Anglo-Chinese School (Primary)

**END-OF-YEAR EXAMINATION 2015**
**SCIENCE**
**PRIMARY FOUR**
**BOOKLET A**

**Name:** _____ **Class: Primary 4** _____

**Date: 29 October 2015** **Duration of paper: 1 h 45 min**

_____
**Parent's/Guardian's signature**

**INSTRUCTION TO CANDIDATES**

1. This question paper consists of **18** 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 Answer Sheet (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]

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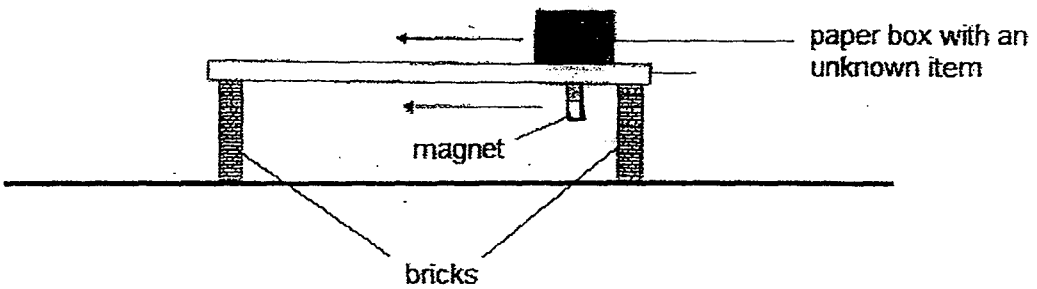
1 An item was placed in a paper box. The paper box was placed on top of a piece of wood. Darren then held a magnet at the bottom of the wood, as shown in the diagram below. When he moved the magnet, the paper box moved along with the magnet. He repeated the experiment three more times, each time replacing the item with a new one.




Which of the following objects were most likely to be the items placed in the paper box?

A Iron ball

B Nickel coin

C Copper coin

D Steel paperclip

(1) A, B and C only

(2) A, B and D only

(3) A, C and D only

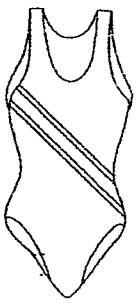
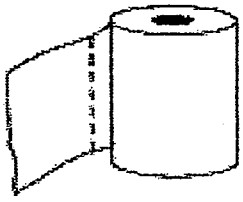
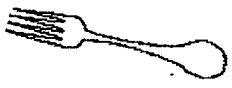
(4) B, C and D only

(Go on to the next page)

2 In which part of the digestive system is water absorbed from the undigested food?

(1) Gullet
(2) Stomach
(3) Small intestine
(4) Large intestine

3 Which one of the following objects is most likely **not** made of a waterproof material?

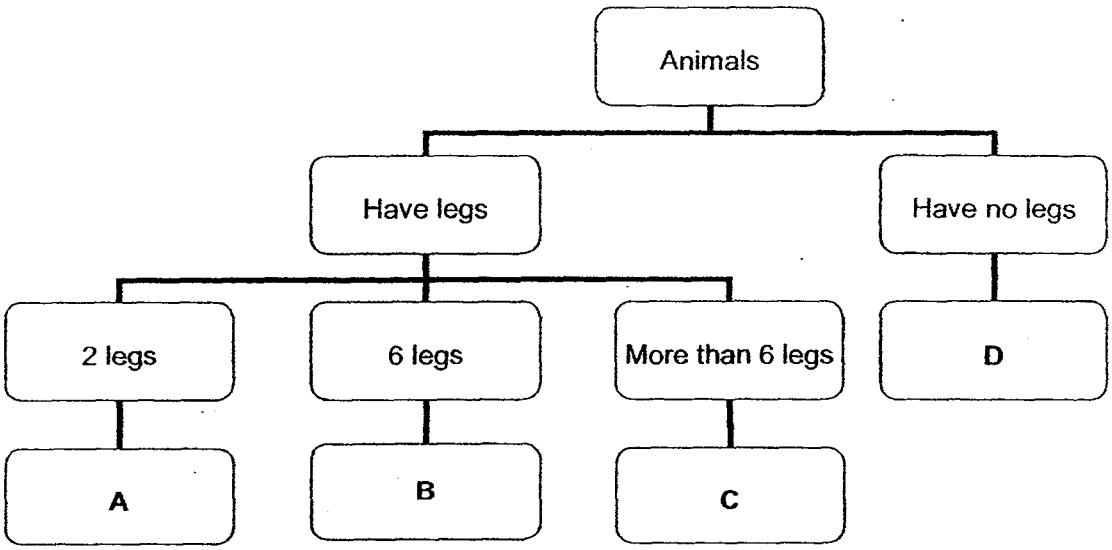
| | |
|---|---|
| (1) swimsuit  | (2) toilet paper  |
| (3) metal fork  | (4) rubber gloves  |

4 Which one of the following is the function of a stem of a plant?

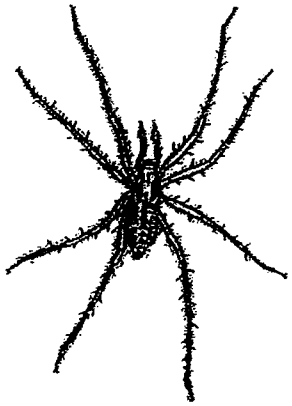
(1) Makes food for the plant
(2) Takes in water
(3) Holds the plant upright
(4) Takes in mineral salts

(Go on to the next page)

5 Study the classification chart below.

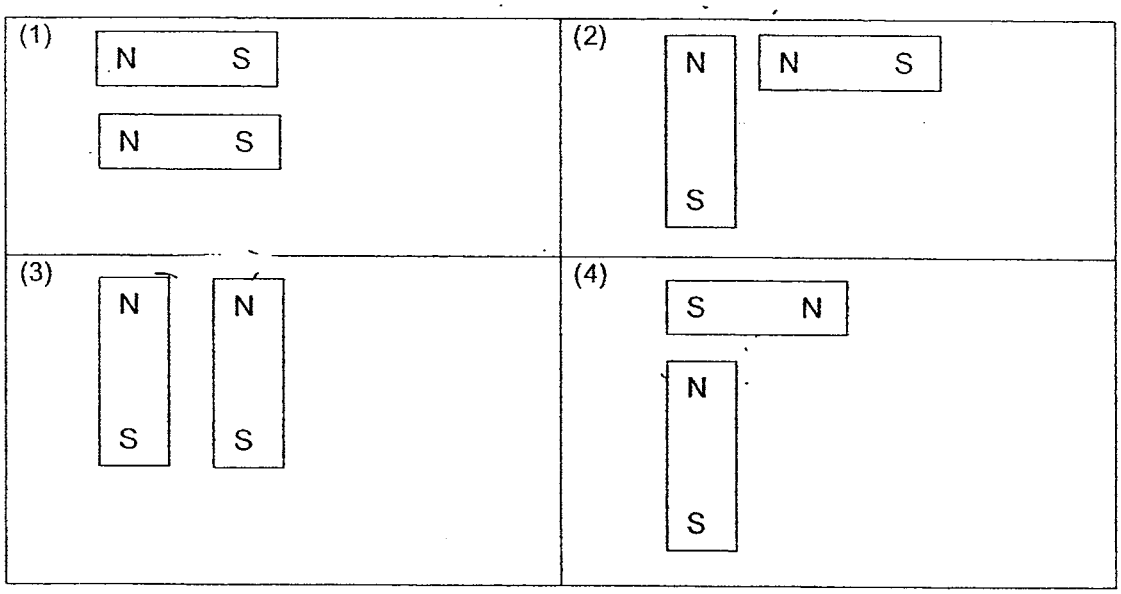



Where would you put this animal in the picture below in the classification chart above?

