Anglo-Chinese School
(Primary)

A Methodist Institution
(Founded 1886)

SEMESTRAL ASSESSMENT TWO 2019
SCIENCE
PRIMARY FOUR
BOOKLET A

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

Date: 24 October 2019 **Total Time for Booklets A and B: 1 h 45 min**

Additional Materials: Optical Answer Sheet (OAS)

INSTRUCTIONS TO CANDIDATES

1. Write your name, index number and class in the spaces provided.
2. Do not turn over 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.

This question paper consists of 21 printed pages including this cover page.

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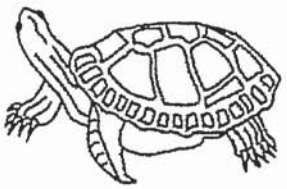
For each question from 1 to 28, four options are given. One of them is the correct answer.
Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.

(56 marks)

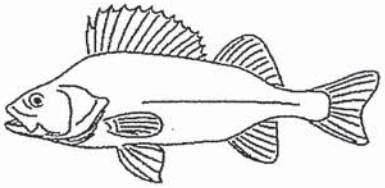
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1 Which animal is **NOT** a reptile?

(1)



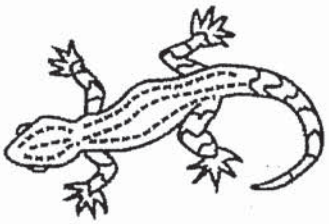
(2)



(3)



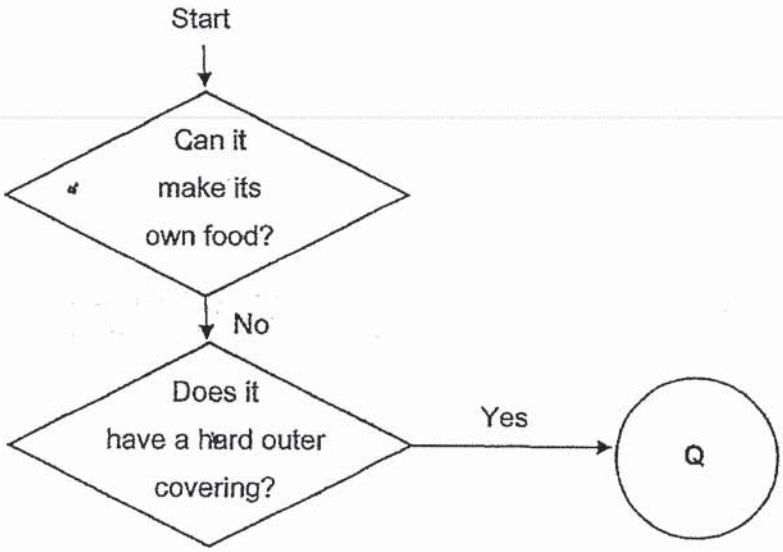
(4)



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2 Study the diagram below.



What could Q be?

(1) bird

(2) plant

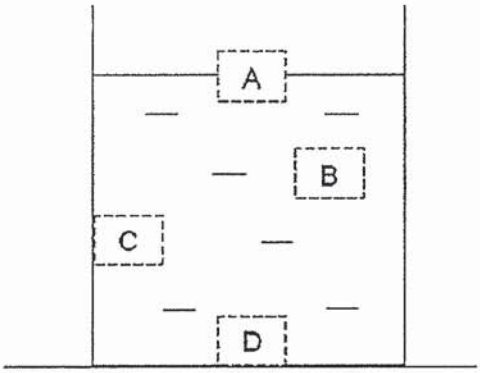
(3) insect

(4) mammal

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3 Bruce put a metal solid block into a container of water.
At which position, A, B, C or D, would the block mostly likely to be found?



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

4 Nina made the following observations on the life cycle of an animal.

- The young looks like the adult.
- There are three stages in the life cycle.

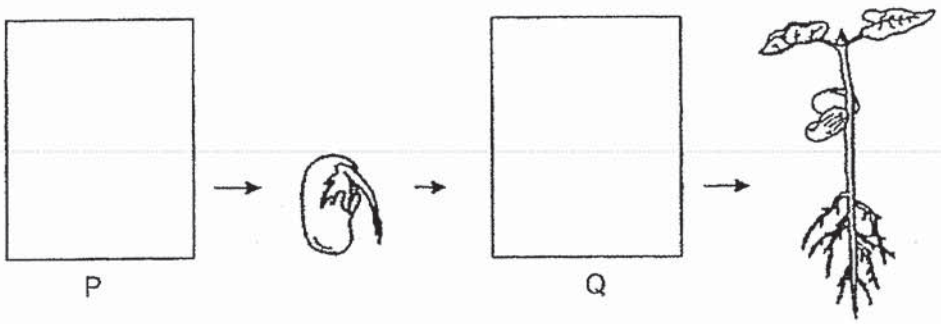
Which animal was Nina observing?

(1) frog
(2) beetle
(3) mosquito
(4) cockroach

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5 The diagram below shows the growth of a young plant with two missing stages P and Q.



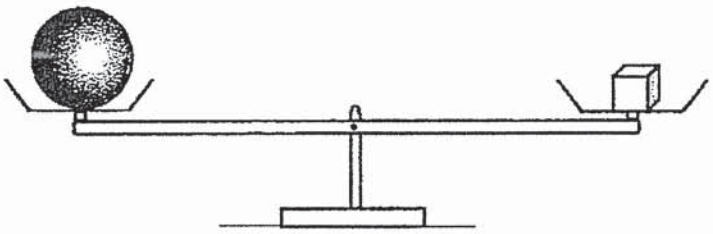
Which of the following show the correct stages for P and Q?

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

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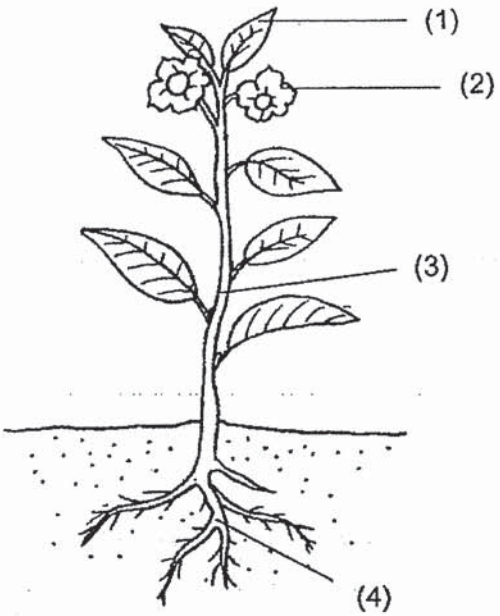
6 Study the diagram below.



Which of the following statements is true?

(1) Both objects have the same size.
(2) Both objects have the same mass.
(3) Both objects have the same shape.
(4) Both objects have the same volume.

7 The diagram shows a plant.
Which part, (1), (2), (3) or (4), helps to support the plant upright?



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8 Which one of the following can be attracted by a magnet?

