Rosyth School
End-of-Year Examination 2022
SCIENCE
Primary 4

Name:_____

Total Marks: /56

Class: Pr 4 - _____

Register No. _____

Date: 28 October 2022

Total Time for Booklet A and B: 1h 45min

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 41, give your answers in the spaces given in the Booklet B.

* This booklet consists of 20 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 of the following statements is true for **all** insects?

   (1) They have tails.

   (2) They have wings.

   (3) They have eight legs.

   (4) They have three body parts.

2. Which human body system is shown in the diagram?



   (1) skeletal system

   (2) muscular system

   (3) circulatory system

   (4) respiratory system

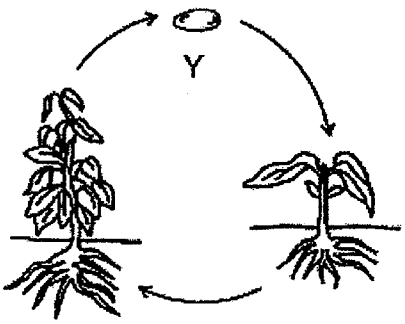
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3. Which animal has a pupal stage in its life cycle?

(1) frog
(2) chicken
(3) butterfly
(4) grasshopper

4. The diagram shows the life cycle of a plant.



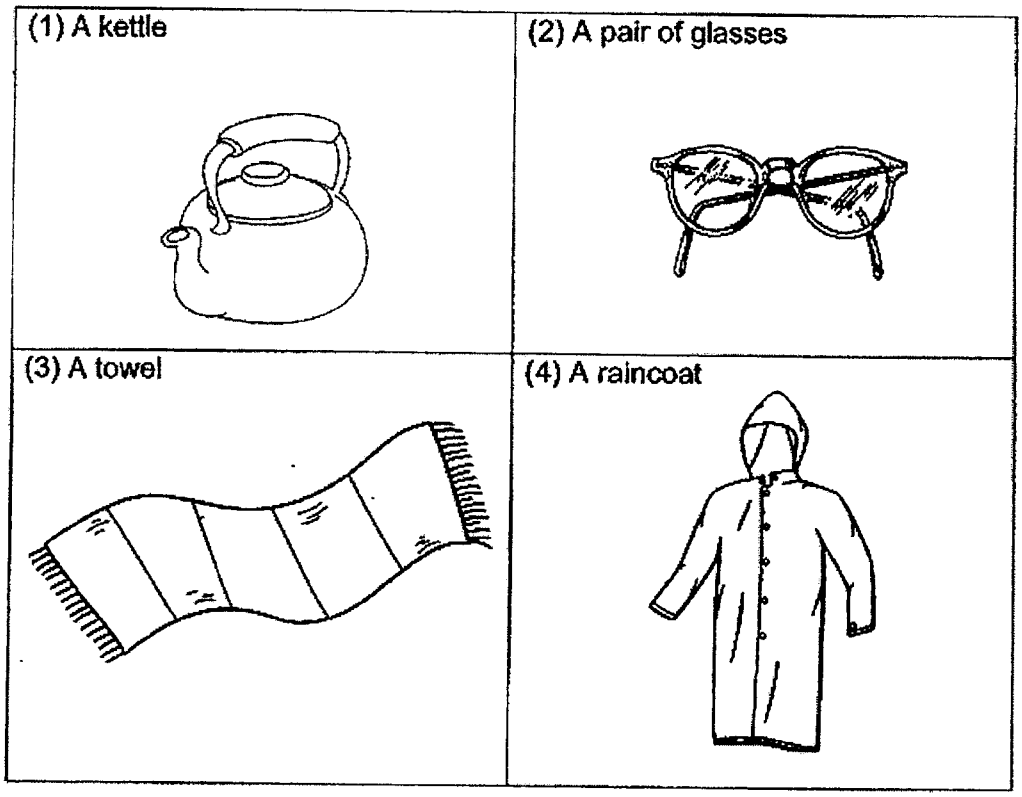
What is the stage marked Y?

(1) egg
(2) seed
(3) adult plant
(4) young plant

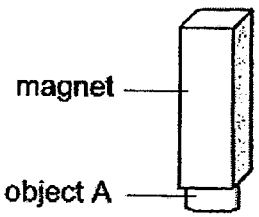
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5. Which of the following objects is **not** made of waterproof material?



6. Object A was attracted to a magnet as shown in the figure below.



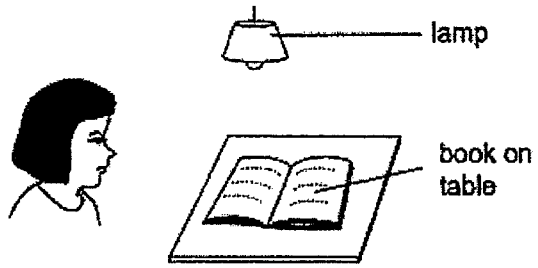
Object A is made of _____.