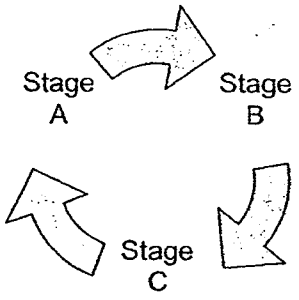


(1) A
(2) B
(3) C
(4) D

6 In which one of the following arrangements will the two magnets attract each other?




7 Study the life cycle of an animal shown below.




Each letter in the cycle represents a particular stage in the life cycle of a grasshopper. If Stage C represents the egg stage, what does Stage A represent?

(1) Pupa
(2) Adult
(3) Larva
(4) Nymph

(Go on to the next page)

8 What are the similarities between an adult cockroach and its nymph?

A They have six legs.

B They have a pair of wings.

C They have a pair of feelers.

(1) A and B only

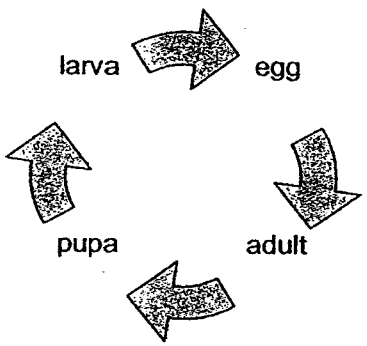
(2) B and C only

(3) A and C only

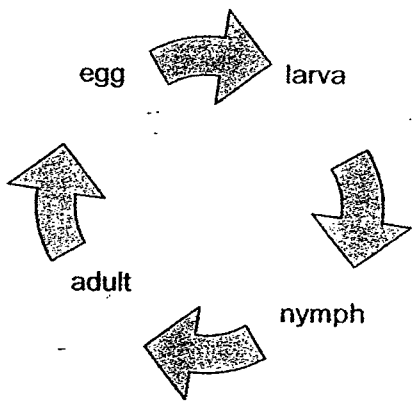
(4) A, B and C

9 Which one of the following diagrams correctly represents a four-stage life cycle of an insect?

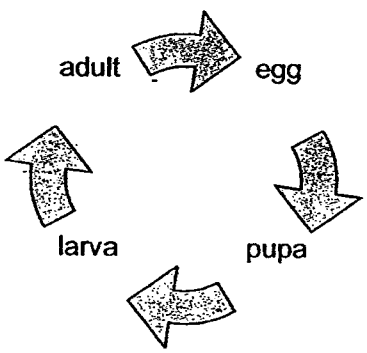
(1)



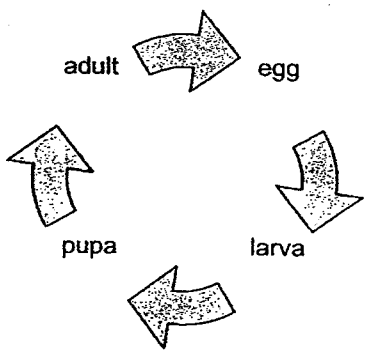

(2)




(3)




(4)

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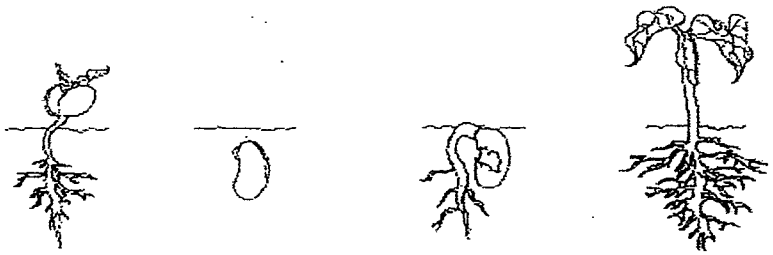
10 The diagram below shows the stages of growth in the life cycle of a plant.



A B C D

Which one of the following shows the correct order of the stages of growth in the life cycle of the plant?

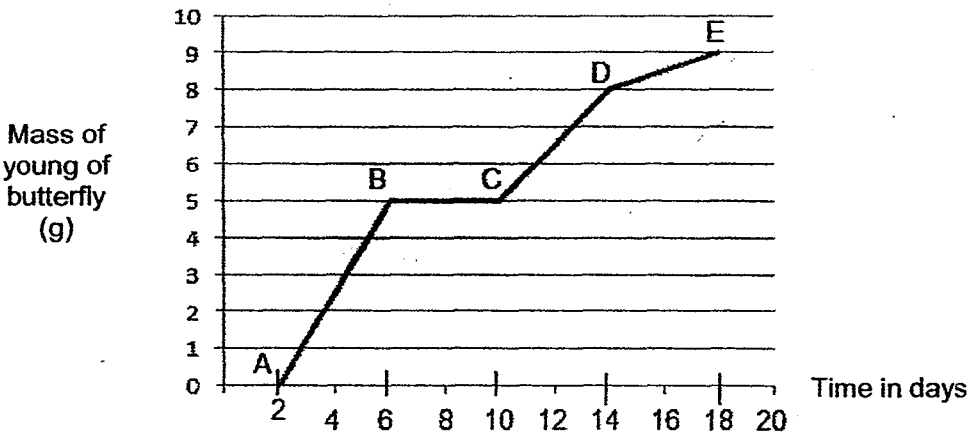
(1) A → C → D → B

(2) B → C → D → A

(3) B → C → A → D

(4) D → A → C → B

11 A butterfly's young is kept in a room. The graph below shows the mass of the young of the butterfly over a period of time.




Which line in the graph above represents the young of the butterfly at the pupa stage?

