RED SWASTIKA SCHOOL

SCIENCE
2018 SEMESTRAL EXAMINATION 2
PRIMARY 4

Name : _____ ( )

Class : Primary 4/ _____

Date : 26 October 2018

BOOKLET A

Total time for Booklets A & B: 1h 30 min

Booklet A: 28 questions (56 marks)

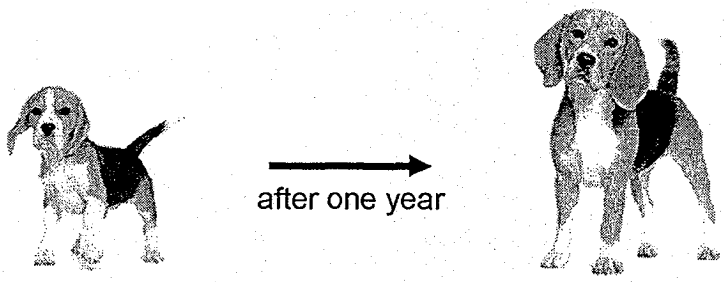
Note:

1. Do not open the booklet until you are told to do so.
2. Read carefully the instructions given at the beginning of each part of the booklet.
3. Do not waste time. If the question is too difficult for you, go on to the next question.
4. Check your answers thoroughly and make sure you attempt every question.
5. In this booklet, you should have the following:
   a. Page 1 to Page 15
   b. Questions 1 to 28

RED SWASTIKA SA2

For Questions 1 to 28, choose the most suitable answer and shade its number in the OAS provided.

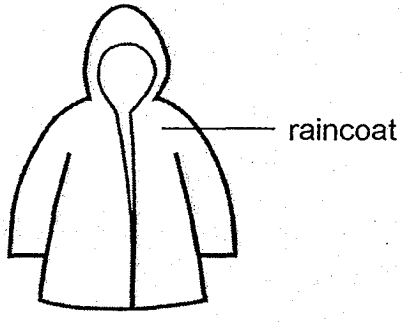
1. A puppy becomes bigger in size after one year.



From the observation, it can be concluded that the puppy is a living thing because it can _____.

(1) grow
(2) breathe
(3) respond
(4) reproduce

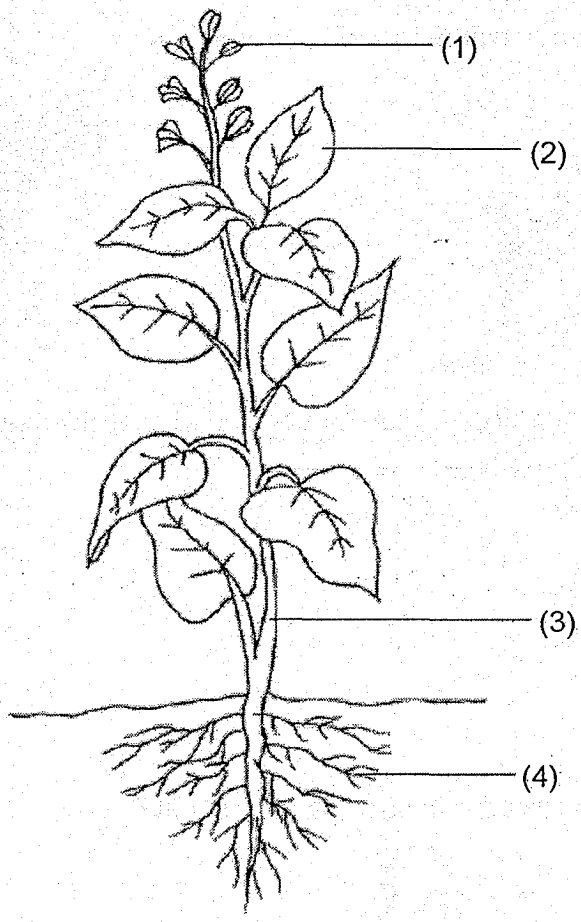
2. The diagram shows a rain coat made of plastic.



Plastic is used to make the rain coat because plastic _____.

(1) conducts heat well
(2) is colourful
(3) is waterproof
(4) floats on water

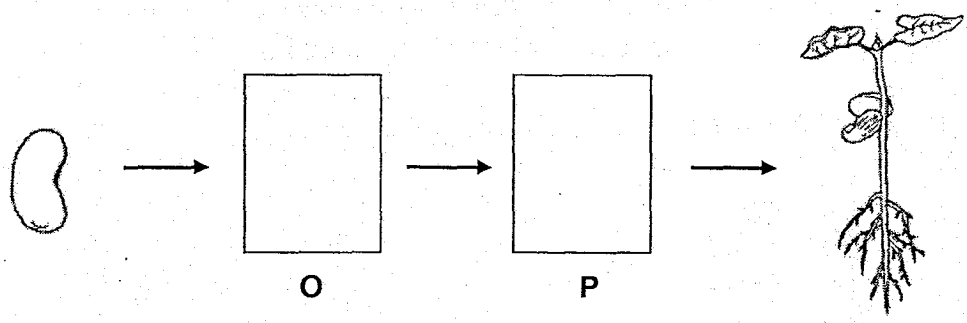
3. Which part, (1), (2), (3) or (4), helps to keep the plant upright?



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

(1) mouth
(2) stomach
(3) small intestine
(4) large intestine

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



Which one of the following shows the correct stages for O and P?

	O	P
(1)		
(2)		
(3)		
(4)		

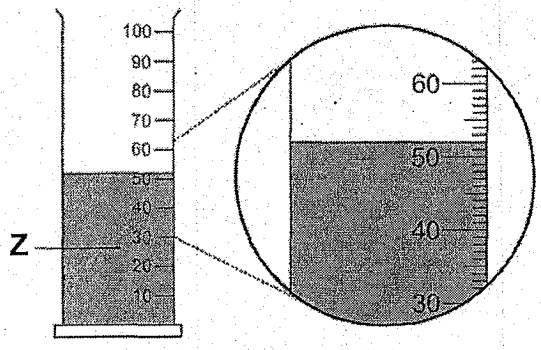
6. Jiaxuan made the following observations on the life cycle of an animal.

- There are three stages in the life cycle.
- The young does not look like the adult.

Which animal was Jiaxuan observing?