(1) iron
(2) wood
(3) plastic
(4) aluminium

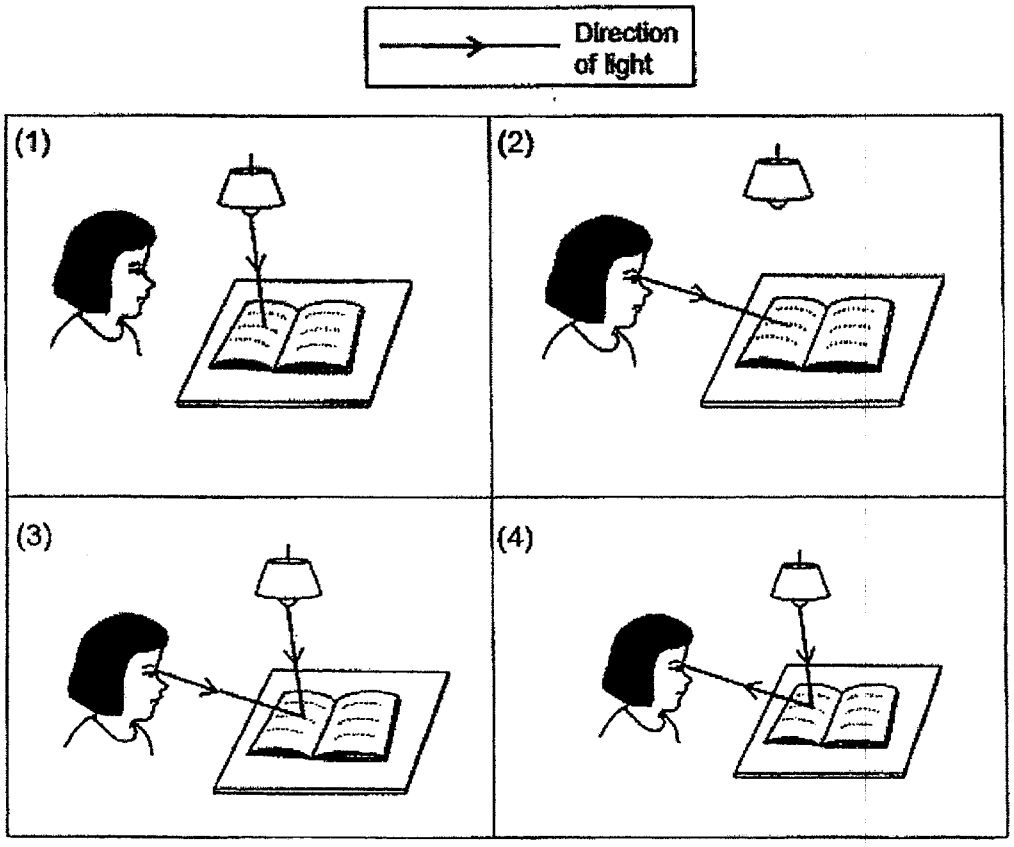
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7. Look at the picture below.



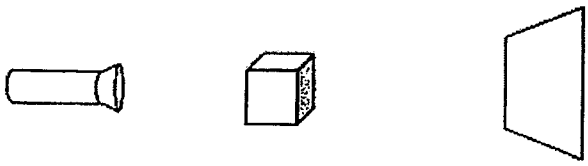
Which of the following explains why Sue can see the book on the table?



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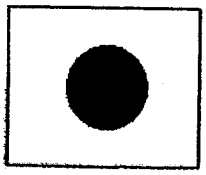
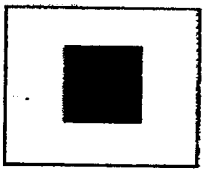
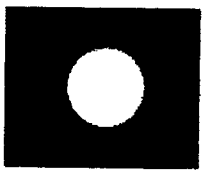
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8. The set-up below shows light shining on a wooden cube.

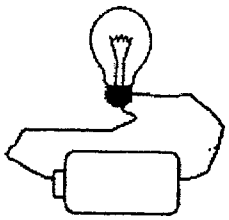
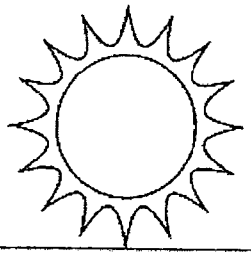
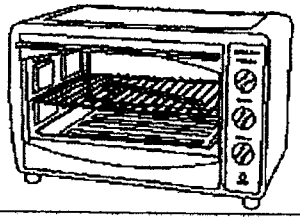


torch wooden cube sheet

Which of the following would likely be seen on the screen?

(1) 	(2) 
(3) 	(4) 

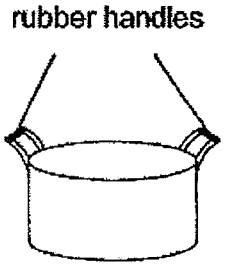
9. Which of the following is **not** a source of heat?

(1) A lighted bulb 	(2) A woollen cap 
(3) The Sun 	(4) An electric oven that has been switched on for 20 minutes 

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10. Yusoff boiled some water in the pot shown below.



He is able to hold the pot of boiling water using the rubber handles without injuring his hands. This is because rubber is a _____.

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

11. Study the classification table below.

Group A	Group B
Fish	Mould
Bird	Mushroom
Reptile	Bird's Nest Fern

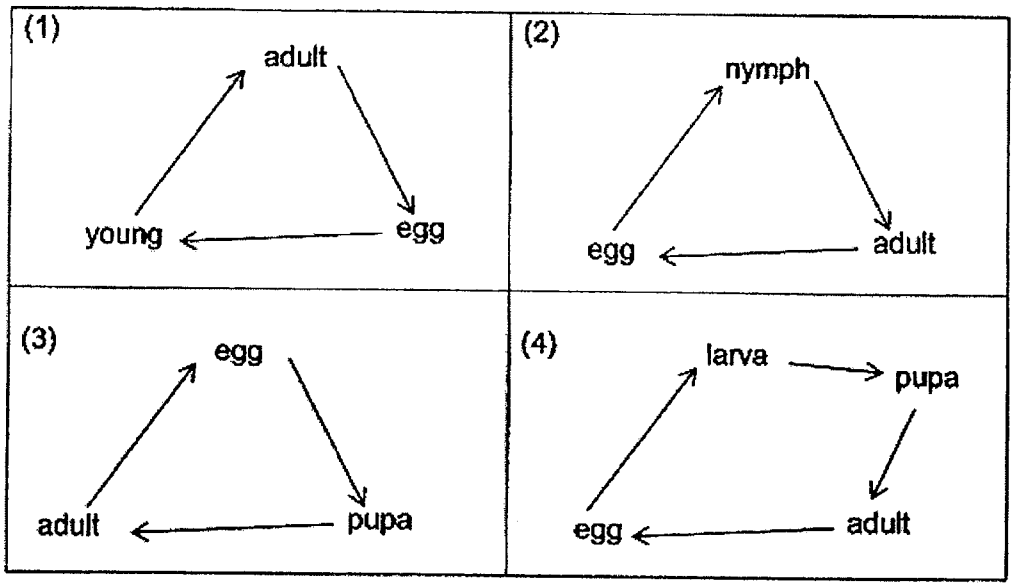
Which of the following are the correct headings for Group A and Group B?

