Anglo-Chinese School (Primary)

END-OF-YEAR EXAMINATION 2014
SCIENCE
PRIMARY FOUR
BOOKLET A

Name: _____ ( ) **Class: Primary 4** ___

Date: 30 October 2014 **Duration of paper: 1 h 45 min**

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Parent's/Guardian's signature

INSTRUCTION TO CANDIDATES

1. This question paper consists of 22 printed pages including this cover page.
2. Do not turn this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answer on the Optical Answaer Sheer (OAS) provided.

For each of the following questions 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. [60 marks]

1 Which one of the following shows the correct order when food moves through some parts of the digestive system?

(1)

(2)

(3)

(4)

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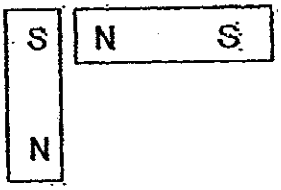
2 In which one of the following set-ups will the two magnets push each other away?

(1)

(2)



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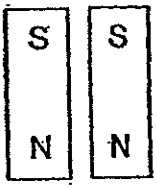

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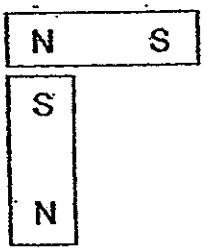

3 Which one of the following substances has a fixed shape?

(1) Air

(2) Oil

(3) Stone

(4) Water

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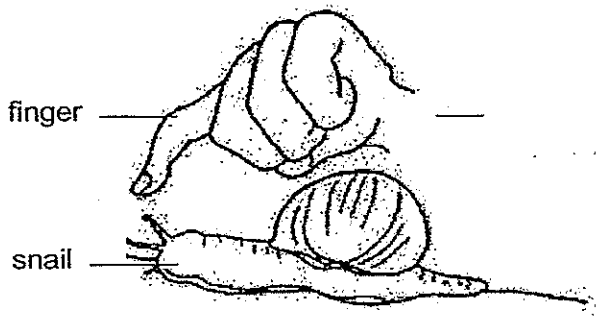
4 A snail hides itself in its shell when touched.



Which one of the following statements best explains the above about living things?

(1) The snail is a living thing because it can grow.

(2) The snail is a living thing because it can breathe.

(3) The snail is a living thing because it can respond.

(4) The snail is a living thing because it can reproduce.

5 The diagram below shows a young plant.

How does the leaf help the plant?

(1) The leaf helps the plant to absorb nutrients.

(2) The leaf helps the plant to absorb water.

(3) The leaf helps the plant to grow upright.

(4) The leaf helps the plant to make food.

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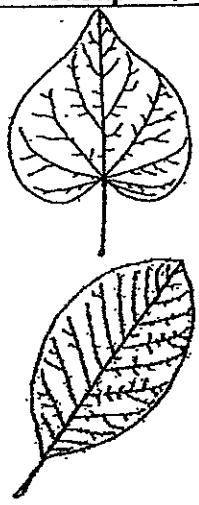
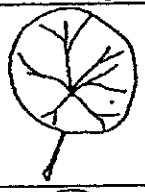
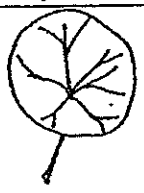
6 Study the classification table below.

Group A	Group B
	

Which one of the following pairs of leaves is correctly placed in group A and B?

	Group A	Group B
(1)		
(2)		
(3)		
(4)		

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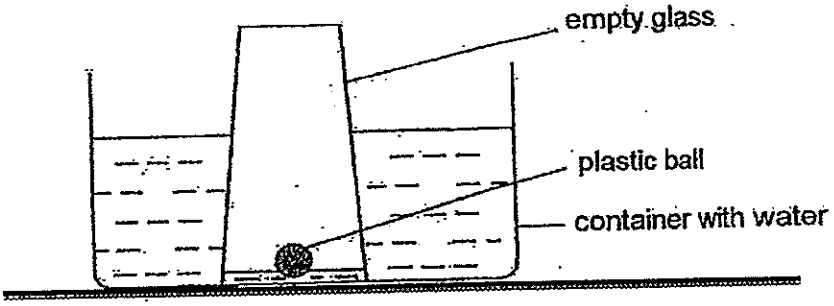
7 Kenneth lowered an empty glass with a small plastic ball into a container of water as shown below. He observed that the level of water inside the glass was lower than the level of water outside the glass.



Which one of the following explanations best describes the difference in the levels of water inside and outside the glass?

(1) The plastic ball in the glass occupied space.

(2) The air trapped in the glass occupied space.

(3) The plastic ball absorbed the water in the glass.

(4) The plastic ball pushed the water out of the glass.

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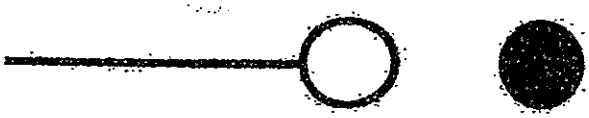
Use the diagram below to answer questions 8 and 9.



The ring and the ball shown above were made of the same material.

8 At room temperature, the ball was unable to pass through the ring. After heating the ring for a while, the ball passed through the ring easily.

Which one of the following explains this observation?

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

9 Based on the observation in Question 8, what material could the ball and ring possibly be made of?

(1) Steel

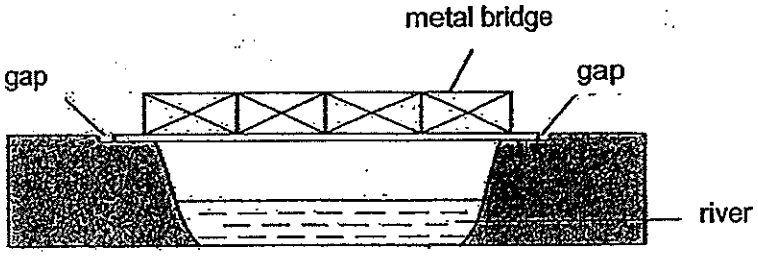
(2) Glass

(3) Plastic

(4) Rubber

(Go on to the next page)

10 The diagram below shows a metal bridge with gaps at its end.



Why are the gaps necessary?

A The gaps enable the metal bridge to slide sideways.

