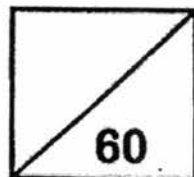




Rosyth School
Continual Assessment 1 2016
STANDARD SCIENCE
Primary 6



Name: _____

Total
Marks:

Class: Pr 6 _____ Register No. _____

Duration: 1 h 45 min

Date: 29 February 2016

Parent's Signature: _____

Booklet A

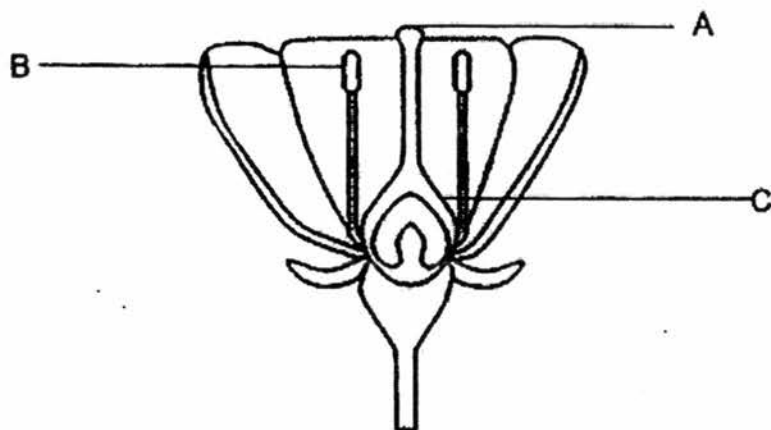
Instructions to Pupils:

1. Do not open the booklets until you are told to do so.
2. Follow all instructions carefully.
3. This paper consists of 2 booklets - Booklet A and Booklet B
4. For questions 1 to 30 in Booklet A, shade the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.
5. For questions 31 to 44, give your answers in the spaces given in the Booklet B.

* This booklet consists of 23 printed pages.

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.**

- 1 Study the diagram of the cross-section of a flower. A, B and C are three parts of the flower.



Which of the following statements are correct?

A: Part C becomes a fruit after fertilisation.

B: Pollen grains are released from part B for pollination.

C: Pollen tube grows from part A to reach the egg for fertilisation.

(1) A and B only

(2) A and C only

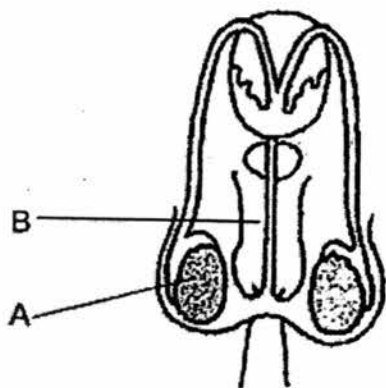
(3) B and C only

(4) A, B and C

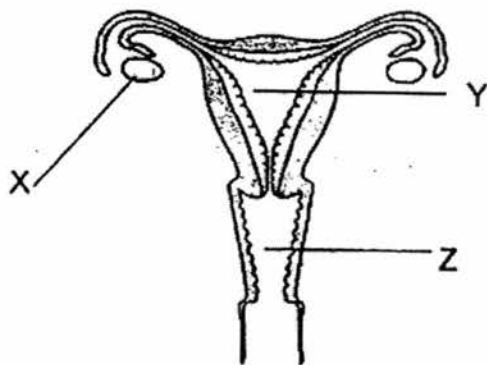
2. The diagram shows an unborn baby in the mother's womb.



- Which of the following statements is true about the unborn baby?
- (1) It has genetic information only from his mother.
 - (2) It develops in his mother's womb for 12 months.
 - (3) It depends on his mother for nutrients when it is in the womb.
 - (4) It carries out life processes only after his mother gives birth to him.
3. The diagrams below show the parts of a human male and female reproductive system.



male reproductive system

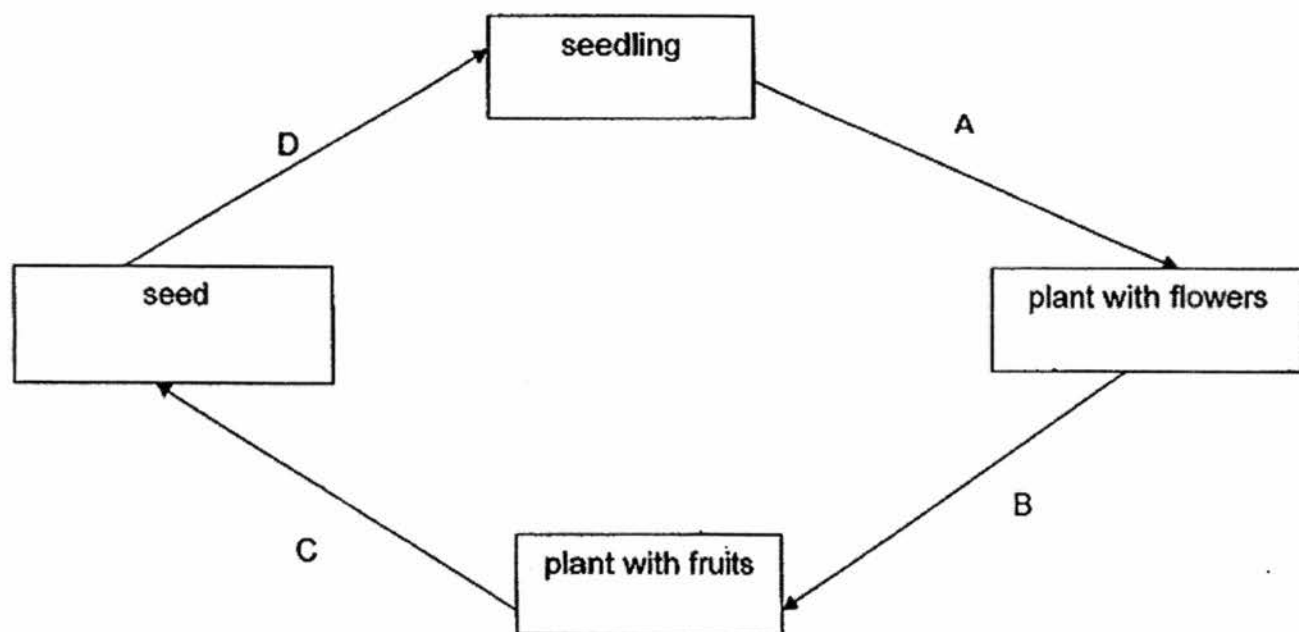


female reproductive system

Which one of the following statements is correct?

- (1) Parts A and X store the eggs.
- (2) The fertilised egg develops in part Z.
- (3) The sperms swim from part Y to part Z to fertilise the egg.
- (4) The sperms leave the male reproductive system through part B.

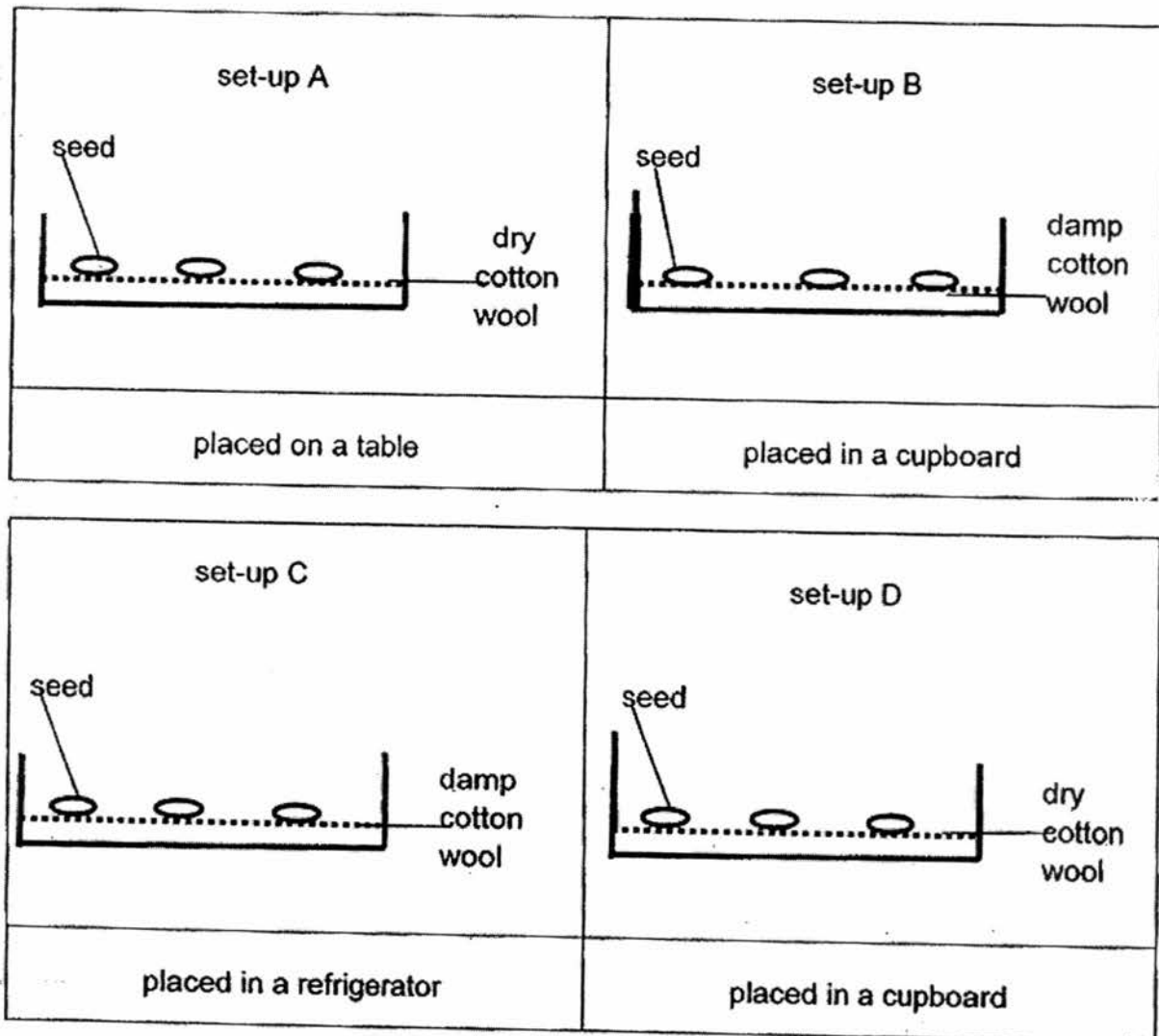
4. The diagram below shows the developmental stages of a plant.



