



PEI HWA PRESBYTERIAN PRIMARY SCHOOL  
SEMESTRAL EXAMINATIONS 2

**PRIMARY 4  
SCIENCE  
(BOOKLET A)**

27 OCT 2016

Name: \_\_\_\_\_ (    )

Class: Teamwork \_\_\_\_\_

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

**INSTRUCTIONS TO CANDIDATES**

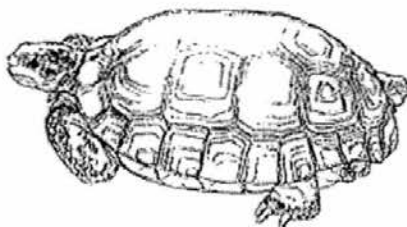
1. Write your Name, Class and Register No. in the spaces provided above.
2. DO NOT turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers on the Optical Answer Sheet (OAS) provided.

This booklet consists of 15 printed pages, excluding the cover page.

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) and shade your answer on the Optical Answer Sheet.

(56 marks)

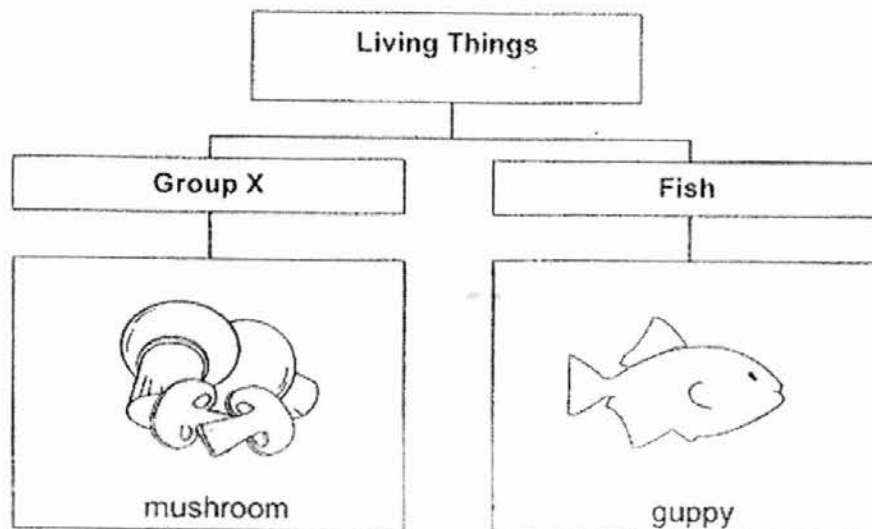
- 1 A tortoise hides itself in its shell when it senses harm.



This shows that the tortoise is a living thing because it can \_\_\_\_\_.

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

- 2 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) fungi
- (2) insects
- (3) bacteria
- (4) mammals

3 Which one of the following objects can be bent easily without breaking?

(1)



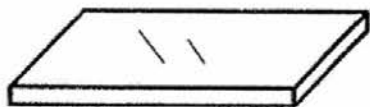
A plastic fork

(2)



A rag

(3)



A sheet of glass

(4)



A wooden pencil

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

- (1) gullet
- (2) stomach
- (3) small intestine
- (4) large intestine

5 The table below describes animals X and Y.

Description	X	Y
Does it have six legs?	No	Yes
Does it lay eggs in water?	Yes	Yes
Number of stages in life cycle	3	4

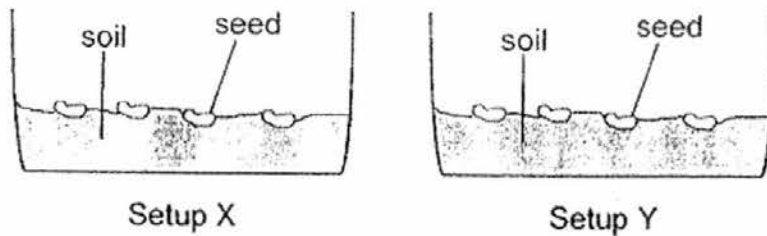
Which of the following correctly represents animals X and Y?

	X	Y
(1)	frog	butterfly
(2)	toad	mosquito
(3)	toad	cockroach
(4)	mosquito	frog

6 Which animal has a pupa stage in its life cycle?

- (1) duck
- (2) beetle
- (3) cockroach
- (4) grasshopper

7 James grew the same type of seeds in 2 setups, X and Y, as shown below. The description of the setups is given in the following table. A tick (✓) means it fits the description.



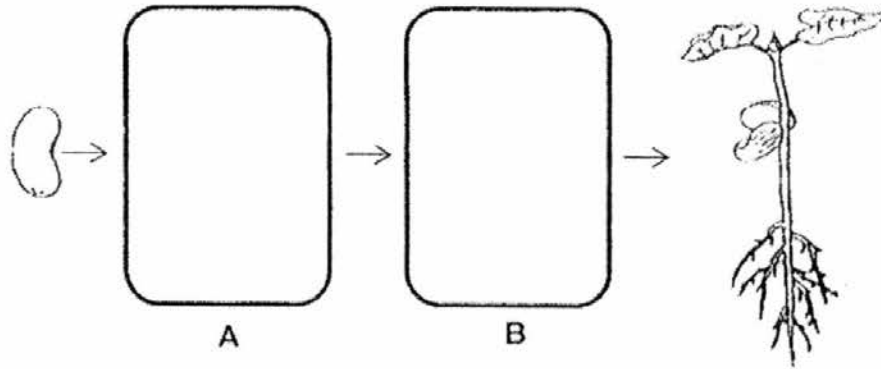
Description	Setup X	Setup Y
Soil is used.	✓	✓
The seeds are heated.		✓
15ml of water given daily.	✓	✓
Surrounding temperature at 29°C	✓	✓
Exposed to 5 hours of sunlight daily.		✓

After a week, James noticed that the seeds in setup X grew into seedlings but not the seeds in setup Y.









