NANYANG PRIMARY SCHOOL

PRIMARY 6 SCIENCE

CONTINUAL ASSESSMENT 1
2014

BOOKLET A

Date : 03 March 2014

Duration : 1 h 45 min

Name : _____ ( )

Class: Primary 6 ( )

Parent's signature: _____

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Booklet A consists of 22 printed pages including this cover page.

Section A (30 x 2 marks = 60 marks)
For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). **Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.**

1. Which of the following statements correctly describe the similarities between moss and fungi?

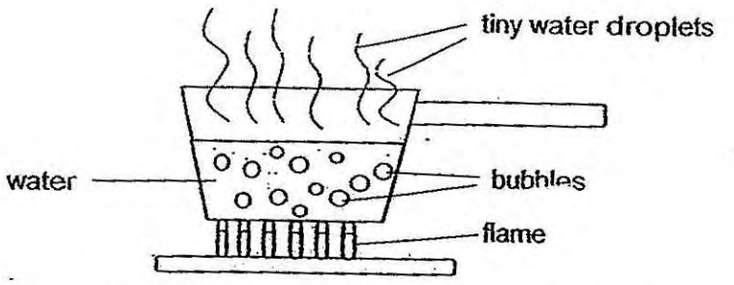
A They reproduce by spores
B They can photosynthesise.
C They absorb food from surroundings.

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

2. Which one of the following classifications of the animals shown below is correct?

	Fish	Mammals that lays eggs	Mammals that gives birth to young alive
1)	guppy	platypus	shark and dolphin
2)	guppy	shark and platypus	dolphin
3)	shark and guppy	platypus	dolphin
4)	shark and guppy	dolphin	playtpus

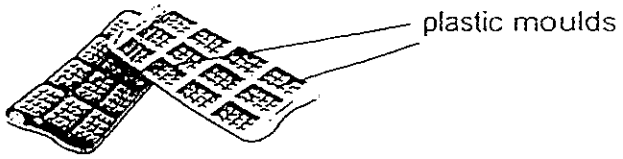
3. The diagram below shows water being heated in a pot.



Based only on the diagram, which one of the following statements is considered an observation?

1) The bubbles contain air.
2) Bubbles are formed in the water.
3) Water gains heat to become steam.
4) The water has a temperature of 40°C.

4. Look at the following diagram that shows how chocolate shapes are made using a plastic mould.



Step A

Place 200g of chocolate bars in a ceramic bowl.

Step B

Place the bowl of chocolate in the oven and switch it on.

Step C

- Remove the bowl from the oven.
- Pour the chocolate into the plastic mould and leave it untouched.

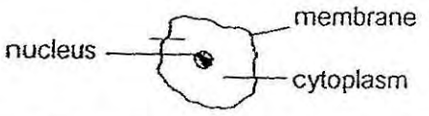
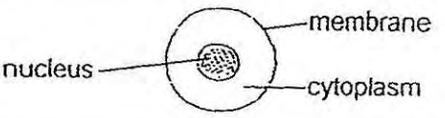
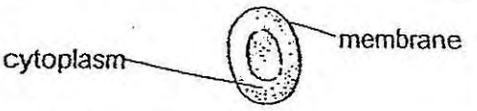
Step D

- Remove the chocolate shapes from the mould after 1 hour.
- Eat one chocolate shape to test for taste.

Which one of the following correctly describes what happens to the chocolate during steps B, C and D?

	Step B	Step C	Step D
(1)	heat is lost	heat is lost	heat is gained
(2)	heat is gained	heat is gained	heat is lost
(3)	heat is lost	heat is gained	heat is gained
(4)	heat is gained	heat is lost	heat is gained

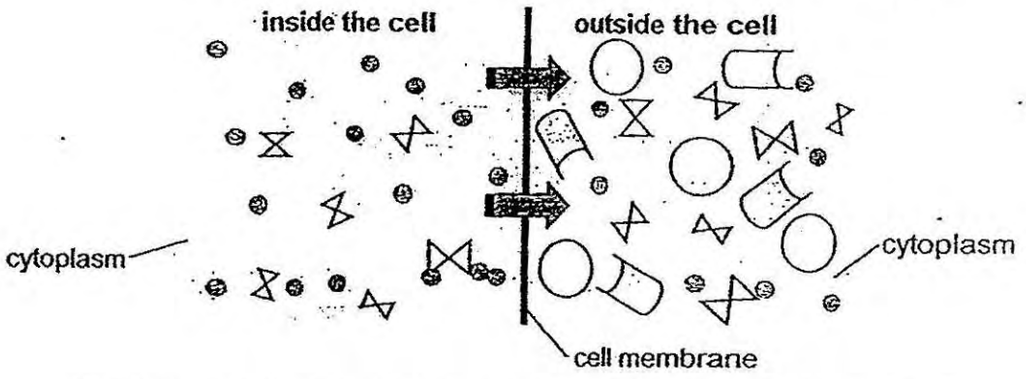
5. The diagram below shows different types of cells found in an animal.

Types of cells found in an animal	Appearance of Cell
A	
B	
C	

Based only on the information in the table above, which one of the following best describes the cells?

(1) All three cells have a nucleus.
(2) Each of the cells performs a different function.
(3) The cell wall has been removed in each of the three cells.
(4) Only cell B can undergo cell division but not the other two.

6. Study the following diagram carefully. The shapes represent different substances while the arrows show the movement of these substances.



Which one of the following statements best describes the function of the cell membrane as shown in the diagram above?

(1) The cell membrane controls all the activities in the cell.
(2) The cell membrane prevents the cytoplasm from leaking out.
(3) The cell membrane allows all substances to enter and exit the cell.
(4) The cell membrane controls the substances entering and exiting the cell.

7. Which of the following are functions of the nucleus in a cell ?

A Controls cell growth
B Repairs damaged cells
C Needed for cell division
D It is where all the activities take place

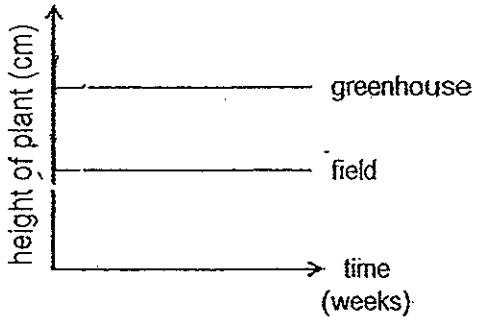
(1) A and B only
(2) C and D only
(3) A, B and C only
(4) A, C and D only

8. Plants in some greenhouses are exposed to light 24 hours a day while plants that are grown in an open field are exposed to approximately 10 hours of light each day.

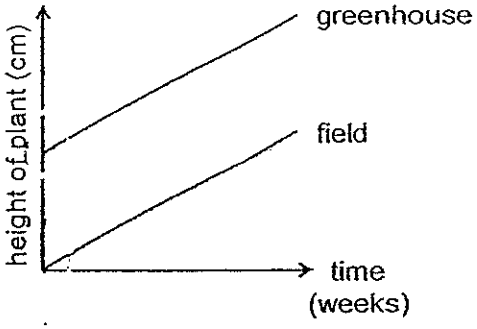
Jason conducted an experiment using 2 pots of identical plants to find out which plant would grow better over a period of time. He measured the height of the plants over a period of 12 weeks. The plants were of the same height at the start of the experiment.

Which one of the graphs below is likely to represent the growth of the plants in both the greenhouse and the field?

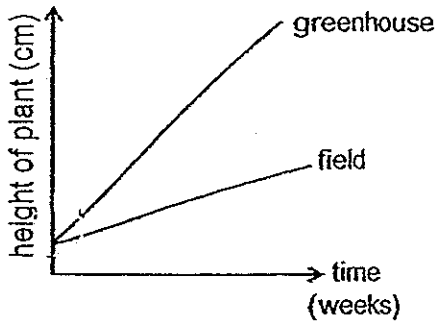
(1)



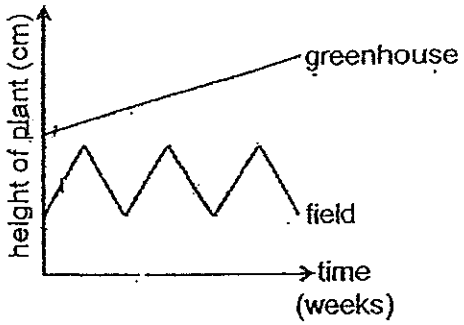
(2)



(3)



(4)



9. Study the information in the table below.

	Pot			
Variables	A	B	C	D
Amount of soil (g)	400	450	400	450
Amount of water (ml)	300	0	300	250
Number of plants	10	5	5	5

Which two pots should Brandon use to find out if water is needed for photosynthesis?

