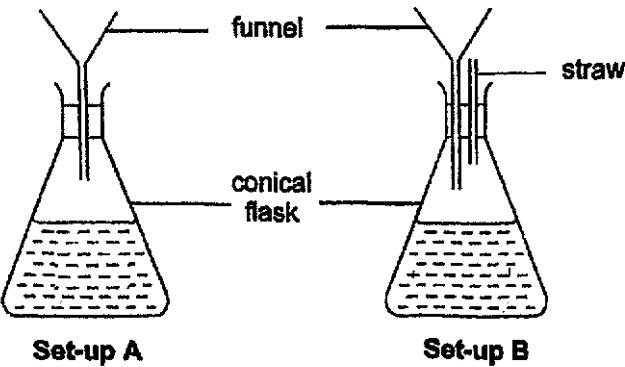


- (b) Based on the information above, give a reason why this species of turtle may disappear from the Earth due to global warming in the future. [1]

Score	3
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34. Jake poured the same amount of water into two identical conical flasks through the funnels in two set-ups, A and B. Set-up B has an additional straw placed beside the funnel as shown. He observed that time taken for all the water in the funnel to flow into the flasks is different.



- (a) He recorded the results of his experiment as shown.

Fill in the correct letter, A or B, into the blanks below, to represent the time taken for water to be emptied into the flask in each set-up. [1]

Set-up	Time taken for all the water to flow into the flask (s)
(i) _____	30
(ii) _____	300

- (b) Explain your answer for (a)(ii). [2]

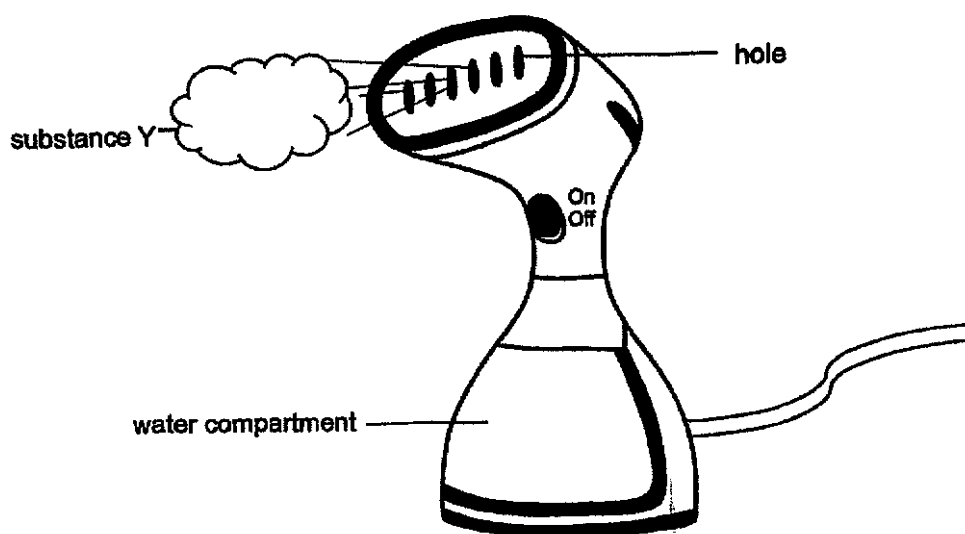
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35. Julie used a device, as shown in the diagram, to iron out the creases on her clothes.

First, she poured water into the water compartment in the device. When the device was switched on, the water was heated to 100°C by the heating elements in the device.

Then substance Y was observed just outside the holes as shown.



- Identify substance Y and explain how substance Y was formed. [2]

- (b) Julie used the same device in another room with a lower room temperature. She observed more substance Y was formed. Explain her observation. [1]

