Pei Chun Public School
Semestral Assessment 2 – 2017
Science
Primary 5

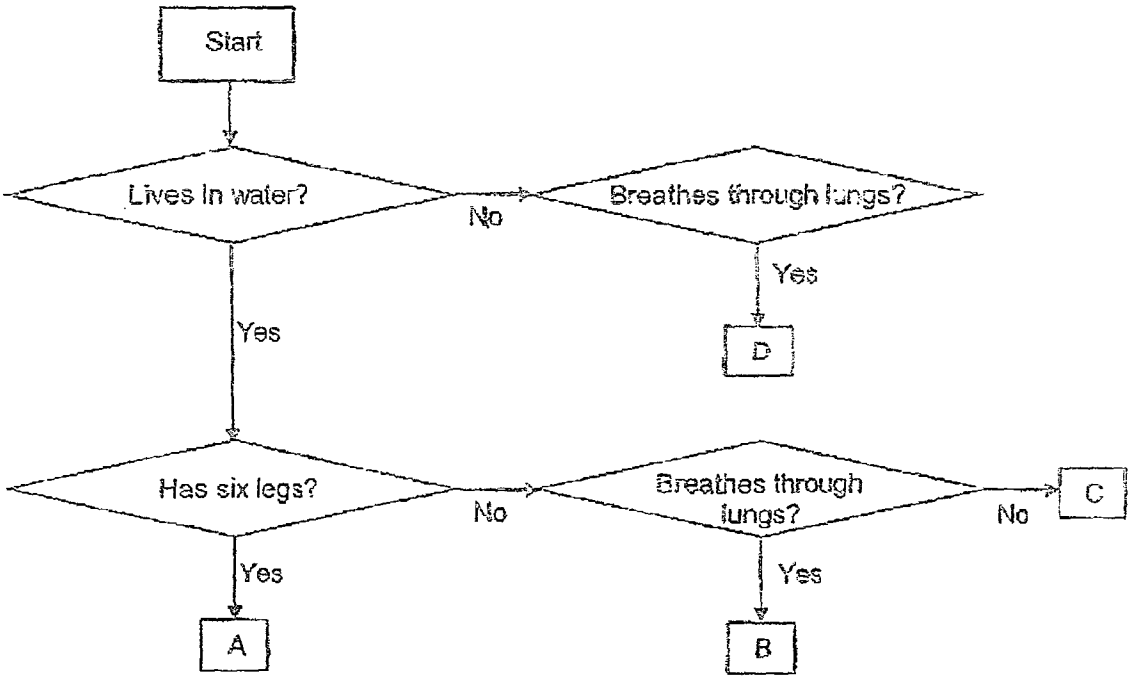
Name : _____ ( ) Date : 31 October 2017

Class : Pri. 5 ( )

Science Teacher : _____ Time : 1 h 45 min

Section A (28 × 2 marks)
For questions 1 to 28, choose the most suitable answer and shade its number (1, 2, 3 or 4) on the Optical Answer Sheet (OAS) provided.

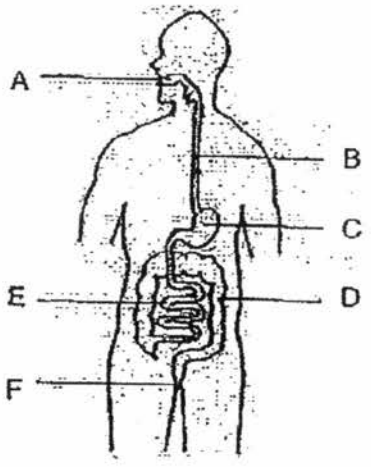
1. The flow chart below shows how four organisms A, B, C and D can be classified.



Based on the flow chart, which of the organisms is likely to be a fish?

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

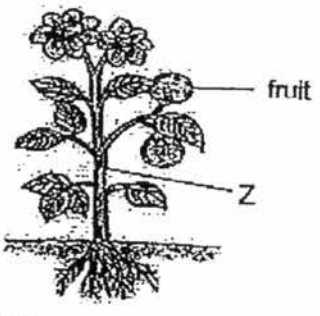
2. The diagram below shows a human digestive system.



Which of the following matches the part to its function?

	Absorption of food	Removal of water from food	Digestion of food
(1)	E only	D only	A, C and E only
(2)	C and E only	D only	A, C and E only
(3)	A, C and E only	D and F only	A, C, D and E only
(4)	E only	D and F only	A, C, D and E only

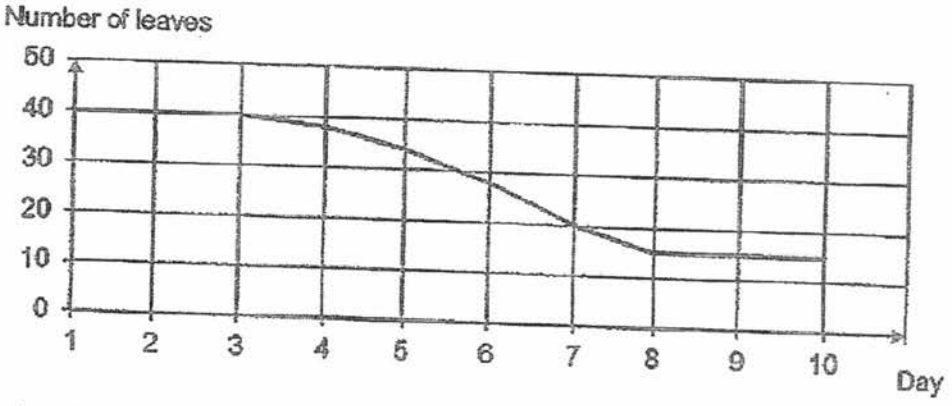
3. The diagram below shows a flowering plant.



What are the directions in which water and food are being transported at Z?

	Direction for transport of	
	water	food
(1)	downwards	upwards and downwards
(2)	downwards	downwards
(3)	upwards	upwards and downwards
(4)	upwards	downwards

4. Dave found an insect's egg on a healthy potted plant in the garden. He placed the potted plant in an enclosed glass container. He observed the insect as it developed through its life cycle starting from the egg stage. He counted the number of leaves on the plant at the start of each day and plotted the graph below. No new leaves appeared over the period of the experiment.

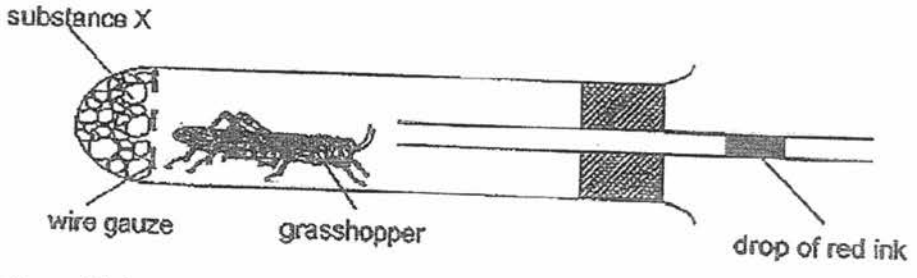


Based on the graph above, which of the following statement is likely to be true?

A : The insect is in its larval stage on day 2.
B : The insect is in its larval stage on day 3.
C : The insect is in its pupal stage on day 7.
D : The insect is in its pupal stage on day 8.

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

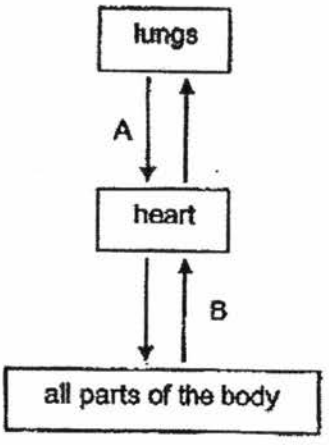
5. Julian used the set-up below to measure the amount of oxygen taken in by a grasshopper. He measured the movement of the drop of red ink after ten minutes. The drop of red ink moved to the left.



Substance X absorbed a certain gas. What was this gas?

(1) oxygen
(2) nitrogen
(3) water vapour
(4) carbon dioxide

6. The flow chart below shows the direction of blood flow in a human being.



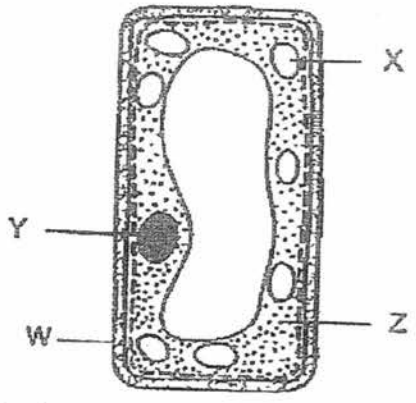
Which of the following is correct?

	Blood in A	Blood in B
(1)	high in oxygen	low in carbon dioxide
(2)	high in oxygen	high in carbon dioxide
(3)	low in oxygen	high in carbon dioxide
(4)	low in oxygen	low in carbon dioxide

7. Which cell parts are present in the human egg cell?
A tick (✓) indicates the presence of the part.

	Nucleus	Cytoplasm	Cell wall
(1)	✓	✓	✓
(2)	✓	✓	
(3)		✓	✓
(4)	✓		

8. The diagram below shows a plant cell.



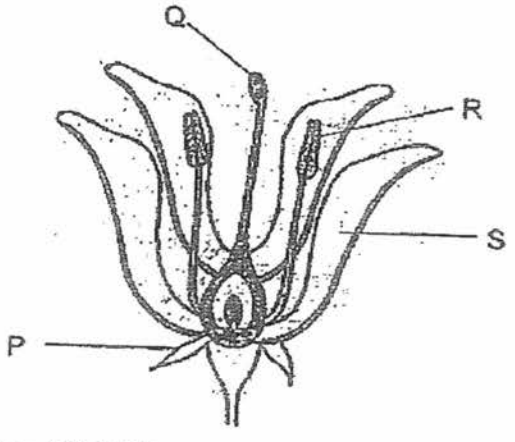
Four pupils made the following statements about the plant cell.