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

10. Lydia came across a picture of a bottle garden as shown in the diagram below.

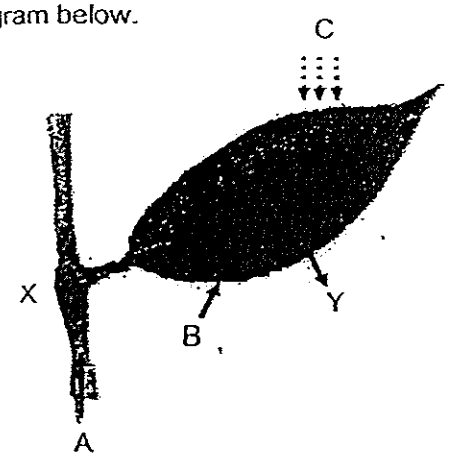
She wanted to make her own bottle garden.

Which of the following should she do in order for her plants to grow well?

A Add chemical that absorbs carbon dioxide.
B Add sufficient water before sealing the bottle tightly.
C Place the bottle garden in a place with sufficient light.

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

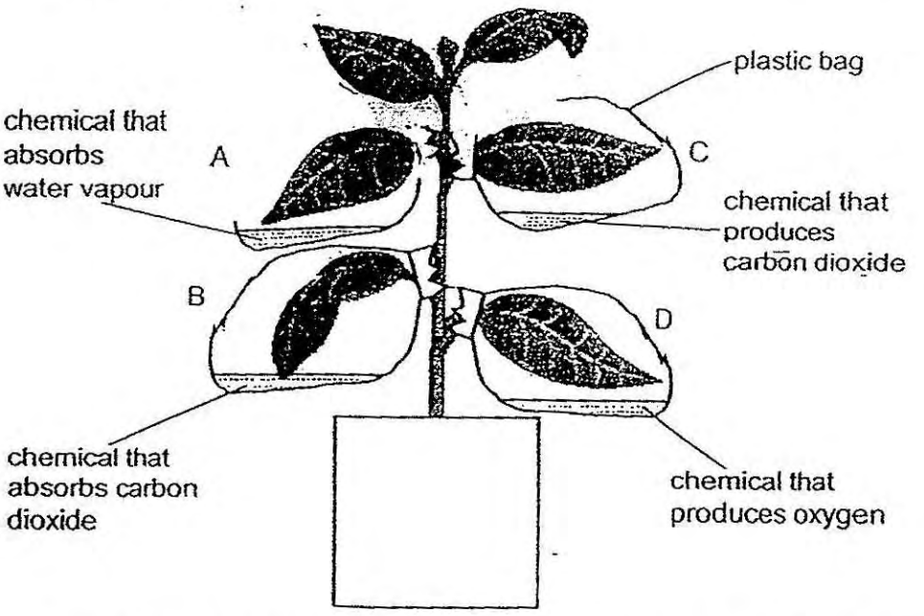
11. Study the diagram below.



During photosynthesis, A, B and C are needed and substances X and Y are products of the process. Which one of the following best identifies what A, B, C, X and Y could be?

	A	B	C	X	Y
(1)	sugar	water	sunlight	oxygen	carbon dioxide
(2)	oxygen	sunlight	carbon dioxide	sugar	water
(3)	oxygen	water	sunlight	sugar	carbon dioxide
(4)	water	carbon dioxide	sunlight	sugar	oxygen

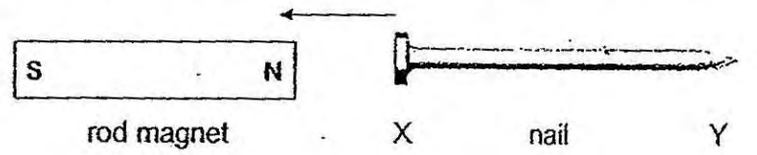
12. Alex conducted an experiment as shown in the diagram below. He wanted to find out the conditions needed for plants to photosynthesise. Alex left the set-up in a dark cupboard for 2 days before placing it in a bright area.



After 6 hours in the bright area, Alex removed leaves A, B, C and D. He conducted a starch test on the leaves. Which of the leaves would most likely turn iodine solution blue-black?

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

13. The diagram below shows a rod magnet and a non-magnetised nail. The North-pole of the magnet can attract the nail at point X.



Based on the observation above, which one of the following statements is most likely to be true?

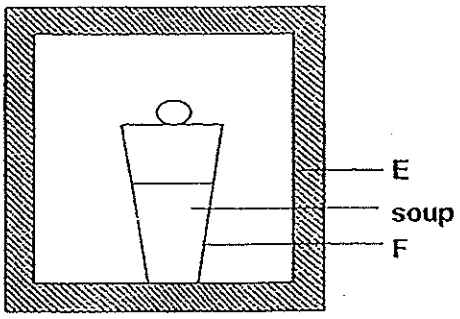
1) The nail is a magnet.
2) The nail is made of steel.
3) The South-pole of the magnet can repel point X of the nail.
4) The South-pole of the magnet can attract point X of the nail.

14. An experiment was conducted to measure the amount of time taken for the temperature of 3 different materials to increase by 4 °C. The result of the experiment is shown below.

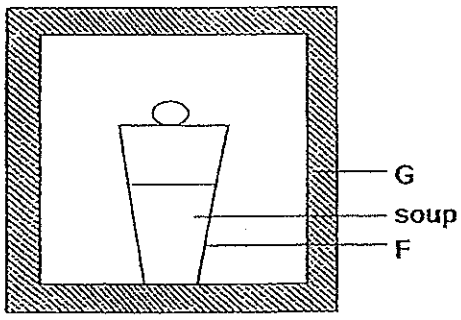
Material	Time taken to increase by 4°C (min)
E	8
F	12
G	95

The materials were then used to create the following containers. Hot soup of the same temperature was poured into each container. Which of the following set-ups will keep the soup warm as long as possible?

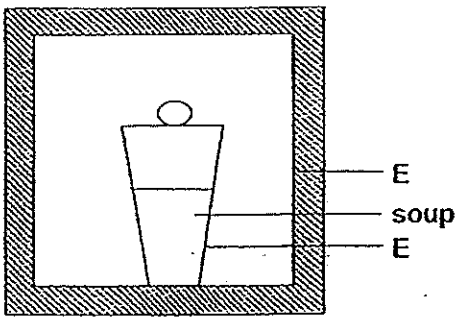
(1)



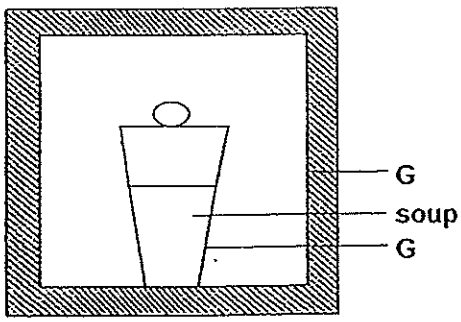
(2)



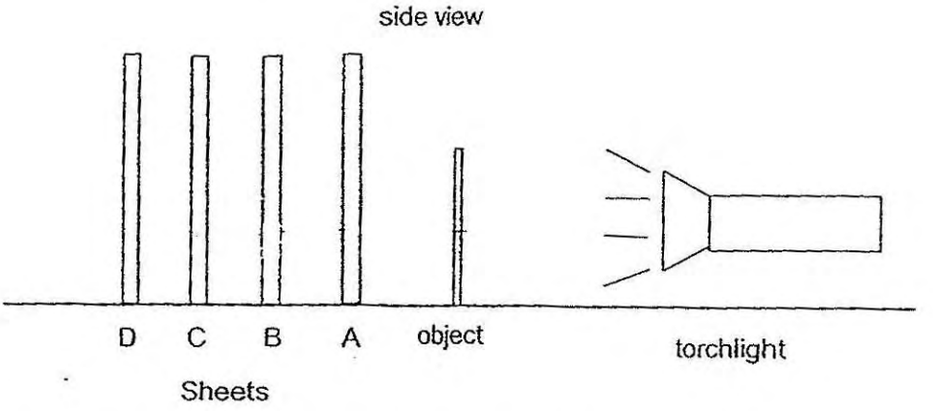
(3)



(4)



15. Judy carried out an experiment in a dark room as shown below. Sheets A, B, C and D were arranged in a straight line.



The front view of the object is as shown below.

Object

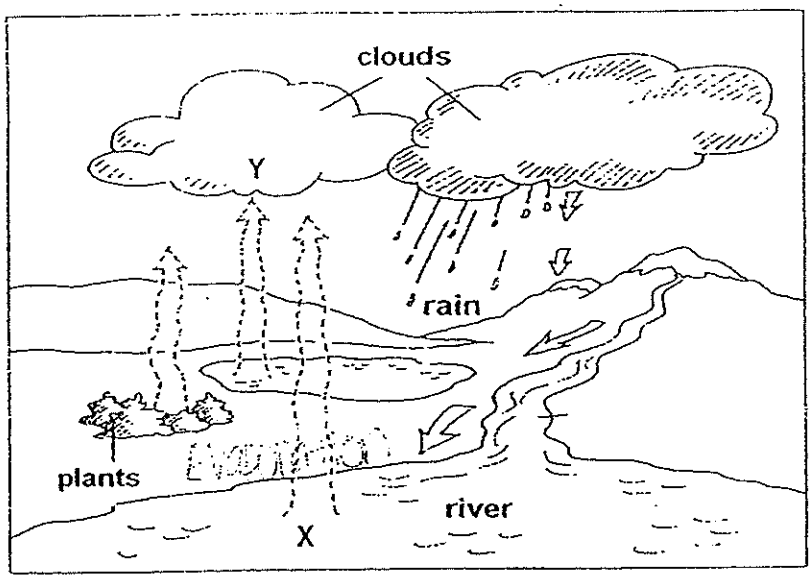
The properties of the materials of the sheets are shown below.

