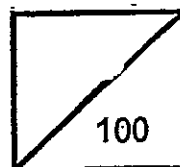




Rosyth School
Semestral Examination 1 for 2012
SCIENCE
Primary 4

Name: _____

Total
Marks:



Class: Pr 4 _____

Register No. _____

Duration: 1 h 30 min

Date: 14 May 2012

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 30 in Booklet A, shade the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.
5. For questions 31 to 44, give your answers in the spaces given in Booklet B.

	Maximum	Marks Obtained
Booklet A	60 marks	
Booklet B	40 marks	
Total	100 marks	

* This booklet consists of 19 pages.

Part I

For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). **Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.**

1. Study the following classification tables below. 5 things A, B, C, D and E are classified based on certain characteristics.

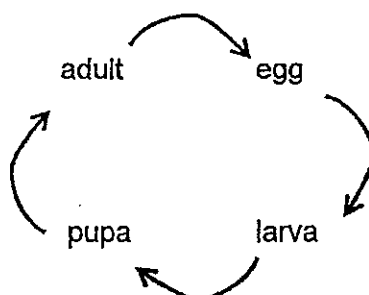
Can reproduce	Cannot reproduce
A, B, C	D, E

Can move from place to place	Cannot move from place to place
A, C	B, D, E

Can respond	Cannot respond
A, B, C, D	E

Which of the above are definitely living things?

- (1) A and C only
 (2) A, B and C only
 (3) A, B, C and D only
 (4) B, C, D and E only
2. Refer to the life cycle of a mosquito.



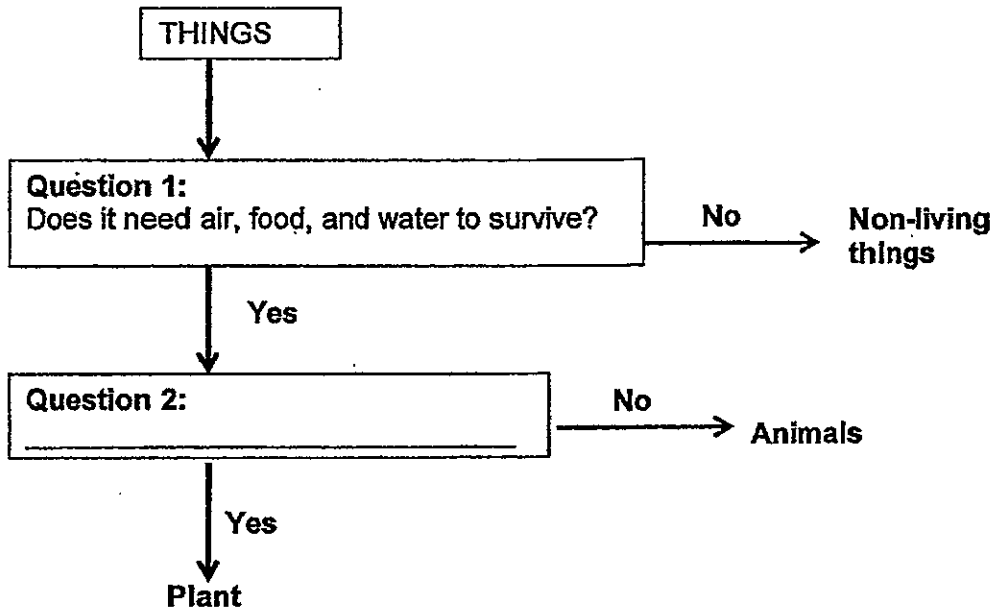
Mosquitoes are a pest to man. One way to kill the mosquito is to spray oil regularly into the drains.

What characteristic(s) of living things is/ are used to get rid of mosquitoes?

- A : Living things need air.
 B : Living things need food.
 C : Living things need water.

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

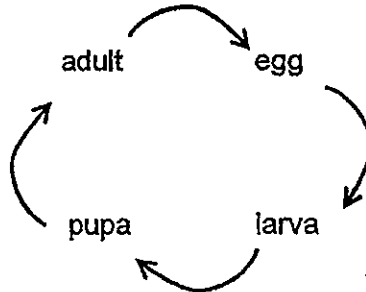
3. David used a flowchart to classify things as shown below.
He used two questions to classify the things into animals and plants.



Which of the following can be used as question 2 in the above classification?

- (1) Is it green?
 - (2) Does it bear flowers?
 - (3) Does it move by itself?
 - (4) Does it make its own food?
4. Which one of the following characteristics can differentiate the birds from other groups of animals?
- (1) They can fly.
 - (2) They lay eggs.
 - (3) They have wings.
 - (4) They are covered by feathers.

5. John studied the life cycle of animal X as shown below.

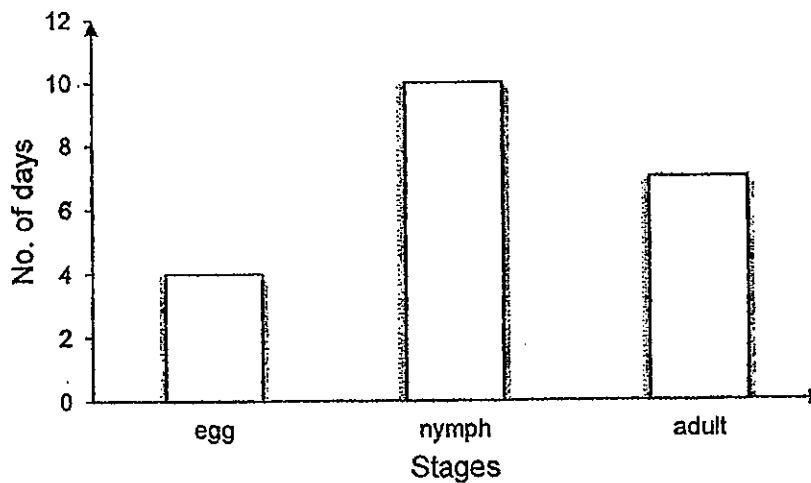


Which of the following statements are correct about animal X?

- A : The young resembles the adult.
- B : Organism X is definitely a butterfly.
- C : Organism X is definitely a living thing.
- D : The life cycle of Organism X has 4 stages.

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

6. The graph below shows the number of days in each stage of the life cycle of an insect.



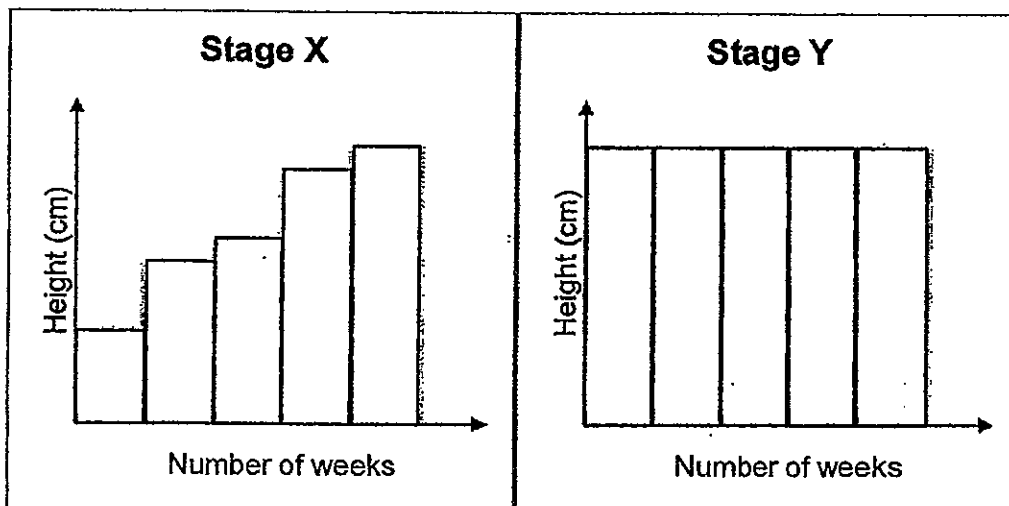
Which of the following information obtained from the graph is correct?

- (1) The insect can only survive for 1 week.
- (2) The insect takes 10 days to become a nymph.
- (3) The insect lives in the water for 12 days as a nymph.
- (4) The insect takes 10 days to become an adult after the egg is hatched.