(1) frog
(2) duck
(3) beetle
(4) butterfly

7. In the diagram, what is the volume of liquid Z?



(1) 50 ml
(2) 52 ml
(3) 54 ml
(4) 68 ml

8. Which one of the following is a source of light?

(1) 
a leaf

(2) 
a mirror

(3) 
the moon

(4) 
a candle flame

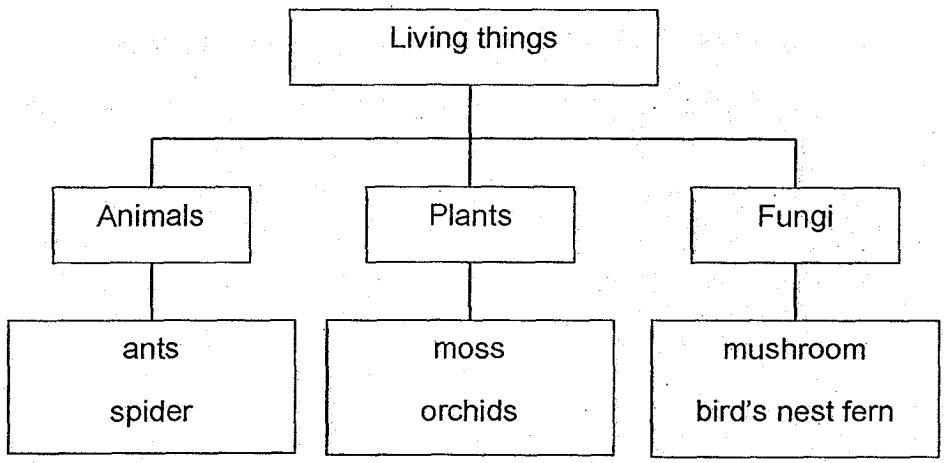
9. Which one of the following is the best conductor of heat?

(1) glass spoon
(2) rubber spoon
(3) metal spoon
(4) wooden spoon

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

(1) ceramic cup
(2) glass cup
(3) steel cup
(4) plastic cup

11. Erica found some living things in her school garden and classified them in the table shown below.



Which one of the above living things is classified wrongly?

(1) bird's nest fern
(2) moss
(3) mushroom
(4) spider

12. Which of the following characteristic(s) is/are found in birds, but not in other animals?

A: They can fly.

B: They have feathers.

C: They reproduce by laying eggs.

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

13. Which of the following statements are true of the digestive system?

A: The windpipe is part of the digestive system.

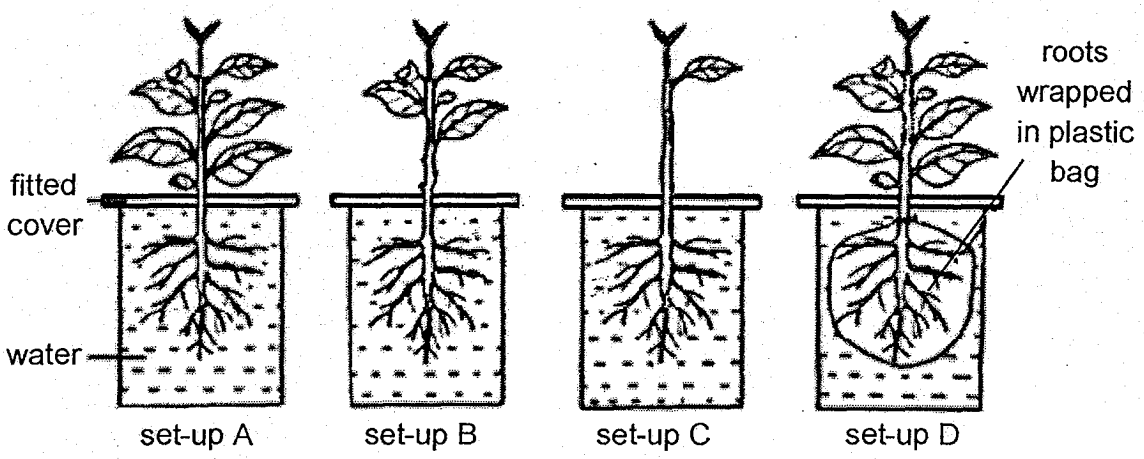
B: Digested food is absorbed in the small intestine.

C: It helps to break down food into simpler substances.

D: Digestion starts at the mouth and ends at the stomach.

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

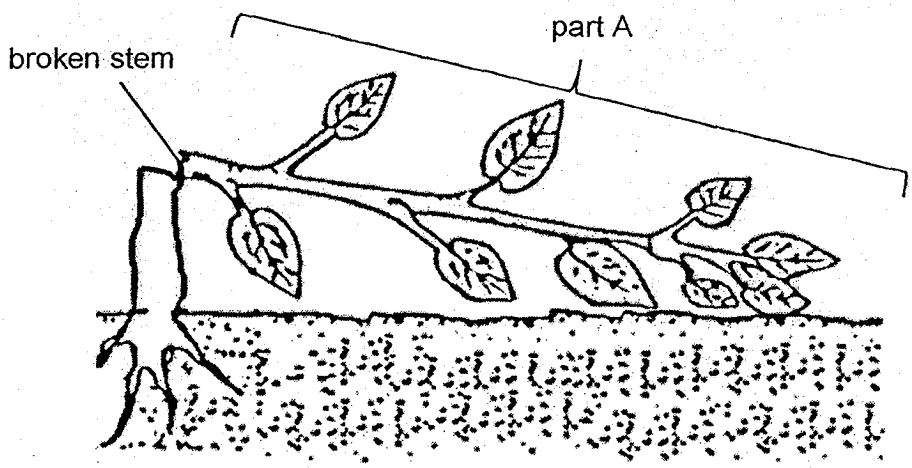
14. Steven wanted to find out if the roots of a plant absorb water.



He should choose set-ups _____ for the test.

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

15. Tommy saw a tree that had been struck by lightning during a recent thunderstorm at the back of his school field. He noticed that the leaves at part A has turned yellow.

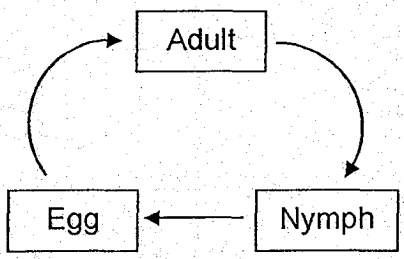


What could be the main reason for the leaves to turn yellow?

(1) The roots cannot take in water from the ground.
(2) The stem cannot transport water to the leaves.
(3) The roots cannot anchor the plant to the ground.
(4) The leaves cannot hold the plant upright.

