



RAFFLES GIRLS' PRIMARY SCHOOL

SEMESTRAL ASSESSMENT (1)  
2009

Your score out of 100 marks		
Highest score	Class	Level
Average score		
Parent's signature		

Name : \_\_\_\_\_ Index No.: \_\_\_\_\_ Class: P4 \_\_\_\_\_

7<sup>th</sup> May 2009

SCIENCE

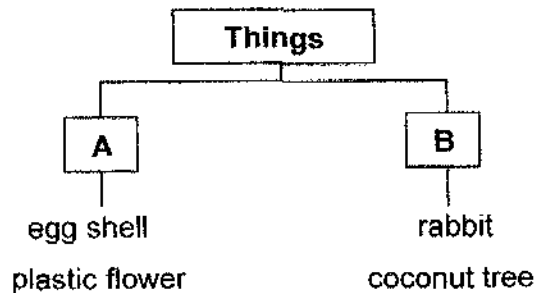
ATT: 1 h 30 min

SECTION A (30 x 2 marks)

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

- 1 All living things \_\_\_\_\_
- (1) reproduce
  - (2) can be eaten
  - (3) move from place to place
  - (4) respond slowly to changes

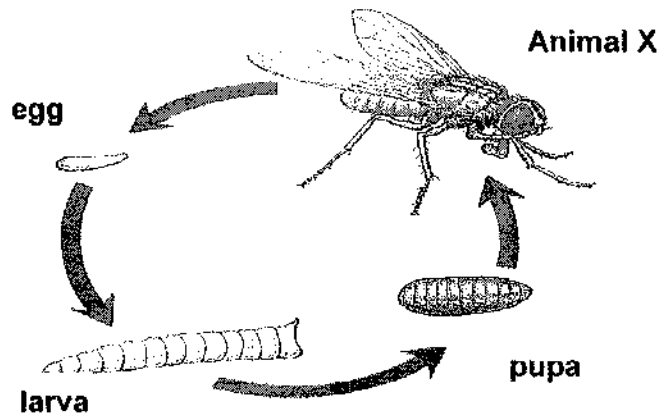
- 2 The diagram below shows how some things are grouped.



Which one of the following is correctly grouped in groups A and B?

	A	B
(1)	water	rock
(2)	metal bowl	fried fish
(3)	Venus flytrap	bracket fungus
(4)	dried leaf	bird's nest fern

3 The diagram below shows the life cycle of Animal X.



Which of the following statements describe Animal X correctly?

- A Its young looks like its adult.
- B It has 4 stages in its life cycle.
- C Its young does not have wings.
- D It gives birth to its young alive.

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

4 John did a study on two animals, X and Y.

He observed the animals and recorded his observations in the table below.

observation	animal X	animal Y
lays eggs	✓	✓
has feelers	✓	
has wings		✓

**Key**  
 ✓ indicates the characteristic which the animal has

Which one of the following pairs of animals are possibly animals X and Y?

- (1) 

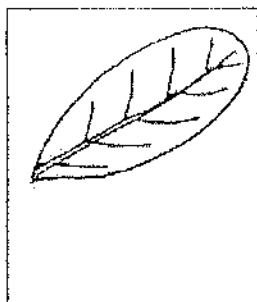
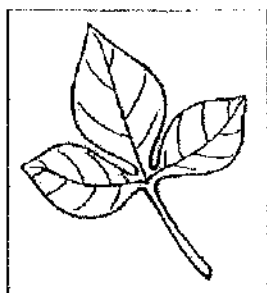
animal X	animal Y
butterfly	chicken
- (2) 

animal X	animal Y
penguin	kiwi
- (3) 

animal X	animal Y
grasshopper	butterfly
- (4) 

animal X	animal Y
termite	penguin

5. The diagram below shows the edges of different types of leaves.



**leaf with lobed edge    leaf with entire edge    leaf with jagged edge**

Which one of the following identifies correctly the type of edge(s) for the leaf shown below?



- A    lobed
- B    entire
- C    jagged

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

6. Cathy put a balsam plant into a beaker of water in which some blue ink had been added. A day later, she observed that the flowers turned from white to blue.

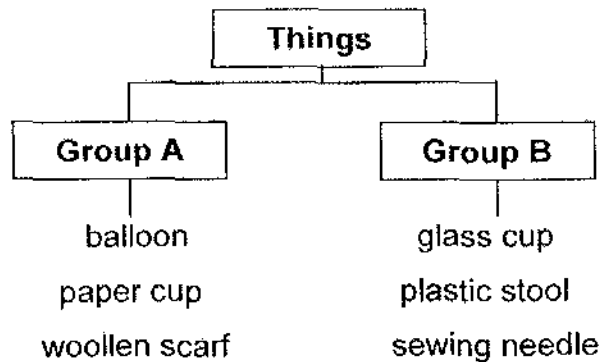
What did Cathy's experiment show?

- (1) The stem of the plant joined its flowers to its leaves.
- (2) Water was taken in by the plant only through its stem.
- (3) Water was lost to the surroundings from every part of the plant.
- (4) The stem of the plant carried water from its roots to the rest of its parts.

7. Which of the following statements about fungi is true?

- (1) They reproduce by spores.
- (2) They can make their own food.
- (3) They cannot respond to changes.
- (4) They are classified as a type of plants.

8. Four objects are classified into two groups as shown below.



The objects are grouped according to \_\_\_\_\_.

- (1) how hard or soft they are
- (2) whether they are waterproof or not
- (3) whether they can be recycled or not
- (4) the type of material which they are made of

9. Mary compared the hardness of four objects, A, B, C and D, by scratching them, **ONE** at a time, with 3 different types of discs. Each disc was made of a different material.

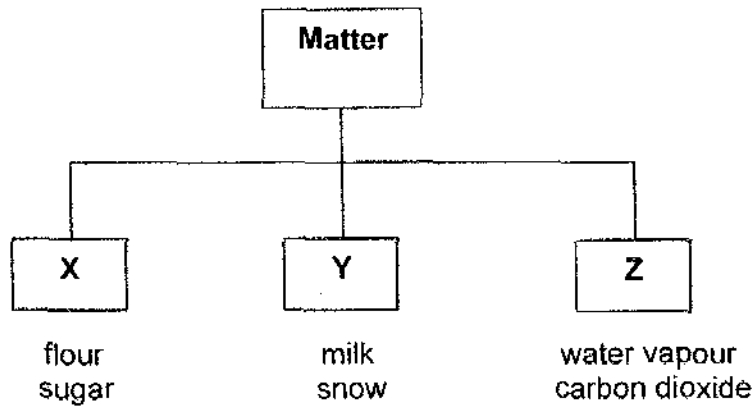
She recorded her observations in the table below, using a tick (✓) to indicate the presence of scratch marks on each object made by each disc.

object	presence of scratch marks made by		
	plastic disc	wooden disc	iron disc
A			
B	✓	✓	✓
C			✓
D		✓	✓

Which one of the following shows correctly the arrangement of the four objects according to their hardness?

