Name: _____(  )

Class: Primary _____

# CHIJ ST NICHOLAS GIRLS' SCHOOL

## Primary 4

## SCIENCE

### BOOKLET A

**Total Time for Booklets A and B: 1 hour 45 minutes**

28 questions
56 marks

**Do not open this booklet until you are told to do so.**
**Follow all instructions carefully.**
**Answer all questions.**

***This booklet consists of 19 printed pages.***

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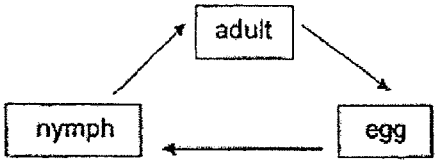
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**Section A (28 x 2 marks = 56 marks)**
For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). **Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.**

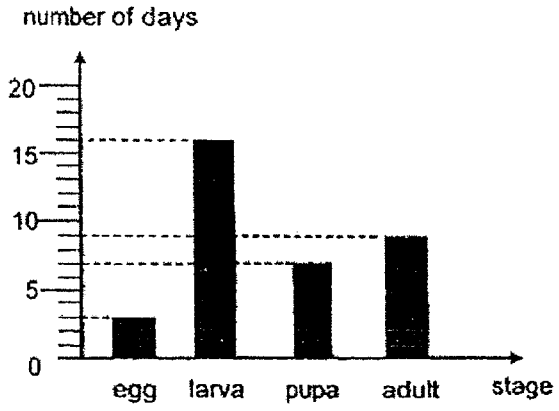
1. The diagram below shows the life cycle of an animal.




Which animal is likely to have the life cycle shown above?

(1) Frog
(2) Chicken
(3) Mosquito
(4) Cockroach

2. The graph below shows the number of days for each stage of the life cycle of organism X.




How many days would organism X take to become an adult after the egg is hatched?

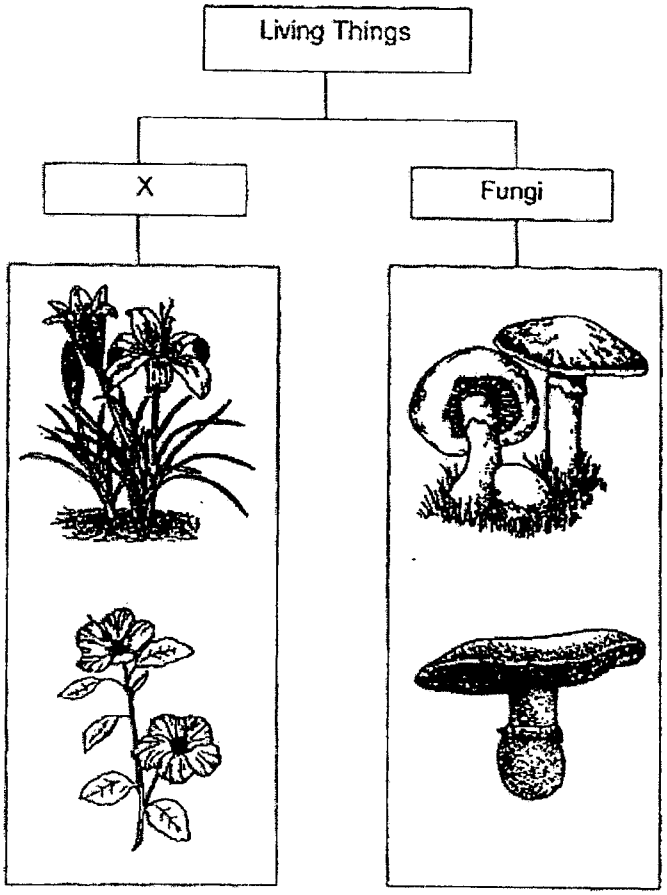
(1) 9 days
(2) 19 days
(3) 23 days
(4) 26 days



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3. The table below shows how some living things can be grouped.




Which one of the following is the most suitable heading for group X?

(1) Ferns
(2) Mosses
(3) Bacteria
(4) Flowering plants



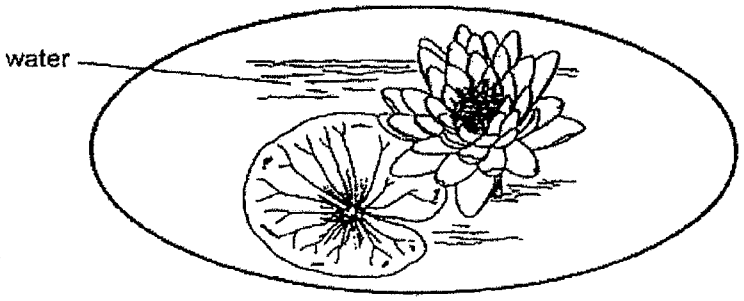
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4. The table below shows the characteristics of four organisms A, B, C and D. A tick (✓) shows that the organism has the characteristic.

| Characteristics | Organisms | | | |
|---|---|---|---|---|
| | A | B | C | D |
| produces flowers | | | ✓ | ✓ |
| grows on land | ✓ | ✓ | | ✓ |
| makes food | ✓ | | ✓ | ✓ |

Joanna saw a plant in a pond shown below.




Which one of the following organisms A, B, C or D represents the plant shown above?

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

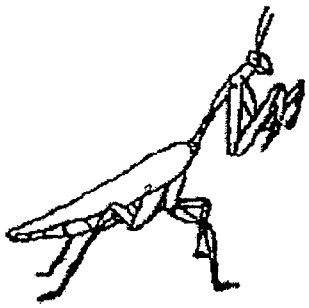


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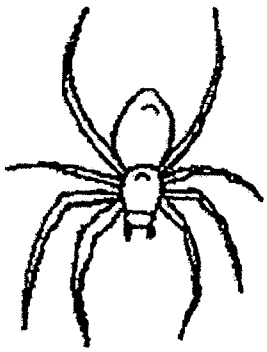
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5. Which one of the animals shown below is **not** an insect?