B The gaps allow rainwater to flow into the river during a storm.

C The gaps enable the metal bridge to expand on a hot day so it will not buckle.

(1) A only

(2) B only

(3) B and C only

(4) A, B and C

11 A fully inflated ball was being further pumped with air. The table below shows the volume of the ball after each successive pump.

Number of pump(s)	Volume of ball (cm^3)
1	200
2	200
3	200

What property of air is illustrated in the experiment above?

(1) Air has mass.

(2) Air occupies space.

(3) Air can be compressed.

(4) Air has no definite shape.

(Go on to the next page)

12 Which one of the following objects is **not** a source of heat?

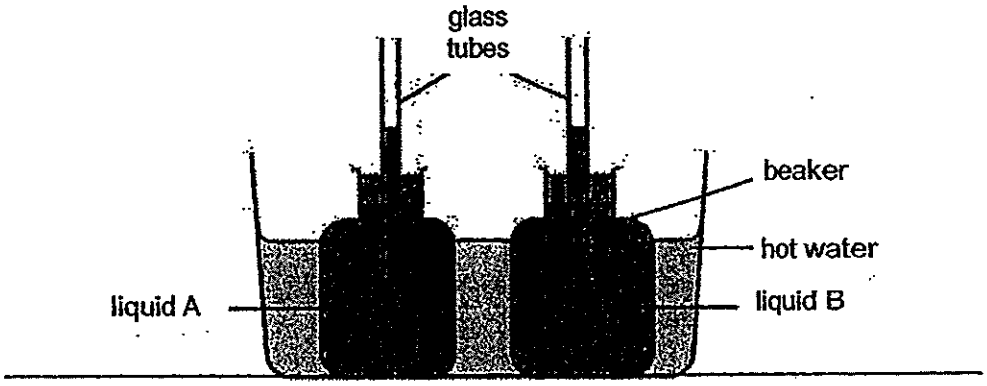
(1) The Sun

(2) A lit bulb

(3) A pair of sunglasses

(4) A piece of burning charcoal

13 Michelle set up an experiment to find out which liquid, A or B, expands more when heated.



Which one of the following variables did Michelle change?

(1) The type of liquid

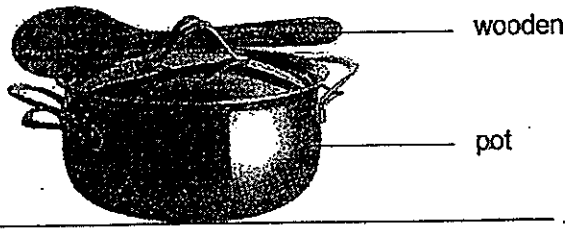
(2) The amount of heat

(3) The size of the glass tubes

(4) The temperature of the liquids at the start of the experiment

(Go on to the next page)

14 Fahim wanted to cook a pot of curry.



Which one of the following statements best explains why he used a wooden spoon instead of a metal spoon to stir the curry?

(1) Wood is a better conductor of heat than metal. Therefore, it will not burn Fahim's hand.

(2) Wood is a poorer conductor of heat than metal. Therefore, it will not burn Fahim's hand.

(3) Wood is a better conductor of heat than metal. Therefore, the curry will be cooked faster.

(4) Wood is a poorer conductor of heat than metal. Therefore, the curry will be cooked faster.

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15 Kelly wanted to find out if the amount of water affects the rate at which water loses heat to the surroundings. She has four similar-sized containers, P, Q, R and S. The table below shows the material of each container, the amount of water and the temperature of the water in each container at the start of the experiment.

Container	Material of the container	Amount of water in container (ml)	Temperature of water in container at the start of the experiment (°C)
P	Rubber	100	80
Q	Steel	150	70
R	Steel	100	70
S	Rubber	100	80

Which two containers should she use for the experiment to ensure a fair test?

(1) P and R

(2) P and S

(3) Q and R

(4) R and S

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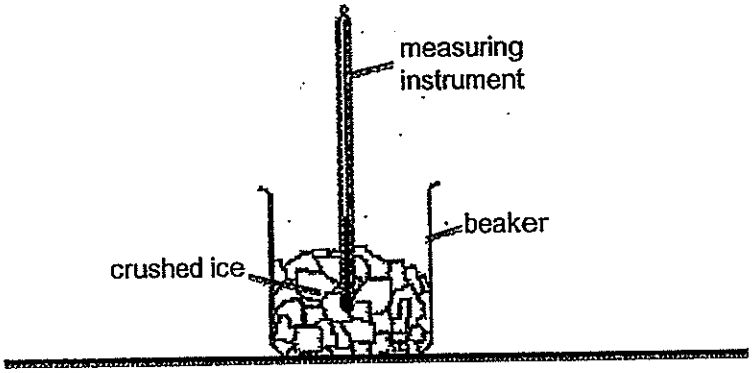
Refer to the information below to answer Questions 16 and 17.

Mason took out some crushed ice from the freezer and left it in a beaker in the living room, as shown in the diagram below.



The temperature of the set-up was taken every five minutes and recorded in the table below.

Time (min)	Temperature measured (°C)
0	0
5	0
10	6
15	18
20	24
25	24
30	24

16 Based on the above diagram, what is the measuring instrument used in the above experiment?

(1) Test tube

(2) Datalogger

(3) Heat sensor

(4) Thermometer

17 Based on the results in the table above, what is most likely the surrounding temperature of the living room?

(1) 6°C

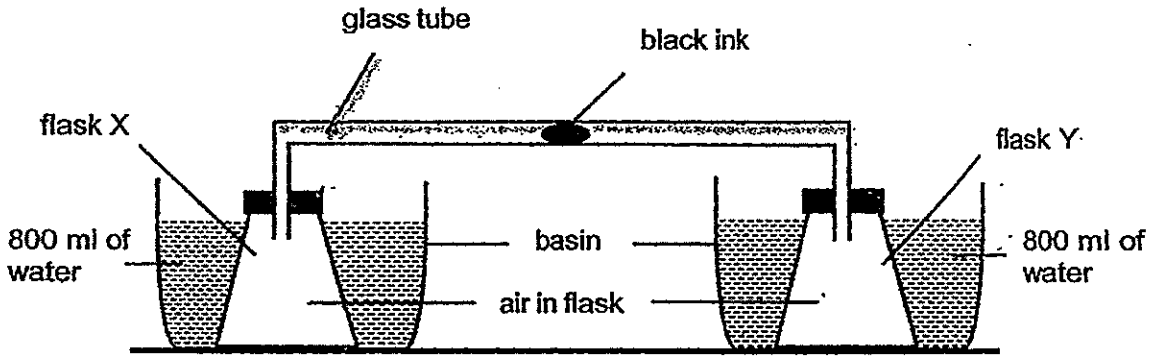
(2) 18°C

(3) 24°C

(4) 30°C

(Go on to the next page)

18 The diagram below shows a drop of black ink placed in a glass tube which was connected to two flasks, X and Y. Each flask was placed in a basin of water of unknown temperature.