At which points(A, B, C and D) do the processes of seed dispersal, germination and fertilisation take place?

	Seed Dispersal	Germination	Fertilisation
(1)	C	D	A
(2)	B	C	A
(3)	D	A	B
(4)	C	D	B

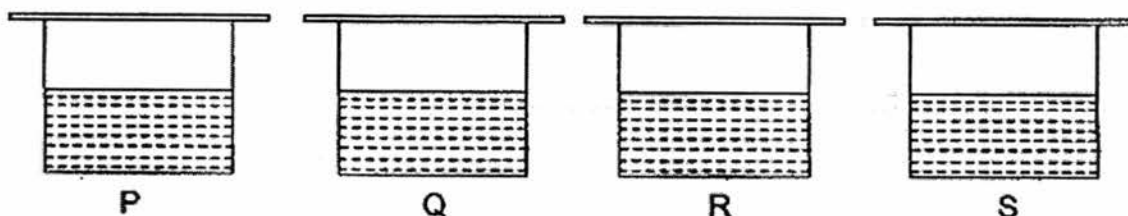
5. Study the following set-ups on the germination of seeds.



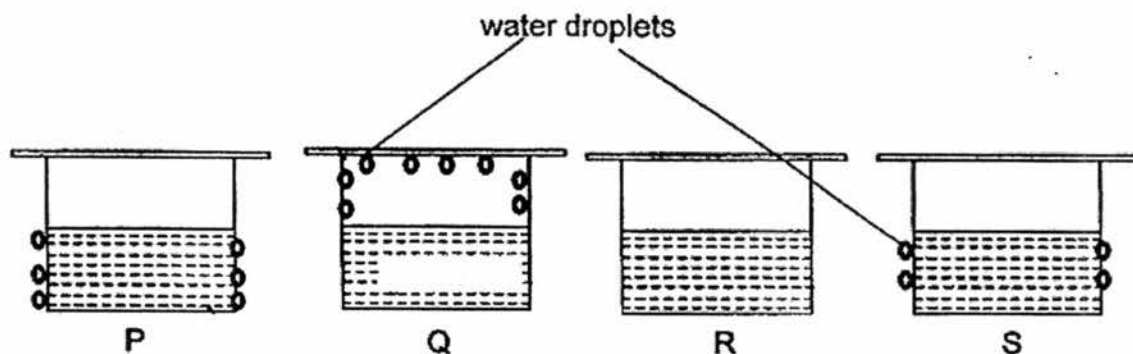
Tom wanted to find out if warmth is needed for seeds to germinate. Which of the following pair of set-ups should he use to ensure a fair test?

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

6. The diagram below shows four identical containers P, Q, R and S. Each container was filled with water at different temperature. The containers were covered with a plastic lid and left on the kitchen table.



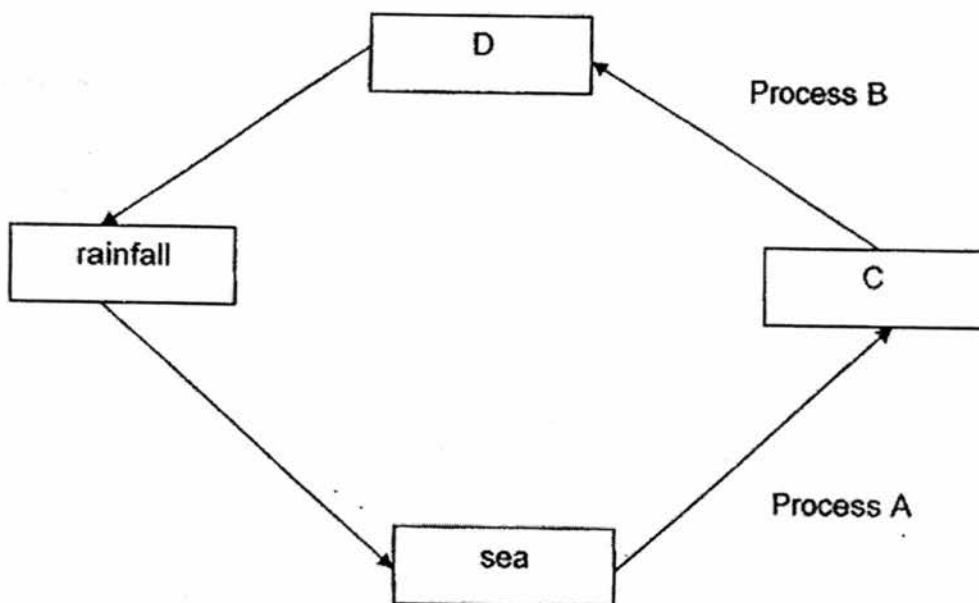
After 15 minutes, the following observations were seen.



Arrange the containers of water in ascending order, according to the temperature of water.

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

7. The diagram below shows the water cycle. A and B are processes while C and D represent the states of water.



Which one of the following correctly identifies A, B, C and D?

	Process		State of water	
	A	B	C	D
(1)	condensation	evaporation	liquid	gas
(2)	condensation	evaporation	gas	liquid
(3)	evaporation	condensation	liquid	gas
(4)	evaporation	condensation	gas	liquid

8. Joshua conducted an experiment as shown below. The ball and the ring were heated. Both objects were made of the same material.



ball



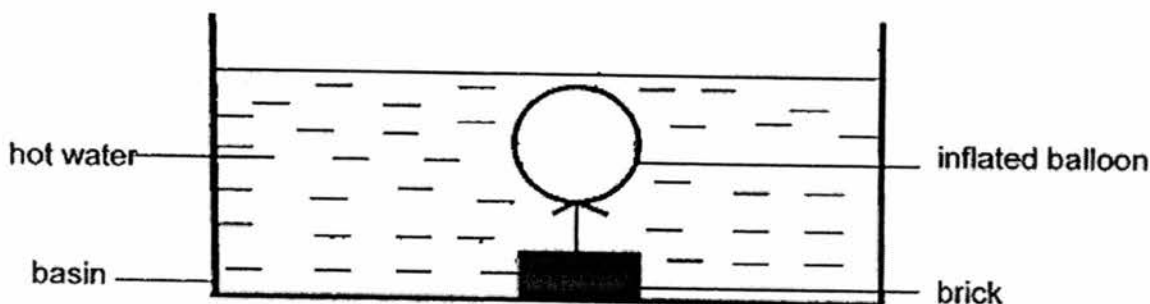
ring

The ball was able to pass through the ring at room temperature. However, after heating the ball for a while, it was unable to pass through the ring.

Which of the following explains this observation?

	The ball	The ring
(1)	expanded	contracted
(2)	expanded	remained the same
(3)	remained the same	expanded
(4)	remained the same	contracted

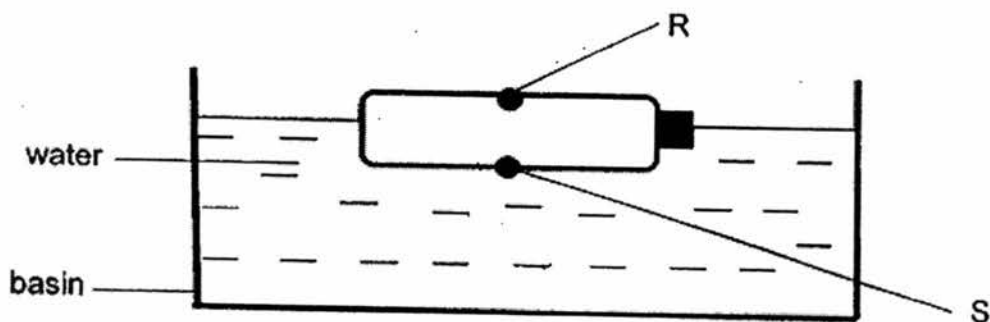
9. Sally tied an inflated balloon to a brick and placed it completely in a basin of hot water as shown below.



What would happen to the water level, mass and size of the inflated balloon after 5 minutes?

	water level	mass of inflated balloon	size of inflated balloon
(1)	increase	no change	increase
(2)	increase	increase	increase
(3)	decrease	decrease	decrease
(4)	decrease	no change	decrease

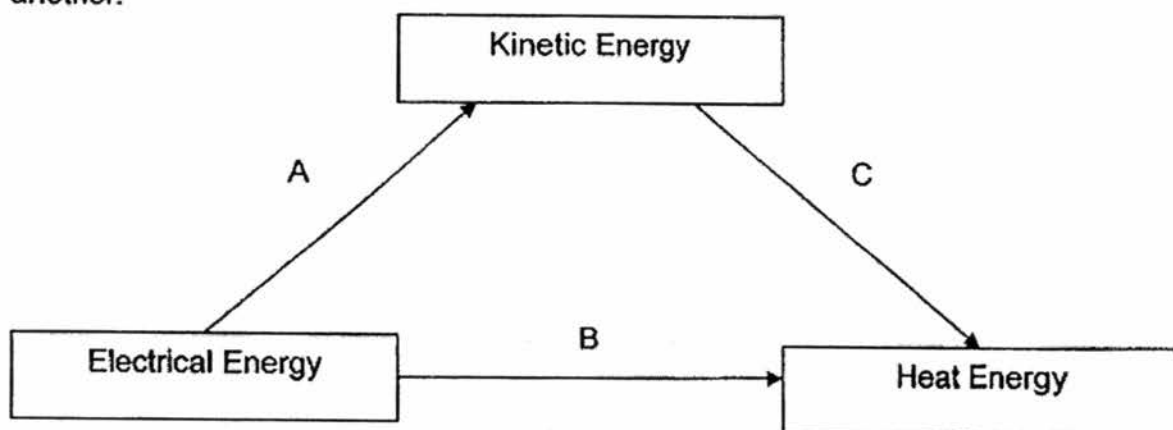
10. Su Fen placed an empty bottle with two holes at points R and S into a basin of water as shown below.



After a while, she noticed that the bottle started to sink. What could be a possible reason for this?

