Rosyth School
Mid-Year Examination 2019
SCIENCE
Primary 4

Name: _____ Total Marks: /56

Class: Pr 4 _____ Total Time for Booklets A and B: 1 h 45 min

Register No. _____

Date: 16 May 2019 Parent's Signature: _____

Booklet A

Instructions to Pupils:

1. Do not open the booklets until you are told to do so.
2. Follow all instructions carefully.
3. This paper consists of 2 booklets - Booklet A and Booklet B
4. For questions 1 to 28 in Booklet A, shade the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.
5. For questions 29 to 40, give your answers in the spaces given in the Booklet B.

* This booklet consists of 19 printed pages (including 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). **Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.** [56 marks]

1. Which one of the statements about a fern and a mushroom is correct?

   (1) Both are poisonous.
   (2) Both reproduce by spores.
   (3) Both are non-flowering plants.
   (4) Both can make their own food.

2. Mandy has a bird. She observed the following characteristics of her bird over a period of time.

   A: It lays eggs.
   B: It has feathers.
   C: It eats seeds and fruits.
   D: It hops when there is a loud sound.

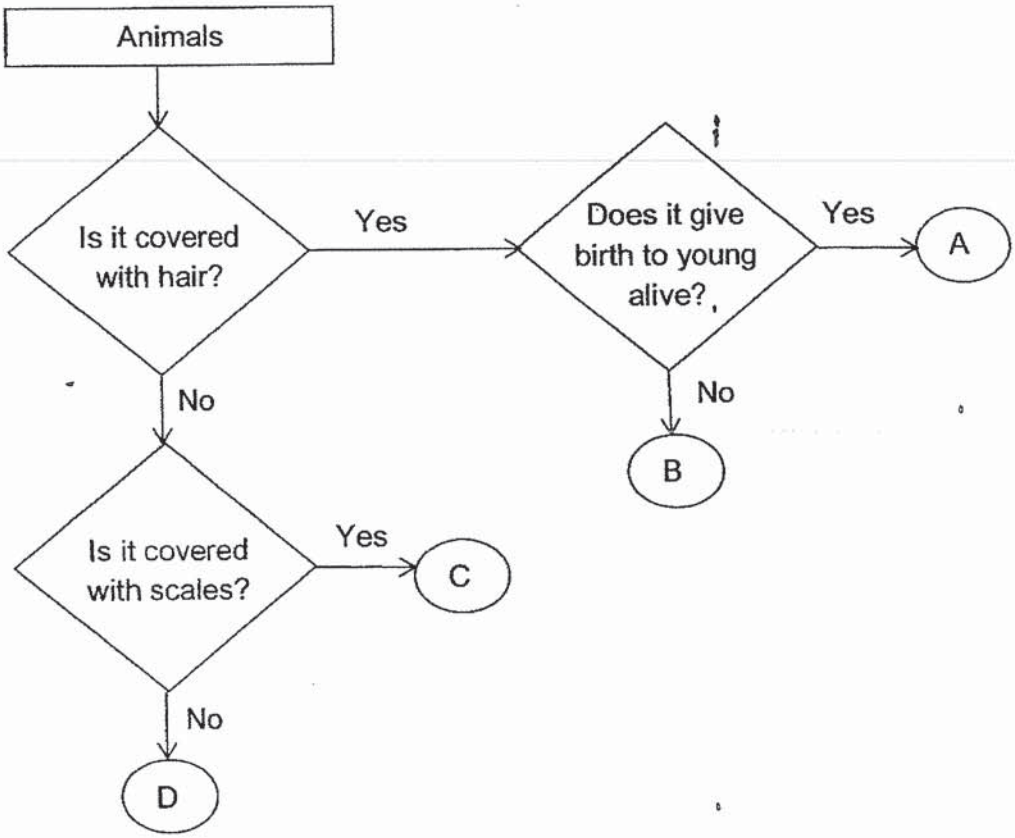
   Which characteristics can be used to determine that the bird is a living thing?

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

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3. Study the flow chart below.



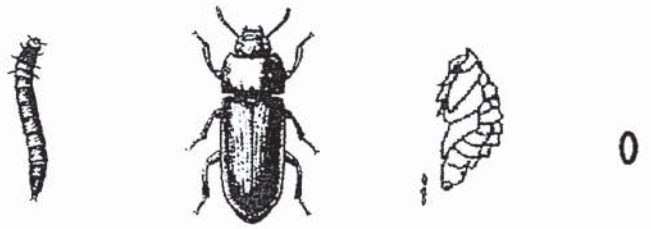
Which one of the following is the correct classification for a frog and a dog?

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

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4. The stages of the life cycle of a mealworm beetle are shown below.



A B C D

Which one of the following shows the correct order of the life cycle?

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

5. Three students made the following comments about a cockroach.

Student A: It has four stages in its life cycle.
Student B: The nymph of a cockroach moults many times.
Student C: The nymph has no wings but the adult has wings.

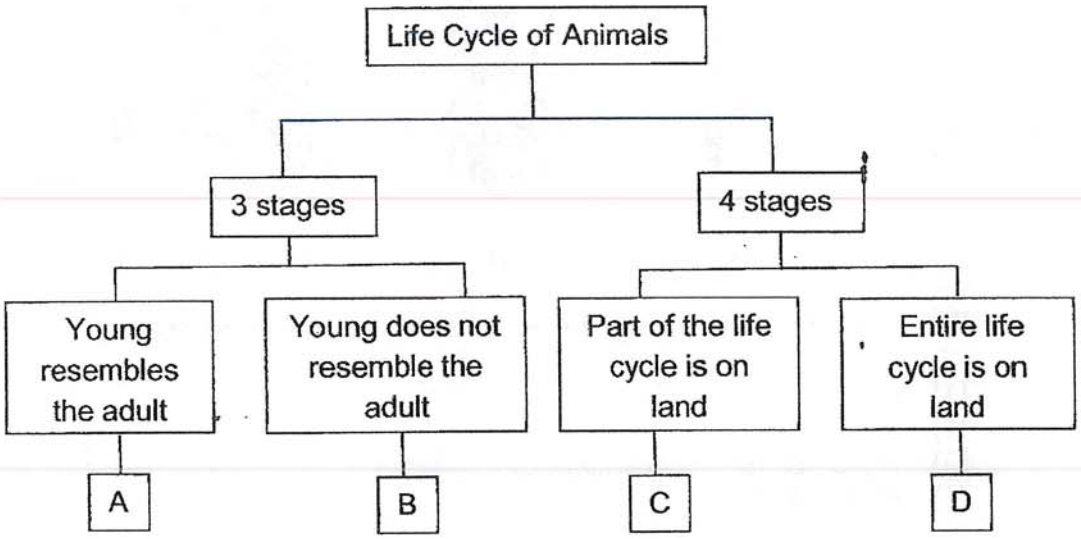
Which students are correct?

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

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6. Study the classification chart below.