Allows light to pass through	Does not allow light to pass through
A	D
B	C

When the torchlight was switched on, a heart-shaped shadow was observed. On which sheet was the shadow observed?

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

16. The diagram below shows the water cycle.

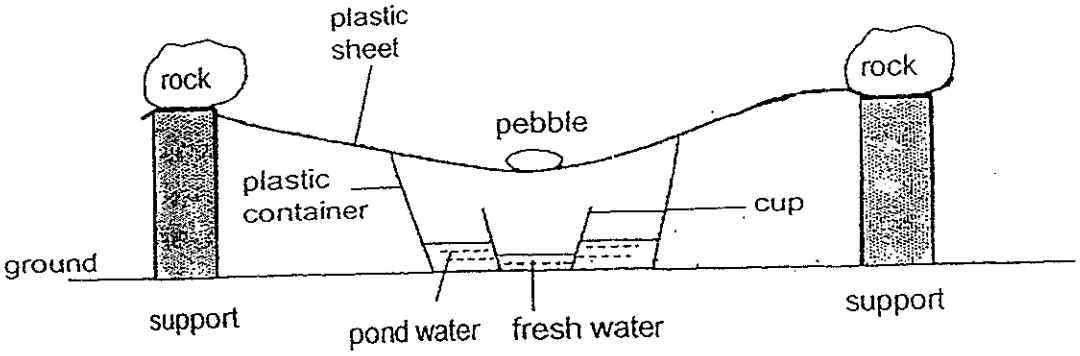


X and Y represent two processes that take place in the water cycle. Based on the above diagram, which of the following statements are **false**?

A Heat is gained during Y.
B X takes place at any temperature..
C There is a change in state during X and Y.

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

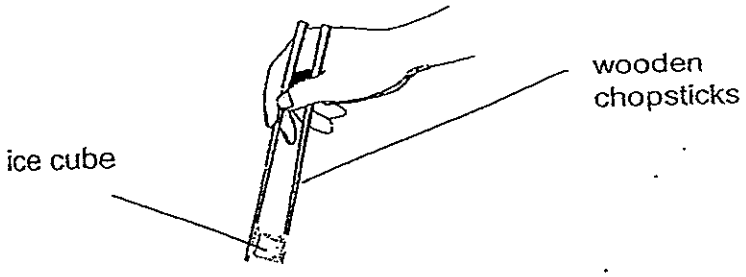
17. Zechariah prepared the following set-up to collect fresh water from pond water.



He placed the set-up in an open field on a sunny day. After a few hours, he managed to collect some fresh water in the cup. What should he do to the set-up in order to collect more fresh water in the cup?

(1) He should use a bigger cup.
(2) He should use a bigger pebble.
(3) He should use a wider plastic container.
(4) He should use a glass container instead of a plastic container.

18. The diagram below shows a person holding an ice cube using a pair of wooden chopsticks

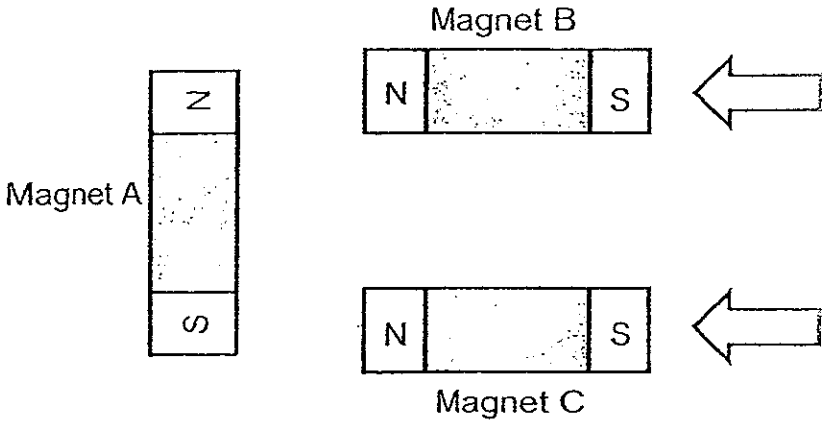


Which one of the following describes the force(s) acting on the ice cube?

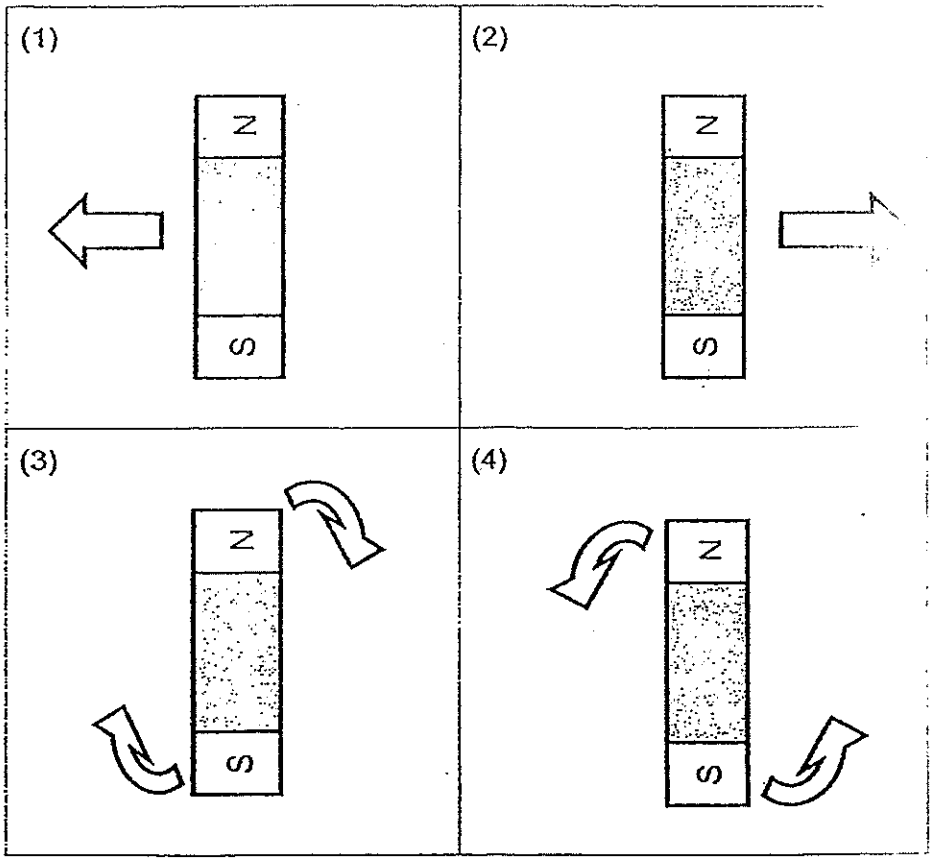
1) gravitational force only
2) pulling force and elastic force
3) frictional force and gravitational force
4) push force, frictional force and gravitational force

19. Study the following diagrams carefully.

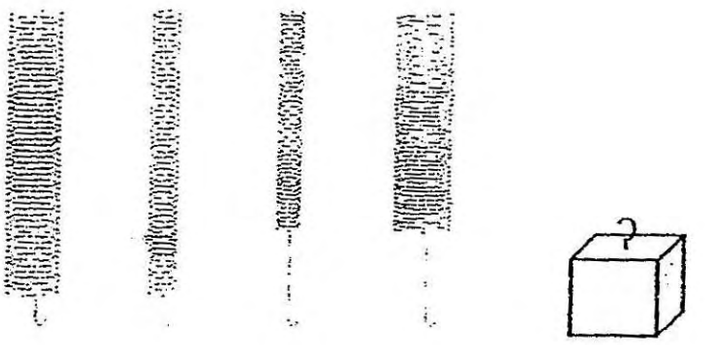
Magnets B and C are moved towards magnet A at the same time.



Which one of the following represents how magnet A will move?



20. Swee Heng wanted to find out how the width of a spring affects the length at which they are stretched when a load is hung at one end.



Load

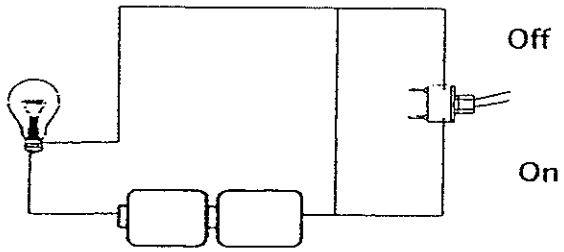
Based on the aim of Swee Heng's experiment, which pairs of springs should she use?