	Group A	Group B
(1)	reproduce by eggs	reproduce by spores
(2)	reproduce by eggs	reproduce by seeds
(3)	animals	non-flowering plants
(4)	animals	fungi

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12. Which of the following life cycle is **not** correct?



13. Sue Ai made a record of information on the life cycle of a mealworm beetle and a frog.

	Questions	Mealworm beetle	Frog
X	Does it lay eggs in the water?	No	No
Y	Does it have 3 stages in its life cycle?	No	Yes
Z	Does the young resemble the adult?	No	No

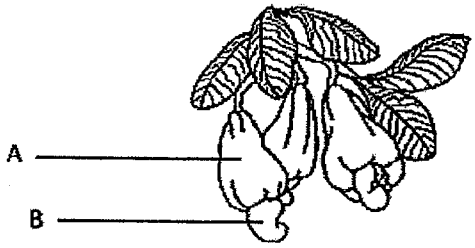
Which of the following shows the correct information about the two life cycles?

(1) Z only
(2) X and Y only
(3) Y and Z only
(4) X, Y and Z

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14. Javan saw two fruits hanging on a branch of a plant. The fruits looked different from other fruits. There are two parts, A and B, as shown in the diagram below.



Javan wanted to find out which parts, A or B, will germinate to grow into a seedling.

Set-up	Part	Condition
P	A only	water
Q	B only	no water
R	A only	no water
S	B only	water

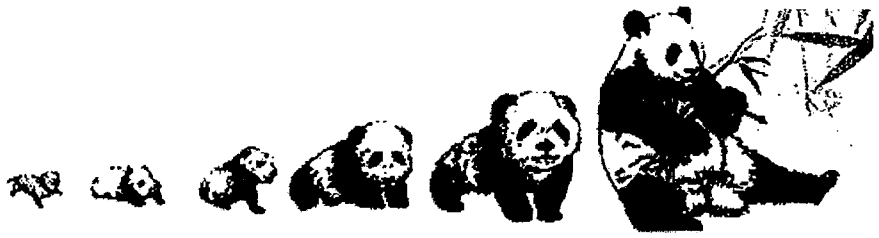
Which of the following set-ups should Javan choose for his experiment?

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

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15. The diagram below shows the developmental stages of the giant panda. Giant panda is a mammal.



Which of the following animals has the same number of stages in its life cycle as the giant panda?

(1) butterfly
(2) mosquito
(3) cockroach
(4) mealworm beetle

16. Four pupils conducted an experiment on the growth of a bean plant and recorded their observations in the table below.

Day	Length of root (cm)	Length of shoot (cm)	Number of leaves
0	0	0	0
3	1	0	0
5	4	2	2
7	8	4	4

The four pupils made the following statements.

Alex: The shoot stops growing after Day 7.
Bernice: The plant can make its own food from Day 5 onwards.
Calvin: The plant does not need any food before Day 5
Devi: The roots grow before the growth of the shoot to take in water.

Which pupils made the correct statements?

(1) Alex and Bernice
(2) Alex and Calvin
(3) Bernice and Calvin
(4) Bernice and Devi

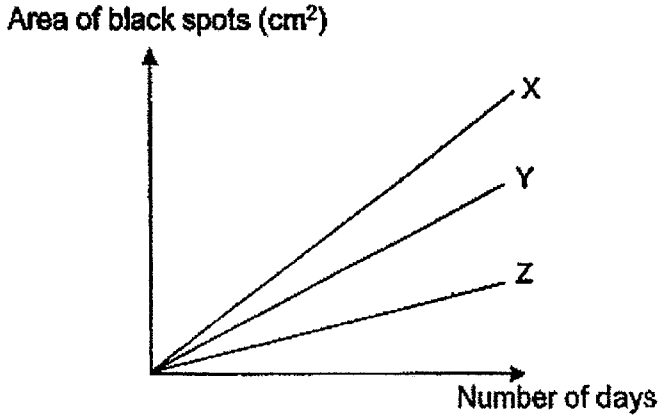
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17. Ali carried out an experiment on three similar slices of bread, A, B and C, under different conditions. He kept the slices of bread on a table in the kitchen.

Bread	Conditions
A	Many drops of water sprinkled on it.
B	No water sprinkled on it.
C	Few drops of water sprinkled on it.

He observed the three slices of bread for black spots over ten days and plotted the results in the graph.



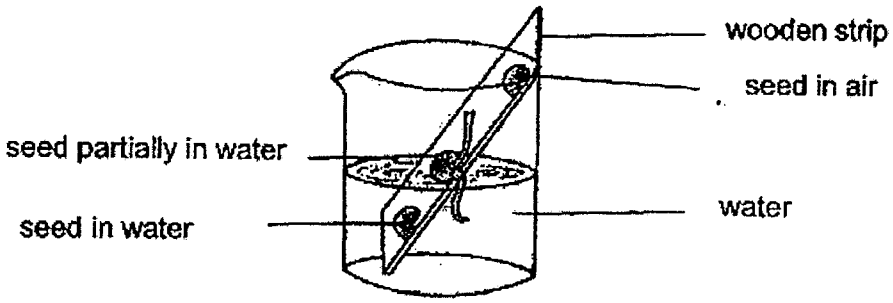
Which of the following best represents bread A, B and C?

	X	Y	Z
(1)	A	B	C
(2)	A	C	B
(3)	B	A	C
(4)	B	C	A

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18. Paul pasted three bean seeds on a wooden strip on three positions, completely in water, partially in water and in air. After few days, he made the observations as shown below.



Based on Paul's observations, what conclusion could he make?

(1) Germination needs air only.

(2) Germination needs water only.