After four minutes, it was observed that the drop of black ink moved towards flask X.

Which one of the following shows the likely temperature of water in each of the basin?

	Flask X is placed in a basin of	**Flask Y is placed in a basin of**
(1)	water at 80 °C	water at 30 °C
(2)	water at 10 °C	water at 80 °C
(3)	water at 60 °C	water at 60 °C
(4)	water at 30 °C	water at 10 °C

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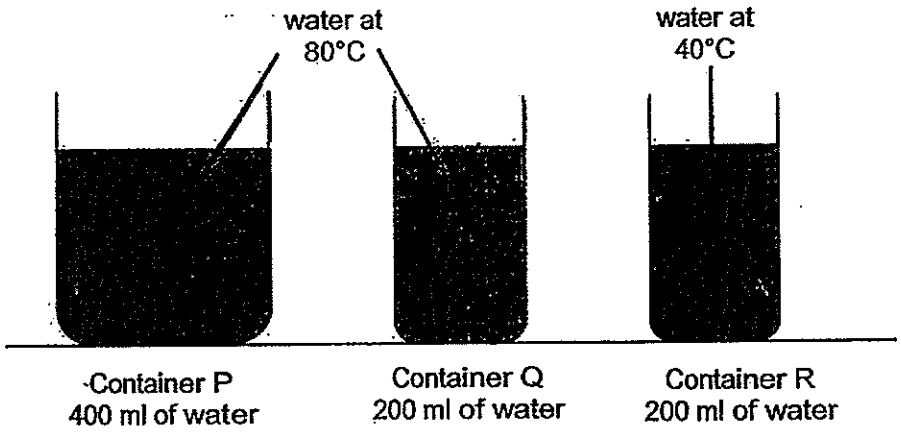
19 Jason filled three glass containers with water as shown in the diagram below.



Which one of the following correctly compares the amount of heat in containers P, Q and R?

(1) The water in containers P and Q has the same amount of heat.

(2) The water in containers Q and R has the same amount of heat.

(3) The water in container P has less heat than the water in container Q.

(4) The water in container P has more heat than the water in container Q.

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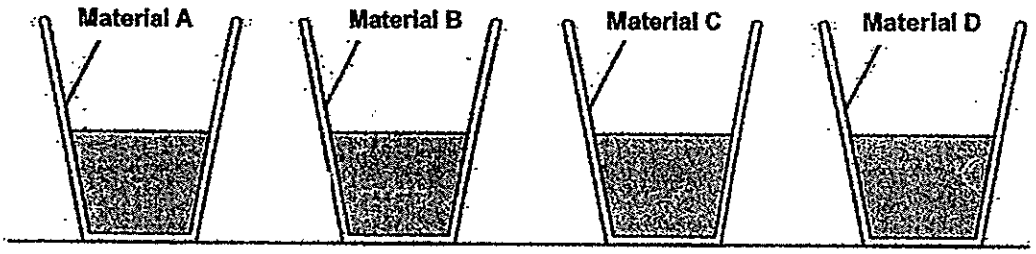
20 Isabel poured equal amounts of hot water into four identical cups. The material used to make each cup was different.



After ten minutes, the temperature of the water in each cup was measured and recorded as shown in the table below.

Material of cup	Temperature of water at the start (°C)	Temperature of water after 10 minutes (°C)
A	90	62
B	90	69
C	90	65
D	90	88

Based on the results in the above table, which one of the following conclusions is **correct?**

(1) Material D is the best conductor of heat.

(2) Material B is a better conductor of heat than Material C.

(3) Material A is a poorer conductor of heat than Material B.

(4) Material D is a poorer conductor of heat than Material C.

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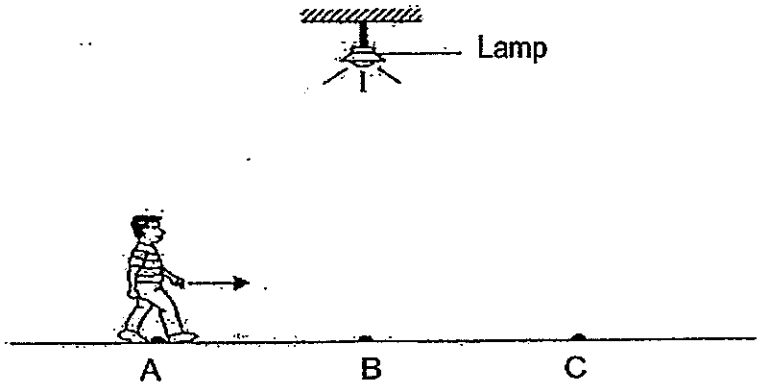
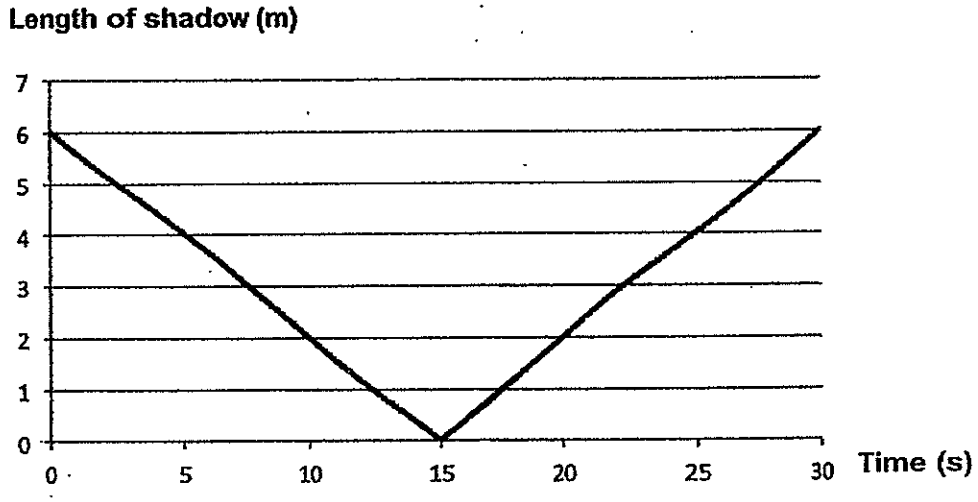
21 Joe walked in a straight line from A to C as shown in the diagram below. At B, he was directly under the lamp. The distance between A and B is the same as the distance between B and C.