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

10 The classification chart below shows how different states of matter are grouped.



Which of the following is / are wrongly grouped?

- A snow
- B flour
- C water vapour
- D carbon dioxide

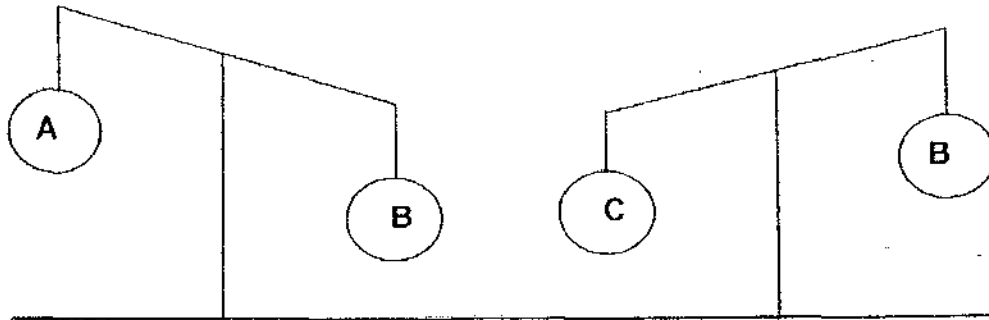
- (1) A only
- (2) B only
- (3) C and D only
- (4) A, B and C only

11 The table below shows the properties which different matter at room temperature possesses.

Which one of the following describes the matter correctly?

	type of matter	properties		
		has a definite shape	has a definite volume	occupies space
(1)	wind	no	yes	yes
(2)	salt	no	yes	yes
(3)	oxygen	no	no	no
(4)	oil	no	yes	yes

12. Annette compared the mass of three plastic balls, A, B and C, **TWO** at a time, using the same balance. They come to rest on the balance as shown below.

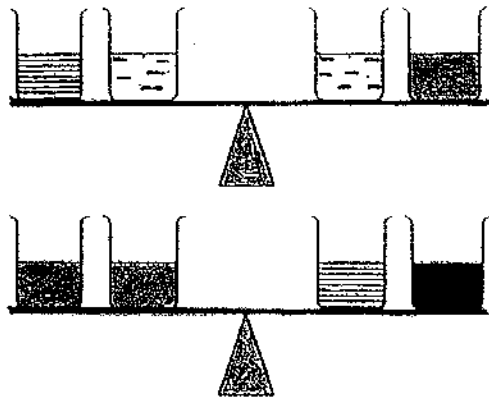


Which one of the following shows the correct order in which the balls are arranged according to their masses?

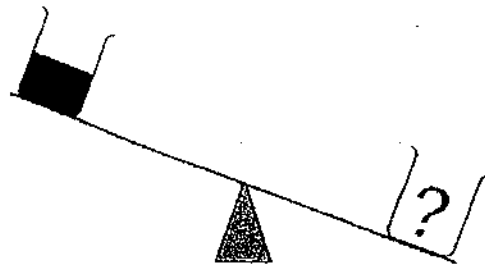
	lightest	→	heaviest
(1)	A		B C
(2)	A		C B
(3)	B		C A
(4)	C		B A



- 14 Amanda balanced a ruler by placing beakers containing different substances on each of its ends. The diagrams below are Amanda's observations.



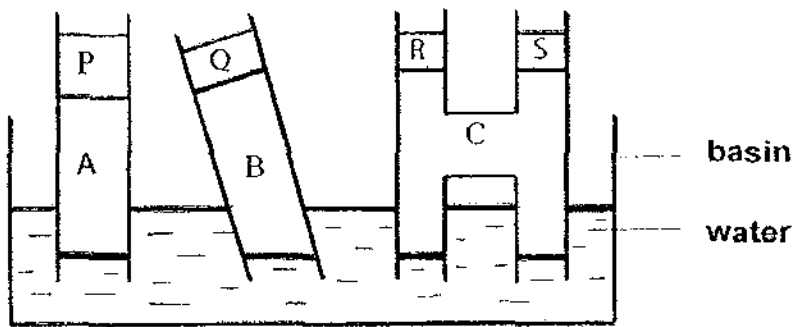
When Amanda placed 2 beakers on the ruler, it became unbalanced.



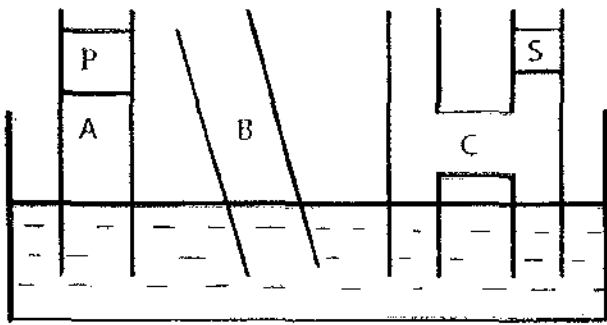
Which one of the beakers did Amanda place on the other end of the ruler?

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

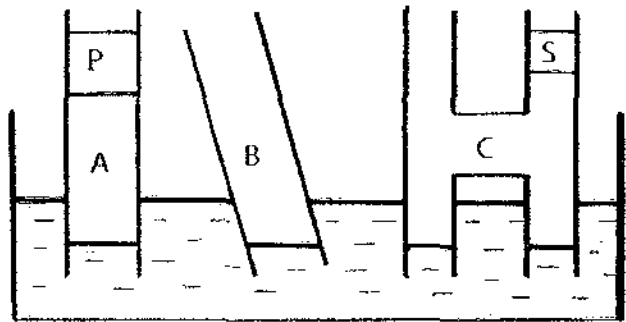
15 The tubes A, B and C, with stoppers P, Q, R and S in placed, were lowered into a basin of water.



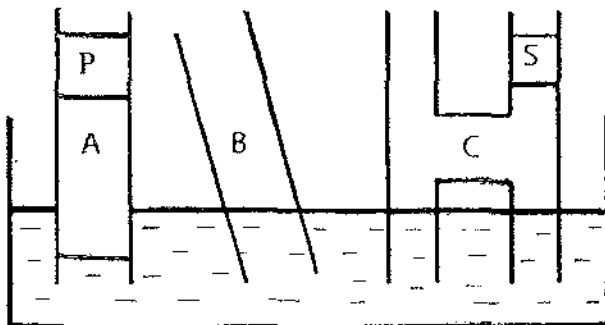
Which one of the following diagrams shows the correct water levels in the tubes after stoppers Q and R were removed?