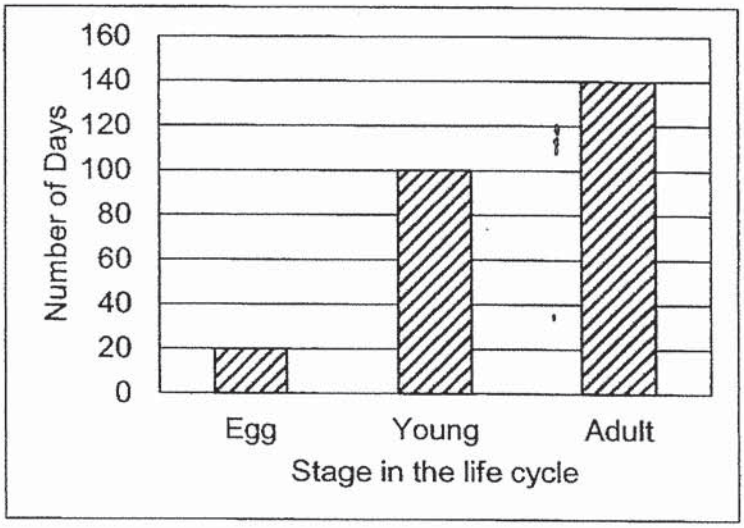
What could A, B, C and D be?

	A	B	C	D
(1)	grasshopper	frog	beetle	chicken
(2)	cockroach	mosquito	frog	butterfly
(3)	chicken	grasshopper	beetle	mosquito
(4)	grasshopper	frog	mosquito	beetle

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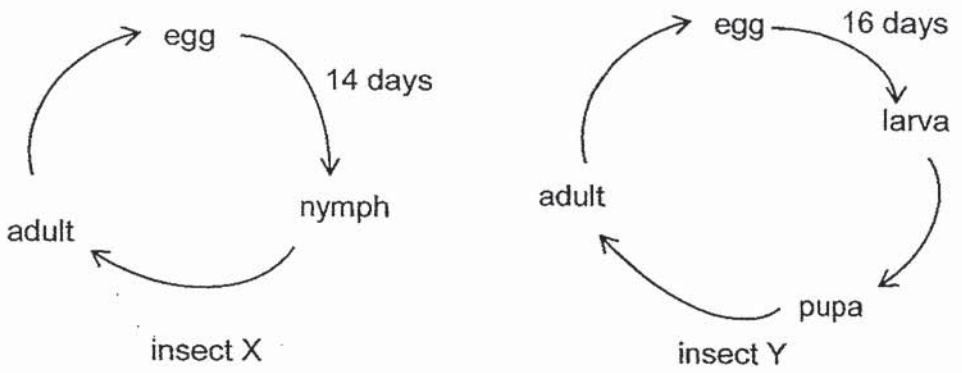
7. The graph below shows the number of days each stage lasts in the life cycle of an animal.



How many days does it take for the animal to become an adult after the egg hatches?

(1) 100 days
(2) 120 days
(3) 140 days
(4) 240 days

8. The diagram below shows the life cycle of insects X and Y.



Based on the diagram above, which statement is **not** possible to make?

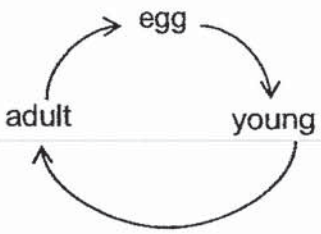
(1) Both life cycles start from an egg.
(2) In both life cycles, the egg takes time to hatch.
(3) The life cycle of insect Y has more stages than insect X.
(4) Insect Y takes a longer time than insect X to complete its life cycle.

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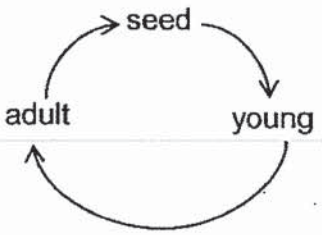
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9. Which one of the following correctly represents the life cycle of a plant?

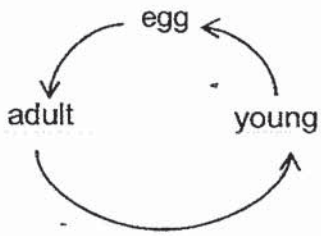
(1)



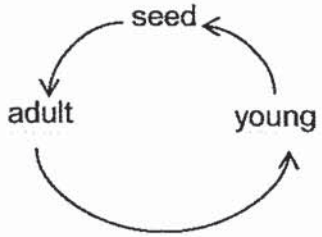
(2)



(3)



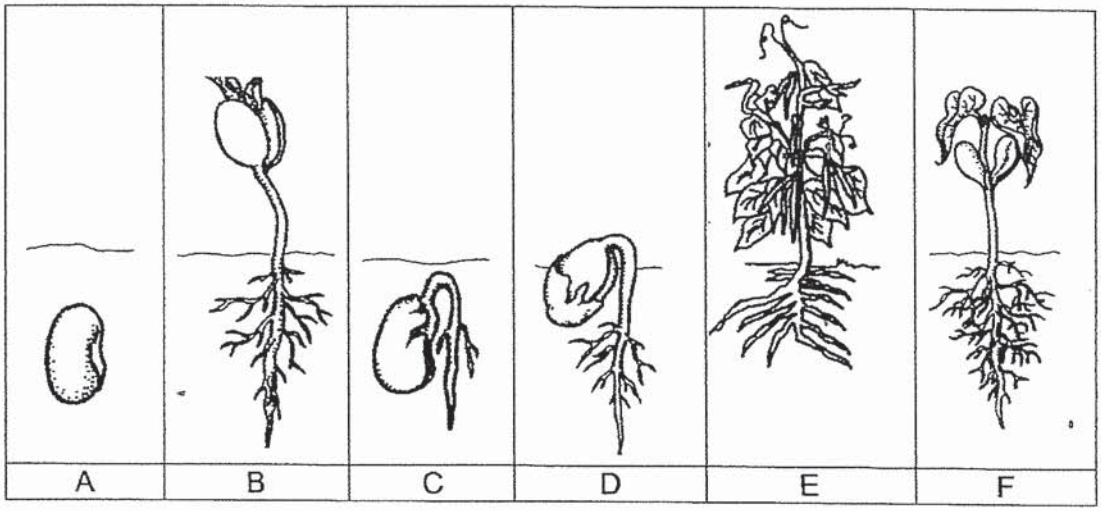
(4)



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Study the diagram below on the developmental stages of a bean plant and answer questions 10 and 11.



