



南洋小學

NANYANG PRIMARY SCHOOL

PRIMARY SIX SCIENCE  
CONTINUAL ASSESSMENT 1

2009

**BOOKLET A**

Date : 3 March 2009

Duration : 1 h 45 min

Name : \_\_\_\_\_ ( )

Class: Primary \_\_\_\_\_ ( )

Marks Scored:

Booklet A:		60
Booklet B :		40
Total :		100

Parent's signature: .....

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

Booklet A consists of 16 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 The table shows how some animals can be grouped.

	Live on Land	Live in Water
Lay Eggs	J	K
Give Birth to Young Alive	L	M

In which box, J, K, L and M, would you place a guppy?

- (1) J  
 (2) K  
 (3) L  
 (4) M
- 2 Ivan was given a group of organisms and he classified them in the table below. Which of the following did Ivan classify wrongly?

Living Things	
Plants	Animals
Algae	Dolphin
Moss	Man
Fern	Tiger
Fungi	Eagle

- (1) Man  
 (2) Algae  
 (3) Fungi  
 (4) Eagle
- 3 Which of the following statements about birds are true?

- A Most birds lay eggs.  
 B All birds are carnivorous.  
 C Birds are warm-blooded.  
 D Birds have beaks and feathers.

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





4 Study the two groups of organisms below.

Group A	Group B
Termites	Ants
Woodlouse	Bird's Nest Fern
X	Y

What can X and Y be?

	X	Y
(1)	Millipedes	Centipedes
(2)	Mushroom	Moss
(3)	Snail	Earthworm
(4)	Birds	Bees

5 The table below shows the eye colours that children inherit from parents with various eye colours within a community.

Eye colour of parents	Mother – brown Father – brown	Mother – brown Father – blue	Mother – green Father – green	Mother – blue Father – blue
Eye colour of children (%)				

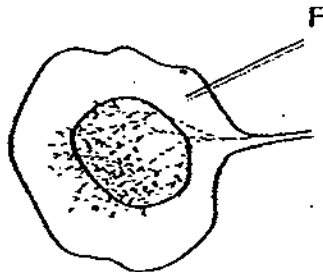
Which one of the following statements about the inheritance of eye colours by these children is true?

- (1) If the father has blue eyes, all his children will have blue eyes.
- (2) If the mother has brown eyes, 50% of her children will have blue eyes.
- (3) If both parents have brown eyes, their children will *at least* have brown eyes.
- (4) If both parents have eyes of the same colour, *more than* 50% of their children will have eyes the same colour as their parents.

6 Which one of the following has the same number of stages in their life cycle as a butterfly?

- (1) grasshopper
- (2) cockroach
- (3) dragonfly
- (4) mosquito

- 7 Which is the process whereby the sperm enters the egg and fuses with the egg?
- (1) fertilisation
  - (2) pollination
  - (3) germination
  - (4) reproduction
- 8 Which one of the following statements is true about the nymph of an insect?
- (1) It has a pair of wings.
  - (2) It develops into a pupa.
  - (3) The nymph is neither a male nor female.
  - (4) It moults several times to become an adult.
- 9 Study the diagram and table below to answer Questions 9 and 10.  
The diagram below shows a fruit.



Alison carried out an experiment with the above fruit. She used 2 fruits and labeled them A and B. She cut the part labelled F of fruit B. She then dropped A and B from a height above the same starting point and recorded the distance from the starting point when both fruits reach the floor.

*distance travelled.*

	<i>Time taken</i>		
	<i>1<sup>st</sup> try</i>	<i>2<sup>nd</sup> try</i>	<i>3<sup>rd</sup> try</i>
<b>Fruit A</b>	13m	14m	12m
<b>Fruit B</b>	5m	4m	12m

Which one of the following statements correctly states the aim of Alison's experiment?

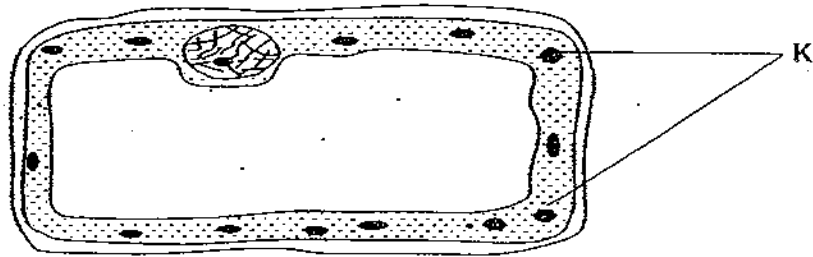
- (1) To find out the longest distance traveled by both fruits.
- (2) To find out if part F of the fruit helps the fruit to travel a longer distance.
- (3) To find out if the distance traveled from the starting point would be longer if the fruit is smaller.
- (4) To find out how the cutting of part F of the fruit will allow Fruit B to be lighter, hence it would travel a further distance from the starting point.

10 Which variable/ variables must Alison keep the same so that the experiment is a fair one?

- A Height from which both fruits are dropped
- B Number of times the fruit is dropped
- C Time taken for the fruit to reach the floor

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

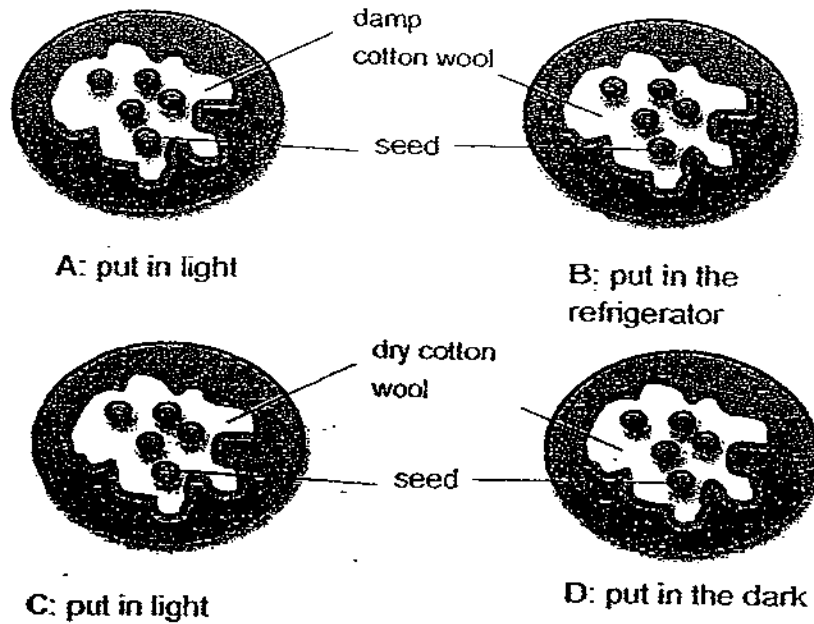
11 The diagram below shows a plant cell.



What is the main function of K?

- (1) It controls activities in the cell.
- (2) It gives the cell its fixed shape.
- (3) It traps light energy to make food.
- (4) It controls substances entering the cell.

- 12 Jing Ting set up an experiment as shown below. After three days, she recorded her observations.



Which one of the following is her observation?

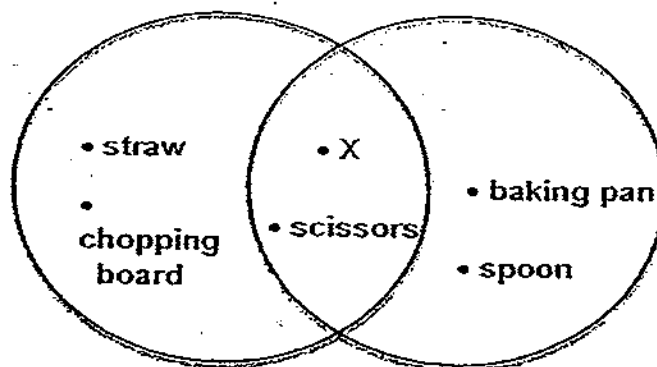
- (1) Only the seeds in Set-up A germinated.
  - (2) Only the seeds in Set-up D germinated.
  - (3) The seeds in Set-up A and Set-up B germinated.
  - (4) The seeds in Set-up A and Set-up C germinated.
- 13 Siti saw the Sun at different positions in the sky at different time of the day. Which one of the following is the cause for her observation?
- (1) Rotation of the Sun
  - (2) Rotation of the Earth
  - (3) Revolution of the Earth
  - (4) Movement of the Earth around the Moon

- 14 The table below gives information on 4 materials, W, X, Y and Z, based on two properties. A tick (✓) shows that the material has the property. Use this information to answer Questions 14 and 15.