(1)



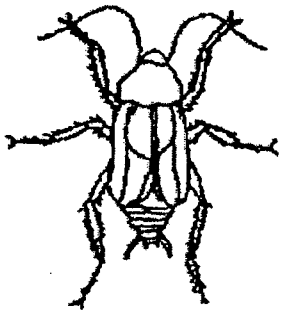
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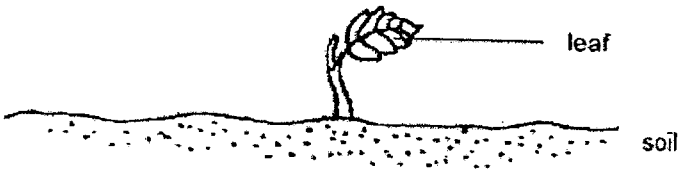
(3)



(4)



6. The diagram below shows a young plant.




The leaf helps the plant to _____.

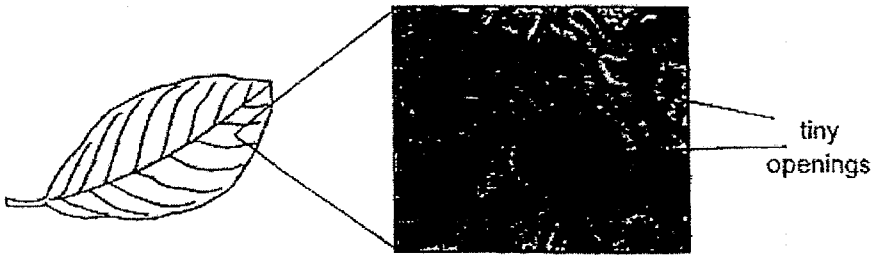
(1) make food
(2) grow upright
(3) take in water
(4) take in minerals



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7. The diagram below shows the tiny openings found on a leaf.




magnified view

What is the function of the tiny openings on the leaf?

(1) To trap light
(2) To take in water
(3) To help the plant reproduce
(4) To help the plant take in and give out gases

8. What is generally common among insects and birds?

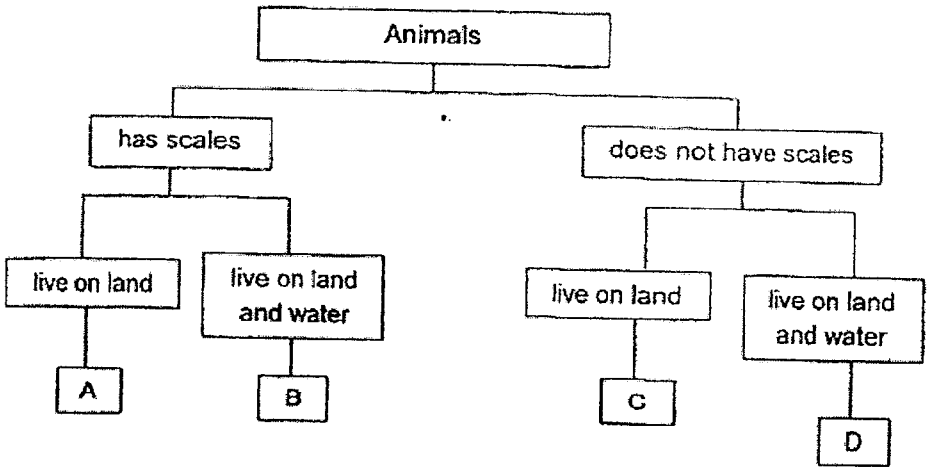
(1) They have three body parts.
(2) Their young look like the adult.
(3) They reproduce by laying eggs.
(4) They have the same type of body covering.



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9. Study the classification chart below.




The diagram below shows animals X and Y.

| Animal X | Animal Y |
|---|---|
|  |  |

Which group A, B, C or D do animals X and Y belong to?

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



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10. The picture below shows Faisal playing basketball.




Which organ systems in his body work together when he plays basketball?

A Skeletal system
B Muscular system
C Circulatory system
D Respiratory system

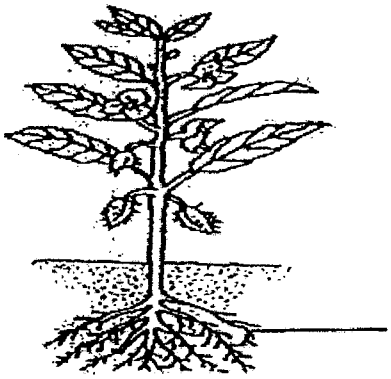
(1) A and B only
(2) B and C only
(3) A, C and D only
(4) A, B, C and D



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11. Study the diagram below.

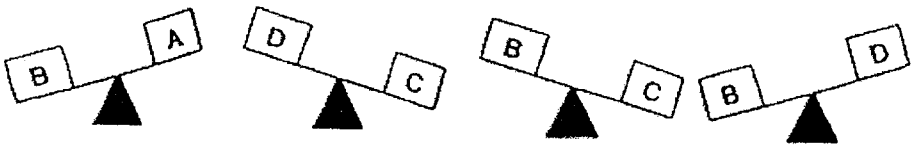



What is the function of part X?

A Support the plant
B Absorb water from the soil
C Absorb minerals from the soil
D Hold the plant firmly to the ground

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

12. Study the diagram below.




Which block A, B, C or D has the most mass?

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



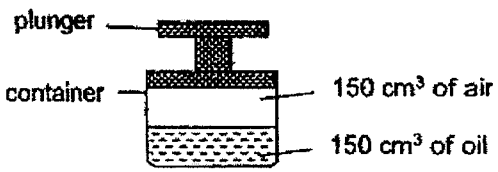
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13. Matter is anything that has mass and occupies space. Which one of the following is **not** matter?

(1) air
(2) sand
(3) water
(4) shadow

14. Study the diagram below.




What will happen to the mass and volume of air inside the container when the plunger is pushed in?