10. Which one of the following correctly shows the growth of a green bean plant?

(1) A → B → C → D → E → F
(2) A → C → D → B → F→ E
(3) E → A → C → D → F → B
(4) E → F → B → D → C → A

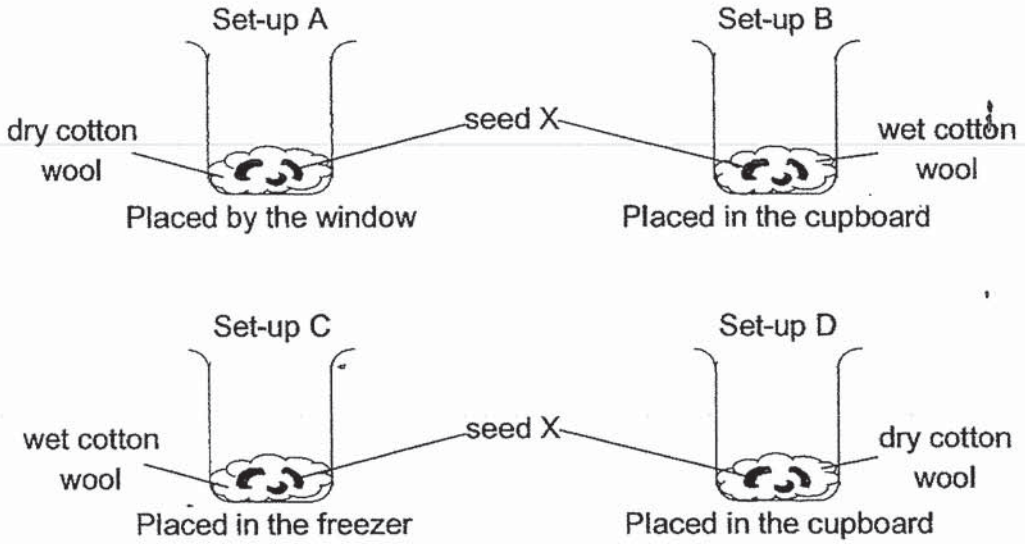
11. At which stage can the green bean plant make its own food?

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

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12. The diagram below shows four set-ups, A, B, C and D, with an identical number of seed X placed in different conditions.



In which one of the following set-ups would seed X germinate?

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

13. Ali wanted to find out if the amount of water would affect the germination of seeds. Which of the following variables must he keep the same for a fair experiment?

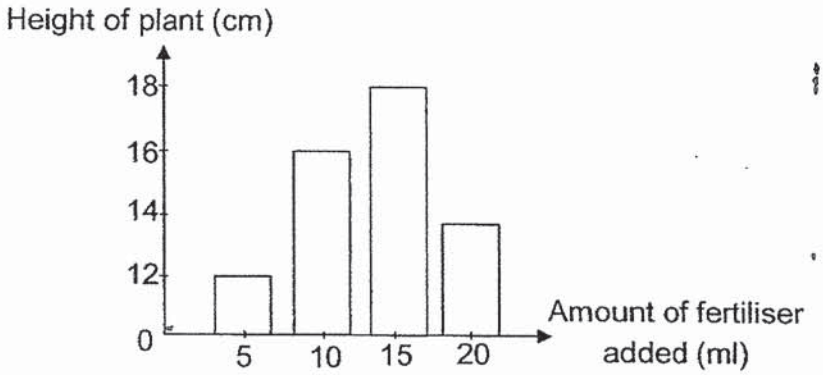
A: Temperature of water
B: Amount of water
C: Number of seeds
D: Type of seeds

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

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14. The graph below shows the effect of fertiliser on the height of hibiscus plants. All the plants were at 10 cm in the beginning. Different amount of fertiliser was added to the plants. The height was measured at the end of a month.



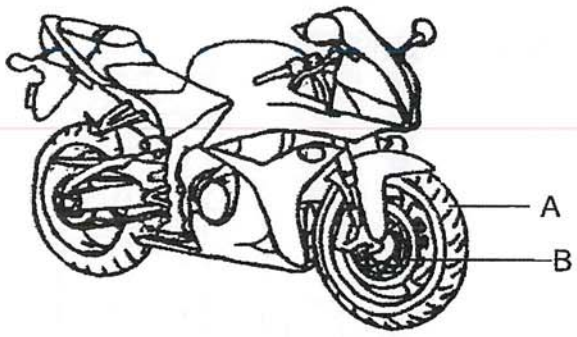
What can you conclude from the results shown in the graph?

(1) The height of plant is affected by the amount of fertiliser.
(2) The height of plant is not affected by the amount of fertiliser.
(3) The height of plant is taller when more fertiliser is added.
(4) The height of plant is shorter when more fertiliser is added.

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15. Study the diagram of a motorcycle parked in a carpark.



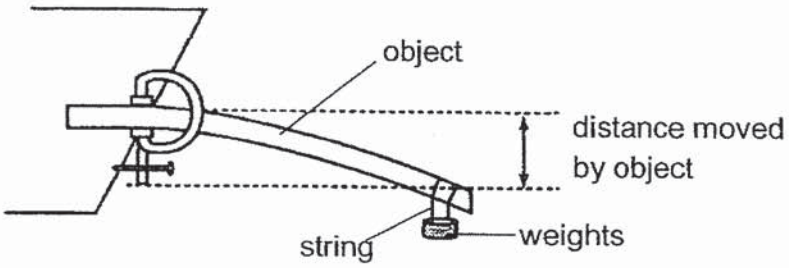
What materials are parts A and B most likely made of?

	A	B
(1)	plastic	glass
(2)	wood	metal
(3)	rubber	wood
(4)	rubber	metal

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16. Aaron used the set-up below to test an object. As he added the weights, he observed that the object did not break.



The table below shows the properties of materials, A, B, C and D.

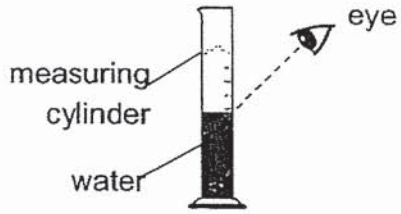
Material	A	B	C	D
Is it flexible?	✓			✓
Is it waterproof?	✓	✓	✓	✓
Is it transparent?	✓		✓	
Is if strong?		✓	✓	✓

Which material is the object made of?

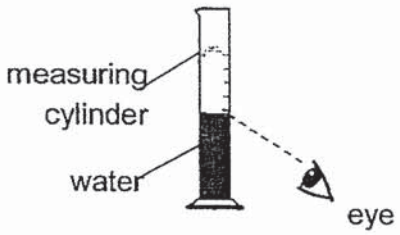
(1) A
(2) B
(3) C
(4) D

17. Damian wanted to measure the volume of water in a measuring cylinder. Which one of the following diagrams shows the correct position of his eye?

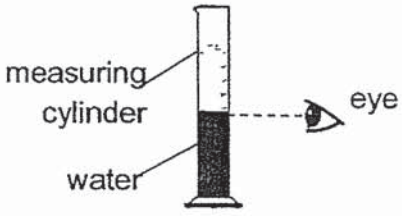
(1)



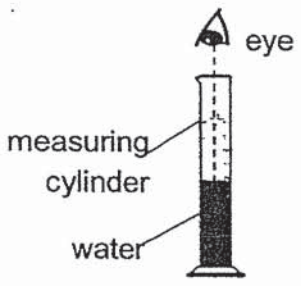
(2)



(3)



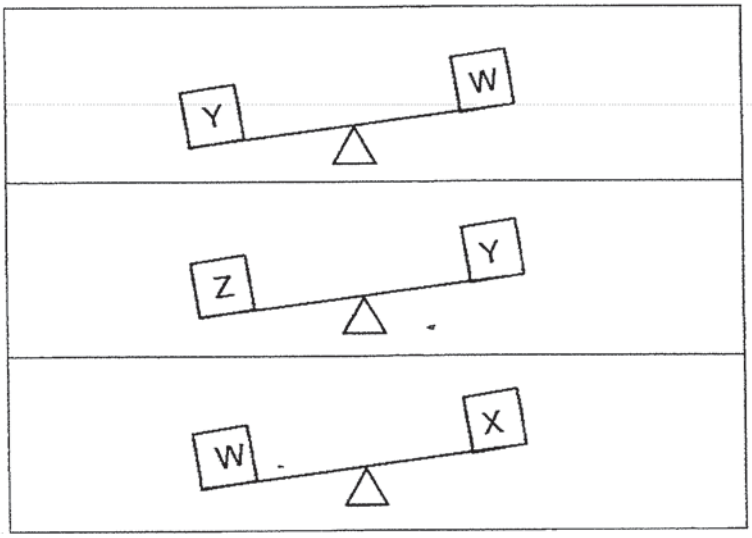
(4)



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18. An experiment was set up to compare the masses of four objects W, X, Y and Z. The objects were placed on the lever balance as shown in the diagram below.