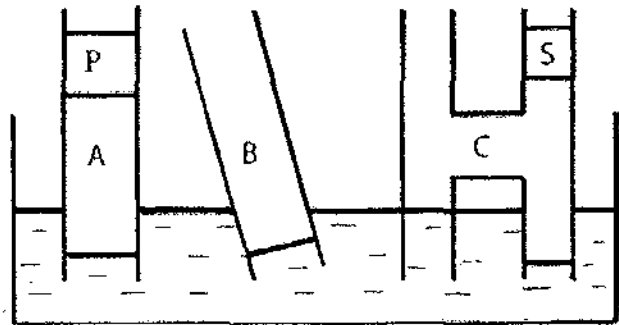
(1)



(2)



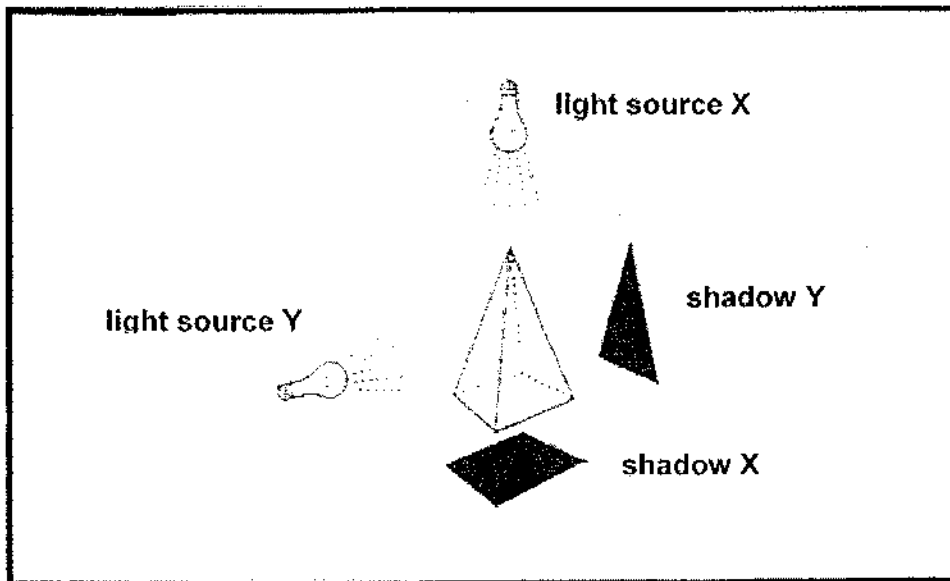
(3)



(4)

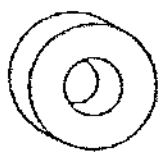


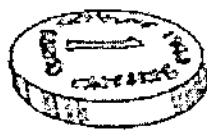


18. Phoebe noticed that the object below could cast different shadows depending on the position of the light source.

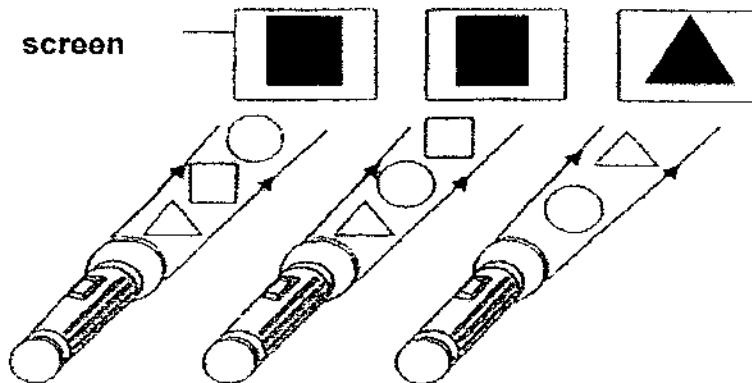


Which one of the following objects did Phoebe use to produce the shadows (**NOT** drawn to scale) as shown below?

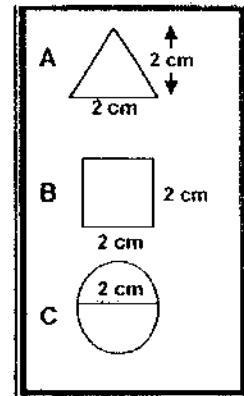


<p>(1)</p> 	<p>(2)</p> 
<p>(3)</p> 	<p>(4)</p> 

19. Two or three of these objects, A, B and/ or C, were placed in a straight line in front of the light source as shown in the diagrams below.



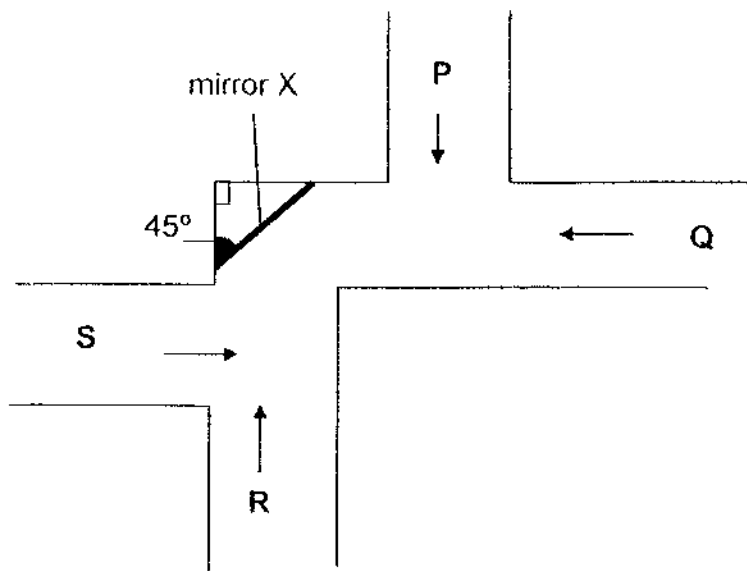
**Size of the objects:**



**light source**

Based on the shadows formed on the screens, which one of the following statements is correct?