7. Which of the following are common to ferns and mushrooms?

- (1) Both are microscopic.
- (2) Both grow on dead matter.
- (3) Both reproduce by spores.
- (4) Both need sunlight to make food.

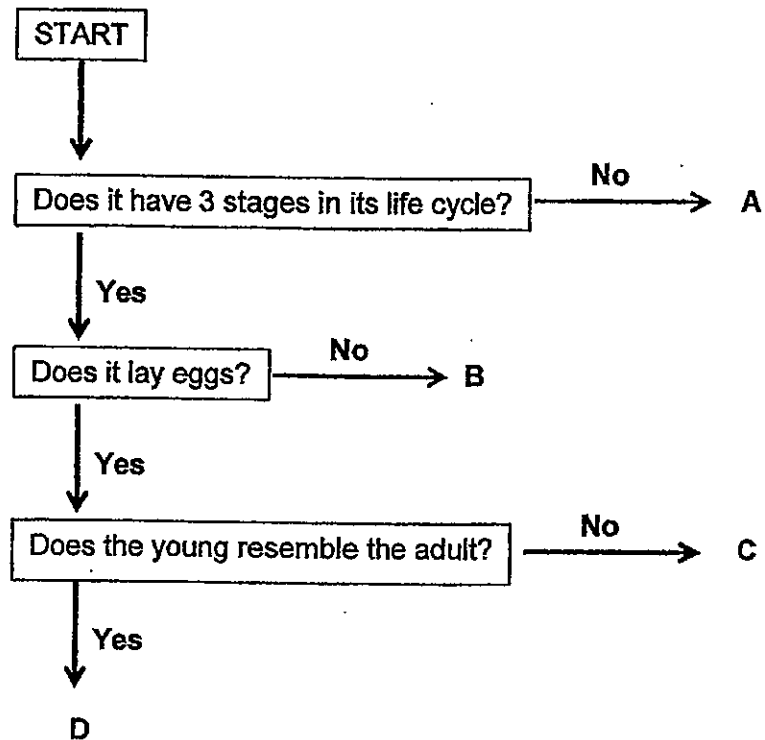
8. The following graphs show the growth of a plant at two different stages, X and Y.



Which of the following most likely represents the two stages respectively?

	Stage X	Stage Y
(1)	Seed	Young
(2)	Young	Seed
(3)	Young	Adult
(4)	Adult	Young

9. Study the flow chart below.



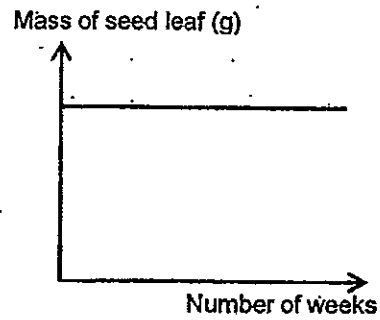
At which position A, B, C or D would you classify a frog?

- (1) A
- (3) C

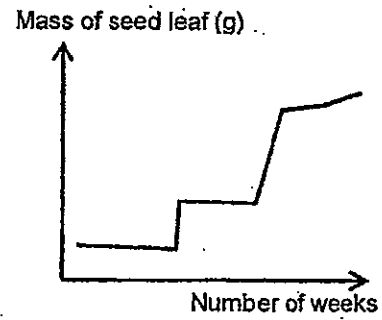
- (2) B
- (4) D

10. Which one of the following graphs best represents the change in mass of a seed leaf as a seed grows into a seedling?

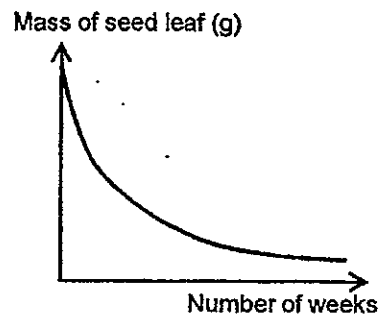
(1)



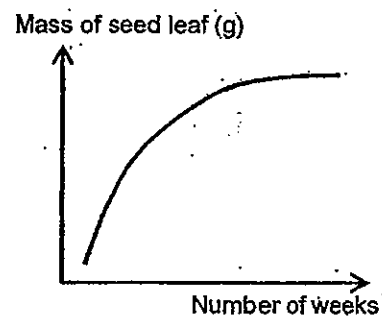
(2)



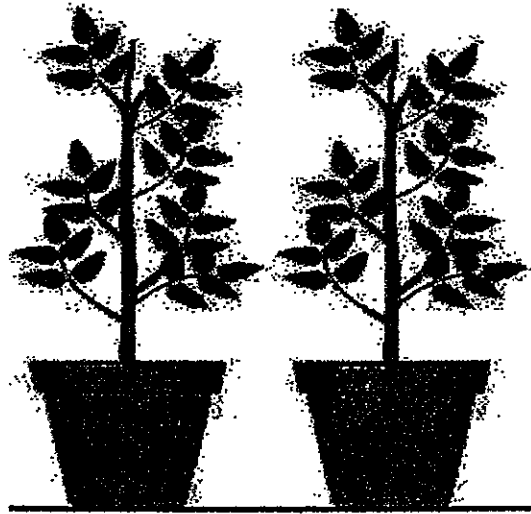
(3)



(4)

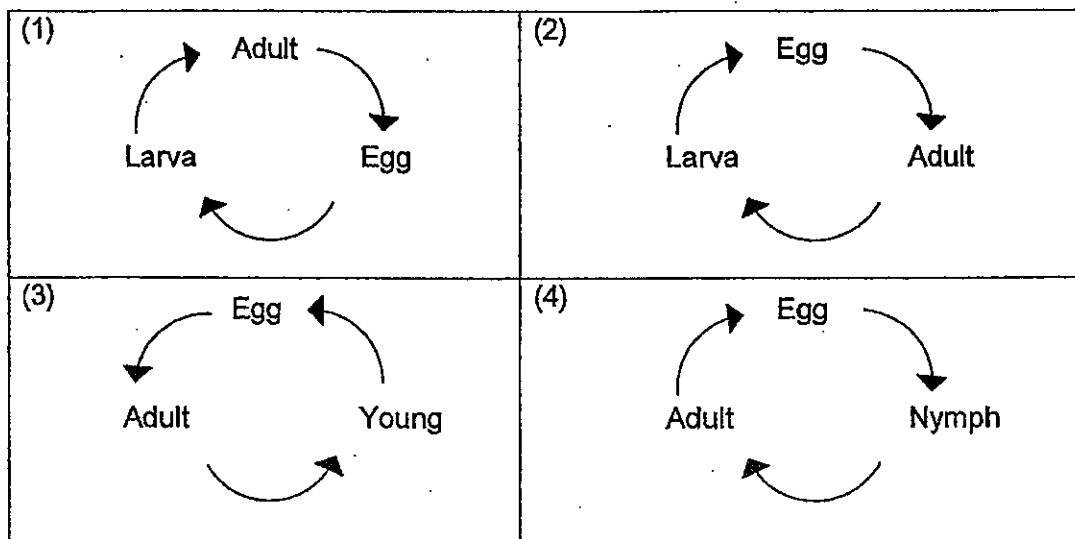


11. Benny wanted to conduct an experiment to find out if watering a plant more would cause a plant to grow taller. He started his experiment using two identical potted plants.