Kavi : Part X makes food.
Limeng : Part Y controls all activities of the cell.
Malik : Part W supports and gives the cell its shape.
Nellie : Part Z controls the movement of substances in and out of the cell.

Which pupils made the correct statements?

(1) Kavi and Limeng only
(2) Malik and Nellie only
(3) Kavi, Limeng and Malik only
(4) Kavi, Limeng, Malik and Nellie

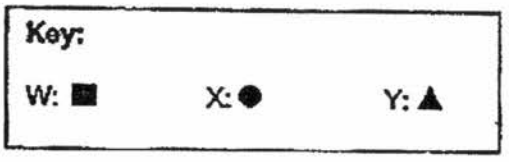
9. Kah Xuan conducted an experiment with a flower on a plant as shown below. He removed one part of the flower. The flower did not become a fruit.

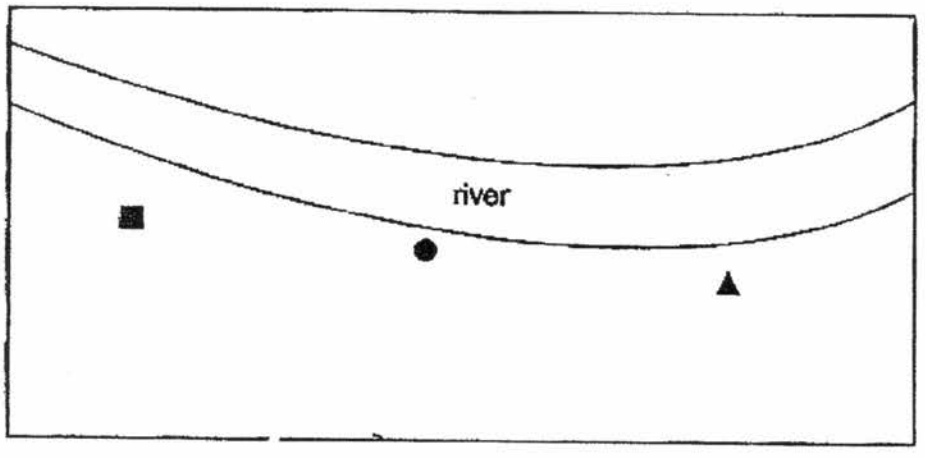


Which part of the flower did Kah Xuan remove?

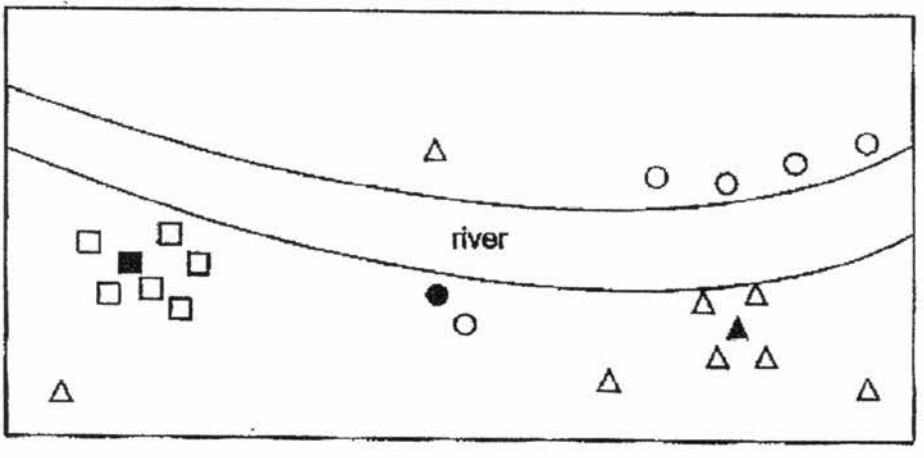
(1) P
(2) Q
(3) R
(4) S

10. Three plants, W, X and Y, were planted on a piece of land close to a river as shown below.





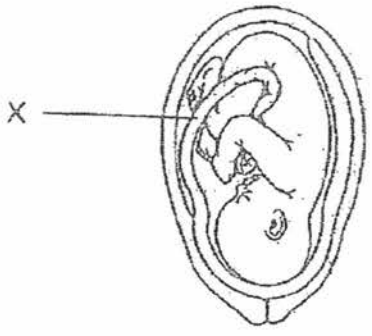
The land and the river were left undisturbed for two years. The distribution of the plants after two years is shown below.



Which of the following best describes the structures that the fruits of W, X and Y are likely to have?

	W	X	Y
(1)	pod which split open	fibrous husk	fleshy fruit with small seeds
(2)	fleshy fruit with small seeds	wing-like structure	fibrous husk
(3)	wing-like structure	fibrous husk	pod which split open
(4)	pod which split open	fleshy fruit with small seeds	fibrous husk

11. The diagram below shows a developing baby in the mother's womb.

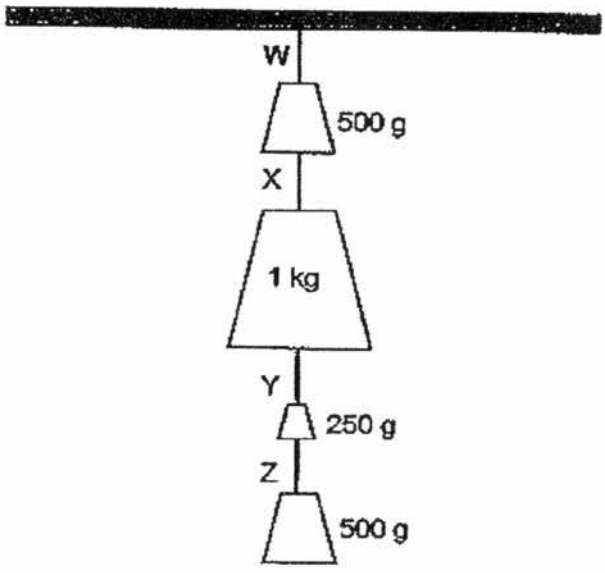


Which of the following is transported from the mother to the baby through part X and used by the baby?

A : energy
B : oxygen
C : carbon dioxide
D : digested food

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

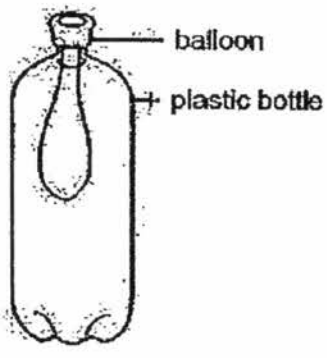
12. Muthu hangs four weights on four pieces of strings, W, X, Y and Z, based on the maximum mass each piece of string can hold as shown below. The strings are of the same length and each piece is made of a different material.



Based on the set up, which piece of string is the strongest?

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

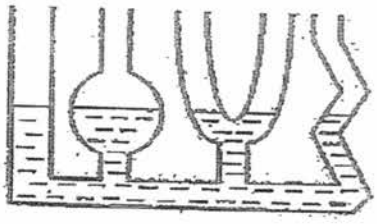
13. Ali attached a balloon to a plastic bottle as shown below.



He tried to inflate the balloon in the bottle by blowing air into it but he was unable to do so. Which of the following best explains his observation?

(1) Air has mass.
(2) Air takes up space.
(3) Air can be compressed.
(4) Air has no definite shape.

14. The set up below shows a liquid poured into a container as shown below.

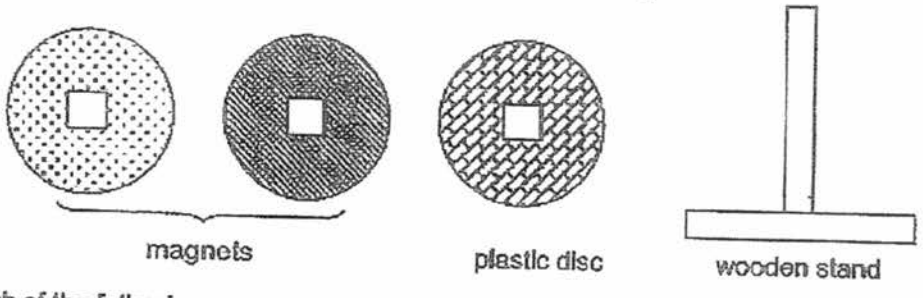


What properties of liquids are shown in the set up above?

A : Liquids have mass.
B : Liquids take up space.
C : Liquids cannot be compressed.
D : Liquids do not have a definite shape.

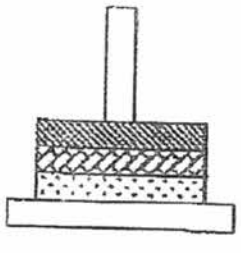
(1) A and C only
(2) B and D only
(3) B, C and D only
(4) A, B, C and D

15. The diagram below shows three similar discs, each with a square hole in the centre. One of the discs is a plastic disc and the other two are magnets.