- (1) Air entered through R.
- (2) Air escaped through S.
- (3) Water entered through S while air entered through R.
- (4) Air escaped through R while water entered through S.

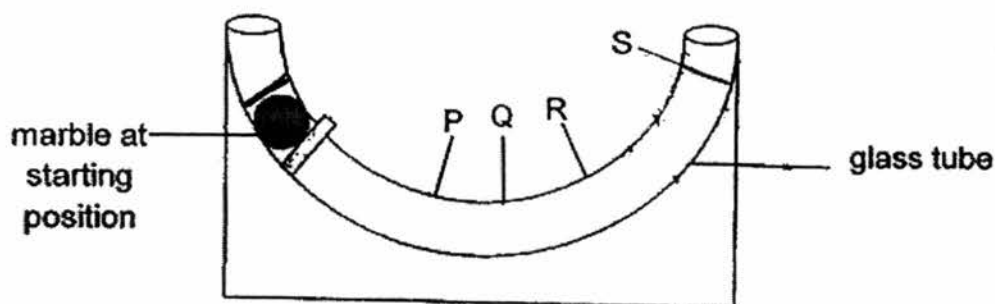
11. The diagram below shows how energy can be converted from one form to another.



Which set of activities best represents the conversion of energy as shown above?

	A	B	C
(1)	Using an electric fan	Rubbing two sticks together	Using an electric toaster
(2)	Rubbing two sticks together	Using an electric toaster	Using an electric fan
(3)	Using an electric toaster	Rubbing two sticks together	Using an electric fan
(4)	Using an electric fan	Using an electric toaster	Rubbing two sticks together

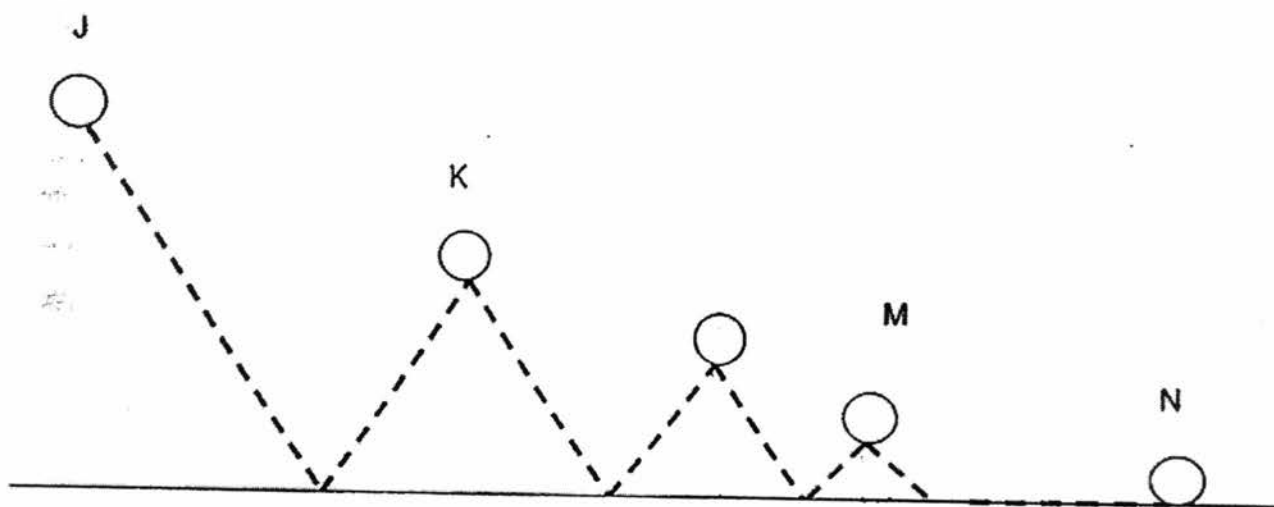
12. Mary placed a marble in a glass tube. She observed that when she released the marble it rolled to the other end of the tube before rolling back downwards.



At which position, P, Q, R or S, will the marble reach before it rolls back downwards?

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

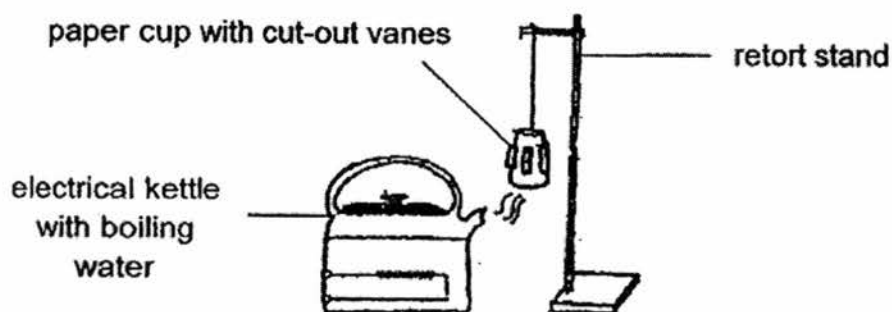
13. John bounced a plastic ball from J above the ground. The ball bounced to a lower height each time it hit the ground as shown below until it finally came to a stop at N.



Which one of the following statements is correct?

- (1) Kinetic energy is the highest at J.
- (2) Gravitational force is the least at N.
- (3) Potential energy is decreasing from L to M
- (4) Kinetic energy and potential energy is equal at K.

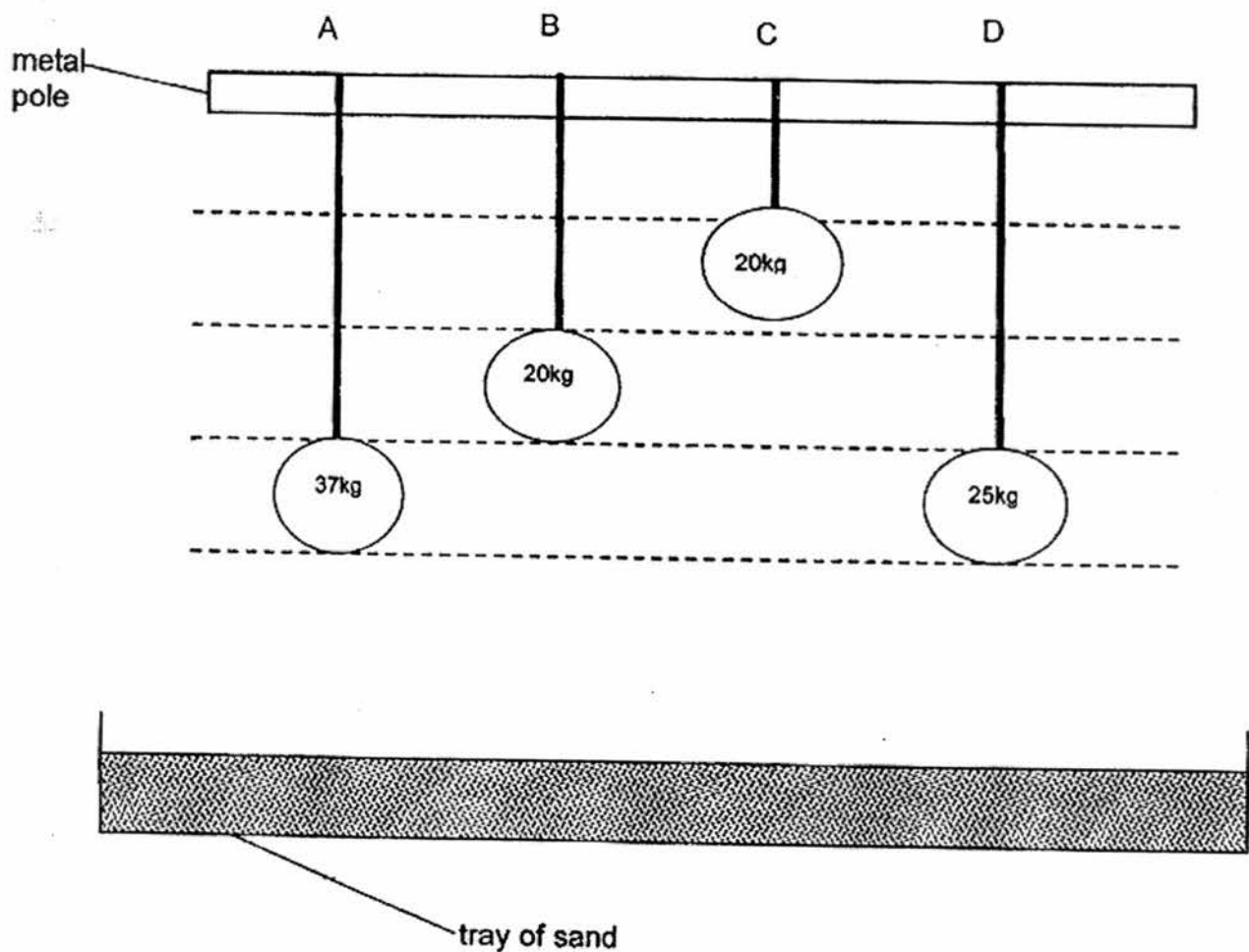
14. The diagram shows an electric kettle of water. It is placed under a paper cup with cut-out vanes.



Which one of the following shows the energy conversion when the paper cup began to spin?