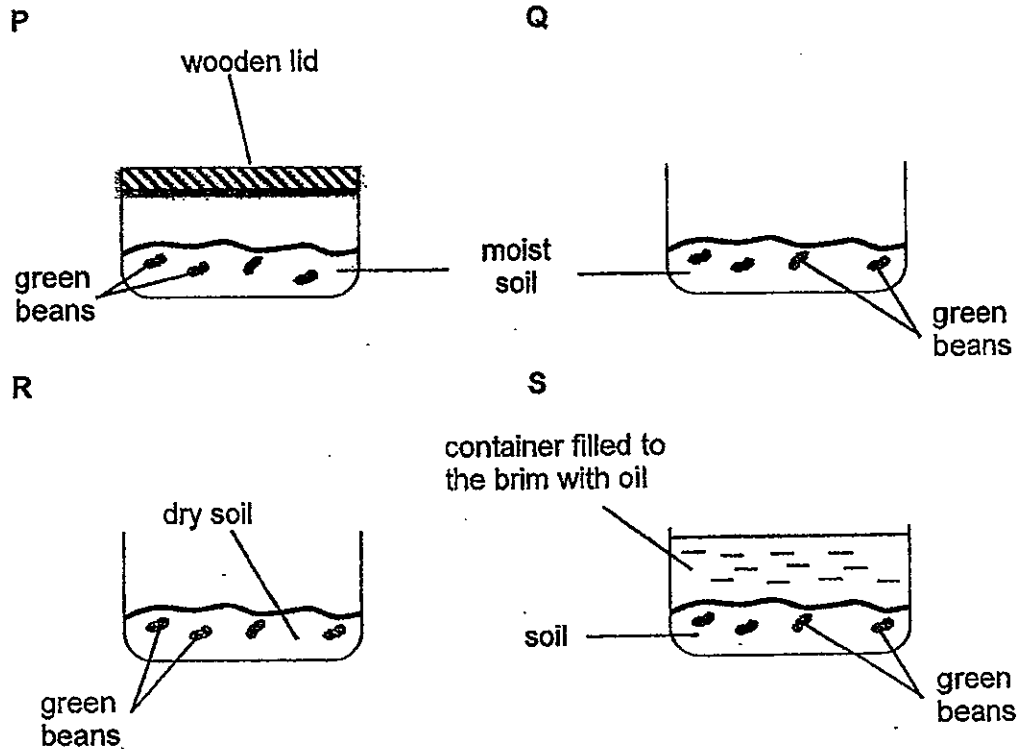


Which one of the following variables should he change?

- (1) Amount of water
 - (2) Amount of warmth
 - (3) Amount of sunlight
 - (4) Amount of fertilizer
12. Which one of the following best represents the life cycle of a dragonfly?



13. John placed some green beans in four different trays containing soil. He kept the trays in his classroom.

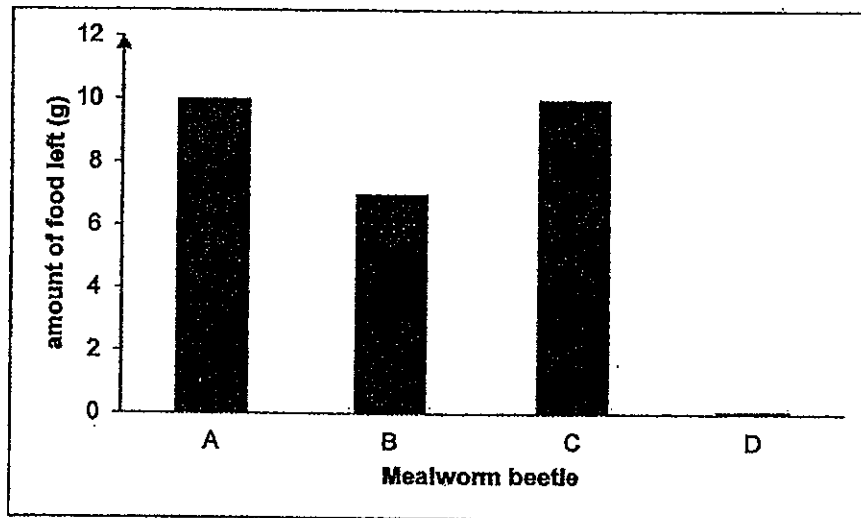


Which tray of seeds would germinate after a few days?

- | | |
|---------------------|---------------------|
| (1) Q and R only | (2) P and Q only |
| (3) P, S and R only | (4) P, Q and S only |

14. Johnny kept some mealworm beetles at different stages of development A, B, C and D in four separate containers.

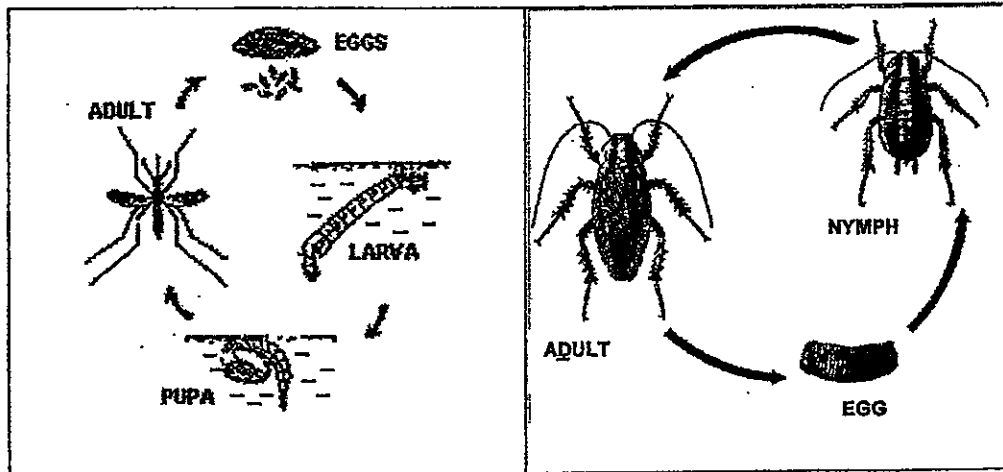
He put 10g of food in each container each day. He measured the amount of food that was left at the end of the day and presented it in a graph.



Which one of the following is most likely to be in the larva stage?

- [illegible]

15. Study the life cycles of a mosquito and cockroach below.



Which of the following can be inferred from the life cycles above?

A : Both animals lay eggs on land.

B : Both animals reproduce by laying eggs.

C : The young of both animals resemble the adult.

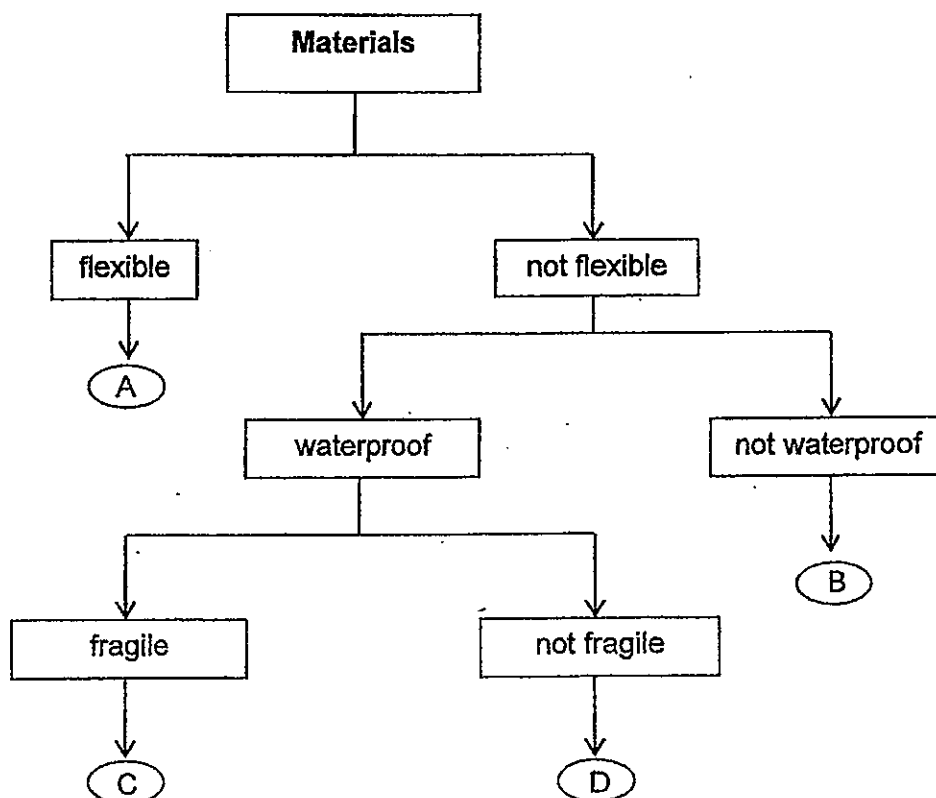
(1) A only

(2) B only

(3) B and C only

(4) A, B and C

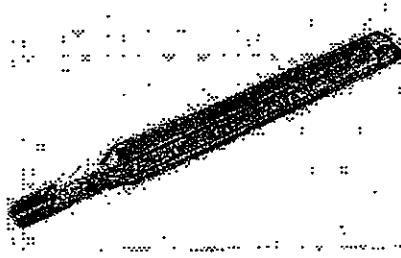
16. Study the classification table below. The materials are classified according to their properties.