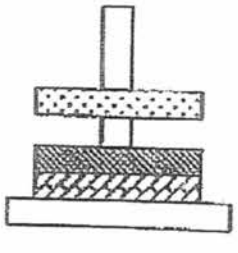


Which of the following arrangement is <u>not</u> possible?

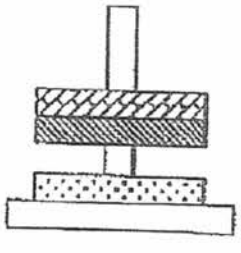
(1)



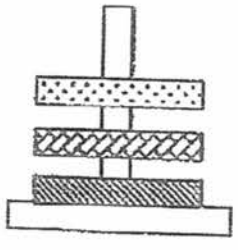
(2)



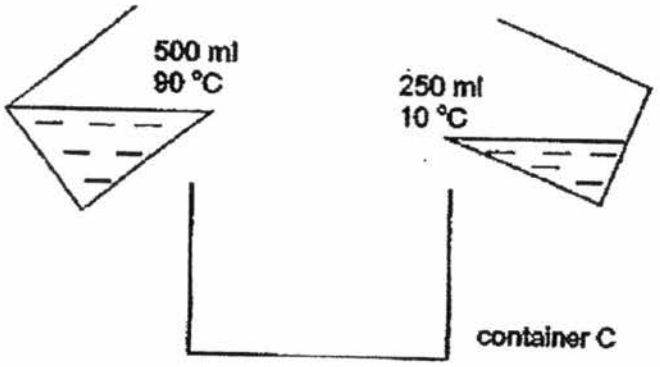
(3)



(4)



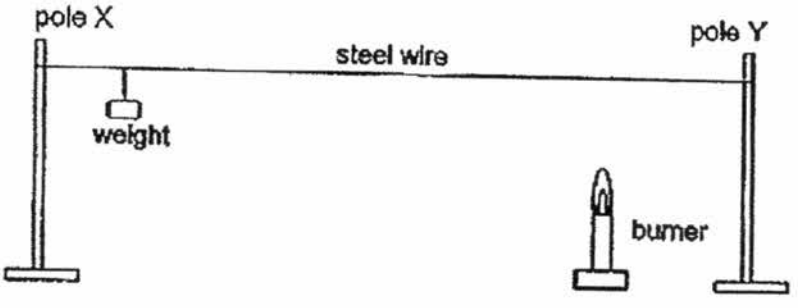
16. Two identical beakers, each containing a different amount of liquid Y of a different temperature, were emptied quickly into container C which was placed in a room.



What is the most likely temperature of liquid Y in container C once all the liquid has been poured into it?

(1) 10 °C
(2) 50 °C
(3) 65 °C
(4) 100 °C

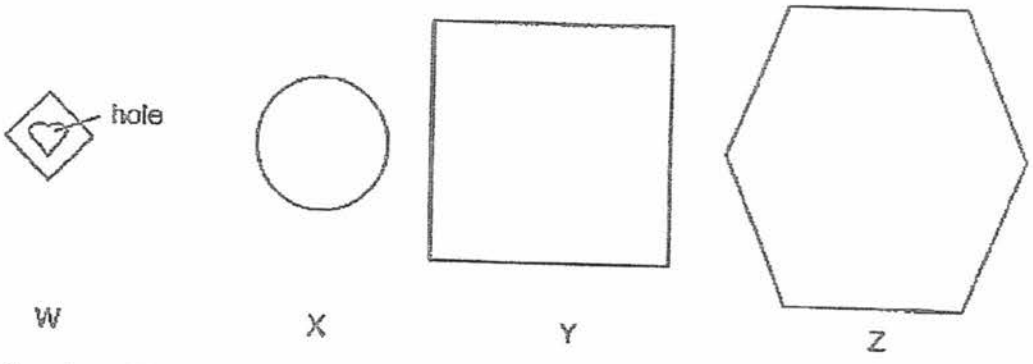
17. Jeffery set up an experiment as shown in the diagram below.



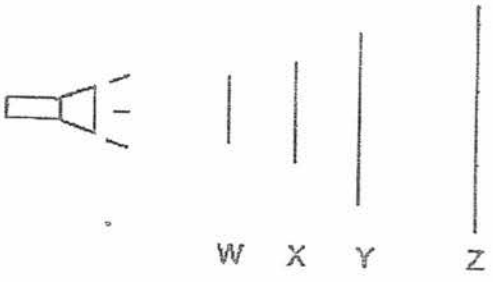
Which of the following is most likely to happen to the weight after one hour?

(1) The weight will increase in mass.
(2) The weight will decrease in mass.
(3) The weight will move towards pole X.
(4) The weight will move towards pole Y.

18. Meimei had four shapes each made of a different material (W, X, Y and Z) as shown below. The diagrams are drawn to scale.



She placed the four cut-outs in front of a torch, in a dark room, as shown in the diagram below.



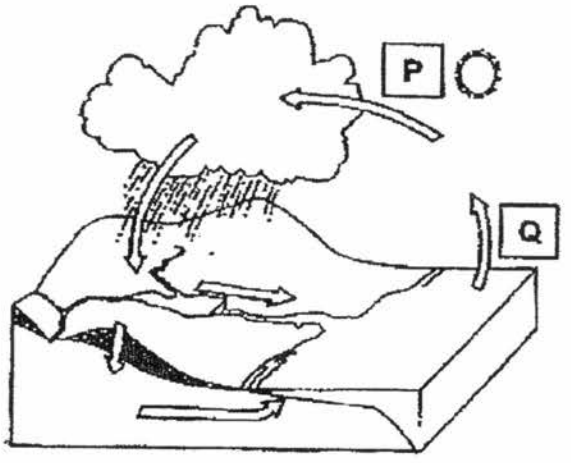
Meimei turned on the torch and recorded her observation on material Y as shown below.

There was no light seen on material Z.

Based on Meimei's observation, which of the following best describes the transparencies of the four materials?

	Does not allow light to pass through.	Allows all light to pass through	Not possible to tell
(1)	W, X	-	Y and Z
(2)	W, Y	X	Z
(3)	Y, Z	W	X
(4)	Y, Z	W, X	-

19. Study the water cycle below.



Which of the following correctly identifies processes P and Q of the water cycle?

	Process P		Process Q	
	Process	Heat Transfer	Process	Heat Transfer
(1)	evaporation	heat loss	condensation	heat gain
(2)	evaporation	heat gain	condensation	heat loss
(3)	condensation	heat loss	evaporation	heat gain
(4)	condensation	heat gain	evaporation	heat loss

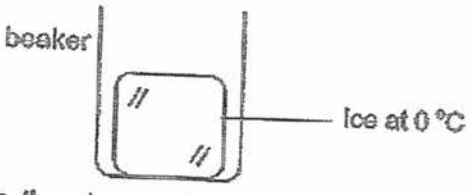
20. The table shows the melting and boiling points of two substances, X and Y.

Substance	Melting point (°C)	Boiling point (°C)
X	16	118
Y	114	183

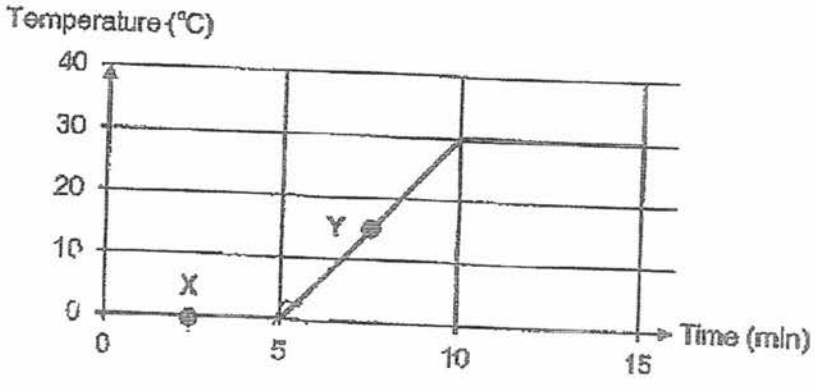
Which of the following shows the correct state(s) of X and Y at 150 °C?