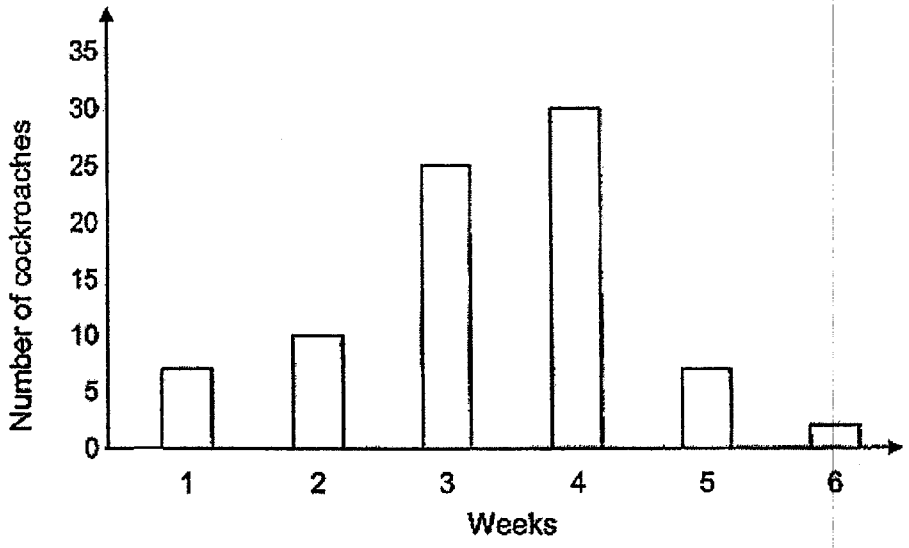
(3) Germination needs both air and water.

(4) Germination needs air, water and warmth.

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19. Suzy kept some cockroaches in an enclosed container. The container had enough air, food and water for the cockroaches. She then recorded the number of cockroaches over a period of time.



Which characteristics of living things does the graph show from Week 4 to 6?

(1) Living things can die.

(2) Living things can grow.

(3) Living things can reproduce.

(4) Living things can respond to changes around them.

20. The properties of three objects are shown in the table below.

Property	Object		
	Metal Key	Ceramic Mug	Plastic Ball
X	Yes	Yes	No
strength	Yes	Yes	No
flexibility	No	No	Yes

Which one of the following best represents property X?

(1) waterproof

(2) transparency

(3) ability to sink

(4) ability to float

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21. Simon used a magnet and moved it near three objects, S, T and U, which are made of different metals.



He moved the magnet near the object and recorded his observations in the table below.

Objects	End X	End Y
S	attracted	repelled
T	attracted	attracted
U	nothing happened	nothing happened

Based on his observations above, which of the following statements is correct?

(1) Object T is magnetic.

(2) Object U is a magnet.

(3) Object S is non-magnetic.

(4) Both S and T are magnets.

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

(1) air

(2) milk

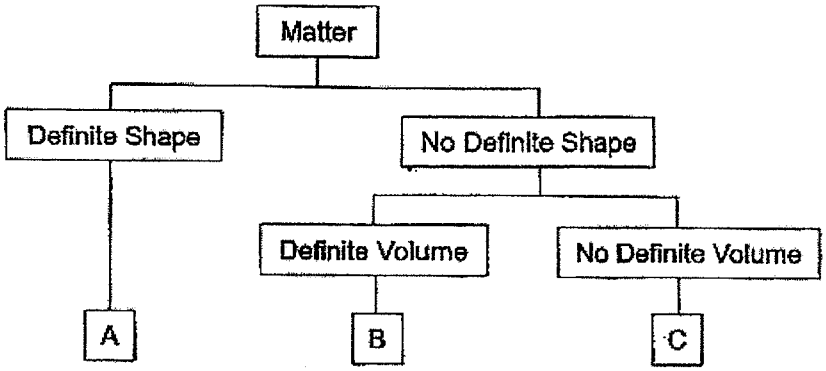
(3) light

(4) sugar

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23. Study the diagram below.



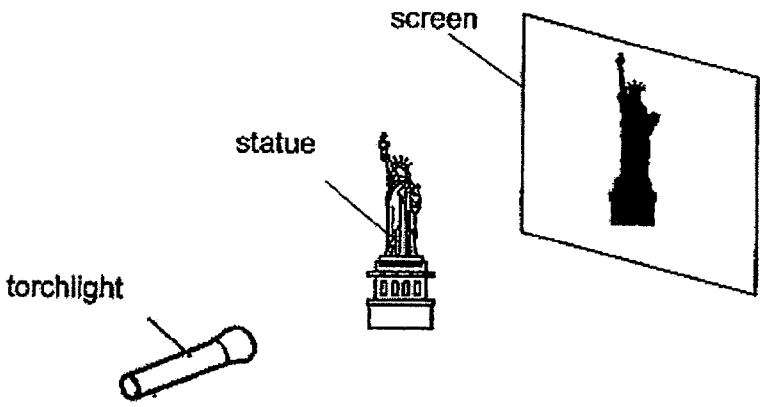
Based on the information given above, which of the following is correct?

	A	B	C
(1)	air	water	marble
(2)	water	marble	air
(3)	marble	air	water
(4)	marble	water	air

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24. Siti conducted an experiment in a dark room using the set-up below. She saw a dark shadow of the statue on the screen.



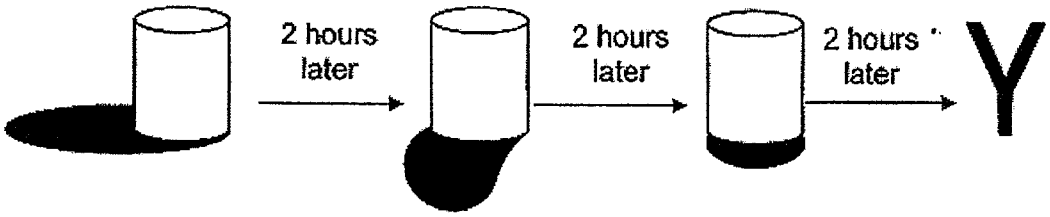
Which of the following is correct if she wants to get a bigger shadow?

(1) Move the statue nearer to the screen.
(2) Move the statue nearer to the torchlight.
(3) Move the screen nearer to the torchlight.
(4) Move the torchlight further away from the statue.