Which of the following materials best represents A, B, C and D respectively?

	A	B	C	D
(1)	metal	wood	glass	fabric
(2)	fabric	metal	wood	glass
(3)	fabric	wood	glass	metal
(4)	wood	fabric	glass	metal

17. The laboratory thermometer is made of glass.

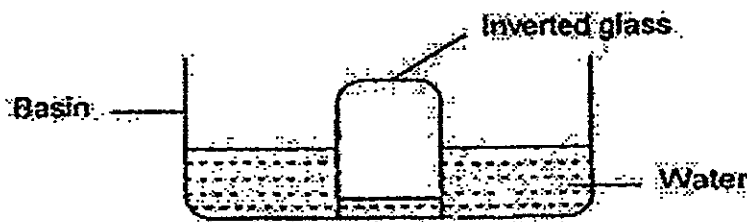


Why is glass a suitable material for the thermometer?

- A: It is hard.
- B: It is fragile.
- C: It is waterproof.
- D: It is transparent.

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

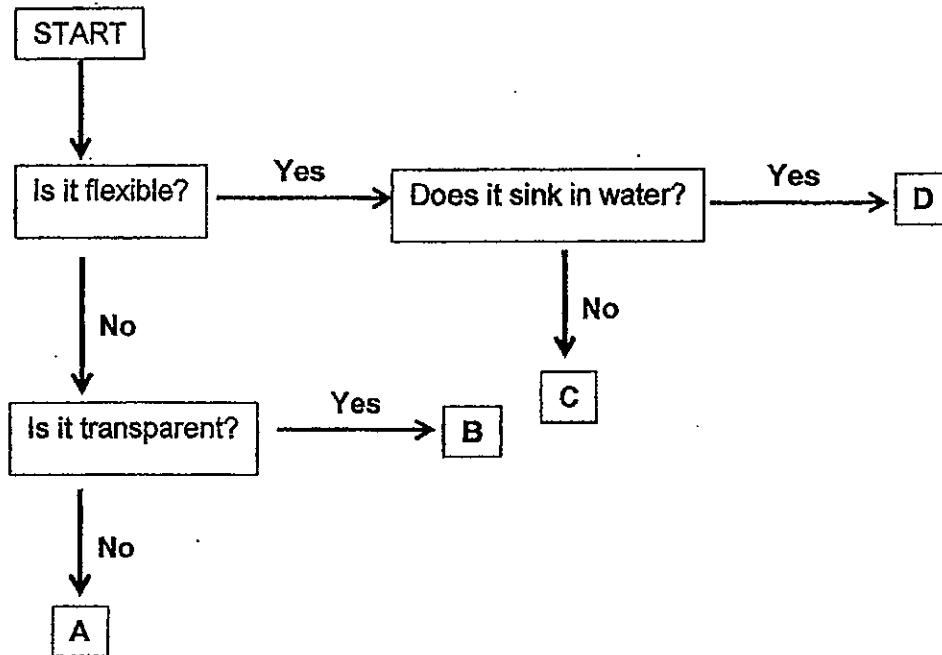
18. Alan took an empty glass, inverted it and pushed it into a basin of water as shown in the picture below. He noticed that a small amount of water entered the glass.



What does this experiment show?

- (1) Air has mass.
- (2) Air occupies space.
- (3) Water has definite volume.
- (4) Air has indefinite shape.

19. Study the flowchart below.



Which of the following (A, B, C or D) best describes the properties of a wooden pencil?

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

20. A, B and C describe the properties of 3 states of matter.

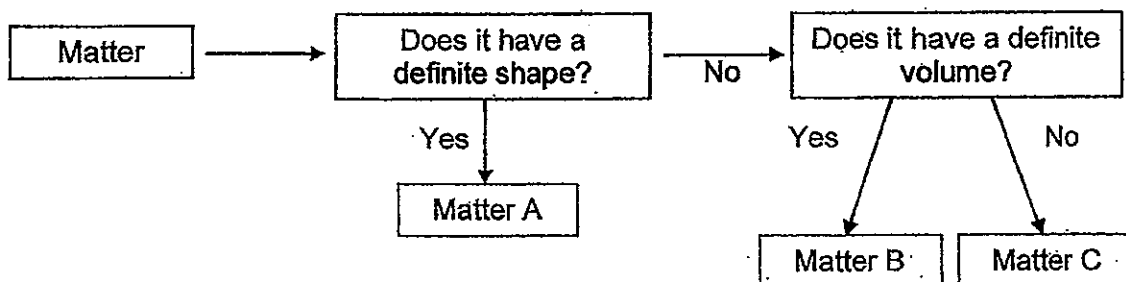
A	B	C
No definite volume	Definite volume	Definite volume
No definite shape	Definite shape	No definite shape

Which of the following correctly represents the properties of matter as water changes from one state to another as shown below?

Ice → Water → Water Vapour

- (1) A → B → C
- (2) B → A → C
- (3) B → C → A
- (4) C → B → A

21. Study the flowchart shown below.

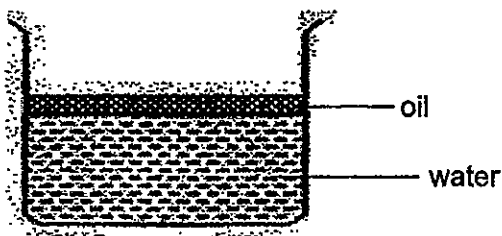


Kasim has a ball which has a capacity of 400ml.

Which of the following can he use to pump the ball with 500ml of the matter?

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

22. Matthew has a beaker of water. He added some oil into the beaker.

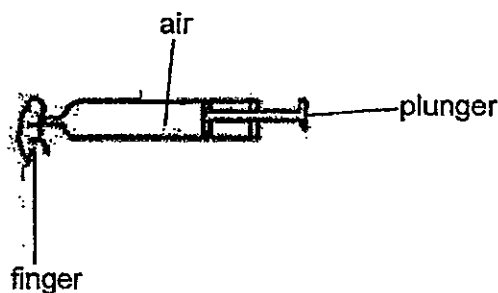


What can Matthew infer from his experiment?

- A: Oil has mass.
- B: Oil has volume.
- C: Oil has indefinite shape.

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

23. Jasmine filled the syringe below with 8 cm^3 of air and covered the nozzle with her finger. When she pushed the plunger of the syringe, the volume of air decreased to 5 cm^3 . She could not move the plunger in after that.



What properties of air can be concluded from the above experiment?

- A: Air has mass.
- B: Air occupies space.
- C: Air has no definite volume.

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

24. David had 2kg of steel and 2kg of paper. In what ways would the two be different?

They are different in _____.

- | | |
|--------------------------|------------------------------|
| (1) material only | (2) state only |
| (3) mass and volume only | (4) material and volume only |

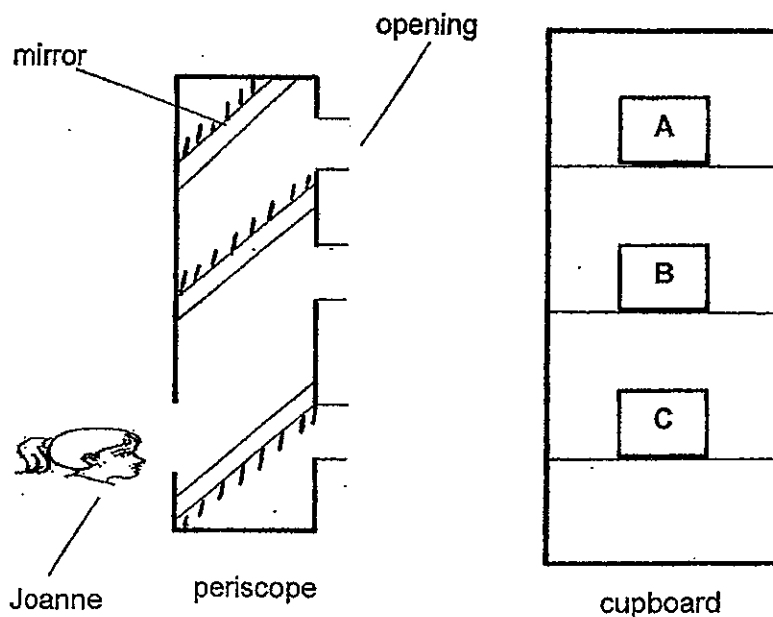
25. Some tap water was poured into each of the bottles shown below.