Which one of the following statements was the likely reason for his observations? The seeds in setup Y \_\_\_\_\_.

- (1) received insufficient water
- (2) did not have enough sunlight
- (3) were dead after being heated
- (4) did not have a warm surrounding

8 The diagram below shows the growth of a young plant with two missing stages, A and B.



Which one of the following shows the correct stages for A and B?

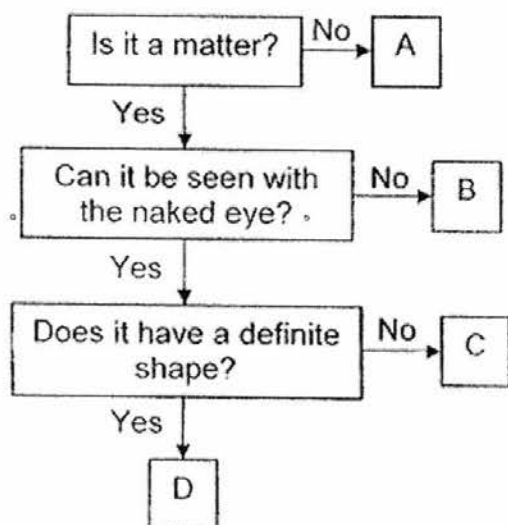
	A	B
(1)		
(2)		
(3)		
(4)		

- 9 Alan, Betty, Cindy and Damian measured the mass of the same seed leaves of a seed during its growth and recorded it in the table as shown below.

Which student is correct based on the results in the table?

	Student	Mass of seed leaves (grams)			
		Day 1	Day 2	Day 3	Day 4
(1)	Alan	2	2	2	2
(2)	Betty	2	1.5	1	0.5
(3)	Cindy	2	1	0	1
(4)	Damian	2	3	4	5

- 10 Study the flowchart below.



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

	A	B	C	D
(1)	heat	air	rock	lemon
(2)	noise	chair	oil	ice
(3)	oxygen	eraser	air	pencil
(4)	shadow	oxygen	water	stone

11 Matter is anything that has mass and occupies space.

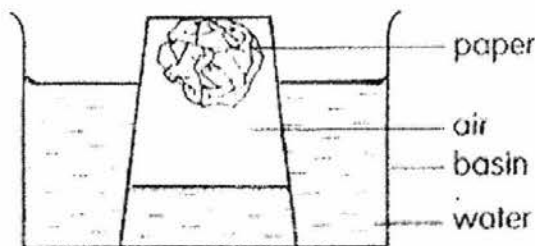
Which one of the following is **NOT** matter?

- (1) milk
- (2) light
- (3) sand
- (4) smoke

12 Which one of the following substances has a fixed shape?

- (1) handphone
- (2) orange juice
- (3) water vapour
- (4) hair shampoo

13 James glued some paper to the bottom of a plastic cup. The cup was then inverted and pushed into a container of water as shown below. The paper remained dry.

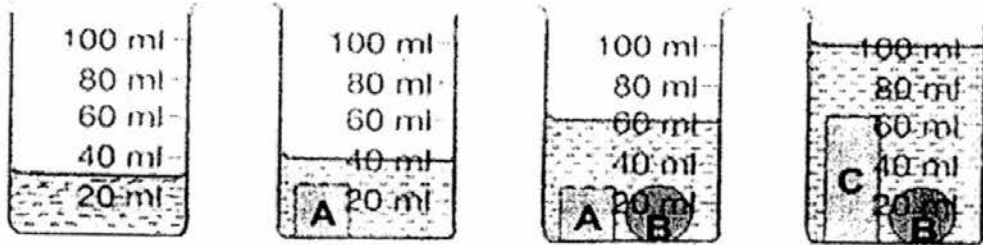


What can James do to wet the paper in the cup?

- A Add water into the container.
- B Remove some water from the container.
- C Poke a hole through the bottom of the cup.
- D Tilt the cup before pushing it into the container.

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

- 14 Felicia placed three different solids, A, B and C, into a beaker containing 30 ml of water as shown below.

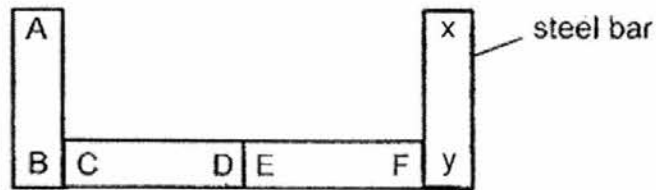


Which one of the following correctly arranges the solids according to their volume, from the **smallest to the largest**?

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



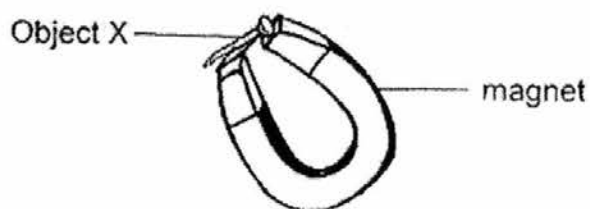
- 15 Vishnu set up three bar magnets, AB, CD and EF and a steel bar XY, as shown in the arrangement below.