The line graph below shows how the length of Joe's shadow changed during his walk.



Based on the above, which one of the following statements is correct?

(1) Joe took six seconds to walk from A to C.

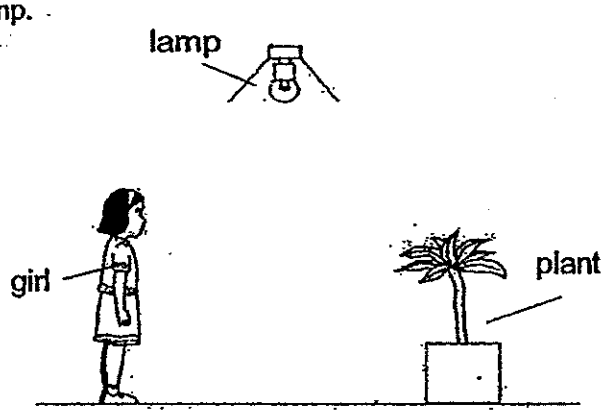
(2) When Joe was directly under the lamp, his shadow was 15 m.

(3) As Joe walked towards the lamp from A to B, his shadow became longer.

(4) As Joe walked away from the lamp from B to C, his shadow became longer.

(Go on to the next page)

22 Study the diagram below. The girl is able to see the plant in the presence of light from the lamp.



Which one of the following shows correctly the path of light that makes it possible for the girl to see the plant?

(1) From lamp to girl to plant

(2) From lamp to plant to girl

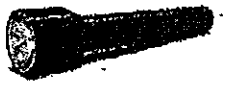
(3) From girl to plant to lamp

(4) From girl to lamp to plant

(Go on to the next page)

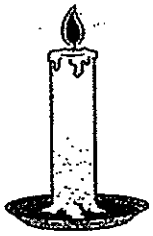
23 Which one of the following is **not** a source of light?

(1)



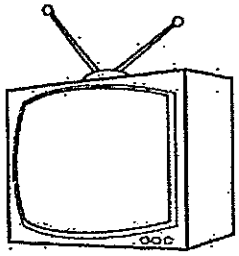
Torch

(2)



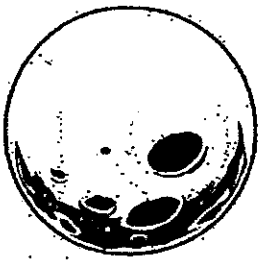
Candle

(3)



Television

(4)



Moon

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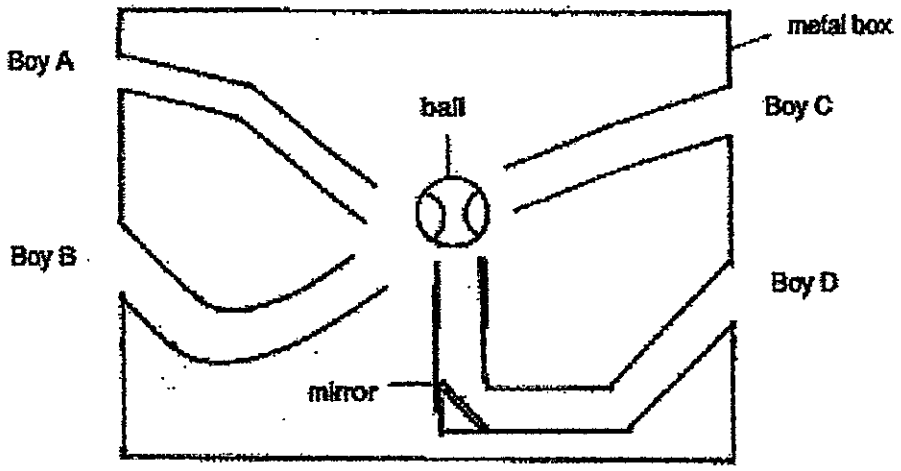
24 Shawn attached a light sensor to a datalogger and used it to find out the amount of light passing through four sheets of different materials, P, Q, R and S. He recorded the results as shown below.

Sheet	Amount of light that passed through (Lux)
P	374
Q	1000
R	0
S	550

A material is made of clear glass will allow more than 800 Lux of light to pass. Which one of the following materials is most suitable to be used to make a fish tank?

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

25 A ball was placed in the middle of a metal box as shown in the diagram below

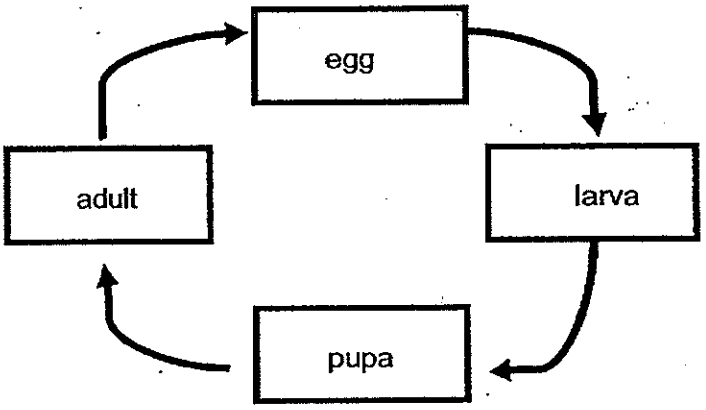


Which boy can view the ball?