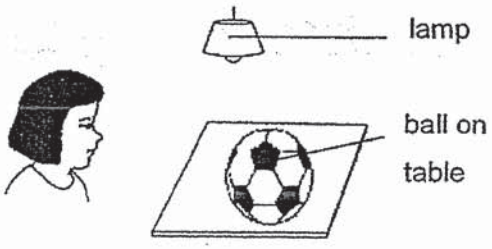
(1) iron ball

(2) rubber ball

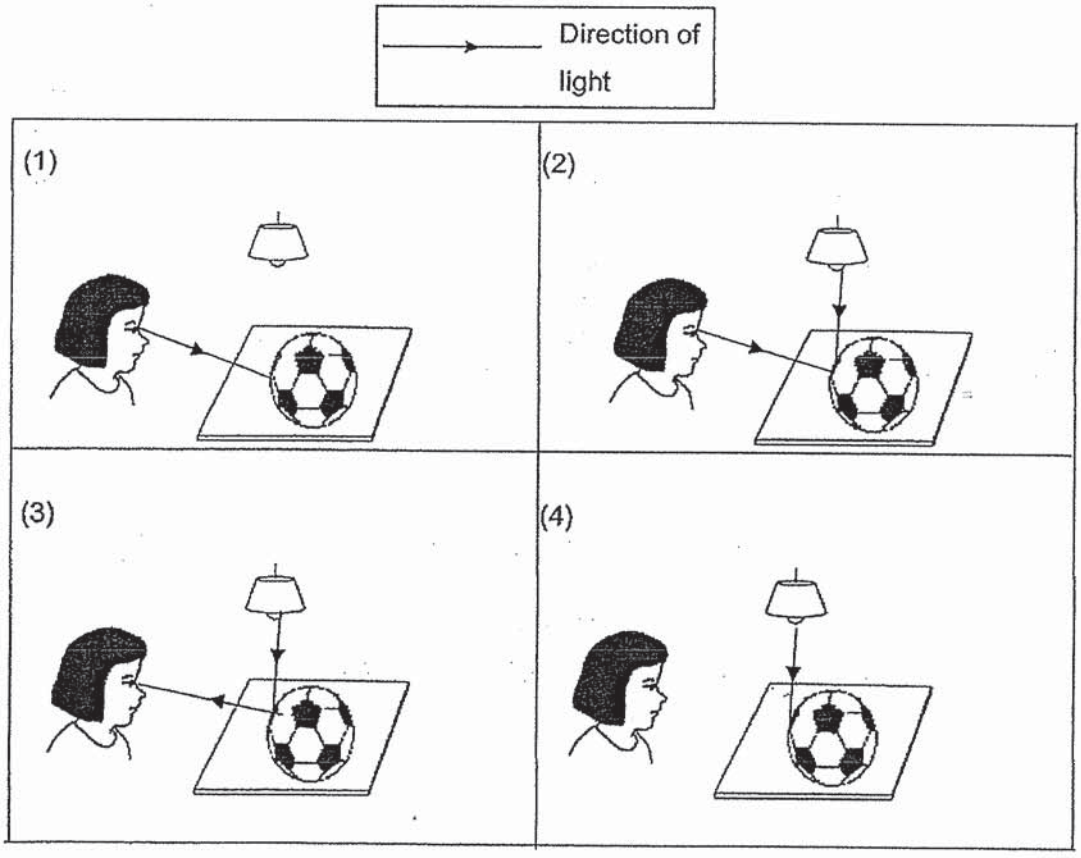
(3) plastic ball

(4) wooden ball

9 Look at the picture below.



Which of the following explains why Sue can see the ball on the table?



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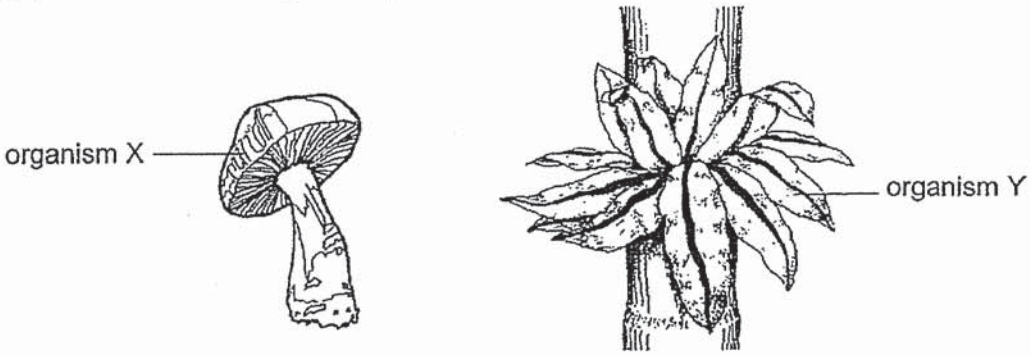
10 Hashim boiled some water in the pot shown below.



He is able to hold the pot of boiling water using the plastic handles.
This is because plastic is a _____.

(1) light material
(2) flexible material
(3) poor conductor of heat
(4) good conductor of heat

11 The pictures show two organisms, X and Y.



Which of the following statements about organisms X and Y is correct?
Both organisms X and Y _____.

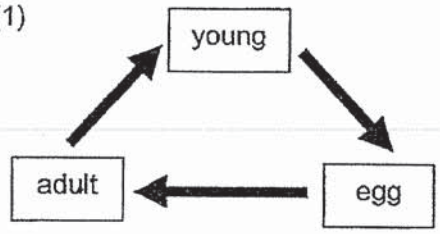
(1) are fungi
(2) have leaves
(3) reproduce from spores
(4) cannot make their own food

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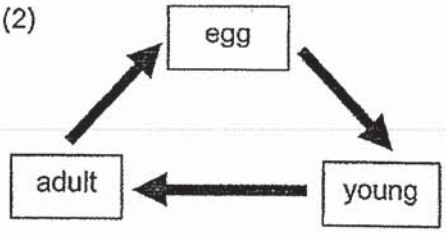
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12 Which of the following represents the life cycle of a chicken?

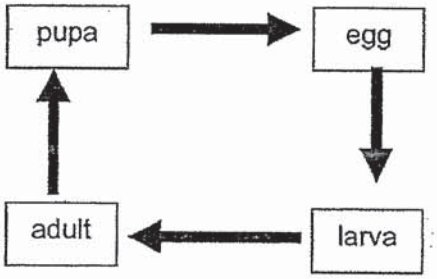
(1)



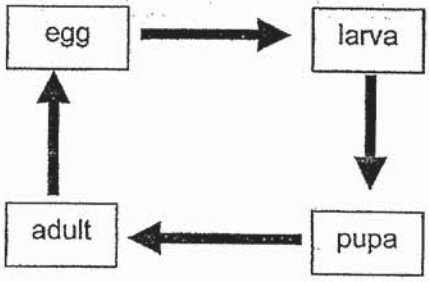
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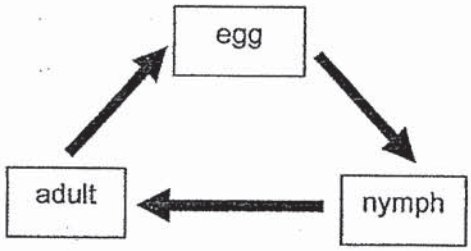
(3)



(4)



13 Study the life cycle of Animal Z below.



Based on the above life cycle, which of the statement is correct?