Which of the following arrangements is possible?

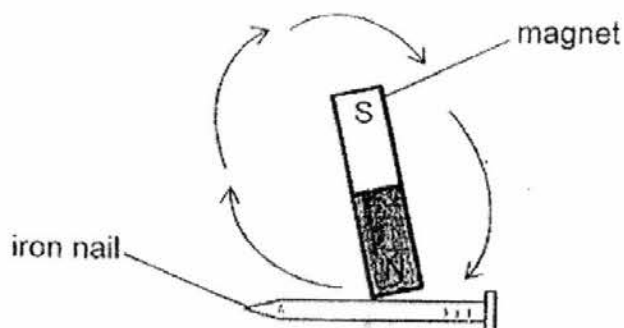
<p>(1)</p>	<p>(2)</p>
<p>(3)</p>	<p>(4)</p>

- 16 Object X was attracted to a magnet, as shown in the figure below.



Object X is made of \_\_\_\_\_.

- (1) iron
  - (2) wood
  - (3) rubber
  - (4) aluminium
- 17 Brian used a bar magnet to stroke an iron nail in one direction with the same pole as shown in the diagram below. He stroked the iron nail 20 times. He then brought the iron nail near a pile of paper clips. He found that the iron nail attracted 4 paper clips.

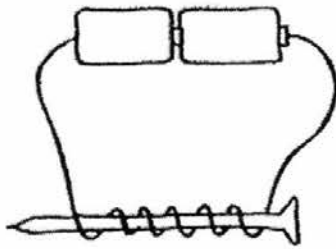


Predict how many paper clips the iron nail could attract if it was stroked 60 times.

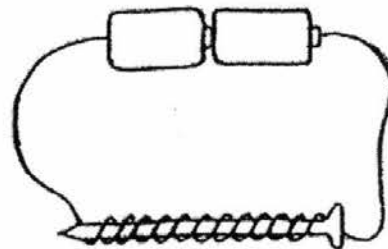
- (1) 1
- (2) 2
- (3) 3
- (4) 5

18 Which of the following arrangements of electromagnets is the strongest?

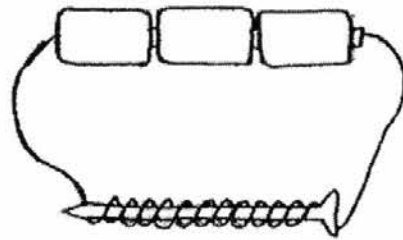
(1)



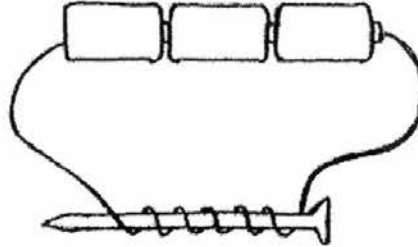
(2)



(3)



(4)



19 Which one of the following is **NOT** a source of light?

(1)



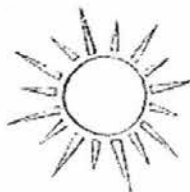
The moon

(2)



A lit candle

(3)



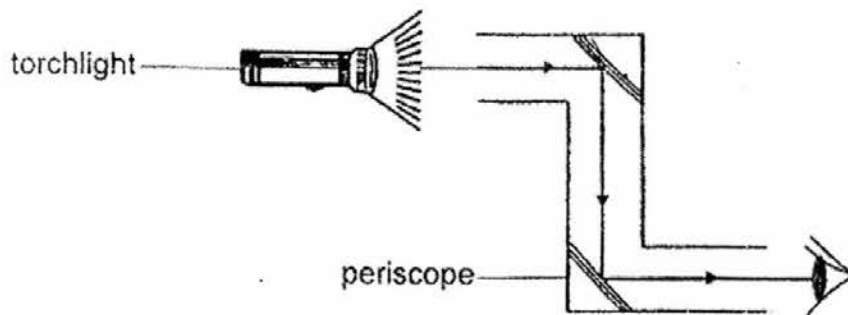
The sun

(4)



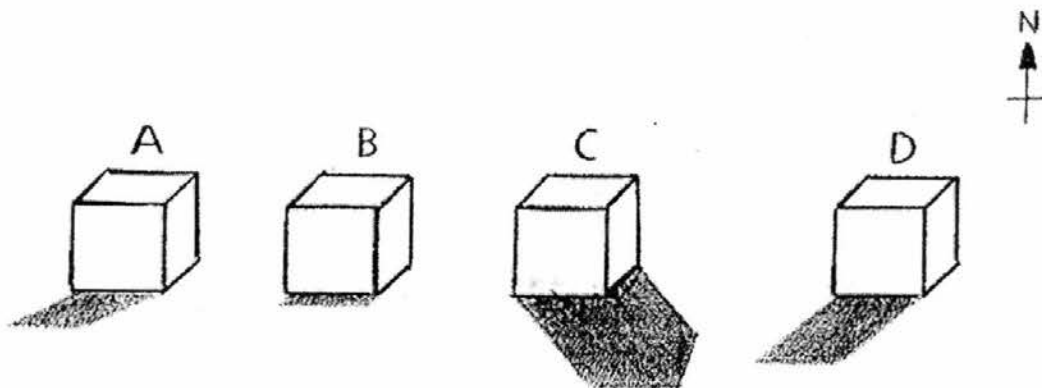
A lit lamp

20 The diagram below shows a periscope.



Which property of light is used to construct the periscope?

