YEW TEE PRIMARY SCHOOL
PRIMARY 6 SCIENCE
PSLE PRACTICE PAPER SET 1B

Name : _____ ( ) Class : P6_____

Section B (44 marks)

29 Some students observed the parts of 3 different cells, X, Y and Z, under a microscope. They recorded their observations in the table below. A tick (✔) indicates that the cell part was present.

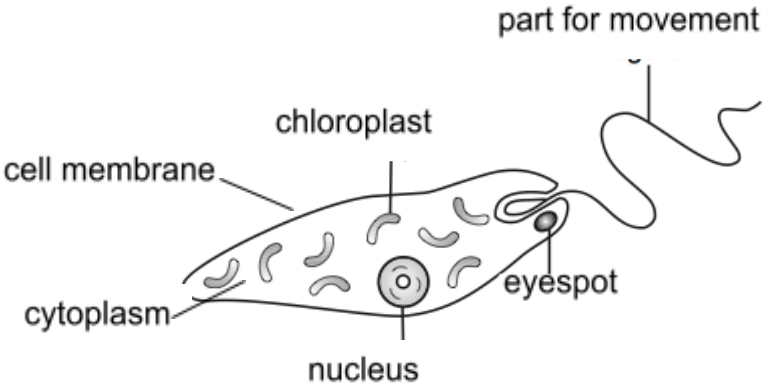
	Cells		
Parts	**X**	**Y**	**Z**
Nucleus	✔	✔	✔
Cell membrane	✔	✔	✔
Cytoplasm	✔	✔	✔
Cell wall		✔	✔
Chloroplast		✔	

(a) Based on the results above, what is the main difference between the functions of Cells Y and Z?
[1]

_____

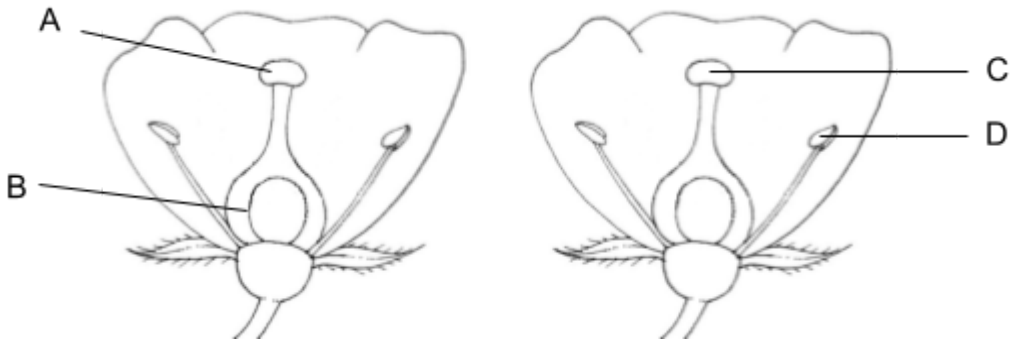
_____

The students observed another Cell K as shown below.



(b) State a characteristic of Cell K which shows that it is taken from the same group of living things as Cell X.
[1]

30 The diagram shows two flowers, X and Y, from the same plant. After process J happens, fertilization takes place in flower X and a fruit develops.



flower X flower Y

(a) Using the labelled part(s) in the diagram above, explain what happens during process J. [1]

(b) Flowers X and Y contain a lot of nectar. Explain how both flowers are likely to be pollinated. [1]

The diagram below shows fruits, V and W, from the same plant.