What does this experiment show?

- | | |
|----------------------------------|---|
| (1) Water has mass. | (2) Water has a definite volume. |
| (3) Water has no definite shape. | (4) Water allows light to pass through. |
26. Which of the following is not a source of light?
- | |
|--------------------|
| (1) Sun |
| (2) Mirror |
| (3) Fireflies |
| (4) Lighted Candle |

27. Joanne wanted to find out if she can see the objects A, B and C placed on different shelves of a cupboard using a periscope. The periscope has 3 mirrors as shown below.



Which object(s) could Joanne see using the periscope from the position shown above?

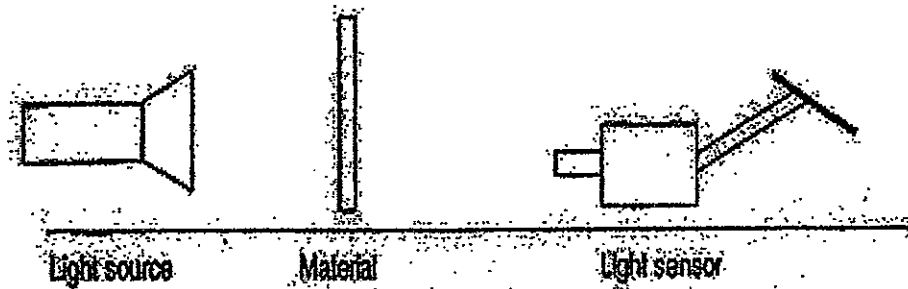
- (1) B only
(2) C only
(3) A and B only
(4) B and C only
28. Ahmad placed 4 objects P, Q, R and S in a black box one at a time. He looked through a small hole into an unlit black box. He was able to see objects R and S only.

Next, he switched on a light inside the box. Now he was able to see objects P, Q, R and S.

Which of the following object(s) are a source of light?

- (1) R and S only
(2) P and R only
(3) Q and S only
(4) P, Q, R and S

29. Joy tested four different materials, W, X, Y and Z, for the amount of light that can pass through each material. She used a light sensor as shown below.



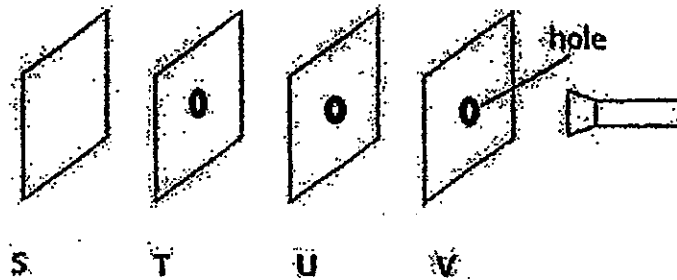
The table below shows the results she recorded after the test.

Materials	Amount of light (lux)
W	1900
X	4900
Y	2900
Z	3900

Which of the following materials would be the most suitable for making the lens of a microscope?

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

30. June had four sheets of materials. She made a hole in the centre of 3 of the sheets. She shone a torchlight and saw a bright light in the centre of S.



What could be the reasons for the observation above?

A: Light travels in straight lines.

B: Material S does not allow any light to pass through.

C: Materials T, U and V allows most light to pass through.

(1) A and B only

(2) B and C only

(3) A and C only

(4) A, B and C

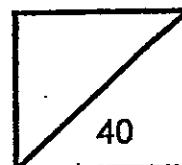
End of Part I



Rosyth School
Semestral Examination 1 for 2012
SCIENCE
Primary 4

Name: _____

Total
Marks:



Class: Pr 4 _____ Register No. _____

Duration: 1 h 30 min

Date: 14 May 2012

Parent's Signature: _____

Booklet B

Instructions to Pupils:

1. For questions 31 to 44, give your answers in the spaces given in Booklet B.

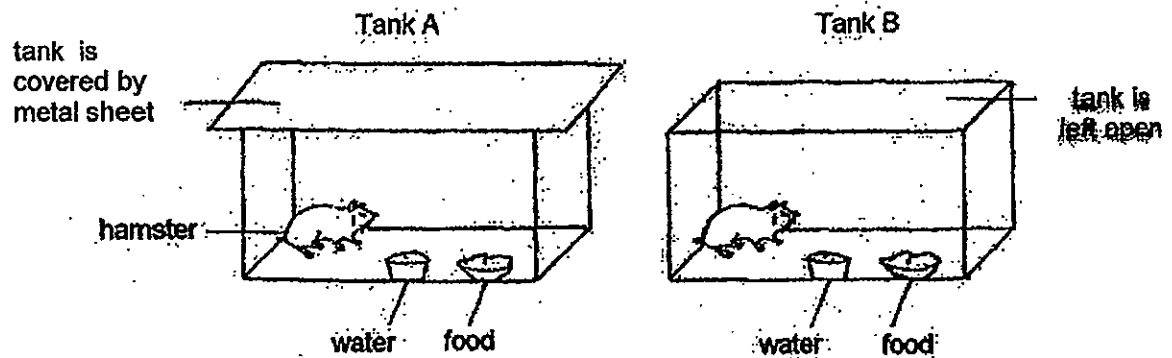
* This booklet consists of 14 pages.

105

PART II (40 MARKS)

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

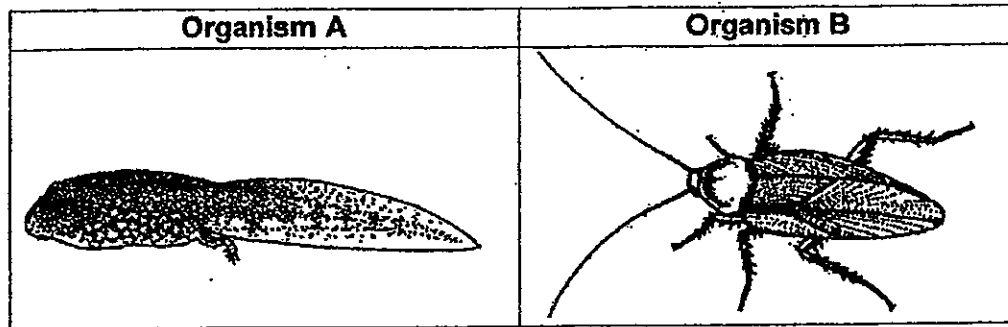
31. John conducted the experiment as shown below.



- a) In which tank will the hamster survive for a longer period? State your reason. (1m)

- b) State a characteristic of living things from the above experiment. (1m)

32. Observe the two organisms shown below and answer the following questions.



a) Name one similarity and one difference between the life cycles of the two organisms. (2m)

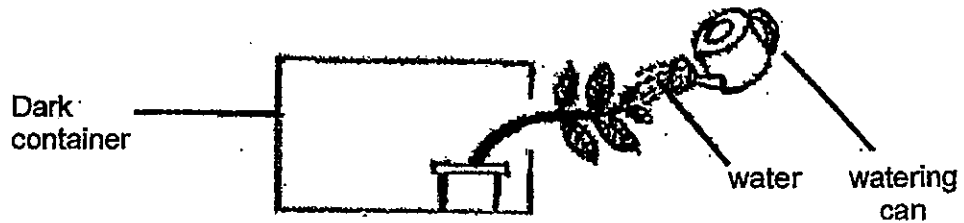
Similarity

Difference:

b) Draw the life cycles of each organism in the spaces provided below. (2m)