- (1) electrical energy \longrightarrow heat energy \longrightarrow kinetic energy
- (2) electrical energy \longrightarrow kinetic energy \longrightarrow heat energy
- (3) heat energy \longrightarrow electrical energy \longrightarrow kinetic energy
- (4) heat energy \longrightarrow electrical energy \longrightarrow kinetic energy \longrightarrow heat energy \longrightarrow kinetic energy

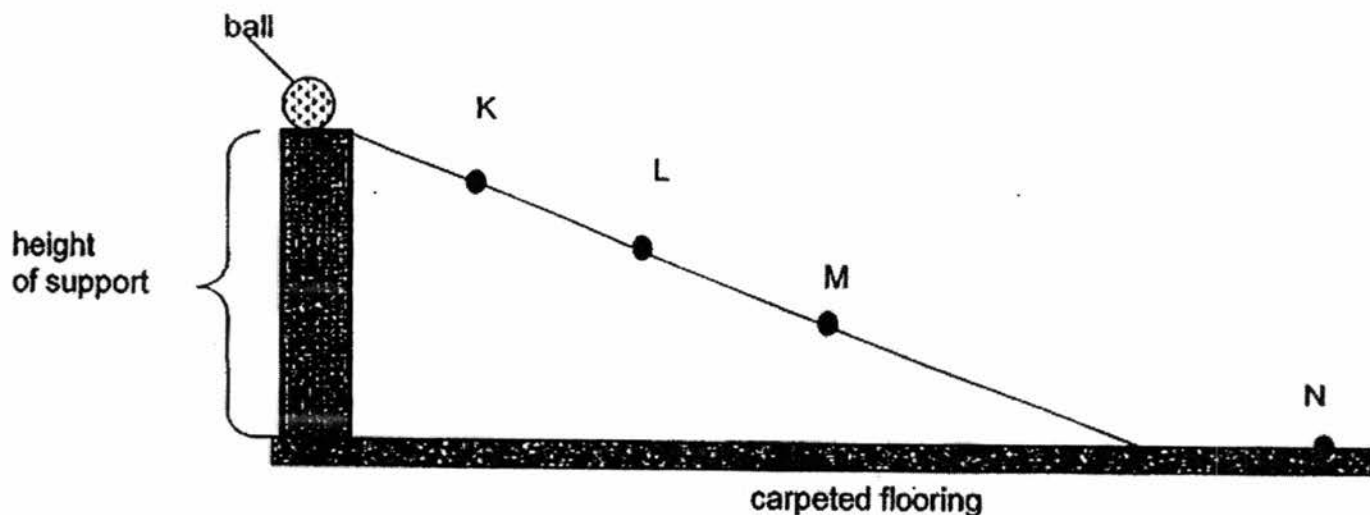
15. Susan had four iron balls A, B, C and D of different masses. She tied each of them to a metal pole as shown below.



When the strings were released, each ball fell and created a dent in the sand. Which of the following statements is definitely correct?

- (1) Ball A would create a smaller dent than ball D.
- (2) Ball B would create a smaller dent than ball C.
- (3) Ball B and ball C would hit the sand with equal sound.
- (4) Ball C would hit the sand with greater sound than ball A.

16. Some pupils released a ball along a ramp as shown in the diagram below. It rolled down the slope, passing through points K, L, M and moved along the carpeted floor. It finally stopped at point N.



Next, the pupils placed the ball at points K, L and M and repeated the experiment respectively.

The pupils made the following statements.

Don: The ball only has kinetic energy at points K and L.

Raju: The ball has the greatest amount of gravitational potential energy at point K.

Sam: The ball would have rolled further if the experiment had been done on a tiled floor.

Kim: The ball would have rolled further if the height of the support is increased.

Who had made a correct statement?

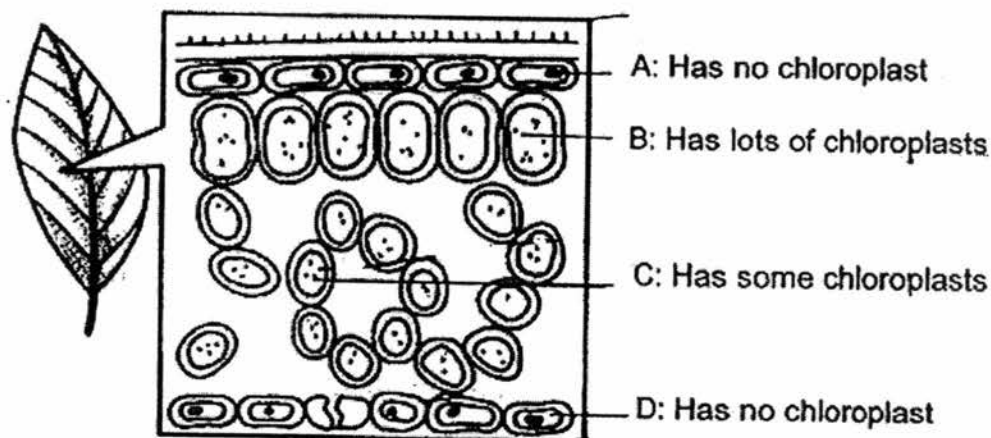
- (1) Raju and Sam only.
- (2) Don and Raju only.
- (3) Raju, Sam and Kim only.
- (4) Don, Sam and Kim only.

17. Why do we want to find other sources of energy to produce electricity?

- A: Energy for coal, oil or natural gas are fast depleting
- B: Energy for coal, oil or natural gas are less efficient.
- C: Energy for coal, oil or natural gas causes pollution.
- D: Energy for coal, oil or natural gas produces less energy.

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

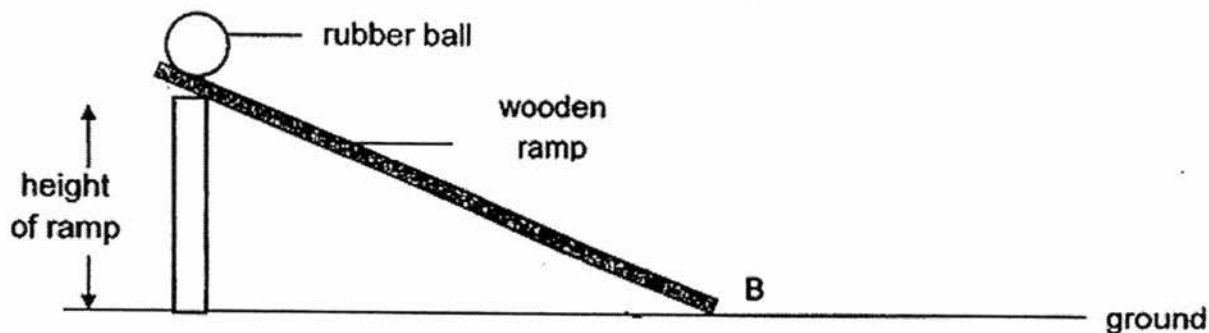
18. The diagram below shows the layers of cells in the cross-section of a leaf. John observed if there are chloroplasts in the cells A to D and recorded in the diagram as shown below.



In which of the layers of cells A, B, C or D, will energy conversion take place?

	Layers of cells	Conversion of energy
(1)	A and B only	heat energy \rightarrow light energy
(2)	A and C only	light energy \rightarrow heat energy
(3)	B and C only	light energy \rightarrow potential energy
(4)	B, C and D only	light energy \rightarrow potential energy

19. Some pupils carried out an experiment to find out whether the amount of potential energy affects the horizontal distance the ball moves after reaching point B.



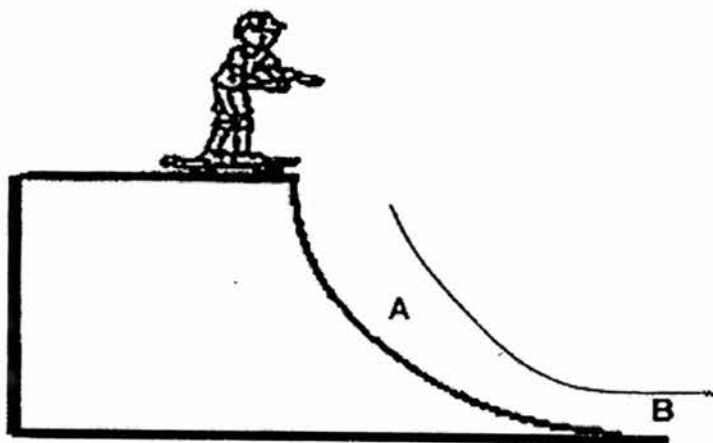
Which of the following variables must they keep the same in order to have a fair test?

- A: Height of ramp
- B: Length of ramp
- C: Position where the ball is released on the ramp
- D: Horizontal distance moved by the ball

- (1) B and C only
- (3) B, C and D only

- (2) A, B and C only
- (4) A, B, C and D

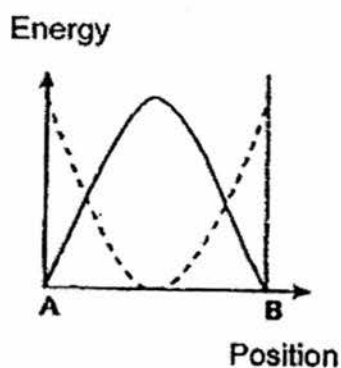
20. Kevin rode on a skateboard down a slope as shown in the diagram below.



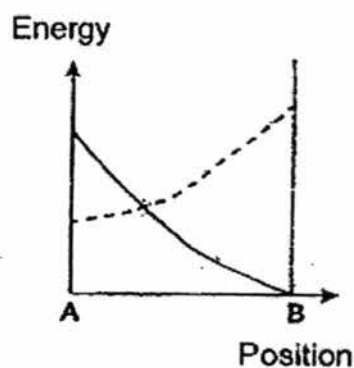
Which one of the following graphs correctly shows how the potential energy and kinetic energy changes as Kevin skates from A to B?