Properties	W	X	Y	Z
Can withstand high temperature		✓		✓
Does not break easily			✓	✓

Which material is most suitable to build a bomb shelter?

- (1) W  
 (2) X  
 (3) Y  
 (4) Z
- 15 Besides the two given properties, which one of the following properties is also important to consider in the design of a bomb shelter?
- (1) Hard  
 (2) Elastic  
 (3) Flexible  
 (4) Magnetic
- 16 Xin Ye grouped some objects according to the materials they are made of as shown in the Venn diagram below.



What is Object X made of?

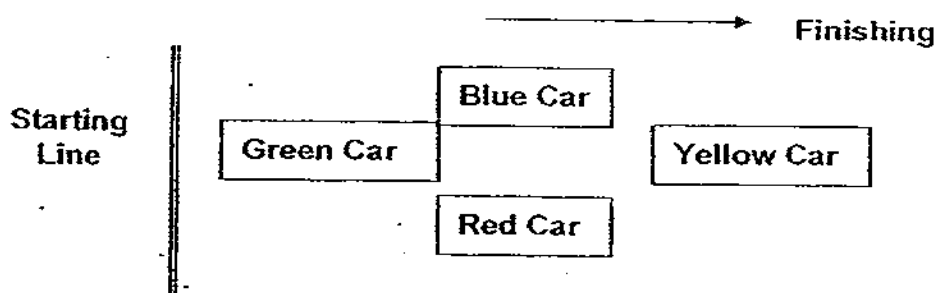
- (1) Metal  
 (2) Wood  
 (3) Plastic and metal  
 (4) Rubber and metal

- 17 Mei Xun compared the hardness of 4 materials by scratching them against each other. He recorded his observations in the table below, using a tick ( $\checkmark$ ) to indicate the presence of scratch marks.

Material used to scratch	Presence of scratched marks made by			
	P	Q	R	S
P			$\checkmark$	
Q	$\checkmark$		$\checkmark$	
R				
S	$\checkmark$	$\checkmark$	$\checkmark$	

Which one of the following is the hardest material?

- (1) P  
 (2) Q  
 (3) R  
 (4) S
- 18 Four cars, red, green, blue and yellow participated in a race. The diagram below shows the positions of the four cars 10 minutes after the race has started.



If all the cars have the same mass, which car possesses the greatest kinetic energy?

- (1) Red  
 (2) Blue  
 (3) Green  
 (4) Yellow



19. The following chart compares two different objects.

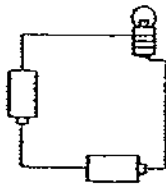
	A	B
Similarities	Potential Energy	Potential Energy
Differences	Potential Energy is converted to Kinetic Energy	Potential Energy is converted to Electrical Energy

What are Objects A and B ?

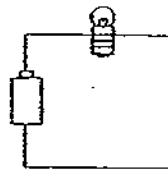
	A	B
(1)	A moving car	A battery
(2)	A book on the table	A moving bike
(3)	A stretched rubber band	A battery
(4)	A book on the table	A lighted electric bulb

20. How many of the circuits would <sup>at least one of</sup> the bulbs light up?

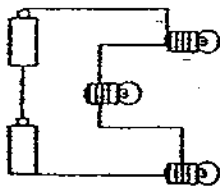
(A)



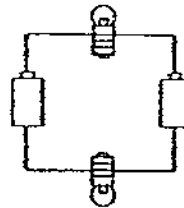
(B)



(C)

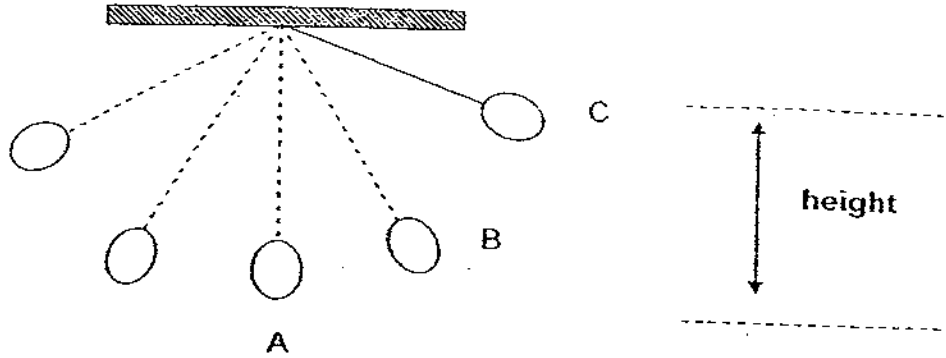


(D)

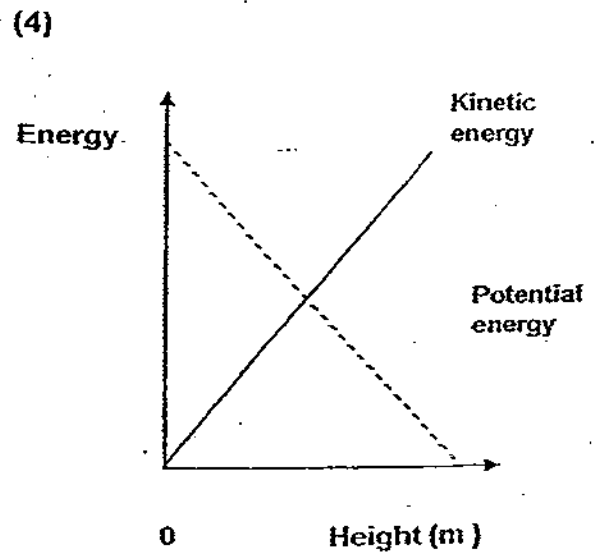
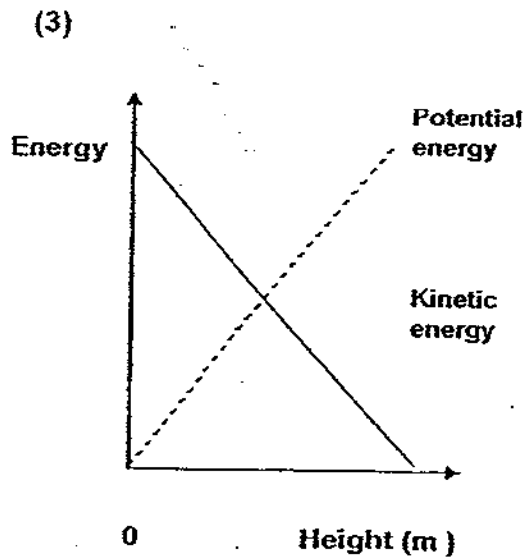
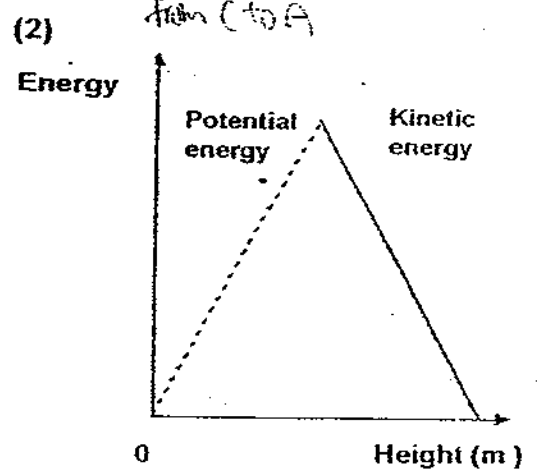
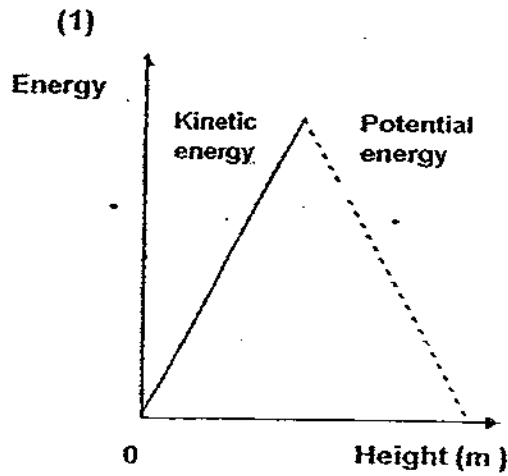