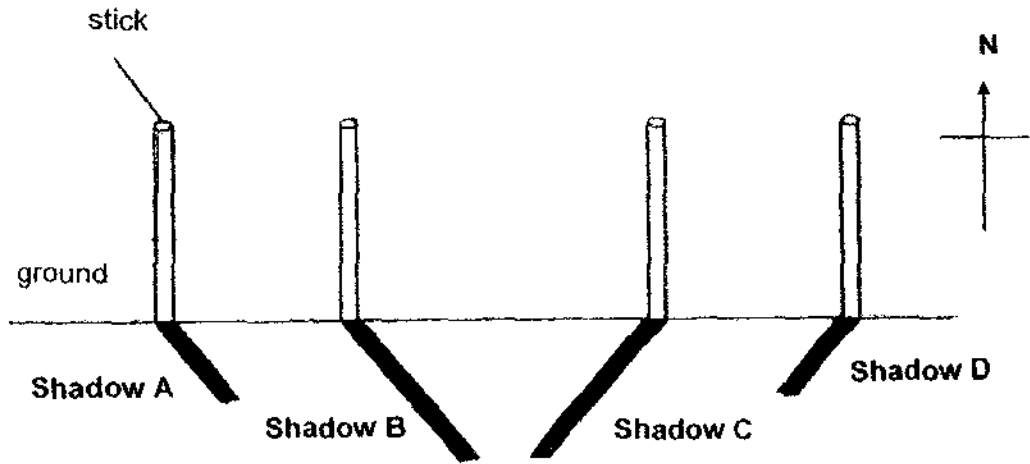
- (1) Object A is transparent.                      (2) Object B is transparent.  
 (3) Object C is opaque.                        (4) Objects A and B are opaque.
20. The diagram below shows four boys, P, Q, R and S, travelling in the directions shown by the arrows.



Which two boys can see each other in mirror X?

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

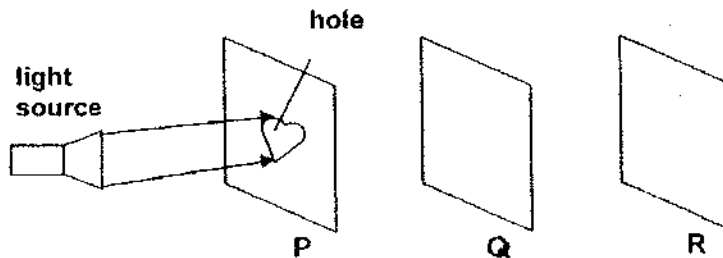
- 21 Li Yi observed the various positions of the shadow cast by a stick at different times of the day.



Which one of the following shows correctly the time at which Li Yi observed the shadows?

	Shadow A	Shadow B	Shadow C	Shadow D
(1)	9 am	11 am	2 pm	5 pm
(2)	11 pm	9 am	5 pm	2 pm
(3)	2 pm	5 pm	9 am	11 am
(4)	5 pm	9 am	2 pm	11 am

- 22 The diagram below shows three thin square sheets P, Q and R arranged in a straight line.



When the light source is turned on, a bright heart-shaped patch of light is seen on sheet Q only.

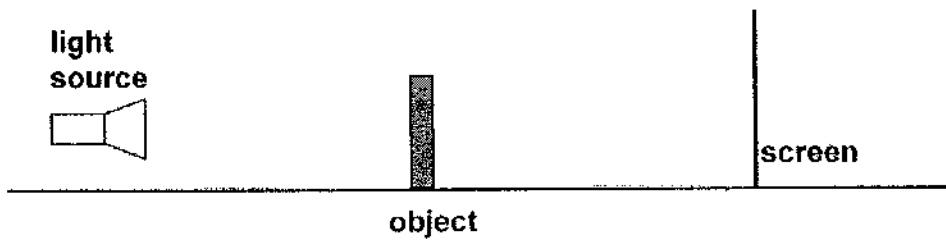
Which one of the following describes correctly the properties of the materials which P, Q and R are made of?

	allows light to pass through	does not allow light to pass through	not possible to tell
(1)	P	Q	R
(2)	P	R	Q
(3)	Q	P	R
(4)	R	Q	P

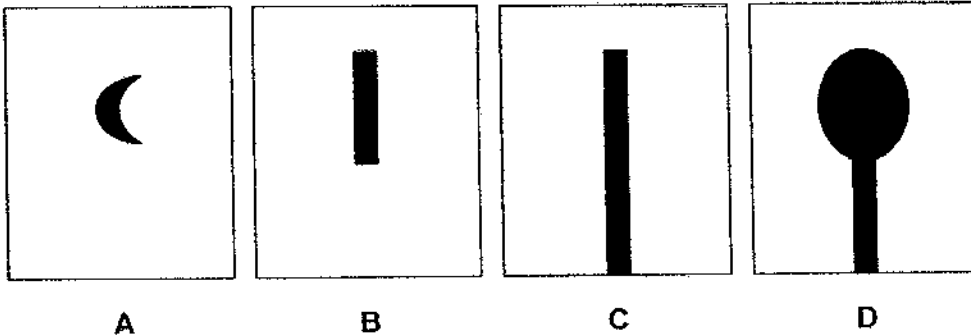
- 23 The diagram below shows an object made of a thick cardboard. A crescent shape was drawn on the cardboard.



The set-up below shows the object placed between a light source and a screen.



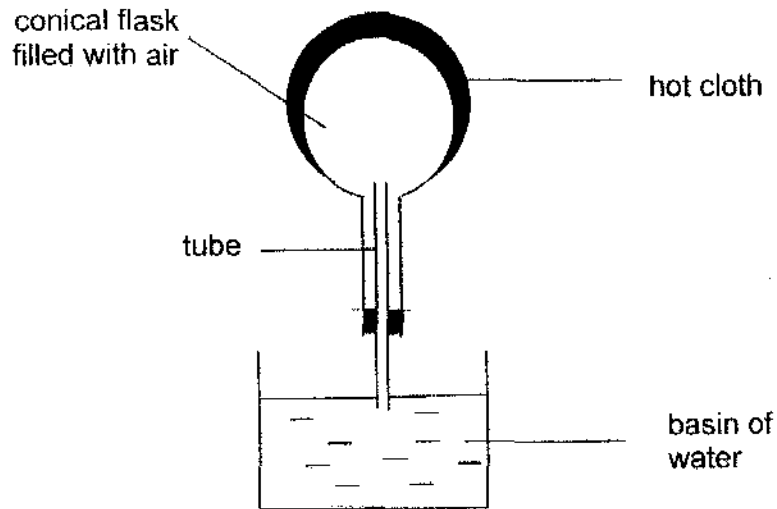
Which of the following shadows of the object were cast on the screen?



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



- 26 Peter set up the following apparatus. He wrapped a piece of hot cloth around the bottom of the conical flask as shown in the diagram below.