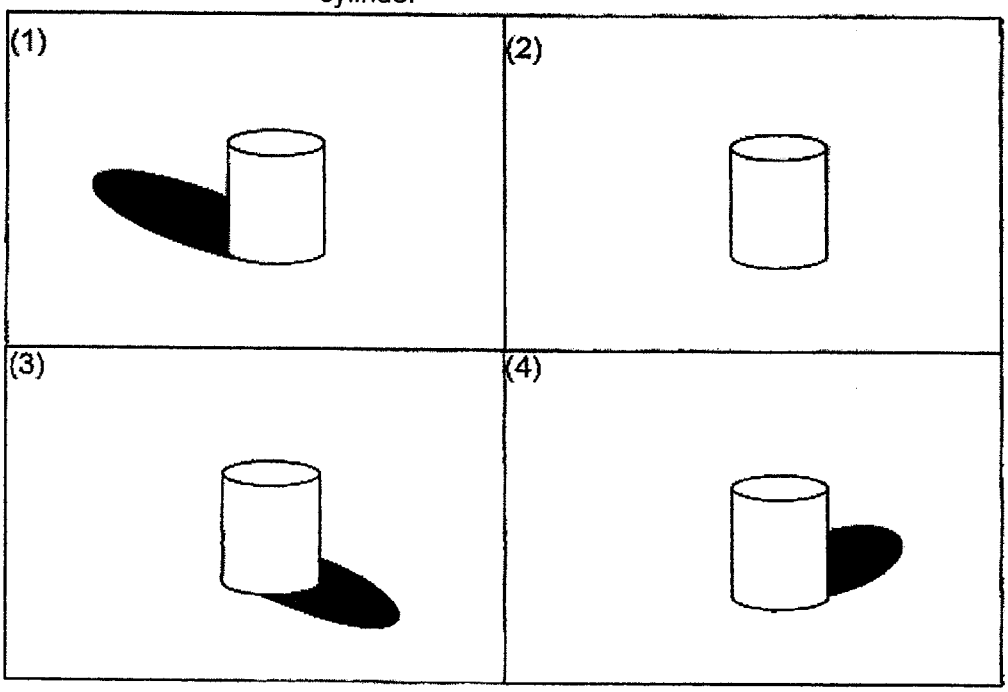
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25. The diagrams below show the shadows of a cylinder at different times of a clear and sunny day.



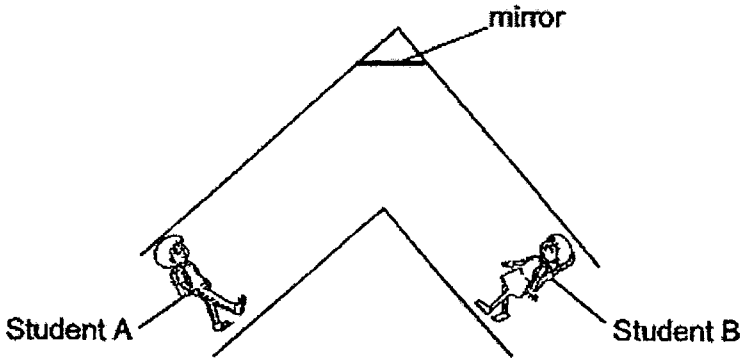
What will the shadow of the cylinder most likely look like after another 2 hours at Y?



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26. A mirror is placed at a corner along the classroom corridor to prevent students from colliding into each other when they go around the bend as shown in the diagram below.



Which properties of light is/are shown in the above diagram?

A: Light travels in a straight line.

B: Light can be reflected by mirrors.

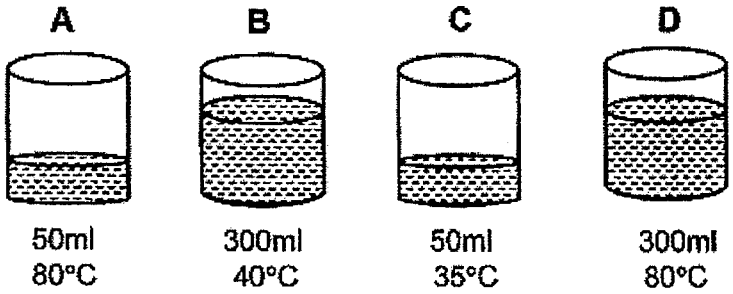
C: When light is blocked, a shadow is formed.

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

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27. There are four beakers of water as shown below.



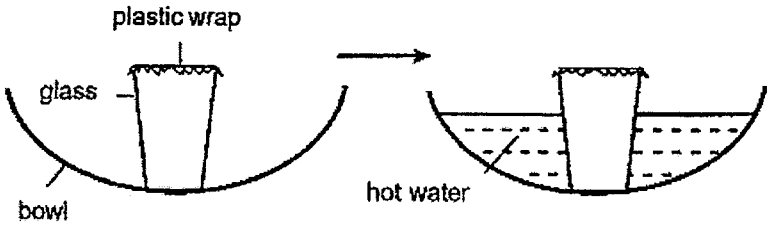
Which beaker of water has the greatest amount of heat?

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

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28. Zul placed a glass in the refrigerator for an hour. He then took the glass out and sealed the top with a plastic wrap. He placed the glass in a bowl and poured hot water into the bowl as shown below.



He observed that the plastic wrap was pulled inwards once the hot water was added and after five minutes the plastic wrap was pushed upwards. Explain why.

	Explanation	
	Once hot water was added	**After five minutes**
(1)	The plastic wrap contracted.	The plastic wrap expanded.
(2)	The glass expanded more than the air in the glass.	The air in the glass expanded more than the glass.
(3)	The air in the glass expanded more than the glass.	The air in the glass expanded more than the glass.
(4)	The glass expanded more than the air in the glass.	The plastic wrap expanded more than the glass.

(Go to Booklet B)

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Rosyth School
End-of-Year Examination 2022
SCIENCE
Primary 4

Total Marks: ____ / 100

Name: _____

Class: Pr 4 - _____ Register No. _____

Date: 28 October 2022 Parent's Signature: _____

Duration: Total time for Booklets A and B: 1 h 45min

Booklet B

Instructions to Pupils:

1. Please do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.

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

* This booklet consists of 15 printed pages (including cover page).