- (1) 1
- (2) 2
- (3) 3
- (4) 4

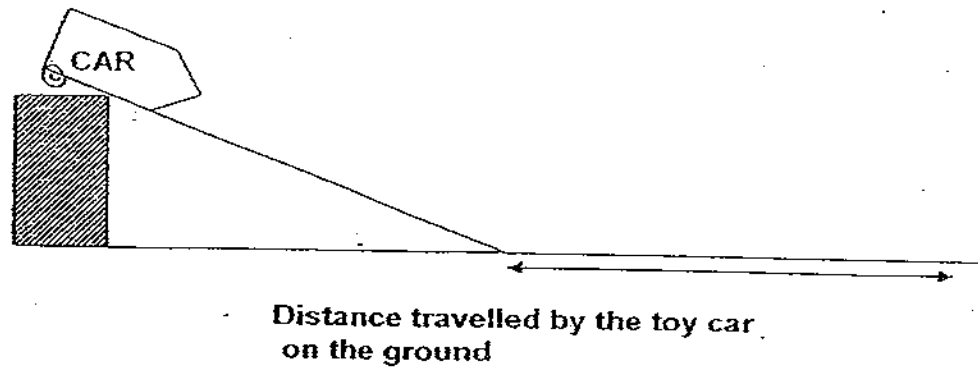
21. A pendulum swings to and fro through a height as shown in the diagram below.



Which of the following graphs correctly shows how the potential energy and kinetic energy of the swing change with the height?

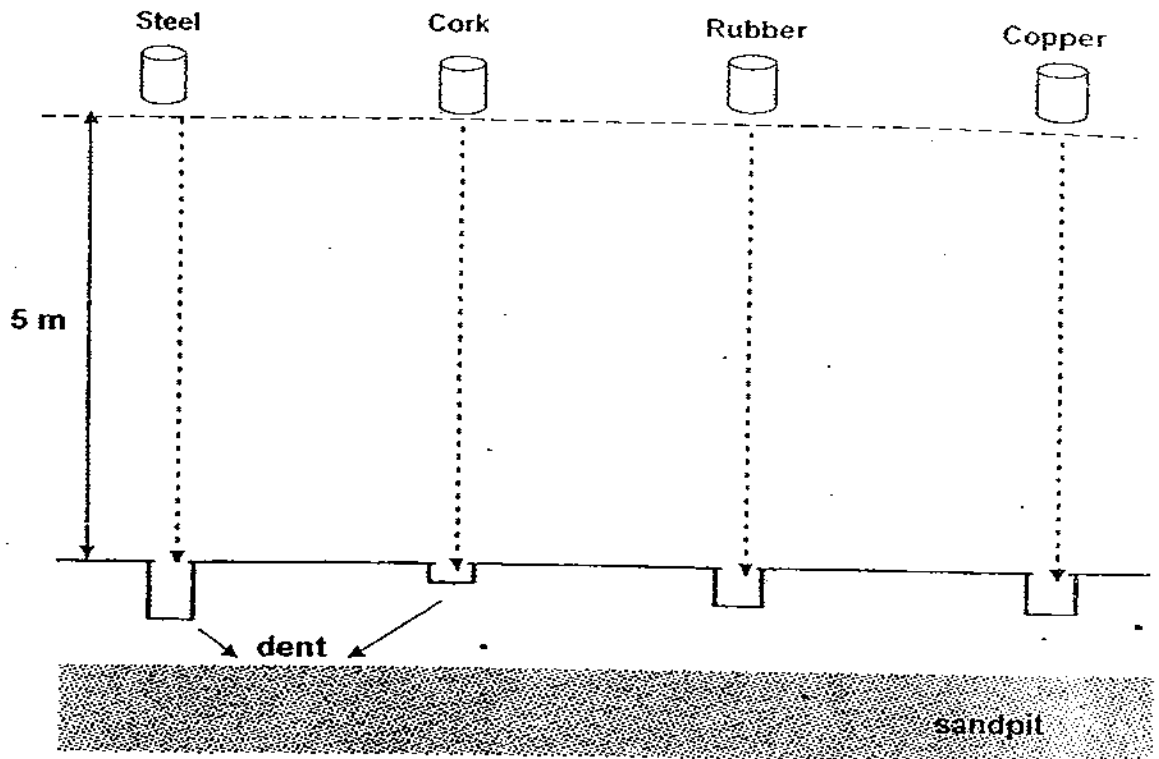


22. Mathew released a toy car several times and let it run down a ramp. He then recorded the distance travelled by the toy car. He repeated the experiment but this time, on another ramp. The distance travelled was greater for the second experiment. Which of the following can explain the difference in distance travelled by the toy car?



- A The material of the first ramp was rougher than the material of the second ramp.
- B The toy car in the first experiment had lesser stored energy because the first ramp was lower than the second ramp.
- C The ramp in the first experiment was shorter than the ramp in the second experiment.
- (1) A only
- (2) A and B only
- (3) A and C only
- (4) A, B and C
- 23 Which one of the following is a non-renewable resource of energy?
- (1) tree
- (2) wind
- (3) petrol
- (4) water

- 24 Four cylindrical blocks of the same size but of different materials are dropped from the same height as shown in the diagram below.

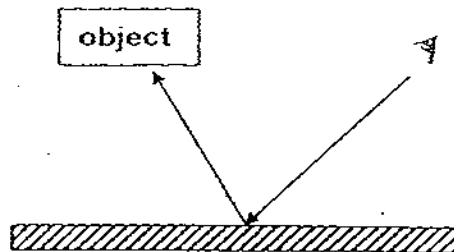


Which of the following statement is true?

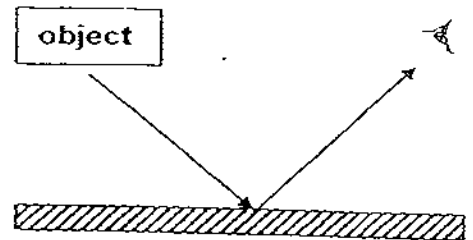
- (1) The steel block has the most potential energy to be converted to kinetic energy.
- (2) The cork block has more potential energy than the ~~plastic~~ <sup>Rubber</sup> block.
- (3) The rubber block has less potential energy than the ~~cork~~ <sup>Cork</sup> block.
- (4) The copper block has more potential energy than the steel block.