Which one of the following has the greatest mass?

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

19. Danny wants to find out the volume of a stone.
Which one of the following apparatus should he use?

(1)



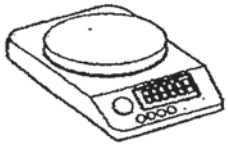
syringe

(2)



measuring cylinder

(3)



electronic balance

(4)

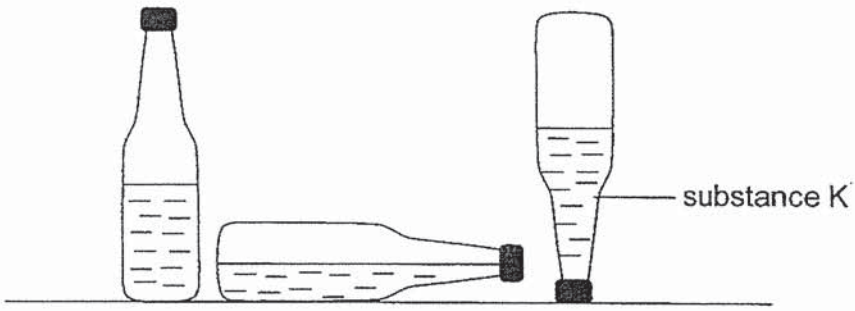


beam balance

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20. A plastic bottle was filled with substance K. It was then placed in three different positions. The diagram below shows the substance at the respective positions.



Based on this experiment, what can you conclude about substance K?

A: It has mass.
B: It has no definite shape.
C: It has a definite volume.

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

21. Gwen used a table as shown below to describe the properties of three states of matter A, B and C.

	A	B	C
Does it have mass?	Yes	Yes	Yes
Can it be compressed?	No	Yes	No
Does it takes up the shape of the container?	Yes	Yes	No

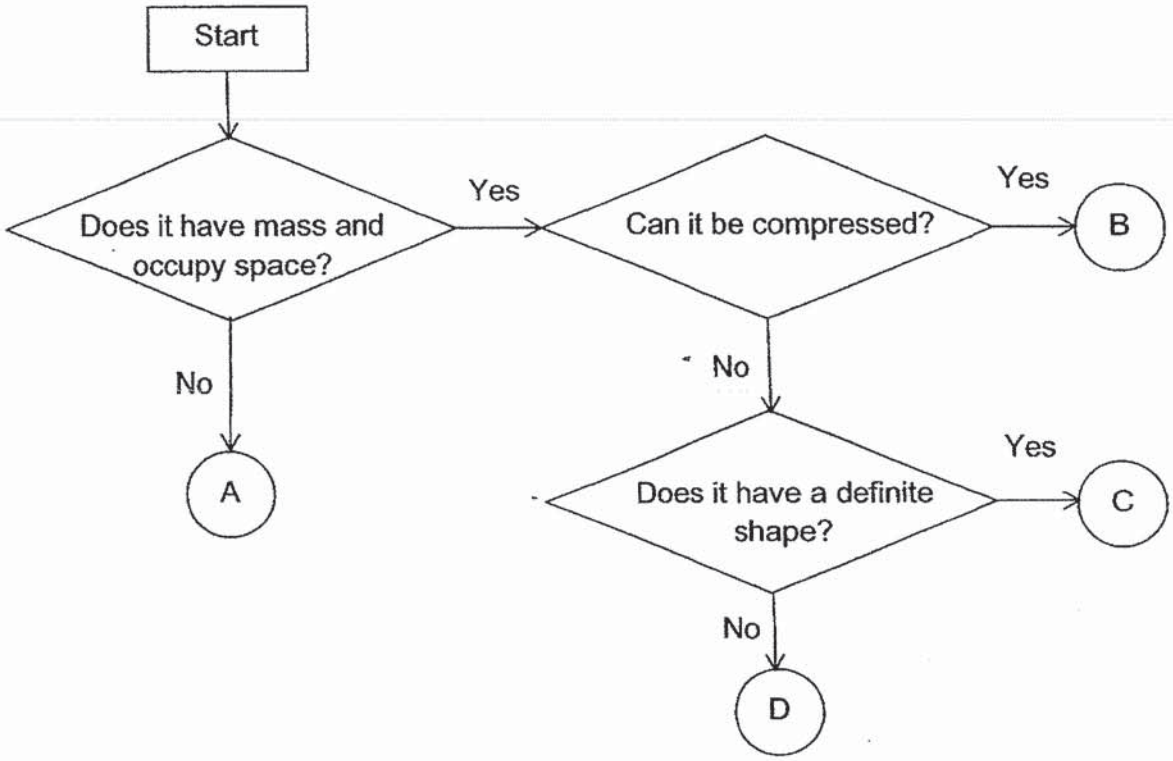
Which one of the following is the correct heading for A, B and C?

	A	B	C
(1)	gas	liquid	solid
(2)	solid	liquid	gas
(3)	liquid	solid	gas
(4)	liquid	gas	solid

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22. The following flowchart shows the properties of four substances A, B, C and D.



Which one of the following could substances A, B, C and D represent?

	A	B	C	D
(1)	ice cube	milk	heat	air
(2)	light	sponge	air	ice cube
(3)	heat	air	ice cube	milk
(4)	air	ice cube	milk	heat

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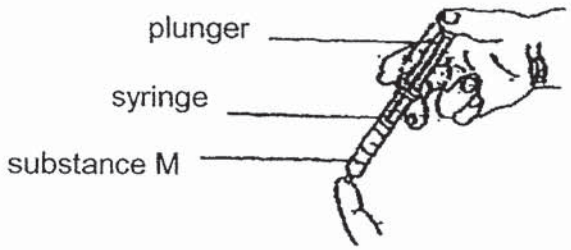
23. Karl classified six items into two groups as shown below.

Group A	Group B
wire	water
paper	oil
ice cube	air

Which one of the following shows suitable headings for groups A and B?

	Group A	Group B
(1)	solid	liquid
(2)	solid	gas
(3)	has a fixed shape	has no fixed shape
(4)	has a fixed volume	has no fixed volume

24. Jason filled a syringe with substance M. He then covered the opening with his finger. He tried to push the plunger in and he observed that he could do so.



What conclusion can he make about substance M based on his observation?

(1) It has volume.
(2) It has definite volume.
(3) It has no definite shape.
(4) It has no definite volume.

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25. Kenneth used a ball in his experiment. The volume of the ball is 200 cm^3. He then pumped an additional of 50 cm^3 of air into the ball using a hand pump. The size of the ball remained the same.