16. Which one of the following life cycles is wrong?

(1)



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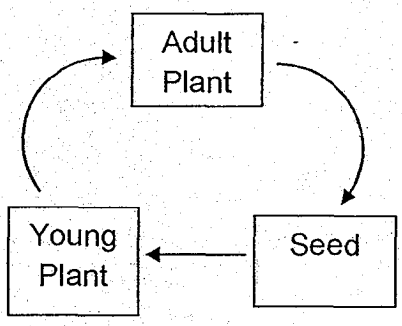

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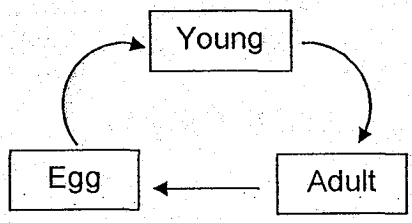

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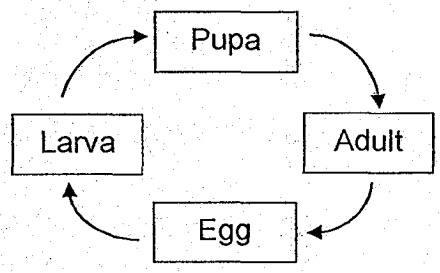
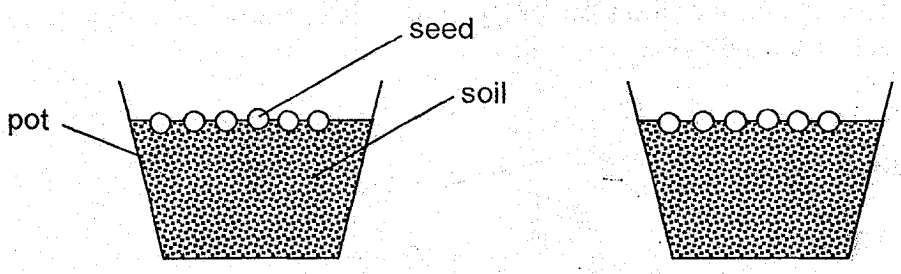


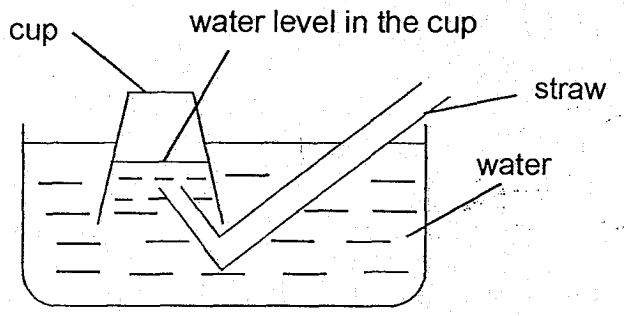
17. Devi wants to find out if the amount of light affects the time taken for seeds to germinate.



Which variable should she change when conducting her experiment?

(1) type of soil
(2) type of seeds
(3) location of the pots
(4) amount of water added

18. Nasir sets up an experiment as shown in the diagram below.



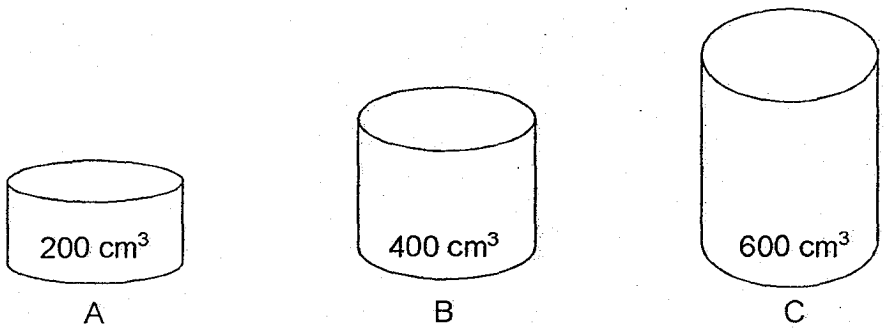
Nasir blows some air into the straw.

Which of the following options best describes the observation in the cup and the reason?

	Water level in the cup	**Reason**
(1)	fall	Water in the cup entered the straw.
(2)	fall	Air blown out pushed the water out of the cup.
(3)	rise	Air blown out pulled more water into the cup.
(4)	remain unchanged	No water entered or left the cup.

19. Anqi wants to transfer 400cm^3 of liquid from a tank to a container.

Which of the following container(s) can she use to hold the liquid?

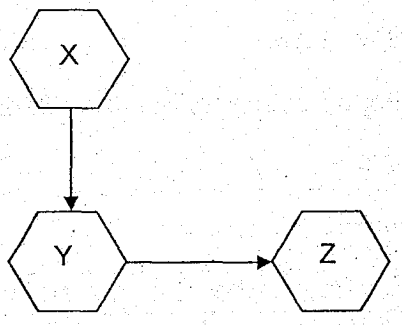


(1) B only
(2) A and C only
(3) B and C only
(4) A, B and C

20. A piece of glass is used to protect a photograph in a photo frame. You can see the photograph because glass _____.

(1) is a solid
(2) reflects light
(3) gives off light
(4) allows light to pass through

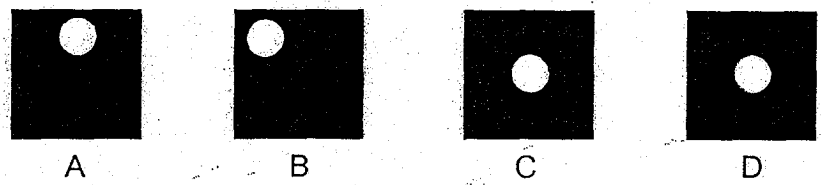
21. In the diagram below, the arrows indicate the path of light.



Which of the following options best fits X, Y and Z for us to see a book?

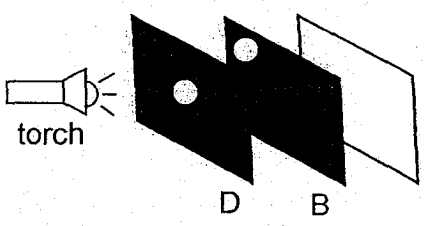
	X	Y	Z
(1)	lamp	book	eyes
(2)	book	lamp	eyes
(3)	eyes	lamp	book
(4)	book	eyes	lamp

22. Germaine set up an experiment to show that light travels in a straight line. She took four cards, A, B, C and D, with holes punched through them as shown below.

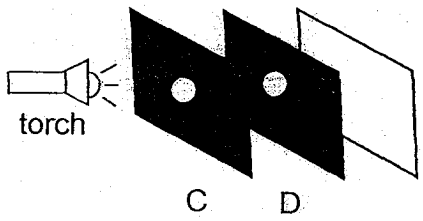


She used different combinations of these cards with a blank white card placed at the back as shown below. Which of the four experiments would a spot of light form on the white card?