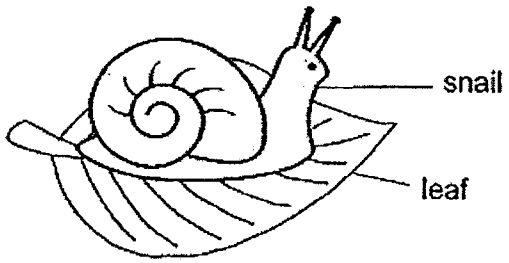
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For questions 29 to 41, write your answers in this booklet. (44 marks)

29. Look at the diagram below.

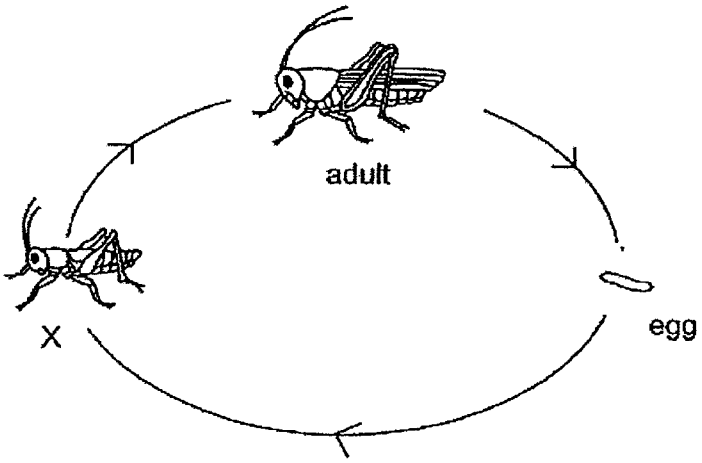


(a) The snail needs air, food and _____ to stay alive. [1]

(b) The snail eats leaves and becomes bigger after some time.

This shows that it can_____ . [1]

30. The diagram below shows the stages in the life cycle of a grasshopper.



(a) Name stage X. [1]

_____

(b) State one other animal that has a similar life cycle as a grasshopper. [1]

_____

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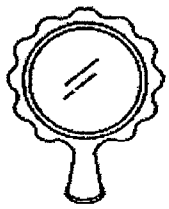
31. Tick (✓) in the box if each of the following has a definite shape and/or a definite volume. [3]

		Has a definite shape	Has a definite volume
(a)	tea		
(b)	plastic cup		
(c)	wind		

32. Look at the pictures. Tick (✓) the sources of light. [1]

(a)

☐ mirror



☐ campfire



☐ eyes



☐ firefly



Q32 is continued on the next page.

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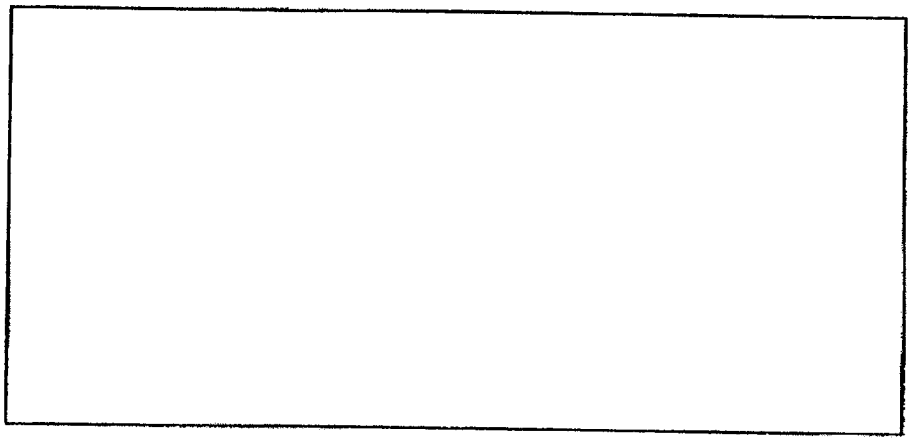
(b) Leena shines a torch on a ball and a shadow is formed on a smooth wall.



torch ball wall

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

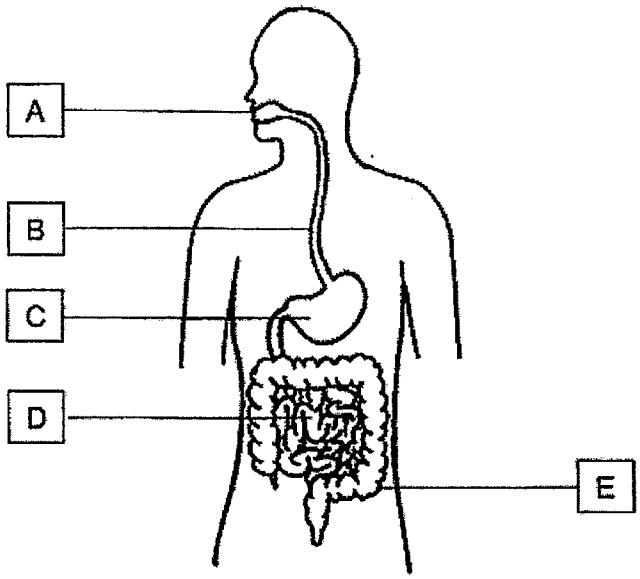
(ii) Draw the shadow of the ball that is formed on the wall. [1]



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33. Look at the diagram below.