25 Which one of the following diagrams correctly shows how a ray of light is reflected by a mirror?

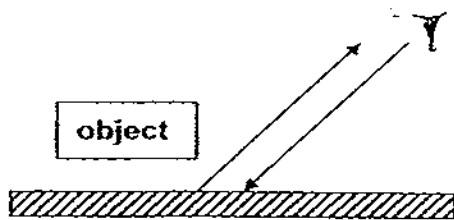
(1)



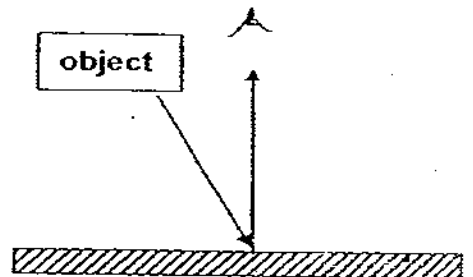
(2)



(3)



(4)

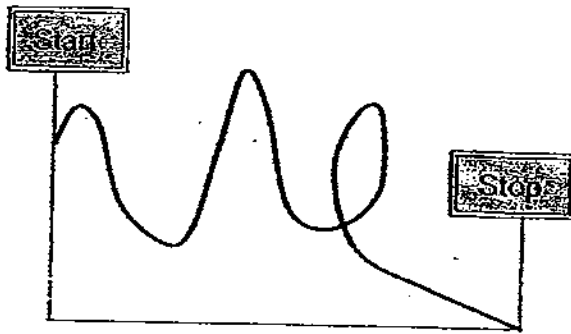


26 Which of the following statement about solar energy is false?

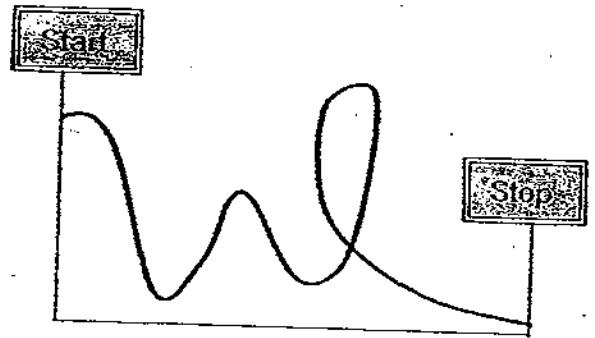
- (1) Solar energy is a renewable energy source.
- (2) Solar energy consists of light and heat energy.
- (3) All living things depend directly or indirectly on solar energy for survival.
- (4) Solar energy cannot be converted into other forms of energy such as heat energy and electrical energy

- 27 Roller coaster cars do not have motors and they move up and down the slopes with the energy from the height at which the ride begins. The diagrams show four different roller coaster track designs. Which track would allow a roller coaster car to travel continuously from START to STOP?

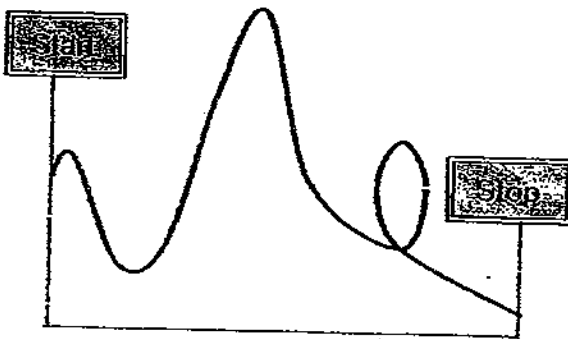
(1)



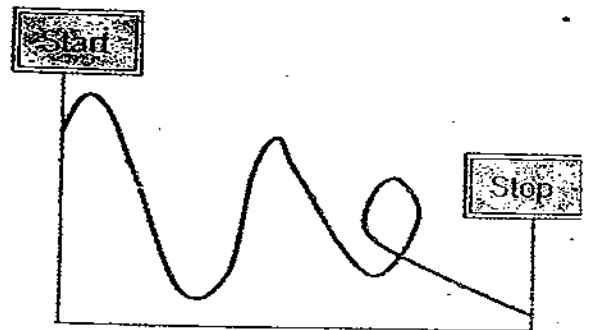
(2)



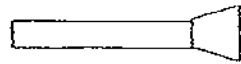
(3)



(4)



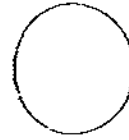
28 Study the diagram below and answer Question 28 and 29.



Torchlight



Square-shaped wood



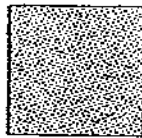
Basket Ball



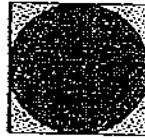
Screen

What will the shadow on the screen look like?

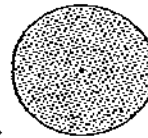
(1)



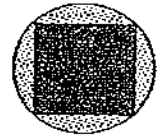
(2)



(3)



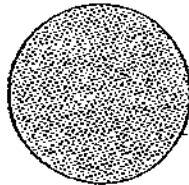
(4)



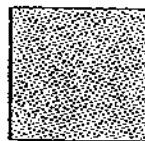
29  
30

If the basket ball is moved nearer to the torchlight, what will the shadow on the wall most likely look like?

(1)



(2)



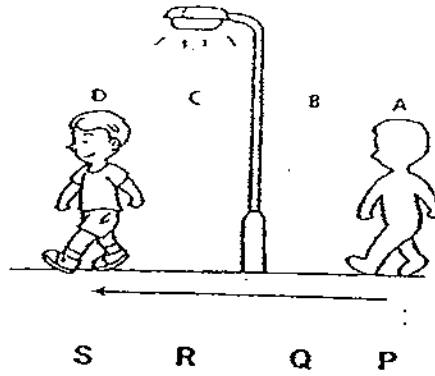
(3)



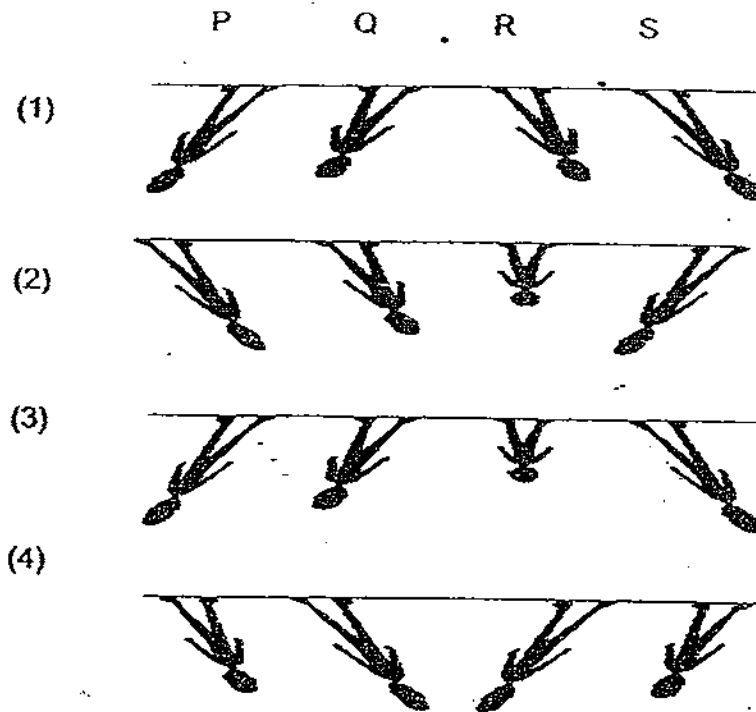
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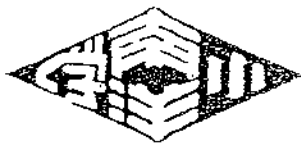
30 Wilson walked from point A to point D.



Which of the following shows the shadows cast at points P, Q, R and S?