Key	
Potential Energy	_____
Kinetic Energy	-----

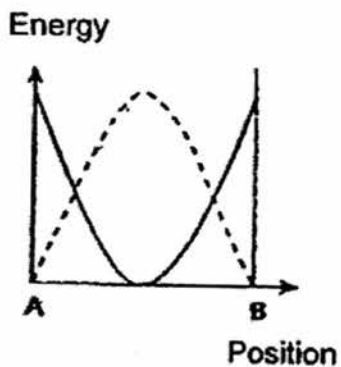
(1)



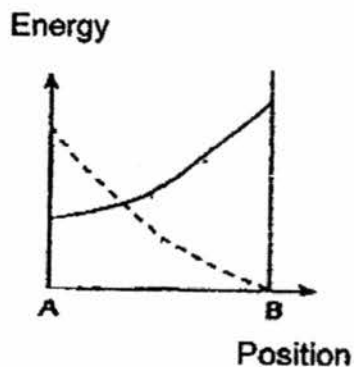
(2)



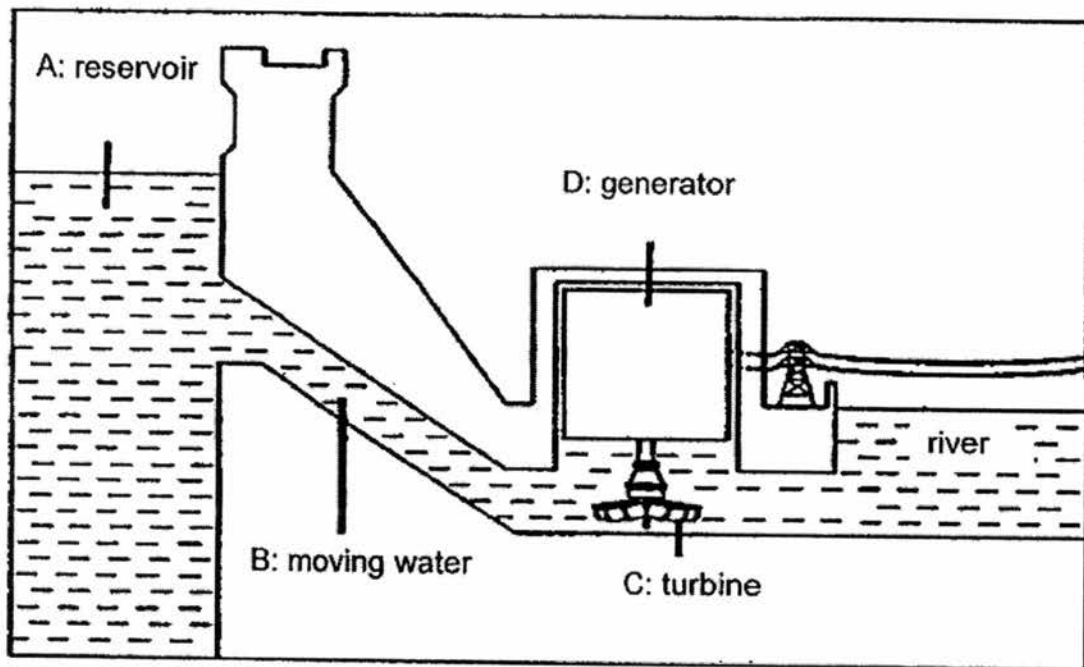
(3)



(4)



21. The diagram below shows a hydroelectric power station.



Which of the following matches the correct energy conversion in the hydroelectric power station?

	kinetic energy → electrical energy	potential energy → kinetic energy
(1)	C	B
(2)	C	D
(3)	D	B
(4)	D	C

22. Force is a push or a pull. Which one of the following actions involves a push only?

- (1) Closing the cap of a pen.
- (2) Peeling off the peel of an orange.
- (3) Cutting a piece of paper with a pair of scissors.
- (4) Sweeping the floor with a broom.

23. Ben is having difficulty pushing a heavy box across a room in the direction represented by the arrow.



Which of the following way(s) will help Ben push the box with less force?

A: Add rollers to the bottom of the box

B: Apply some oil on the soles of Ben's shoes

C: Ask a friend to push the box harder in the opposite direction

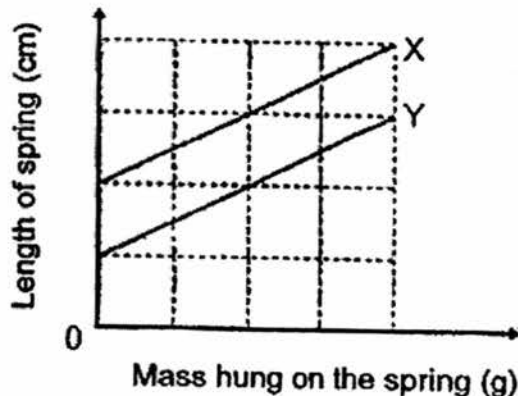
(1) A only

(2) C only

(3) A and B only

(4) B and C only

24. The graph below shows how the length of two springs X and Y are affected by the mass hung on each of them.



Which of the following statement(s) about the graph is/are true?

A: The original length of spring X is longer than the original length of spring Y.

B: For the same amount of mass hung on each spring, spring X extends more than spring Y.

C: The greater the mass hung on the spring, the greater the extension of spring for both spring X and spring Y.

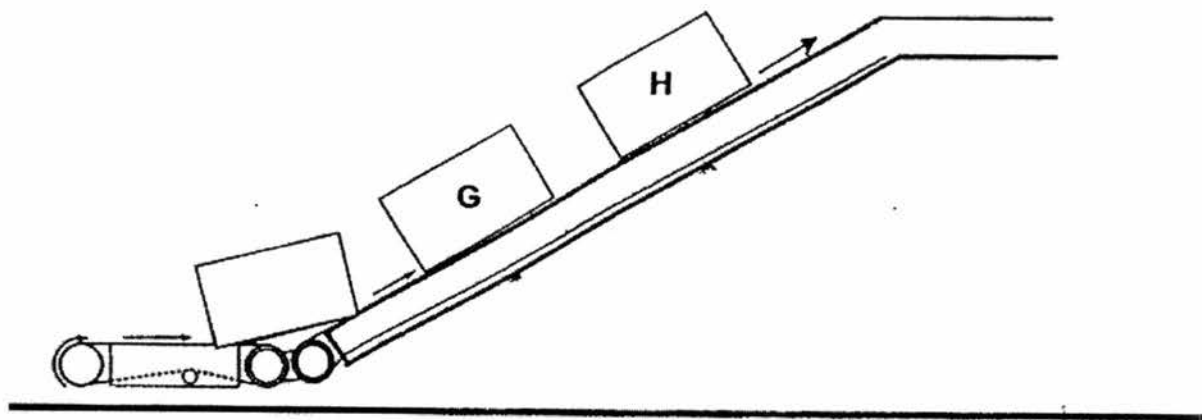
(1) C only

(2) A and C only

(3) B and C only

(4) A, B and C

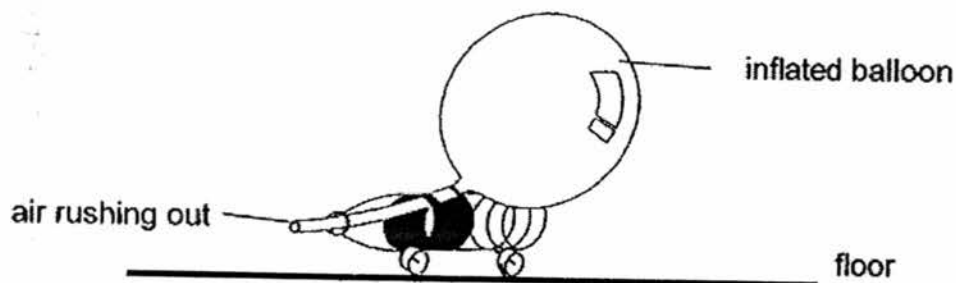
25. Identical wooden blocks are pulled up using a conveyor belt on a ramp. The two blocks G and H are at different positions as shown below.



Which of the following statements is not correct?

- (1) Block G needs more force to pull up than block H.
- (2) Blocks G and H need the same amount of force to pull up.
- (3) Blocks G and H have the same amount of frictional force acting on them.
- (4) Blocks G and H have the same amount of gravitational force acting on them.

26. Jane taped a straw to a toy car. She attached an inflated balloon at one end of the straw as shown below.



When she released the balloon, air rushed out of the balloon, exerting a force. However, the car did not move forward along the level floor. Which of the following explains Jane's observation?

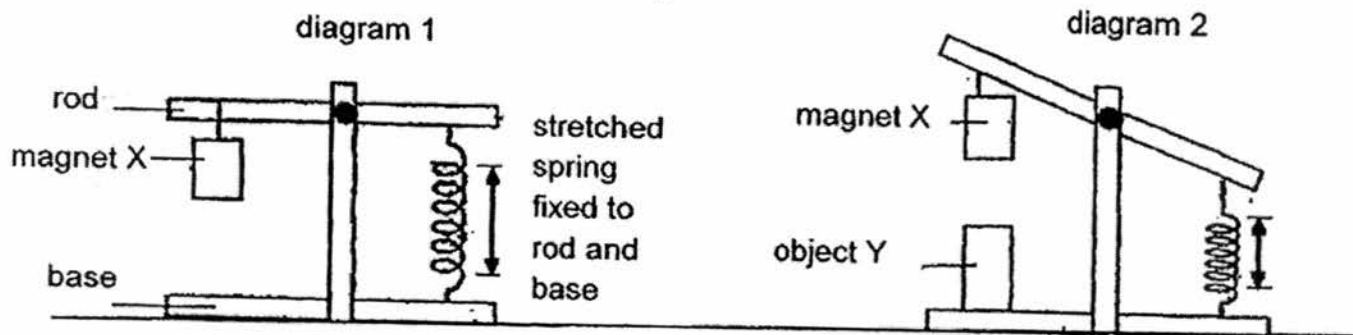
The toy car could not move because the force of air rushing out of the balloon was smaller than _____.

- A: the weight of the straw and the toy car
- B: the friction between the toy car and the floor
- C: the weight of the balloon and the straw

- (1) A only
- (3) A and B only

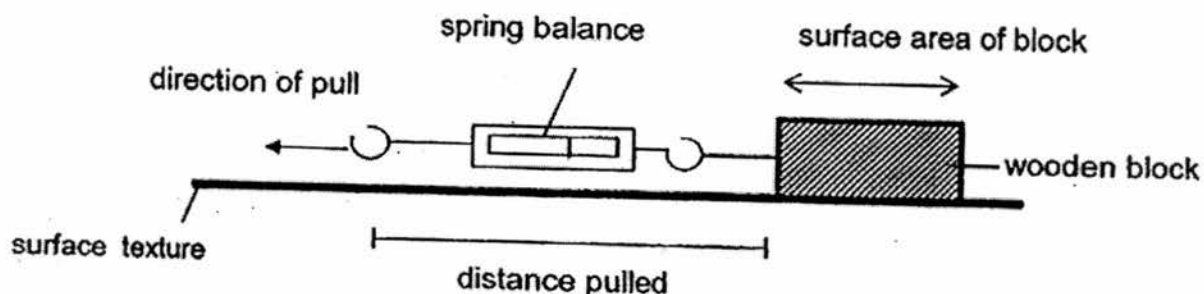
- (2) B only
- (4) A, B and C

28. John set up an experiment as shown below. The rod was horizontal when magnet X was hung on it as shown in diagram 1. Object Y was then placed below magnet X as shown in diagram 2.



Why did the spring stretch less as shown in diagram 2?

- (1) Object Y repelled magnet X.
 - (2) Object Y attracted magnet X.
 - (3) Magnet X lost its magnetism.
 - (4) The stretched spring lost its elasticity.
29. Roy wanted to find out if the surface area of a wooden block will affect friction.