Organism A	Organism B

33. Jenny owns a plant that grows sideways as shown in the diagram below.



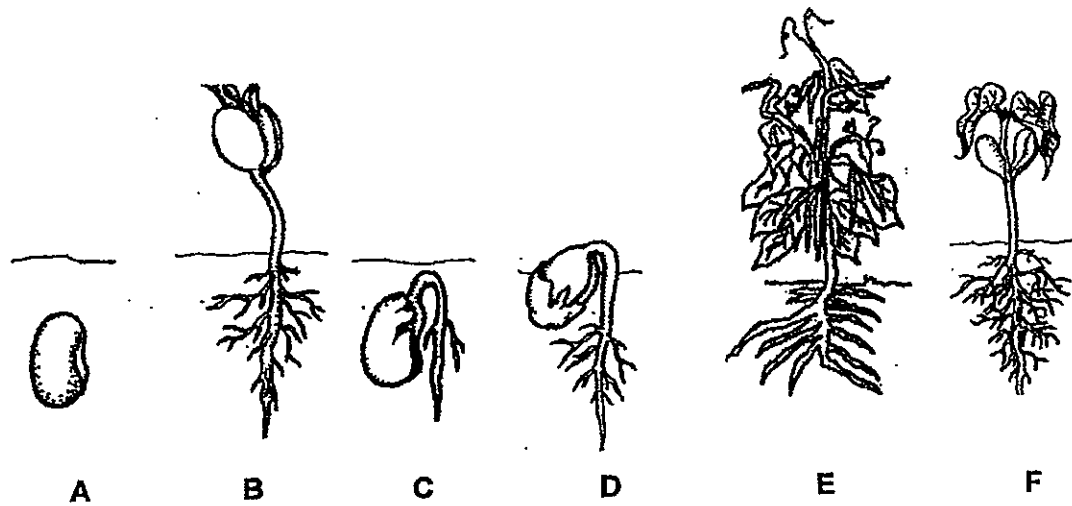
- a) She concluded that the plant grows sideways because there is not enough space for it to grow upright in the box. State another reason why the plant might be growing sideways. (1m)

- b) She watered her plant daily as shown above but found that the plant wilted after a week. Why is this so? (1m)

- c) Jenny noticed that trees growing close to one another in a forest tend to have more branches at the top of the tree than near the ground..

State a reason for her observation. (1m)

34. The following pictures show the different stages of growth of a bean plant.



a) Rearrange the above stages (A to F) in the correct order. The first letter 'E' is already done for you. (1m)

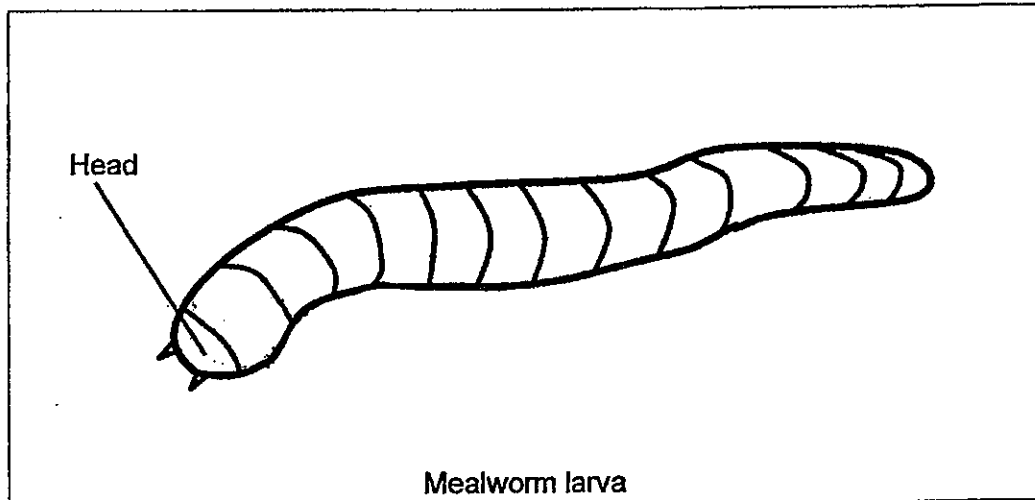


b) At which stage(s) (A to F) can the plant make its own food? State your reason why. (1m)

c) Draw the life cycle of the bean plant using the boxes below. (1m)

35. Sally brought home some mealworms to keep as a science experiment. She observed them and drew one as shown below.

- a) Complete Sally's drawing of the mealworm in the box below by drawing the legs. (1m)



Sally gave dry oats and a slice of apple for the mealworm larva to feed. Her friend said that her mealworm larva would die soon because no water was given to it.

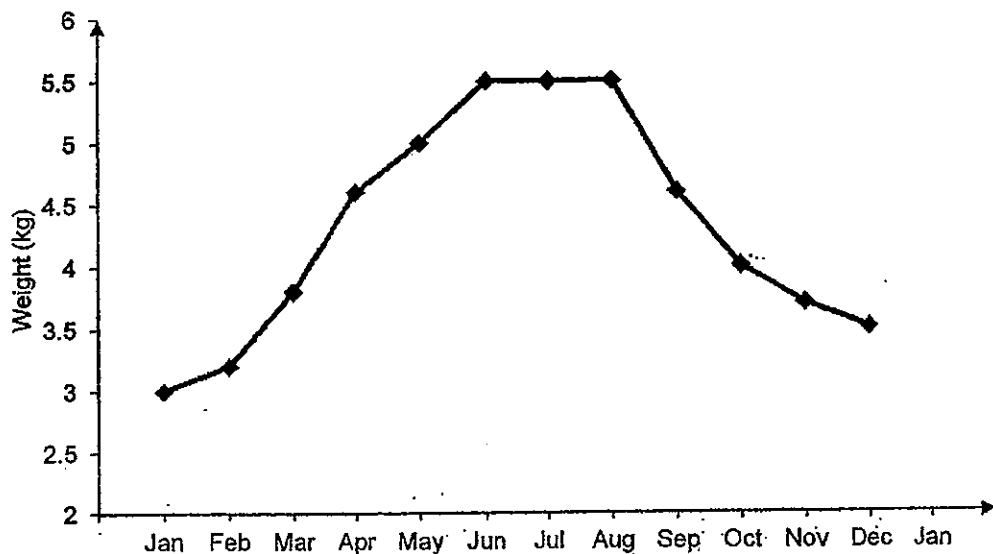
- b) Do you agree with her friend? Explain why. (1m)

- c) After some time, she noticed that one of them looked different from the others and she listed her observations below:

- It does not eat
- It is milky white in colour
- It does not move but wriggles when touched

What stage of the mealworm beetle was she observing? (1m)

36. Animals change their weight during their adult stage. An example of such an animal is the groundhog whose body weight ranges between 3kg to 6kg at different times of the year as shown below in the graph.



- a) Describe the change in the weight of the groundhog from January to August. (2m)

It was observed that from September to January it was the winter months.

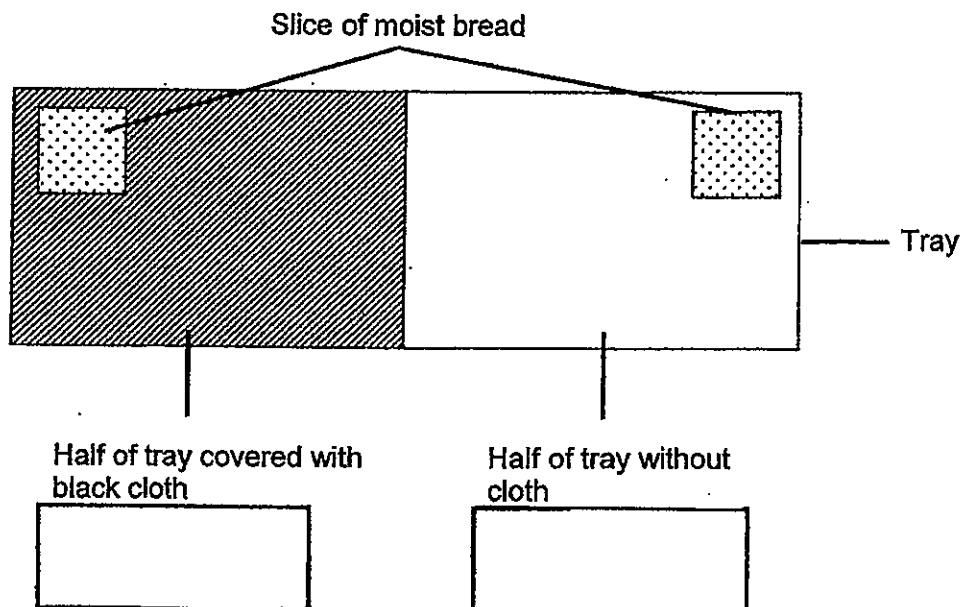
- b) Suggest a possible reason for the groundhog's body weight change from September to January. (1m)

37. Jenny divided a tray into two parts, A and B and put a slice of moist bread on both ends of the tray. She put 30 mealworms in the middle of the tray, and covered half of the tray with a black cloth.