(1) AB

(2) BC

(3) CD

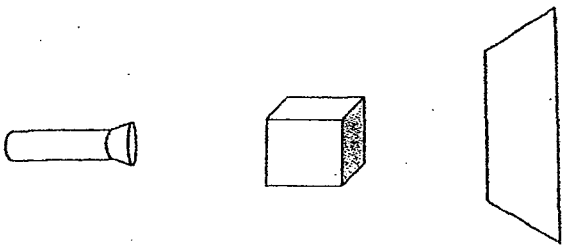
(4) DE

(Go on to the next page)

12 Which one of the following is the best conductor of heat?

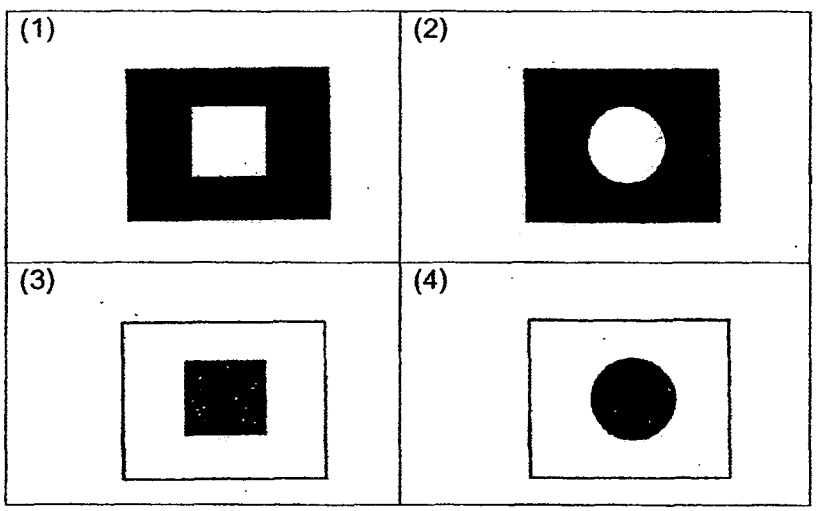
(1) A wooden cup
(2) A plastic cup
(3) A paper cup
(4) A metal cup

13 The set-up below shows light shining on a wooden cube.



torch wooden cube screen

Which one of the following would likely be seen on the screen? The dark patch represents the shadow of the wooden cube.



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

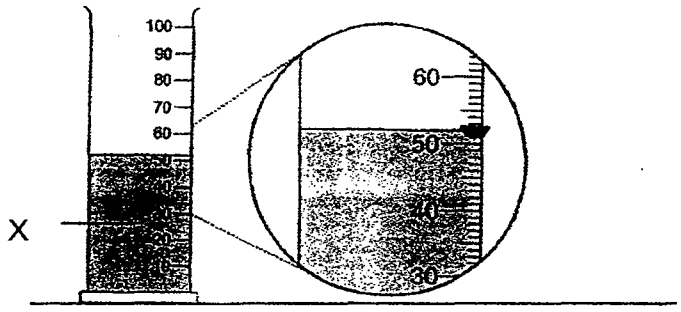
(1) The Sun

(2) A lighted bulb

(3) A candle flame

(4) A woollen blanket

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




(1) 68 ml

(2) 62 ml

(3) 52 ml

(4) 50 ml

16 Which one of the following properties is true of both air and a ruler?

(1) They can be seen.

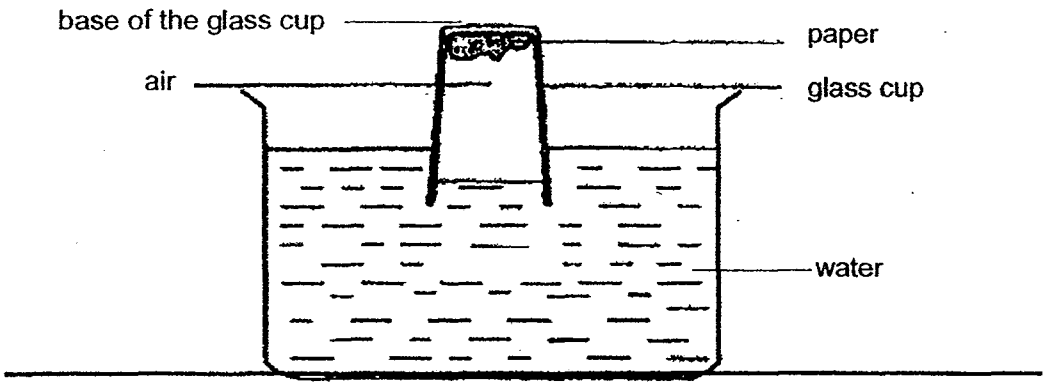
(2) They take up space.

(3) They have fixed shapes.

(4) They have fixed volumes.

(Go on to the next page)

17 Calvin pasted a piece of paper onto the base of a glass cup as shown in the diagram below. He turned the glass cup upside down and pushed it into a basin of water. He noticed that the paper remained dry.




Which property of air does this experiment show?

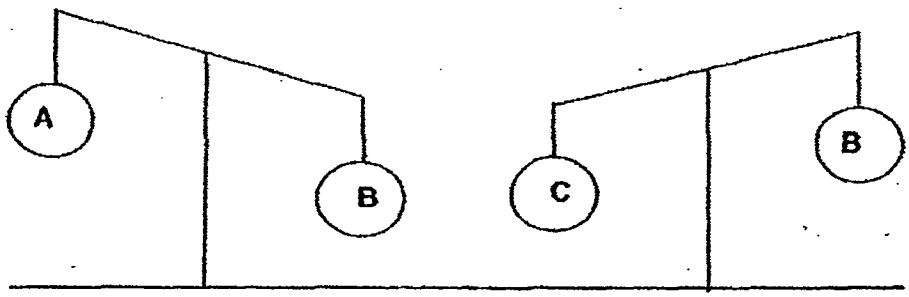
(1) Air has mass.

(2) Air occupies space.

(3) Air cannot dissolve in water.

(4) Air takes the shape of the glass.

18 Annie compared the masses of three different plastic balls, A, B and C, using a lever balance as shown in the diagram below.




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

(1) A is heavier than B.

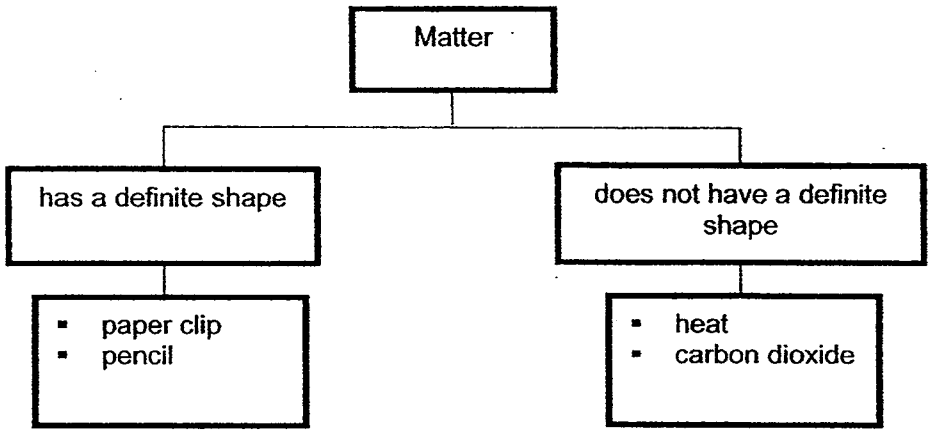
(2) B is heavier than C.

(3) C is heavier than A.

(4) A and C have the same mass.

(Go on to the next page)

19 Study the classification chart below.




Based on the chart above, which one of the following is not classified correctly?

(1) carbon dioxide
(2) paper clip
(3) pencil
(4) heat

20 Which of the following statements are true?

A All matter has mass.
B All matter occupies space.
C All matter can be compressed.