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

(Go on to the next page)

26 The diagram below shows the life cycle of an animal.



Which one of the following is likely to have the life cycle as shown above?

(1) duck

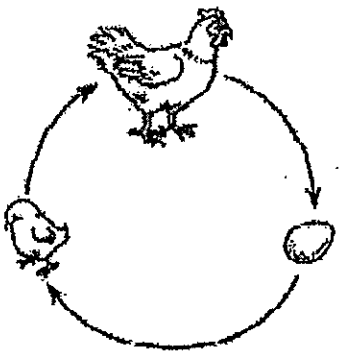
(2) butterfly

(3) cockroach

(4) grasshopper

27 The diagram below shows the life cycles of Animal X and Y.

Animal X



Animal Y

Based on the life cycles above, which one of the following statements is correct?

(1) Both Animal X and Y do not lay eggs.

(2) Both Animal X and Y have the same diet.

(3) Both Animal X and Y undergo a three-stage life cycle.

(4) Both Animal X and Y have young that resembles the adult.

(Go on to the next page)

28 Four students, Ali, Bala, Caiyun and Dave were discussing about life cycles and made the following statements.

A A life cycle does not repeat itself.

B A life cycle is made up of different stages.

C Different life cycles may differ in their length of time.

D A life cycle is important because it ensures continuity of a species.

Which statements are correct?

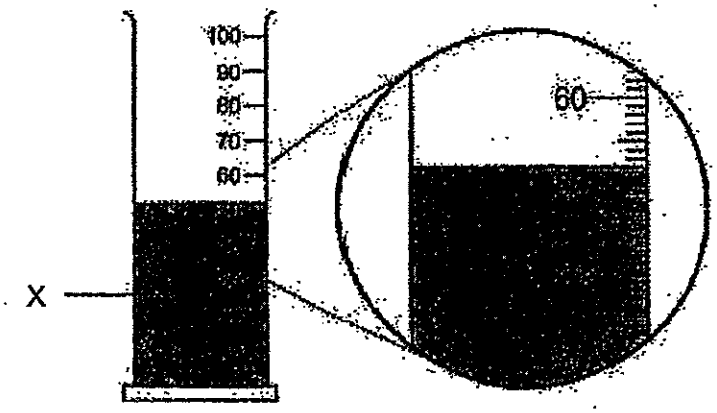
(1) A, B and C only

(2) A, B and D only

(3) B, C and D only

(4) A, B, C and D

29 In the diagram below, what is the volume of liquid X?



(1) 50 ml

(2) 52 ml

(3) 62 ml

(4) 68 ml

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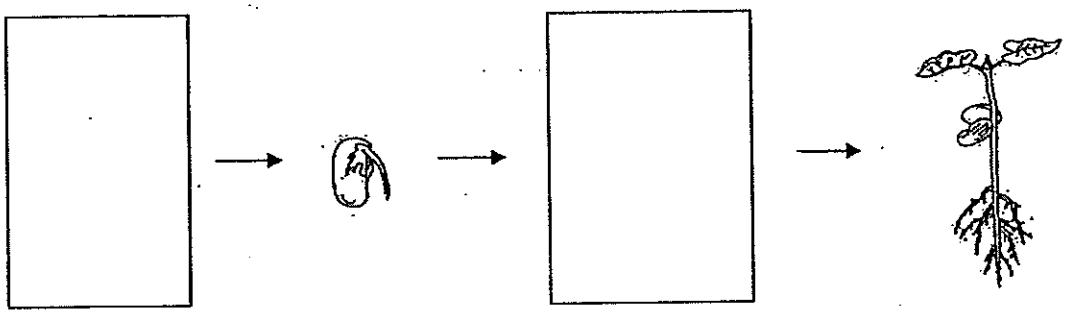
30 The diagram below shows the growth of a young plant with two missing stages, **A** and **B**.



A **B**

Which one of the following shows the correct stages for **A** and **B**?

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

END OF BOOKLET A

Please go on to Booklet B

Anglo-Chinese School (Primary)

END-OF-YEAR EXAMINATION 2014
SCIENCE
PRIMARY FOUR
BOOKLET B

Name: _____ ( ) **Class: Primary 4** ___

Date: 30 October 2014 **Duration of paper: 1 h 45 min**

_____
Parent's/Guardian's signature

INSTRUCTIONS TO CANDIDATES

1. This question paper consists of 12 printed pages including this cover page.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write all your answers in this booklet..

Booklet	Maximum marks	Marks obtained
A	60	
B	40	
Total	100	

For questions 31 to 44, write your answers in the spaces provided in this booklet.

The number of marks available is shown in the brackets [ ] at the end of each question or part question. (40 marks)

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31 Draw lines to match the following animals to the correct groups. [2]

Animals	Groups
	mammal
	insect
	fish
	bird

32 Classify the following into matter and non-matter. [3]

Air	Sand	Shadow

Matter	Non-matter

(Go on to the next page)

Score	/5

33 Martin grew three similar beans in three pots, A, B and C. He gave the beans different amounts of water and minerals. After four weeks, he recorded the growth of the bean plants.

His results are shown in the table below.

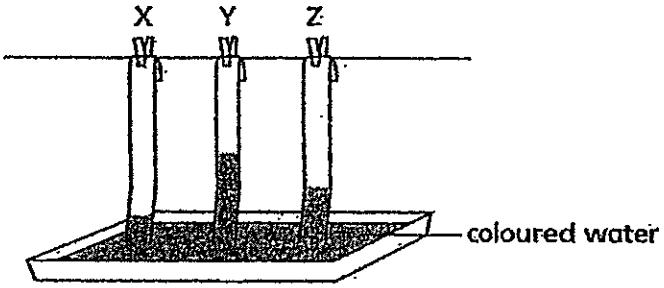
	Pot A	Pot B	Pot C
Minerals	4 g	6 g	6 g
Water	80 ml	50 ml	80 ml
Height of plant	25 cm	30 cm	37 cm
Number of leaves	10	13	18

What can he conclude from the experiment above? [2]

_____

_____

34 Three pieces of materials were suspended from a line with clothes pegs as shown in the diagram below. They were made to hang down with their ends touching some coloured water in a tray.