(1) The nymph lives on land.

(2) Animal Z lays its eggs in water.

(3) The nymph looks like the adult.

(4) Animal Z has a 3-stage life cycle.

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14 The table shows what Nicole had observed about the growth of an insect.

Date	Observation
15 May	Eggs were laid.
16 May	Eggs hatched into larva.
20 May	Some larva became pupa.
22 May	Some pupa became adult insects.

Based on the information from the table above, which of the following statements is true?

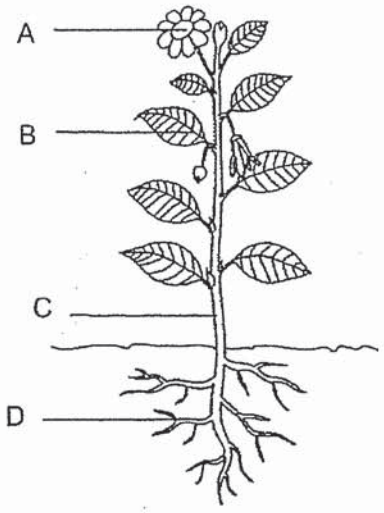
(1) The adult insect is able to fly.

(2) The eggs took three days to hatch.

(3) The adult insect has six legs and a pair of wings.

(4) The insect spends most of the time growing up as a larva.

15 The diagram shows an adult plant.



Which part of the plant, A, B, C or D will develop into a fruit as the plant grows?

(1) A

(2) B

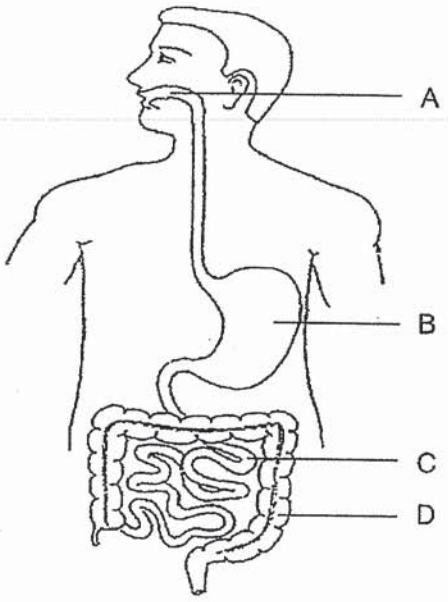
(3) C

(4) D

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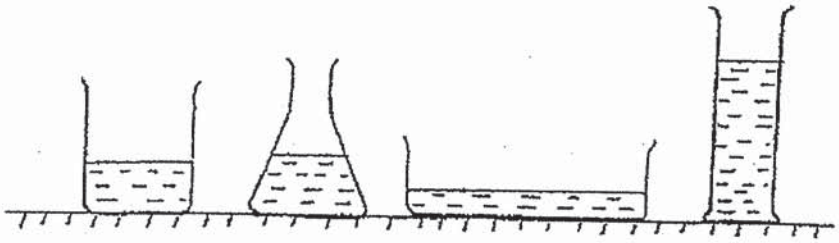
16 The diagram shows the human digestive system.



Which part, A, B, C or D in the digestive system represents the start of the digestion process?

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

17 Rani poured equal amounts of a liquid into four different containers as shown.



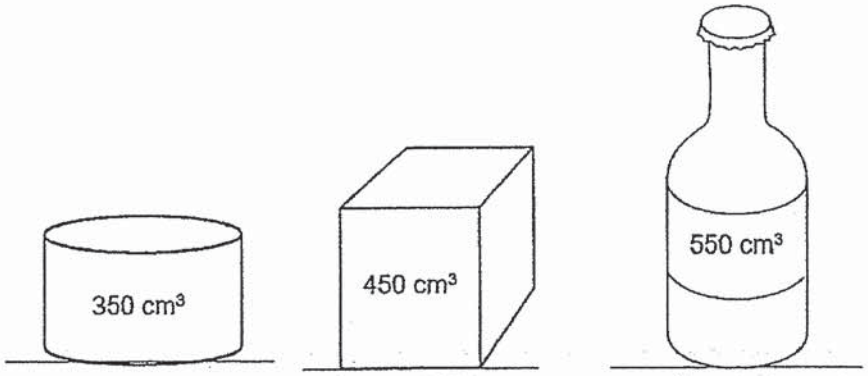
What does her experiment show about the property of a liquid?

(1) It has mass.
(2) It does not have a definite shape.
(3) It does not have a definite volume.
(4) It can exist in three different states.

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18 The three containers shown have different volumes. 400 cm^3 of substance A is found to be able to occupy all the space in each of the three containers.



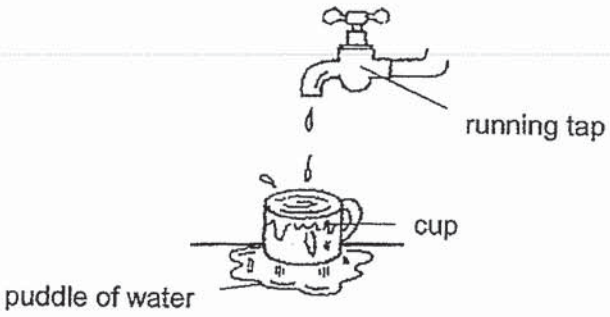
From the information given, what can be concluded about the volume and shape of substance A?

	Volume	Shape
(1)	definite	definite
(2)	definite	not definite
(3)	not definite	definite
(4)	not definite	not definite

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19 A cup was placed under a running tap as shown in the diagram. After ten minutes, a puddle of water was found around the cup.



Which of the following statement(s) is/are true about water from the above observation?

A It occupies space.

B It has a definite shape.

C It has a definite volume.

(1) A only

(2) A and B only

(3) A and C only

(4) B and C only

20 Raja classified some items based on their properties into the table.

Group	Items
A	air, wind
B	sand, sugar
C	milk, coffee
D	music, sunlight

In which group should he place "shadow" in?

(1) A

(2) B

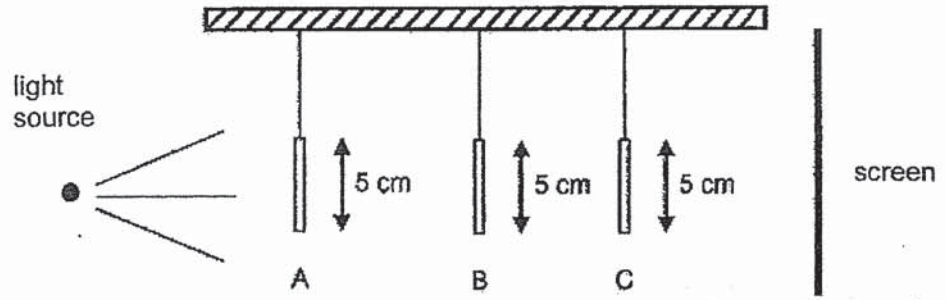
(3) C

(4) D

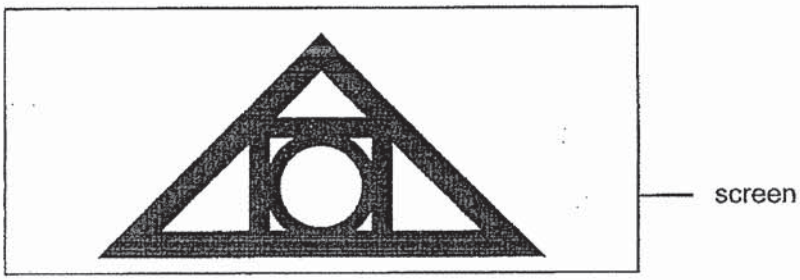
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21 Ali placed three shapes A, B and C at different distances in front of a light source as shown below. The shapes are hollow in the center.