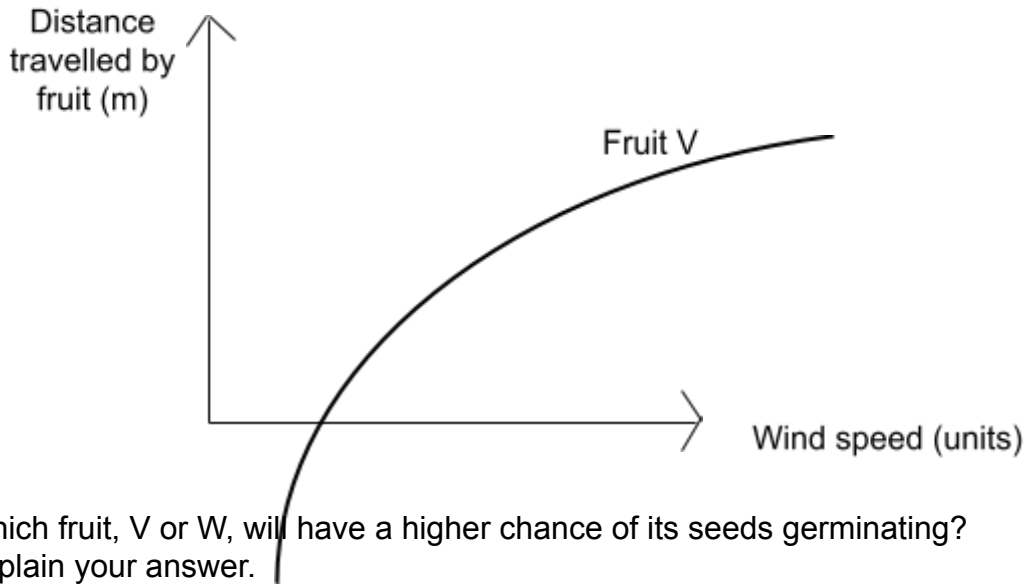
Fruit V

Fruit W

When released from the same height at the same time in an open field, data were collected on the distance travelled by both fruits and presented in the table below.

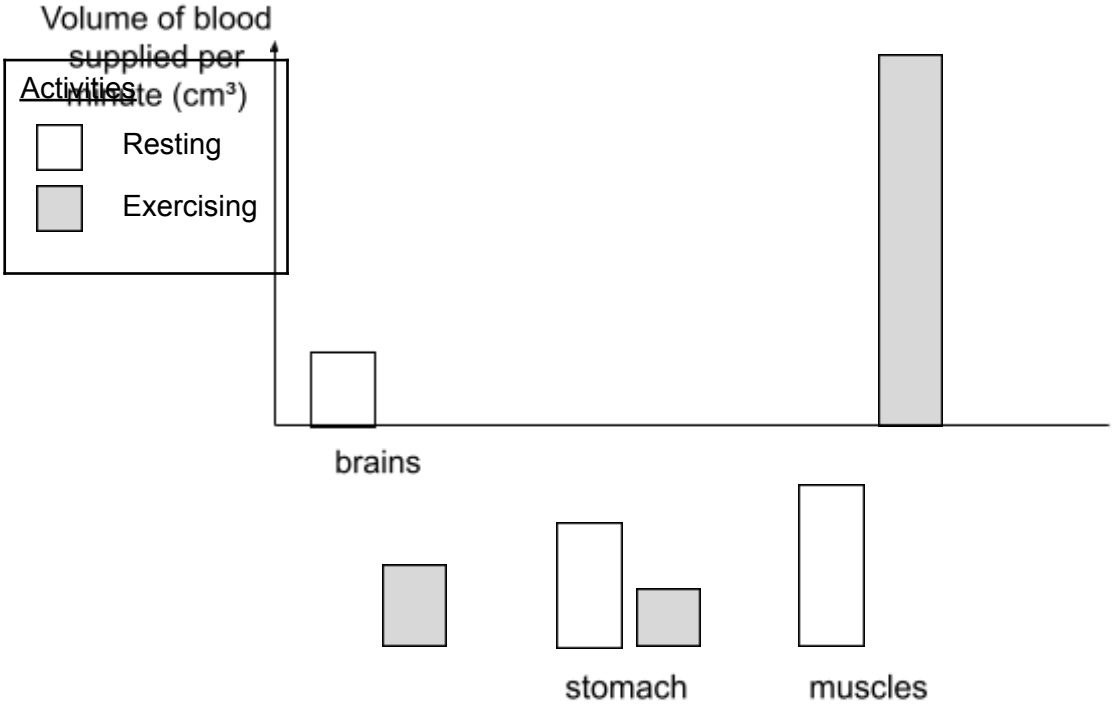
	Distance travelled (m)		
Fruits	**1st try**	**2nd try**	**3rd try**
V	20	22	19
W	36	40	38

(c) The graph below shows the relationship between the wind speed and distance travelled by fruit V when both seeds were released from the same height. Draw the graph for fruit W. [1]



(d) Which fruit, V or W, will have a higher chance of its seeds germinating? Explain your answer. [2]

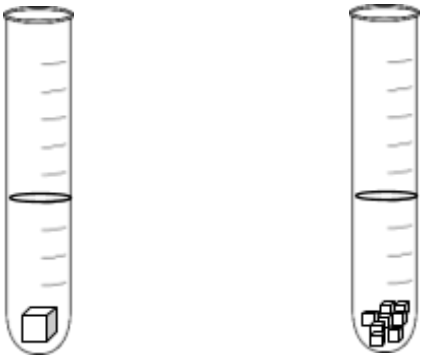
31 The graph below shows the volume of blood supplied to some parts of Melvin's body when he is resting and exercising.