(a) Absorbency is the ability of a material to absorb liquid.
Arrange the materials, X, Y and Z, in ascending order of their absorbency. [2]

Least absorbent → Most absorbent

(b) Which material would be the most suitable to be made into a swimsuit? [1]

_____

(c) Explain your answer in (b). [1]

_____

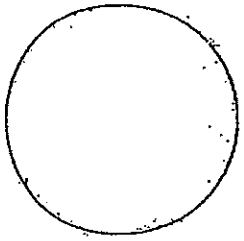
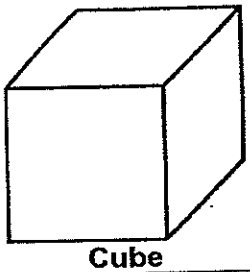
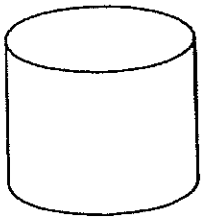
(Go on to the next page)

Score	/ 6

35 James moulded a piece of clay into a sphere. He then measured its mass and volume. Using the same piece of clay, he then went on to reshape it into a cube and lastly into a cylinder. Each time, he also measured their mass and volume.

(a) What was James trying to find out from this activity? [1]

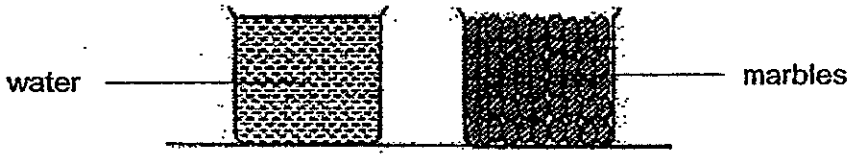
(b) What will be the mass and volume of the cube and cylinder given that the mass of the sphere is 65 g and its volume is 25 cm^3? Complete the table below. [2]

Shape of clay	Mass (g)	Volume (cm^3)
 Sphere	65	25
 Cube	(i)	(ii)
 Cylinder	(iii)	(iv)

(Go on to the next page)

Score	/3

36 Two identical beakers were filled to the brim with water and marbles respectively, as shown in the diagram below.

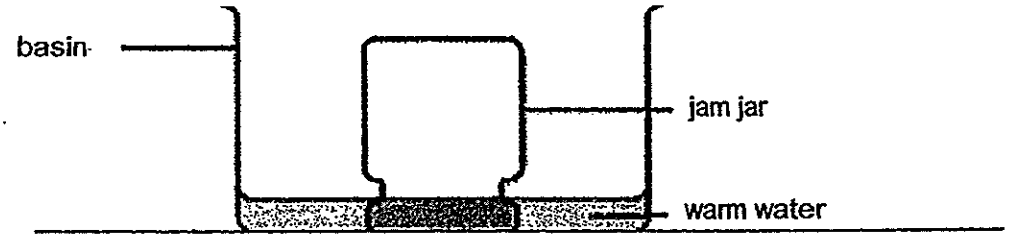


(a) Looking at the water and marbles in the beakers, what can you tell us about the shape of water and the marbles? [1]

(b) When the beaker of marbles was poured into the beaker of water, the water overflowed. When the beaker of water was poured into the beaker of marbles, the water also overflowed.

What property of matter is observed from the above experiment? [1]

37 Arthur took out a jam jar from the refrigerator. He was unable to open the jar so he placed the jam jar in a basin of warm water as shown in the diagram below.



(a) After ten minutes, Arthur removed the jam jar from the basin of warm water and tried to unscrew the metal lid. The lid came off easily. Explain why. [1]

(b) Explain how Arthur can now make use of a basin of iced water instead of warm water to unscrew the metal lid of the jam jar. [2]

(Go on to the next page)

Score	/5

38 (a) Read each statement carefully. Put a tick (✔) in the appropriate boxes to indicate if each statement is true or false. [2]

	Statement	True	False
(i)	Heat is a form of energy.		
(ii)	Heat is the same as temperature.		
(iii)	Heat travels from a place of higher temperature to a place of lower temperature.		
(iv)	Heat loss will result in an increase in the temperature.		

(b) The measuring instrument as show in the diagram below can be used to find the temperature of water in a beaker.

Arrange the following steps in order by indicating 1, 2, 3 and 4 in the blanks below, to describe the correct procedure to find the temperature of water in a beaker. [2]

(i) Place the measuring instrument in the beaker of water such that the tip does not touch the bottom of the beaker. _____

(ii) Hold the measuring instrument upright by its tip. _____

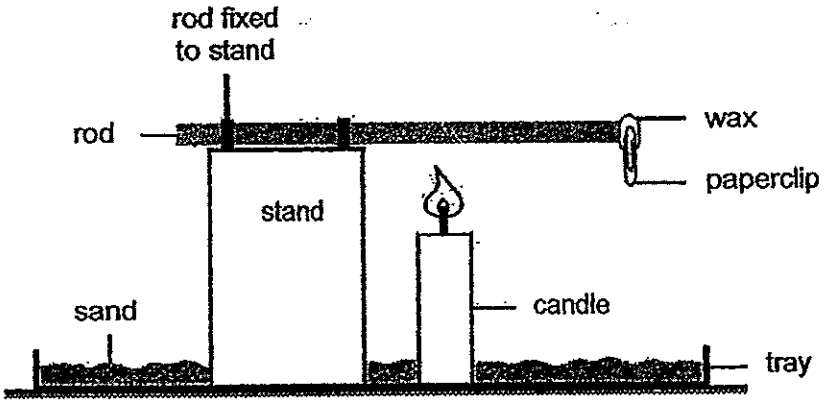
(iii) Observe the level of the liquid in the measuring instrument. _____

(iv) Read the marking nearest to the level of the liquid in the measuring instrument. _____

(Go on to the next page)

Score	
	4

39 Susie carried out an experiment to find out how long heat takes to travel along rods made of different materials, as shown in the diagram below.