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

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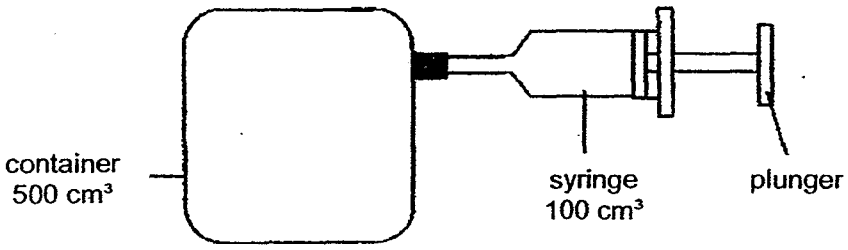
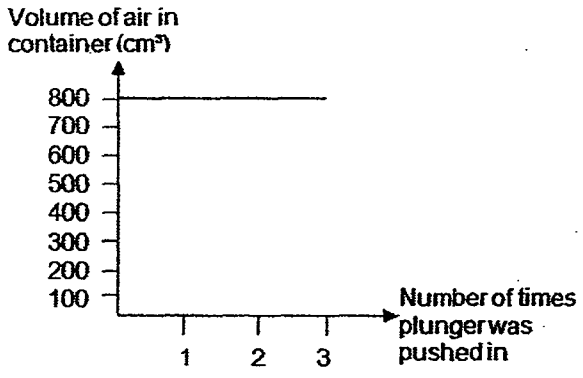
21 Elsa had a container with a capacity of 500 $cm^3$. She fitted a syringe to the container. Each time she pushed in the plunger of the syringe, 100 $cm^3$ of air would enter the container. Elsa pushed in the plunger three times.

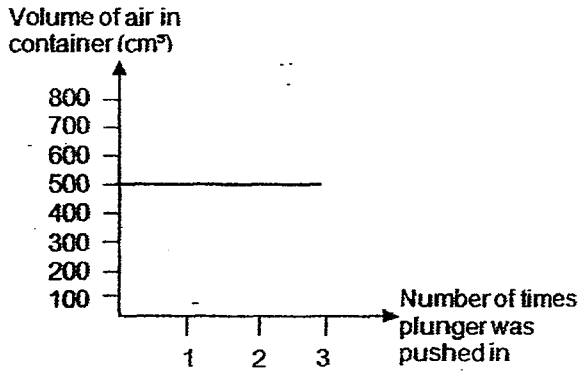



Based on the information given above, which one of the following graphs shows the changes in volume of air in the container?

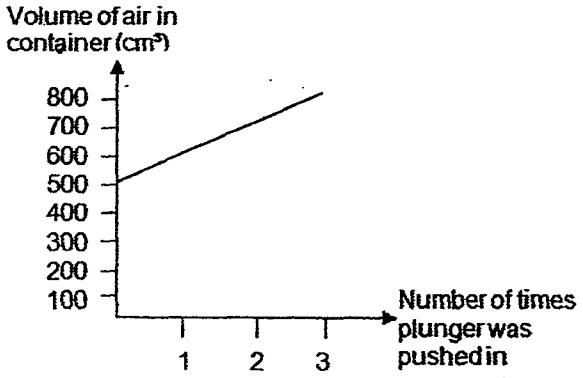
(1)



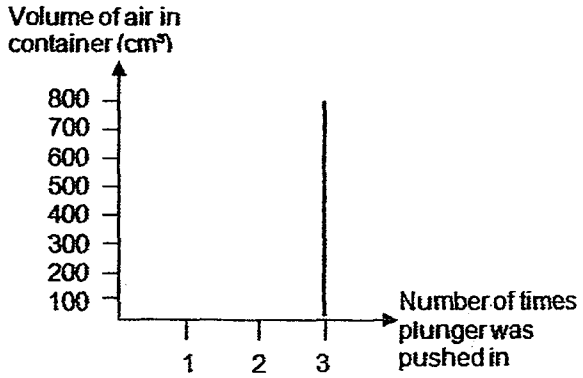

(2)




(3)




(4)

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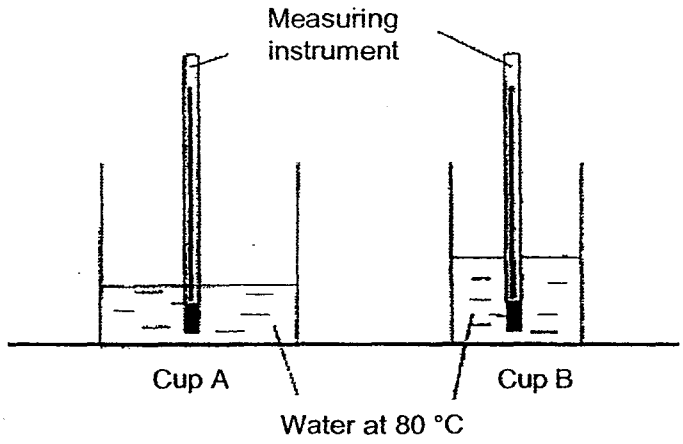
22 David wanted to find out whether Cup A or Cup B was a better conductor of heat. He poured the same amount of water at 80°C into each cup. Then, he measured the temperature of the water in the cups every minute.




Which of the following statements best explained why the experiment conducted was not a fair test?

(1) Cup A was bigger than Cup B.

(2) The amount of water was the same in both cups.

(3) Cup A was a better conductor of heat than Cup B.

(4) The original temperature of water in both cups was the same.

23 Which of the following are natural sources of light?

A Sun

B Stars

C Moon

D Firefly

(1) A and B only

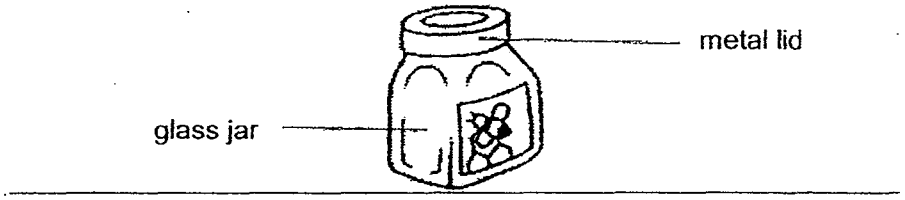
(2) C and D only

(3) A, B and D only

(4) A, B, C and D

(Go on to the next page)

24 Zuby removed a jar of honey as shown below from the refrigerator. She could not open the metal lid of the jar because it was too tight.




She poured some hot water over the metal lid of the jar. This helped her to open the jar as the heat caused the _____ to expand.

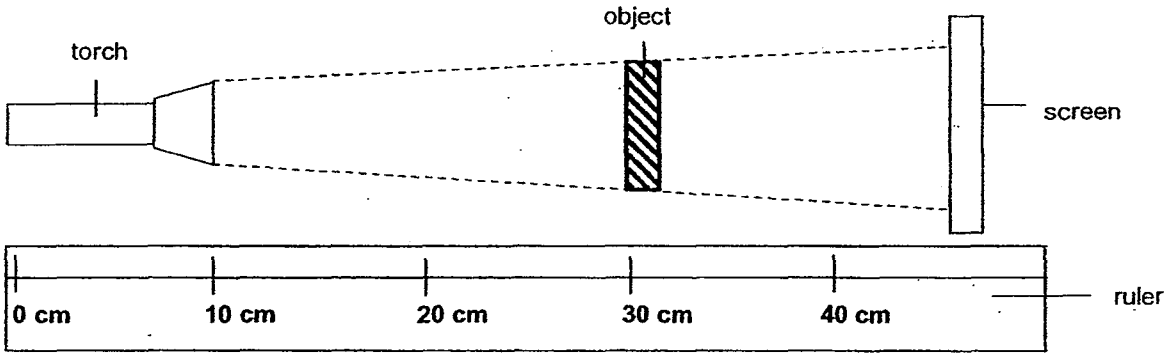
(1) jar

(2) metal lid

(3) air in the jar

(4) air in the jar and the jar

25 Ray placed a torch at the 10 cm mark of a ruler as shown in the diagram below. The torch shone at an object that was placed at the 30 cm mark. A shadow was cast on the screen.