Score	3
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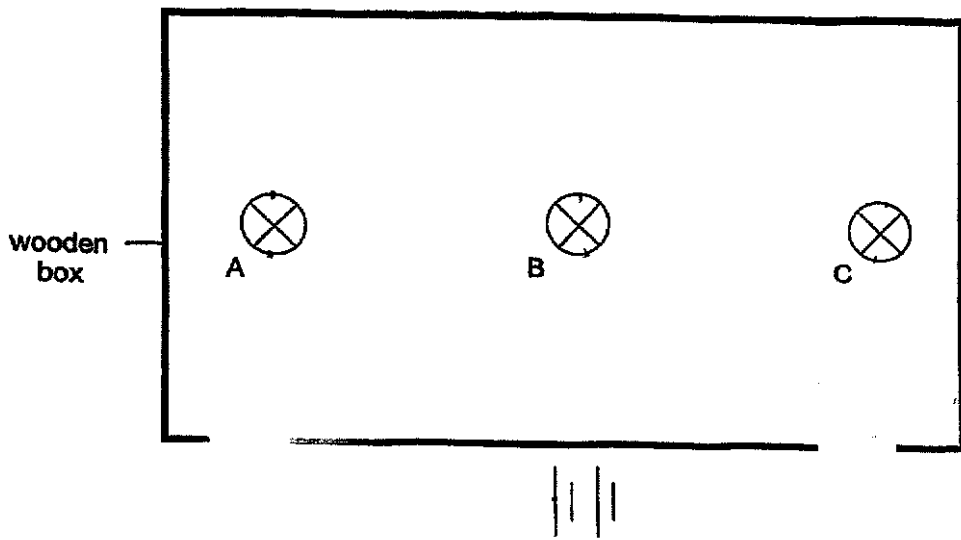
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36. Wendy set up a circuit using wires, a switch and bulbs A, B and C. She placed the circuit within a wooden box as shown. When the switch was closed, all the bulbs lit up. Wendy removed one light bulb from the circuit, one at a time, and observed what happened to the other light bulbs.

She recorded her observations in the result table below.

Bulb removed	Bulbs that lit up
A	None
B	A and C
C	A and B

- (a) Based on the information above, complete the circuit to show how the three light bulbs and the switch were connected in the circuit. [2]

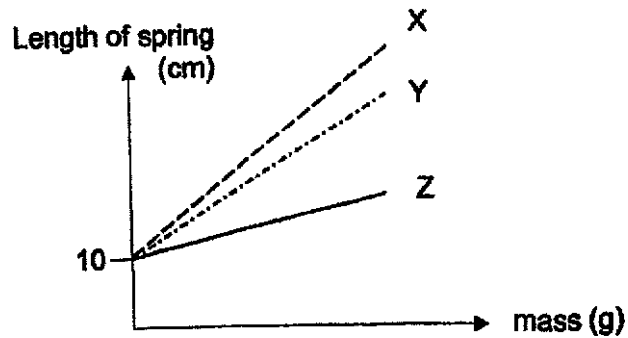


- (b) Which two bulbs will be equally bright when all the bulbs lit up? [1]

Score	3
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37. Huiyi hung some loads on springs X, Y and Z. She recorded her results in the graph as shown.



- (a) What is the relationship between mass of the load and the length of spring? [1]

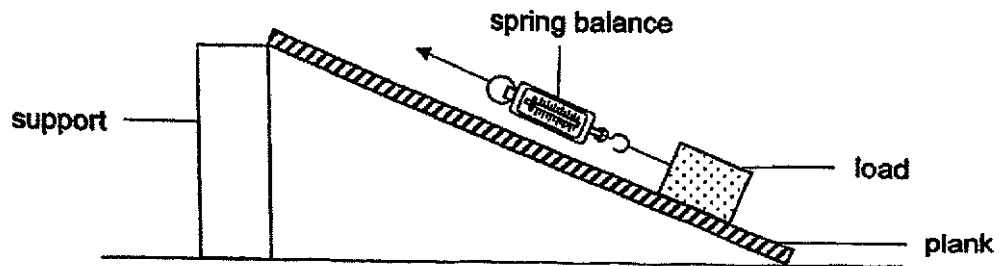
- (b) Arrange springs X, Y and Z according to their ability to stretch. [1]

least stiff	→ most stiff
(i) _____	(ii) _____
(iii) _____	

- (c) Explain your answer in (b)(iii). [1]

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38. Zemin conducted an experiment using the set-up shown. He pulled load P up a plank using a spring balance. He repeated the experiment by using loads Q and R, made of the same material, but with different masses and area of contact with the plank.



He recorded his results in the table shown.