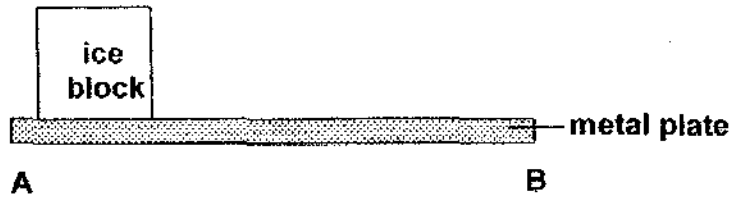


Peter noticed that bubbles could be seen appearing at the mouth of the tube in the water. When he removed the hot cloth, **NO** more bubbles appeared at the mouth of the tube in the water.

He concluded that after removing the hot cloth, \_\_\_\_\_.

- (1) the air in the flask had expanded
- (2) the air in the flask had contracted
- (3) there was no more air left in the flask
- (4) the tube was blocked by the water which had gotten into it

- 27 Linda placed a huge block of ice on end A of a metal plate as shown in the diagram below.

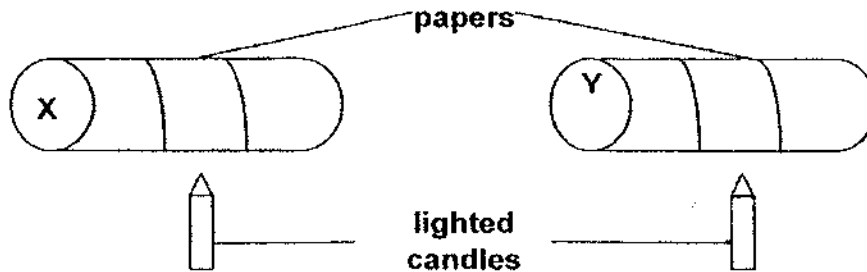


After some time, Linda saw that the block of ice was melting and felt that end B of the metal plate was cold.

Which one of the following explains correctly Linda's observations?

	ice block	metal plate
(1)	gained its heat from the metal plate	lost its heat to the ice block
(2)	gained its heat from the metal plate	gained its coldness from the ice block
(3)	lost its heat to its surroundings	gained its coldness from the ice block
(4)	lost its heat to its surroundings	gained its heat from its surroundings

- 28 Sarah wrapped two identical pieces of paper tightly around two rods, X and Y, separately as shown in the diagram below.



Sarah placed each rod an equal distance over a lighted candle, **ONE** at a time, for 5 seconds.

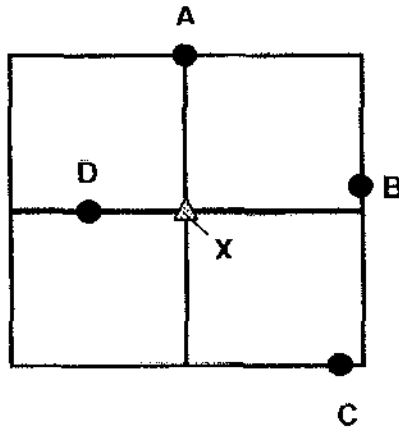
She noticed that the paper on X had scorched marks on it while the paper on Y had caught fire and was burnt.

Based on Sarah's observations, which one of the following conclusions is/ are correct?

- A X is a good conductor of heat.
- B Y is a poor conductor of heat.
- C X is able to retain heat better than Y.

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

29 The copper frame shown below is in the shape of four squares.



Susan attached some thumbtacks, A, B, C and D, to the underside of the copper frame with equal amounts of wax.

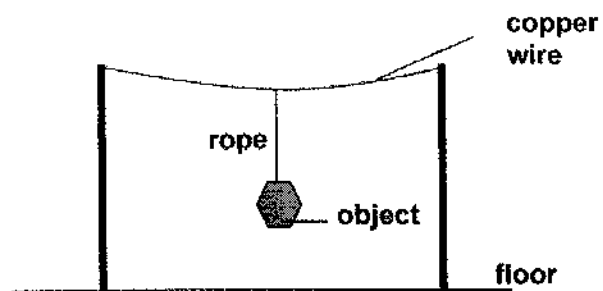
She heated point 'X' with a lighted candle and observed the order in which the thumbtacks would drop off from the copper frame.

Susan noticed that the thumbtack at D dropped off from the copper frame first.

Which one of the following shows the correct order in which the other thumbtacks would drop off from the copper frame?

	2 <sup>nd</sup> to drop off	→	last to drop off
(1)	A		B
(2)	A		C
(3)	B		A
(4)	C		B

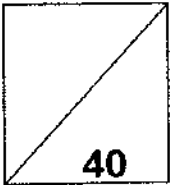
30 An object hangs from a copper wire by a rope as shown in the diagram below.



What happens when the copper wire is heated?

- (1) The wire will expand and break. The object will fall to the floor.
- (2) The wire will contract and break. The object will fall to the floor.
- (3) The wire will expand. The object will move down nearer to the floor.
- (4) The wire will contract. The object will move up further from the floor.

Name : \_\_\_\_\_ Index No.: \_\_\_\_\_ Class: P4 \_\_\_\_\_ Marks:

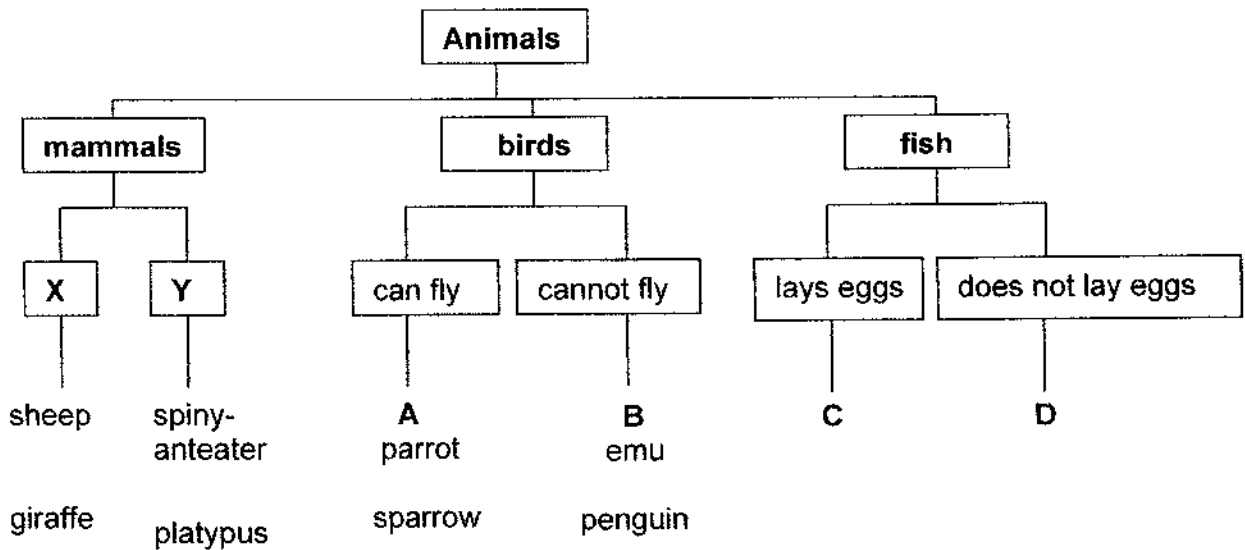


**SECTION B (40 marks)**

For questions 31 to 44, write your answers clearly in the spaces provided.