(a) Explain why more blood is carried to the muscles when Melvin is exercising. [2]

(b) Based on the graph above, explain why it is not advisable for Melvin to run immediately after having a heavy meal. [1]

32 Jane prepared the set-ups to investigate the digestion rate of meat cubes as shown below. Liquid X helps in the digestion of food.



Set-up A
10 g meat cube
+
25 cm^3 of liquid X

Set-up B
10 g meat cube
chopped into pieces
+
25 cm^3 of liquid X

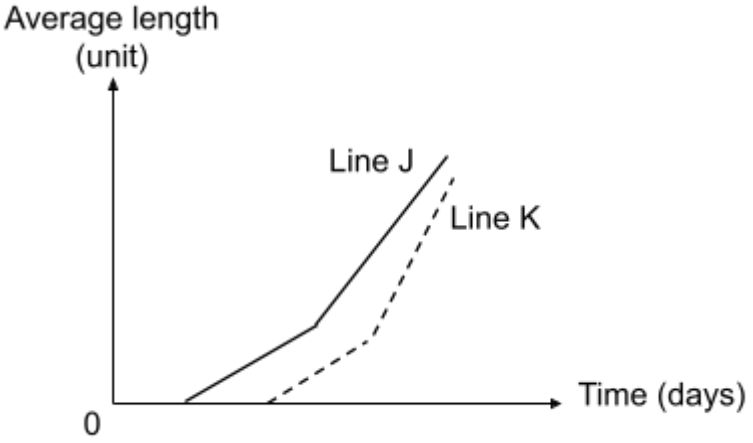
Jane observed the amount of time it took for the meat cubes to be broken down completely in each test tube. She recorded her results in the table below.

Set-up	Result
A	Meat was broken down completely after 2 hours.
B	Meat was broken down completely after 1 hour.

(a) Which variable was changed as part of the experiment? [1]

(b) Based on the results above, explain how chewing of food affects the rate of digestion.
[2]

33 Ismail observed the growth of plant X over 5 days. He placed some seeds of plant X into a container with moist cotton wool and recorded his observations of the average length of their shoots and roots in the graph below.

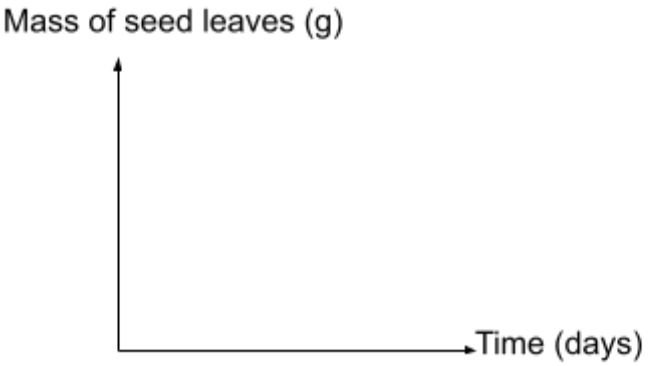


(a) Which line, J or K, represents the growth of the roots? Explain your answer.

[1]

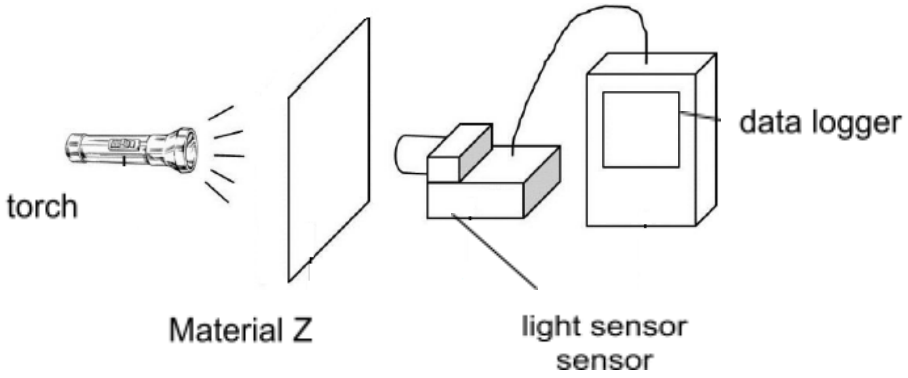
(b)(i) Draw a line graph below to show the change in the mass of seed leaves of plant X over time.