	X	Y
(1)	gas	solid
(2)	liquid	liquid
(3)	gas	liquid
(4)	liquid	solid

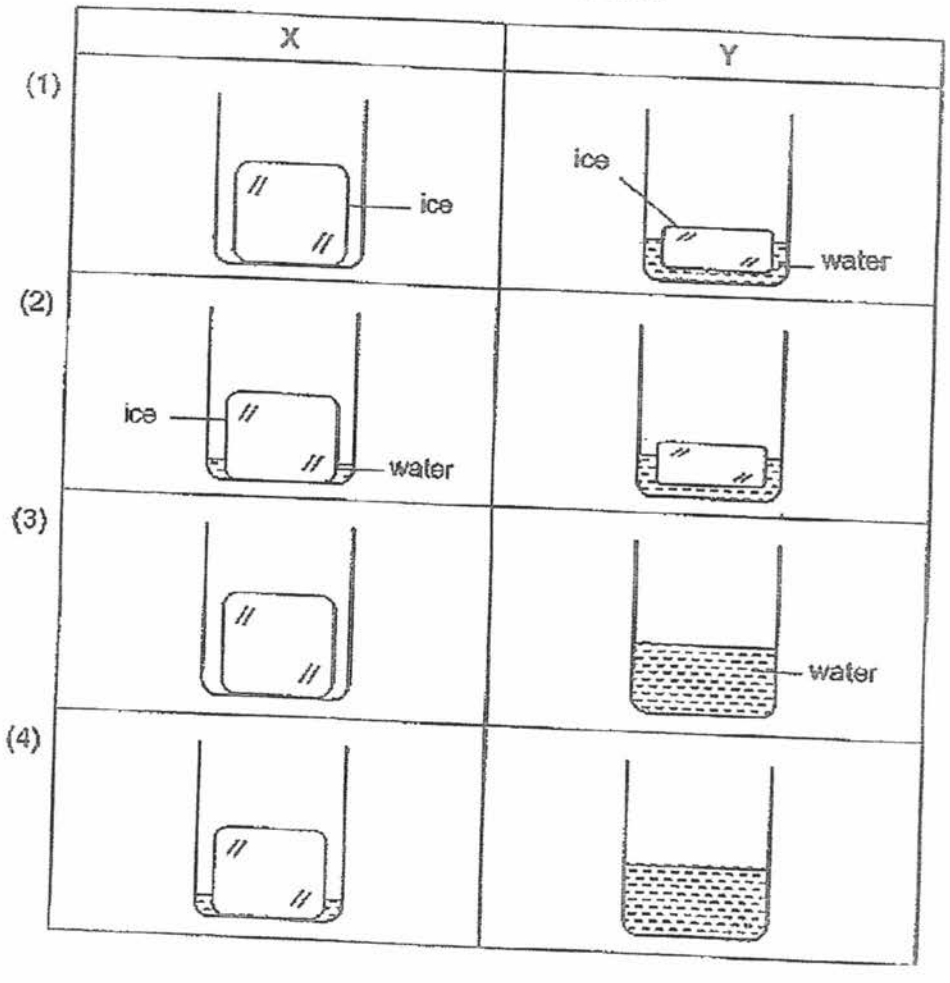
21. Siew Mei left a beaker containing a block of ice on a table in a room.



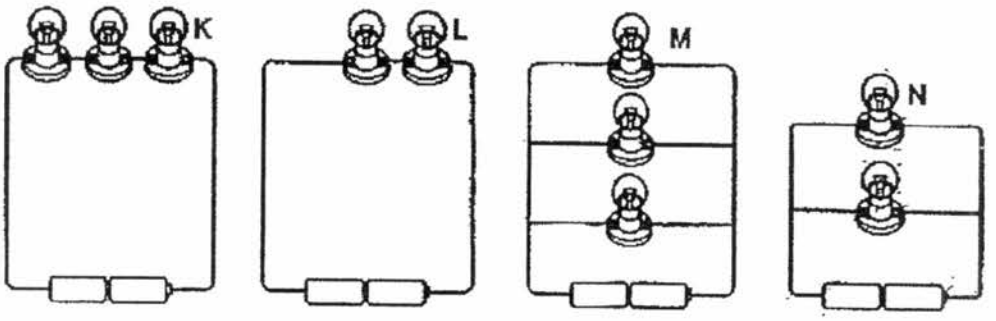
The graph below shows the changes in the temperature of the ice / water in the beaker over 15 minutes.



Based on the graph, which of the following most likely shows what she would observe in the beaker at points X and Y of the graph?



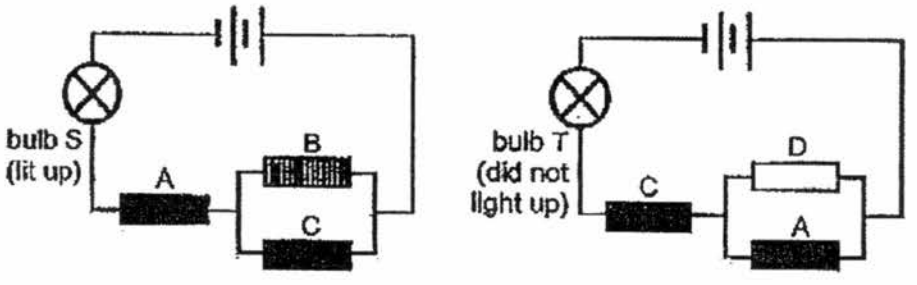
22. The diagram below shows four circuits with different arrangements of identical batteries and lamps. The lamps in all four circuits lighted up.



Which of the following statements about the brightness of the lamps is correct?

(1) Lamp K is brighter than lamp L.
(2) Lamp L is brighter than lamp M.
(3) Lamp M is brighter than lamp K.
(4) Lamp N is brighter than lamp M.

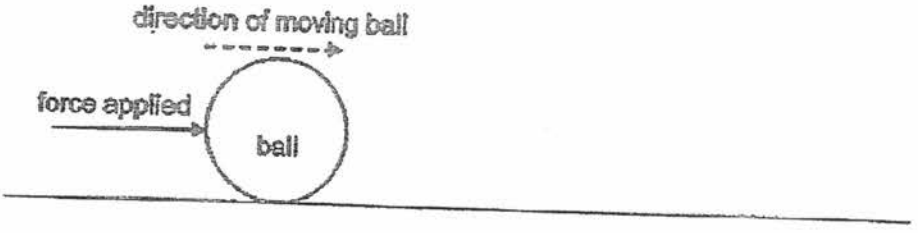
23. Si Qing had four rods, A, B, C and D, of unknown materials. She connected the rods in the two circuits shown below. Bulbs S and T were working properly.



She observed that only bulb S lit up.
Which of the following correctly describes rods A, B, C and D?

	Does it conduct electricity?			
	A	B	C	D
(1)	yes	yes	yes	no
(2)	yes	not possible to tell	no	not possible to tell
(3)	no	yes	yes	no
(4)	yes	yes	no	not possible to tell

24. A ball is moving in the direction as shown in the diagram below.



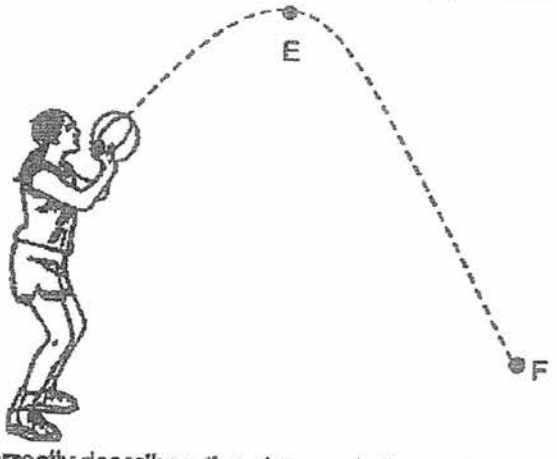
A force is applied to the ball in the same direction of its motion.

Which of the following could be the effect(s) of the force applied on the ball?

A : The ball moves faster.
B : The ball moves slower.
C : The ball stops moving.
D : The direction of the ball's motion changes.

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

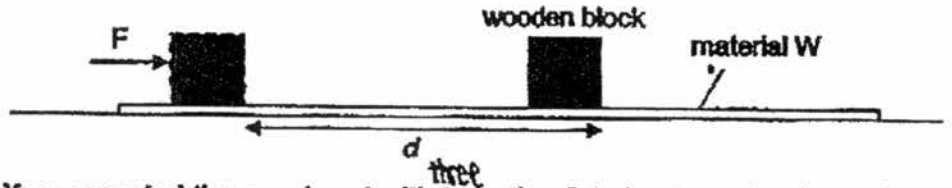
25. Janet threw a ball into the air. The ball flew up to E, then dropped down to F as shown below.



Which of the following correctly describes the changes in the weight and mass of the ball as it moved from E to F?

	Weight of the ball	Mass of the ball
(1)	decreased	decreased
(2)	decreased	remained the same
(3)	remained the same	decreased
(4)	remained the same	remained the same

26. Li Xuan conducted an experiment. She placed a wooden block on a flat sheet made of material W. She then pushed the wooden block with force F. The wooden block moved forward and she recorded the distance moved, *d*, as shown below.



Li Xuan repeated the experiment with ~~two~~ three other flat sheets made of materials X, Y and Z, using the same wooden block and same force. She recorded her results in the table below.

Material	W	X	Y	Z
Distance *d* (cm)	7	5	10	15

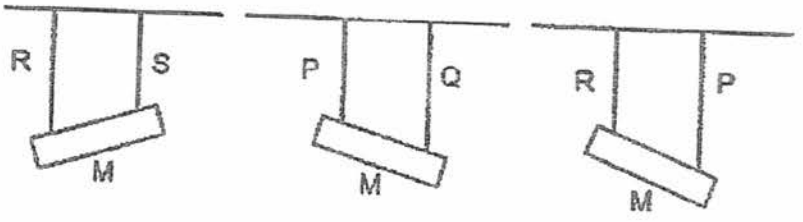
Which of the following shows the correct order of the materials, starting from the material with the least friction between it and the block to the material with the most friction?

least friction ⟶ most friction

(1) X , W , Y , Z
(2) X , Y , W , Z
(3) Z , Y , W , X
(4) Z , W , Y , X

27. Junhao conducted an experiment using four springs, P, Q, R and S each of equal length when unstretched.

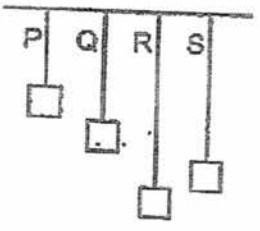
He hung a metal rod M from two of the springs at an equal distance apart. The results of his experiment are shown below.



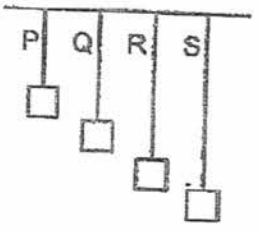
In another experiment, he hung four equal masses from each of the springs.