(1)



(2)



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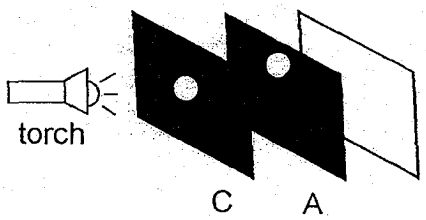
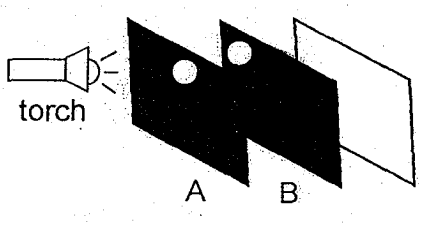


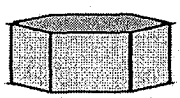
(4)



23. The following shadow was formed on a wall by an object.

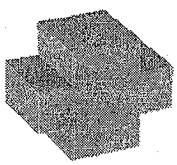
Which one of the following objects could not have possibly formed the above shadow?

(1)

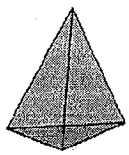


(2)

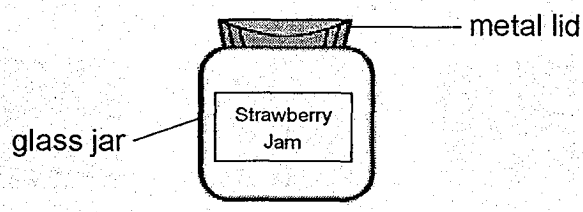
(3)



(4)



24. Ivan tried to open a strawberry jam jar with a tight metal lid and he found it hard to do so.

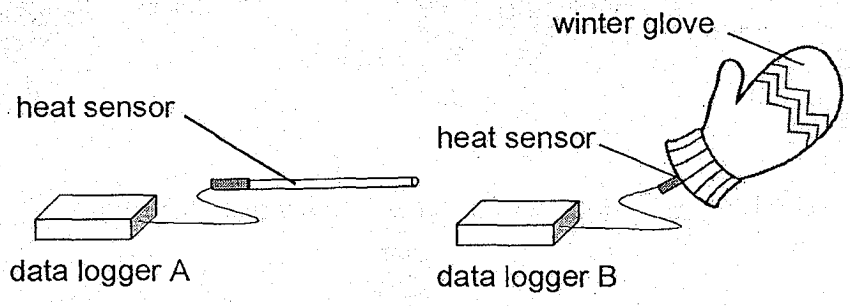


What could Ivan do to open the metal lid without breaking the jar?

(1) Pour hot water only on the metal lid.
(2) Pour hot water only on the glass jar.
(3) Put the whole jar in a basin of hot water.
(4) Pour cold water only on the metal lid.

25. Sam conducted an experiment using two data loggers, A and B, that are connected with heat sensors.

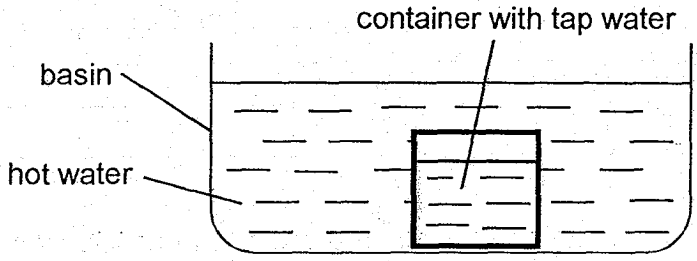
He left the heat sensor of data logger A on the table while placing the heat sensor of data logger B into a winter glove. Both heat sensors are kept in the same room for the same period of time.



After fifteen minutes, Sam compared the temperature measurements of both data loggers. Which of the following set of results would be what Sam had recorded?

	Data logger A	Data logger B
(1)	28°C	28°C
(2)	28°C	35°C
(3)	28°C	21°C
(4)	35°C	28°C

26. Josiah had four containers, P, Q, R and S, made of different materials. He filled them with the same amount of tap water and placed them in a basin of hot water for fifteen minutes as shown in the diagram below.



He recorded the temperature of the water in the container as shown in the table below.

Container	Temperature of water at the start of experiment (°C)	Temperature of water after experiment (°C)
P	28	40
Q	28	35
R	28	37
S	28	50

Which container conducted heat the slowest?

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

27. Gopal used the stroke method to magnetise an iron nail. He placed the magnetised iron nail near three different objects, L, M and N, and recorded his observation in the table below.

	Objects		
	L	**M**	**N**
Attracted by the iron nail	No	Yes	Yes
Repelled by the iron nail	No	Yes	No

Which of the following statements about objects L, M and N is/are definitely true?

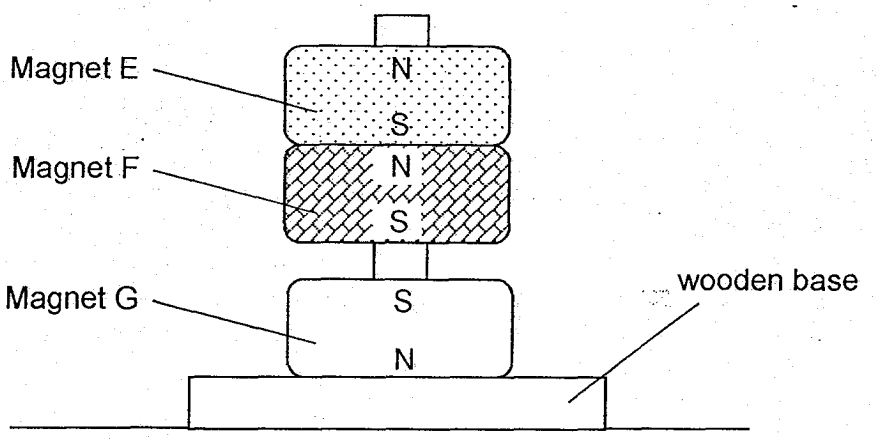
A: Object M is a magnet.

B: Object L is made of a non-magnetic material.

C: Object N is made of a non-magnetic material.

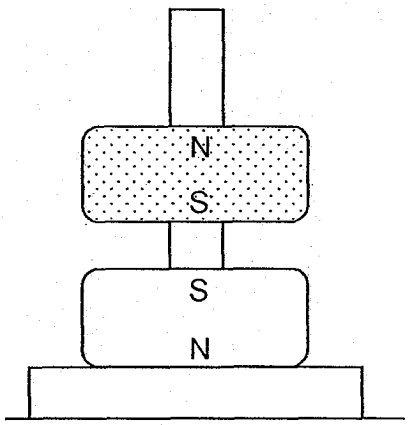
(1) B only
(2) A and B only
(3) A and C only
(4) A, B and C

28. Krishnan placed three ring magnets, E, F and G, through a holder as shown below.

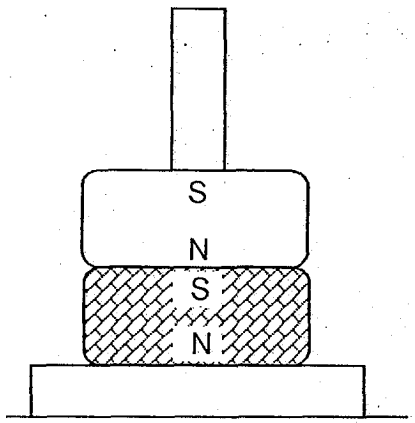


Which one of the following arrangements is not possible?