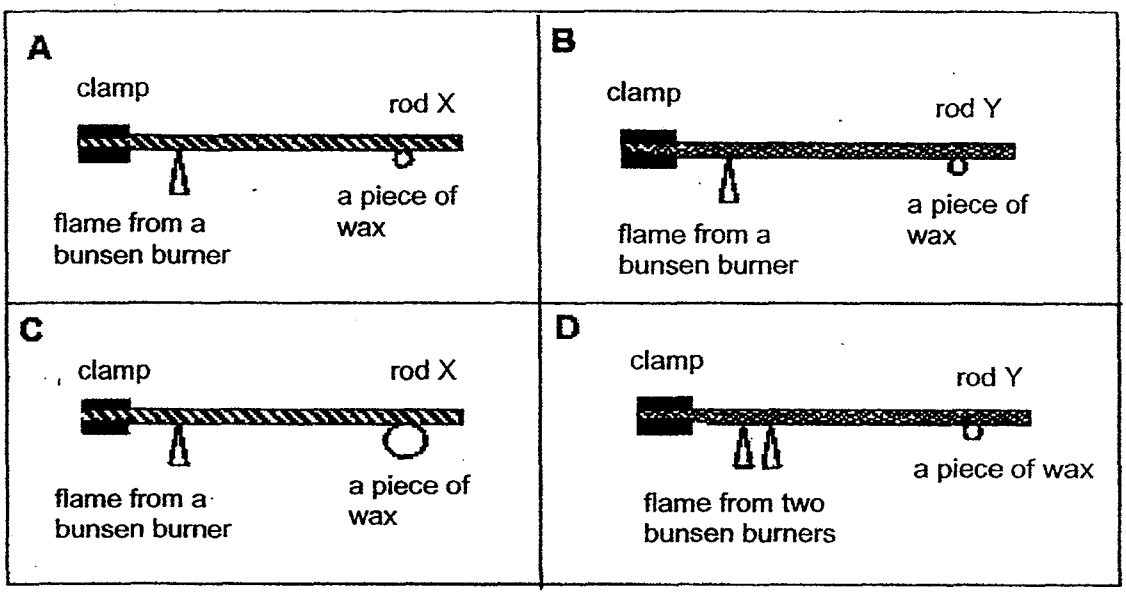



At which position of the ruler should the torch be placed so as to obtain a smaller shadow on the screen than before?

| | **Position of torch on the ruler** |
|---|---|
| (1) | 0 cm mark |
| (2) | 20 cm mark |
| (3) | 30 cm mark |
| (4) | 40 cm mark |

(Go on to the next page)

26 James wanted to find out how the material of a rod affected the time taken to melt a piece of wax.




Which two set-ups should James use to conduct his experiment in order to ensure a fair test?

(1) A and B

(2) A and C

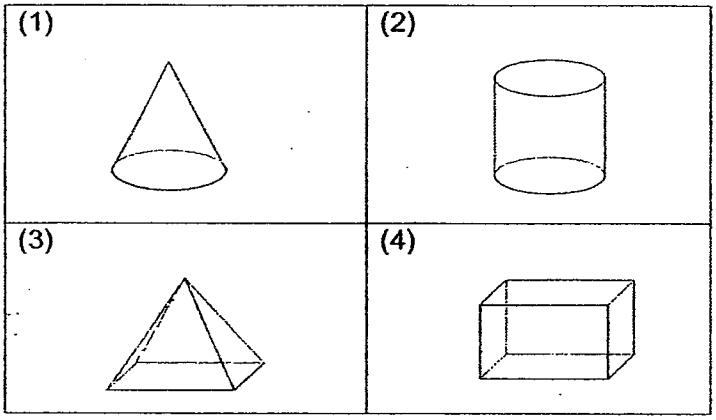
(3) B and C

(4) C and D

(Go on to the next page)

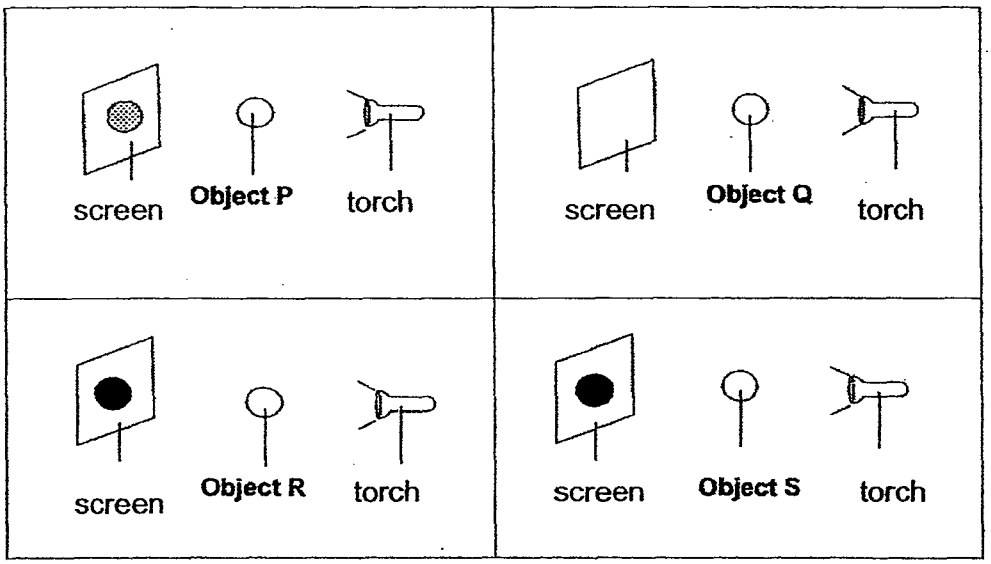
27 Sameel placed an object in front of a light source in a dark room. He observed the following shadow formed on the screen.

Which one of the following objects could not have cast the shadow above?



Study the diagrams below and use them to answer questions **28** and **29**.

Four identical torches were shone at four different objects, **P**, **Q**, **R** and **S**, as shown in the diagrams below. The objects were made of different materials and their shadows were cast on similar screens.