(a) Label the parts, C and E, in the boxes below. [2]

C: _____

E: _____

(b) State the function of part B. [1]

_____

_____

(c) Based on the diagram above, state the parts, A, B, C, D and/or E, where digestive juices are produced. [1]

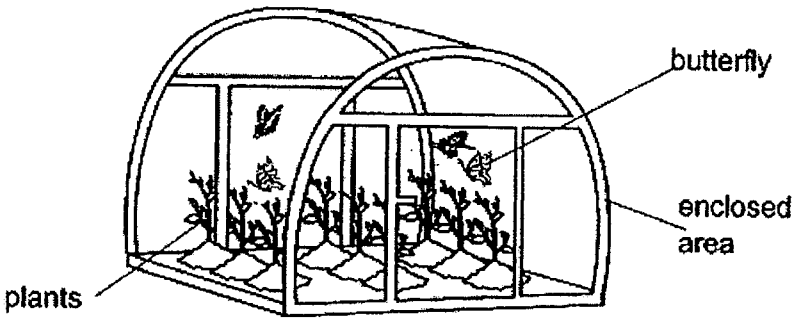
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34. Guna had some butterflies and plants in an enclosed area. The plants were watered daily. No new organisms were added or removed.



He then observed and recorded what happened in the enclosed area for two weeks in the table below.

Day	Observation
1	Many tiny eggs were observed at the underside of the leaves.
6	Green organisms hatched from the eggs. They started eating the leaves and growing in size.
10	The green organisms stopped moving and eating.
14	There was an increase in the number of butterflies in the enclosed area.

(a) Name the stage of the life cycle that the green organisms are in on Day 6. [1]

_____

(b) Why was there an increase in the number of butterflies on day 14? [1]

_____

_____

(c) If Guna removed all the plants in the enclosed area on Day 5, what would happen to the number of green organisms on Day 10? Give a reason for your answer. [2]

_____

_____

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35. Josiah placed 15 identical seeds in four identical pots, K, L, M and N. The pots were placed at different locations. The seeds were watered with the same volume of water daily. He then recorded the number of seeds that germinated in each pot after 3 days in the table below.

Pot	Temperature of surroundings (°C)	Number of seeds germinated after 3 days
K	10	1
L	20	9
M	30	14
N	40	0

(a) Based on the table above, what is the aim of Josiah's experiment? [1]

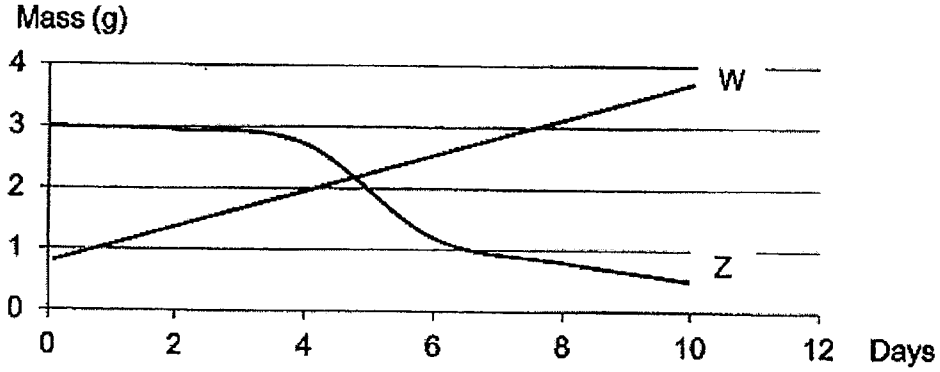
(b) Based on the information above, what is the most suitable temperature for the seeds to germinate? [1]

(c) When the temperature of the surroundings is 40°C, no seeds germinated. Explain why. [1]

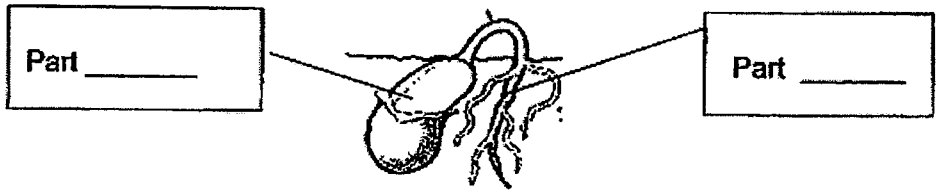
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36. The graph below shows how part W and part Z of a seed changes their masses as the seed germinates into a seedling.



(a) Based on the graph above, identify the parts, W and Z, by filling in the correct boxes below with the letters. [1]



Different volumes of water were given to three seedlings of the same kind, A, B and C, each day. The heights of the seedlings were measured after two weeks and the results are shown in the table below.

Seedling	**A**	**B**	**C**
Volume of water given (ml)	10	20	30
Height of plant (cm)	7	9	13

Based on the above experiment, identify and circle the correct type of variables. [2]

(b) (i) Type of seedlings : same / changed / measured

(ii) Volume of water given: same / changed / measured

(c) State the relationship between the volume of water given and the height of plant. [1]

_____

_____

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37. Shanti wanted to find out the effect of soaking seeds on seed germination. She soaked 50 seeds for different durations and counted the number of seeds that germinated as shown in the table below.

Duration the seeds are soaked in water before germination (hour)	Number of seeds germinated
6	38
12	40
18	42
24	43
30	40
36	38
42	36
48	30

(a) What would happen to the mass of the seeds after soaking in water before germination? Explain why.

[1]

_____

(b) Describe the effect of soaking of seeds from [2]

(i) 6 hours to 24 hours: _____

(ii) 24 hours to 48 hours: _____

(c) What would be the first observation to show that the seeds have germinated?

[1]

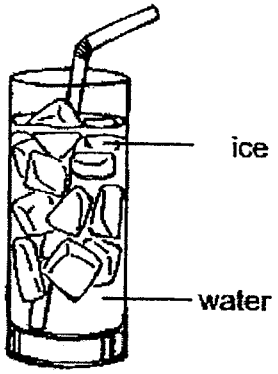
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38. The picture below shows a glass of ice water.



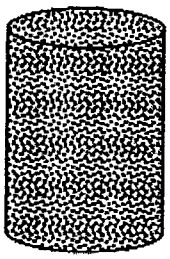
(a) Fill in the blanks using the correct word in the box. [1]

solid	liquid	gas

(i) ice : _____ state

(ii) water : _____ state

(b) Audrey filled Container Y, which has a volume of 250cm^3, to the brim with sand as shown in the diagram below.



Container Y

However, Audrey said that the volume of sand in Container Y was actually less than 250cm^3.