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

31 The diagram below shows how some animals, A, B, C and D, are classified.



Based on the diagram above, answer the following questions:

(a) Write a suitable sub-heading for each of the following: [2]

X	
Y	

(b) Name one **OTHER** animal for B. [1]

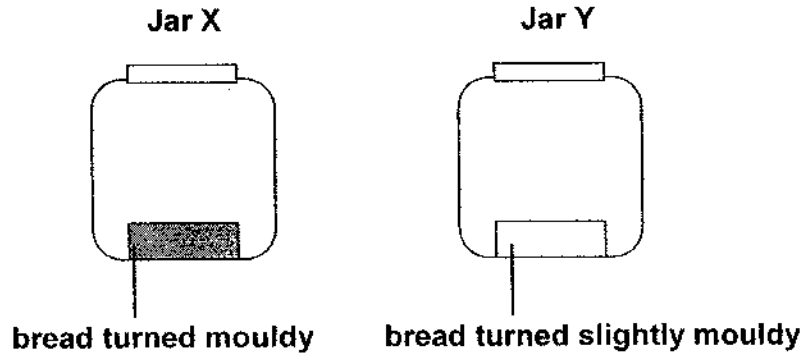
\_\_\_\_\_

(c) Which animal, A, B, C or D, could be a "guppy"? [½]

\_\_\_\_\_

- 32 John had two similar pieces of bread. He placed each of these pieces of bread in two identical jars, X and Y. He added a few drops of water to the bread in Jar X only. He covered the jars to make them airtight.

The following diagrams show the results of John's experiment after three days.



Based on the information above, answer the following questions:

- (a) Why did John make the jars airtight? [1]

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- (b) A third piece of bread was heated in the oven.

If this piece of bread was put in another airtight jar, what would John expect to see after 3 days?

Give a reason for your answer. [2]

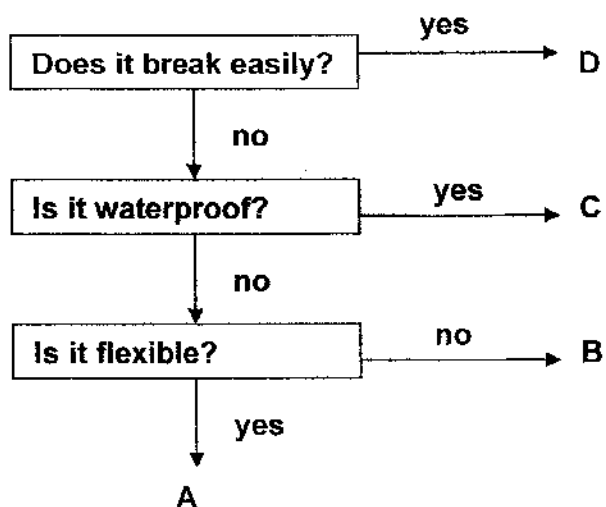
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- 33 The diagram below shows how the property of each object, A, B, C and D, is described.



Based on the diagram above and using the helping words given in the box below, identify the objects B, C and D based on the property given.

Each object can be written down **ONCE** only.

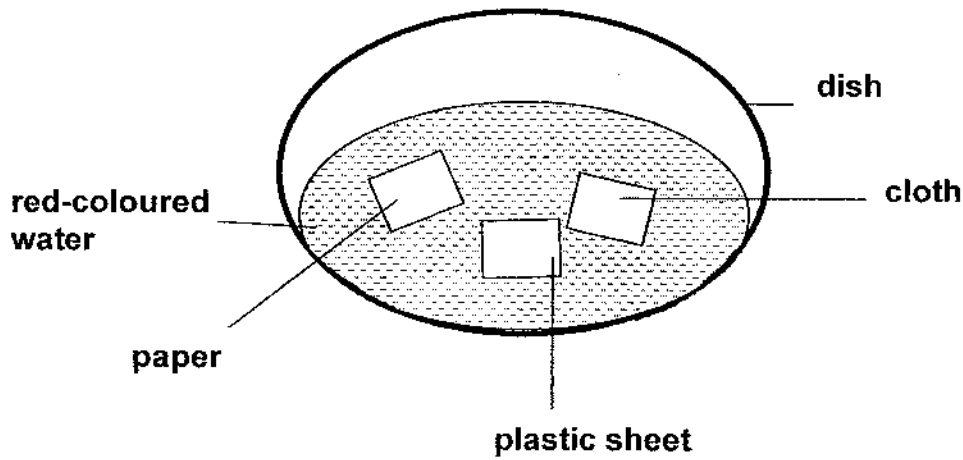
[3]

The object made of material A has been identified for you.

window pane	wooden ladle
handkerchief	metal spoon

material	object
A	handkerchief
B	
C	
D	

34. Siti placed a piece of white cloth, a piece of white plastic sheet and a piece of white paper, all of equal size, into a dish of red-coloured water.



- (a) What would Siti observe about each of the three pieces of materials when she removed them from the water after a while?

Explain the difference(s) in her observations.

[2]

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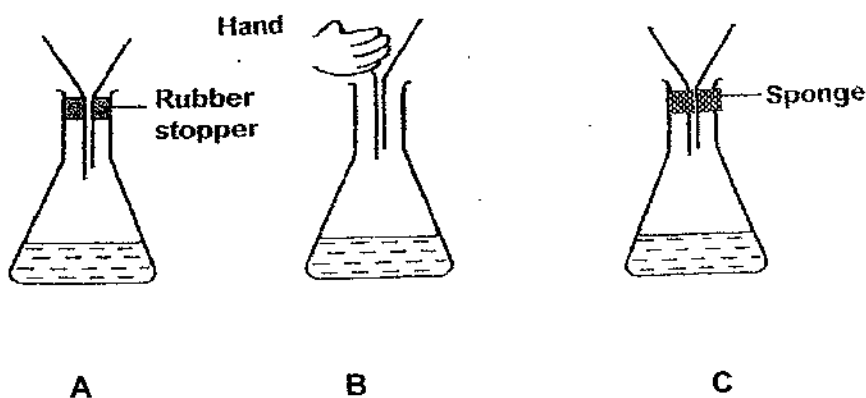
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- (b) Which one of these three materials is most suitable for making raincoats?