The diagram below shows the shadow that was seen on the screen.



Which of the following correctly represents shapes A, B and C?

	A	B	C
(1)	circle	square	triangle
(2)	triangle	square	circle
(3)	square	triangle	circle
(4)	square	circle	triangle

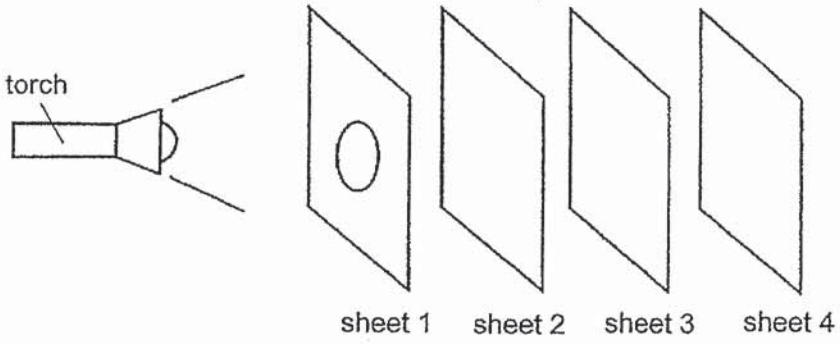
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22 Cheryl set up an experiment in a dark room using a torch and four sheets made of different materials. One of the sheets had a hole cut out from it. The properties of the four sheets of materials are shown in the table below.

Property of materials	Materials
Does not allow light to pass through	W, X
Allows light to pass through	Y, Z

How should Cheryl arrange the sheets if she wanted a bright circular patch of light to appear on sheet 3?

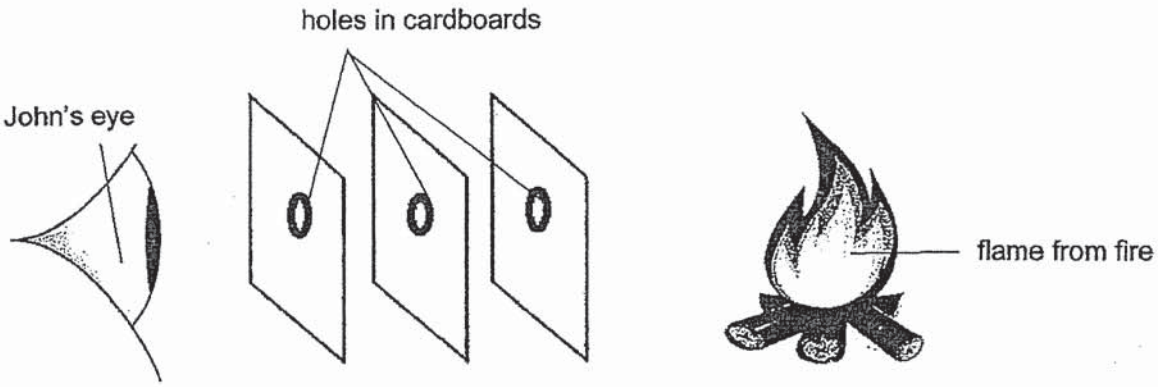


	sheet 1	sheet 2	sheet 3	sheet 4
(1)	W	X	Z	Y
(2)	W	Y	Z	X
(3)	X	Z	Y	W
(4)	X	Y	W	Z

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23 John set up an experiment as shown.



When the cardboards were placed in a straight line, John could see the flame. However, when he shifted one of the cardboards slightly towards the left, he could not see the flame anymore.

Which property of light can he conclude from the experiment done above?

(1) Light travels in a straight line.

(2) Light is absorbed by the flame.

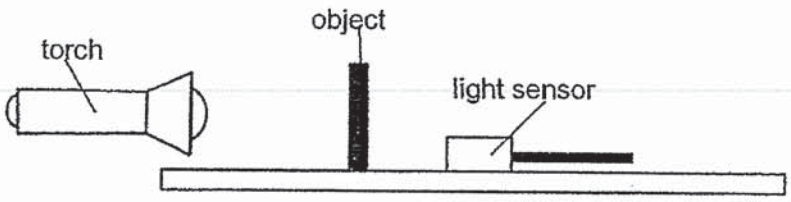
(3) Light is reflected from the flame.

(4) Light can pass through cardboards.

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24 Rudy wanted to investigate how different materials affect the amount of light passing through them using the set-up shown.



Which of the following variables should be kept constant to ensure a fair test?

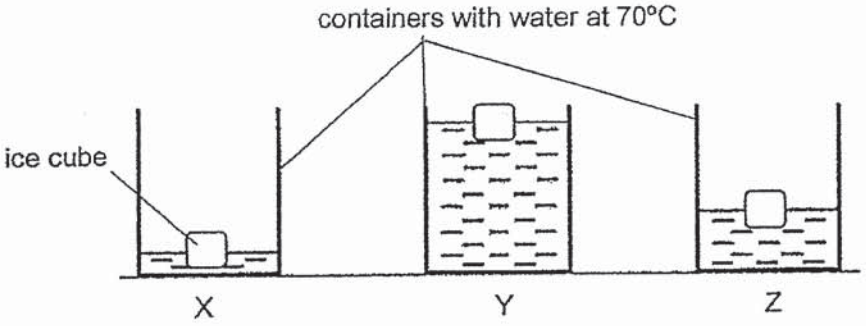
A The material of the object
B The thickness of the object
C The amount of light from the torch
D The distance between the torch and the object

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

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25 Jimmy set up the experiment as shown. He placed similar ice cubes into beakers X, Y and Z containing different amounts of water at 70°C.



Jimmy recorded the time taken for each ice cube to melt completely.