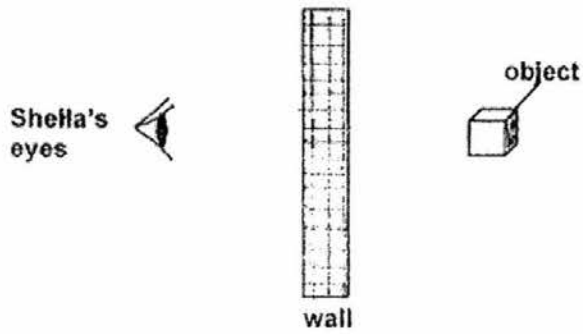
- (1) Light has no mass.
  - (2) Light does not occupy space.
  - (3) Light travels in a straight line.
  - (4) Light travels at a very fast speed.
- 21 Sammy placed a wooden block in the garden on a sunny day over a period of time. He knows that the sun rises from the east. The diagram below shows the positions and lengths of the shadows formed by the block.



Which of the following shows the correct times when the shadows were formed?

	A	B	C	D
(1)	8 am	Noon	9 am	2 pm
(2)	9 am	2 pm	Night	8 am
(3)	10 am	3 pm	Noon	9 am
(4)	10 am	Noon	3 pm	9 am

22 Sheila wants to see the object behind the wall using a mirror.



Where should she place the mirror?

<p>(1)</p> <p>A diagram showing a vertical wall and an object behind it. A mirror is placed above the wall, angled downwards towards the object. An eye is on the left. Labels: "mirror", "object", "wall".</p>	<p>(2)</p> <p>A diagram showing a vertical wall and an object behind it. A mirror is placed above the wall, angled downwards towards the eye on the left. Labels: "mirror", "object", "wall".</p>
<p>(3)</p> <p>A diagram showing a vertical wall and an object behind it. A mirror is placed horizontally on top of the wall. An eye is on the left. Labels: "mirror", "object", "wall".</p>	<p>(4)</p> <p>A diagram showing a vertical wall and an object behind it. A mirror is placed horizontally above the wall. An eye is on the left. Labels: "mirror", "object", "wall".</p>

23 Which of the following do **NOT** allow any light to pass through them?

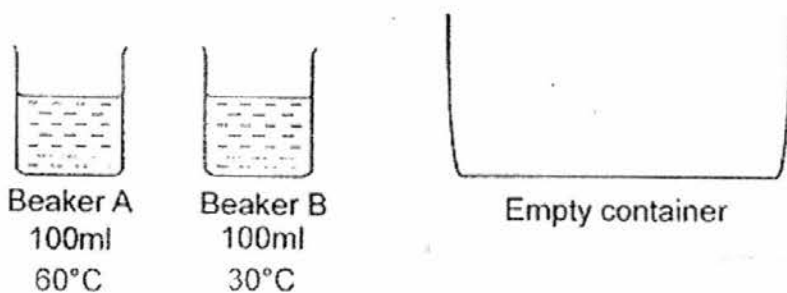
- A Ceramic
- B Cardboard
- C Tissue paper
- D Frosted glass

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

24 Which one of the following is **NOT** a source of heat?

- (1) A lit bulb
- (2) A sweater
- (3) A hot engine
- (4) A burning firewood

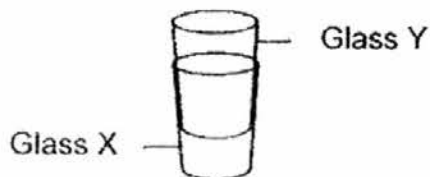
25 Ali had 2 beakers, A and B, containing the same amount of water with different temperatures as shown below.



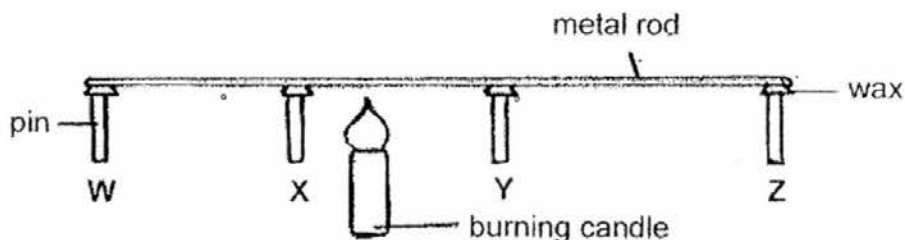
He poured all the water from beaker A and B into the empty container and measured the temperature of the water immediately. What is the likely temperature of the water?

- (1) 30°C
- (2) 40°C
- (3) 70°C
- (4) 90°C

- 26 Kevin found 2 glasses stacked together as shown below. He wanted to separate them but could not. How could he separate Glass X from Glass Y?



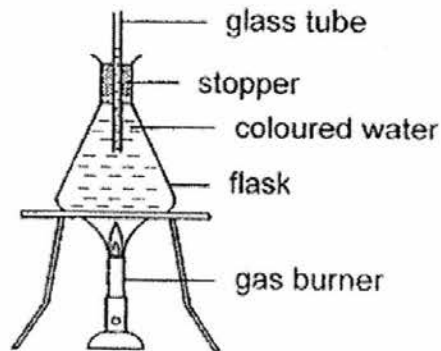
- (1) Place Glass X into cold water and pour hot water into Glass Y.
  - (2) Place Glass Y into cold water and pour hot water into Glass X.
  - (3) Place Glass Y into hot water and pour cold water into Glass X.
  - (4) Place Glass X into hot water and pour cold water into Glass Y.
- 27 Sam stuck 4 pins, W, X, Y and Z, on a metal rod with wax. The metal rod was then heated with a burning candle as shown below.