[1]

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35 Natalie prepared 3 set-ups, A, B and C, as shown in the diagrams below.



She wanted to find out which set-up would allow water to flow through the funnel in the shortest period of time.

- (a) Arrange in ascending order the rate at which the water would flow through the funnel in the boxes below.

Write letters A, B and C only.

[1]

slowest	→	fastest

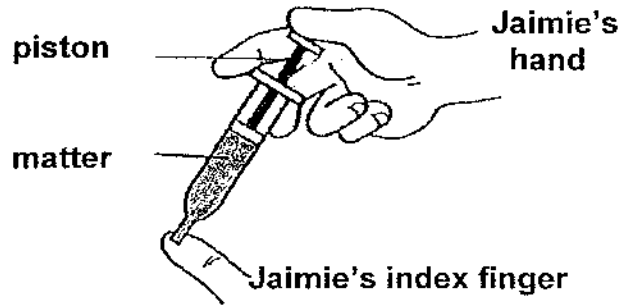
- (b) State the **TWO** properties of air that could be deduced from Natalie's experiment.

[2]

<b>1<sup>ST</sup> PROPERTY</b>	
<b>2<sup>ND</sup> PROPERTY</b>	

36. Jaimie prepared three identical syringes and filled each of them with a different type of matter, A, B and C.

She then placed her index finger to cover each syringe, **ONE** at a time, and pushed the piston in as shown below.



She recorded the distance moved by the piston for each syringe in the table below.

distance moved by piston (cm)		
A	B	C
0	0.1	0.5

- (a) If Jaimie had used **air**, **carbonated drink** (e.g. Coca Cola) and **sand** in her experiment, what were A, B and C?

Complete the table below with the words given in bold above. [1½]

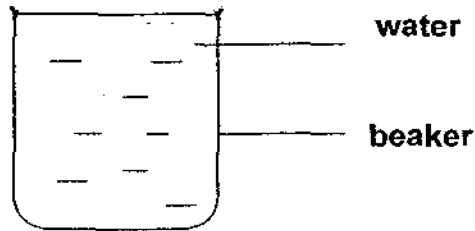
matter	
A	
B	
C	

- (b) Predict the distance moved by the piston when water is used. [1]

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37 Daphne filled a beaker of water to the brim as shown below.

She added 5 identical marbles into the beaker of water.



(a) State one observation which Daphne would have made. [1]

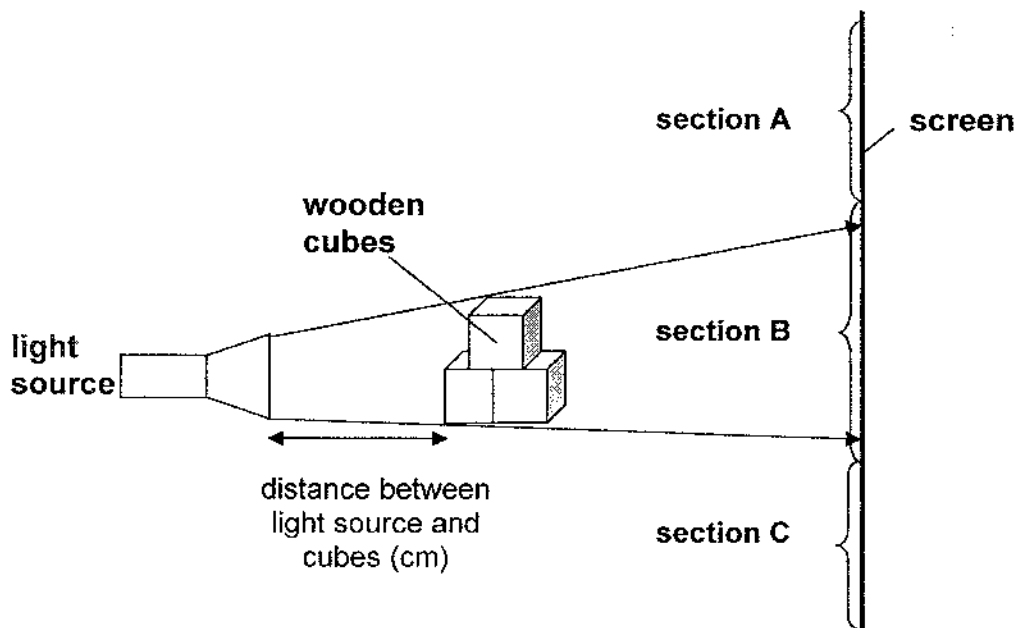
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(b) What conclusion could Daphne draw from her experiment? [1]

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- 38 Lynn stacked three blocks of wooden cubes between a light source and a screen as shown below.



Based on the experiment above, answer the following questions:

- (a) Name the sections, A, B and/ or C, of the screen where the shadow of the cubes was **NOT** cast on. [1]

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- (b) If Lynn moved the screen further away from the cubes, what would happen to the size of the shadow of the cubes? [1]

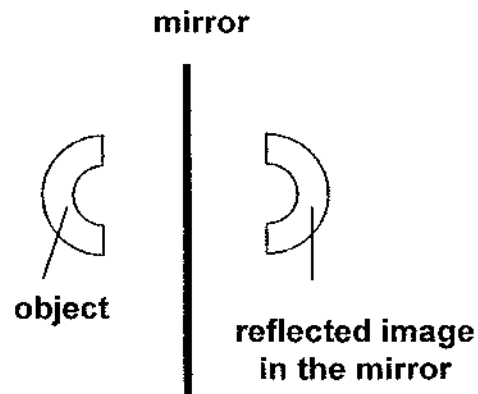
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- (c) Using the **SAME** apparatus as shown above, what could Lynn do to cast a bigger shadow on the screen **WITHOUT** changing the distance between the stacked cubes and the screen? [1]

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39. The diagram below shows the reflection of an object when it was placed before a mirror.