Load	Mass (g)	Surface area in contact with table (cm ²)	Pulling force (units)
P	50	100	60
Q	50	150	60
R	100	100	120

- (a) Zemin wanted to find out the effect of the mass of the load on the pulling force. Which two set-ups should he use to ensure a fair test? [1]

- (b) Based on Zemin's result, did the area of contact of the load with the plank affect the frictional force between the load and the plank? Explain your answer. [2]

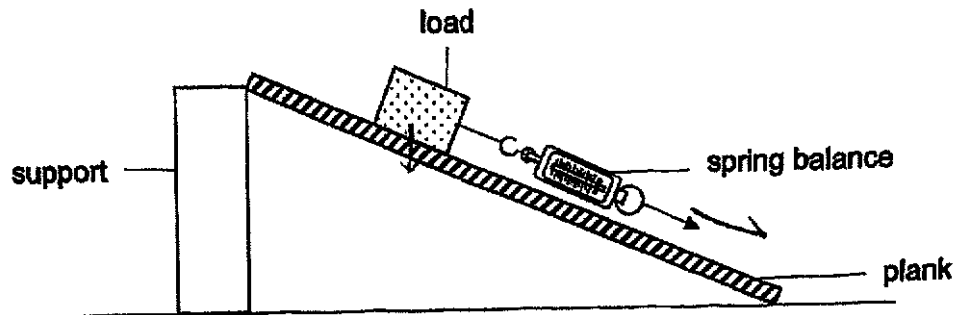
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Score	3
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Zemin pulled the load down the plank as shown in the diagram.



- 38(c) Would the pulling force needed to move load P down the plank be less than, equal to or more than 60 units? Give a reason for your answer. [1]

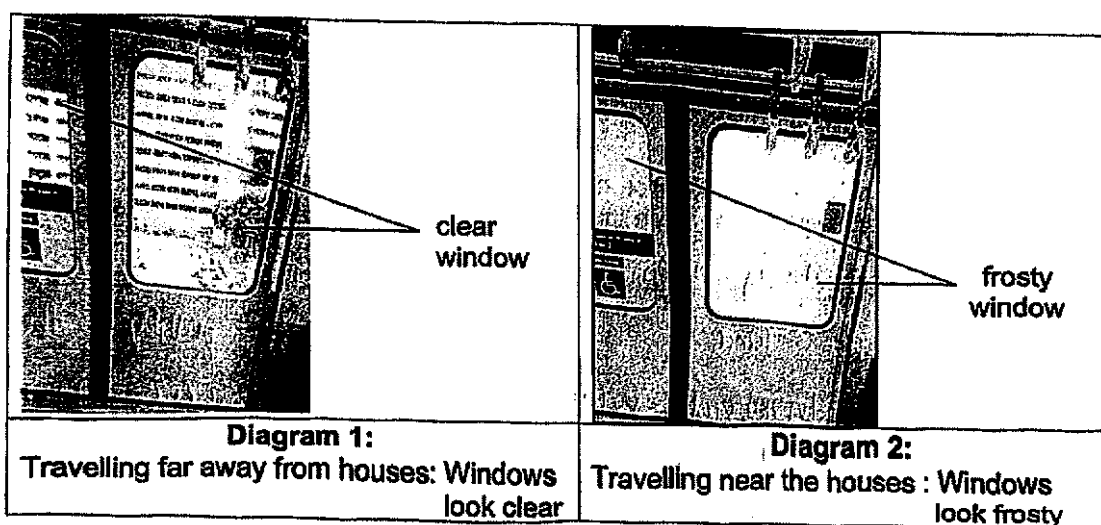
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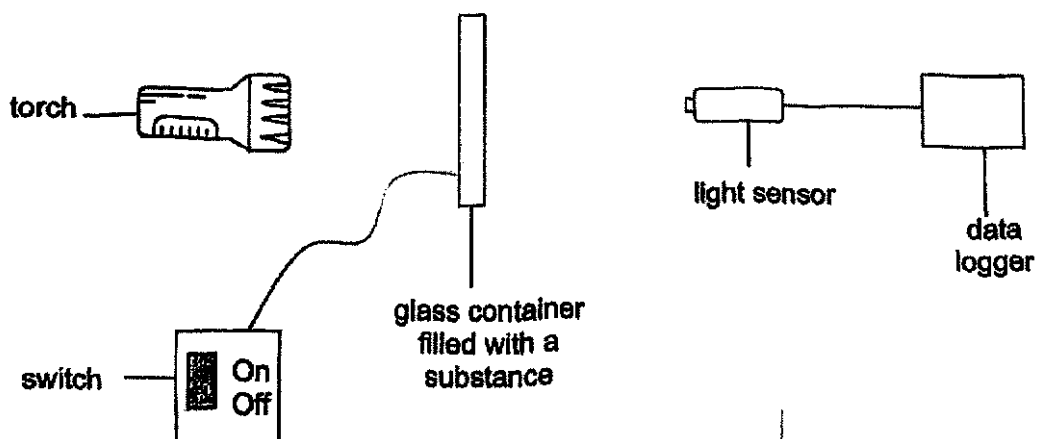
39. The window of a train is made of switchable glass controlled electrically. The glass is coated with a special substance which switches the window between clear and frosty when electricity passes through it.