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2009

**BOOKLET B**

Date : 3 March 2009

Duration : 1 h 45 min

Name : \_\_\_\_\_ ( )

Class: Primary \_\_\_\_\_ ( )

Marks Scored:

Booklet A:		60
Booklet B :		40
Total :		100

Parent's signature: \_\_\_\_\_

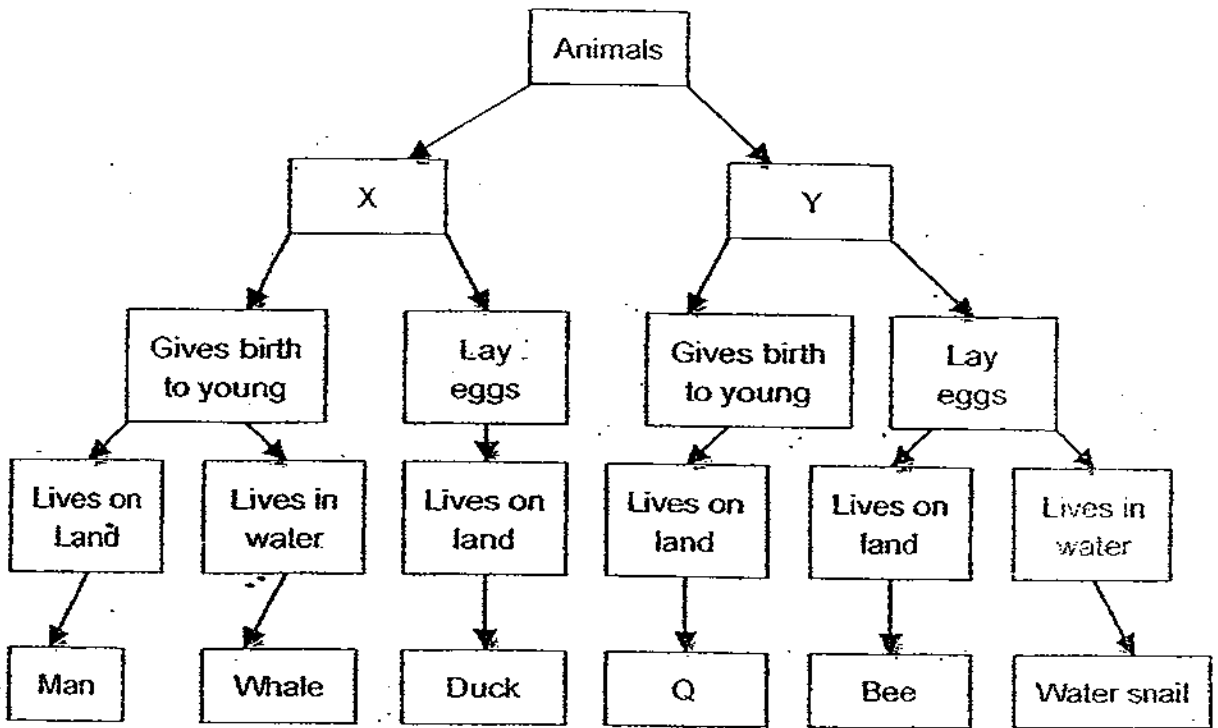
**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.  
FOLLOW ALL INSTRUCTIONS CAREFULLY.**

Booklet B consists of 14 printed pages including this cover page.

Section B (40 marks)

Write your answers to questions 31 to 46 in the spaces provided.  
Marks will be deducted for misspelt key words.

31 The classification chart below shows how organisms are classified.



(a) What is a suitable heading for X and Y?

X - \_\_\_\_\_

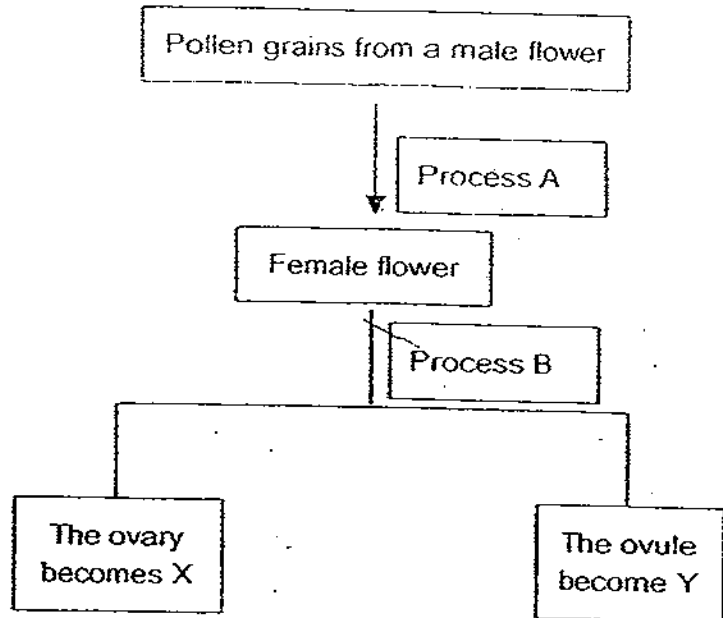
Y - \_\_\_\_\_

(b) Describe organism Q.

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32 Study the diagram below.



(a) Identify processes A, B and Structure X, Y correctly.

Process A: \_\_\_\_\_

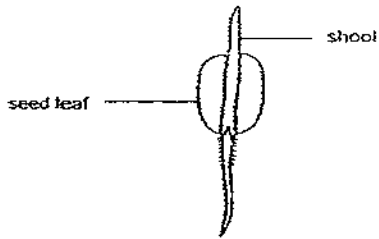
Process B: \_\_\_\_\_

Structure X: \_\_\_\_\_

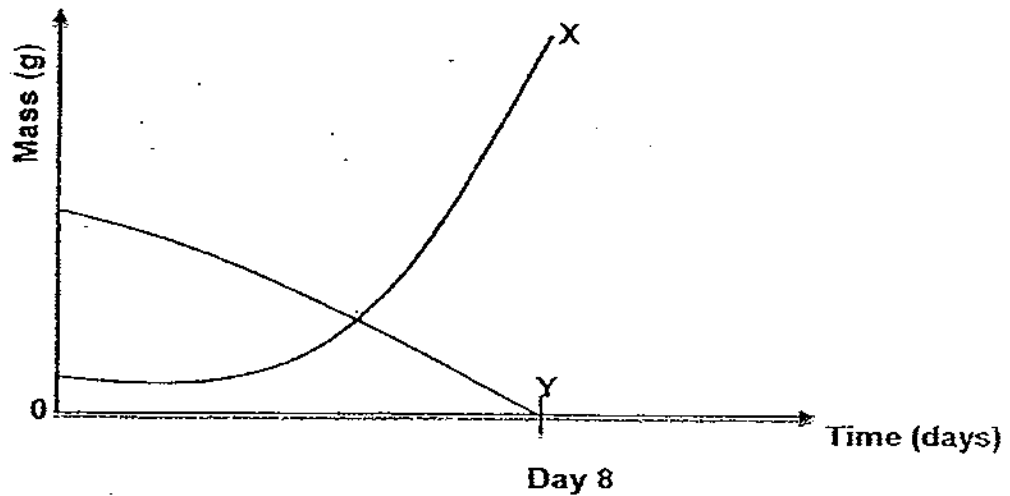
Structure Y: \_\_\_\_\_

(b) Name the process which occurs after Process B which is important for the healthy growth of the young plants as they are far away from the parent plant.

33 Samuel carried out an experiment on a seed growing into a seedling as shown below.



In the graph below, the two curves show changes in the mass of the seed leaf and the shoot of the seedling during the experiment.



(a) Which curve, X or Y, shows the changes in the mass of the seed leaf during the experiment. Give a reason for your answer.

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(b) What would happen to the seedling if there were no sunlight throughout the first eight days of the experiment?

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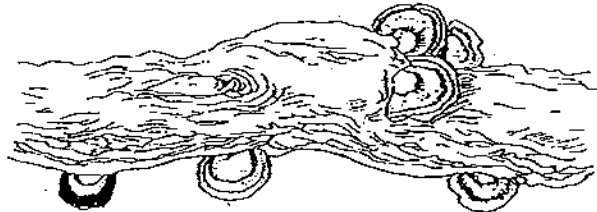
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(c) How did the seedling get its food from day 8 onwards?

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- 34 Junita saw some bracket fungi growing a rotting log when she was hiking in Bukit Timah nature reserve.



- (a) How do bracket fungi reproduce?

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- (b) What important role does the bracket fungi play in a forest community?