Which of the following correctly represents how the four springs will be stretched?

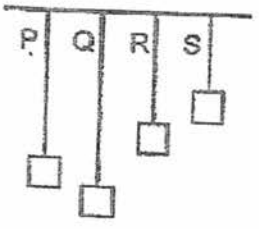
(1)



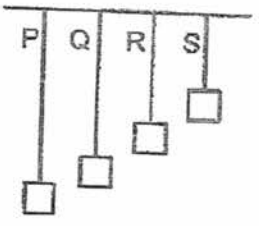
(2)



(3)



(4)



28. A hook attached to a magnet was placed on the door of a refrigerator as shown below in diagram 1. When a bunch of keys was hung on the hook as shown in diagram 2, the magnet, hook and keys fell to the ground.

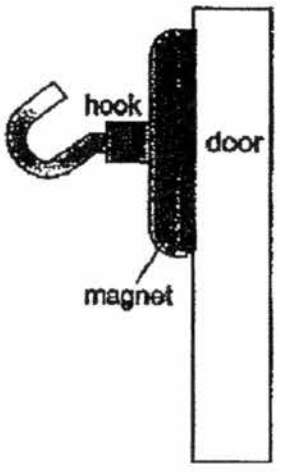


Diagram 1

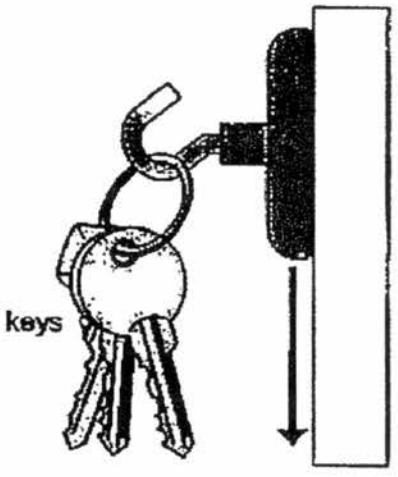


Diagram 2

Which of the following is the reason why this happened?

(1) The weight of the keys was greater than the total weight of the magnet and hook.

(2) The total weight of the keys, magnet and hook was more than the friction between the magnet and the door.

(3) The magnetic force of attraction between the magnet and the door was less than the friction between the magnet and the door.

(4) The total weight of the keys, magnet and hook was more than the magnetic force of attraction between the magnet and the door.

End of Section A

Pei Chun Public School
Semestral Assessment 2 – 2017
Science
Primary 5

Name : _____ ( )

Class : Pri. 5 ( )

Date : 31 October 2017

Time : 1 h 45 min

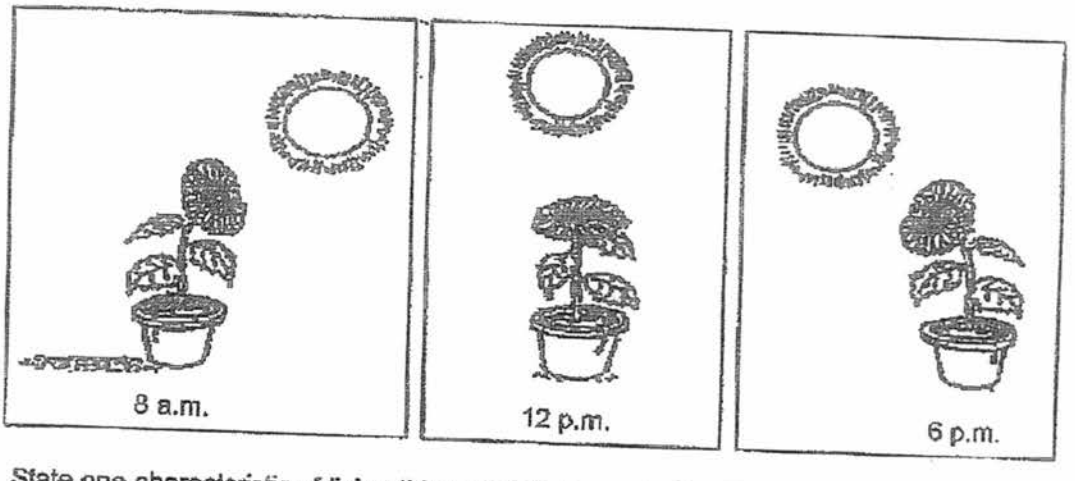
Science Teacher : _____

Parent's signature: _____

Section A	56
Section B	44
Total	100

Section B (44 marks)
For questions 29 to 41, write your answers in the spaces provided.

29. The diagrams below show a sunflower plant at different times of a day.



a) State one characteristic of living things that is shown in the diagrams above. [1]

_____

_____

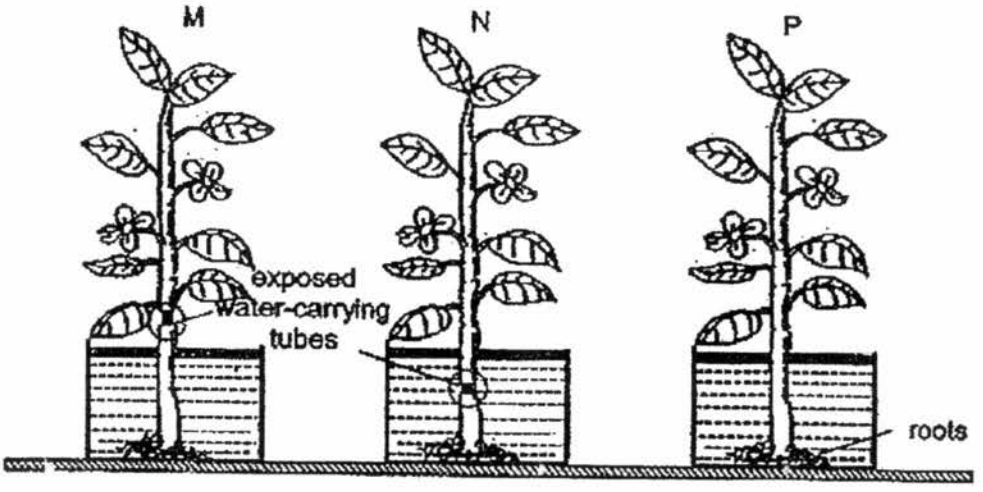
b) Besides sunlight and chlorophyll (green pigment commonly found in leaves), what are two other substances that plants need to make food? [1]

_____

_____

SCORE	

30. Mary set up an experiment by removing part of the food-carrying tubes and water-carrying of two plants, M and N. The water-carrying tubes were exposed at different parts of the stem of each plant, depending on where the cut was. A third plant, P, was left uncut. The three plants were then placed in beakers containing the same amount of water as shown in the diagram below.



The observations of the three plants were recorded in the table below.

Plant	Observations after five days
M	No swelling observed on the stem.
N	The plant is still growing well. Swelling on the stem above the cut observed.
P	The plant is growing well. No swelling observed on the stem.

a) Explain why the stem above the cut on plant N swelled. [2]

_____

_____

b) There was no swelling observed on the stem of plant M. Write down one other likely observation of plant M. Give a reason for the observation stated. [2]

Observation: _____

_____

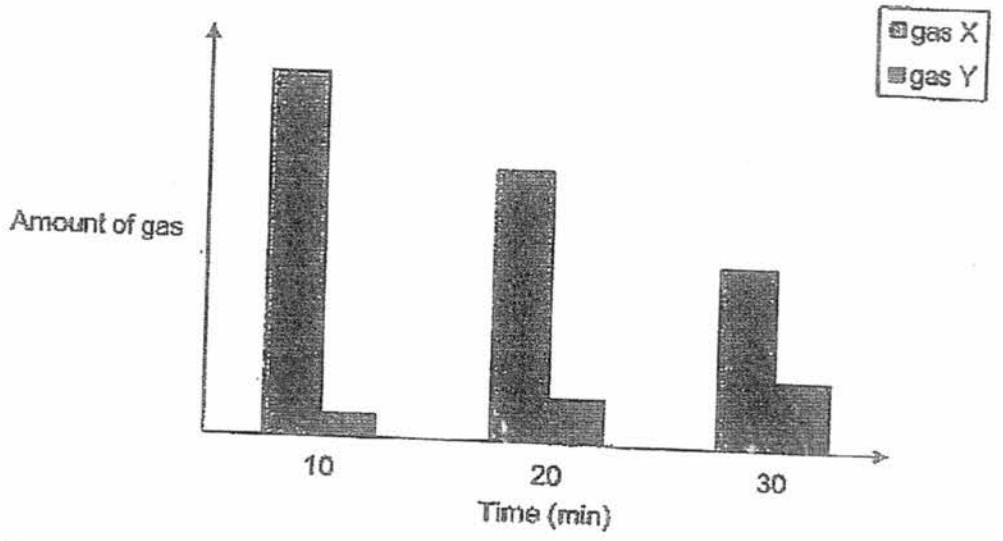
Reason: _____

_____

SCORE	

31. Eight people were trapped in a lift. Some adults started kicking and banging on the door. Two young children started crying.