Pairs	Springs
A	W and X
B	W and Y
C	X and Z
D	Y and Z

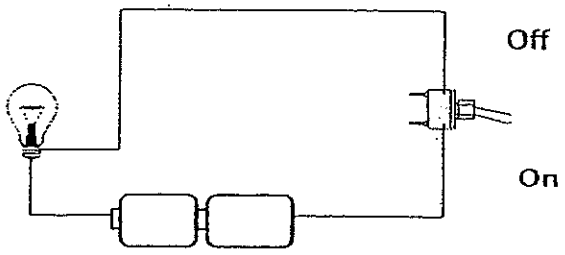
(1) A and B
(2) A and D
(3) B and C
(4) C and D

21. Study the following electrical circuits carefully.

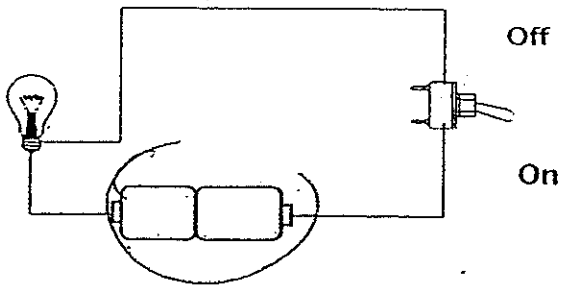
A



B



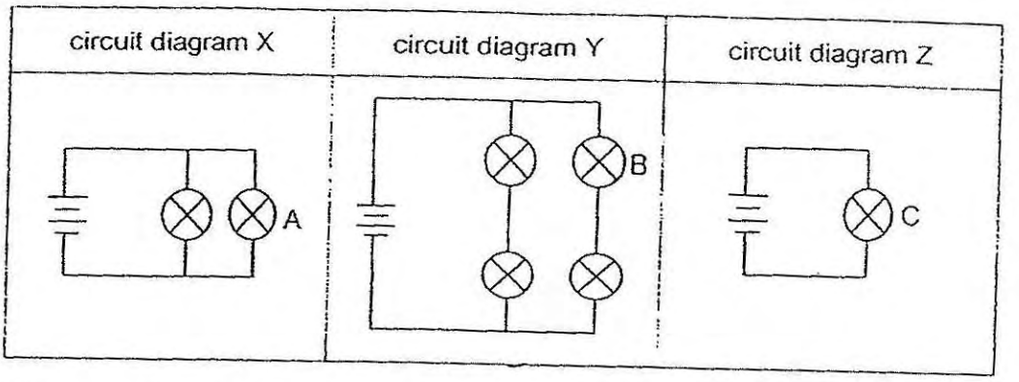
C



In which of the following circuits would the bulb light up?

(1) B only
(2) A and B only
(3) B and C only
(4) None of the circuits

22. Study the following circuit diagrams comprising similar bulbs and batteries.

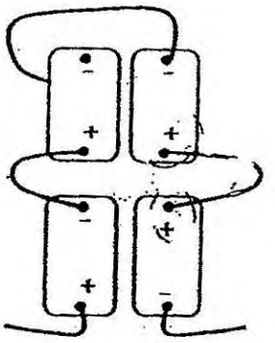


Which one of the following best describes the brightness of the bulbs?

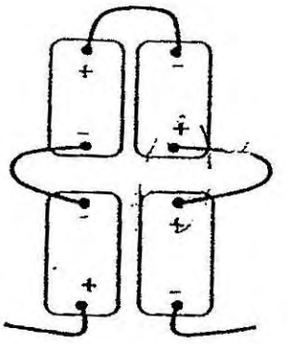
1) Bulb C is the brightest.
2) Bulb A is brighter than Bulb C.
3) Bulb B is dimmer than Bulb C.
4) Bulb C has the same brightness as Bulb B.

23. Which one of the following set-ups has batteries that have been connected correctly for a bulb to light up?

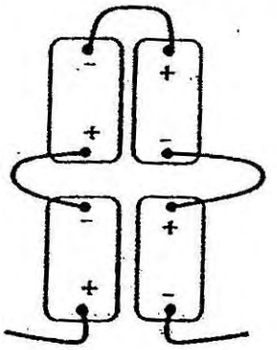
(1)



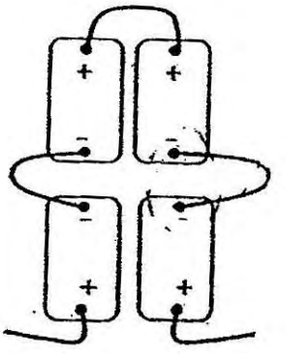
(2)



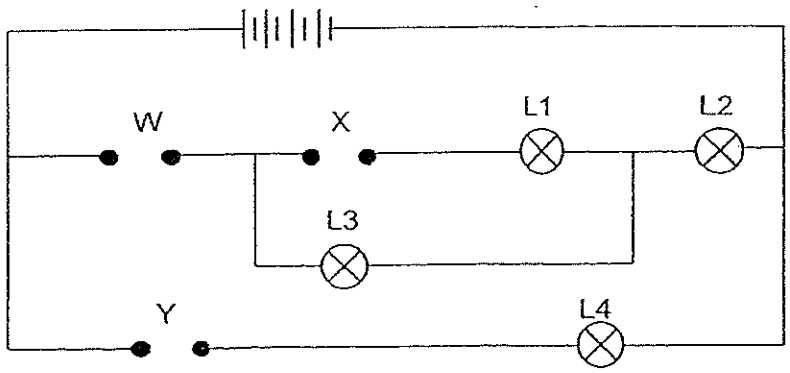
(3)



(4)



24. Hamzah set up the electrical circuit as shown below.



Hamzah then placed rods, Q, R and S, of unknown materials in positions W, X and Y. When any of the lamps, L1, L2, L3 and L4, lit up during the experiment, a (✓) was placed in the box shown in the table below.

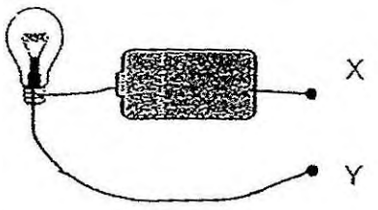
position where rods were placed			observation of lamps			
position W	position X	position Y	L1	L2	L3	L4
Q	S	R				✓
S	R	Q	✓	✓	✓	
R	Q	S		✓	✓	✓

Based on the information given above, which of the following statement(s) is/are correct?

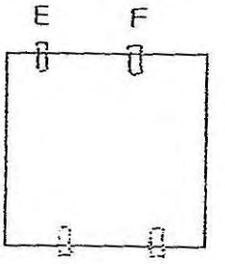
A Rod Q is definitely made from rubber.
B If 3 rod S are placed in all of the positions, W, X and Y, all the lamps will light up.
C If 3 rod R are placed in all of the positions, W, X and Y, all the lamps will light up.

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

25. The diagram below shows a circuit tester and a circuit card. When points X and Y of the circuit tester are connected to points E to H of the circuit card in different combinations, the results are shown in the table below.



circuit tester

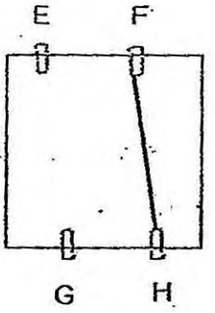


circuit card

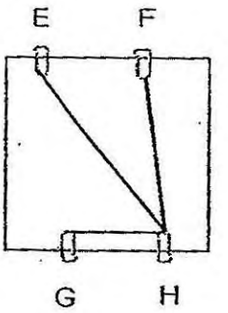
Points connected	Does the bulb light up?
E and F	Yes
E and H	Yes
F and G	No
E and G	No
F and H	Yes

Based on the results in the table only, which one of the following circuit cards shows how the four paper clips, E, F, G and H are connected?

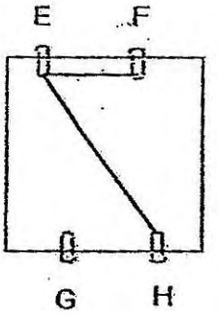
(1)



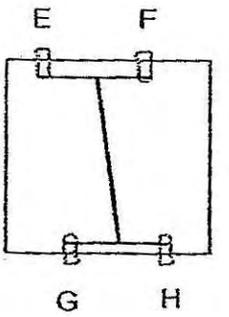
(2)



(3)



(4)

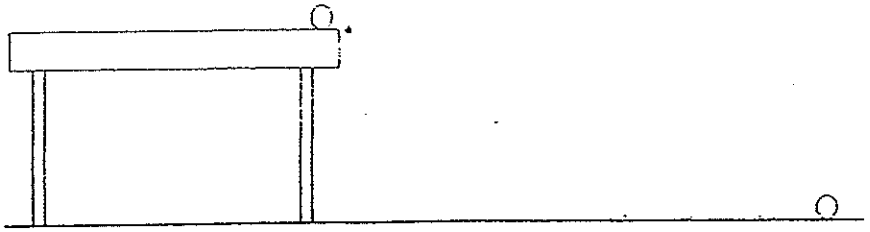


26. Which of the following is a renewable source of energy?

A Coal
B Wind
C Fossil fuel
D Running water

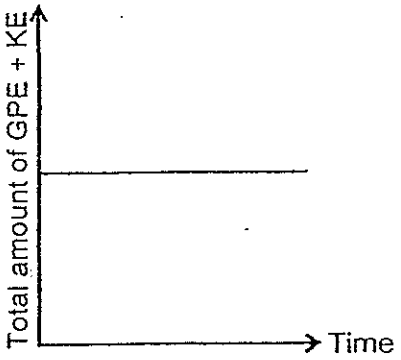
(1) B only
(2) A and B only
(3) B and D only
(4) B, C and D only

27. The diagram below shows a ball which was released from a table top and allowed to bounce on the floor until it comes to a complete stop.