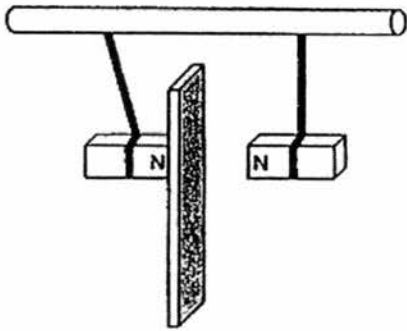
Using the set-up above, he changed the following the variables to have 4 set-ups, A, B, C and D.

Set-up	Surface area of block(cm^2)	Surface texture	Distance pulled (cm)
A	30	smooth	30
B	15	rough	15
C	15	rough	30
D	10	smooth	30

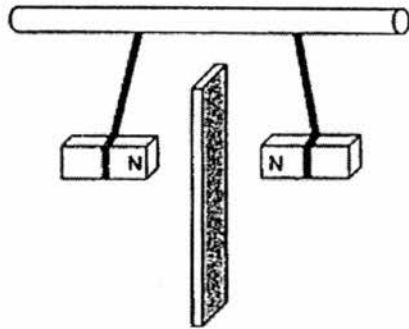
Which two set-ups above should Roy use to ensure a fair test?

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

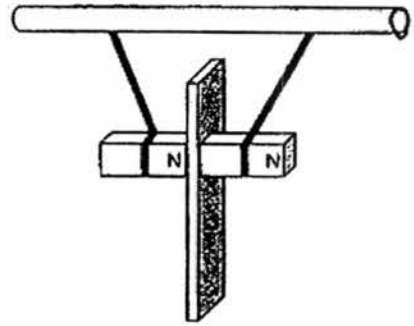
30. Joe set up the following experiment to find out if strips A, B and C are non-magnetic or a magnet. He placed each strip between the same magnets as shown below.



strip A



strip B



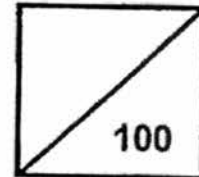
strip C

Which of the strip(s) is/are definitely non-magnetic?

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



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Primary 6



Name: _____

Total
Marks:

Class: Pr 6 _____

Register No. _____

Duration: 1 h 45 min

Date: 29 February 2016

Parent's Signature: _____

Booklet B

Instructions to Pupils:

1. For questions 31 to 44, give your answers in the spaces given in Booklet B.

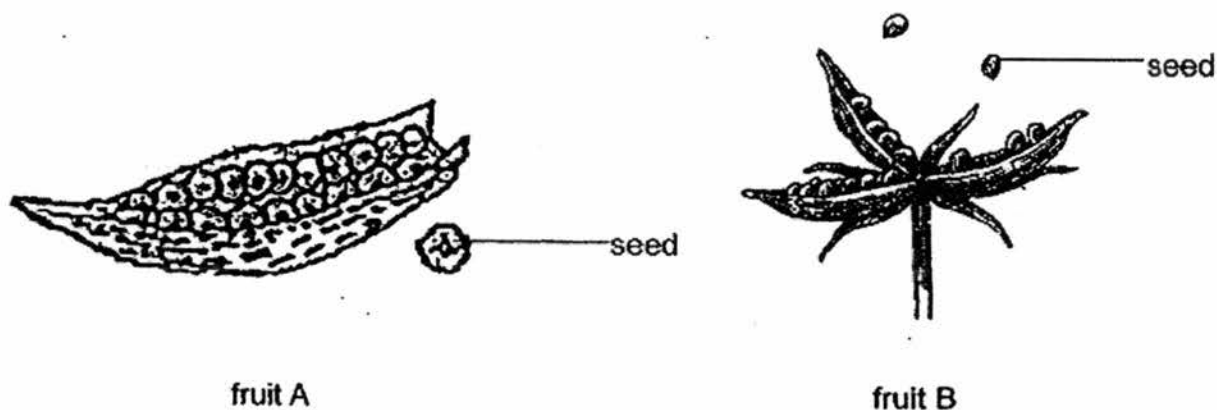
	Maximum	Marks Obtained
Booklet A	60 marks	
Booklet B	40 marks	
Total	100 marks	

* This booklet consists of 17 printed pages.

Part II (40 Marks)

For questions 31 to 44, write your answers in the space provided.

31. The diagram below shows two fruits A and B dispersing their seeds when the fruit ripens. Both seeds are small and light.



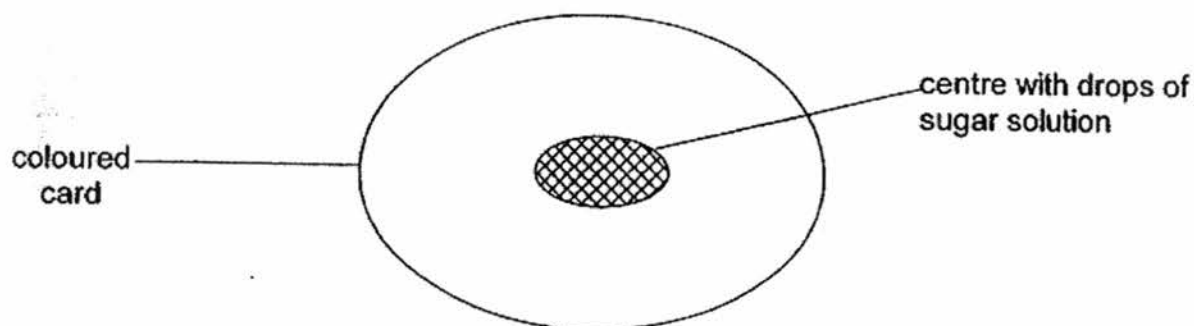
- (a) Which fruit would disperse its seeds further away from the parent plant?
Explain why. (1m)

- (b) State the importance of seed dispersal. (1m)

32. John conducted two experiments with the following items.

- three different coloured cards
- sugar solution

In his first experiment, he added 10 drops of sugar solution in the centre of each card. He placed the cards in the garden for three hours. He then counted the number of butterflies that visited the cards.



John recorded the number of butterflies that visited the coloured cards in the table below.

Colour of card	Number of butterflies visiting the flowers cards		
	8am-9am	9am-10am	10am-11am
light blue	2	4	3
dark yellow	5	8	10
white	1	3	2

(a) State the aim of the first experiment conducted by John. (1m)

Question 32 continues on pg 3

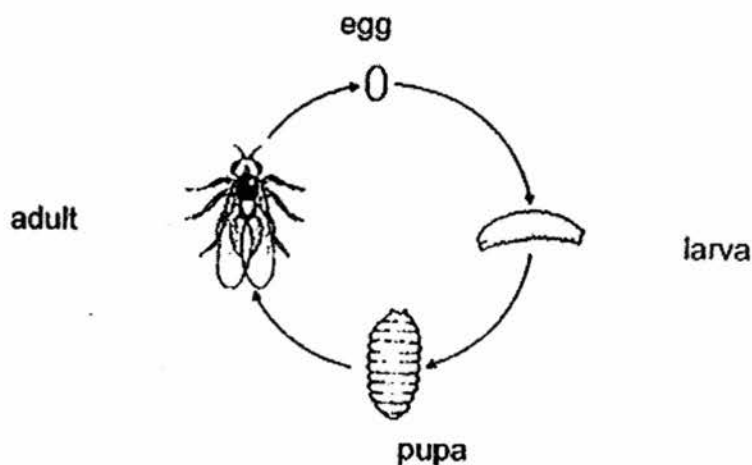
- (b) For his second experiment, he wanted to find out if the size of the coloured cards would affect the number of butterflies visiting.

In the table below, put a tick (✓) to indicate the variable(s) that he should keep the same to ensure a fair test. (1m)

size of card	
timing of experiment	
number of butterflies visiting each card	
number of drops of sugar solution added to each card	

- (c) Which colour card should John use for his second experiment? Explain why. (1m)

33. Kok Sim studied the life cycle of organism F as shown below.



Kok Sim classified organism F as an insect.

- (a) State one characteristic of organism F that could have helped him classify it as an insect. (1m)

- (b) Organism F lays its eggs which hatch into larvae on the bodies of some animals. The larvae grow bigger in size after some time.

Explain one benefit for organism F to lay its eggs on the bodies of animals. (1m)

Kok Sim studied the effect of the surrounding temperature on the life cycle of organism F. His findings are shown below.

Surrounding temperature (°C)	Number of days to complete one life cycle
10	30
20	25
30	20
35	18

- (c) Why did the number of adults of organism F increase during hot weather? (1m)

34. The table below shows the freezing points and boiling points of 3 substances X, Y and Z.

Substance	Freezing point(°C)	Boiling point(°C)
X	29	130
Y	17	118
Z	7	59

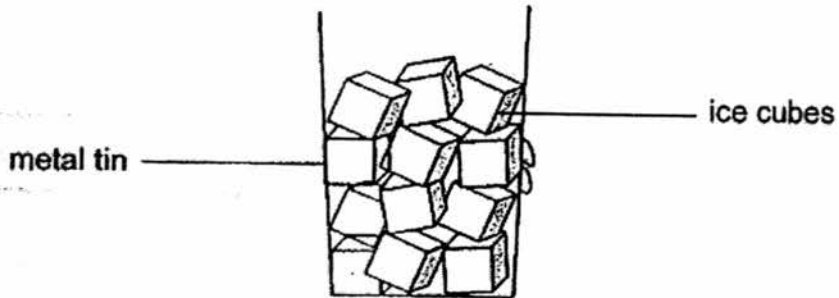
- (a) Name the states of substances X and Y at 20°C. (1m)

substance X: _____

substance Y: _____

- (b) Besides having mass and occupying space, state another property of substance Z when it is at 80°C. (1m)

35 Ali put some ice cubes in a metal tin as shown below.

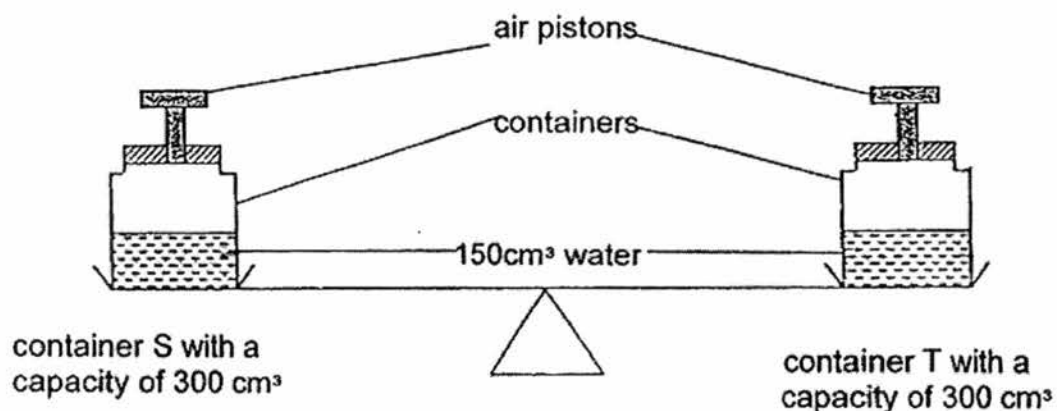


(a) What will Ali observe on the outer surface of the metal tin after some time? (1m)

(b) Explain your observation in (a). (1m)

(c) Ali's teacher told him that the crushed ice cubes are better in making his soft drink cool faster blocks of ice - cubes. Explain why. (1m)

36. Mary balanced two identical containers S and T with a maximum capacity of 300 cm^3 on a lever balance as shown in the diagram below. Both containers were filled with 150 cm^3 of water.