Which of the following shows the order in which the pins dropped?

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

28 Devi heated a flask containing coloured water as shown in the set-up below.



She noticed that the water level in the glass tube fell slightly. Upon further heating, the coloured water quickly rose up the tube. Which of the following explains her observation?

- (1) The flask expanded first and then the glass tube expanded upon further heating.
- (2) The flask contracted first and then the glass tube contracted upon further heating.
- (3) The coloured water expanded first and then the flask expanded upon further heating.
- (4) The flask expanded first and then the coloured water expanded upon further heating.





PEI HWA PRESBYTERIAN PRIMARY SCHOOL  
SEMESTRAL EXAMINATIONS 2

PRIMARY 4  
SCIENCE  
(BOOKLET B)

27 OCT 2016

Name: \_\_\_\_\_ ( )

Class: Teamwork \_\_\_\_\_

Parent's Signature

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

**INSTRUCTIONS TO CANDIDATES**

1. Write your Name, Class and Register No. in the spaces provided above.
2. DO NOT turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write all your answers in this booklet.

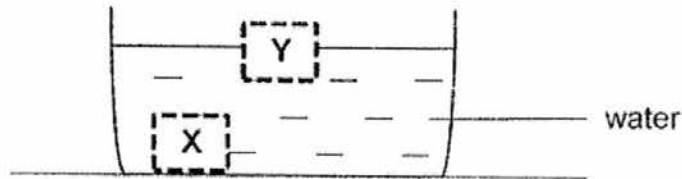
Marks (Booklet A) :	<b>56</b>
Marks (Booklet B) :	<b>44</b>
Total Marks (Booklets A & B) :	<b>100</b>

This booklet consists of 15 printed pages, excluding the cover page.

For questions 29 to 42, write your answers in the booklet.

The number of marks available is shown in brackets [ ] at the end of each question or part question. (44 marks)

29 Mary placed 2 different objects, A and B, into a tub of water as shown below.



Object A was found at position X, while object B was found at position Y.

Fill in the blanks using the correct words in the box.

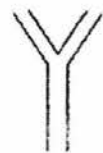
expands	contracts	floats	sinks
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This shows that object A \_\_\_\_\_ in water, while object

B \_\_\_\_\_ in water.

[2]

- 30 (a) Li Ling was given the items below by her teacher to make a model of a system in the human body



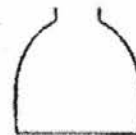
Y- tube



2 balloons

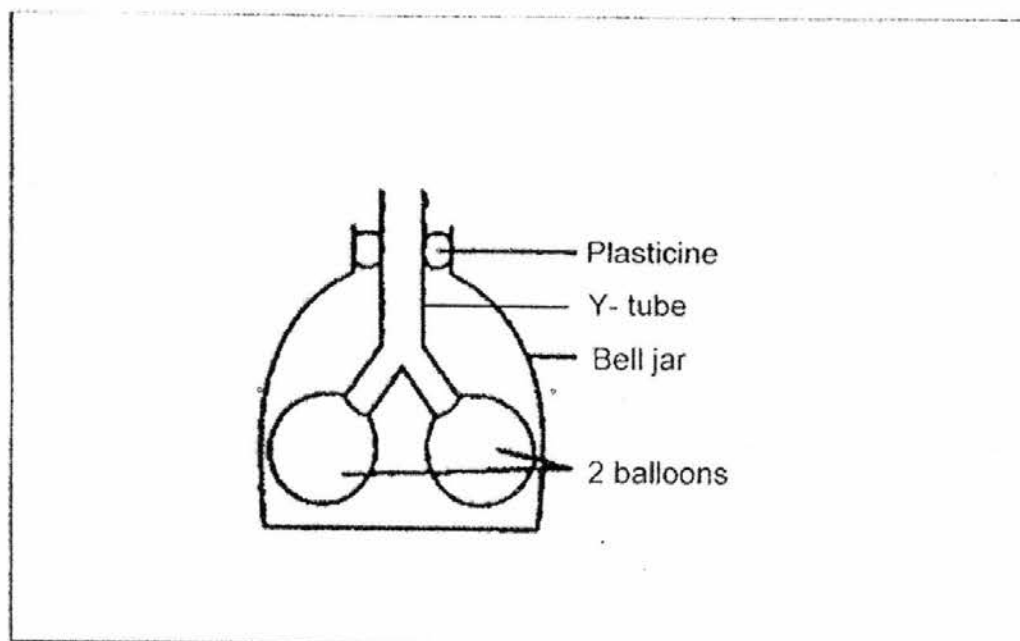


Plasticine



Bell jar

She put the items together and came up with a model as shown in the box below.



- (i) Which system in the human body does the model represent? [1]

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- (ii) Which organ in the human system does the Y-tube represent? [1]

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- (b) (i) During a traffic accident, Sheila had serious injuries to her rib cage. [1]  
What organs in her body could have been hurt as a result?

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- (ii) Besides the rib cage, which other part of the skeletal system serves to [1]  
protect an important organ? Which organ is this?

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31 Nina placed Plant A in a dark cupboard and Plant B in her room by the window.  
She watered both plants daily.