After 24 hours, she found that the mealworms had moved away from the centre of the tray. The table below shows her findings.

	A	B
Number of mealworms observed	30	0

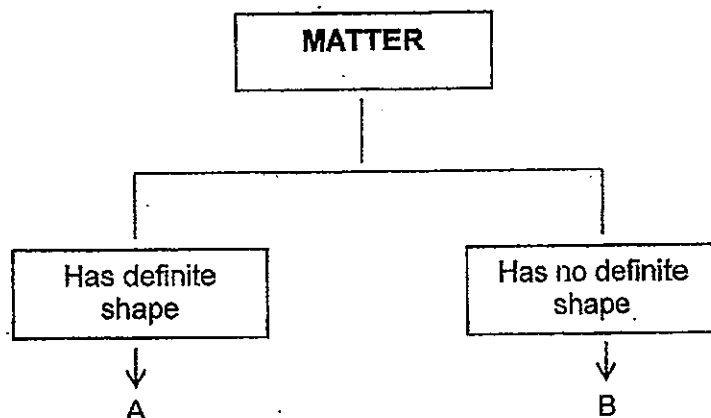
- a) Based on her results, identify the two parts, A and B in the set-up below. (1m)



- b) Give a reason for your choice in (a). (1m)

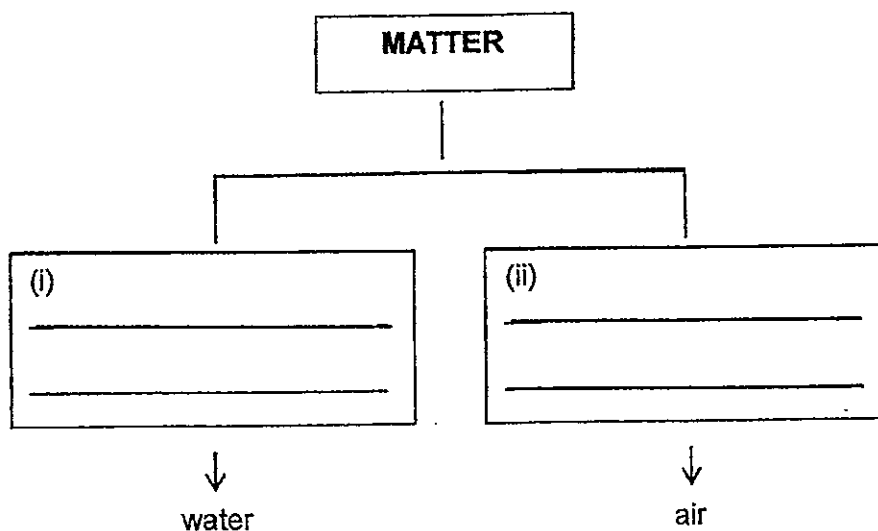
- c) Which variable must be kept constant to ensure a fair test? (1m)

38. Mary classified 2 types of matter, A and B according to their properties below.



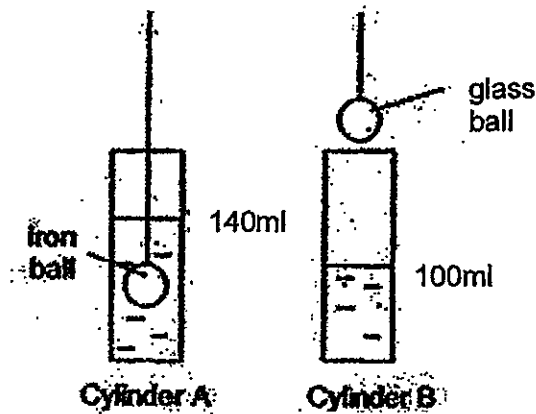
- a) In which one of the groups, A or B would you place air and water? Give a reason for your answer. (1m)

Mary further classified the matter according to their properties below.



- b) Write the headings (i) and (ii) in the boxes above so that water and air will be in different groups? (2m)

39. Roy poured 100 ml of water into each measuring cylinder. He lowered an iron ball into cylinder A until it was fully submerged. He repeated the same action with a glass ball. Both the iron and glass balls have the same shape and size.



He recorded the water levels as shown in the table below.

	Water Level (ml)	
	Before the ball was put inside	After the ball was put inside
Cylinder A	100	140
Cylinder B	100	?

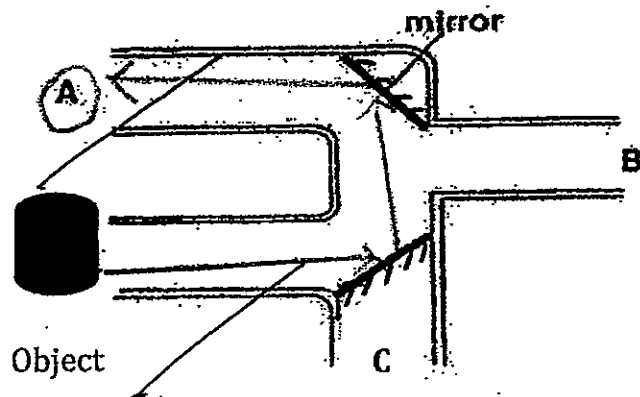
- a) What will the water level in Cylinder B be after the glass ball is fully submerged? (1m)

- b) Support your answer in part (a). (1m)

- c) If Roy had lowered the iron ball till the bottom of Cylinder A, what would be the water level in it? (1m)

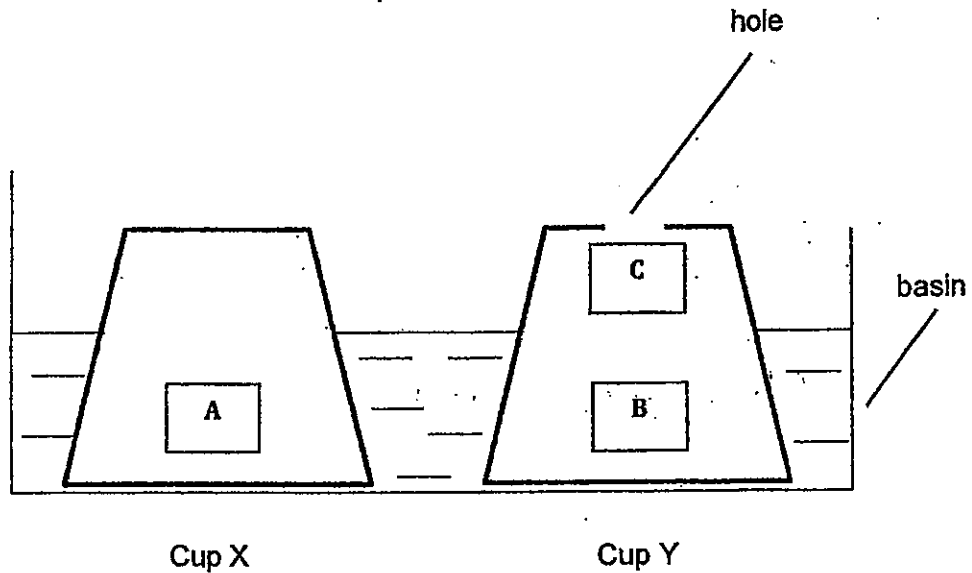
_____ ml

40. The diagram below shows a connection of pipes. Two mirrors were placed inside the pipes.



- a) Circle (A, B or C) in the diagram above to show the position of the eye so that the object can be seen. (1m)
- b) Draw the pathway of light that allows the object to be seen in the diagram above. (1m)

41. The diagram below shows 2 cups, X and Y inverted in a basin of water. Plastic cup Y had a hole on the top of it. There were pieces of paper A, B and C stuck on the inside of the 2 cups as shown below.