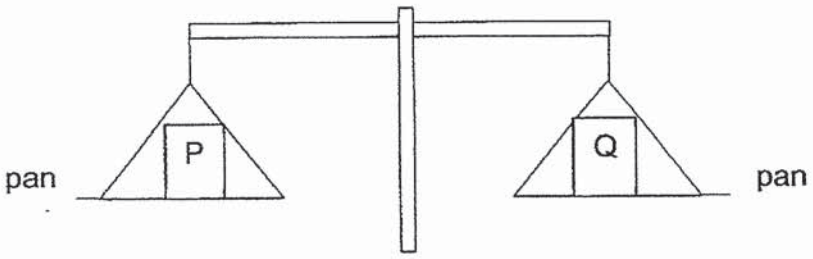
ball



Which one of the following is correct?

	Mass of ball	Volume of ball
(1)	remains the same	increases
(2)	increases	increases
(3)	decreases	decreases
(4)	increases	remains the same

26. Object P and object Q were placed on a balance. The pans were balanced as shown below.



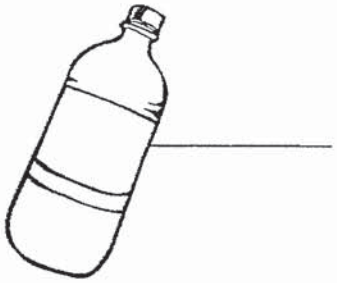
Which of the following correctly explains why the pans were balanced?
The pans were balanced because object P and object Q have same _____.

(1) size
(2) mass
(3) shape
(4) volume

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27. A plastic bottle has a volume of 900 cm^3.



Which of the following can be stored in this bottle?

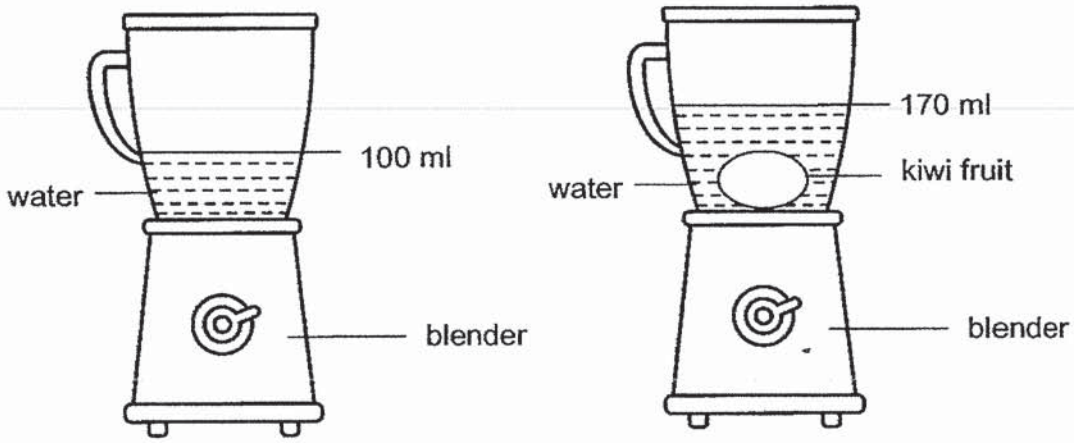
A: 700 cm^3 of air
B: 1000 cm^3 of air
C: 700 cm^3 of water
D: 1000 cm^3 of water

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

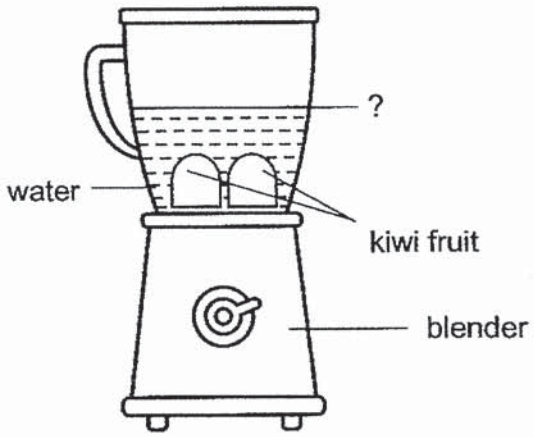
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28. Susan wanted to make some smoothie. She placed a kiwi fruit into a blender that was filled with 100 ml of water. The water level in the blender rose to 170 ml.



Susan's mother then told her to take out the kiwi fruit and cut it into two halves. Susan then placed the two halves back into the blender with 100 ml of water.



What would the new reading of the water level be?

(1) 35 ml
(2) 70 ml
(3) 170 ml
(4) 270 ml

End of Booklet A

(Go on to Booklet B)

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Rosyth School
Mid-Year Examination 2019
SCIENCE
Primary 4

Total Marks: ____ / 100

Name: _____

Class: Pr 4 _____ Total Time for Booklets A and B: 1 h 45 min

Register No. _____

Date: 16 May 2019 Parent's Signature: _____

Booklet B

Instructions to Pupils:

1. For questions 29 to 40, give your answers in the spaces given in Booklet B.

	Maximum	Marks Obtained
Booklet A	56 marks	
Booklet B	44 marks	
Total	100 marks	

*** This booklet consists of 14 printed pages (including cover page).**

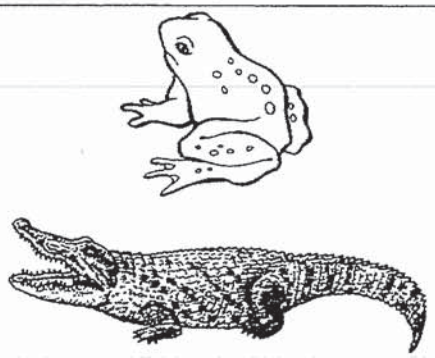
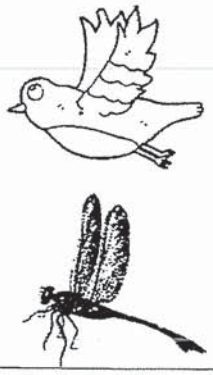
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For questions 29 to 40, write your answers in this booklet. [44 marks]

29. Jason classified some animals into two groups as shown in the table below.

Group A	Group B
	

(a) Give two suitable headings for Group A and B. [2]

Group A: _____

Group B: _____

(b) Based on the table above, state one similarity between Groups A and B based on reproduction. [1]

_____

_____

(c) Based on the table above, in which group would you classify a fish? Explain your answer. [1]

_____

_____

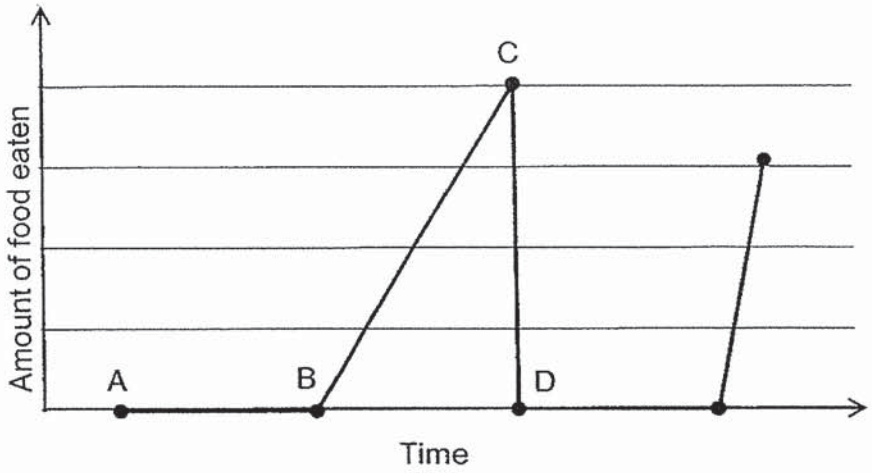
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30(a) Draw the life cycle of a butterfly. Use words and arrows only. [1]

(b) Name the stage of the life cycle which can be a pest to farmers. [1]

Jasmine measured the amount of food eaten at every stage of the life cycle. She plotted her results in the graph below.