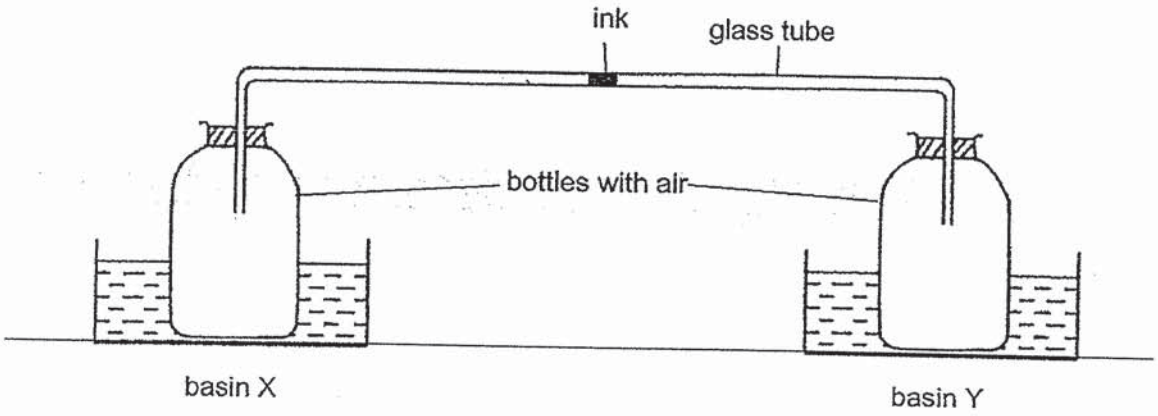
Which of the following shows the correct order in which the ice cubes in beakers X, Y and Z are likely to melt completely?

	fastest →		slowest
(1)	Y	X	Z
(2)	Y	Z	X
(3)	Z	X	Y
(4)	Z	Y	X

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26 Aaron connected two identical bottles using a glass tube which contained a drop of ink. He placed one bottle in basin X and the other bottle in basin Y at the same time as shown in the diagram.



Basins X and Y contained equal amounts of water at different temperatures.

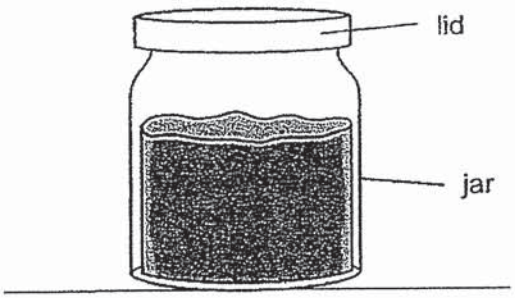
Which of the following is correct?

	Temperature of water (°C)		Direction of movement of ink
	basin X	basin Y	
(1)	20	80	→
(2)	80	20	→
(3)	80	40	←
(4)	40	20	←

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27 Richard could not open a jar of jam because the lid was too tight.



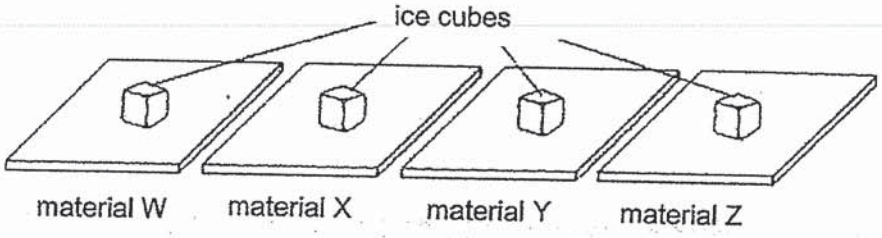
Which of the following shows the correct action and explanation for Richard to open the jar of jam?

	Action	Explanation
(1)	Heat the lid over a flame.	The heat will cause the lid to contract and loosen.
(2)	Turn the jar upside down and immerse the lid in hot water.	The heat will cause the lid to expand and loosen.
(3)	Heat the bottom of the jar.	The heat will cause the jar to contract and loosen.
(4)	Immerse both the jar and lid in cold water.	The heat will cause both the jar and the lid to expand and loosen.

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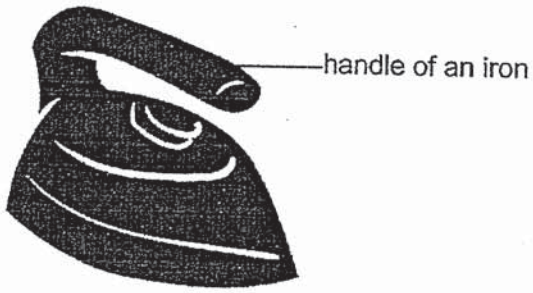
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28 John placed similar ice cubes on each of the four tiles made of materials W, X, Y and Z, as shown in the diagram below. All four tiles were of the same size. He recorded the time taken for each ice cube to melt completely.



It was observed that the ice cube on material X was the first to melt completely, followed by those on materials Y, W and then Z.

Based on the result above, which of the four materials is the most suitable to make the handle of an iron?



(1) W
(2) X
(3) Y
(4) Z

(Go on to Booklet B)

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SEMESTRAL ASSESSMENT TWO 2019
SCIENCE
PRIMARY FOUR
BOOKLET B

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

Date: 24 October 2019 **Total Time for Booklets A and B: 1 h 45 min**

_____

Parent's/ Guardian's signature

INSTRUCTIONS TO CANDIDATES

1. Write your name, index number and class in the spaces provided.
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 your answers in this booklet.

BOOKLET	MAX MARKS	MARKS OBTAINED
A	56	
B	44	
Total	**100**	

This question paper consists of 15 printed pages including this cover page.

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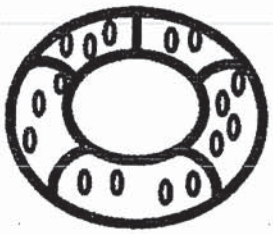
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For questions 29 to 42, write your answers in this booklet.

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

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29 The diagram shows a swimming float. It has water droplets on it.



Fill in the blanks using the correct words in the box.

repel	absorb	magnetic	waterproof

(a) The swimming float does not _____ water. [1]

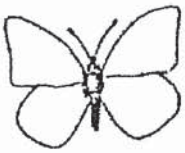
(b) The swimming float is made of a _____ material. [1]

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30 A, B, C and D are the various stages in the life cycle of a butterfly.



A



B

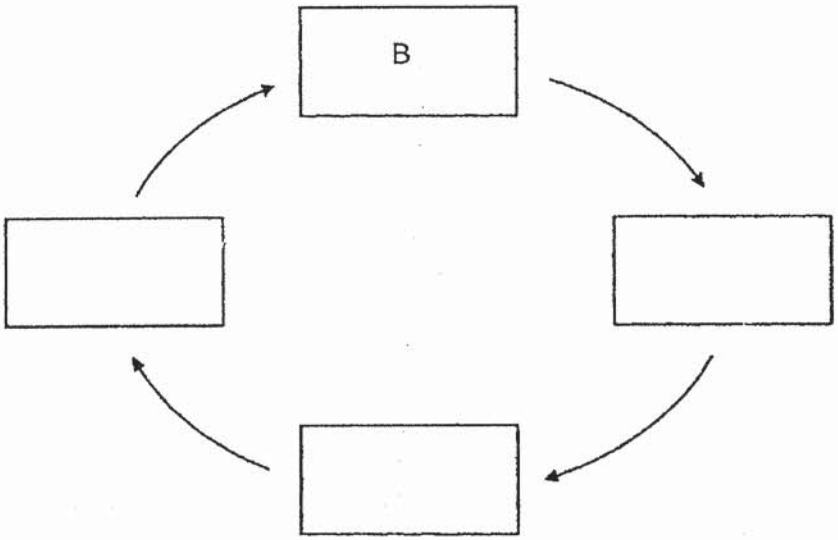


C



D

Arrange A, B, C and D in the correct order of the life cycle starting from B. [2]