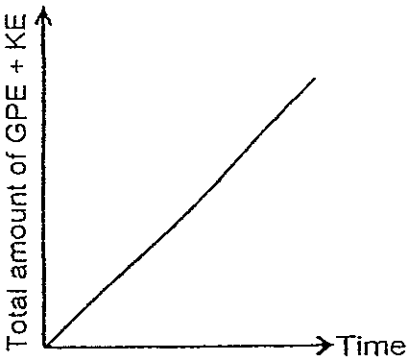


Which one of the following graphs correctly shows the change in total amount of gravitational potential energy (GPE) and kinetic energy (KE)?

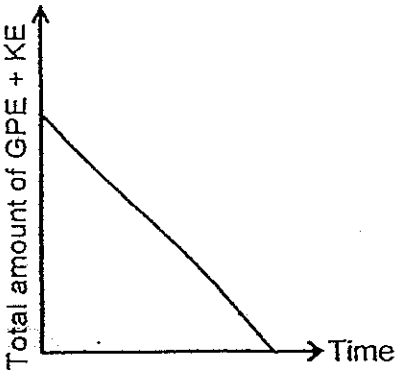
(1)



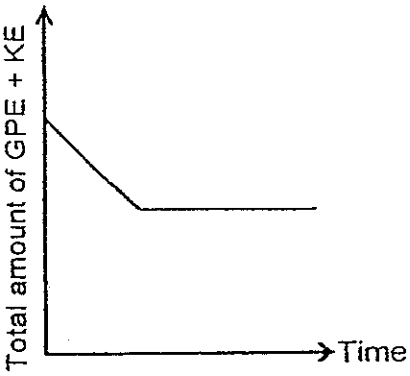
(2)



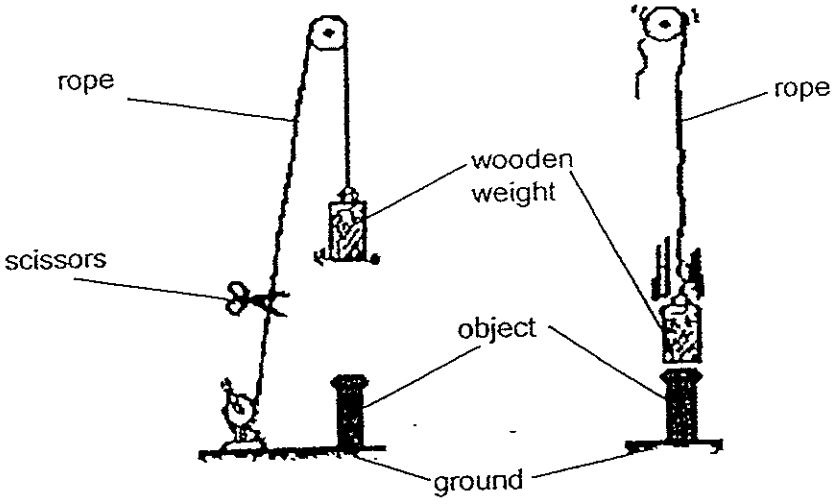
(3)



(4)



28. Study the diagram below. When the rope was cut with a pair of scissors, a wooden weight was released to hammer the object into the ground as shown.

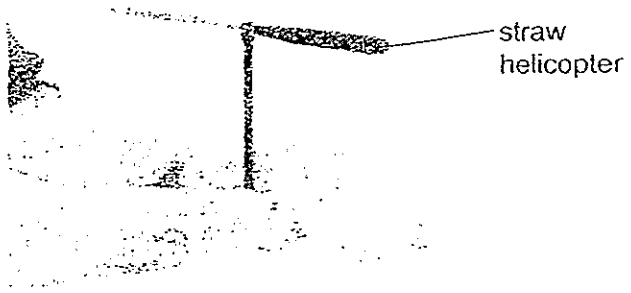


Which of the following changes can be made to enable Michael to hammer the object deeper into the ground?

A Make the cut nearer to the wooden weight
B Release the wooden weight from a greater height
C Use a bigger wooden weight that has a larger mass
D Replace the wooden weight with an iron weight of the same mass

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

29. The diagram below shows a toy known as the straw helicopter. By rubbing the straw, the toy will fly upwards.



Which of the following correctly shows the energy conversion as a person release the toy into the air?

	Person spinning the toy			Toy rising up into the air				
(1)	Kinetic Energy	→		Kinetic Energy	+	Gravitational Potential Energy		
(2)	Solar Energy	→		Kinetic Energy	→	Gravitational Potential Energy		
(3)	Chemical Potential Energy	→	Kinetic Energy	→	Kinetic Energy	→	Gravitational Potential Energy	
(4)	Chemical Potential Energy	→	Kinetic Energy	→	Kinetic Energy	+	Gravitational Potential Energy	

30. George dropped 2 similar sized balls from different heights as shown in diagram 1 below. Both balls created a dent of the same depth ***h*** as shown in diagram 2.

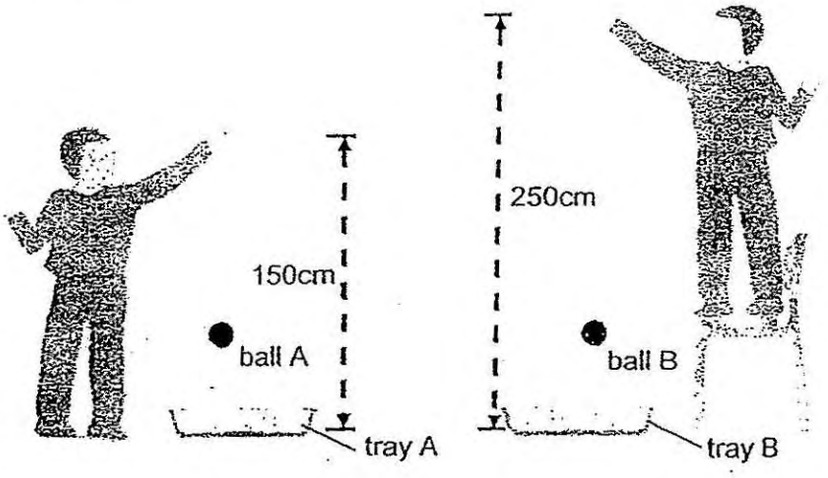


Diagram 1

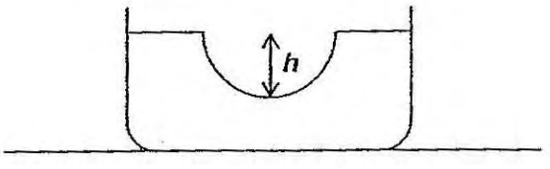


Diagram 2

Based on the results of the above experiment, which of the following statements is/are most likely to be true?

A Mass of ball B is greater than ball A
B Kinetic energy of ball A is greater than that of ball B
C Depth ***h*** of tray B would be the same if ball B is lowered to 150 cm
D Depth ***h*** in tray A would be greater than tray B if ball A is released at the same height as b

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

NANYANG PRIMARY SCHOOL

PRIMARY 6 SCIENCE

CONTINUAL ASSESSMENT 1
2014

BOOKLET B

Date : 03 March 2014

Duration : 1 h 45 min

Name : _____ ( )

Class: Primary 6 ( )

Marks Scored:

Booklet A:		60
Booklet B :		40
Total :		100

Any query on marks awarded should be raised by _____
We seek your understanding in this matter as any delay in the confirmation of marks will lead to delays in the generation of results.

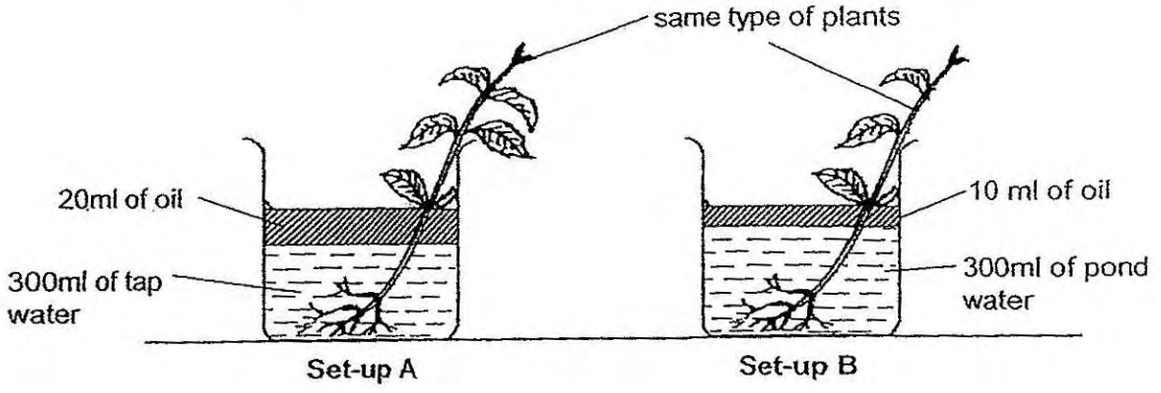
Parent's signature: _____

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Booklet B consists of 15 printed pages (pages 23-37) including this cover page.