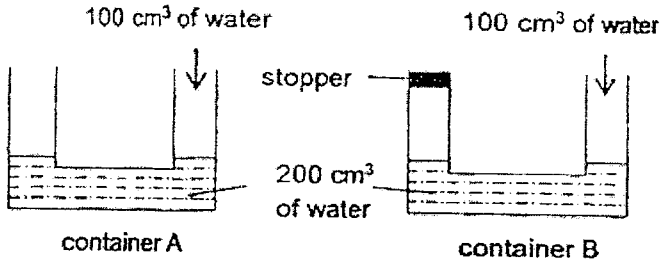
| | Mass | Volume |
|---|---|---|
| (1) | remain the same | decreases |
| (2) | decreases | decreases |
| (3) | increases | increases |
| (4) | remain the same | increases |



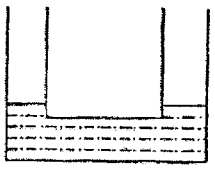
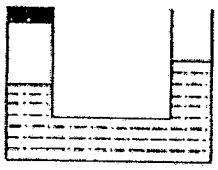
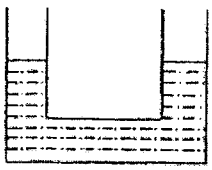
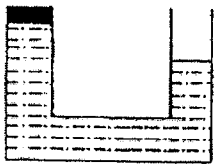
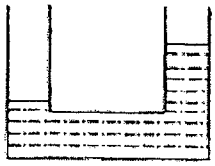
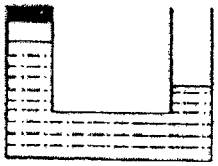
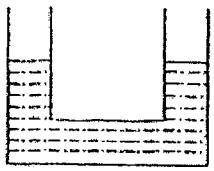
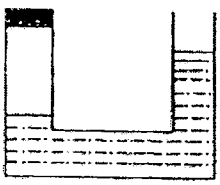
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15. Evelyn filled containers A and B with 200 $cm^3$ of water. Next, she placed a stopper on one opening of container B. Then, she added another 100 $cm^3$ of water to each container.




Which of the following shows the possible water level in both containers at the end of the experiment?

| | Container A | Container B |
|---|---|---|
| (1) |  |  |
| (2) |  |  |
| (3) |  |  |
| (4) |  |  |



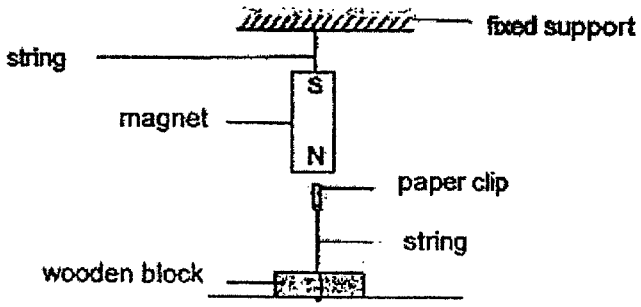
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16. Which one of the following can be attracted by a magnet?

(1) steel ruler
(2) plastic ruler
(3) wooden ruler
(4) aluminium ruler

17. Study the diagram below.




Sue observed that the string with the paper clip remained upright when it was placed near the magnet.

What can Sue conclude from her observation?

A The string is made of a magnetic material.
B The paper clip is made of a magnetic material.
C The magnet and the paper clip are repelling each other.
D Magnetic force can act at a distance.

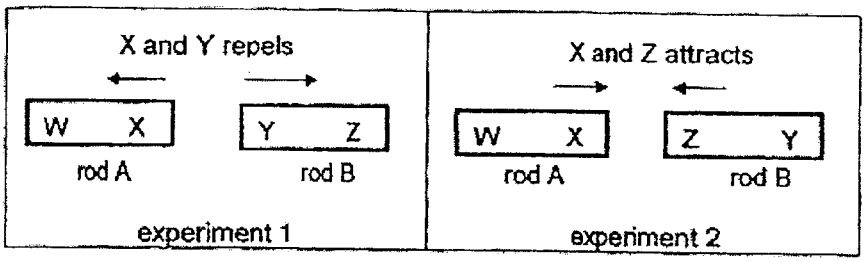
(1) A and C only
(2) B and D only
(3) A, B and C only
(4) B, C and D only



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18. Tessa placed two metal rods A and B next to each other. The results of her experiment are shown below.




Based on the information given, which of the following statement(s) is/are true?

A X and Y are unlike poles.
B Metals rods A and B are magnets.
C Metal rod B is made of copper.

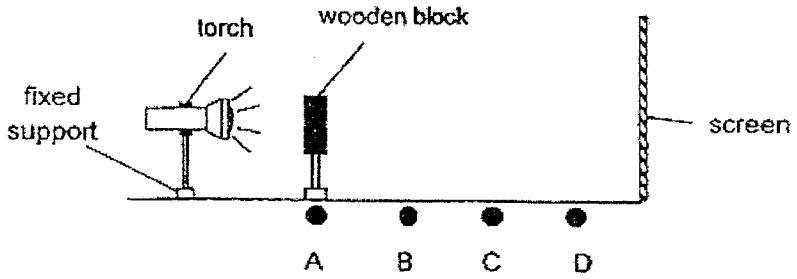
(1) A only
(2) B only
(3) B and C only
(4) A, B and C only



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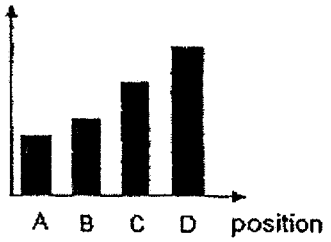
19. Study the diagram below.



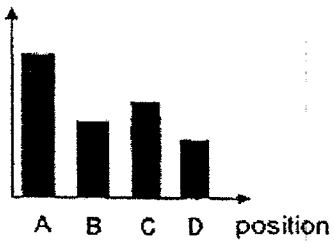

Ali placed the wooden block at position A and recorded the height of the shadow formed on the screen. He repeated the experiment by placing the wooden block at positions B, C and D.

Which of the following graphs correctly shows the height of the shadow of the wooden block at positions A, B, C and D?