**28** Which one of the following could objects **P**, **Q**, **R** and **S** be?

| | P | Q | R | S |
|---|---|---|---|---|
| (1) | Mirror | Wood | Clear Glass | Tracing Paper |
| (2) | Tracing Paper | Mirror | Wood | Clear Plastic |
| (3) | Clear Glass | Frosted glass | Mirror | Wood |
| (4) | Frosted glass | Clear Glass | Wood | Mirror |

**29** Which one of the following variables has been changed in this experiment?

(1) The brightness of the torch

(2) The size of the screen used

(3) The material used to make the objects

(4) The distance between the object and the torch

(Go on to the next page)

30 A datalogger connected to a light sensor was placed on a table facing the window. The table below shows how the intensity of light changed with time.

| Time (minutes) | Intensity of light (units) |
|---|---|
| 0 | 250 |
| 1 | 252 |
| 2 | 255 |
| 3 | 258 |
| 4 | 689 |

Which of the following statements is/are possible explanation(s) for the sudden change in light intensity after three minutes?

A Sunlight entered the room.

B A light source was turned on.

C A light source was turned off.

D The curtains were fully closed.

(1) A and B only

(2) A and C only

(3) B and C only

(4) B and D only

**END OF BOOKLET A**

Please go on to Booklet B.

Anglo-Chinese School (Primary)

**END-OF-YEAR EXAMINATION 2015**
**SCIENCE**
**PRIMARY FOUR**
**BOOKLET B**

**Name:** _____ **Class: Primary 4** _____

**Date: 29 October 2015** **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 the questions 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(a)** Adam conducted an experiment to find out which material, P, Q, R or S, was the poorest conductor of heat. He poured boiling water into four cups of the same size but made from material P, Q, R or S. He then recorded the time taken for the boiling water to reach $40^0$C. The results were shown below.

| Material | Time taken for boiling water to reach $40^0$C |
|---|---|
| P | 22 min |
| Q | 47 min |
| R | 25 min |
| S | 38 min |

**(i)** Based on the results in the table above, which material should Adam use to make a container to keep his water warm for the longest time? [1]

_____

**(ii)** Using the information from the table above, explain your answer to (i) [1]

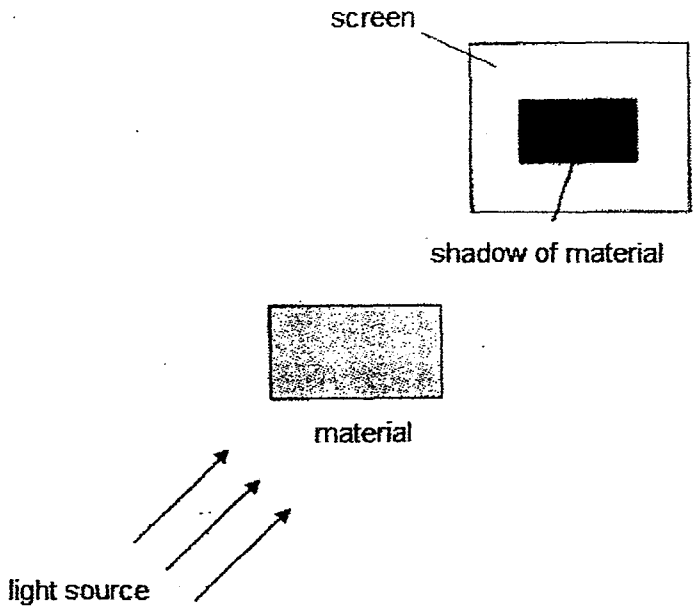
_____

**(iii)** Based on the table above, state the **two** measuring instruments used in the experiment. [1]

_____ and _____

(Go on to the next page)

**(b)** Mary wanted to make a new set of curtains for her living room to reduce the amount of sunlight entering the room. Materials W, X, and Y, were chosen and tested to determine the type of shadow that each material created. She conducted the experiment and the results are shown in the table below.




| Material | Shadow of material observed on screen |
|---|---|
| W | A very dark shadow was formed |
| X | No shadow was formed |
| Y | A light shadow was formed |

**(i)** Which material, W, X or Y, should Mary use to make her curtains? [1]

_____

**(ii)** Based on the information given in the table above, explain your answer to **(i)**. [1]

_____

(Go on to the next page)

| Score | /2 |
|---|---|

32 Jasmine grouped some things as shown in the table below.

| Group F | Group G |
|---|---|
| Lion | Stone |
| Ant | Tissue |
| Mushroom | Pen |

What are the suitable headings for groups **F** and **G**? [2]

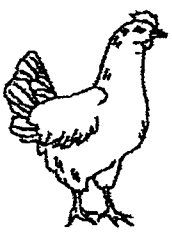
Group F: _____

Group G: _____

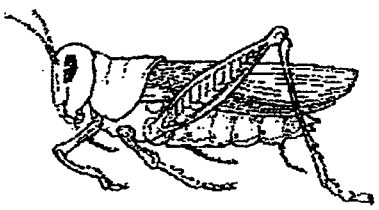
33 Fill in the blanks in the table below with names of broad groups of living things. [2]

| Group of living things | Characteristics |
|---|---|
| | Body covered with feathers |
| | Body divided into three body parts |

34 Classify the following animals according to the number of stages in their life cycle. [2]

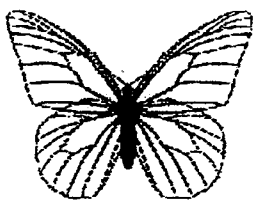


chicken



grasshopper

mosquito



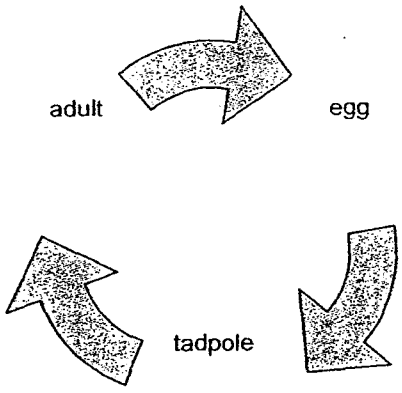
butterfly

| Has three stages in its life cycle | Has four stages in its life cycle |
|---|---|
| | |

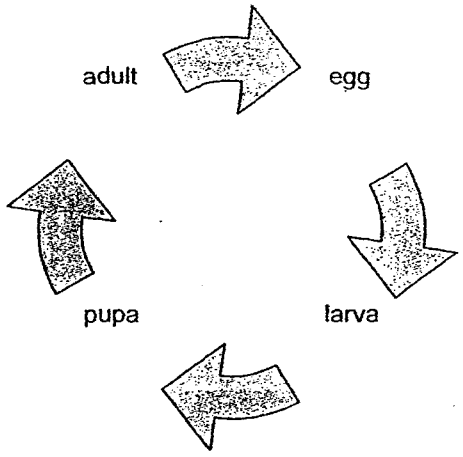
(Go on to the next page)

| Score | / 6 |
|---|---|

35 The diagram below shows the life cycles of a frog and a housefly.




Life Cycle of a Frog




Life Cycle of a Housefly

**(a)** Based on the diagrams above, state one similarity and one difference between the **life cycle** of a frog and a housefly. [2]