[1]



(ii) Give a reason for your answer in (b)(i). [1]

34 Mr Tan used Material Z to make sheets of different thickness in his factory. He wanted to find out how much light can pass through different thickness of Material Z using the set-up below.



He recorded the results in the table below.

Thickness of Material Z (mm)	Amount of light recorded (unit)
1	15
2	10
3	5
4	0

(a)(i) Mr Tan has a few sheets of Material Z that are 2mm thick. He wants to use it to wrap the outer wall of a clear plastic water bottle so that no light can enter it. Based on the above results, what is the minimum number of sheets of Material Z required?
[1]

_____

(ii) State another important property of Material Z that will make it suitable to be used to wrap the bottle. Explain your answer.
[1]

_____

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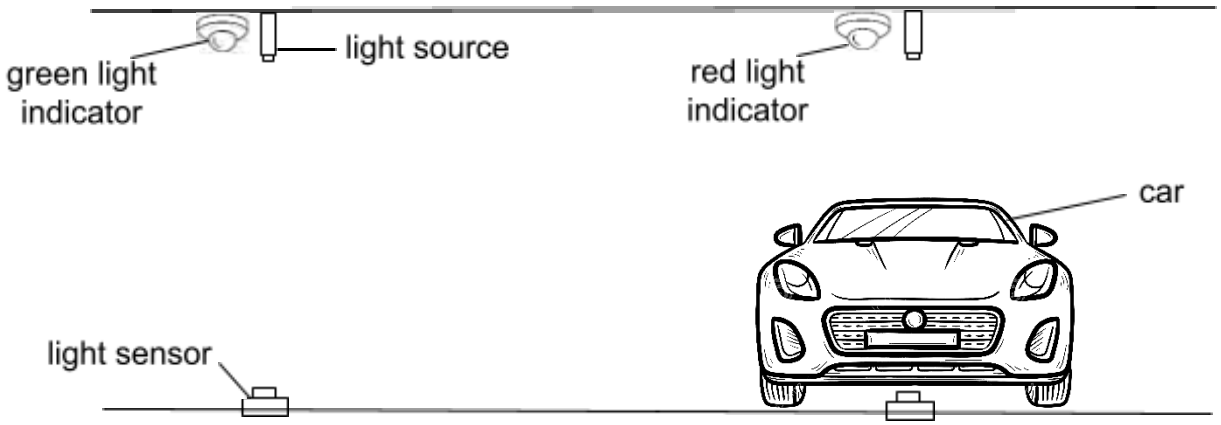
The diagram below shows a parking lot sensor in a carpark. When no car is parked in the lot, the light indicator turns green. When a car is parked in the lot, the light indicator turns red.



(b) Explain how the parking lot sensor works to show when the lot is occupied and unoccupied. [2]

35 Kate recorded the states of three substances, J, K and L, at three different temperatures in the table below.

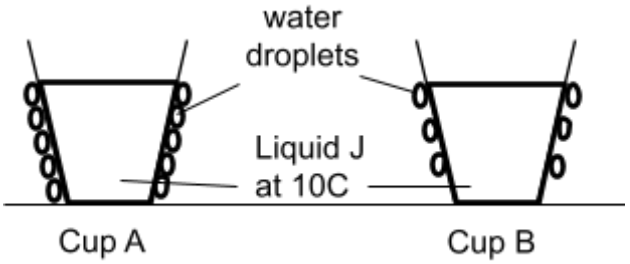
Substances	State of substance at		
	0°C	**50°C**	**100°C**
J	solid	liquid	gas
K	solid	solid	liquid
L	liquid	gas	gas

(a) Arrange the three substances in order of melting point, starting from the lowest. [1]

lowest highest

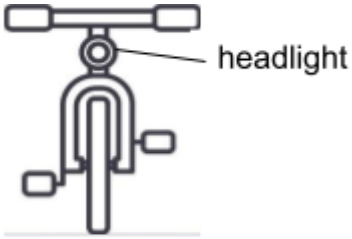
(b) What is the difference between melting and evaporation? [1]

Kate poured substance J (in liquid form) into two identical cups, A and B. She placed each cup in two rooms, each at different temperatures. After some time, she observed more water droplets forming on cup A than B as shown below.