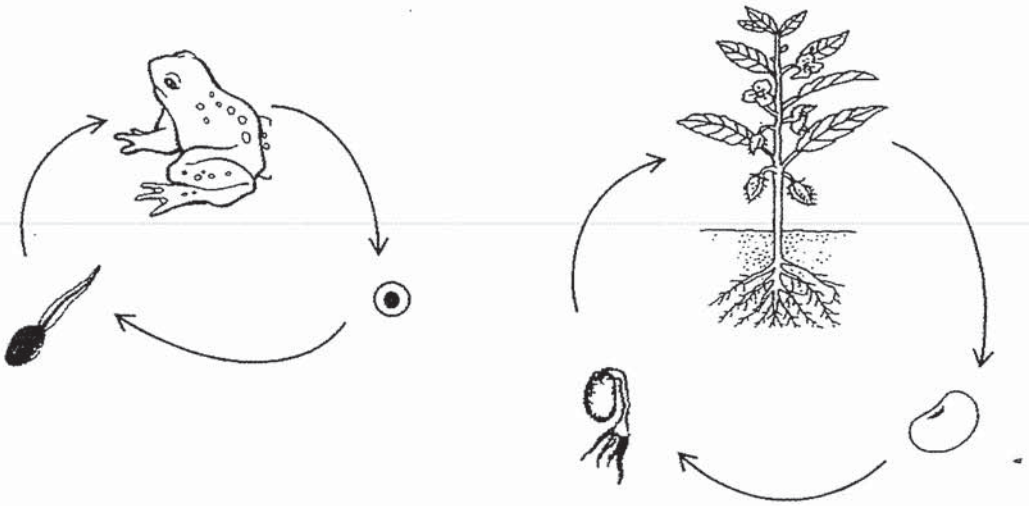


(c) Explain why there was a sudden drop in the amount of food eaten from C to D. [1]

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31. Study the life cycle of a frog and a plant shown below.



(a) State one similarity and difference between the life cycle of the frog and the plant. [2]

Similarity:

_____

_____

Difference:

_____

_____

(b) Describe a physical change in the young of the frog when it grows into an adult. (Do not mention shape or size) [1]

_____

_____

(c) At which stage of the plant can it reproduce? Explain why. [1]

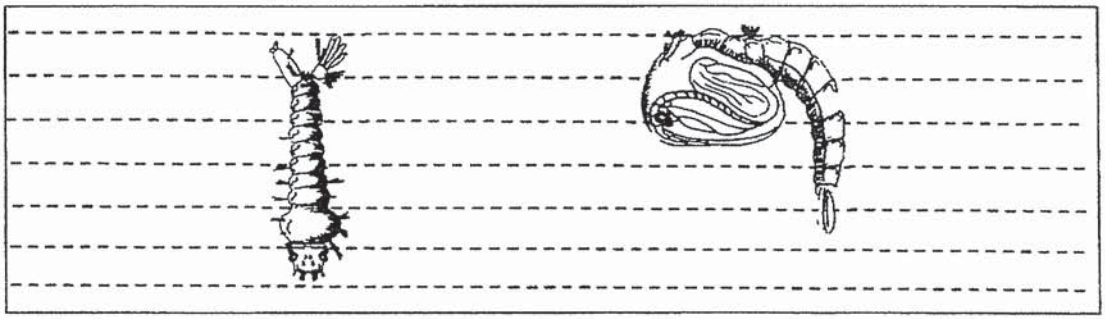
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32. The diagram below shows two stages, A and B in the life cycle of a mosquito. A eats a lot and moults many times while B does not eat and moult.



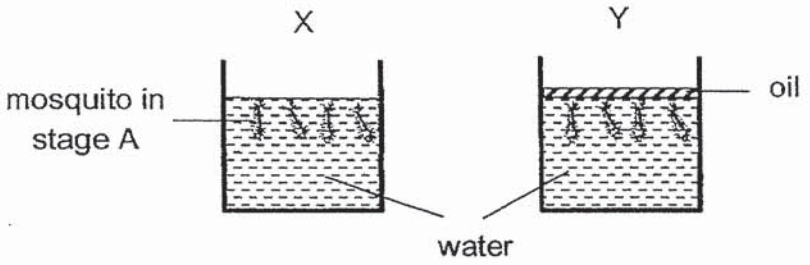
stage A stage B

(a) Name the stages A and B. [2]

stage A: _____

stage B: _____

(b) Equal number of A was kept in two set-ups X and Y. A layer of oil was added to the water in set-up Y as shown in the diagram below.



What would you most likely observe in the two set-ups after one day? [2]

set-up X: _____

set-up Y: _____

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33. Study the following statements and put a tick (✓) in the correct box. [2]

	Statements	True	False
(i)	All plants reproduce by seeds.		
(ii)	Plants have 4 stages in their life cycle.		
(iii)	The seed leaf makes food for the germinating seed.		
(iv)	Young plants have the same life cycle as their parent plant.		

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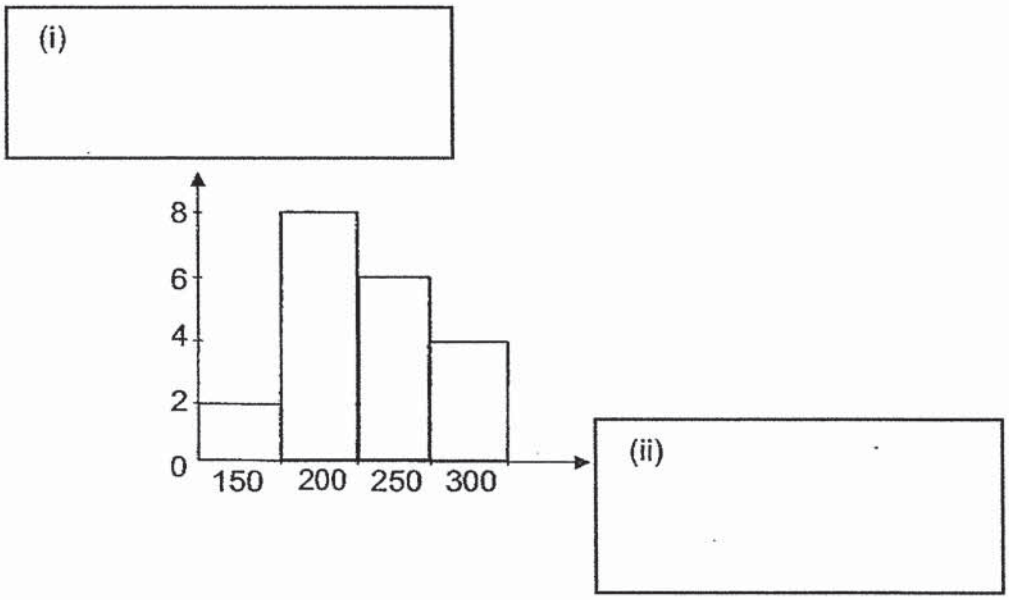
34. Oliver wanted to find out if the amount of nutrient solution will affect the number of fruits produced by a plant. He recorded the variables in the experiment as shown in the table below.