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Score	/2

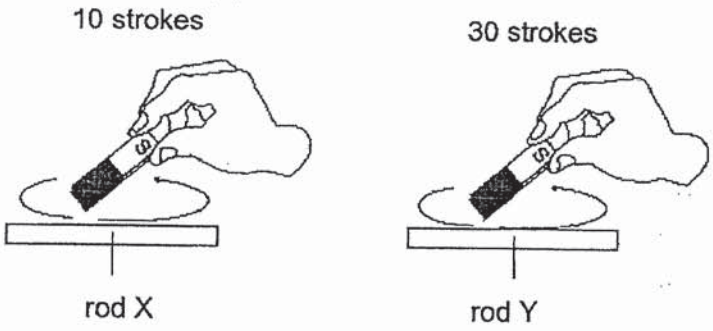
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31 Draw lines to match the three organ systems to their functions. [3]

organ systems	functions
digestive system	supports our body and gives it shape
skeletal system	breaks down food into simpler substances
circulatory system	takes air into and out of the body
	transports digested food, water and oxygen to all parts of the body

32 Jane stroked two similar iron rods X and Y with the same magnet as shown in the figure below.



Both rods became magnets and were used to attract similar pins.

Circle the correct answer below. [1]

Rod X attracted (less pins than / the same number of pins as / more pins than) rod Y.

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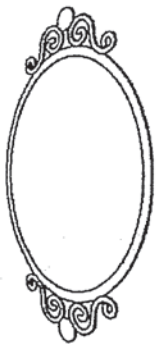
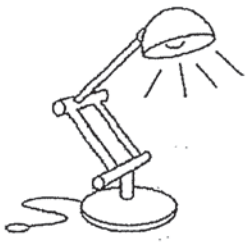
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33 Look at the pictures below.

Tick (✓) the sources of light. [2]

☐ candle 	☐ mirror 
☐ lamp 	☐ eyes 

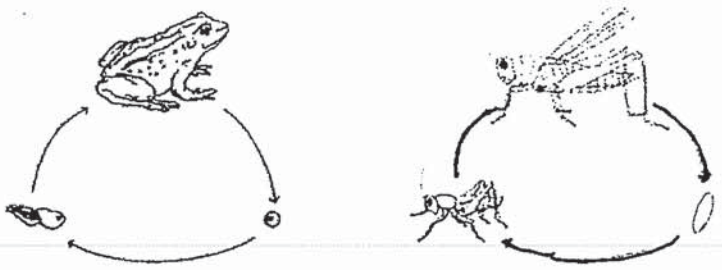
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34 The diagrams below show the life cycles of a frog and a grasshopper.



(a) Based on the diagrams above only, state two similarities between the stages of the life cycle of a frog and a grasshopper. [2]

Similarity one: _____

Similarity two: _____

(b) Based on the diagram above only, state one difference between the stages of the life cycle of a frog and a grasshopper. [1]

_____

_____

The table below shows the number of frog eggs found in a pond over a period of four weeks. The number of eggs were counted at the end of each week.

Week	Number of eggs counted at the end of each week
1	125
2	97
3	63
4	117

(c) Explain what happened to the eggs in the first three weeks. [1]

_____

_____

(d) Why do animals such as the frogs lay many eggs at a time? [1]

_____

_____

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Score	/5

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35 A group of scientists studied mosquitoes kept at different surrounding temperatures and recorded how long some stages of their life cycle took. The table below shows the results obtained.

	Duration of each stage at different surrounding temperatures (days)			
	23°C	26°C	29°C	32°C
Egg	2	2	2	2
Larva	9	8	7	6

(a) What is the relationship between the surrounding temperature and the length of the larva stage of the mosquito? [1]

_____

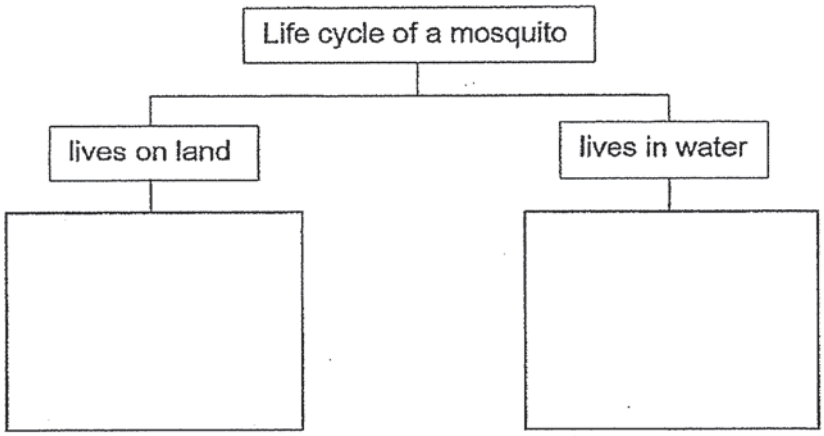
_____

(b) From the table above, did the increase in temperature affects the length of the egg stage? Use the information from the table above to support your answer. [1]

_____

_____

(c) The mosquito spends its life cycle both on land and in water. Complete the classification table below to indicate where we can find all the different stages of the life cycle of a mosquito. [2]



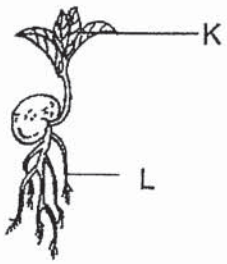
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36 The diagram below shows a seedling.

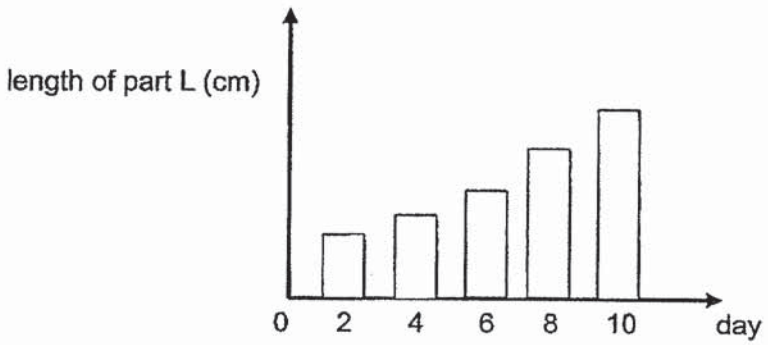


(a) Identify the parts, K and L, of the seedling. [2]

Part K: _____

Part L: _____

James observed that part L was attached to the seedling as it grows. He recorded its length over a few days and plotted the bar graph as shown below.



(b) Based on the bar graph above, describe what happens to the length of part L from day two to day ten. [1]

_____

(c) Give a reason for the relationship that you have stated in **(b)**. [1]

_____

_____

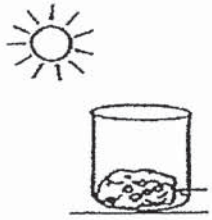
Q36 continues on the following page

Score	/4

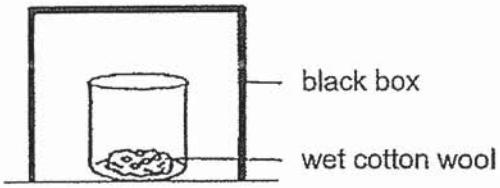
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(d) James then conducted another experiment to investigate the conditions needed for seeds to grow into seedlings. He prepared the four set-ups as shown in the diagrams below with the same number of seeds in each of them.