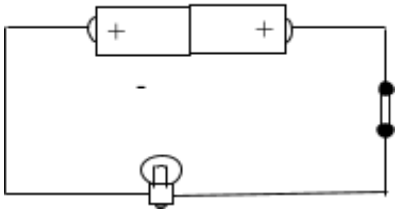


(c) Suggest a reason for Kate's observation. Explain your answer. [2]

36 Betsy is going night cycling with her friends. In order to remain visible to other road users, she installed a headlight to her bicycle connected to a circuit as shown below.



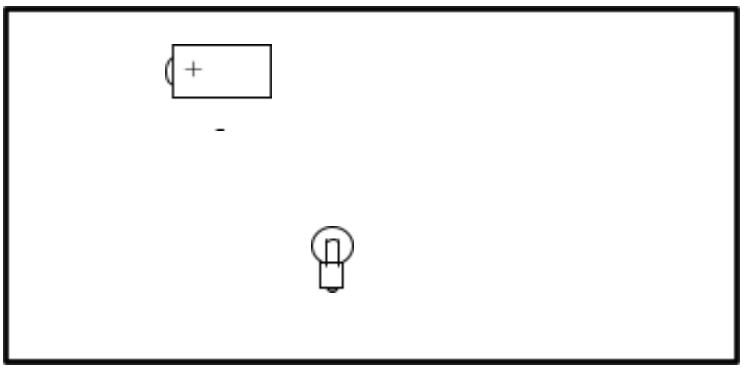
Front view of bicycle



Circuit of headlight

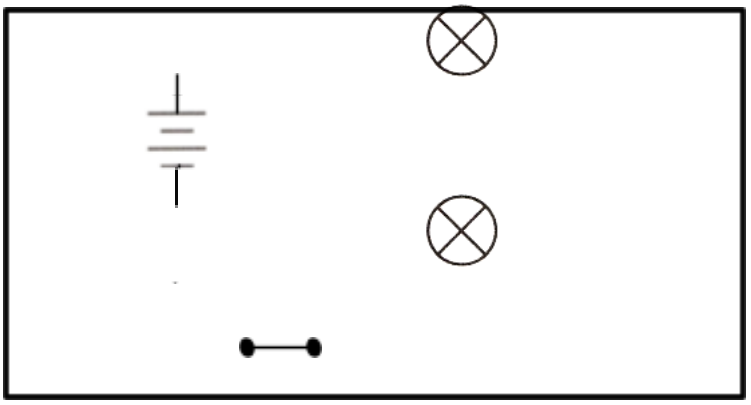
(a) Betsy noticed that the bulb did not light up in the circuit above. Draw in the box provided below how she should rearrange the components in the circuit for the bulb to light up. (One battery and one bulb have been drawn for you.)

[1]



(b)(i) Betsy then decided to install two headlights for her bicycle. She wanted to make sure that one bulb will still work even if the other bulb is fused. Complete the circuit diagram below for the new headlights by drawing in the missing wires.

[2]



(ii) Suggest another advantage of the arrangement of the two headlights in (i) that would help Betsy keep safe when she cycles at night. [1]

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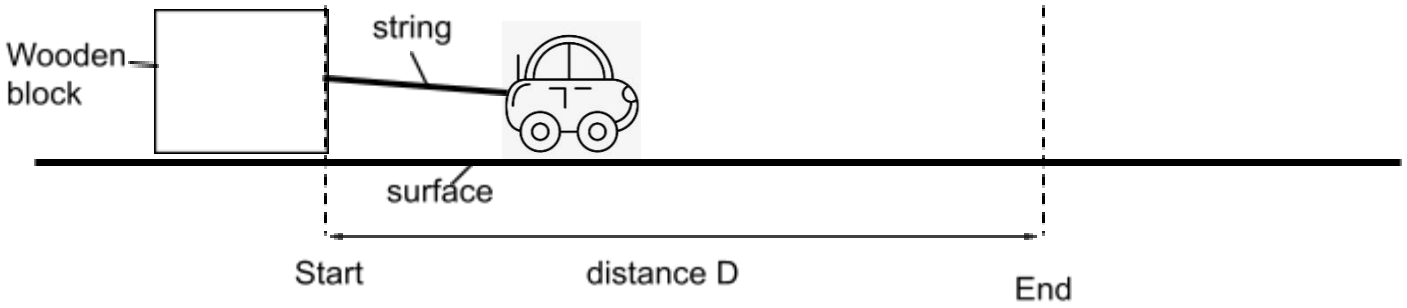
37 Larry tested four different surfaces W, X, Y and Z. He used an electric toy car to pull the same wooden block across each surface covering the same distance D.