(1)



(2)



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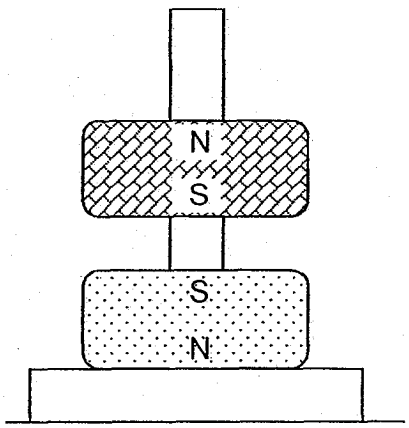
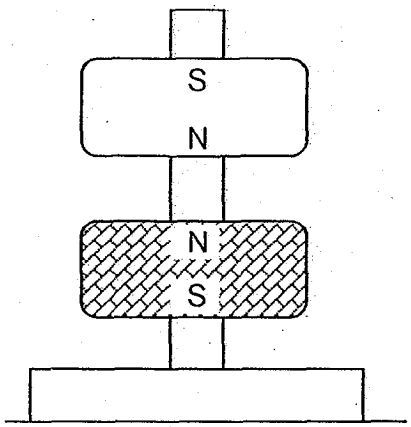


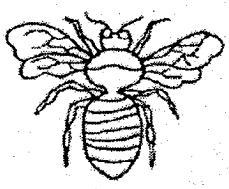
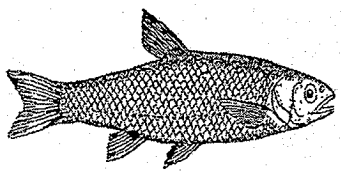
(4)



END OF SECTION A

Answer all the questions in the spaces provided.

29. Draw lines to match the following animals to the correct groups. (2m)

Animals	Groups
 •	• bird
 •	• fish
	• insect

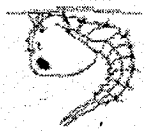
30. Fill in the correct parts of a plant in the table. (2m)

Functions of plant parts	Plant parts
It holds the plant firmly in the ground.	
It helps the plant to make food.	

4

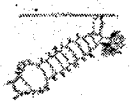
31. A, B, C and D are the various stages in the life cycle of a mosquito.

A



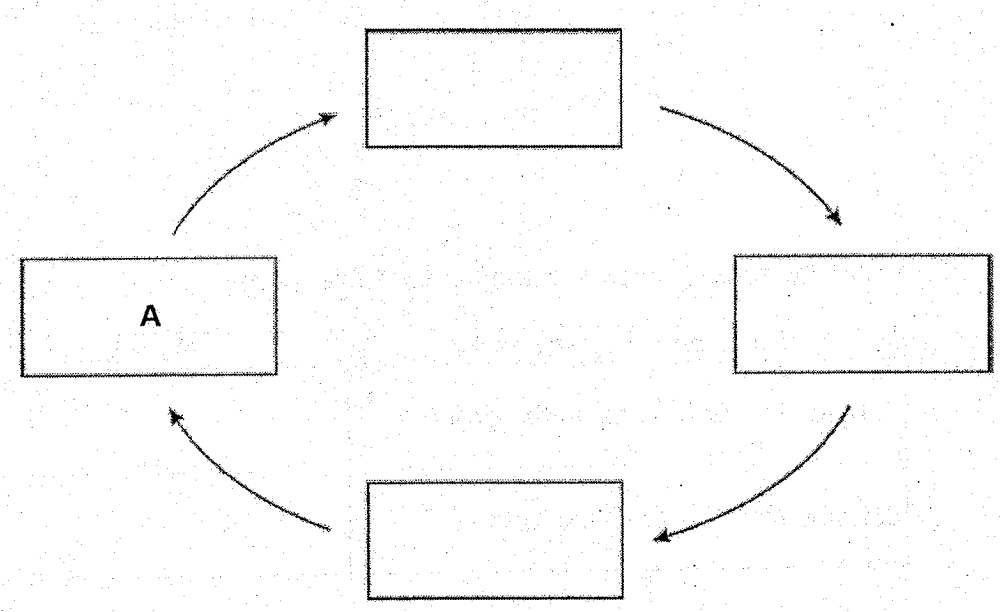
B

C



D

(a) Arrange A, B, C and D in the correct order of the life cycle starting from A. (1m)

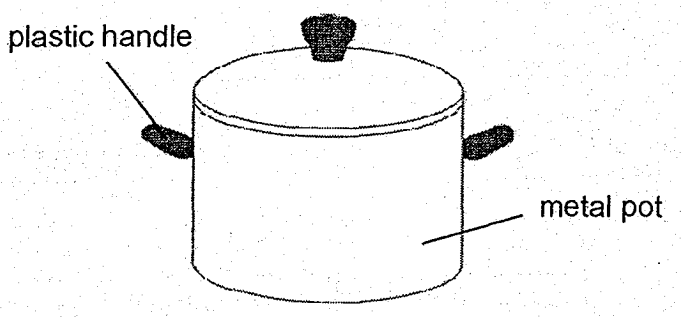


(b) State one other animal that has a similar life cycle as a mosquito. (1m)

_____

2

32. The diagram below shows a cooking pot.



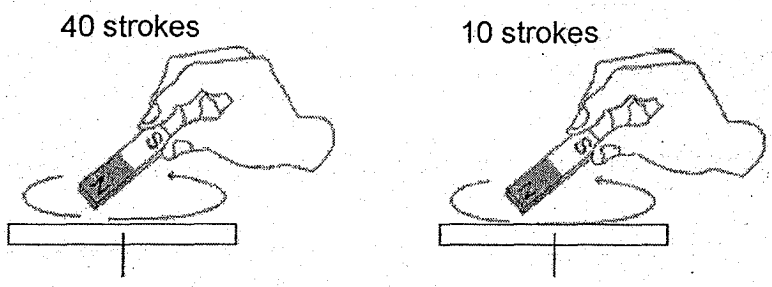
The handles of the pot are made of plastic because

plastic is a _____ conductor of heat. (1m)

The pot is made of metal because

metal is a _____ conductor of heat. (1m)

33. Joy stroked two similar iron rods, C and D, with the same magnet as shown in the figure below.



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

(a) Circle the correct answer below. (1m)

Rod C attracted 'less pins than' / 'the same number of pins as' /

'more pins than' rod D.