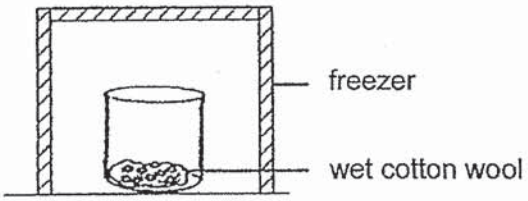
set-up W



set-up X



set-up Y



set-up Z

After a few days, James noticed that only the seeds in set-ups X and Y grew into seedlings. Based on the information given, complete the table below by ticking (✓) the condition(s) needed for seeds to grow into seedlings. [1]

Condition needed for seeds to grow	(✓)
light	
water	
warmth	

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Score	/ 1

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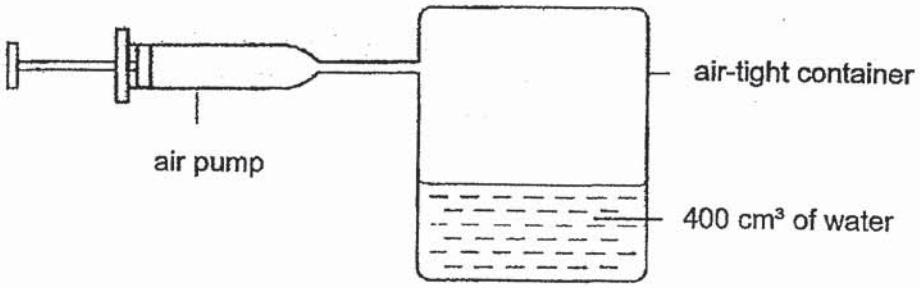
37 (a) State the two properties of matter. [2]

Property one:

_____

_____

(b) The diagram below shows an air pump which is attached to a 1000 cm^3 air-tight container containing 400 cm^3 of water. Each push of the air pump can force 100 cm^3 of air into the container.



(i) State the volume of air inside the air-tight container after five pushes of the air pump. [1]

_____ cm^3

(ii) Give a reason for your answer in **(b)(i)**. [1]

_____

_____

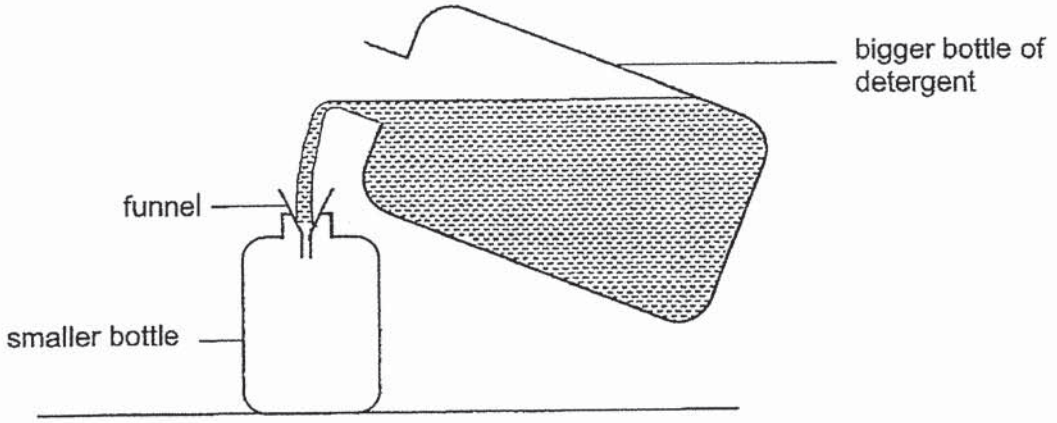
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38 Aina wanted to transfer some detergent from a bigger bottle into a smaller bottle as shown.



At first, she noticed that some detergent entered the smaller bottle. However, after a while, the detergent did not flow into the smaller bottle but overflowed off the funnel instead even though the smaller bottle was still not full.

(a) Explain why some detergent could enter the smaller bottle at first. [1]

_____

_____

(b) Explain why the detergent could not flow into the smaller bottle even though the smaller bottle was still not full. [2]

_____

_____

_____

(c) Suggest two methods Aina can do to enable the detergent to flow into the smaller bottle. [2]

Method one: _____

Method two: _____

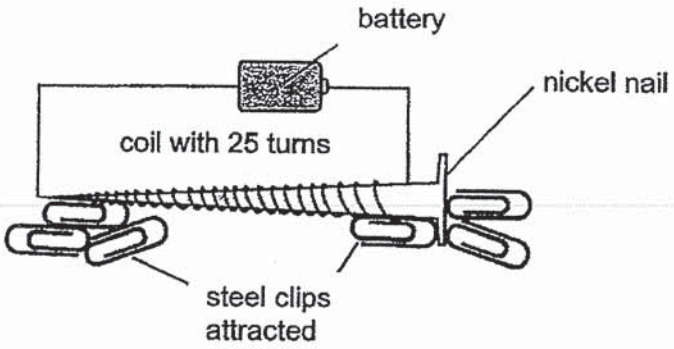
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39 Ann coiled a wire around a nickel nail and connected the ends to a battery. It was observed that the nickel nail was able to attract some steel clips as shown in the diagram below.



(a) State the property of the nickel nail that enables it to attract the steel clips. [1]

_____

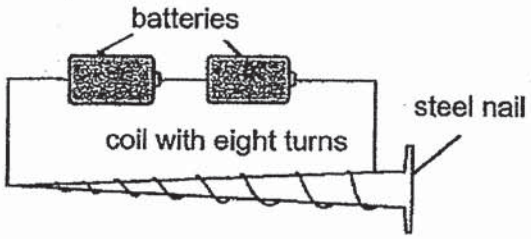
_____

(b) Ann also observed that no steel clips were attracted to the middle part of the nickel nail. Explain this observation. [1]

_____

_____

Next, Ann wanted to find out how the type of nail used affects the number of steel clips attracted. She set up a second experiment as shown in the diagram below.



(c) Give two reasons why her experiment was not a fair test. [2]

Reason one: _____

Reason two: _____

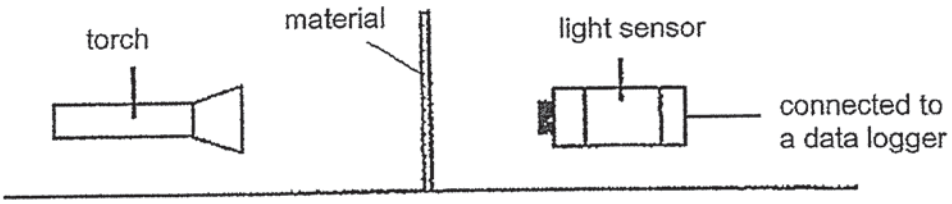
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40 Samuel conducted an experiment to find out the amount of light that would pass through four different materials, P, Q, R and S. He used a light sensor to detect the amount of light that passed through each material. The set-up for the experiment is shown below.



When no material was placed between the torch and light sensor, the amount of light detected was 500 units.