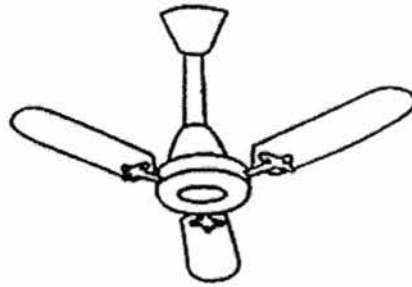
Mary used an air piston to pump 100 cm^3 of air into container S and another 50 cm^3 of air into container T. Both containers were placed on the lever balance again.

- (a) What would happen to the level balance? (1m)
- _____
- _____
- (b) Which property of air does this experiment demonstrate? (1m)
- _____
- (c) What is the volume of air in each container now? (1m)
- (i) Volume of air in container S: _____ cm^3
- (ii) Volume of air in container T: _____ cm^3

37. Below is a diagram of a wind turbine and fan.



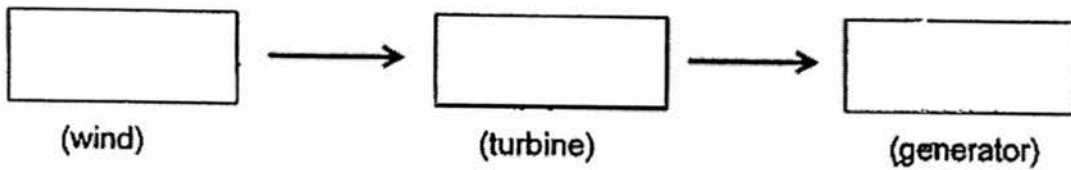
wind turbine



fan

State the energy conversions involved in the wind turbine and the fan. (2m)

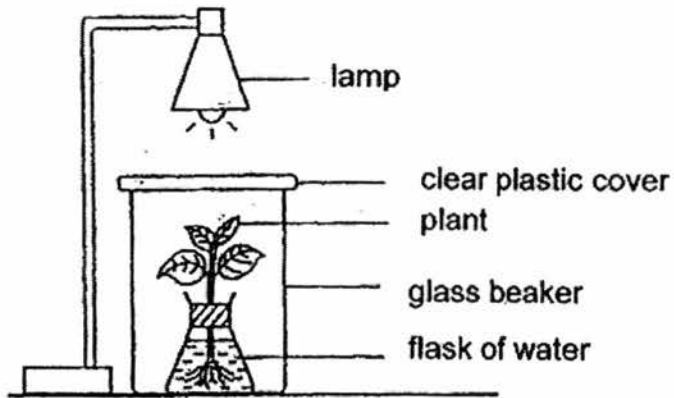
(a) wind turbine:



(b) fan:



38. Sue set up an experiment as shown below and placed it in a cupboard. The intensity of light from the lamp remained the same throughout the experiment.

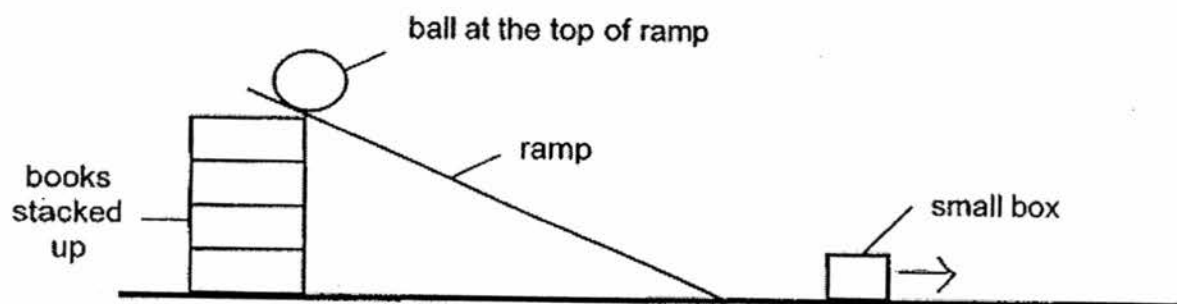


- (a) Name the products of photosynthesis. (1m)

After 8 hours, the rate of photosynthesis slowed down.

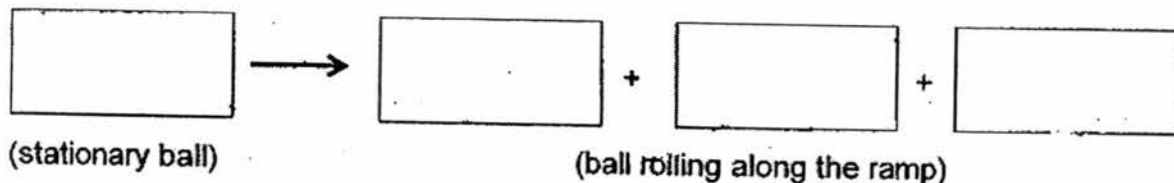
- (b) What could have caused the rate of photosynthesis to slow down? (1m)

39. A ramp is supported by some identical books. A small box is placed at the bottom of the ramp. Aminah released a ball from the top of the ramp. As the ball reached the bottom of the ramp, it hit the small box and the small box moved.



Number of books stacked up	3	5	7	8
Distance moved by the small box (cm)	4	7	14	22

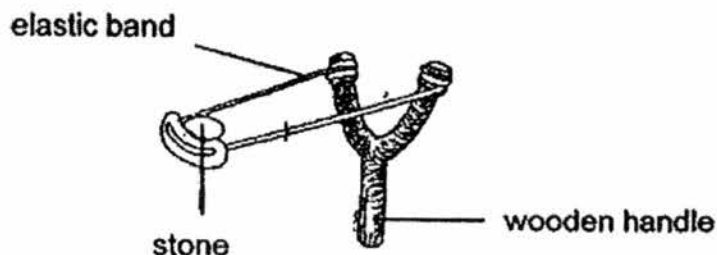
- (a) State the energy conversions taking place as the ball is released from the top of the ramp. (1m)



- (b) Why did the small box gradually stop moving after some time? (1m)

- (c) If the ball was heavier, what would happen to the distance moved by the small box? (1m)

40. Jacob used the sling shot and the stone below to conduct an experiment to find out how the distance travelled by the stone was affected by the length of the stretched elastic band of the sling shot.

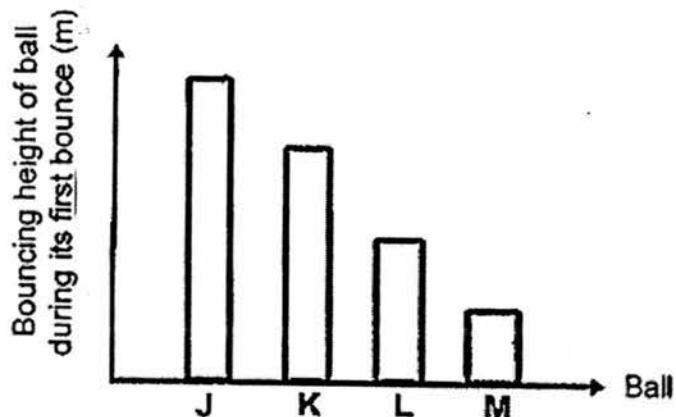


The table below shows the results of Jacob's experiment.

Length of stretched elastic band (cm)	Distance travelled by the stone (m)
5	2
10	4
15	6

- (a) Identify the source of energy in the above experiment. (1m)
- _____
- (b) What is the relationship between the length of the stretched elastic band and the distance travelled by the stone. (1m)
- _____
- _____
- (c) Explain how the relationship in (b) is possible. (1m)
- _____
- _____
- (d) Suggest another way Jacob can do to increase the distance travelled by the stone using the sling shot. (1m)
- _____
- _____

41. Sammy conducted an experiment with 4 balls, J, K, L and M which were made from different materials. He released each ball from the same height and allowed it to bounce off the ground. He measured the bouncing height of each ball during its first bounce and presented his results in the bar graph as shown below.



- (a) Based on the bar graph as shown above, rank the time taken for each of the balls J, K, L or M, to come to a complete stop. (1m)

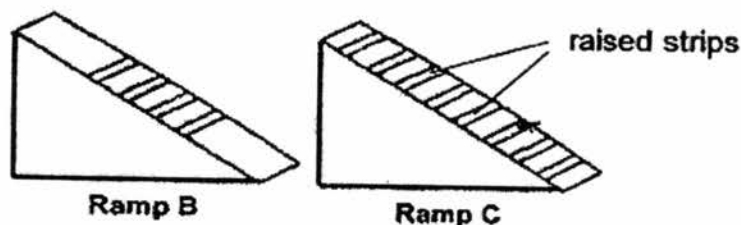
, , ,

first to come to a complete stop last to come to a complete stop

_____→

- (b) Which property of the material affected the bouncing height of the ball? (1m)
- _____

42. Michael carried out an investigation using a toy car and ramps with raised strips as shown below.



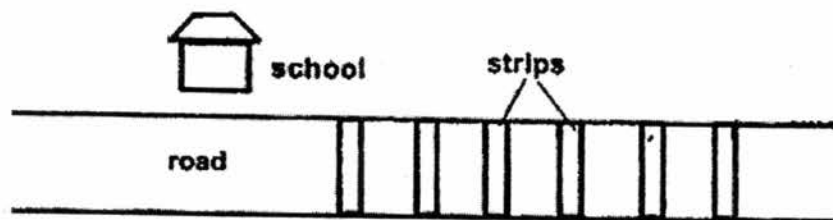
He repeated his experiment a few times to obtain the average results as shown below.