He recorded the time taken for the wooden block to move across distance D on each surface in the table below.

Surface	Time (s)
W	9
X	7
Y	3
Z	15

(a) State two forces that are acting on the wooden block as it is pulled by the car. [1]

_____

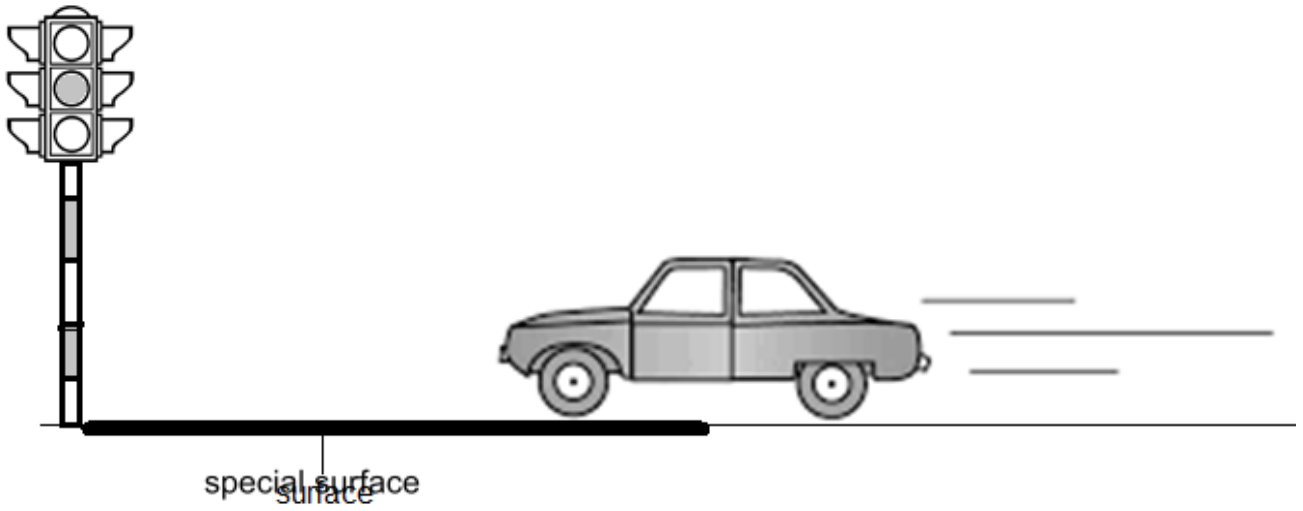
_____

(b) Explain why the time taken for the wooden block to move across distance D on the different surfaces is different. [1]

_____

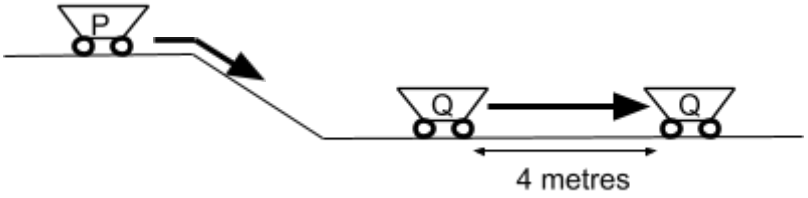
_____

In many countries, a special surface is used on the portion of the road just before traffic light junctions to prevent accidents from happening.