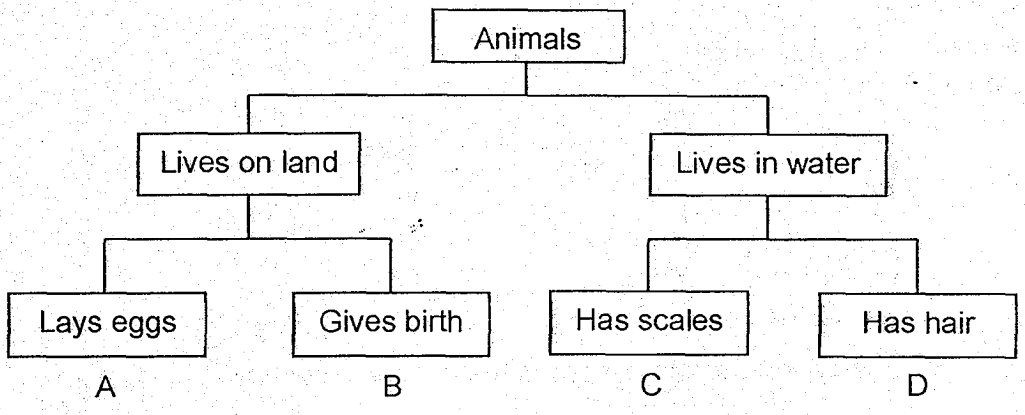
(b) Choose the correct word from the box to answer the question below. (1m)

flexible	magnetic	strong

Joy's observation shows that iron is a _____ material.

4

34. Study the classification chart below carefully.



(a) Based on the chart, what are the characteristics of animal A? (2m)

_____

_____

(b) In which group, A, B, C or D, could the following animals be classified? (2m)

goldfish: _____

monkey: _____

(c) Based on the chart, what is the breathing method for animal D? (1m)

_____

5

35. Gareth had two identical pots of plant X that were of the same height. He wanted to find out if the amount of fertilisers added to the soil would affect the height of the plant. The table below shows how Gareth set up his experiment.

Variable	**Set-up A**	**Set-up B**
Type of plant	Plant X	Plant X
Amount of fertilisers added each day	5g	25g
Number of leaves on the plant in the beginning	20	60
Amount of water given each day	800 ml	500 ml
Location of the pot	In the garden	In the garden

From the table above, what are the two changes to set-up B Gareth must make so that the test is fair. (2m)

Change 1: _____

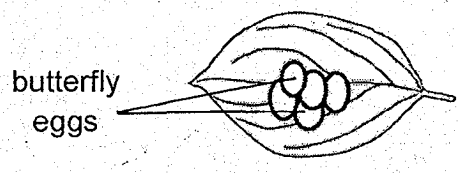
_____

Change 2: _____

_____

2

36. Farmer Tan spotted some butterfly eggs on the underside of a leaf of a plant in his farm.



underside of the leaf

(a) State an advantage why butterflies lay their eggs on the underside of the leaf. (1m)

_____

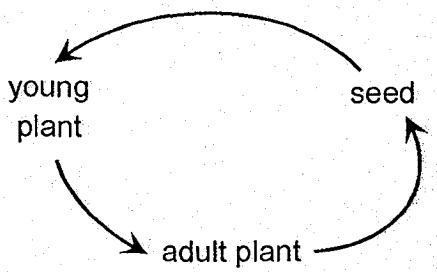
_____

(b) At which stage of the butterfly's life cycle is it most damaging to the leafy vegetables that Farmer Tan grows? Explain your answer. (2m)

_____

_____

Farmer Tan drew a life cycle of a living thing as shown below.

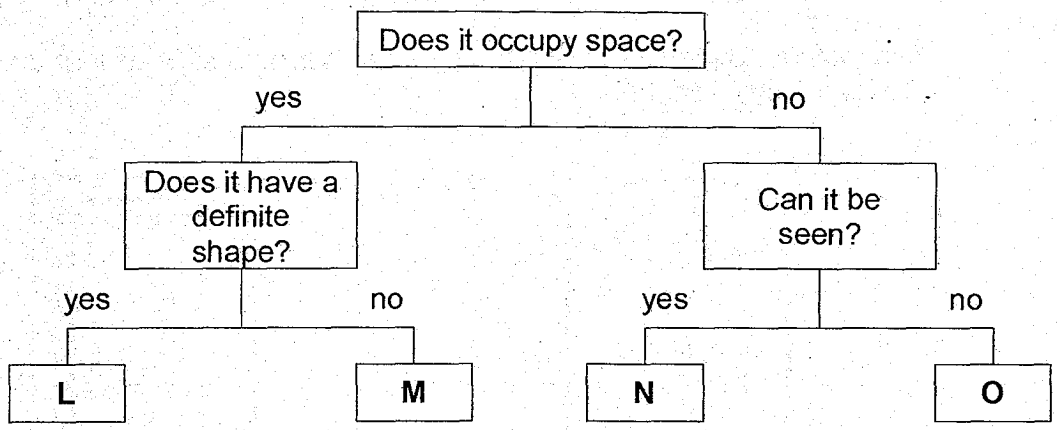


(c) Put a tick (✓) in the correct box which shows the living thing that Farmer Tan drew the life cycle of. (1m)

Living thing	Tick (✓)
Mushroom	
Tomato Plant	
Bird's Nest Fern	

4

37. Study the flow chart below carefully.



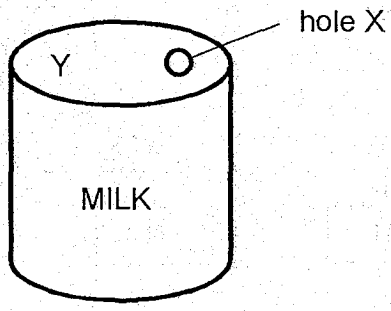
(a) In which group, L, M, N and O, would the following items be classified? (2m)

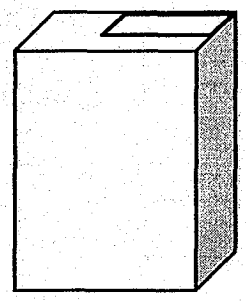
Item	Group
ice	
sound	
oxygen	
shadow	

2

37. Gensen poked hole X on a tin of milk and tried to pour the milk out into a rectangular carton. He found that the milk was flowing too slowly.