Explain why the volume of the sand was less than 250cm^3. [2]

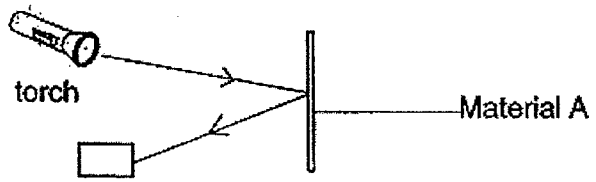
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39. Dennis shone a torch at Material A and used the light sensor to record the amount of light reflected by the material as shown below.



light sensor connected to data logger

He repeated this using different materials, B, C and D, one at a time. He then recorded the results in the table below.

Type of material	Amount of light reflected (lux)
A	2000
B	10
C	400
D	50

(a) Based on the experiment above, identify and tick (✓) the correct type of variables. [2]

	Same	Changed	Measured
(i) Type of material			
(ii) Intensity of light			
(iii) Distance between torch and material			
(iv) Amount of light reflected			

Q39 is continued on the next page.

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(b) Dennis wanted to design clothes for a food delivery company. It is important for food delivery riders to wear clothes that enable others to see them clearly at night.

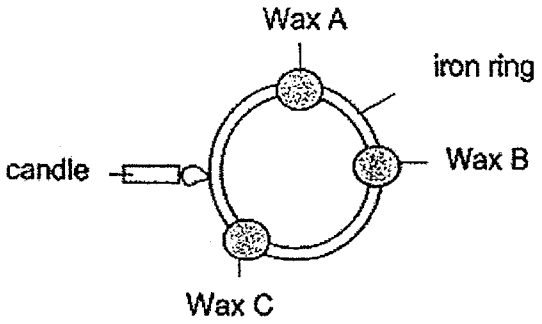


Based on the results above, which materials, A, B, C or D, is the most suitable to make clothes for a food delivery rider to be seen clearly at night? Explain why. [2]

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40. Amy placed equal amounts of wax, A, B and C, around an iron ring. Then she placed a candle at one part of the iron ring as shown below.



(a) Which piece of wax, A, B or C, will take the longest time to melt? Explain why.[1]

_____

_____

(b) Amy repeated the same experiment but she replaced the iron ring with a copper ring of the same thickness.

Put a tick (✓) in the box to identify the aim of the experiment. [1]

☐ To find out how the position of wax affects the melting time of the wax.

☐ To find out how the thickness of the ring affects the melting time of the wax.

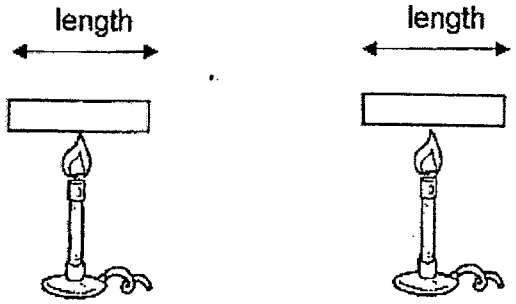
☐ To find out how the material of the ring affects the melting time of the wax.

Q40 is continued on the next page.

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(c) Amy decided to conduct another experiment using the similar rods made of different materials, A and B. She heated the rods for twenty minutes each as shown below.



Rod made of material A Rod made of material B

She recorded the length of each rod before and after heating in the table below.

Material of rod	Length before heating (cm)	Length after heating (cm)
A	20	23
B	20	21

Based on the table above, what is the difference in the results? Give a reason for the difference. [2]

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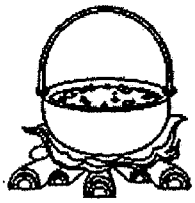
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41. Mr Raju set up a campfire to cook his food in a metal pot during a camp. He also had a cooler box to store cold drinks as shown below.





Tick (✓) the correct box to identify whether the item is a poor or good conductor of heat. Support your choice with a reason. [4]

Item	Type of conductor of heat (Please tick)	Explain how the property helps
 metal pot	☐ Poor conductor of heat ☐ Good conductor of heat	
 cooler box	☐ Poor conductor of heat ☐ Good conductor of heat	

End of Paper

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LEVEL : PRIMARY 4
SUBJECT : SCIENCE
TERM : 2022 SA2

SECTION A

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

SECTION B

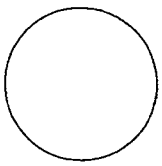
Q29)
a) water
b) grow

Q30)
a) young
b) cockroach

Q31)

a)		√
b)	√	√
c)		

Q32)
a) ☑ campfire ☑ firefly
b) i) blocked
ii)



Q33)
a) C: stomach
E: large intestine

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	b) To push food down from the mouth to the stomach. c) A , C , D
Q34)	a) Larva b) The pupas grown into butterfly so that there was an increase in the number of butterflies. c) The number of green organisms would decrease on day 10 as there is no food so the number of green organisms would decrease.
Q35)	a) To find out if the temperature of surroundings will affect the number of seed germinated after 3days. b) 30°c c) The temperature was too hot for the seeds to germinate.
Q36)	a)  b) i) same ii) changed c) The more water given to the plant, the higher the plant will grow.
Q37)	a) The mass of seed increases, the seeds absorb water. b) i) Number of seeds germinated increases. ii) Number of seeds germinated decreases. c) The roots grow first.
Q38)	a) i) solid ii) liquid b) There are air spaces between the sand, air occupies space.
Q39)	a) i) Changed ii) Same iii) Same iv) Measured b) A. As it is able to reflect the most light so when cars are driving behind him at night, the person in the car will see him and not crash into him.

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<table>
<tr><td>Q40)</td><td>a) B. As it is the farthest away from the candle so it will take the longest time to melt.
b) ☑ To find out how the material of the ring affects the melting time of the wax.
c) Material A is longer than B after heating, Material A expands more than B.</td></tr>
<tr><td>Q41)</td><td><table><tr><td>Good conductor of heat</td><td>It allows heat to transfer faster.</td></tr><tr><td>Poor conductor of heat</td><td>It allows heat to travel slower from the surrounding to the drinks.</td></tr></table></td></tr>
</table>

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