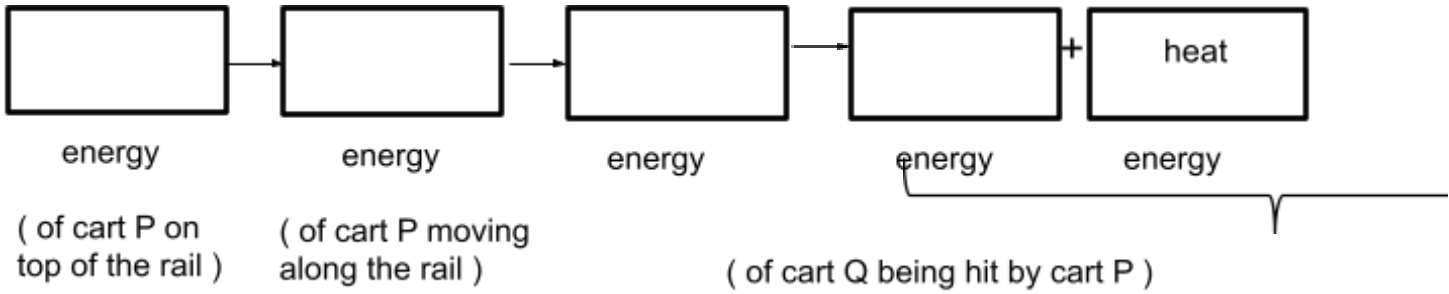


(c) Based on Larry's results, which surface, W, X, Y or Z is most suitable for the above purpose? Explain your answer. [2]

38 The diagram below shows carts P and Q used at a coal mine which were along a rail. When an empty cart P rolled down the rail, it hit a stationary cart Q in front of it. As a result, the stationary cart Q was pushed a distance of four metres forward.



(a) Write down the energy conversion from one form to another in the boxes below.
[2]



(b) If the moving cart P was fully loaded with coals, would the distance moved by cart Q be longer or shorter than 4 metres? Explain your answer in terms of energy conversion.
[2]

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_____

(c) After being hit by cart P, what will happen to the movement of cart Q eventually? Explain your answer in terms of energy conversion.
[1]

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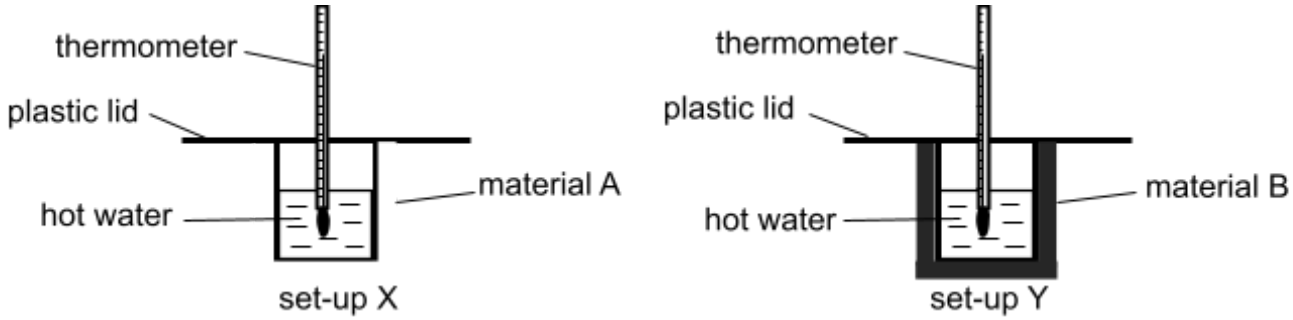
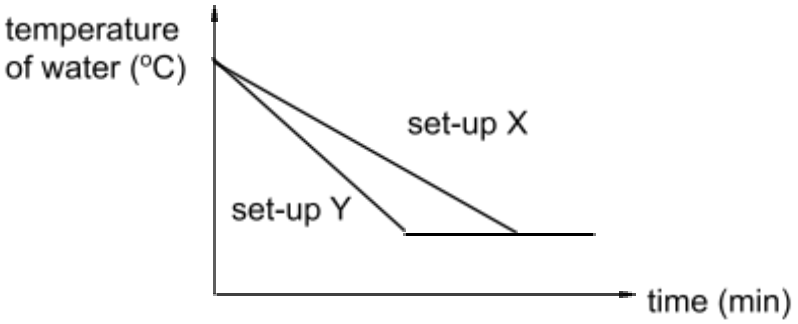
39 Rashid conducted an experiment using set-ups X and Y as shown below. He wrapped a glass beaker with material A and another identical glass beaker with material B. He filled both beakers with the same volume of hot water.



Rashid measured the temperatures of the water over a period of time and plotted his results in the graph shown.