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- 35 Clear plastic or glass are used to make the lens of the spectacles.

- (a) Why are these two materials commonly used to make the lens of the spectacles?

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- (b) State two advantages of using plastic instead of glass to make spectacles.

(i)

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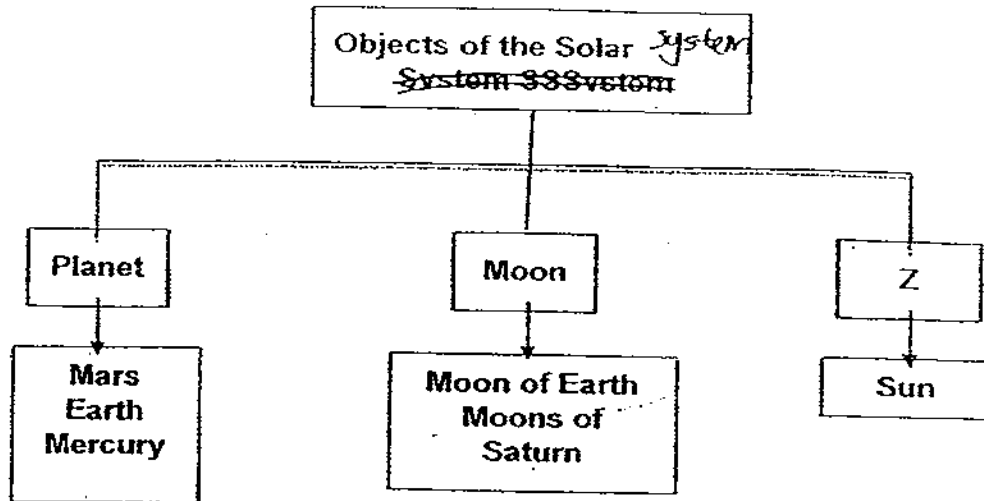
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(ii)

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- 36 The classification chart below shows how some objects of the Solar System could be classified.



- (a) Identify the heading "Z" in the above classification chart.

The heading for "Z" is \_\_\_\_\_

- (b) Fill in the blanks with a suitable word to complete a statement about the movement of objects in the Solar System.

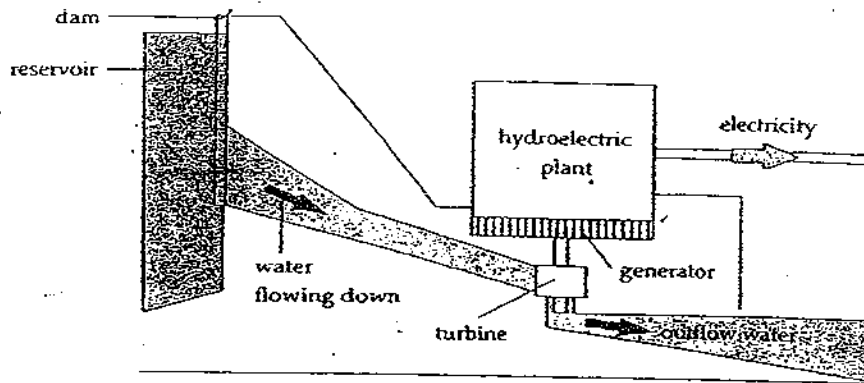
The planets revolve around the \_\_\_\_\_ and the moons revolve around the \_\_\_\_\_

- 37 During photosynthesis, plants changes carbon dioxide and water into sugar and oxygen. Explain in terms of energy conversion how energy from the sun is used during this process.

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38 The diagram below shows a hydroelectric power station.



The dam is built on higher ground for storage of water behind the reservoir. When water flows down from the bottom of the dam, it turns a turbine. The turbine is connected to a generator where electricity is produced.

(a) Give a reason why water is stored at a higher ground in a hydroelectric plant.

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(b) It is expensive to build such a hydroelectric plant. Give another disadvantage of such a hydroelectric plant.

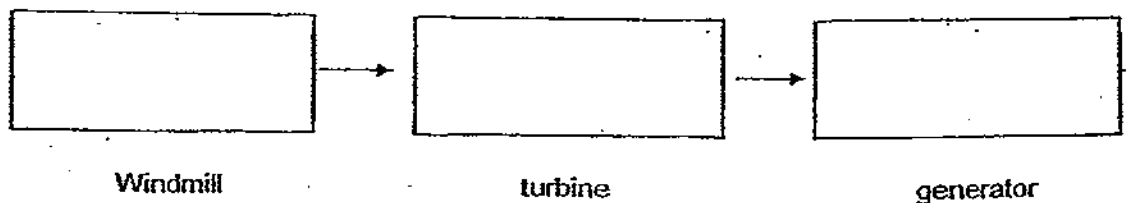
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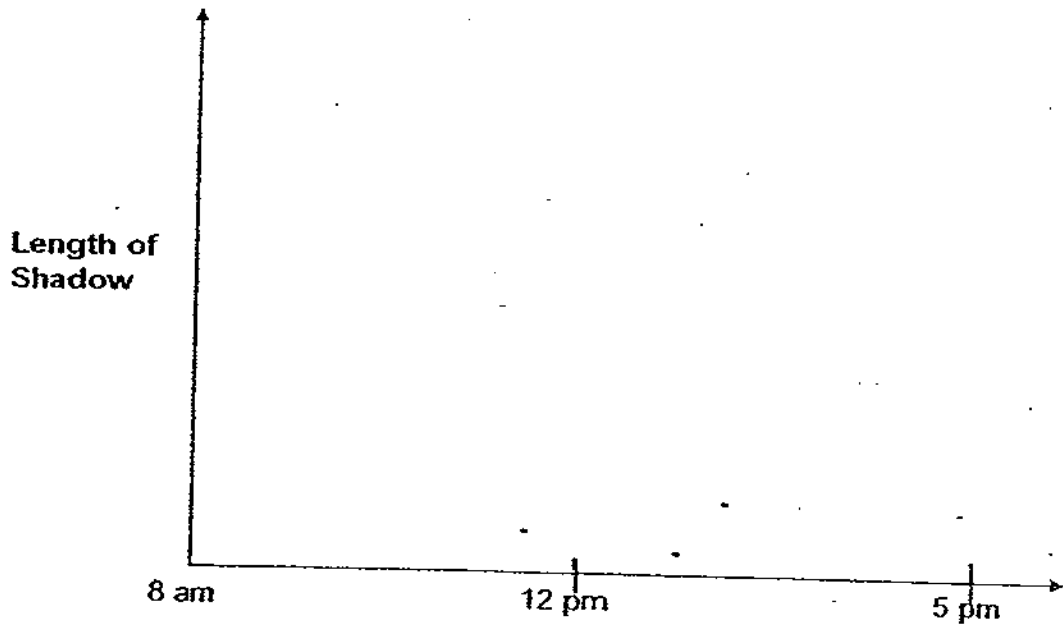
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The energy from turning windmills can also be used to drive turbines which generate electricity.

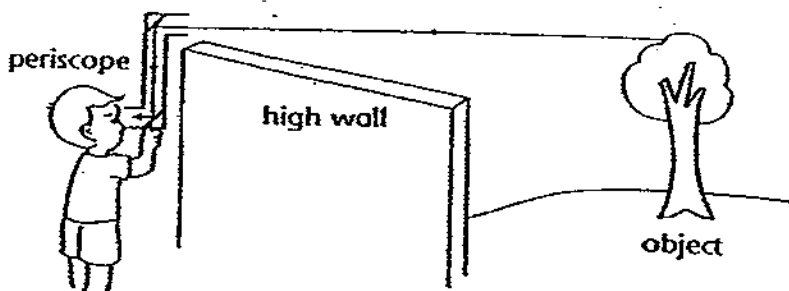
(c) Write the energy conversion that takes place once the windmills start turning.