Set-up	A	B	C	D
Type of seeds	tomato	tomato	tomato	strawberry
Number of seeds	3	3	3	3
Number of fruits produced	2	8	6	4
Amount of nutrient solution (ml)	150	200	250	300

(a) Which set-up should **not** be used for the above experiment? Explain why. [2]

Oliver recorded the results of his experiment in a graph as shown below.

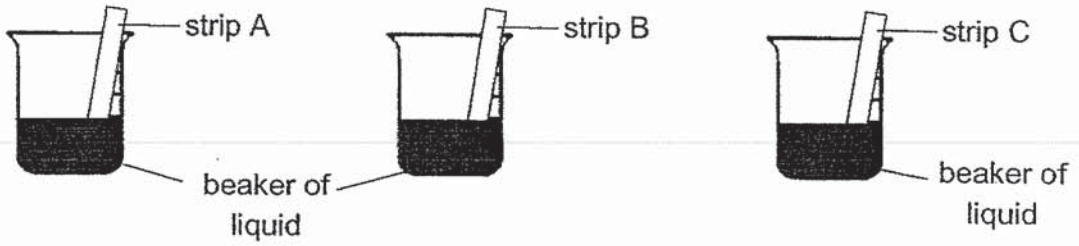
(b) Use the variables, 'Number of fruits' and 'Amount of nutrient solution' to label the graph in boxes, (i) and (ii). [2]



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35. Alison placed three strips of different materials, A, B and C, into three beakers of liquid as shown below.



She recorded the height of the liquid absorbed by the strips, A, B and C, in the table below after some time.

Strip	**A**	**B**	**C**
Height of liquid level (cm)	4	0	7

(a) Put a tick (✓) in the correct boxes to make the experiment a fair one. [2]

	To be kept the same	**To be** changed	**To be measured**
(i) Length of strips			
(ii) Material of strips			
(iii) Amount of liquid added			
(iv) Height of liquid level on the strips			

(b) Based on the results above, which one of the materials, A, B or C, is the most suitable to make a towel? Give a reason to support your answer. [1]

_____

_____

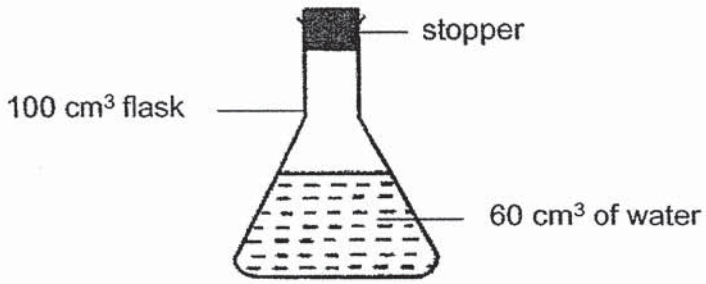
(c) Suggest the material of strip B. [1]

_____

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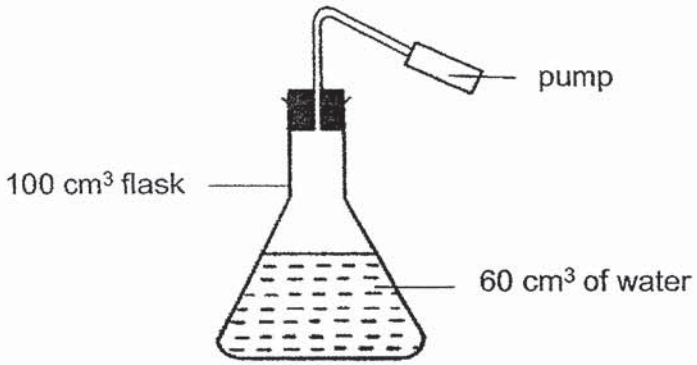
36. Ali poured 60 cm^3 of water into a 100 cm^3 flask. He then placed a stopper over the mouth of the flask.



(a) What is the volume of the air in the flask? [1]

_____

30 cm^3 of air is then added into the flask using a pump as shown below.



(b) What is the final volume of the air in the flask? [1]

_____

(c) State the property of air observed in the above experiment. [1]

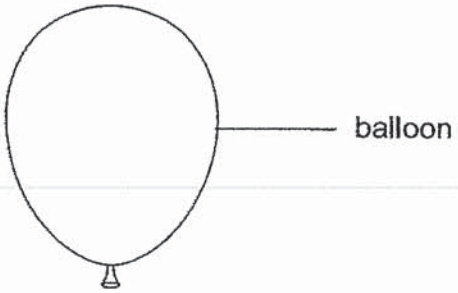
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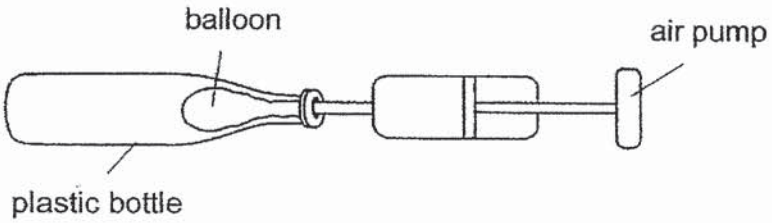
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37. Matthew inflated a balloon as shown below.



(a) What instrument could Matthew use to measure the mass of the balloon? [1]

Matthew then deflated the balloon and placed it into a plastic bottle as shown below.



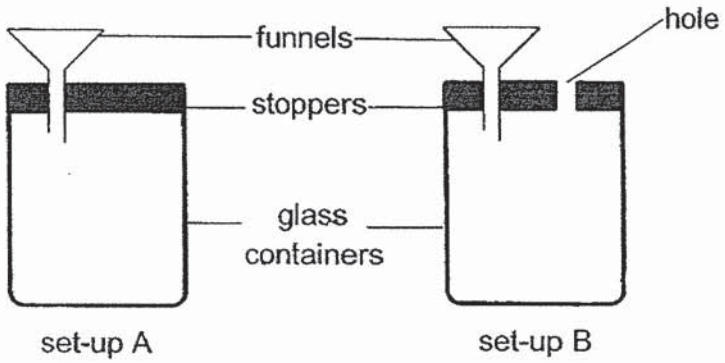
(b) He tried to fill the balloon with air using an air pump but found it very difficult to do so. Explain why. [2]

(c) Using the same materials shown in the set-up, what can Matthew do to make it easier to pump air into the balloon? [1]

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38. Julia had two set-ups, A and B, as shown in the diagram below.



Julia poured water quickly into the funnels of the two set-ups, A and B.