The graph below shows the amount of two different gases in the lift at different times.



a) Name the two gases. [2]

gas X:_____

gas Y:_____

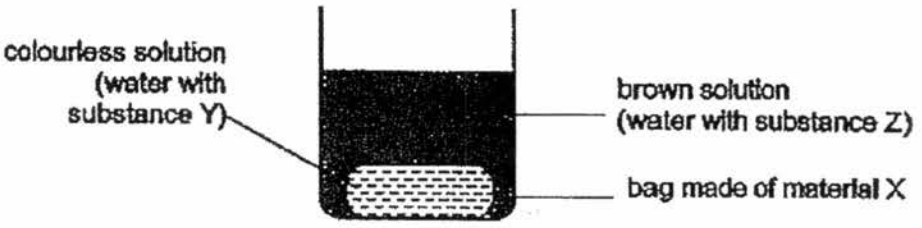
b) If the adults had not kicked and banged on the lift door but kept still and the children did not cry, would the amount of gas X at 30 minutes be *higher, the same or lower than* shown in the graph above? Explain your answer. [1]

_____

_____

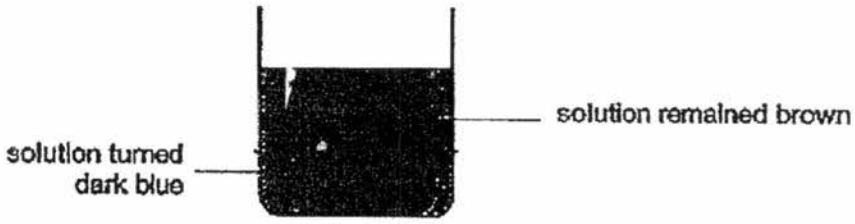
SCORE	

32. Sheri has a bag made of material X. Material X only allows certain substances to pass through it. She wanted to find out if substances Y and Z could pass through material X. She set up her experiment as shown below.



At the start, substance Y is colourless and substance Z is brown.
When substances Y and Z are mixed together, substance Z will turn dark blue.

The diagram below shows her experimental set-ups after a few hours.



a) Based on Sheri's experiment, what could she conclude about material X? [2]

_____

_____

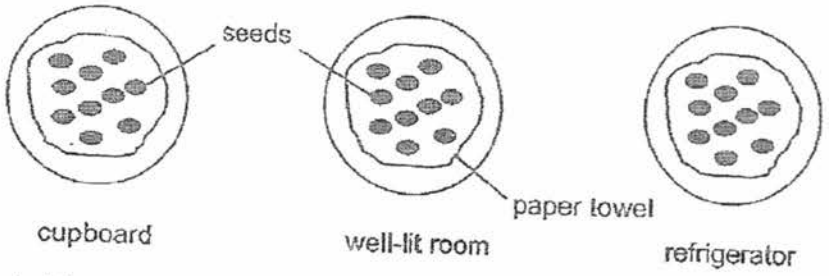
_____

b) State a part of the cell that has the same function as the bag. [1]

_____

SCORE	

33. Amir placed three dishes containing the same number of seeds at three different places. He watered the seeds with the same amount of water every day.



Amir counted the number of germinated seeds in the dishes each day and recorded his results as shown in the table below.

Place	Number of germinating seeds			
	Day 1	Day 2	Day 3	Day 4
cupboard	0	4	8	10
well-lit room	0	3	6	9
refrigerator	0	0	0	0

a) Based on the results, which was the best place for seeds to germinate? Give a reason for your answer. [1]

b) What can Amir conclude about the effect of light on seed germination? [1]

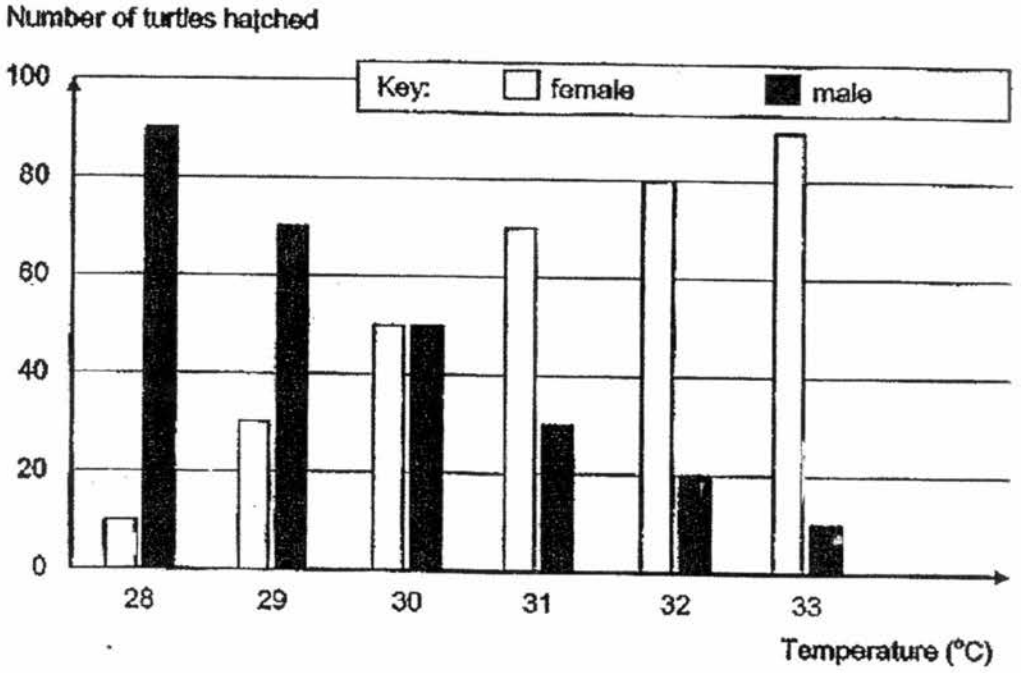
c) Amir also wanted to find out how the number of seeds planted would affect how well the seedlings grow.

Which variables should Amir keep the same to ensure a fair test? Put a tick (✓) in the correct boxes below. [2]

Variables	✓
The place where the seeds are placed	
The number of seeds germinated	
The number of seeds planted	
The type of seeds	

SCORE	

34. Dan studied how the number of males and females hatched from the eggs of a certain type of turtle at different temperatures. He kept 100 eggs at various temperatures and counted the number of male and female turtles hatched from the eggs. His results are shown below.



a) State how the temperature affects the number of male turtles hatched from the eggs. [1]

b) Based on Dan's results, give a reason why this type of turtle may disappear from the earth if the earth's temperature continues to increase above 33°C. [1]

SCORE	

35. Ahmad applied an increasing amount of force on a rod made of material W and recorded the amount of force needed to break the rod. He repeated the experiment with rods made of materials X, Y and Z.

His results is recorded in the table below.

Material of rod	Colour of material	Thickness of rod (mm)	Force needed to break the rod (units)
W	Black	10	200
X	Blue	13	350
Y	Red	14	150
Z	Red	15	325

a) What property of the materials was Ahmad trying to test? [1]

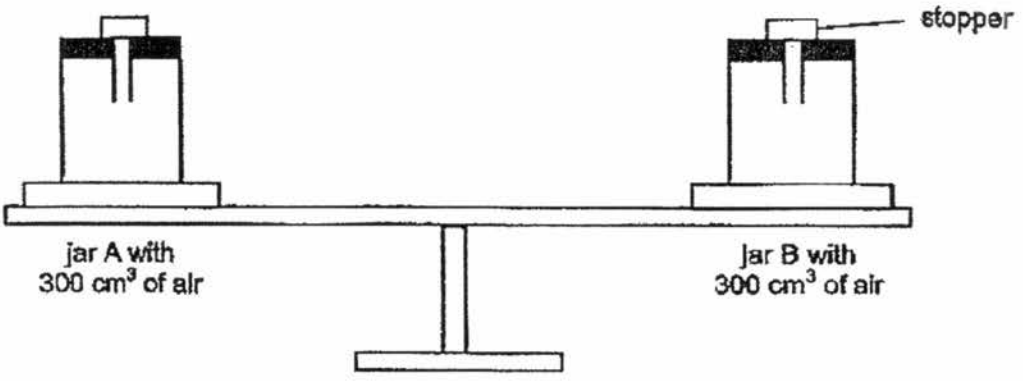
b) Give a reason why Ahmad's experiment was unfair. [1]

c) Ahmad bought an inflatable float which traps air to stay afloat.

Besides being light, strong and flexible, name one other important property required of the material to make the inflatable float. [1]

SCORE

36. The capacity of jars A and B is 300 cm^3 each. Each jar contained 300 cm^3 of air. Andric balanced the jars on a lever balance as shown below.



Andric did an experiment by pumping another 50 cm^3 of air into jar B.

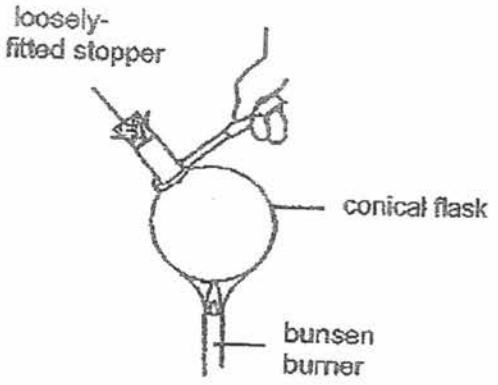
a) What would he observe of the level balance when 50cm^3 of air is pumped into jar B? [1]

b) What is the volume of the air in jar B in the end? [1]

c) State two properties of air that are shown in the experiment above. [2]

SCORE	

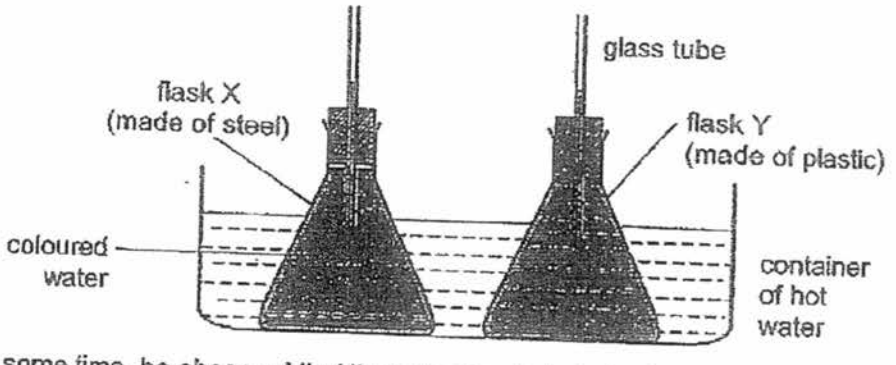
37. Ibrahim heated an empty glass flask with a loosely-fitted stopper over a burner for ten minutes.



i) What would happen to the stopper after the flask was heated for ten minutes? [1]

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

b) Ibrahim did another experiment with two similar flasks, X and Y. Flask X was made of steel and flask Y was made of plastic. He filled both flasks X and Y with the same amount of coloured water. The water levels in both glass tubes were the same. The flasks were then placed in a container of hot water as shown below.