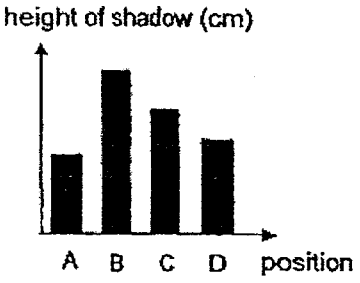
(1)



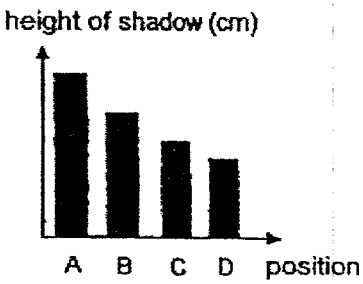

(2)




(3)




(4)

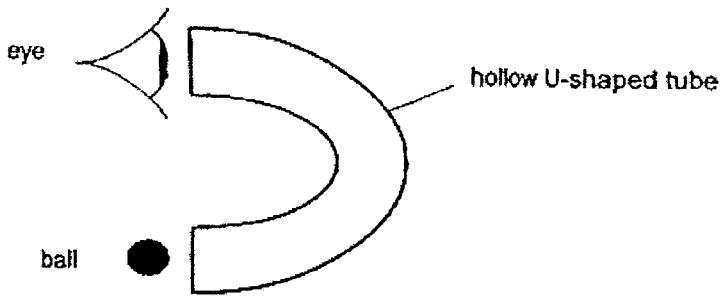





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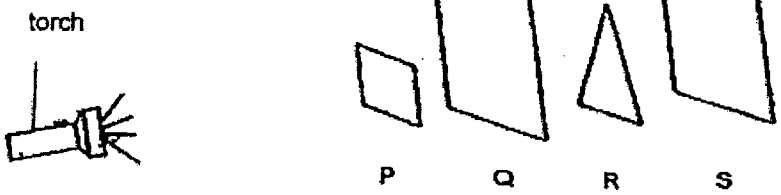
20. Study the diagram below.




Ivan cannot see the ball through the U-shaped tube because _____.

(1) light has no mass
(2) light can be reflected
(3) light travels in a straight line
(4) light does not occupy space

21. Kelly arranged four sheets of different shapes P, Q, R and S in a straight line and shone a torchlight as shown in the set-up below. She observed that a small triangular shadow formed on sheet S.




Which one of the following is most likely true?

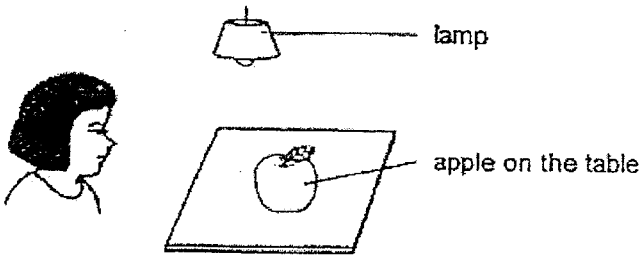
| | P | Q | R |
|---|---|---|---|
| (1) | Allow most light to pass through | Allow most light to pass through | Allow no light to pass through |
| (2) | Allow most light to pass through | Allow no light to pass through | Allow no light to pass through |
| (3) | Allow some light to pass through | Allow no light to pass through | Allow some light to pass through |
| (4) | Allow no light to pass through | Allow most light to pass through | Allow some light to pass through |



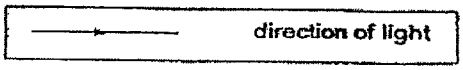
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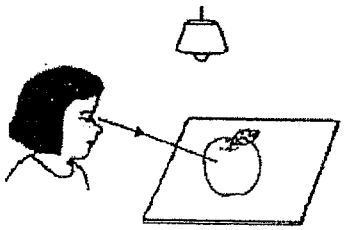
22. Look at the picture below.



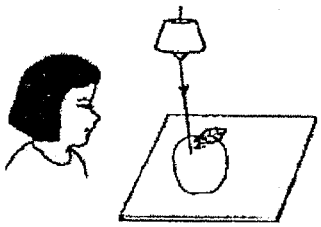

Which one of the following explains why Nirmala can see the apple on the table?



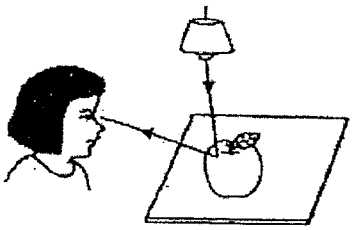

(1)



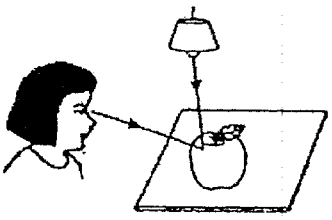
(2)



(3)



(4)



23. Which one of the following is not a source of heat?

(1) The Sun
(2) A lighted bulb
(3) A cotton shirt
(4) A candle flame



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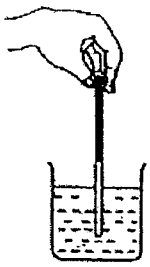
24. Bonnie wants to measure the temperature of cold water in a beaker.

Which one of the following diagrams shows the correct position of the thermometer when taking the temperature reading?

(1)



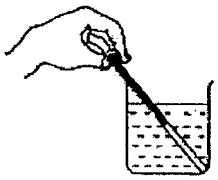
(2)



(3)



(4)





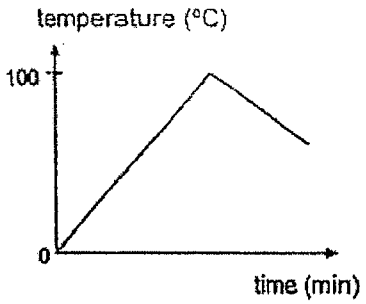
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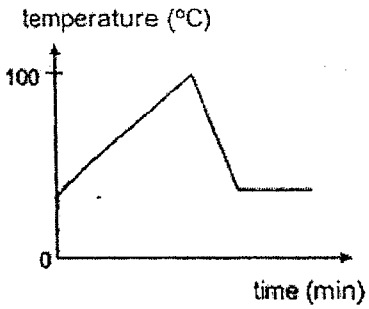
25. Mary heated a beaker of tap water until it boiled. She kept it boiling for another two minutes. Then, she placed the beaker of water in the refrigerator.