Section B (40 marks)
Write your answers to questions 31 to 44 in the spaces provided.

31. Naomi conducted an experiment using identical beakers to find out if the number of leaves on a plant affects the amount of water that it loses to the surrounding.



(a) Suggest two changes to both set-ups to ensure that the experiment will be a fair test. [1m]

(i) _____

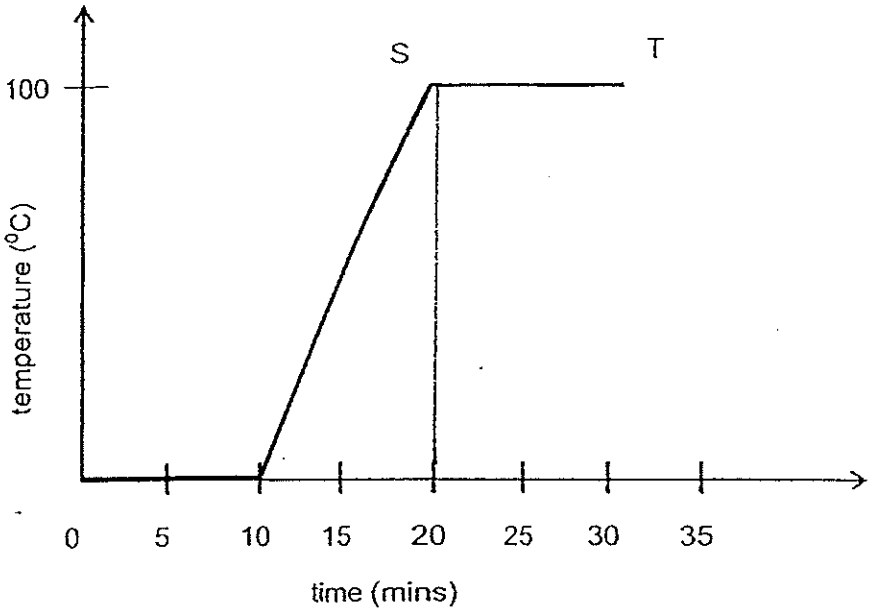
(ii) _____

(b) After making the above changes, what should Naomi observe before she could conclude that more leaves cause a higher amount of water loss? [1m]

_____

_____

32. A beaker of ice was heated for 30 minutes. The graph below shows how the temperature of the contents in the beaker changes over time.



(a) Complete the table below by identifying the time duration and the contents inside the beaker correctly. [1m]

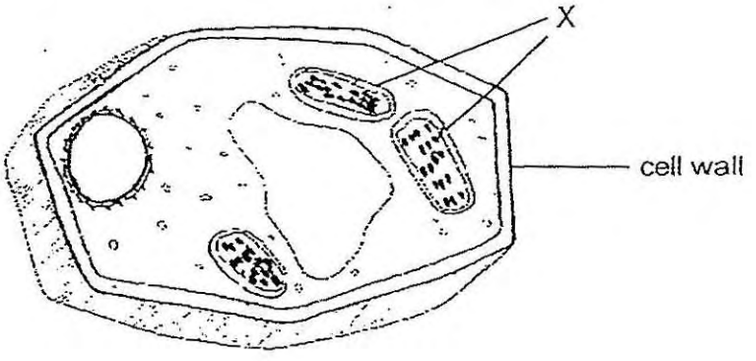
Time duration	Contents in the beaker
_____	ice and water
10 to 20 mins	_____ _____

(b) Describe what happened between points S and T. [1m]

_____

_____

33. The diagram below shows a plant cell.



(a) Identify part X. [1m]

_____

(b) Part X contains a substance. What is the function of this substance? [1m]

_____

_____

(c) What is the function of the cell wall? [1m]

_____

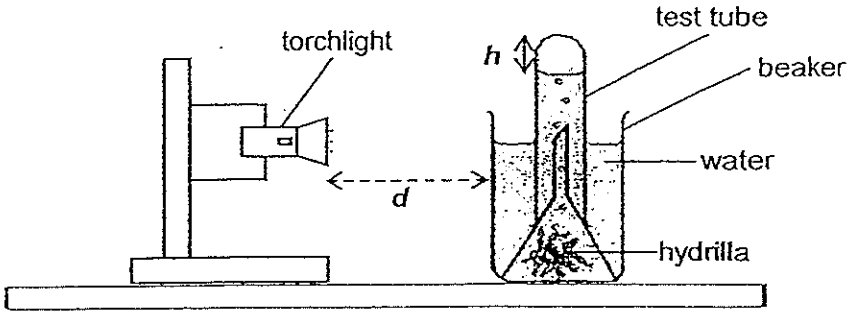
_____

(d) On which part of the plant could this cell be found? [1m]

_____

_____

34. Tommy set up 5 similar sets of experiment as shown in the diagram below.



He varied the distance d for each set up and recorded the height ***h*** for each set-up after 2 hours. The table below shows the results of his experiment.

set-up	A	B	C	D	E
d (cm)	10	20	30	40	50
h (cm)	4	4	3	2	1

(a) The experiment was conducted in a dimly lit room. Suggest a reason why this is important for the experiment? [1m]

_____

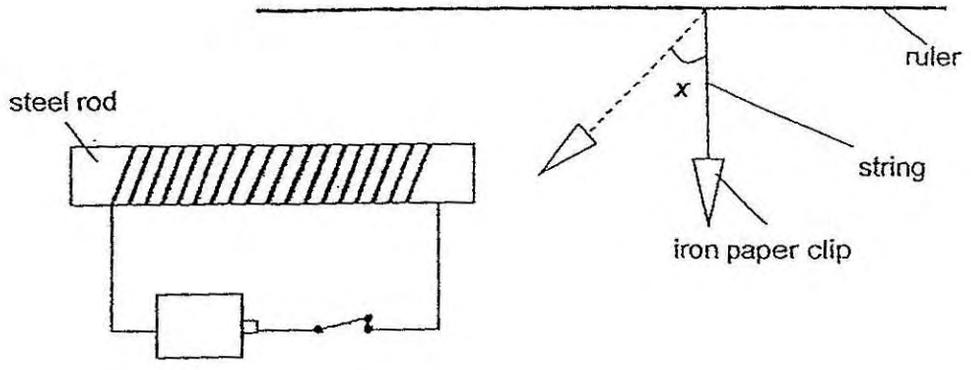
_____

(b) Are the results of the experiment reliable? Explain your answer. [1m]

_____

_____

35. Jun Jie set up an experiment as shown in the diagram below.



He measured the angle x by which the iron paper clip moved from the vertical position as he increased the number of batteries. He recorded his observations in the table below.

Number of batteries	0	1	2	3	4
Angle x (°)	Y	12	25	32	40

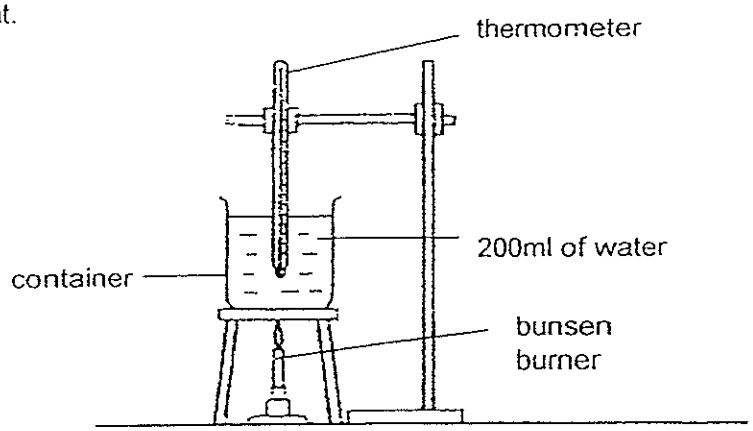
(a) What is the value of Y? Explain your answer. [1m]

(b) Suggest 2 ways to increase the size of angle x when 4 batteries are used in the set-up. [2m]

(i)

(ii)

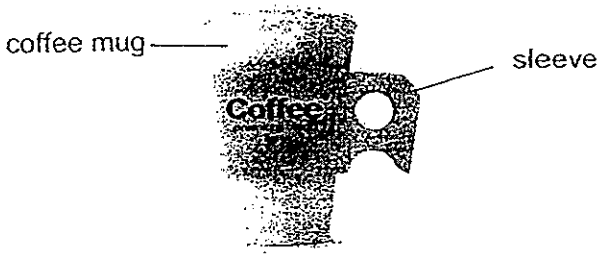
36. June set up an experiment to find out how the material of a container affects the time taken for the water in the container to reach boiling point.