(a) Where would water be found in the two set-ups?
Draw your answers in the above set-ups. [2]

(b) What is the purpose of the hole in set-up B? [1]

_____

_____

(c) State the property of water observed above. [1]

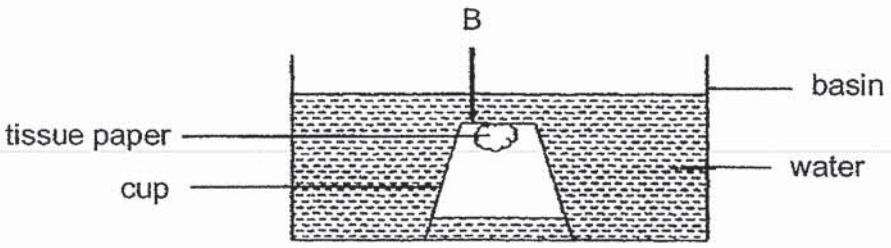
_____

_____

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39. Trina placed a piece of dry tissue paper on the bottom of an empty cup. She then lowered the cup into a basin of water until it touched the bottom of the basin.



(a) Trina observed that only some water had entered the cup and the tissue paper remained dry. State two properties of air shown in the above experiment. [2]

Property 1:

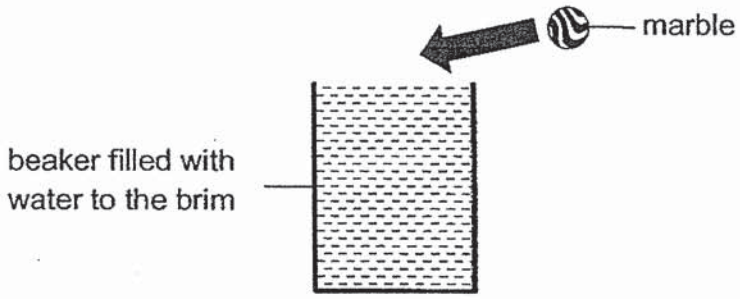
Property 2:

(b) Trina then poked a hole at point B of the cup as shown in the diagram above. She observed that some bubbles were coming out of the hole and the tissue paper became wet. Give reasons for her observations. [2]

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40. Faizal filled a beaker to the brim with water. He then dropped a marble into the beaker.



(a) State one observation Faizal would make. [1]

_____

_____

(b) State one property of the marble shown above. [1]

_____

_____

A water tank is attached to a toilet bowl. The water tank is filled with water to level T. After each flush, water will enter the tank and refill to level T.



Faizal conducted an experiment. He placed some marbles into the water tank and recorded the amount of water required to reach level T as shown in the table below.

Number of marbles placed into the tank	Amount of water required to reach level T (litres)
40	15
60	13
80	11
100	9

Question 40 continues on page 14

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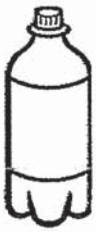
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(c) State the relationship between the number of marbles and the amount of water required to reach level T. [1]

_____

_____

(d) Faizal was then given an empty bottle and some sand. He wanted to use less water to flush the toilet bowl.



empty bottle



sand

What could you suggest to help Faizal use less water to flush the toilet bowl using the bottle and sand? [1]

_____

_____

- END OF PAPER -

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ANSWER KEY

YEAR : 2019
LEVEL : PRIMARY 4
SCHOOL : ROSYTH SCHOOL
SUBJECT : SCIENCE
TERM : MID YEAR EXAMINATION

BOOKLET A

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

BOOKLET B

Q29a) Group A: They cannot fly
Group B: They can fly

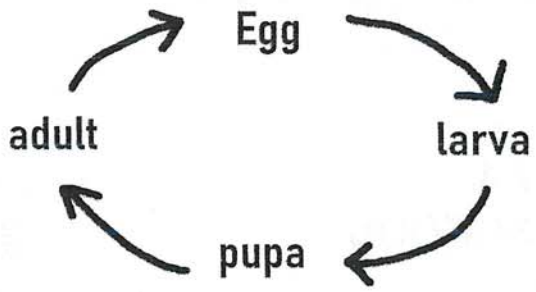
Q29 ıey lay eggs.

Q29c) Group A, because fish cannot fly.

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Q30a)



Q30b) larva

Q30c) The pupa stops eating.

Q31a) Similarity: Both the frog and the plant have 3 stages in their life cycles.

Difference: The frog starts with an egg stage, but the plant starts with a seed stage.

Q31b) The tadpole does not have legs, but the frog has.

Q31c) The adult stage. It has flowers which is used for reproduction.

Q32a) stage A: Larva stage B: pupa

Q32b) Set-up X: alive set-up Y: dead

Q33) i: False
ii: False
iii: False
iv: True

Q34a) Set-up D. It is the only set-up which uses different seeds. The type of seeds should remain the same for a fair experiment.

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Q34b) i: Amount of fruits

ii: Amount of nutrients

Q35a)

	To be kept the same	To be changed	To be measured
Length of strips	✓		
Material of strips		✓	
Amount of liquid added	✓		
Height of liquid level on the strips			✓

Q35b) C, because it can absorb the most water. Towels are used to absorb water from the body, making C an ideal choice.

Q35c) Glass.

Q36a) $40cm^3$

Q36b) $40cm^3$

Q36c) Air can be compressed.

Q37: am balance

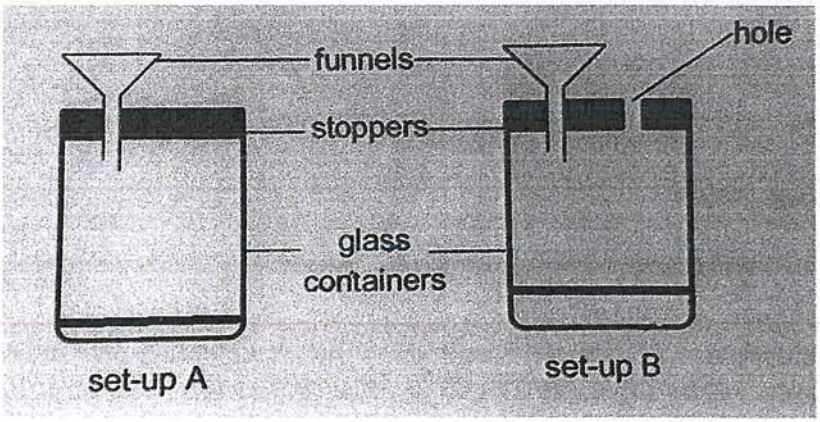
Q37b) There is already air occupying space in the bottle and hence the balloon cannot be bigger.

Q37c) Put a hole in the plastic bottle.

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Q38a)



Q38b) To let air escape.

Q38c) Water has a definite volume and occupies the shape of the set-up.

Q39a) Property 1: Air can be compressed
Property 2; Air occupies space

Q39b) The hole allows the air in the cup to escape and the water occupies the space previously occupied by air.

Q40a) The beaker will overflow.

Q40b) It has a definite volume.

Q40c) As the number of marbles placed into the tank increases, the amount of water required to reach level T decreases.

Q40d) He can put sand into the bottle to occupy space in the water tank without the bottle floating up. The water tank will now require lesser water to fill up before flushing.

4

END

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