- (a) After a few days, one of the plants died. Which plant is most likely to be it? [1]

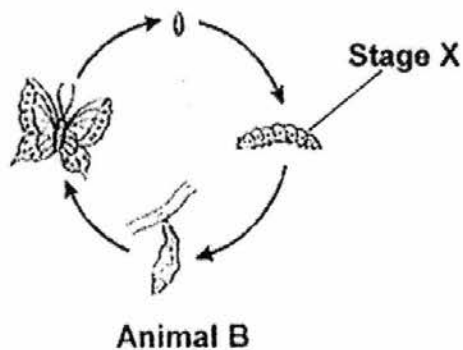
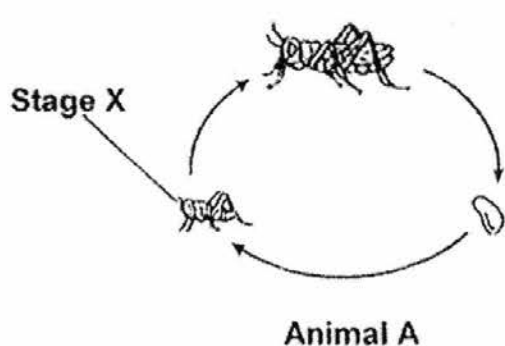
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- (b) Explain your answer in (a). [1]

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32 Study the life cycles below.



- (a) State one similarity between the life cycles of the two animals. [1]

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- (b) State one difference between the life cycles of the two animals. [1]

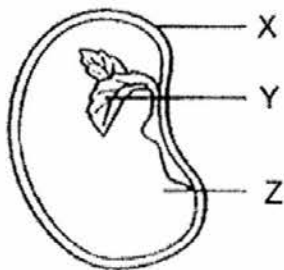
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- (c) Name the process that both animals undergo to increase their size at stage X. [1]

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33 The diagram below shows the various parts of a seed.



(a) What will happen to part Y when the seed germinates? [1]

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(b) What will happen to the seed if part Z is removed? [1]

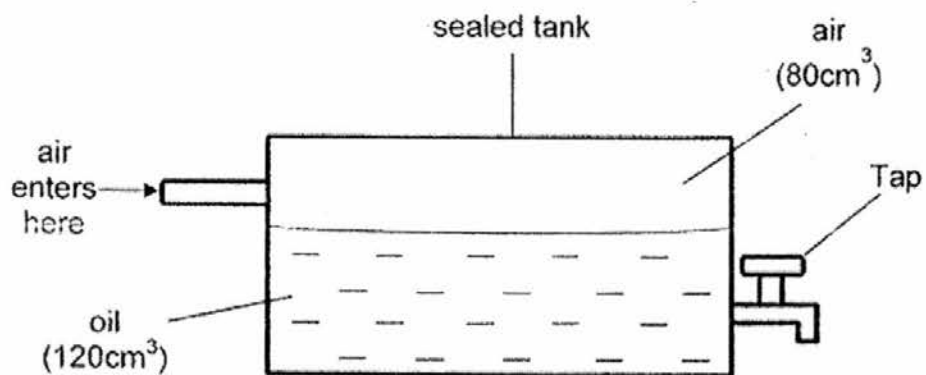
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(c) Explain your answer in (b). [1]

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34 Doreen conducted an experiment using the set-up shown below.



She used the tap to remove 30 cm<sup>3</sup> of oil. She then pumped 20 cm<sup>3</sup> of air into the tank through the air inlet.

(a) What was the final volume of air in the container? [1]

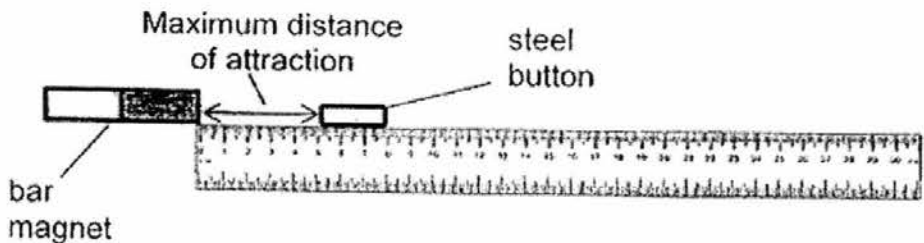
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(b) Which properties of air and oil did you use to obtain your answer in (a)? [1]

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35 Karen pushed a steel button towards bar magnet, A, slowly as shown below. The maximum distance at which the steel button was attracted to the magnet was measured. Then the bar magnet was replaced with 2 other bar magnets, B and C, of different sizes before she repeated the process of measuring. The results were recorded in the following table.



Magnet	Size of magnet	Maximum distance of attraction (cm)
A	Small	2
B	Medium	4
C	Big	3

(a) What was the aim of Karen's experiment? [1]

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(b) What could Karen conclude from the experiment? [1]

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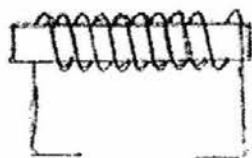
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(c) What are 2 variables to be kept the same for the experiment to be fair? [1]

---



- 36 The diagram below shows some materials that can be used to conduct a science investigation.



coiled iron rod



batteries



paper clips

- (a) Gary wanted to investigate whether increasing the number of batteries will cause the coiled iron rod to become a stronger electromagnet. Describe how he should carry out the experiment. [2]

Step 1: Connect the coiled iron rod to 1 battery.

Step 2:

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Step 3:

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Step 4: Repeat step 1 and step 2 with 2 and 3 batteries.