Which of the following graphs shows the changes in the water temperature from the time she started to heat the water to the time she placed it in the refrigerator?

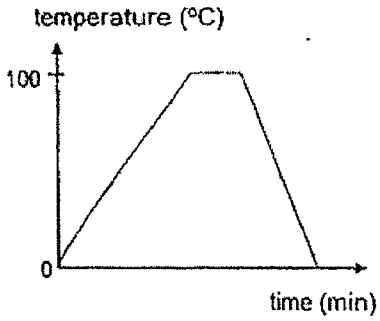
(1)



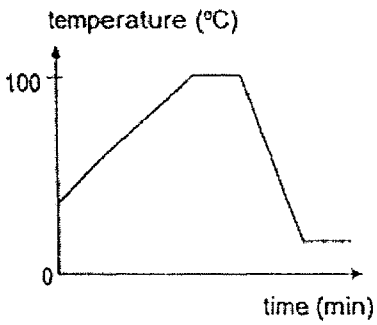

(2)




(3)




(4)






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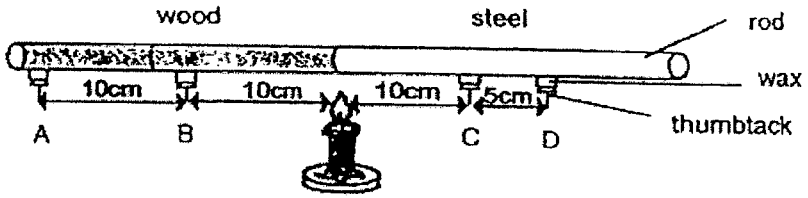
26. Rahima had four similar cups P, Q, R and S made of different materials. She poured an equal amount of hot water into each cup. She measured the temperature of the water after ten minutes and recorded her observations in the table below.

| Cup | P | Q | R | S |
|---|---|---|---|---|
| Temperature of water at the start of experiment ( °C ) | 55 | 55 | 55 | 55 |
| Temperature of water after 10 minutes ( °C ) | 21 | 30 | 43 | 19 |

Based on the table, which one of the cups is made of a material that is the best conductor of heat?

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

27. The diagram below shows four similar thumbtacks A, B, C and D attached to a rod made of equal lengths of wood and steel. Each thumbtack was attached to the rods using equal amounts of wax.




Arrange the time taken for each thumbtack to drop off the rods from the fastest to the slowest.

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



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28. Which of the following objects is **not** made of waterproof material?

(1)



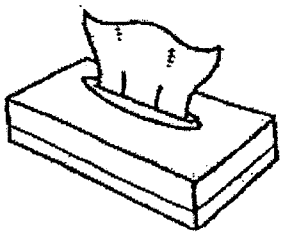
metal pot

(2)



rubber boots

(3)



tissue paper

(4)



plastic bottle



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Name:_____ (  )

Class: Primary 4_____

# CHIJ ST NICHOLAS GIRLS' SCHOOL

## Primary 4

## SCIENCE

BOOKLET B

| | |
|---|---|
| Booklet A | 56 |
| Booklet B | 44 |
| Total | 100 |

Total Time for Booklets A and B: 1 hour 45 minutes

13 questions
44 marks

Do not open this booklet until you are told to do so.
Follow all instructions carefully.
Answer all questions.

This paper consists of 13 printed pages.

_____

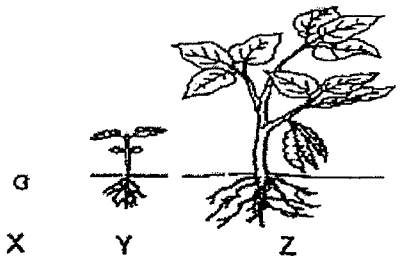
Parent's Signature/Date

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**Section B (marks)**
For questions 29 to 41, write your answers in this booklet.
The number of marks available is shown in the brackets [ ] at the end of each question or part question.

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




(a) Choose the correct words from the box to answer the question below.

| fruit | seed | young plant | flower | adult plant |
|---|---|---|---|---|

Name stages X and Y in the life cycle of the plant. [2]

Stage X: _____

Stage Y: _____

Ivan carried out an experiment with three similar pots of plants of height 7 cm. He measured the height of each plant at the end of ten days and recorded the results in the table below.

| Pot | Amount water given daily (ml) | Amount of fertiliser given (g) | Height of plant after 10 days (cm) |
|---|---|---|---|
| A | 10 | 5 | 10 |
| B | 15 | 5 | 12 |
| C | 20 | 5 | 15 |

(b) What was he trying to find out from his experiment? [1]

_____

_____



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30. Study the diagram below.



bird's nest fern



moss



sunflower

(a) How does the moss obtain its food? [1]

_____

_____

(b) State two differences between the bird's nest fern and the sunflower in terms of their method of reproduction and their plant parts. [2]

Method of reproduction: _____

_____

Plant parts: _____

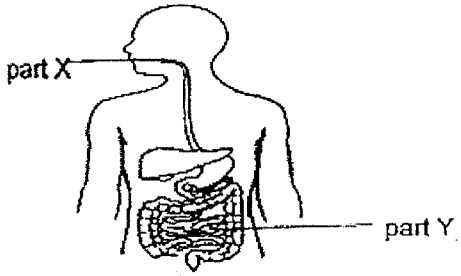
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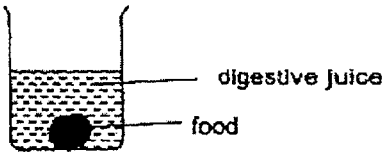
31. The diagram below shows the human digestive system. Substance P found in part X of the human digestive system helps in the digestion process.