- a) Which of the paper(s) would not get wet? (1m)

- b) Which of the above paper(s) got wet? Explain why. (1m)

- c) After sometime, the wet paper(s) became soft. What property of paper does this show? (1m)

42. Shanti had three types of glass as stated below.

- 1) Clear glass
- 2) Frosted glass
- 3) Dark stained glass

a) Classify the 3 types of glass in the table below. (1m)

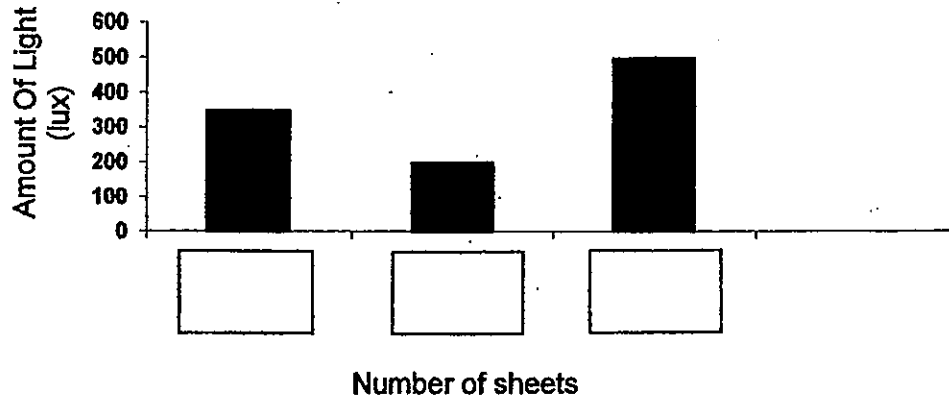
<u>Transparent</u>	<u>Translucent</u>	<u>Opaque</u>

b) What should you measure to ensure the classification above is correct? (1m)

c) Name two apparatus you can use for the above measurement. (1m)

43. Chris wanted to find out if the number of sheets of a material will affect the degree of transparency.

He plotted a graph to show the results



Chris used 2, 3 or 4 sheets of the material for his experiment.

- a) Write 2, 3 or 4 in the boxes above to match the number of sheets to the amount of light that can pass through them. (1m)
- b) Explain the results above. (1m)

- c) State one variable that must be kept the same during the experiment. (1m)

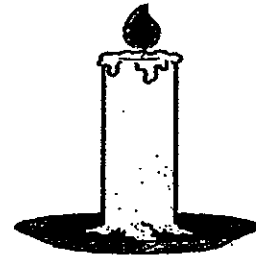
44. Refer to the materials given.



Cardboard A



Cardboard B



Lighted Candle

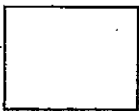
a) Number the steps (1, 2, 3) to show that light travels in a straight line. (1m)



Align the two cardboards to ensure the holes and the lighted candle are in a straight line.



Poke a hole in the middle of cardboards A and B.



Look through the holes of the cardboards.

b) What observation would you make? (1m)

End of Paper

ANSWER SHEET

EXAM PAPER 2012

SCHOOL : ROSYTH

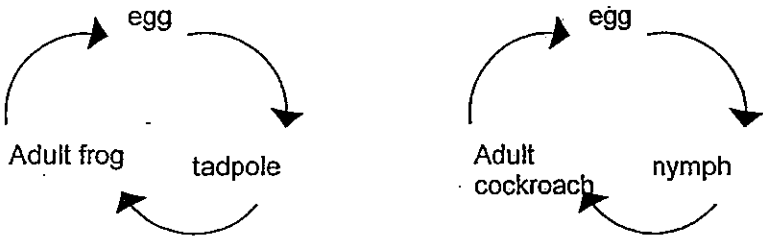
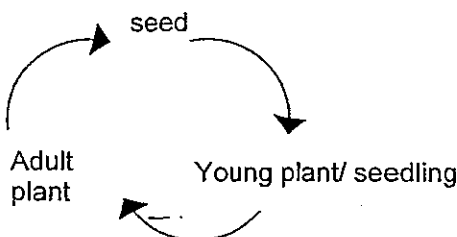
SUBJECT : PRIMARY 4 SCIENCE

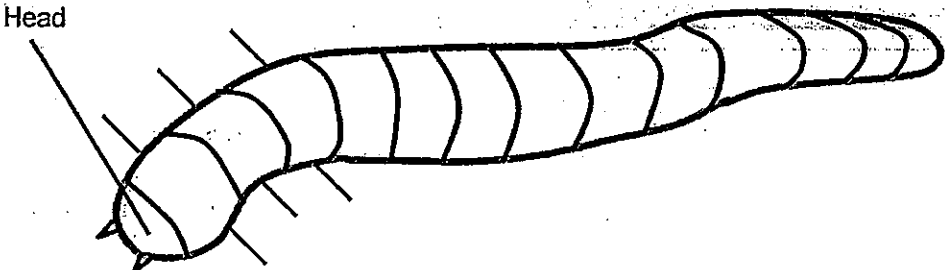
TERM : SA1

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
2	1	4	4	4	4	3	3	3	3	1	4	2	4	2	3	4

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
2	1	3	2	4	3	4	3	2	1	1	2	1

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Qn No.	Correct Answer/Acceptable answer
31a)	Tank B. The tank has an <u>opening for air</u> to enter and the hamster <u>needs air to survive</u> .
b)	<u>living things can die/ living things need air, food and water to survive</u>
32a)	Both life cycles <u>start with an egg</u> / Both <u>the life cycles</u> of a cockroach and a frog <u>have 3 stages</u> The young of the <u>frog does not resemble</u> the adult while the nymph <u>resembles</u> the adult cockroach
b)	
33a)	The plant is <u>growing towards the light</u> coming from the hole in the box.
b)	The plant <u>needs water to survive</u> . Plants take in water from the roots but the water only reached the leaves
c)	When trees grow close to each other the branches <u>grow higher up</u> so the plant can <u>get more light to make food</u>
34a)	E, A, C, D, B, F
b)	Stages E and F. The plants have <u>leaves</u> that are fully grown and <u>can make food</u> for the plant
c)	
35a)	Correct number of legs Correct segments

	
b)	No. The larva can obtain its <u>water from the apple</u> .
c)	<u>Pupa/ pupal stage</u>
36ai)	The weight <u>increases from January to June</u> and the weight <u>remains the same/constant from June to August</u> .
b)	There is <u>no/little food</u> available during the winter months so the weight of the groundhog decreases.
37 a)	Half of tray covered with black cloth <u>A</u> half of tray without cloth <u>B</u>
b)	<u>Mealworms prefer the dark</u> so the side with more mealworms observed must have been covered
c)	<u>Amount of moist bread/ distance from centre of tray to the bread</u>
38a)	B. Both air and water have <u>no definite shape</u> .
bi)	<u>Definite volume</u>
bii)	<u>No definite volume/ Indefinite volume</u>
39 a)	<u>140ml</u>
b)	The glass ball is of the same size as the iron ball so it will have <u>the same volume</u> .
c)	<u>140ml</u>
40 a)	Circle <u>A</u>
b)	Light rays to travel <u>from object and into the eye</u> at position A
41a)	<u>A and C (C alone also accepted)</u>
b)	B. The <u>air in the cup will escape through the hole</u> and <u>water will enter the inside of the cup</u>

c)	The paper is <u>not waterproof.</u> ($\frac{1}{2}$ m) The paper <u>absorbs water.</u>
42 a)	<u>Clear glass</u> – Transparent <u>Frosted glass</u> – Translucent (Dark Stained Glass also accepted) <u>Dark Stained Glass</u> – Opaque
b)	You can measure <u>the amount of light that the objects allow to pass through.</u>
c)	<u>Light sensor</u> and <u>datalogger</u>
43 a)	<u>3,4,2</u>
b)	The <u>greater the number of sheets</u> , the <u>lesser the amount of light that will pass through.</u>
c)	The <u>type of material.</u>
44 a)	<u>2,1,3</u>
b)	I would <u>see the flame</u> through the hole.