Three containers made from different materials, X, Y and Z, were used for the experiment. The results are shown below.

	Container X	Container Y	Container Z
Time taken for water to reach boiling point (min)	16	8	12 -

June decided to use one of the materials to make the sleeve for a coffee mug as shown below.



(a) Which material, X, Y or Z, is the best choice for making the sleeve? Explain your choice. [1m]

_____

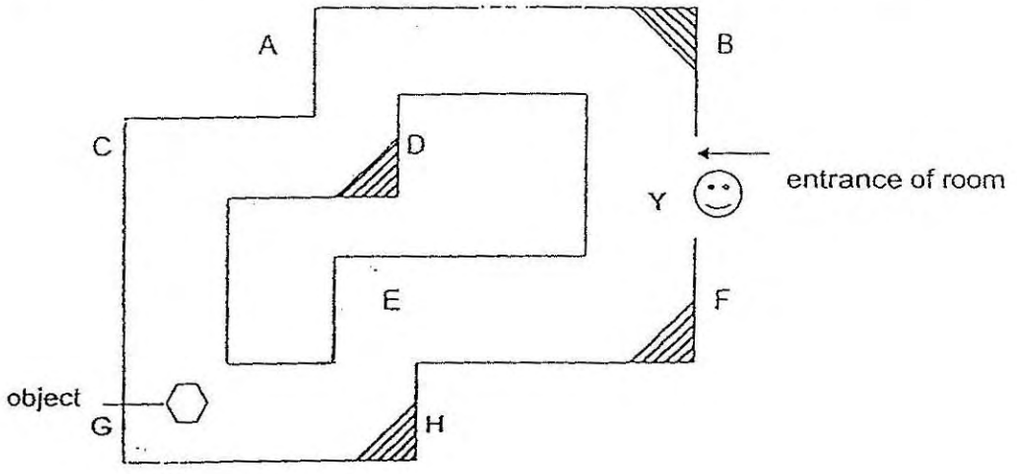
_____

(b) Explain why the coffee in the mug becomes cold after some time. [1m]

_____

_____

37. The diagram below shows a top view of a lit room at a theme park.



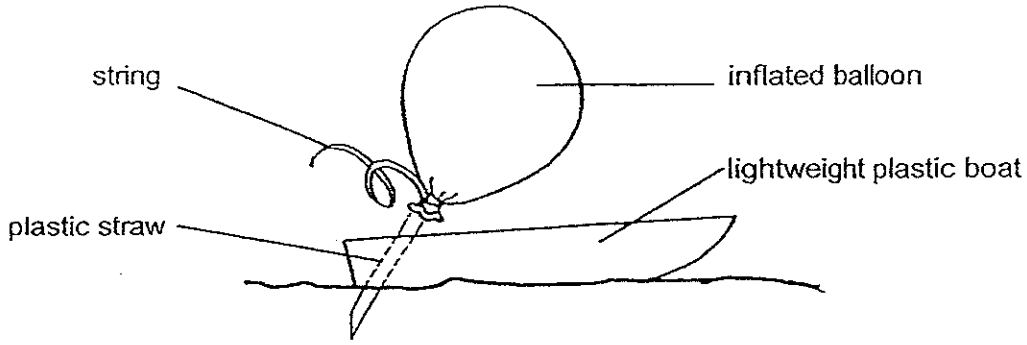
(a) Which mirror should be rearranged in order to allow a person standing at point Y to see the object? State where this mirror should be placed. [1m]

(b) State 2 properties of light that allows the person at entrance Y to be able to see the object? [1m]

(i).

(ii)

38. The diagram below shows a model of a boat.



(a) When the model boat was placed on water and the string at the opening was pulled to release the knot, what caused the boat to move? [1m]

_____

_____

(b) Using the same setup, what can be done to make the model boat move at a greater speed? [1m]

_____

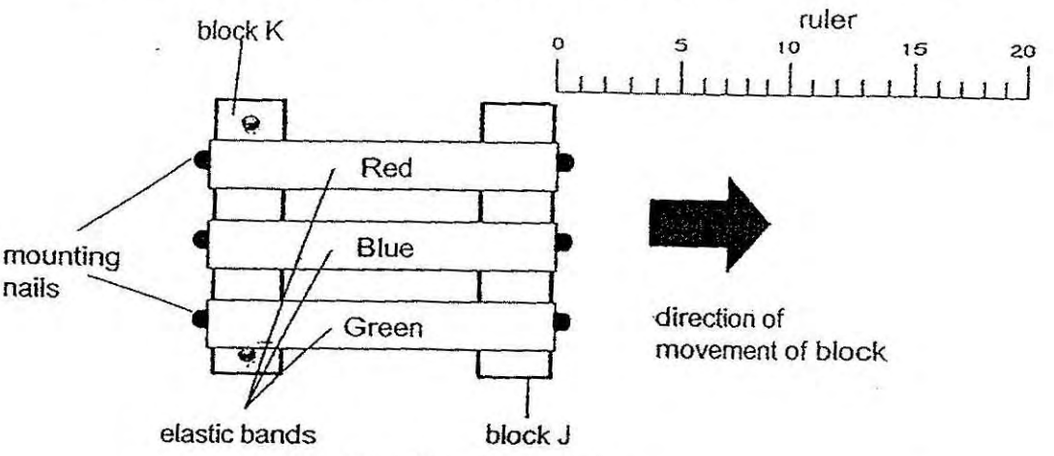
_____

(c) What causes the model boat to stop moving after some time? [1m]

_____

_____

39. Rajakumar set up the following experiment to find out the strength of three elastic bands. He mounted the elastic bands of different colours but with the same thickness onto two wooden blocks.



Top view of the set-up

For this experiment, one end of the elastic bands was mounted to block K, which was fixed to the floor. The other end was attached to block J, which was movable. Block J was then pulled in the direction shown above until one of the elastic bands broke.

(a) State the force acting on block J when the elastic bands were stretched. [1m]

_____

(b) How was the strength of the elastic band measured? [1m]

_____

_____

(c) Why was it important to ensure the same thickness for each elastic band? [1m]

_____

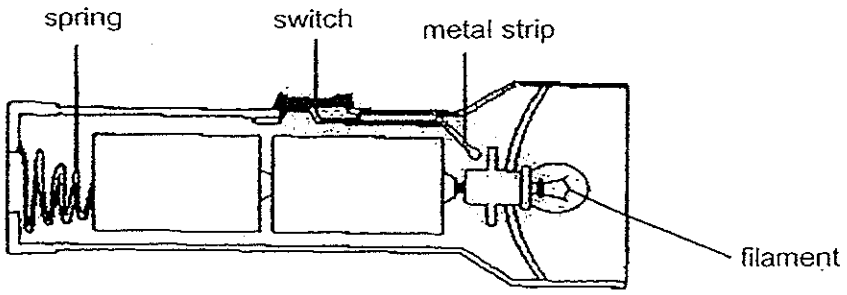
_____

(d) What would happen to the elastic bands if Block J was released as they were being pulled? [1m]

_____

_____

40. The diagram below shows a flashlight. The bulb lights up when the switch is pushed to the right.



(a) Explain why the bulb lights up when the switch is pushed to the right? [1m]

_____

_____

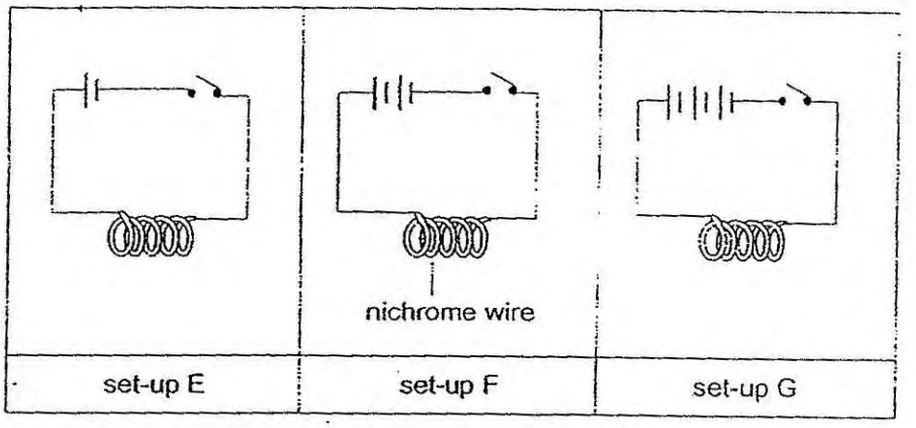
(b) Explain why the spring is not made of plastic. [1m]

_____

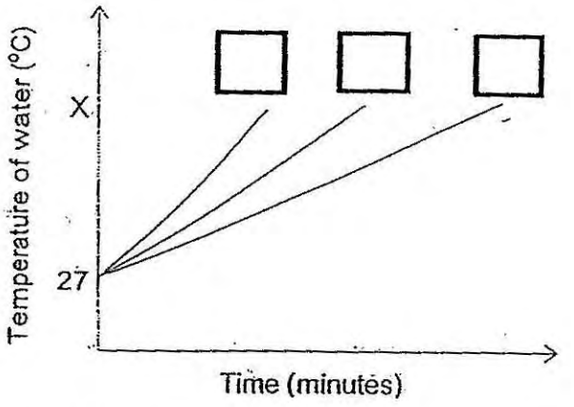
_____

(c) Using **symbols**, draw only the arrangement of the batteries shown in the flashlight in the space provided below. [1m]

41. Liwen arranged three different set-ups using nichrome wires as shown below. After closing the circuit, she submerged the part with the nichrome wire into a beaker of 100ml of water. She then measured the time taken for the water to reach 40°C.