(a) Other than breaking down some food into simpler substances, state another function of substance P. [1]

(b) Explain what happens to the digested food at part Y of the human digestive system. [1]

Hannah conducted an experiment as shown below. She wanted to find out if the amount of digestive juices affects the time taken for food to be digested.




| Set-ups | Amount of digestive juices (ml) | Amount of food (g) |
|---|---|---|
| X | 200 | 50 |
| Y | 200 | 100 |
| Z | 150 | 50 |

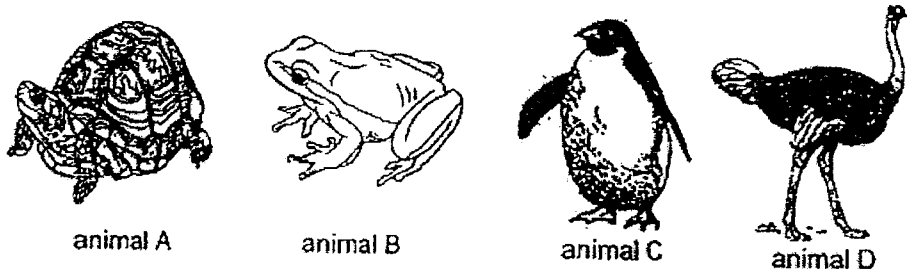
(c) Based on the table above, which two set-ups should she use to conduct a fair test? [1]



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32. Study the diagram below.



animal A animal B animal C animal D

(a) State one similarity between animals A, B, C and D. [1]

_____

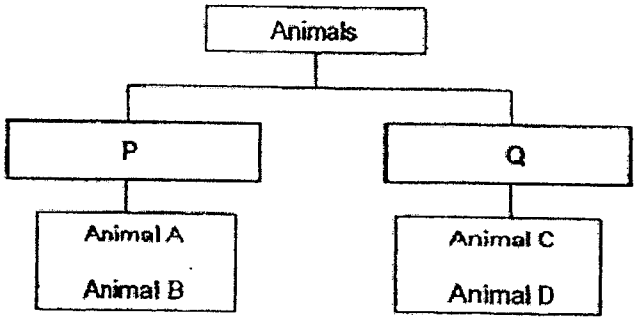
_____

(b) State one difference between animal B and C in terms of their outer covering. [1]

_____

_____

Angeline classified the animals A, B, C and D into two groups shown below.




(c) Write suitable headings for P and Q in the blanks below. [2]

P: _____

Q: _____



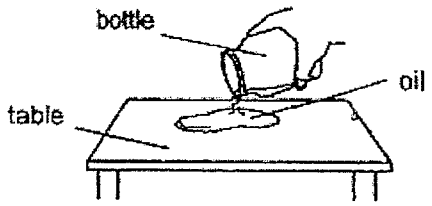
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33. Choose the correct words from the box to fill in the blanks below.

| gas | solid | liquid |
|---|---|---|

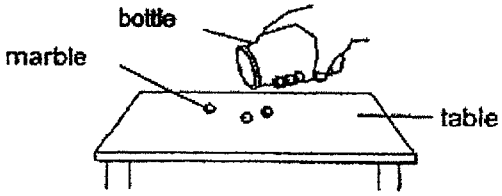
Adam accidentally spills the oil from a bottle onto a table shown below.




The volume of oil remains the same but its shape changes

(a) This shows that oil is a _____. [1]

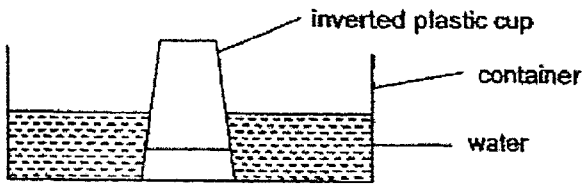
Adam pours some marbles from a bottle onto a table shown below.




The shape and volume of the marbles remain the same.

(b) This shows that a marble is a _____. [1]

(c) Adam inverted a plastic cup shown below.
In the diagram, draw a line to indicate the water level in the inverted cup as he slowly pushed it straight into the container of water. [1]




(d) Give a reason for the water level you have drawn in (c).

_____

_____



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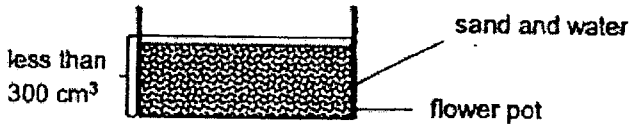
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34. Mrs Tan filled a flower pot with sand as shown in the diagram below.




(a) She observed that the sand took the shape of the flower pot so she concluded that sand is a liquid. Do you agree with her? Give a reason for your answer. [1]

She observed that after adding 100 cm³ of water into the flower pot, the total volume of water and sand in the flower pot was less than 300 cm³.



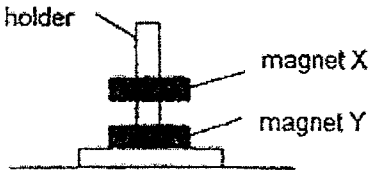

(b) Explain why the total volume of sand and water is less than 300 cm³. [2]



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35. Jing Jing placed two ring magnets X and Y through a holder shown below.



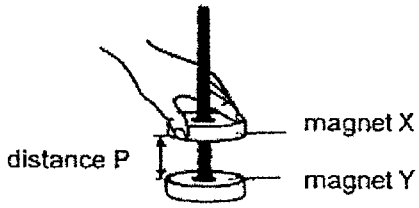

The holder was made of wood and did not attract the magnets.

(a) Wood is a _____ material. [1]

(b) Why was magnet X floating above magnet Y?

Magnet Y was _____ magnet X. [1]

Jing Jing tried to push magnet X towards magnet Y as shown below.

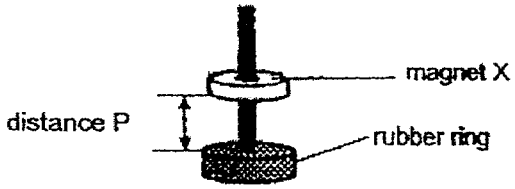



(c) She observed that she had to push harder as distance P decreased. Give a reason for her observation. [1]

_____

_____

Jing Jing replaced magnet Y with a rubber ring shown below.