In her table of results below, complete the headings. [2]

(a) _____	(b) _____
copper	**21 sec**
glass	**147 sec**
steel	**35 sec**

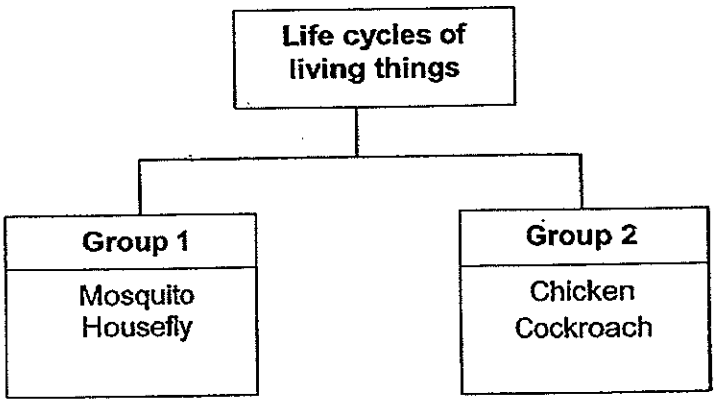
(c) Arrange the materials, copper, glass and steel, in ascending order based on their ability to conduct heat [1]

Poorest conductor of heat → Best conductor of heat

(Go on to the next page)

Score	/3

40 Amy classified ~~six living~~ four living things according to the characteristics of their life cycles. The living things were classified into two groups as shown in the diagram below.



(a) Based ~~o~~ on the classification table above, complete the table below with suitable headings for Group 1 and Group 2. [2]

(i)	**Group 1**	
(ii)	**Group 2**	

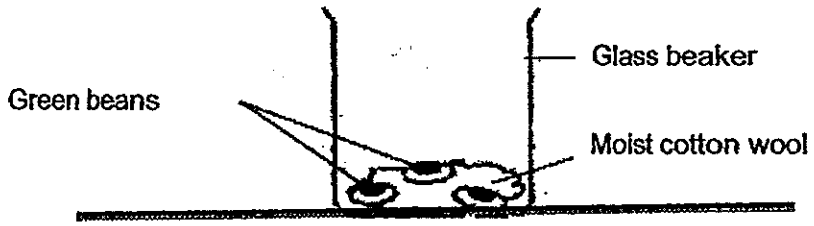
(b) Put a tick (✓) below to indicate which living thing(s) can be classified under Group 1. [1]

Crocodile	
Butterfly	
Dragonfly	

(Go on to the next page)

Score	/ 3

41 Dave set up an experiment as shown in the diagram below. He placed some green beans into a glass beaker filled with moist cotton wool. Dave left the set-up in a room at room temperature.



He observed the green beans for a week and realised that the green beans had germinated.

(a) What conditions are needed for the seed to germinate? [2]

(b) Dave also wanted to find out if the amount of fertilizer affects the germination of the seed.

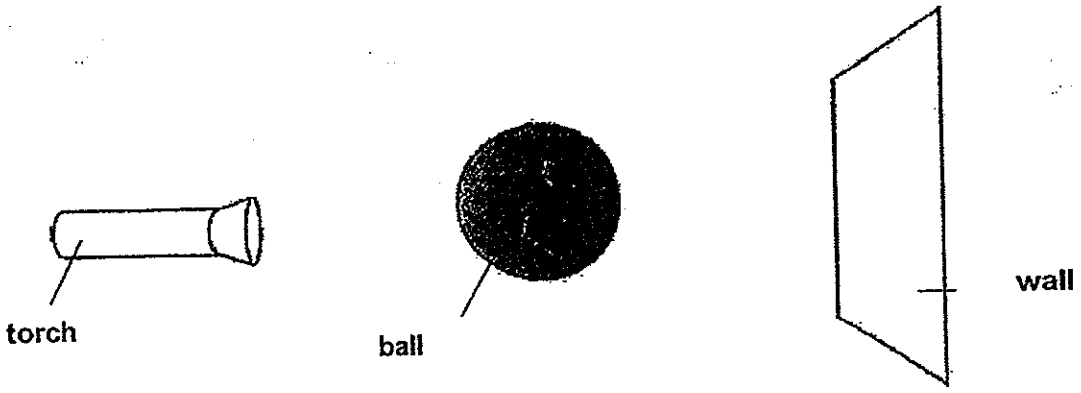
The table below shows the variables for his experiment. Put a tick (✓) in the appropriate boxes to identify the variables that need to be kept the same or changed in order for Dave to carry out a fair test. [1]

Variable	Keep the same	Changed variable
Number of seeds		
Amount of water added to each beaker		
Amount of fertilizer added to each beaker		
Temperature of the room		

(Go on to the next page)

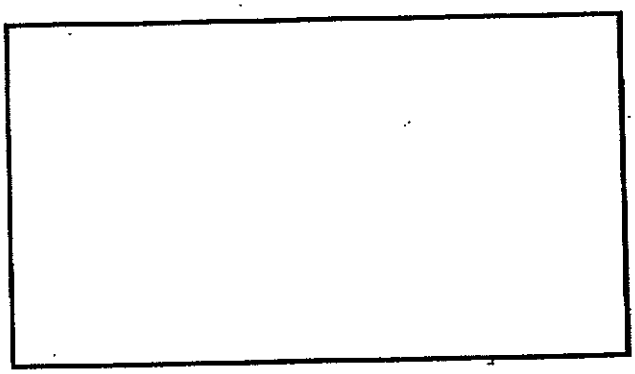
Score	/3

42 Mary shone a torch on a ball and a shadow was formed on a smooth wall.



(a) A shadow is formed when light is _____ by an object. [1]

(b) Using a pencil, draw the shadow of the ball that is formed on the wall in the box below. [1]



(c) How can Mary cast a smaller shadow by moving only the ball? [1]

_____

_____

(d) How can Mary cast a smaller shadow by moving only the torch? [1]