His mother suggested to him to poke another hole at Y so that the milk can flow out faster from hole X.





rectangular carton

(b) Explain how poking another hole at Y allowed the milk to flow out faster from hole X. (2m)

_____

_____

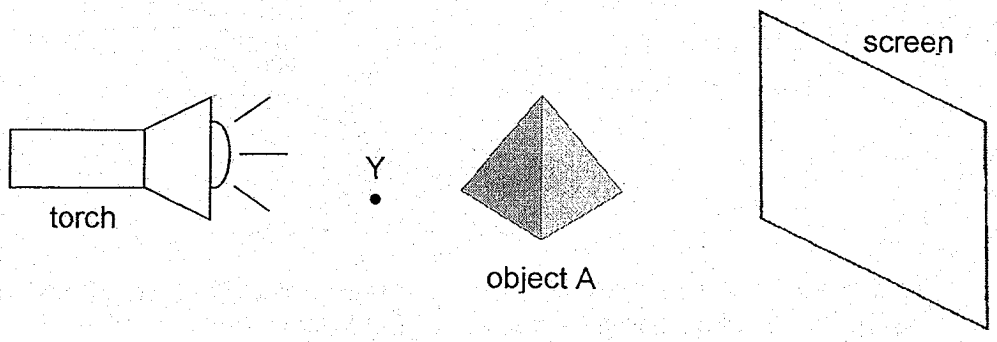
_____

(c) State the property of the milk that allowed the milk to be stored in containers of different shapes. (1m)

_____

3

38. Kai Zhen placed object A between a torch and a screen in a dark room as shown below.



She observed a shadow formed on the screen.

(a) Explain how the shadow of object A was formed on the screen. (1m)

_____

_____

(b) Kai Zhen shifted object A to position Y. What would be the change in size of the shadow observed on the screen? (1m)

_____

_____

Kai Zhen replaced object A with objects B and C, one after the other. The three objects are of the same shape and size but made of different materials.

She recorded her observation of the darkness of the shadow formed in the table below.

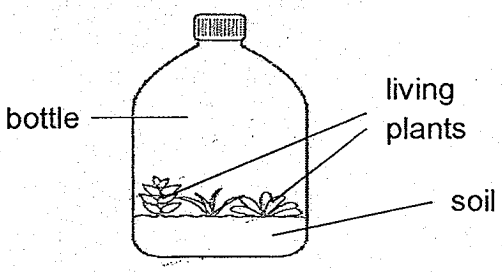
Objects	Observation of the shadow formed
A	very dark
B	less dark
C	no shadow formed

(c) Classify the objects, A, B and C, in the box under the most suitable headings. (1m)

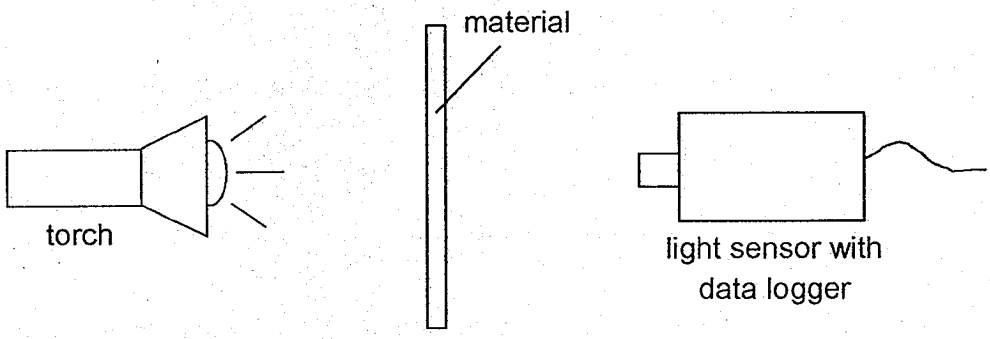
Allows most light to pass through	Allows some light to pass through	Does not allow light to pass through

3

38. Kai Zhen had to bring a bottle to school as she had to create a terrarium as shown below.



She conducted an experiment in a dark room to find out which material would be the most suitable to be selected for the bottle.



The results are shown in the table below.

Material	Light measured by the data logger (unit)
X	200
Y	250
Z	180

(d) Based on the table, explain which material, X, Y or Z, would be the most suitable for the bottle to allow the plants in the terrarium to grow the best. (2m)

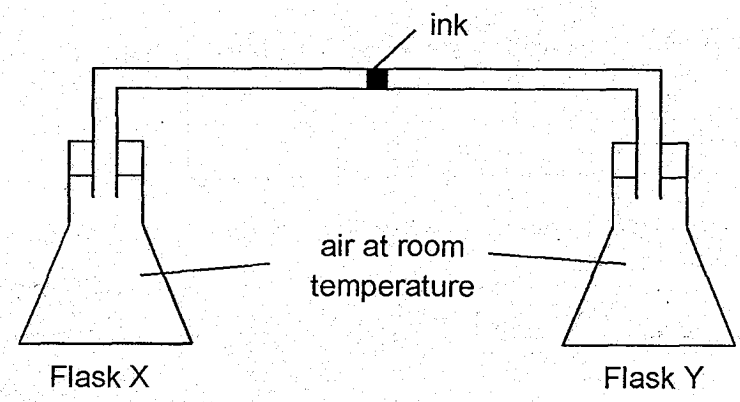
_____

_____

_____

2

39. Khairul sets up an experiment using two identical glass flasks, X and Y, connected by a glass tube which contains a drop of ink as shown below.



(a) Put a tick (✓) in the correct box on what Khairul will observe about the drop of ink in the glass tube after flask Y is placed in ice water for five minutes. (1m)

Observation	**Tick (✓)**
The ink remains at its original position.	
The ink moves towards flask X.	
The ink moves towards flask Y.	

(b) Explain your answer in part (a). (2m)

_____

_____

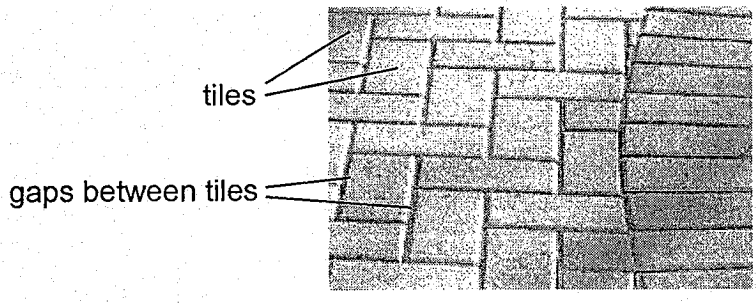
_____

3

39. Khairul conducts another experiment by heating two different materials, P and Q, that are of the same size and thickness for the same amount of time. The results are shown in the table below.

Material	Length before heating (cm)	Length after heating (cm)
P	20	24
Q	20	20.5

The diagram below shows the tiles used on a pavement.