(d) What will happen to distance P? Give a reason for your answer. [1]

_____

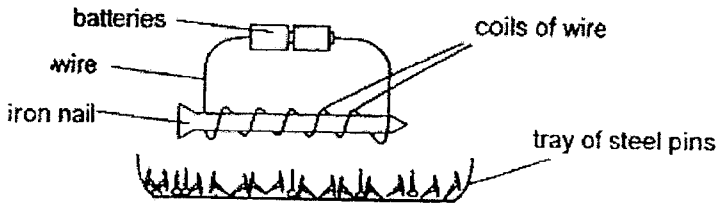
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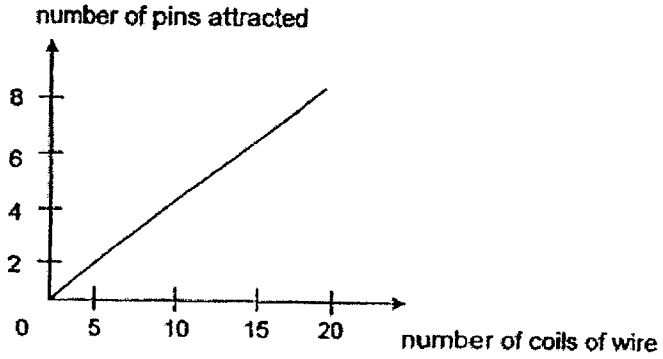
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36. Yvonne carried out an experiment to investigate how the number of coils of wire around an iron nail affects the number of steel pins attracted by it.




She recorded her results in the graph below.




(a) Based on Yvonne's graph, what can she conclude about the number of coils of wire and the number of pins attracted by the electromagnet? [1]

(b) State one **other** variable that should be kept unchanged for Yvonne's experiment to be fair. [1]

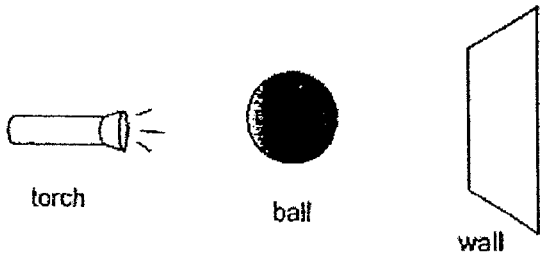
(c) Yvonne changed the iron nail to a copper nail for her electromagnet. What would she observe? Give a reason for your answer. [1]



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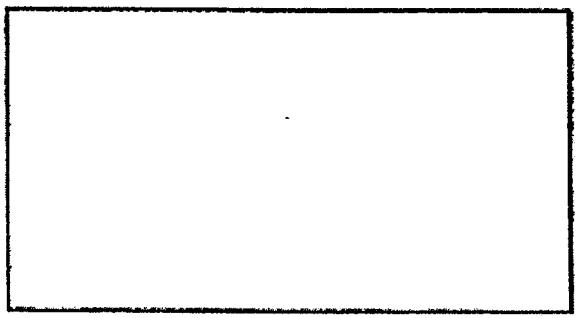
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37. Zoey shines a torch on a ball and a shadow is formed on a smooth wall.




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

(b) Draw the shadow of the ball that is formed on the wall in the box below.




Zoey conducted another experiment by replacing the ball with object X. She observed that there was no shadow formed by object X on the wall.

(c) Based on her observation, state the property of object X. [1]

_____

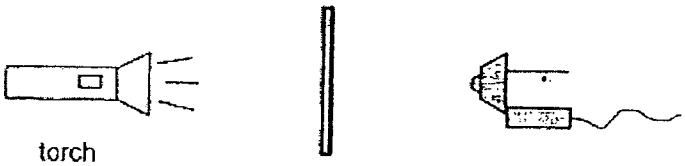
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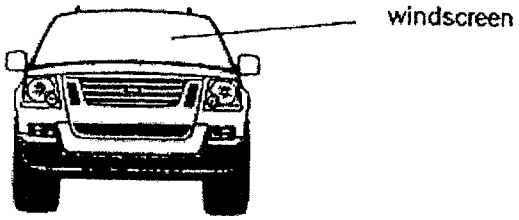
38. Nina conducted an experiment as shown below. She wanted to find out the amount of light that is able to pass through four different materials A, B, C and D. She shone the torch at material A and recorded the amount of light detected by the light sensor.




She repeated the experiment with materials B, C and D and recorded her results in the table below.

| Material | Amount of light detected by the light sensor (lux) |
|---|---|
| A | 235 |
| B | 0 |
| C | 433 |
| D | 796 |

The diagram below shows a windscreen of a car.




(a) Which material A, B, C or D is most suitable for making a windscreen of a car? Give a reason for your answer. [2]

_____

_____

(b) Other than the torch and the light sensor, state two variables that should remain the same for the experiment to be fair. [2]

(i) _____

_____

(ii) _____

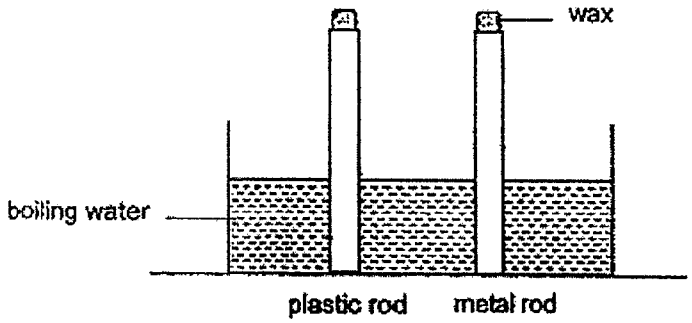
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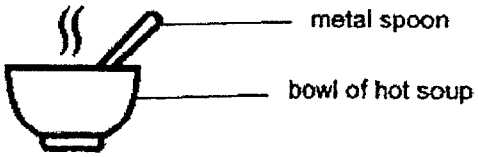
39. Zuffri placed a plastic rod and a metal rod into a tank of boiling water shown below. Equal amounts of wax were placed on both rods.




(a) What would he observe and why? [2]

The wax on the plastic rod melted _____ than the wax on the metal rod, as plastic is a _____ conductor of heat than metal.

Zuffri placed a metal spoon in a bowl of hot soup shown below. Zuffri observed that the spoon became hot after a while.