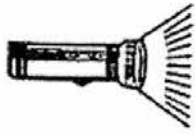
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- (b) Gary changed the iron rod to an aluminium rod and found out that the paper clips were not attracted. Explain why. [1]

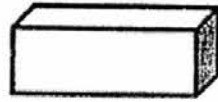
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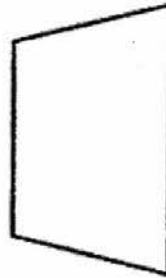
37 Brian shines a torch on a tissue box and a shadow is formed on a smooth wall.



torchlight



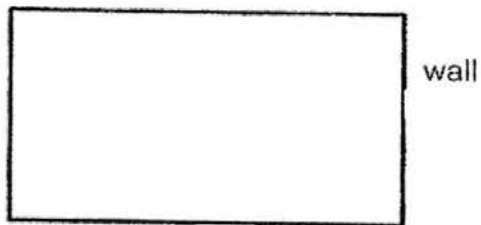
tissue box



wall

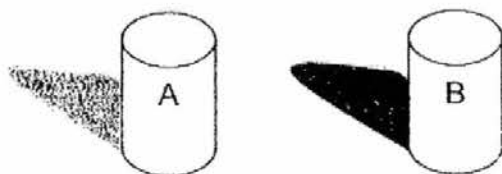
(a) A shadow is formed when light is \_\_\_\_\_ by an object. [1]

(b) Draw the shadow of the tissue box that is formed on the wall. [1]



(c) What would Brian observe if he were to move the torchlight nearer to the tissue box? [1]

- 38 The diagram below shows the shadows cast by 2 cylinders, A and B, under a similar light source.



- (a) Cylinder A cast a lighter shadow than cylinder B. Why? [1]

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- (b) Suggest the materials that cylinders A and B are made of. [2]

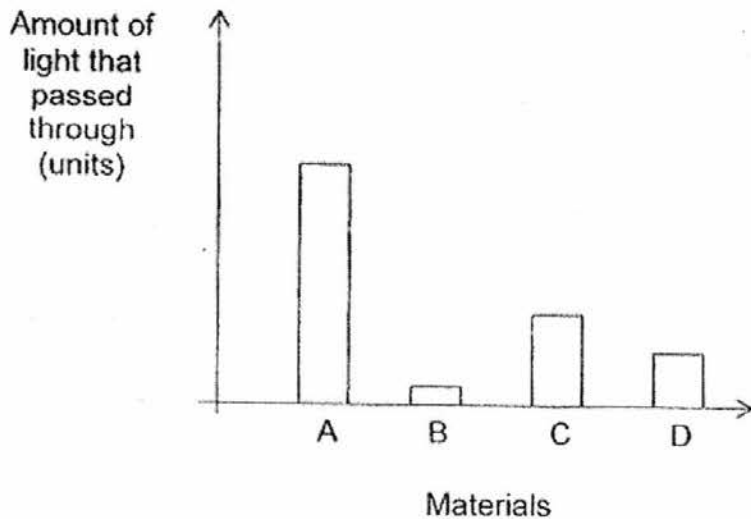
Cylinder A: \_\_\_\_\_ Cylinder B: \_\_\_\_\_

- (c) Give a reason why a slightly darker glass is commonly used as window panes. [1]

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- 39 The graph below shows the amount of light that passes through four different materials, A, B, C and D.



- (a) What electrical device can be used to measure the amount of light passing through a material? [1]

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- (b) Which material (A, B, C or D) is most suitable to be made into an aquarium? [1]

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- (c) Explain your answer in (b). [1]

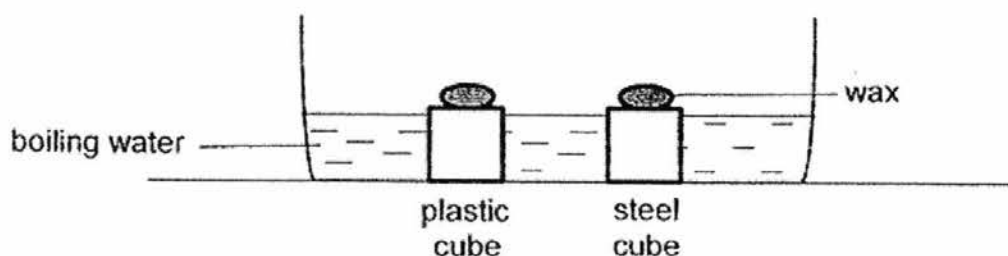
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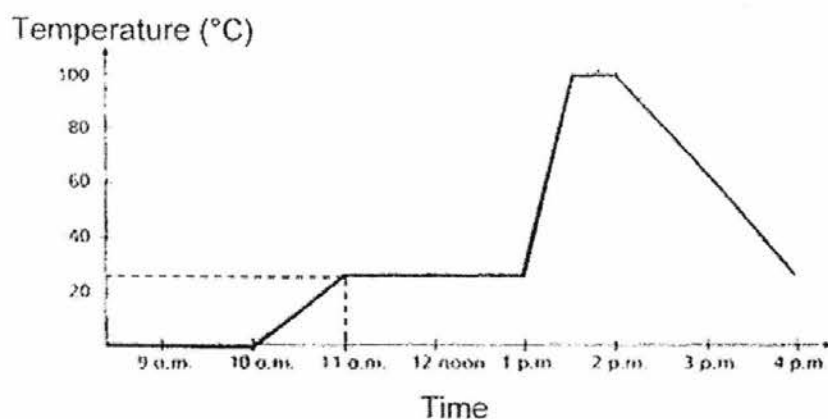
- (d) 3 pieces of material C is placed together. Would the amount of light passing it increase, decrease or remain the same. [1]

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- 40 Wendy placed a steel cube and a plastic cube into a tub of boiling water as shown below. Equal amounts of wax were put on all cubes.