After some time, he observed that the water levels in both glass tubes rose but the water level in the tube for flask X was higher.

Explain his observations. [2]

SCORE

38. Tessa brushed her teeth in front of a mirror in bathroom as shown in Diagram 1. After she had taken a hot shower, the mirror became fogged as shown in Diagram 2. She did not spray the water on the mirror.

Diagram 1

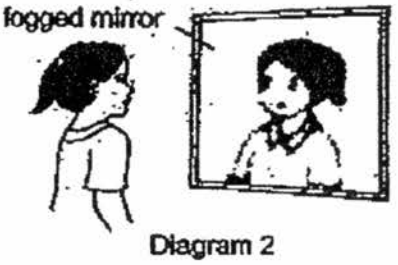


Diagram 2

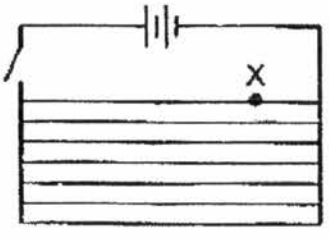
a) Explain how the mirror became fogged. [2]

b) Give a reason why the mirror became clear again on its own after some time. [1]

c) Tessa's mother fixed a heater on the back of the mirror.
When the heater was switched on, it heated up the mirror to about 40°C.

Explain how this prevented the mirror from becoming fogged after a hot shower. [1]

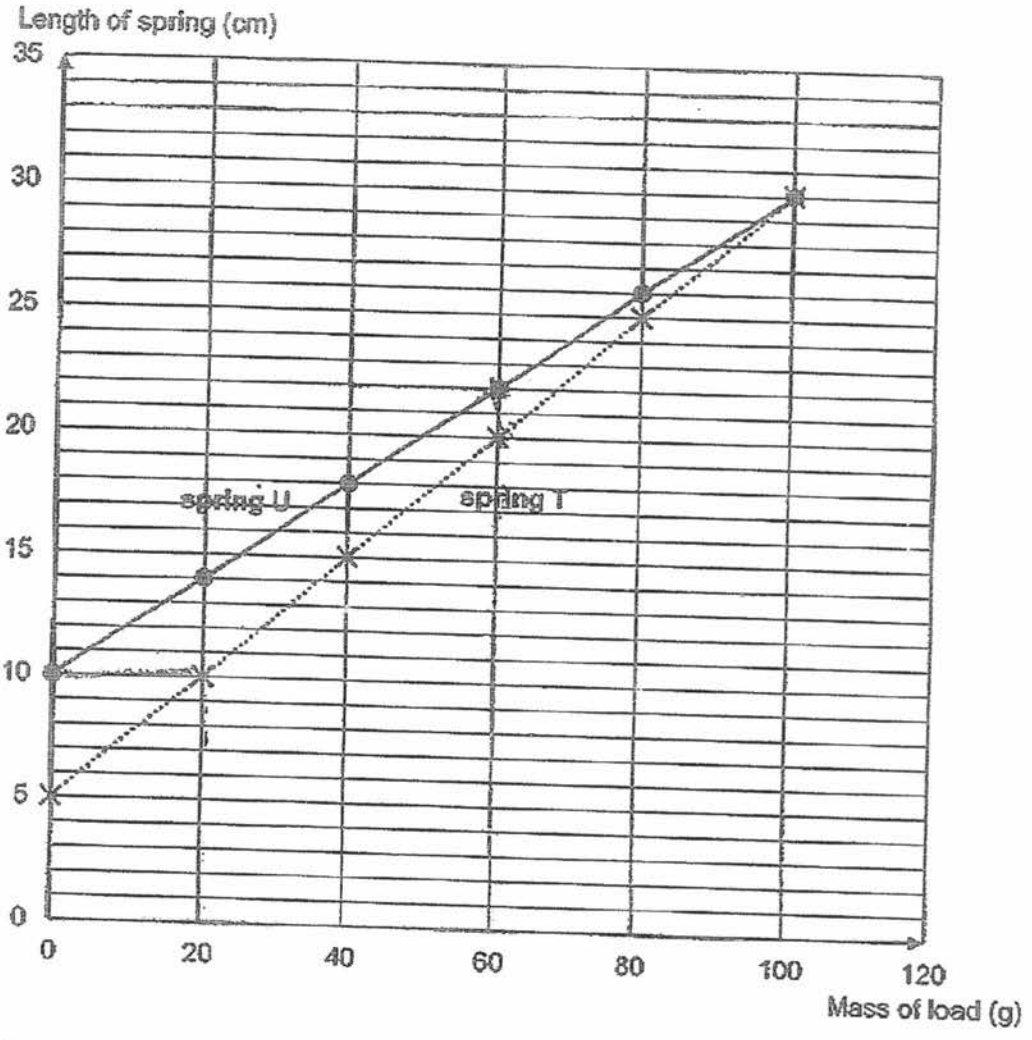
d) The diagram below shows the wires in the circuit of the heater.



If the wire is broken at point X of the circuit, will the heater still work when the switch is closed? Give a reason for your answer. [1]

SCORE	

39. The graph below shows the length of springs T and U when loads of different masses are hung on them.



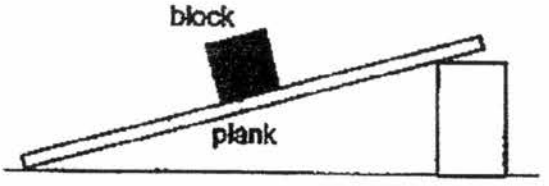
a) What is the extension of spring U when a mass of 60 g is hung on it? [1]

b) What should be the mass of the load hung on spring T to make it extend by 10 cm? [1]

c) Based on the graph, which spring, T or U, can be stretched more easily? Give a reason for your answer. [1]

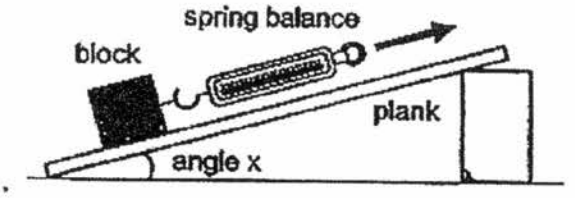
SCORE	

40. Hassan placed a block at the top of a plank as shown in the diagram below.



a) He observed that block did not slide down the plank.
Name the force(s) that was/were acting on the block when it was resting on the plank.
[1]

b) Hassan set up an experiment as shown below. He pulled the block up the plank using a spring balance. He repeated the experiment for different values of angle x. He wanted to find out how the pulling force changes with angle x.



Hassan used the same block throughout the experiment.
Give **two** reasons how using the same block helps to make the experiment a fair test.
[1]

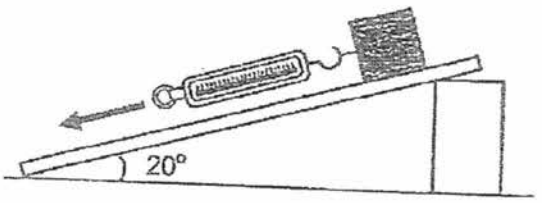
c) The table below shows the results of Hassan's experiment.

Angle x (°)	Pulling force (units)
0	50
10	125
20	175
30	200

Give a reason why a greater force was needed to pull the block when Hassan increased angle x from 0° to 10°.
[1]

SCORE	

d) Hassan pulled the same block down the same plank using a spring balance as shown below and measured the force required to pull the block down the plank.



i) Based on the results of Hassan's experiment, how much would the pulling force be? Choose your answer by ticking (✓) in the correct box. [1]

☐ less than 50 units	☐ more than 50 units but less than 175 units	☐ more than 175 units

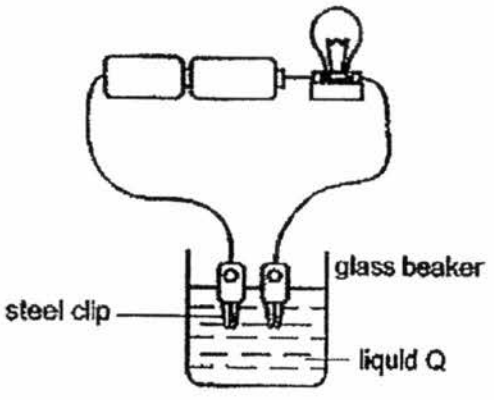
ii) Give a reason for your answer in (i). [1]

_____

_____

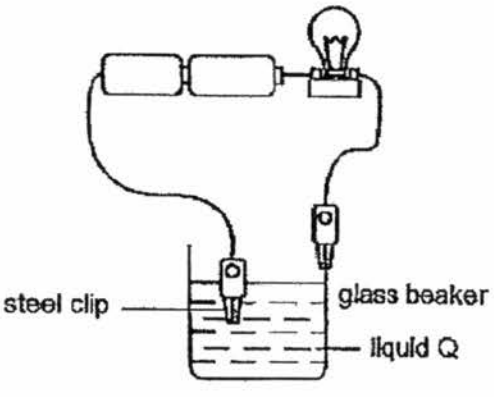
SCORE	

41. Li Qin sets up an experiment as shown below.
When the steel clips are immersed in liquid Q, she observed that the bulb lit up.



a) Based on Li Qin's observation, what could she conclude about liquid Q? [1]

b) Li Qin connected one of the steel clips to the glass beaker as shown below.