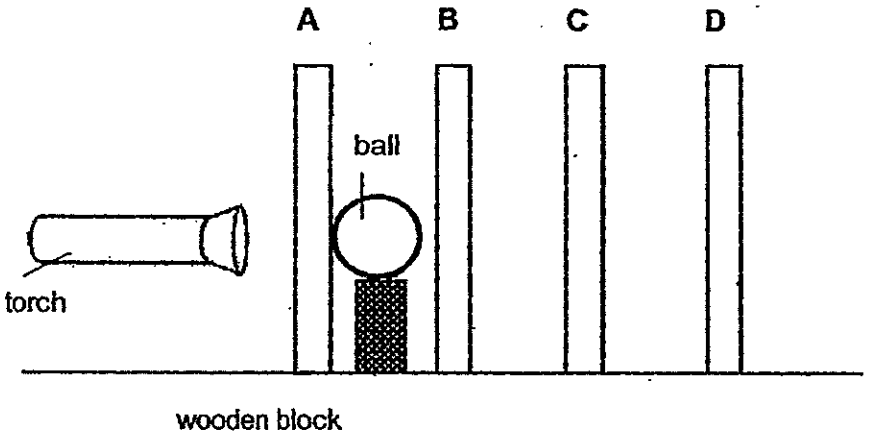
_____

_____

(Go on to the next page)

Score	/4

43 Tom set up an experiment in a dark room as shown below. He placed four sheets of materials, A, B, C and D as shown in the diagram below. He then placed a ball on top of a wooden block between material A and B. Tom switched on the torch and a clear dark shadow was cast on material C.



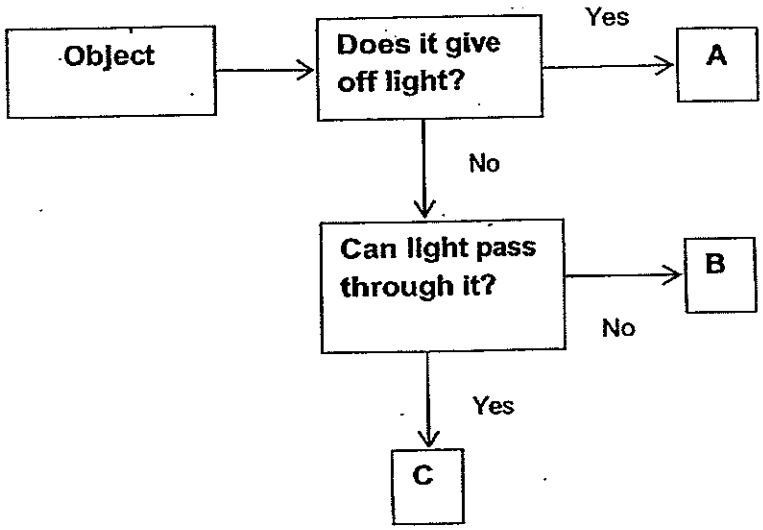
Based on the above observation, Tom drew the following conclusions. Put a tick (✓) in the appropriate box to indicate if each conclusion is 'True', 'False', or 'Not possible to tell'. [2]

	Conclusions	True	False	Not possible to tell
(a)	Material A allows light to pass through.			
(b)	Material B allows light to pass through.			
(c)	Material C allows light to pass through.			
(d)	Material D allows light to pass through.			

(Go on to the next page)

Score	/ 2

44 Study the flowchart below:



Based on the above flowchart,

(a) State one similarity between object B and object C. [1]

_____

(b) State one difference between object B and object C. [1]

_____

_____

END OF BOOKLET B

Please check all your answers carefully

Score	/ 2

Year: 2014

Level: Primary 4

School: Anglo-Chinese School

Subject: Science SA2

Booklet A:

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

Booklet B:

Q31

Animals ----- Groups

Horse ------mammal

Eagle ------bird

Goldfish-----fish

Q32)

Matter	Non-matter
Sand Air	Shadow

Q33) Plants grow best with more water and more minerals.

Q34) a)

X	Z	Y

Least absorbent ----------> Most absorbent

b) X

c) I chose mineral X as it absorbs the least amount of water so that the swimming suit won't get wet so easily.

Q35) a) James is trying to find out if the mass and volume of the clay will change when the shape is changed.

b)

Shape of clay	Mass (g)	Volume (cm^3)
Sphere	65	25
Cube	65	25
Cylinder	65	25

Q36) a) Water does not have a definite shape while marbles have a definite shape.

b) Water and marbles takes up space.

Q37) a) The metal gained heat from the warm water and expanded.

b) Place the jar upright in a basin of iced water covering only the glass body. Arthur will be able to unscrew the material as the jar body will lose heat to the ice water and contract.

Q38) a)

	Statement	True	False
(i)	Heat is a form of energy.	✓	
(ii)	Heat is the same as temperature.		✓
(iii)	Heat travels from a place of higher temperature to a place of lower temperature.	✓	
(iv)	Heat loss will result in an increase in the temperaure		✓

b) (i) 2

(ii) 1

(iii) 3

(iv) 4

Q39) a) material used

b) time taken for the paper clip to fall

c)

Glass	Steel	Copper

Poorest conductor of heat ---------->Best conductor of heat

Q40) a) (i) 4 staged of life cycle

(ii) 3 stages of life cycle

b)

Crocodile	
Butterfly	✓
Dragonfly	

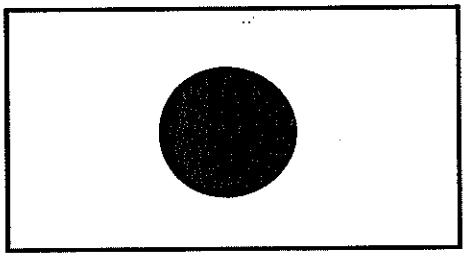
Q41) a) Air, water, warmth

b)

Variable	Keep the same	Changed variable
Number of seeds	✓	
Amount of water added to each beaker	✓	
Amount of fertilizer added to each beaker		✓
Temperature of the room	✓	

Q42) a) Blocked

b)



c) Move he ball further away from the torch.

d) Move the torch away from the ball.

Q43)

	Conclusion	True	False	Not possible to tell
(a)	Material A allows light to pass through	✓		
(b)	Material B allows light to pass through	✓		
(c)	Material C allows light to pass through		✓	
(d)	Material D allows light to pass through			✓

Q44) a) B and C do not give off light.

b) Light can pass through C but light cannot pass through B.