(c) Based on the table, which material, P or Q, is more suitable to be used to make the tiles for the pavement? Explain your answer. (2m)

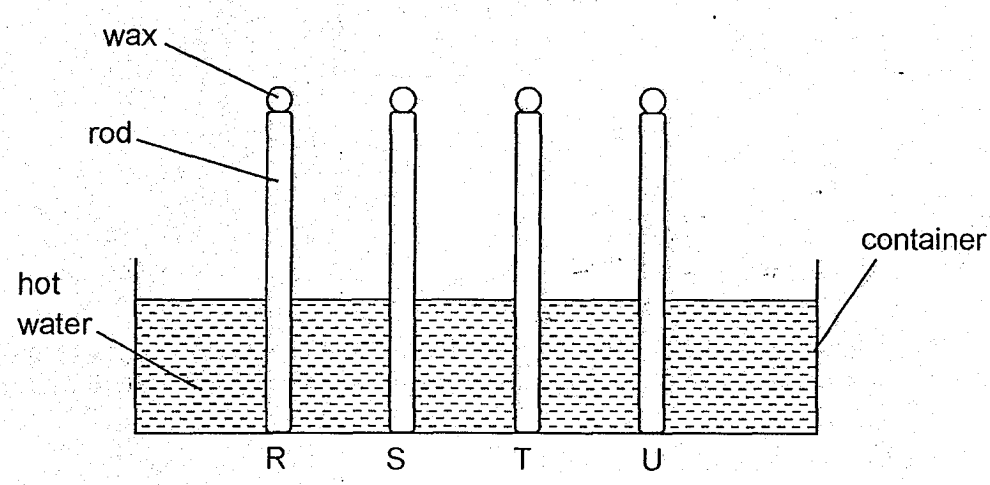
_____

_____

_____

2

40. Danny placed four rods made of different materials, R, S, T and U, into a container of hot water as shown below.



The rods had the same amount of wax on top of it. He recorded the time taken for each wax to melt completely on the rod in the table as shown below.

Material of rod	Time taken for the wax to melt completely (min)
R	10
S	2
T	15
U	8

(a) What was the aim of Danny's experiment? (1m)

_____

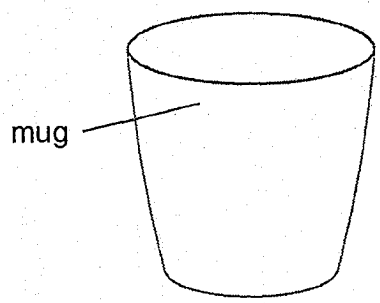
_____

(b) Name one variable that Danny needed to keep constant to ensure a fair test. (1m)

_____

2

40. Danny brought a mug without a handle for his school camp to contain drinks.

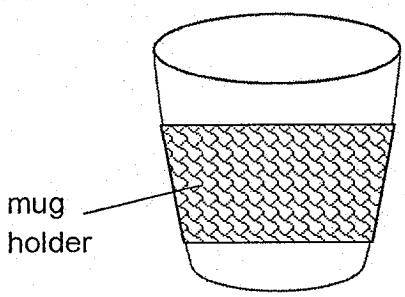


(c) When he was served with hot milo in his mug, his hand felt warm while holding the mug of hot milo. Explain, in terms of heat flow, how his hand felt warm. (1m)

_____

_____

Danny decided to make a mug holder so that his hands would not feel warm whenever he held his mug filled with hot drinks.



(d) From the experiment that Danny had conducted in part (a), suggest which would be the best material, R, S, T or U, he should use to make the mug holder. Explain your answer. (2m)

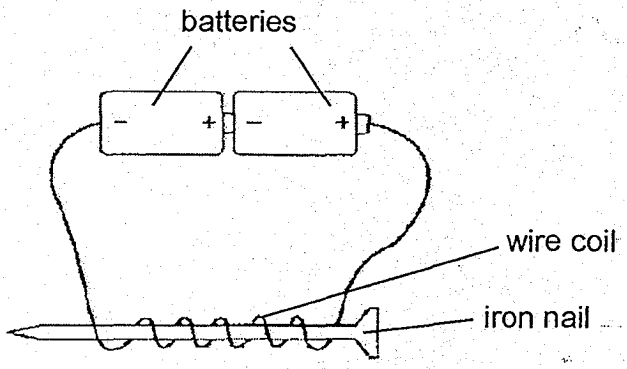
_____

_____

_____

3

41. Nigel created an electromagnet as shown below.



He wanted to find out if the number of coils around the nail would affect the magnetic strength of the electromagnet.

He increased the number of coils around the nail and placed eight paper clips at the same distance from the electromagnet before recording down the results as shown in the table below.

Number of coils around the nail	5	10	15	20	25
Number of paper clips attracted to the electromagnet	3	4	5	5	5

(a) What is the relationship between the number of coils around the nail and the magnetic strength of the electromagnet until 15 coils? (1m)

_____

_____

(b) What could Nigel do to the batteries for the electromagnet to attract more than five paper clips? (1m)

_____

(c) For the nail to be an electromagnet, give an example of another material that the nail could be made of. (1m)

_____

END OF SECTION B
PLEASE CHECK YOUR WORK

3

SCHOOL : RED SWASTIKA SCHOOL
LEVEL : PRIMARY 4
SUBJECT : SCIENCE
TERM : 2018 SA2

SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
1	3	3	4	4	1	2	4	3	3
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	1	4	4	2	1	3	2	3	4
Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
1	2	4	1	2	2	2	4		

SECTION B

Q29)	Insect, fish
Q30)	Root, leaf
Q31)	a) D, B, C, A b) Butterfly
Q32)	Poor, good
Q33)	a) More pins than b) Magnetic
Q34)	a) Animal A lives on land and lay eggs. b) Goldfish: C, Monkey: B c) Lungs.
Q35)	Change 1: give the same amount of water to the plant each day. Change 2: use the plants with the same number of leaves on it in the beginning.
Q36)	a) To protect being spotted by the prey and increase the chance of survival.

	b) Larval stage. It eats a lot of the leaves at this stage. c) Tomato plant.
Q37)	a) L, O, M, N b) Air enters the tin when he poked another hole at Y and air occupies space. So it will for the milk in the tin to flow out faster from hole X. c) Milk is a liquid and has no definite shape.
Q38)	a) Object A is an opaque object which does not allow light to pass through and since light travels in a straight line, it will cast a shadow on the screen. b) It will become bigger. c) C, B, A d) Y. It has the most amount of light captured by the light sensor which means it allows the most light to pass through. Thus, the living plants will have most light in the bottle to make their own food and will grow the best.
Q39)	a) The ink moves towards flask Y. b) The flask Y loses heat to the ice and causes the air in flask Y to lose heat and contract. Since air occupies less space after contraction, it will move towards flask Y. c) Q as it expands lesser than P, it will not need a too wide gap between tiles for expansion during hot weather.
Q40)	a) To find out which material is the best conductor of heat. b) The amount of wax/ the length of the rod used. c) The mug gained heat from the hot milo and his hand gained the heat from the mug. d) Plastic as it is a poor conductor of heat.
Q41)	a) The greater number of coils around the nail, the stronger the magnetic strength of the electromagnet. b) Increase the number of batteries or change/ change to stronger batteries. c) Copper/ Steel.