When the train is travelling far away from houses, the switch connected to the windows is turned on and the windows turn clear as shown in Diagram 1.

When the train travelling near houses, the switch is automatically turned off and the windows turn frosty as shown in Diagram 2. This is to provide instant privacy for the residents.



Derrick conducted an experiment by shining a torch through a glass container filled with different types of substances, J, K and L, of the same volume, one at a time. The container was connected to a switch. The light sensor would detect the amount of light that passes through each glass container when the switch is turned off.



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The results are shown in the table.

Type of substance in glass container	Amount of light detected by light sensor when the switch is turned off (unit)
J	45
K	3
L	20

- 39 (a) Which substance, J, K or L, is most suitable to coat the windows of the train so as to protect the privacy of the residents most effectively as the train travels near the houses? Explain your answer. [2]

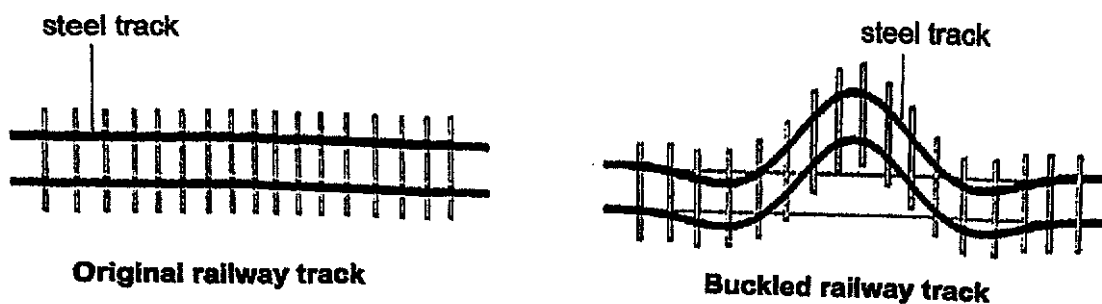
- 39 (b) Give a reason why Derrick should conduct the experiment in a dark room. [1]

Score	3
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40. Due to extreme temperature changes in some countries, railway tracks can buckle easily, resulting in train accidents.

The diagram shows an original railway track and one that is buckled.

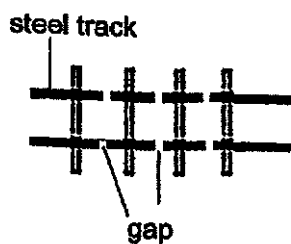


- (a) State what temperature is.

[1]

- (b) Give a reason why the steel tracks can buckle as shown in the diagram above on a hot day.

[1]



- (c) Leaving a gap between each length of steel track as shown above will prevent the steel track from buckling. Do you agree? State a reason for your answer.

[1]