- 39 Ali placed a cone in the middle of a basketball court on a Sunny day. He measured the length of the shadow formed by the cone at hourly interval from 8 am to 5 pm. With the measurements he recorded, he wanted to plot a graph. Draw in the graph below what would Ali's graph would look like.



- 40 A periscope is an instrument that enables us to view objects that are blocked from our view due to a barrier such as high wall or fence. The diagram below shows Harry making use of a periscope.



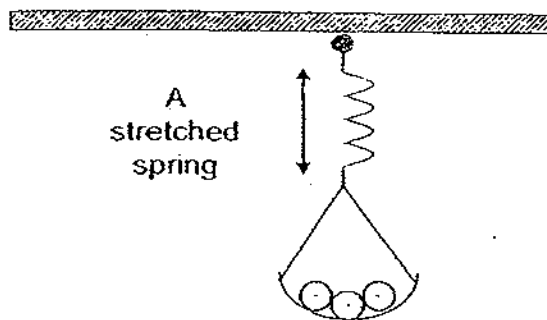
- (a) What two properties of light that enables the periscope to work?

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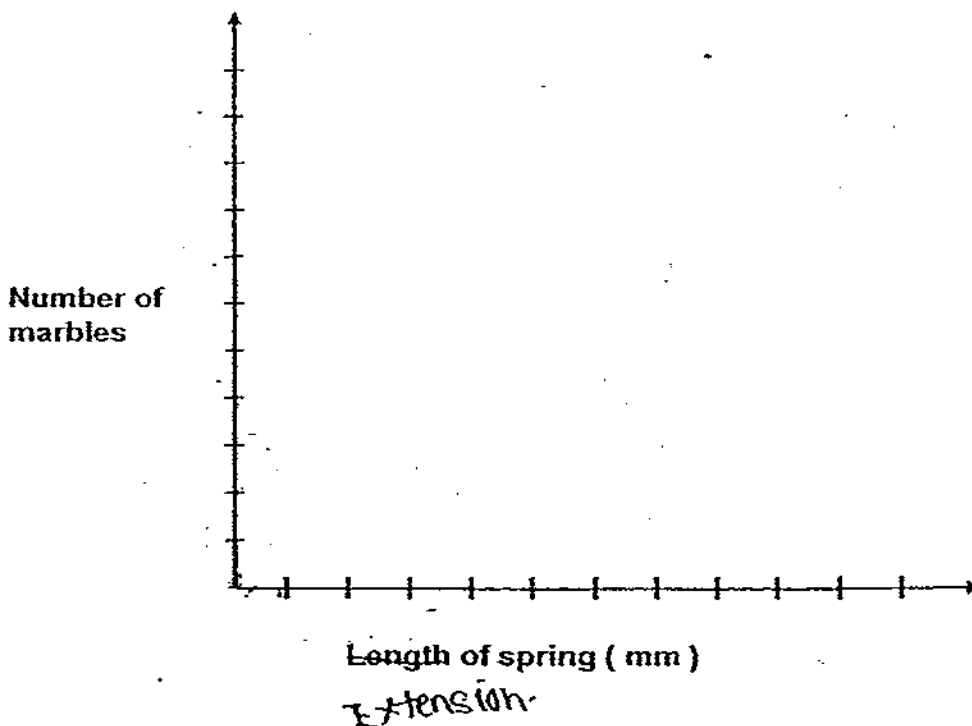


- 41 Hui Min suspended a little pan to a spring as shown in the diagram below. The spring stretched further each time she added some marbles onto the pan. She recorded the length of the spring in the table as shown



No. of marbles on the pan	0	1	3	5	7	9	11
Length of spring (mm)	0	5	16	25	36	36	36

- (a) Using the data shown in the table, plot a graph with the given axis below. (2)



- (b) After adding 7 marbles and more, the length of the spring remained the same. Explain why.

42 The diagrams below show some energy converters in our surroundings.

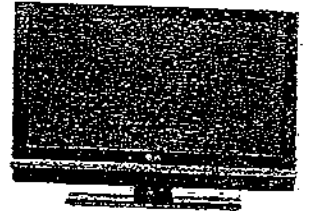
(a)  
A battery-powered toy truck



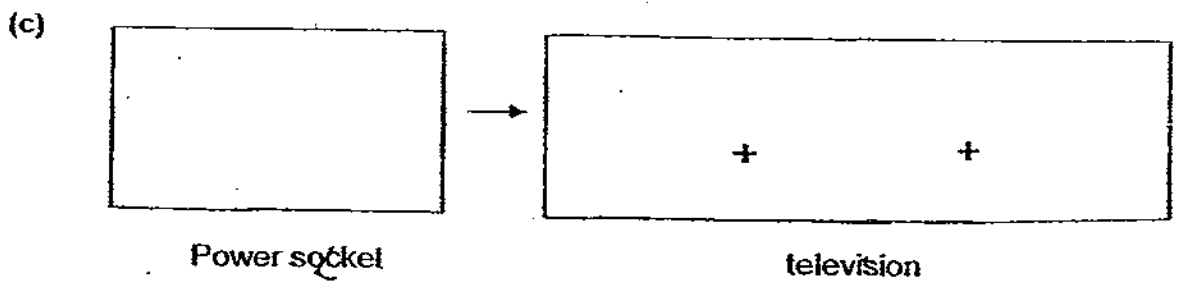
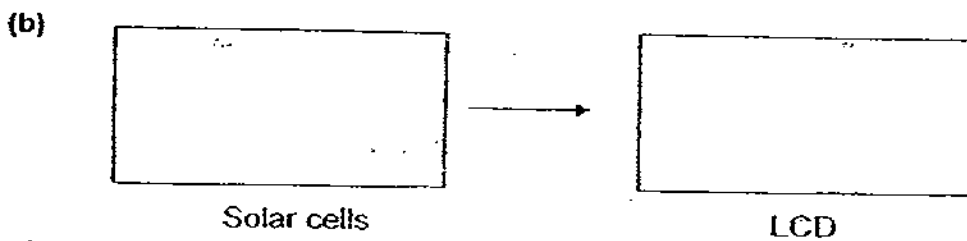
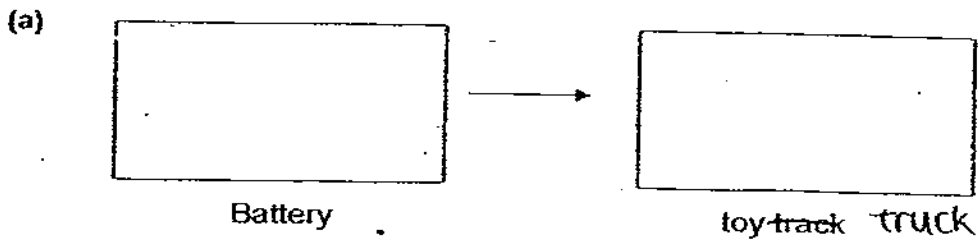
(b)  
Calculator with solar cells



(c)  
Television

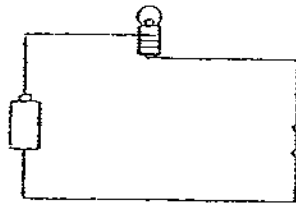


State the main energy conversions in these energy converters when they are used.

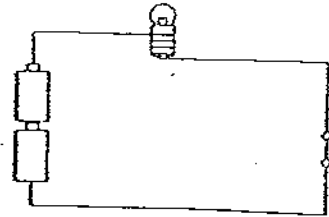


43 Study the two circuits below.

Circuit A



Circuit B



- (a) Explain in terms of energy conversion, which circuit will enable the bulb to be brighter?

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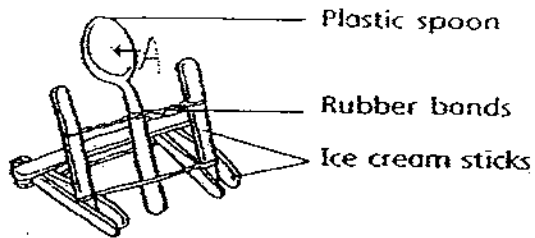
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- (b) When a new battery is added to Circuit A, the bulb is not as bright as Circuit B. Explain why.