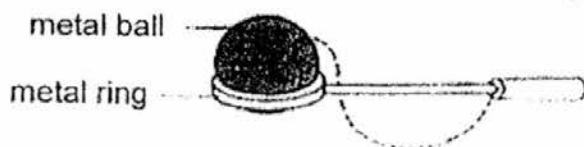


- (a) The wax on the \_\_\_\_\_ cube melted the slowest. [1]
- (b) She can conclude that \_\_\_\_\_ is a better conductor of heat than [2]
- 41 (a) Sam took out some ice from the fridge and put them into a beaker just before 9 a.m. He then left it on the table. The graph below shows the change in temperature of the ice in the beaker over time. Study it and answer the following questions.



- (i) What state of matter is ice? State the 2 properties of that matter. [1]
- 
- (ii) Based on the graph, explain what was happening between 10am to 11am. [1]
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- 41 (b) The diagram below shows a metal ball that cannot pass through the metal ring.



- (i) Without changing the metal ball and ring, suggest one way to allow the metal ball to pass through the metal ring. [1]

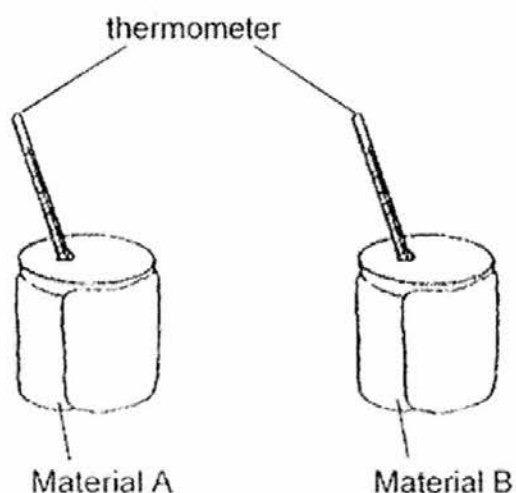
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- (ii) Explain your answer in (b) (i). [1]

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42 Jayden carried out an experiment using the set-up shown below.



He wrapped two metal cans with a layer of material, A and B, respectively. He poured equal amounts of hot water into each metal can. He took the temperature of the water at every 5 minute interval for the next 20 minutes and recorded the results as shown in the table below.

Time (min)	Temperature ( $^{\circ}\text{C}$ ) of hot water in metal can wrapped with material A	Temperature ( $^{\circ}\text{C}$ ) of hot water in metal can wrapped with material B
5	90	90
10	84	80
15	78	65
20	74	54

(a) What was the aim of Jayden's experiment? [1]

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(b) What can he conclude from the results of the experiment? [1]

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- (c) Which material would you choose to wrap your piping hot chicken wings with to enjoy it at home after buying them? [1]

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- (d) Explain why you chose the above material and [1]

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**EXAM PAPER 2016 (P4)**

**SCHOOL : PEI HWA**

**SUBJECT : SCIENCE**

**TERM : SA2**

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

29) sinks / floats

30)a)i) Respiratory system.

ii) The windpipe.

b)i) The lungs and heart could have been hurt.

ii) The skull. It protects the brain.

31)a) Plant A.

b) Plant A did not receive any sunlight so it cannot make food and died.

32)a) Both Animal A and Animal B reproduce by laying eggs.

b) Animal A has a 3 stage life cycle but Animal B has a 4 stage life cycle.

c) Moulting.

33)a)It will grow.

b)The seed will die.

c)Part Z gives the seed its food so when it is removed, Part Z cannot make food and will die.

34)a)110cm<sup>3</sup>.

b)Oil has a definite volume and air does not have a definite volume.

35)a)To find out if the size of the magnet affects the distance of attraction.

b)The strength of the magnet does not depend on the size of the magnet.

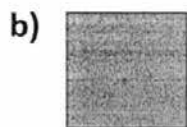
c)The size of the steel button and the poles of the magnet used to attract the steel button.

36)a)2)Out the electromagnet to the paper clips.

3)See how many paper clips was attracted.

b)Aluminium is a non-magnetic material and only magnetic can be magnetised.

37)a)blocked



c)The shadow will get bigger.

38)a)Cylinder A allowed more light to pass through than cylinder B, so cylinder A cast a lighter shadow.

b)A: Frosted glass                  B: Metal

c)So not a lot of sunlight can enter the window.

39)a)A light sensor.

b)Material A.

c)Material A allowed the most light to pass through so people can see the fishes in the aquarium.

d)The amount of light passing through will decrease.

40)a)plastic

b)steel / plastic

41)a)i)Solid. Solid has a definite shape and a definite volume.

ii)The ice gained heat from the surroundings and its temperature increased.

b)i)Put the metal ball in a basin of cold water.

ii)The metal ball will lose heat and contract, decreasing in size , so the metal ball can pass through the metal ring.

42)a)To see which material is a better conductor of heat.

b)Material B was a better conductor of heat than material A as it lose heat faster.

c)Material A.

d)Since Material A is a poorer conductor of heat than B, it will not gain heat from the chicken wings as much as material B.