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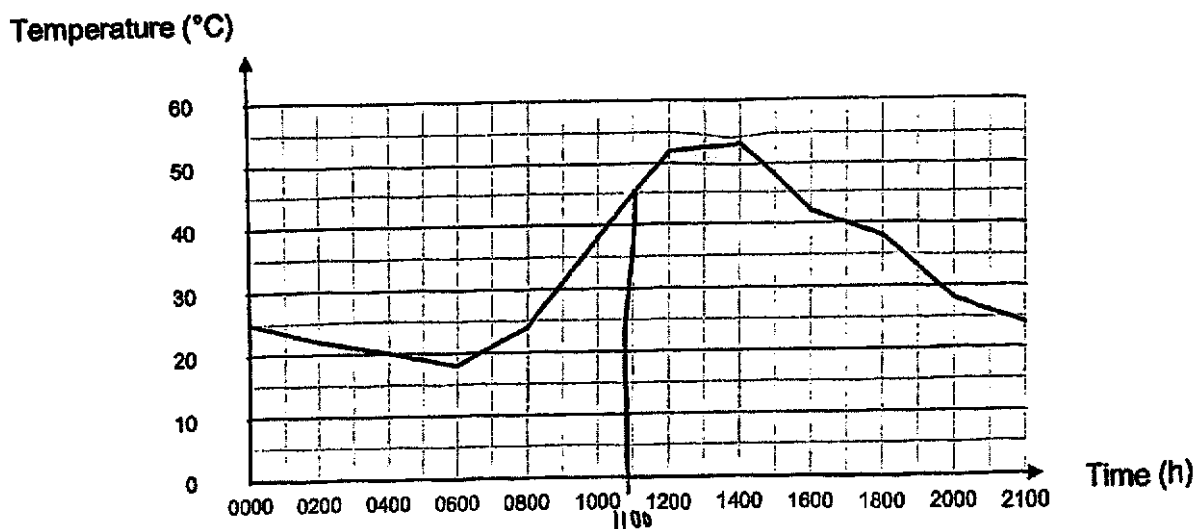
Score	3
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Engineers use a predictive rail temperature system to monitor the temperature of railway tracks to determine if trains should travel at a slower speed or stop travelling.

The following graph shows the temperature of a railway track on a particular day.



The trains should stop travelling when the temperature of the railway tracks exceeds 45°C . For temperatures between 40°C to 45°C , the trains should travel at a slower speed.

- 40(d) If the train travels on a one-hourly schedule starting from the train station, state the timings when the train should stop travelling: [1]

_____ to _____

Score	1
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41. Li Ming made a ping pong ball launcher as shown in diagram 1.

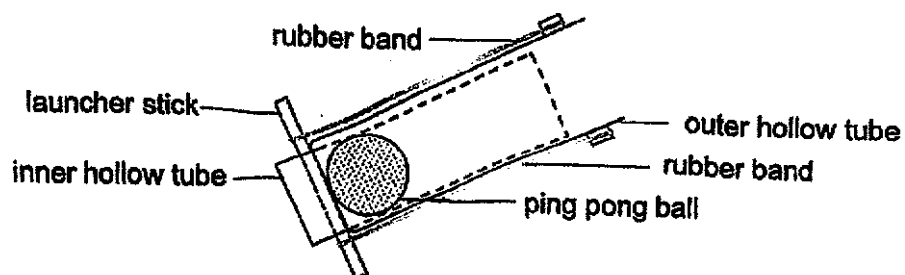


Diagram 1

To launch the ping pong ball, the launcher stick needs to be pulled back and then released, in the direction shown in diagram 2.

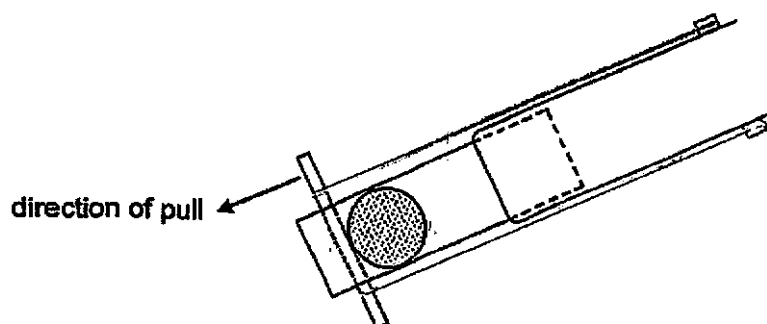


Diagram 2

Li Ming placed the launcher on the edge of the table to launch the ping pong ball. The ping pong ball moved in the path as shown in diagram 3.