Would the bulb light up? Explain your answer. [1]

End of Section B

Set by : Mrs Chiew-Ong Sock Li, Mrs Bu Shin Yunn and Mdm Salmisna
Vetted by: P5 Science teachers

SCORE	

EXAM PAPER 2017 (P5)

SCHOOL : PEI CHUN

SUBJECT : SCIENCE

TERM : SA2

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
3	1	3	4	4	2	2	3	2	1
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	1	2	2	4	3	4	2	3	3
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
4	3	4	1	4	3	3	4		

Name: _____ Class: _____

P5 Semestral Assessment 2 (2017)

29a) Living things ___respond to changes___ around them

b) *Concept: Photosynthesis is the process by which green plants make food with carbon dioxide and water in the presence of sunlight. Chlorophyll in the leaves trap sunlight and the plants produce oxygen as a by-product.*

Plants need ___carbon dioxide___ and ___water___ to make food.

30a) *Concepts:*

- *The water-carrying tubes transport water absorbed by the roots to other parts of the plant. The water-carrying tubes exposed to water in a cut stem can absorb water for the plant. (Coloured flower experiment)*
- *The food-carrying tubes transport food made by the leaves to the other parts of the plant.*

1st point: The exposed water- carrying tubes in the stem of plant N could ___absorb___ water and the leaves could still get water to ___make food___.

2nd point: The food made by the leaves could not be ___transported___ to the ___roots___ and the food ___accumulated___ above the cut (as the food-carrying tubes were removed).

b) ** Compare the position of the exposed water-carrying tubes on M and N.*

Observation: The plant would ___wilt___.

Reason: The ___water___ absorbed by the roots could not be ___transported___ to the leaves and the leaves could not ___make food___.

31a) *Concept: Human takes in oxygen to produce energy and carbon dioxide.*
** Compare the energy needed when the adults were kicking and banging with the energy needed when the adults kept still.*

b) It would be ___higher___. The people in the lift needed ___less energy___ when they kept still and they would take in ___less oxygen___ to produce less energy.

32a) ** Aim of experiment is to find out if substances Y and Z could pass through material X. (pass through the material - enter and leave the material)*

** Observations – solution in bag turned dark blue (Y+Z), solution outside the bag remained brown (Z only)*

Material X *does not allow* substance Y to pass through it but it *allows* substance Z to pass through it.

b) (controls the movement of substances in and out of cells, allowing only certain substances to pass through it)

33a) ** Do not compare the speed of germination. Some of the seeds in both the cupboard and well-lit room germinated by day 2. Compare the number of germinated seeds in the various places on day 4.*

Cupboard. The number of *germinated* seeds was the *greatest* on day 4 / at the end of the experiment.

b) ** Cupboard – dark, light absent Well-lit room – bright, light present*

Seeds germinated in both places.

Seeds *do not need* light to germinate.

c) ** Aim of experiment: to find out how the number of seeds planted would affect how well the seedlings grow (The number of seeds germinated is dependent on the number of seeds planted.)*

Variables	Kept the same
The place where the seeds are placed	√
The number of seeds germinated	
The number of seeds planted	
The type of seeds	√

34a) As the temperature increases, the number of male turtles hatched *decreases*.

Concept: For animals to reproduce, both male and female need to be present.

b) As the temperature increases above 33°C, there will be *fewer male* turtles to *reproduce* with the female turtles.

35a) *Concept: Strength is the ability of a material to be subjected to loads without breaking.*

Strength

b) *Concept: The thickness of a rod will affect its strength. (A thicker rod will be stronger than a thinner rod of the same material.)*

** Aim of experiment: To test the strength of the materials (given in (a))*

** Do not give a suggestion (He should use.....)*

The rods were of different thickness.

c) ** The material of the float need not be able to float on water. It traps air in it to stay afloat.*

waterproof

36a) *Concept: Air has mass. (As more air was pumped into jar B, it would be heavier than jar A.)*

The side of the lever balance with jar B would tilt downwads.

b) *Concept: Air can be compressed. Thus, the volume of the air will remain the same as the capacity of the jar.*

300cm2

c)

Property 1: Air has mass

Property 2: Air can be compressed

37a) *Concepts:*

- *Matters gain heat and expand.*
- *Gases expand more than liquids and solids. Liquids expand more than solids.*

The stopper would pop out.

b) ** Although the glass flask gained heat and expanded, the expansion would not be significant enough to cause the stopper to drop in. The air in the flask would expand more.*

The air in the glass flask gained heat from the flame of the bunsen burner and expaned.

c)

Steel is a *better conductor of heat* than plastic. The water in flask X *gained more heat* from the *hot water* in the container and *expanded more* than the water in flask Y. /

Steel is a *better conductor of heat* than plastic. Flask X *gained more heat* from the *hot water* in the container than flask Y. Thus, the water in flask X **gained MORE heat** from flask X and **expanded** *more* than the water in flask Y.

***Must state the source of heat – hot water in the container and COMPARE!**

38a) *Concept: Condensation of water vapour / steam can only take place when there is a **temperature difference** between the water vapour and the **surface of contact**.*

The hot *water vepour* from the *hot shower* touched the **cooler surface** of the *mirror*, *lost* heat and *condensed* to form *water droplets* on the mirror, causing it to become foggy.

b) *Concept: Water gains heat and evaporates.*

The water droplets on the mirror *gained heat* from the **surroundings** and *evaported*.

c)

The surface of the mirror was *hotter* than the water vapour, thus *condensation* could not take place.

d)

Yes. The circuit was still *closed* as the electricity could still flow through the *other wires*.

39

a) *12cm* b) _____

c)

Spring *T*. It has a *greater* **extension** than spring *U* when the *same mass* was hung on both springs.

40a) Gravitational force and friction.

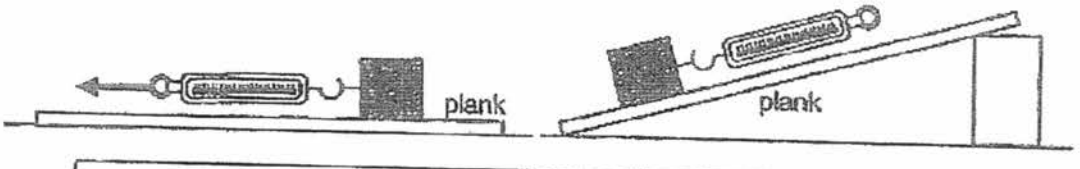
b) * Aim of experiment: To find out how the pulling force changes with angle x.
* Pulling force needed to move the block is dependent on the forces acting on the block.

Concepts:

- The gravitational force acting on an object is affected by its mass.
- The frictional force between and object and the surface it is moving on is affected by the mass of the object and the texture of the surface and the base of the object.

1. Using the same block will keep the mass of the block the same.
2. Using the same block will keep the material of the block the same.

c) * The question only requires you to compare the pulling force needed when angle x increased from 0° to 10°.



along the horizontal plank (angle x was 0°)	up the plank (angle x was 10°)
There was friction between the load and the plank. There was gravitational force acting on the load. As the load was pulled horizontally, Hassan only needed to overcome the frictional force acting on the load.	There was friction between the load and the plank. (Friction did not change.) There was gravitational force acting on the load. (Weight did not change.) As the load was moved up the plank, Hassan needed to overcome both the frictional force and gravitational force acting on the load.

* Do NOT write " the frictional force of the block" or "the gravitational force of the block" (The forces are acting on the block, they do not belong to it.)
* Do NOT write "the block had to overcome the forces" (Hassan was the one who had to overcome the forces to move the block)

c)

When **angle x was 0°**, Hassan **only had to overcome the** frctional **force** acting on the block.

When **angle x was increased to 10°**, Hassan was pulling the block up the plank and had to **overcome both the** frictional **and** gravitational **forces** acting on the block. Thus, he needed a greater pulling force to move the block when the angle x was 10°.

OR

When **angle x is 10°**, Hassan had to **overcome the** gravitational **force** acting on the block to move the block but when **angle x is 0°**, he did not have to do so.

d) *Concept:*

- *When an object is placed on a slope, gravitational force is pulling the object down the slope.*

Less than 50 units of force would be needed.

The gravitational force acting on the block pulled it down the plank. *(This was an additional force pulling the block down and it helped to overcome some of the friction acting on the block.)*

41a) *Concept:*

- *An electrical conductor allows electricity to flow through it.*

Liquid Q is an electrical conductor.

b) *Concept:*

- *An electrical insulator does not allow electricity to flow through it.*

Glass is an electrical insulator and the circuit would be open.