**(i)** Similarity: _____

_____

**(ii)** Difference: _____

_____

**(b)** In what way is the tadpole of a frog different from the adult frog? [1]

_____

_____

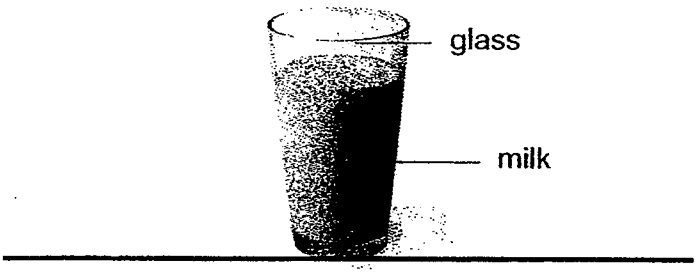
**(c)** At which stage of the life cycle of a housefly does its young stop feeding? [1]

_____

(Go on to the next page)

| Score | /4 |
|---|---|

36 The diagram below shows a glass of milk.

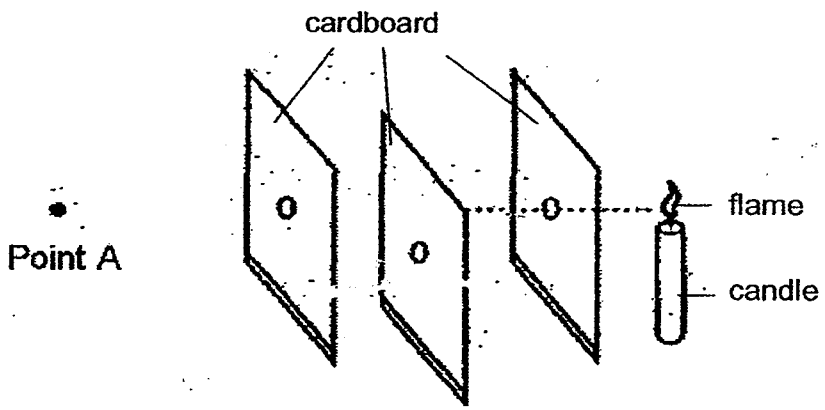



Complete the sentences below to state if the parts labelled are solid, liquid or gas.

**(a)** The glass is a _____ [1]

**(b)** Milk is _____ [1]

37 Wilfred arranged three cardboards as shown in the diagram below.




**(a)** Will Wilfred be able to see the candle flame from Point A? [1]

_____

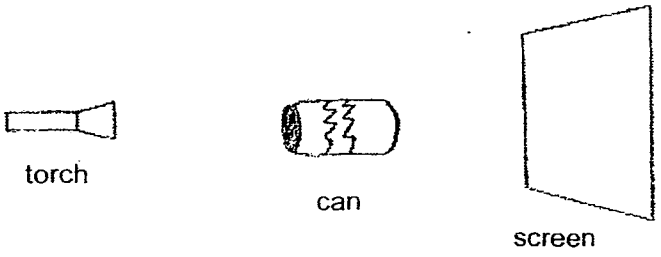
**(b)** Explain your answer in **(a)**. [1]

_____

(Go on to the next page)

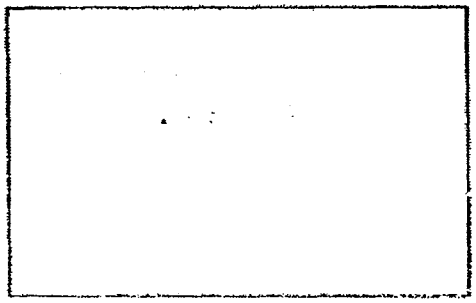
| Score | /4 |
|---|---|

**38** Penny shone a torch on a can and a shadow was formed on a screen.




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

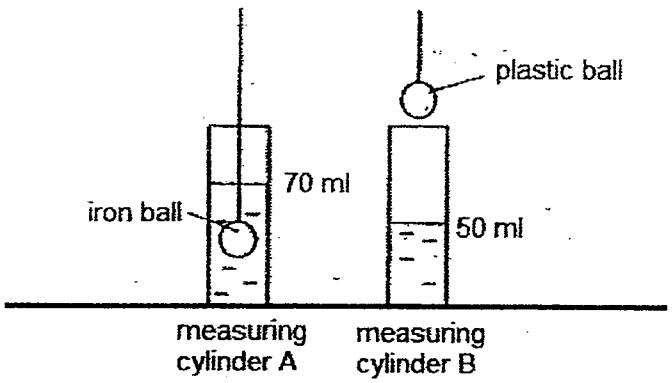
**(b)** Using a pencil, draw the shadow of the can that is formed on the screen. [1]






| Score | /2 |
|---|---|

39 Ali poured 50 ml of water each into measuring cylinders A and B. He lowered an iron ball into measuring cylinder A until it is fully submerged as shown in the diagram below. He repeated the same steps to lower a plastic ball into measuring cylinder B. Both the iron and plastic balls have the same shape and size.




He recorded the water levels in the table below.

| Measuring cylinder | Water level (ml) before the ball was lowered into the measuring cylinder | Water level (ml) after the ball was lowered into the measuring cylinder |
|---|---|---|
| A | 50 | 70 |
| B | 50 | ? |

**(a)** What was the volume of the iron ball? [1]

_____

**(b)** What would the total volume in measuring cylinder B be after the plastic ball was put inside? [1]

_____

**(c)** What does the above experiment show about the property of the metal and plastic balls? [1]

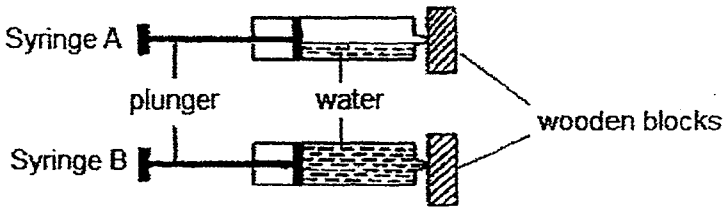
_____

_____

(Go on to the next page)

| Score | / 3 |
|---|---|

40 Study the two syringes, A and B, as shown below.




(a) In which one of the above syringes can the plunger be pushed in further? [1]

_____

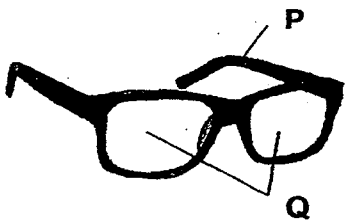
(b) Explain why the plunger of each syringe can or cannot be pushed in further. [2]

_____

_____

_____

41 The diagram below shows a pair of spectacles.




**(a)** State two materials that are suitable in making parts P and Q. [2]

**(i)** Part P: _____

**(ii)** Part Q: _____

**(b)** Explain your answers in **(a)(i)** and **(a)(ii)**. [2]

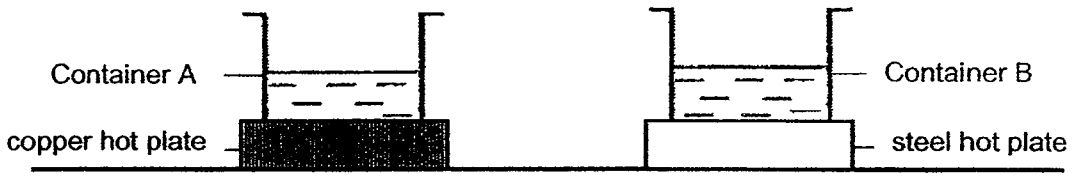
**(a)(i):** _____

**(a)(ii):** _____

(Go on to the next page)

| Score | /7 |
|---|---|

42 In an experiment, Jamie poured the same amount of water into two similar containers, A and B. The two containers were placed on two similar-sized hot plates made of different metals respectively as shown below.