The following table shows his results when the different materials were placed between the torch and light sensor.

Material	Amount of light detected (units)
P	497
Q	390
R	180
S	0

Based on Samuel's results, which of the materials, P, Q, R or S will be most suitable to make part Y of the magnifying glass below?

Give a reason for your answer. [2]



Material: ____

Reason: _____

_____

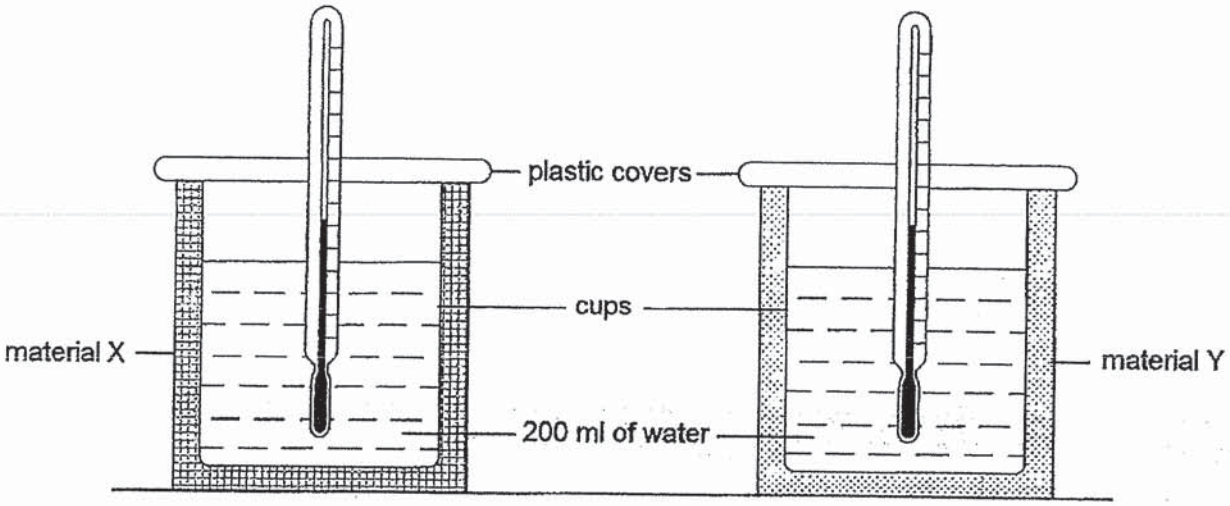
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41 Lionel used the set-up below to find out which of the materials, X or Y, is a better conductor of heat.



He recorded the temperatures of water in both cups at the start of the experiment and 30 minutes later. His results are shown below.

Material	Temperature of water (°C)	
	Start of experiment	After 30 minutes
X	60	50
Y	60	40

(a) At the start of the experiment, Lionel ensured that the water used in both cups were of the same temperature. Give a reason why he did that. [1]

_____

_____

(b) Based on the results above, which material, X or Y, would be more suitable to keep a person warm in cold weather? Explain your answer. [2]

Material ____

_____

_____

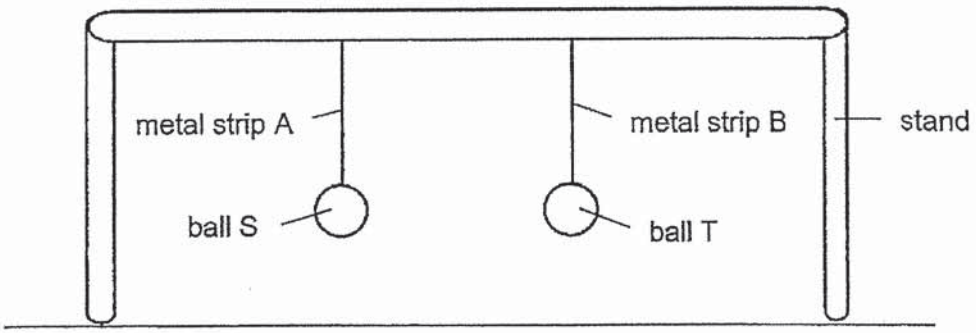
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Score	/3

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42 Farid hung two identical balls, S and T, from a stand in the school field as shown. Both the metal strips were of the same length and thickness.



(a) After a few hours under the hot sun, Farid observed that both balls were hanging at a lower height from the top of the stand. Explain this observation. [1]

_____

_____

(b) However, ball S was observed to be hanging at a lower height compared to ball T. Explain why this happened. [1]

_____

_____

End of Paper

Score	/ 2

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ANSWER KEY

YEAR : 2019
LEVEL : PRIMARY 4
SCHOOL : ANGLO-CHINESE SCHOOL (PRIMARY)
SUBJECT : SCIENCE
TERM : SEMESTRAL ASSESSMENT 2

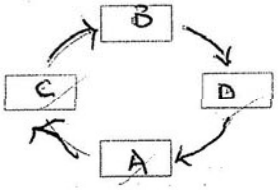
BOOKLET A

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

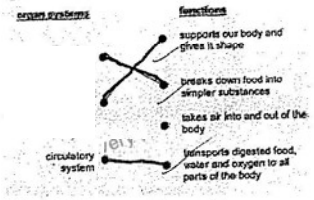
BOOKLET B

Q29. (a) absorb
(b) waterproof

Q30.



Q31.



Q32. less pins than

Q33. Candle, lamp

Q34. (a)Both heir life cycles consist of three stages.
Both animals have an egg stage in their life cycle.
(b) The young of a frog does not look like the adult while the young of a grasshopper looks like the adult.
(c) They could have been eaten by predators.
(d) To increase the chance of more young survival from eggs.

Q35. (a) As the surrounding temperature increases, the length of larva stage of the mosquito decreases.

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(b) No. the egg took the same number of days to hatch o larva, even when the surrounding temperature increased.

(c)

Live on land	Lives in water
Adult	Egg Larva Pupa

Q36. (a) Part K: Leaf
Part L: Root

(b) The length of part L increases from day two to day ten.

(c) The roots grow longer to search for water/ anchor the seedling firmly.

(d)

Light	
Water	✓
warmth	✓

Q37(a) Matter has mass.
Matter occupies space.

(b)(i) 600 cm^3

(ii)There is already 400cm^3 of water in the container, so the air can only occupy the remaining 600cm^3 of space.

Q38(a) Some air in the smaller bottle escaped which allowed some detergent to flow in.

(b) Air inside the smaller bottle occupy space and could not escape, so no more detergent could enter.

(c) Remove/lift up the funnel
Make holes in the smaller bottle.

Q39. (a) The nickel is a magnetic material and has become an electromagnet.

(b) Magnets are weakest at the center.

(c) The number of coils around the two nails are not the same.
The number of batteries used are not the same.

Q40. Material P
allows the most amount of light to pass through so the user can see o most clearly when using the magnifying glass.

Q41. (a) To ensure a fair test with the type of material used as the only changed variable in the experiment.

(b) Material X
It is a poorer conductor of heat and loses heat more slowly han material Y.

Q42. (a) Both the metal strips gained heat and expanded.

(b) Metal strip A expanded more than metal strip B.

2
2ND.

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