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- 44 Sally built a catapult using rubber bands, ice cream sticks and a spoon as shown in the diagram below.



An object can be placed in Part A and when it is released, the object can fly off a distance.

- (a) Suggest two ways that Sally can change the catapult such that she can shoot the same object further.

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- (b) Write the energy changes to the rubber band when the catapult is released.

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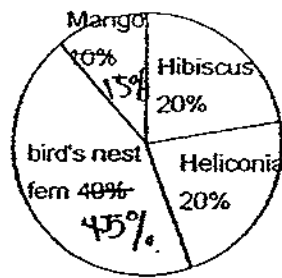
- 45 Material Y is used to make a gift wrapper of various thickness. The table below shows the different thickness of Y and the amount of light that could pass through it.

Thickness of material Y (mm)	Amount of light that could pass through Y (lux)
1	50
2	10
3	0
4	0

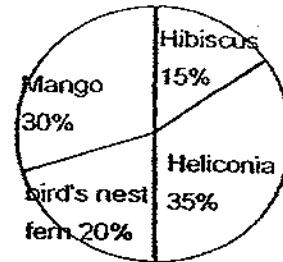
James has only several sheets of Y of 2mm thickness. He needs to wrap a glass bottle with Y so that no light could enter it.

- (a) What is the minimum number of sheets of Y that he should use to wrap up the glass bottle?
- 
- (b) Explain your answer in (a).
- 
- 
- (c) State one property that material Y should have so that it could be used to wrap the glass bottle easily.
-

- 46 The pie chart below shows the percentage of different plants in two schools, Yi Xin Primary and Xin Xin Primary.



Yi Xin Primary

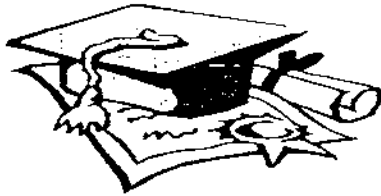


Xin Xin Primary

Put a tick (✓) in the appropriate boxes to indicate whether the statements are 'True', 'False' or 'Not possible to tell'.

		True	False	Not possible to tell
(a)	The number of heliconia plants in both Yi Xin and Xin Xin Primary school are the same.			
(b)	In Xin Xin primary, the percentage of bird's nest fern is higher than the percentage of Hibiscus.			
(c)	Xin Xin Primary school is not conducive for hibiscus to-grow.			
(d)	There are only 4 plant populations in both schools.			

Setters: Ms Sunnie Tang  
Mrs Shirley Lam

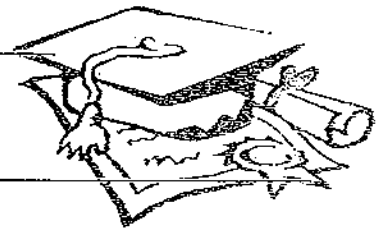


# ANSWER SHEET

EXAM PAPER 2009

SCHOOL : NANYANG PRIMARY SCHOOL  
SUBJECT : PRIMARY 6 SCIENCE

TERM : CA 1



Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
4	3	4	2	4	4	1	4	2	1	3	1	2	4	1	3	3

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
4	3	2	3	2	3	1	2	4	4	3	1	2

31)a)X: With backbones.

Y: No backbones.

b)Q lives on land,gives birth to young.

32)a)A: pollination      B: fertilisation

X: fruit                      Y: seeds

b)Dispersal at seeds.

33)a)Seed leaves provided food for the seedling.

b)It would still be alive as the seed leaf provides food for the seedling.

c)It gets the food from the leaves by photosynthesis.

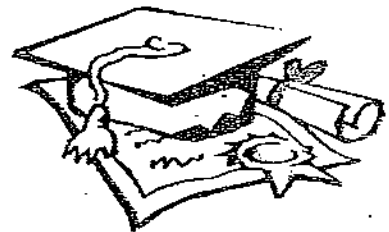
34)a)Reproduce by spores.

b)Bracket fungi decompose decaying things in the forest. It then makes the soil richer with nutrients.

35)a)They are transparent.

b)i)Plastic does not break easily.

ii)Plastic is lighter than glass.



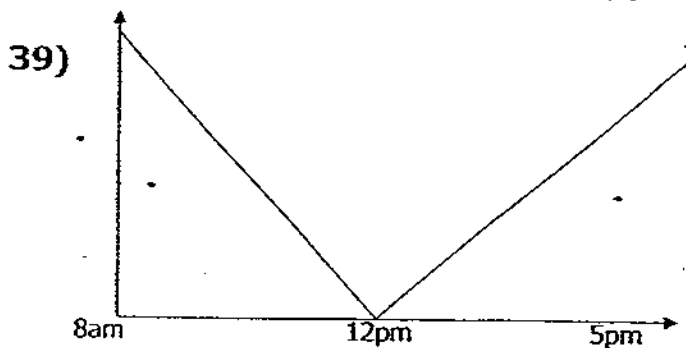
36)a)star                      b)sun, planets

37)The sun gives out light energy and the plants converts the light energy to chemical potential energy.

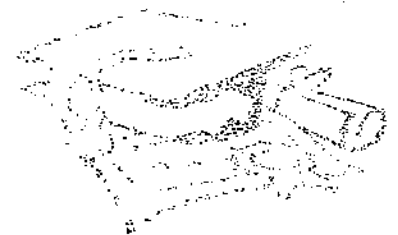
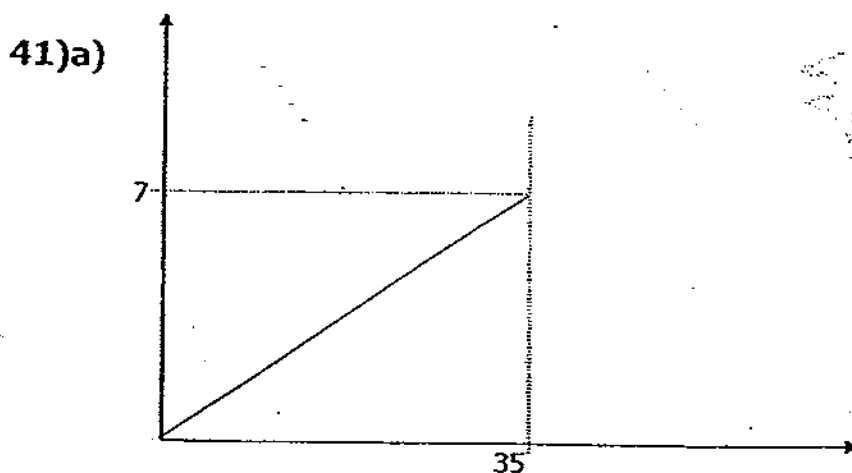
38)a)When the water rushes down, so it can be converted to a higher amount of kinetic energy thus, producing more electrical energy.

b)If the hydroelectric plant is not work well, there might be a flood.

c)Kinetic energy → Kinetic energy → Eletrical energy



40)a)Light travels in a straight light line and can be reflected.



b)The spring had reached maximum elastic.



- 42)a)Chemical energy→Kinetic energy.  
b)Light energy→light energy.  
c)Electrical energy→light energy+Sound energy+Heat energy.

- 43)a)Circuit B will be brighter as there are more chemical potential energy to electrical energy to light up the bulb.  
b)The batteries in A are weaker than the batteries in B.

- 44)a)More twist of the rubber band and add more rubber bands.  
b)Elastic potential energy→Kinetic energy.

- 45)a)Two.  
b)As there are two 2mm of material Y, it equals to 4 mm and 4mm of material X does not allow any light to pass through. Minimum needed is 13mm of Y to block light.  
c)It can be bent.

- 46)a)Not  
b) T  
c)Not  
d)T