(b) Explain why the spoon became hot after a while. [1]

_____

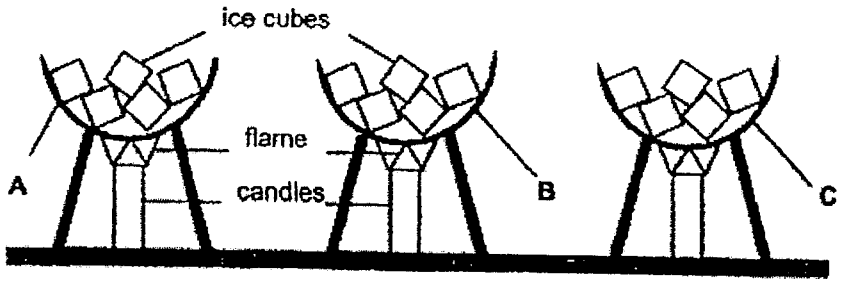
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40 Liza heated an equal number of similar-sized ice cubes in three containers A, B and C shown below. The containers were of the same shape and size but they were made of different materials.




She recorded the results of her experiment in the table below.

| Container | Time taken for all the ice cubes to melt completely (min) |
|---|---|
| A | 2 |
| B | 4 |
| C | 3 |

(a) From the results, which container A, B or C is the best conductor of heat? Explain why. [2]

Liza wanted to pack some ice-cream in a container to bring to her friend's house.

(b) Based on the results shown above, which container A, B or C should she use to pack the ice-cream? Give a reason for your answer. [2]



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41. Sandra conducted an experiment using three rods made of materials S, T and U. She measured the distance bent by the rods when the same weight was hung on the rods and recorded the results in the table below.

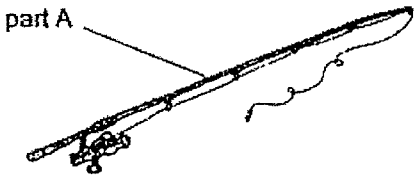
| Material | Distance bent (cm) |
|---|---|
| S | 12 |
| T | 3 |
| U | 6 |

(a) State the property of the material that is being tested in this experiment. [1]

_____

_____

Sandra wanted to make part A of a fishing rod shown below.




(b) Based on her results, which material S, T or U is most suitable for making part A of the fishing rod? Explain your answer. [2]

_____

_____

**End of Paper**



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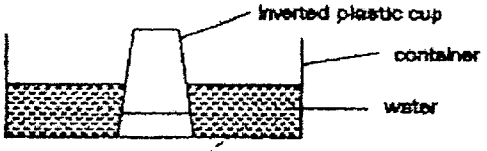
# ANSWER KEY

LEVEL : PRIMARY 4
SCHOOL : CHIJ ST NICHOLAS GIRLS' SCHOOL
SUBJECT : SCIENCE
TERM : SA2

BOOKLET A

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

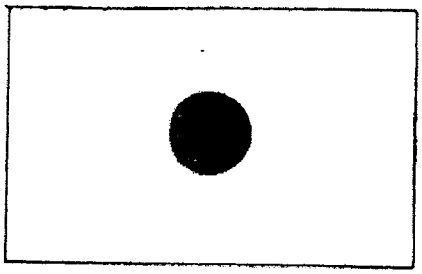
BOOKLET B

| | | |
|---|---|---|
| Q29 | a) | Stage X: Seed |
| | b) | Stage Y: Young plant |
| Q30 | a) | It traps light and makes food via photosynthesis. |
| | b) | Method of reproduction: The bird's nest fern reproduce by spores but the sunflower reproduce by seeds.<br><br>Plant parts: The bird'snest fern does not have a flower but the sunflower has a flower. |
| Q31 | a) | It soften the partially digested food and makes it easy to swallow. |
| | b) | The digested food would be absorbed into the bloodstream. |
| | c) | Set up X and Z |
| Q32 | a) | All of them lay eggs. |
| | b) | Animal B has moist skin while Animal C has feathers. |
| | c) | P: Liquid<br>Q: Have feathers |
| Q33 | a) | Liquid |
| | b) | Solid |
| | c) |  |
| | d) | Air occupies space in the cup and hence water rise a little or falls below the water levelof the conatiner. |

a) 4 b. To find out if the amount of water given daily to the plant affects the height of the plant after 10 days

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| | | |
|---|---|---|
| Q34 | a) | No. Sand is a solid because each grain of sand is a tiny solid that has a definite shape. |
| | b) | Water is a liquid that occupies the small air spaces in between the solid grains of sands. |
| Q35 | a) | Non-magnetic |
| | b) | Repelling |
| | c) | As the distance P decrease, the repulsion between two magnets increase. |
| | d) | Distance P would become zero as rubber is not a magnet. |
| Q36 | a) | The greater the number of coils of wire, the greater the number of pins attracted by the electromagnet. |
| | b) | The number of batteries used in the set-up should be the same. |
| | c) | The copper nail would not attract any steel pins. Only magnetic materials such as the iron nail can be made into electromagnets. Copper is a non-magnetic material, and thus the copper nail would not attract and steel pins. |
| Q37 | a) | Blocked |
| | b) |   |
| | c) | Object X allows most light to pass through. |
| Q38 | a) | Material D. It allows 769 lux of light pass through indicating tht it allow most light to pass through and it is transparent. The windscreen of a car has to allow most light to pass through so that the driver can see toher cars. Thus, Material D is most suitable to make a windscreen. |
| | b) | i) The thickness of the material.<br>ii) The distance of material and the torch must be kept the same. |
| Q39 | a) | slower, poorer |
| | b) | Metal is a good conductor of heat, the heat from the bowl of hot soup heated the spoon quickly, the spoon gained heat, so it is hot. |
| Q40 | a) | Container A. It conducted heat from the fire to ice cubes the fastest as it only took 2 minutes to melt which is the fastest time to melt. |
| | b) | Container B. It took 4 minutes to melt indicating that it took the longest time to melt the ice and it is the poorest conductor of heat. A container of ice cream has to keep the ice cream cold for the longest time. Hence, Container B is most suitable to make a container to ocntain ice cream. |

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| | | |
|---|---|---|
| Q41 | a) | The property is flexibility. |
| | b) | Material S. It can bend the most without breaking and it can withstand the pull of the fish without breaking so easily. |

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