	Average time taken for car to move down the ramp in sec
Ramp B	5
Ramp C	7

- (a) State the conclusion for the experiment. (1m)

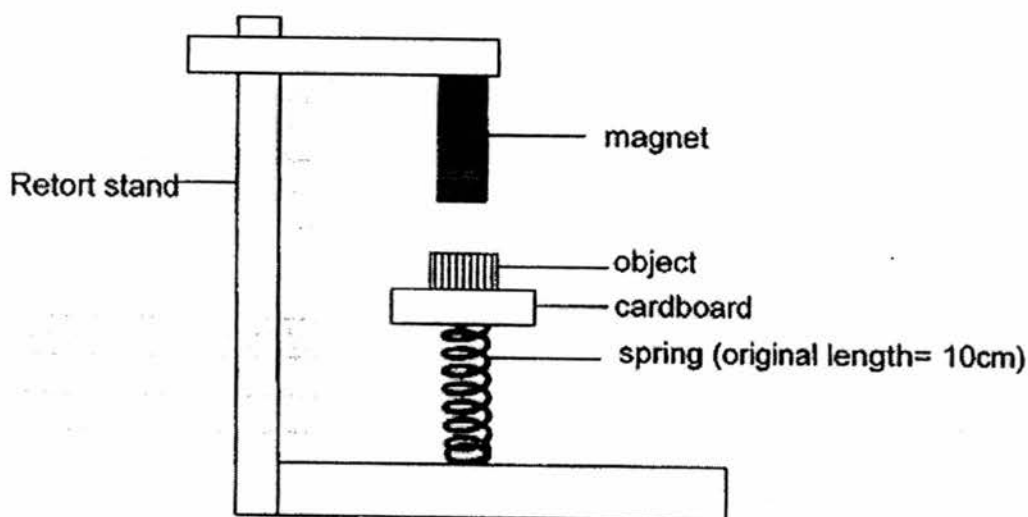
- (b) Why did he repeat his experiment? (1m)

Michael saw that a section of the road near his school had raised strips on the road as shown below.



- (c) Explain how the raised strips on the road would decrease the speed of the car? (2m)

43. Siti set up the experiment as shown below.



She attached two different objects A and B of similar mass on a cardboard resting on the 10cm-spring coil, one at a time. He recorded the length of the spring coil after each attachment.

Object	Length of spring (cm)
A	20
B	6

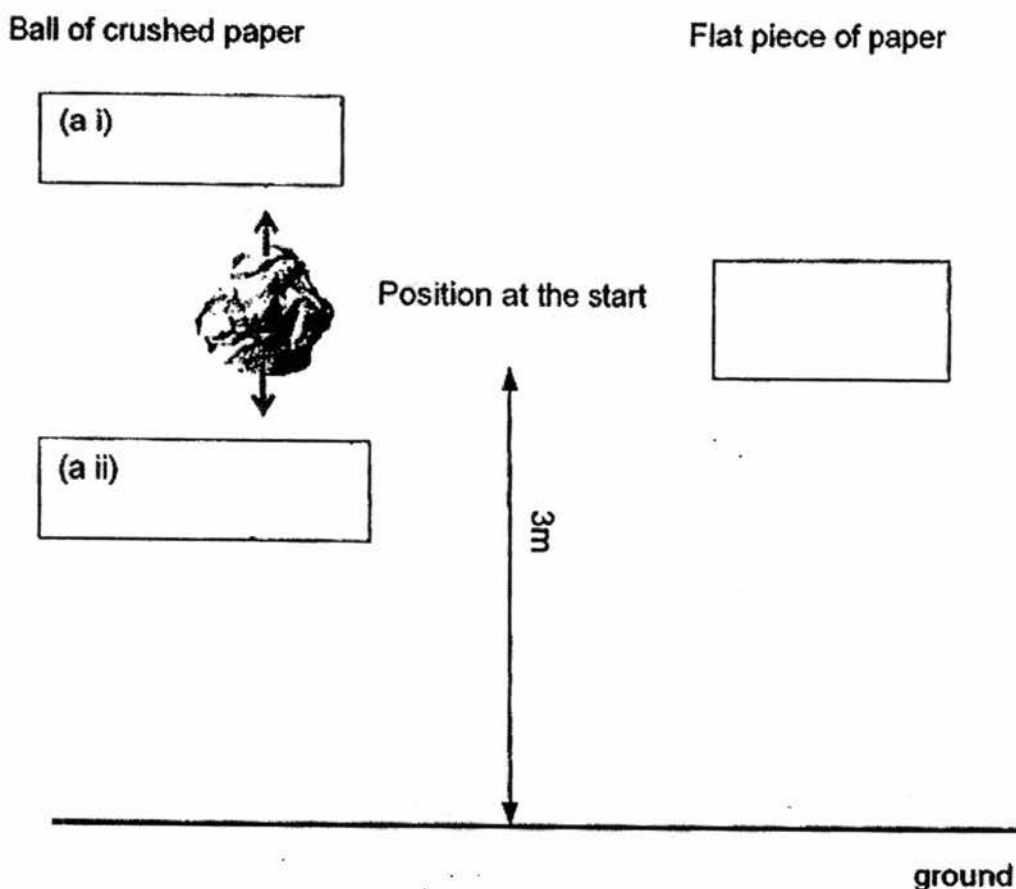
- (a) Identify the force which is acting on the object when the spring coil increases in its length? (1m)

- (b) Based on the experiment, explain why the length of the spring changed when the objects A and B were attached to the cardboard. (2m)

A: _____

B: _____

44. The diagram below shows a ball of crushed paper and a flat sheet of paper. Both are made from the same type of paper and are of the same dimensions and mass. Philip released both pieces of paper from a height of 3m at the same time.



He recorded the time taken by the pieces of paper to reach the ground in the table below.

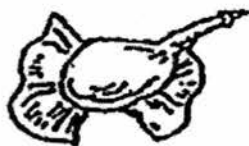
Paper	Time taken to reach the ground (sec)
Ball of crushed paper	3
Flat piece of paper	7

- (a) Identify the two types of forces that are acting on the paper when they are falling to the ground. Fill in the boxes in the above diagram. (1m)

Philip then decided to repeat the same experiment with a fruit, as shown below. He trimmed the wing-like structure before testing fruit B and fruit C.



fruit A
with a complete wing-like structure



fruit B
with some parts of the wing-like structure cut away



fruit C
with all parts of the wing-like structure cut away

- (b) Using the results obtained in the previous experiment, predict and arrange in ascending order the time taken for fruits A, B and C to reach the ground. Write the fruit A, B or C in the boxes below. (1m)

,

,

Fastest to
reach the
ground

Slowest to
reach the
ground



- (c) Explain how the wing-like structure helps the fruit to be dispersed further from the parent plant. (2m)

End of Booklet B

EXAM PAPER 2016

SCHOOL : ROSYTH

SUBJECT : P6 SCIENCE

TERM : CA1

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
4	3	4	4	2	3	4	2	1	4
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
4	3	3	1	2	3	2	3	1	2
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
3	1	1	2	1	2	3	1	3	2

31)a) Fruit A. Wing-like structure of seed enables the wind to disperse further away from the parent plant.

b) If the parent plant does not disperse its seeds, the seed would compete with the parent plant for light, water nutrients and space.

32)a) To find out if the colour of card affects the number of butterflies visiting the cards.

b) timing of experiment

number of drops of sugar solution added to each card

32)c) Dark yellow card is to be used as it's the colour that is most attractive to the butterflies.

33)a) Organism F has six legs just like an insect.

b) Organism F's larva can eat the bodies of the animal as food and does not need to search for food.

c) The higher the temperature of the surrounding environment for organism F, the number of days for it to complete its life cycle is shorter.

34)a) X: Solid Y: liquid

b) Substance Z has no definite volume.

35)a) Ali would observe that there would be water droplets outside the container.

b) The water vapour in the surrounding air of the metal tin of ice loses heat comes in contact with the cooler outer surface of the metal tin, to condense as water droplets.

c) As the crush ice cubes has more surface area and increased the rate of evaporation thus, faster than the block of ice.

36)a) The lever balance would tilt in the direction of Container S.

b) Air has mass.

c) i) 150cm³ ii) 150cm³

37)a) Kinetic energy → Kinetic energy → Electrical energy

b) Electrical energy → Kinetic energy

38)a) Sugar, Oxygen.

b) The shortage of Carbon Dioxide as the plant takes in Carbon Dioxide for photosynthesis to occur.

39)a) Potential energy \rightarrow Kinetic energy + Heat energy + Sound energy

b) The kinetic energy is converted to heat and sound energy

c) The distance moved by the small box would be greater

40)a) Stone.

b) As the length of the stretched elastic band increases, the distance travelled by the stone increases.

c) As the length of the elastic band stretched increases, there is more potential energy possessed, more potential energy converts to kinetic energy allowing it to move faster and further.

d) 1) Increase the weight of the stone heavier stone.

2) Change to another elastic and that has better elasticity strength.

41)a) M, L, K, J

b) Mass.

42)a) The more the raised strips of paper, the slower the toy car travels on the ramp.

b) To ensure the reliability of the experiment.

c) The raised strips produce more friction between the rod and the type of the car, hence slow down the speed of the car.

43)a) Magnetic force.

b) A: Object A was attracted to the magnet, hence the spring board increased in length.

B: Object B is a magnet with like poles facing the other magnet, causing them to repel each other. Hence the spring decreases in length.

44)a)i)Air resistance Frictional force.

ii)Gravitational Force.

b)C, B, A

c)The structure being light and has more exposed surface area against the wind causing air resistance to act on it making it float and easier for the wind to carry it away.