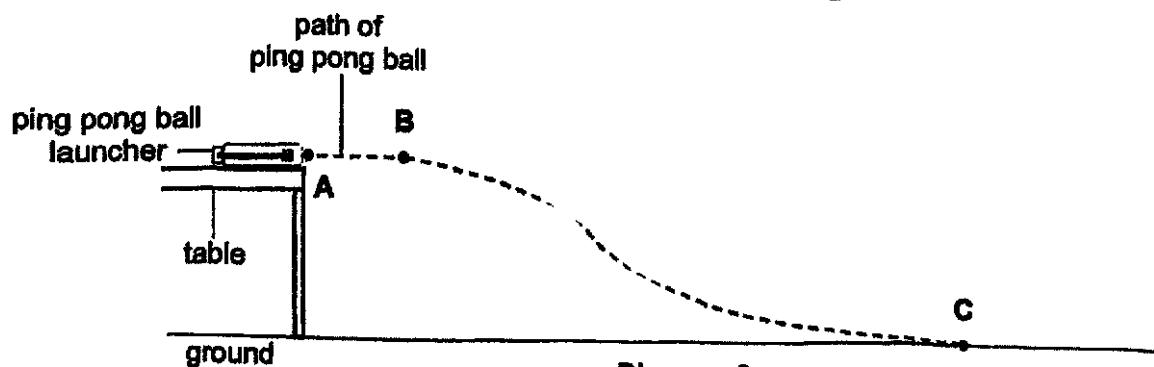


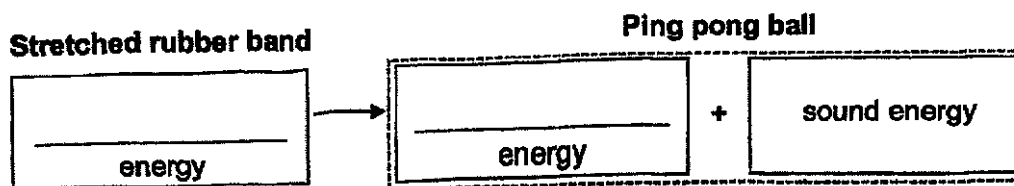
Diagram 3

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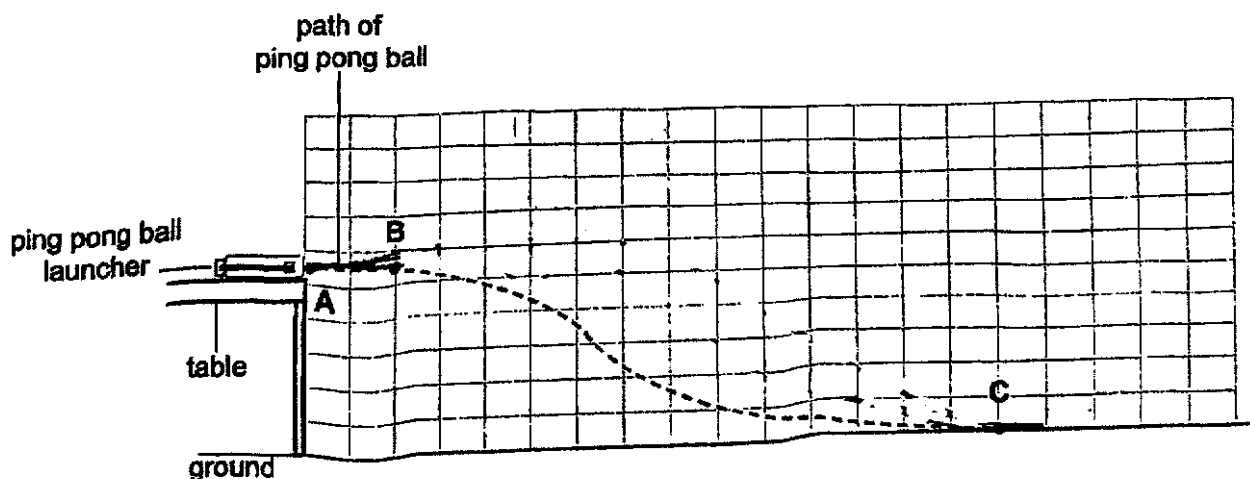
- 41(a) Fill in the boxes with the main forms of energy when the ping pong ball started moving from release of the launcher stick to point B. [1]



- 41(b) Explain why the ping pong ball moved lower and lower from point B to C. [2]

- 41(c) Li Ming replaced the two rubber bands in the same ping pong ball launcher to stiffer ones. Then he pulled the launcher stick back to the same distance before re-launching the ping pong ball from the edge of the same table.