(a) What happened to the temperature of the water in set-ups X and Y after some time? [1]

_____

_____

(b) Explain why the temperature of water in set-up Y decreased at a faster rate. [1]

_____

_____

(c) Material A in set-up X has small air spaces and is used to make a cooler box to store frozen food. Explain why material A would help keep the frozen food cold for a longer period of time. [1]

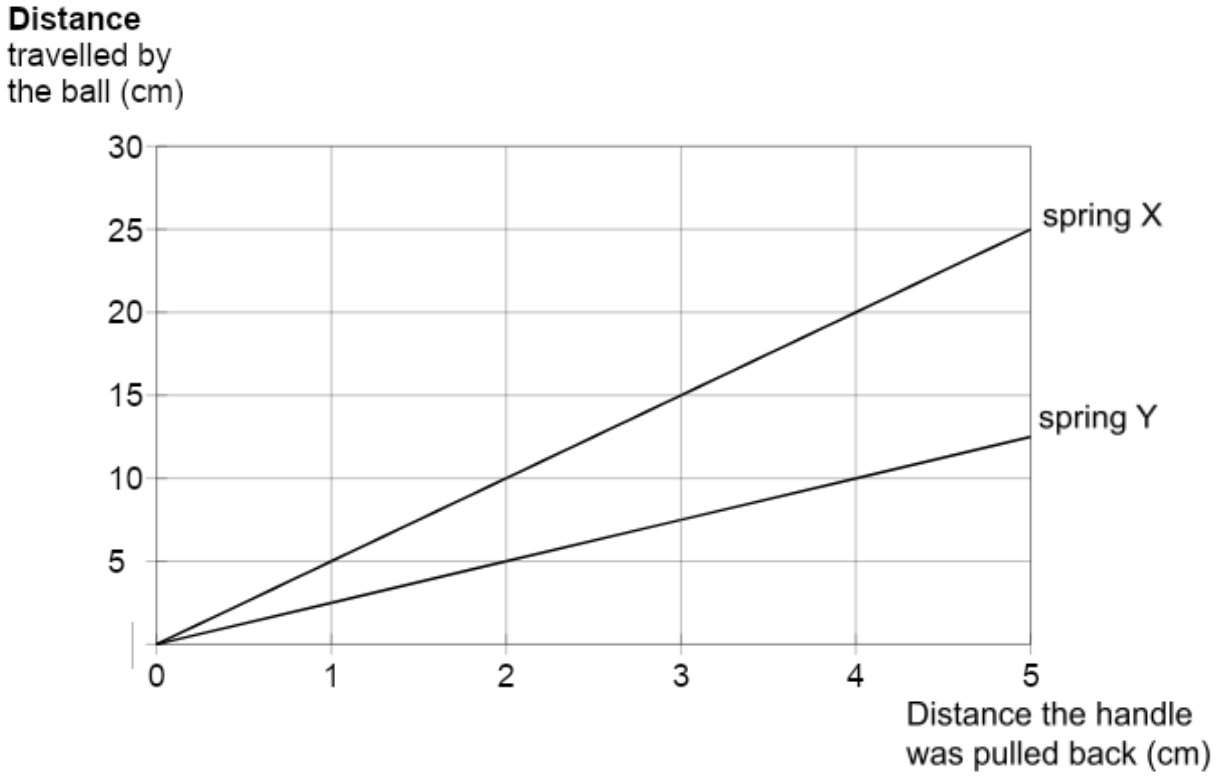
_____

40 Jimmy set up an experiment using a launcher and steel ball as shown below. He pulled spring X back using the handle and released it. He observed that the steel ball started to move and after passing point P, it rolled faster. It hit object A and stopped moving without bouncing back.

(a) Based on Jimmy's observation, what could object A be? Give a reason for your answer.

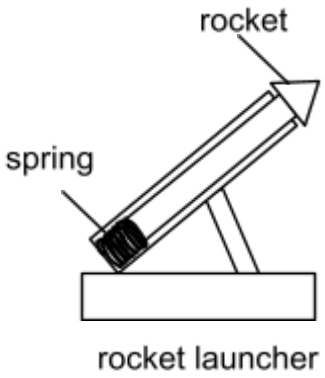
[1]

Jimmy then removed object A and repeated his experiment with spring X and spring Y. He pulled each spring back at different distances before releasing the handle and measured the distance travelled by the ball. The graph below shows the results he obtained.



(b) Based on the graph, what is the relationship between the amount of elastic spring force and the distance travelled by the ball?
[1]

Jimmy wanted to build a rocket launcher as shown below.



(c) Based on the graph, which spring, X or Y, should he choose so that his rocket can fly as high as possible? Explain your answer.
[2]