With the same amount of heat applied to both hot plates, Jamie measured the temperature of water in both containers at two-minute intervals. She recorded her results as shown in the table below.

| Duration (min) | Temperature of water in Container A (°C) | Temperature of water in Container B (°C) |
|---|---|---|
| 0 | 26 | 26 |
| 2 | 28 | 30 |
| 4 | 40 | ? |
| 6 | 56 | 70 |
| 8 | 76 | 88 |

**(a)** Predict the possible temperature of water observed in Container B at the 4th minute. [1]

_____

**(b)** Which metal hot plate, copper or steel, is a better conductor of heat? [1]

_____

**(c)** Based on the results in the table above, explain your answer in **(b)**. [1]

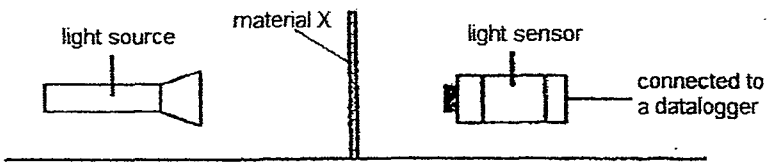
_____

_____

(Go on to the next page)

| Score | / 3 |
|---|---|

43 Ganesh carried out an investigation as shown in the diagram below. He placed a sheet of material X between a light source and a light sensor. The amount of light that passed through material X was detected and recorded by the datalogger.




Ganesh repeated his experiment with different number of sheets of material X and recorded the amount of light detected in the table below.

| Number of sheets | Amount of light detected by the light sensor (units) |
|---|---|
| 1 | 2050 |
| 5 | 1420 |
| 7 | 780 |
| 9 | 0 |

(a) What was the aim of Ganesh's experiment? [1]

_____

(b) Put a tick (✔) in the appropriate boxes to indicate which variable(s) to change or keep the same to ensure a fair test in the experiment above. [1]

| Variable | Change | Keep the same |
|---|---|---|
| **Position of the torch** | | |
| **Position of the light sensor** | | |
| **Number of sheets of material X** | | |

(c) Based on the results shown in the table above, what is the relationship between the number of sheets of material X and the amount of light detected by the light sensor? [1]

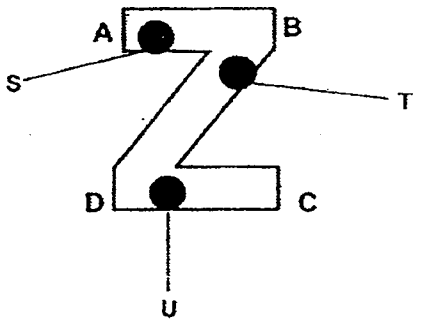
_____

_____

(Go on to the next page)

| Score | /3 |
|---|---|

44 S, T, and U are pieces of wax of similar size. They were stuck on a piece of wire shaped like the letter "Z".




When the wire was heated at a certain point, the pieces of wax melted in the order of T, S and U.

**(a)** At which point, A, B or C, was the wire heated? [1]

_____

**(b)** Explain your answer in (a). [1]

_____

_____

**(c)** If the wire was heated at point D instead, predict the order in which the pieces of wax would fall [1]

_____

**END OF BOOKLET B/ PAPER**

Please check all your answers carefully.

| Score | / 3 |
|---|---|

**EXAM PAPER 2015**
**LEVEL : PRIMARY 4**
**SCHOOL : ANGLO-CHINESE SCHOOL (PRIMARY)**
**SUBJECT : SCIENCE**
**TERM : SA2**

| Q 1 | Q 2 | Q 3 | Q 4 | Q 5 | Q 6 | Q 7 | Q 8 | Q9 | Q 10 |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 4 | 2 | 3 | 3 | 4 | 4 | 3 | 4 | 3 |
| Q 11 | Q 12 | Q 13 | Q 14 | Q 15 | Q16 | Q17 | Q18 | Q19 | Q20 |
| 2 | 4 | 3 | 4 | 3 | 2 | 2 | 3 | 4 | 1 |
| Q21 | Q22 | Q23 | Q24 | Q25 | Q26 | Q27 | Q28 | Q29 | Q30 |
| 2 | 1 | 3 | 2 | 1 | 1 | 1 | 4 | 3 | 1 |

Q31a (i) Material Q
Q31a (ii) It took the longest time to reach 40°C, so it is the best material.
Q31a (iii) Stopwatch and thermometer

Q31b. (i) Material Y.
Q31b. (ii) The material was translucent allowing some light to pass through.

Q32. Group F: Living things Group G: Non – living things

Q33. Birds / Insects

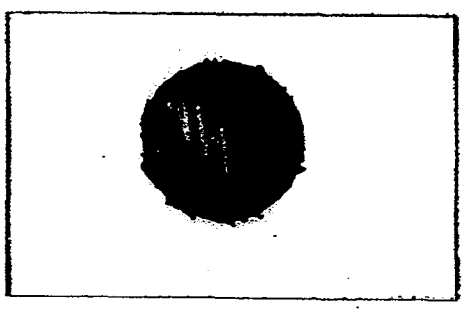
Q34. Has three stages in its life cycle - Chicken / Grasshopper
Q34. Has four stages in its life cycle – Mosquito / Butterfly

Q35a (i) Both life cycles start with the egg stage.
Q35a (ii) The life cycle of a housefly has 4 stages whereas the life cycle of a frog has 3 cycles.
Q35b. The tadpole breathes through its gills while the adult frog breathes through its skin.
Q35c. The pupa stage.

Q36a. solid Q36b. liquid Q37a. NO

Q37b. Light travels in a straight line, and the light was blocked by the middle piece of opaque cardboard.

Q38a. blocked Q38b. **SEE PICTURE**



screen

Q39a. $20cm^3$
Q39b. 70ml
Q39c. They are solids, and they have definite volume.

Q40a. Syringe A.
Q40b. Air can be compressed, and there was air in syringe A, allowing it to be pushed in.

Q41a. Part P: Plastic Q41a Part Q: Glass
Q41b (i) It is light, so it is not heavy.
Q41b (ii) Glass is transparent, allowing all the light to pass through, allowing the user to see things clearly.

Q42a. 50°C
Q42b. The steel hot plate
Q42c. The temperature of water in container A is lower than the temperature of water in Container B in 8 minutes.

Q43a. The aim was to find out if the number of sheets affect the amount of light detected by the light sensor.

Q43b. Position of the torch – keep the same
Q43b. Position of the light sensor – keep the same
Q43b. Number of sheets of material X – change

Q43c. The higher the number of sheets of material X, the les light will be detected by the light sensor.

Q44a. Point B.
Q44b. Wax T melted first, followed by S and finally U. Point B was where the wire was heated.
Q44c. U,T,S

**THE END**