Draw a curved line in the diagram below to show the new path of the ping pong ball. [1]



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38

Score	4
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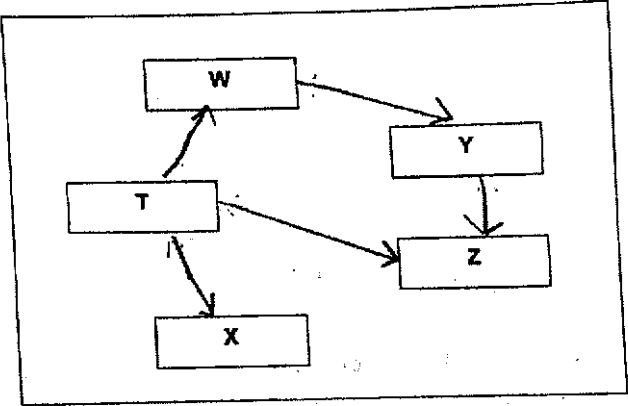
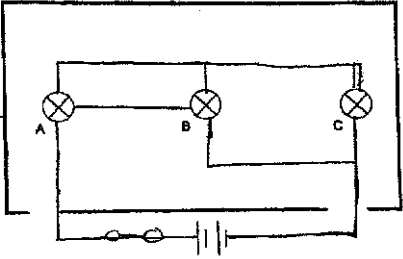
SCHOOL : RAFFLES GIRLS PRIMARY SCHOOL
 LEVEL : PRIMARY 6
 SUBJECT : SCIENCE
 TERM : 2024 PRELIMS

SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
4	1	3	3	3	4	3	2	3	1
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
4	1	1	4	2	2	2	4	4	4
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
3	4	4	4	1	3	1	3		

SECTION B

Q29)	a) Yes. Animal A has six legs and three body parts which only insects have. b) Living things response to changes.
Q30)	a) Fibrous husk and waterproof outer covering. b) As the river is flowing downstream, the fruit is drifted by the water current to P. c) There was a presence of plants which provide food for the animals
Q31)	a) L is rich in oxygen while M is not rich in oxygen. b) Amount of carbon dioxide P Q R S Blood

	c) P. Our blood absorbs the oxygen where oxygen from the lungs entered the bloodstream.
Q32)	a)  b) They feed on different parts of the plant. c) Plants photosynthesis and give out oxygen needed by animals to respire.
Q33)	a) Animal P. Animal P has flippers instead of feet like Q. Hence increase surface area are in contact with water. b) The temperature of the earth increases. Eventually, there maybe less female hatched from the eggs and hence there will be less females to male and reproduce resulting in the decreasing number of turtles.
Q34)	a) (i) B (ii) A b) The water in the funnel entered the flask in set up A more slowly as the air occupying the space into the flask cannot escape. The air in the flask can only be compressed to allow water to flow in more slowly to occupy the space previously occupied by the air.
Q35)	a) Substance Y is water droplets. The water in the compartment gains heat and boils and changes into steam which escapes through the hole. b) The steam loses heat into more to the cooler surrounding air and condense into water droplets.
Q36)	a)  b) B and C
Q37)	a) As the mass of the load increases, the length of spring increases. b) (i) X (ii) Y (iii) Z c) Z is most stiff as when some load was hung, mass is added to the spring, it stretched the most.

Q38)	a) P , R b) No. Q have same mass but different area in contact with the plank. c) Gravitational force is pulling the load downward with the pulling force hence less pulling is required to pull it down the plank.
Q39)	a) K. Window coated with K allows least amount of light to pass through, so least light will be reflected by the houses. b) To ensure that only the amount of light from the torch is detected and no other light from outside.
Q40)	a) Temperature is the degree of measurement of how hot or cold an object is. b) Steel is a good conductor of heat, when gained heat from the surroundings, the steel tracks can expand resulting in buckled railway track. c) To create space for expansion to occur. d) 1100 to 1600
Q41)	a) Elastic Potential Energy $\rightarrow$ Kinetic Energy b) The gravitational potential energy of the ball has been converted to kinetic and sound energy. The gravitational force activity on the ball pulls it downward. - c) 