(a) Based on the expected results, write the letters, E, F and G in the boxes provided to match the line graphs to the correct set ups. [1m]



(b) What does the temperature 27°C in the graph represent? [1m]

_____

(c) What temperature is represented by the letter 'X' in the graph? [1m]

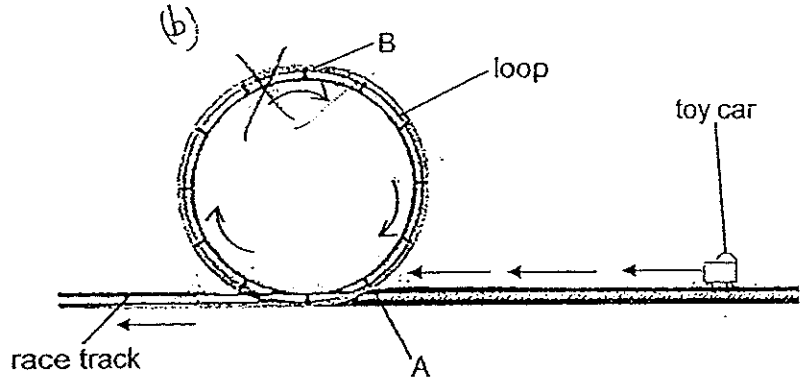
_____

(d) What could you expect, in terms of time needed to heat up the water, if more coils of nichrome wire are added to set up G? [1m]

_____

_____

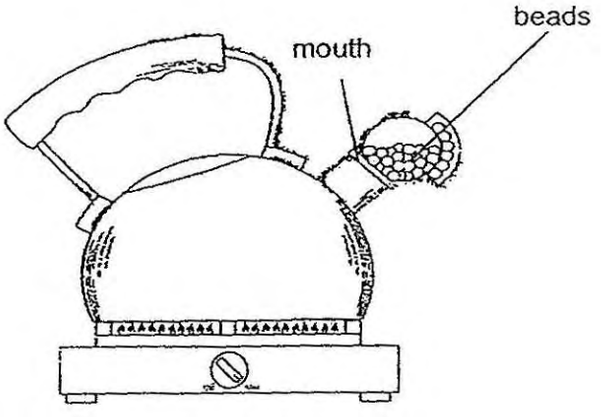
42. The diagram shows a toy car going through a loop of a race track.



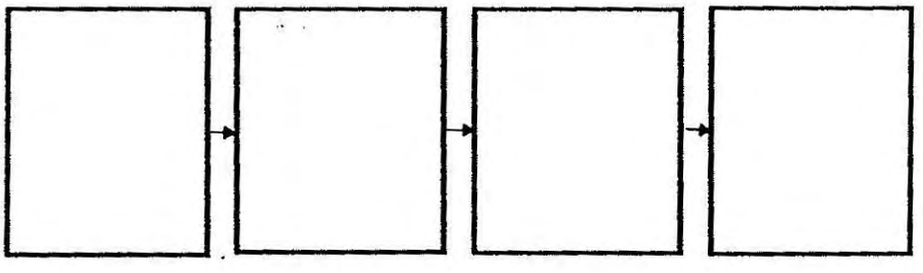
(a) Describe the energy conversion as the toy car moves from point A to point B. [1m]

(b) In the diagram above, **mark a point in the loop** with the letter "X" where kinetic energy of the toy car is the least. [1m]

43. The diagram below shows a newly designed kettle that Daniel bought. The beads at the mouth of the kettle will start to move when the water boils. The movement of the beads will create a sound to alert Daniel that the water is boiling.



(a) State the energy conversion that took place when the kettle was placed on top of a stove. [2m]

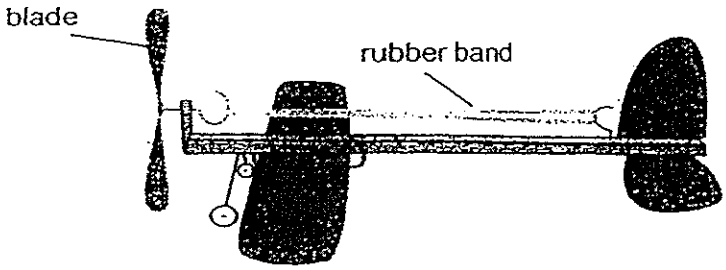


(b) Suggest one method in which the noise of these beads can be made louder. [1m]

_____

_____

44. George bought a rubber band-propelled plane as shown in the diagram below. He had to rotate the blade before releasing it in order for the plane to move forward. The plane is able to reach a distance of 10 metres when allowed to move on the ground.



(a) Describe the energy conversion that took place when George released the plane to the moment the plane was moving on the ground. [1m]

_____

_____

(b) Explain why the aeroplane come to stop eventually. [1m]

_____

_____

(c) Using only a measuring tape and a marker, describe an experiment that George could set up to find out the relationship between the number of turns the blade is wound and the distance travelled by the plane. [2m]

Step 1	Place the measuring tape on the ground.
Step 2	
Step 3	

~ End of Paper

Exam Paper 2014 Answer Sheet

School: NANYANG PRIMARY SCHOOL
Subject: PRIMARY 6 SCIENCE
Term: CA1

1) 1	6) 4	11) 4	16) 1	21) 2	26) 3
2) 3	7) 3	12) 4	17) 3	22) 3	27) 3
3) 2	8) 3	13) 4	18) 4	23) 3	28) 3
4) 4	9) 4	14) 4	19) 4	24) 4	29) 3
5) 2	10) 3	15) 3	20) 2	25) 3	30) 1

31. (a) i. Use an equal amount of oil.
ii. Use the same type of water.
(b) Setup A will have less water left than set-up B.

32. (a) 0 to 10 min; water and water vapour
(b) The water boiled.

33. (a) Chloroplasts
(b) It traps sunlight for the plant cell to make food.
(c) It is to give the plant cell a regular shape.
(d) Leaves of a plant.

34. (a) So that the torchlight is the main source of light which affects the results.
(b) No. He did not repeat the experiment for at least three times.

35. (a) 0°. When there are no batteries, the steel rod would not even become an electromagnet and would not attract the paper clip.
(b) i. Wrap more coils of wire around the steel rod.
ii. Move the electromagnet higher.

36. (a) Material X. It does not conduct heat as well as the other materials so the person holding the mug would not be scaled.
(b) It loses heat to the mug and the surroundings.

37. (a) The mirror at D should be placed at E.
(b) i. Light travels in a straight line.
ii. Light can be reflected.

38. (a) The air in the balloon rushed out of the straw, pushing the boat through the water.
(b) Increase the amount of air in the balloon.
(c) Friction between the boat and the water.

39. (a) Elastic spring force.
(b) It was measured by seeing the order of which the elastic band broke. The first one to break is the weakest, while the last one to break is the strongest.

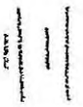
(c) To ensure a fair test so that the results are only due to the type of elastic band.

(d) The rubber bands would be returned to the original length.

40. (a) When the metal strip of the switch touches the bulb, the circuit in the flashlight would be closed, causing the bulb to light up.

(b) Plastic is a non-conductor of electricity.

(c)



41. (a) G; F; E

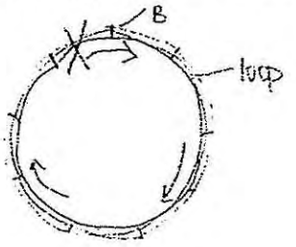
(b) It represents the water at the room temperature.

(c) 40°C

(d) The amount of time needed to heat the water to 40°C is faster than a setup with less coils of wire.

42. (a) Kinetic energy is converted to gravitational potential energy and kinetic energy.

(b)



43. (a) Heat energy → heat energy → heat energy + kinetic energy → sound energy + kinetic energy

(b) Reduce the number of beads.

44. (a) Elastic potential energy is converted to kinetic energy and sound energy.

(b) Frictional force between the tyres of plane and the ground.

(c) Step 2: Wind the rubber band many times. Measure how far it moves. Mark where it stops. Repeat for reliable results.

Step 3: Repeat the experiment but wind up the rubber band less times and compare it to before. Mark where it stops. Repeat for reliable results.