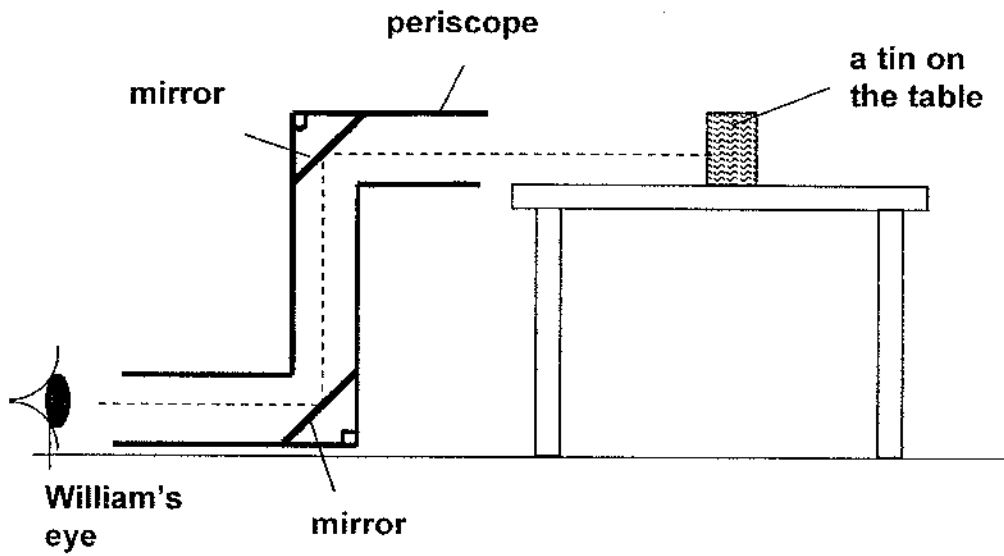


The object was replaced with the following word:


**C A R**

Write down in the box provided, the word that was reflected in the mirror. [2]

- 40 William placed a tin on the table and used a periscope (NOT drawn to scale) which he had constructed to see it.

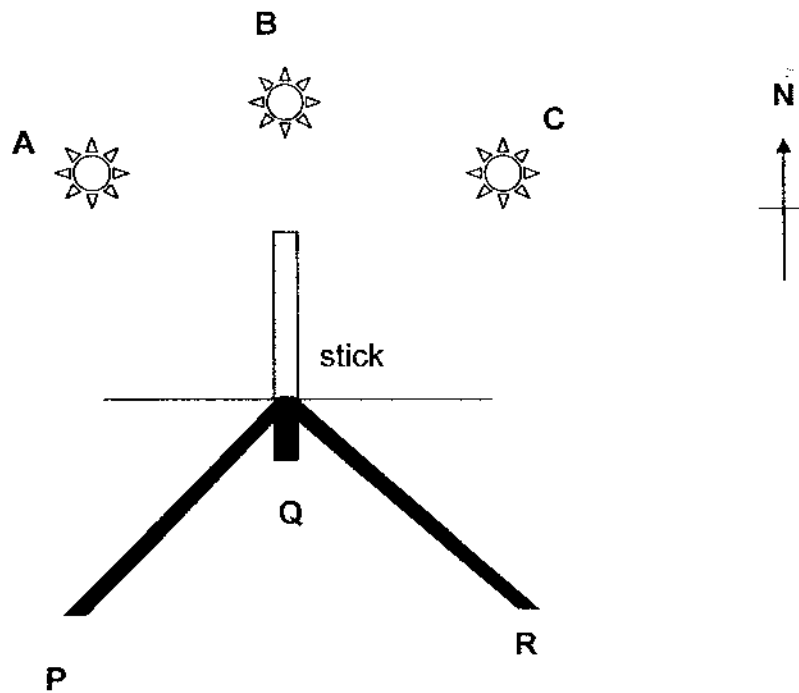


Using his periscope, William was able to see the tin on the table although he was lying down on the floor.

- (a) In the diagram above, **DRAW** arrowheads (  ) on the light rays to show how William was able to see the tin on the table. [1]
- (b) State **TWO** properties of light which are used in the periscope. [2]

<b>PROPERTY 1</b>	
<b>PROPERTY 2</b>	

- 41 John placed a stick in the middle of a basketball court as shown in the diagram below.



He recorded the length of the shadows P, Q and R at different times on the same day.

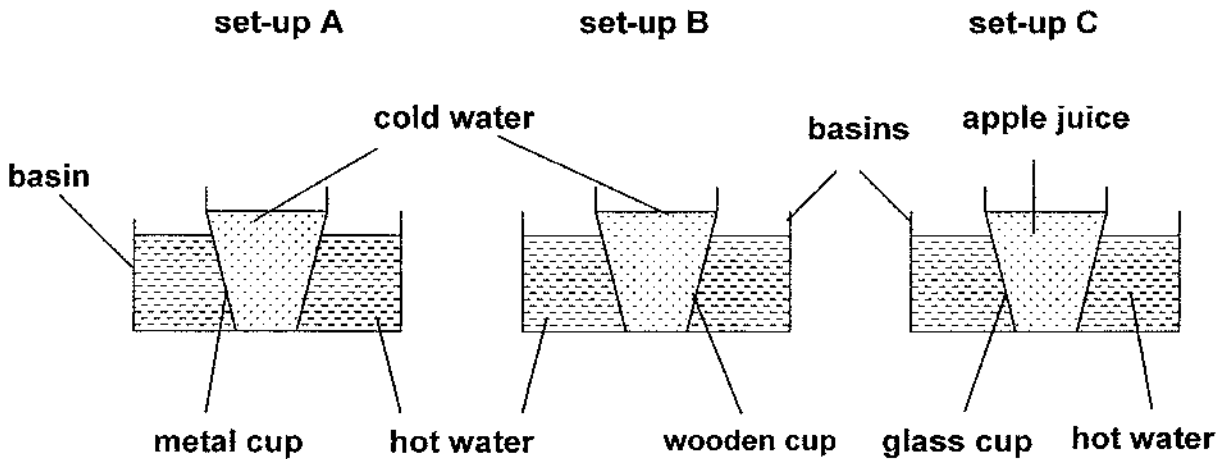
Complete the table below by filling in the shadow (P, Q and R) with its corresponding correct position of the sun (A, B and C).

[3]

time	shadow	position of the sun
8.00 a.m.		
12.00 p.m.		
6.00 p.m.		

42 Mark had 3 cups of the same size. Each cup was made of a different material: metal, wood and glass. He wanted to conduct an experiment to find out which material is a good conductor of heat.

Mark set up the experiment using the same amount of liquid in each set-up as shown below.



(a) Mark's teacher commented that Mark did **NOT** conduct a fair test for his experiment.

What should Mark do instead to conduct a fair test for his experiment? [1]

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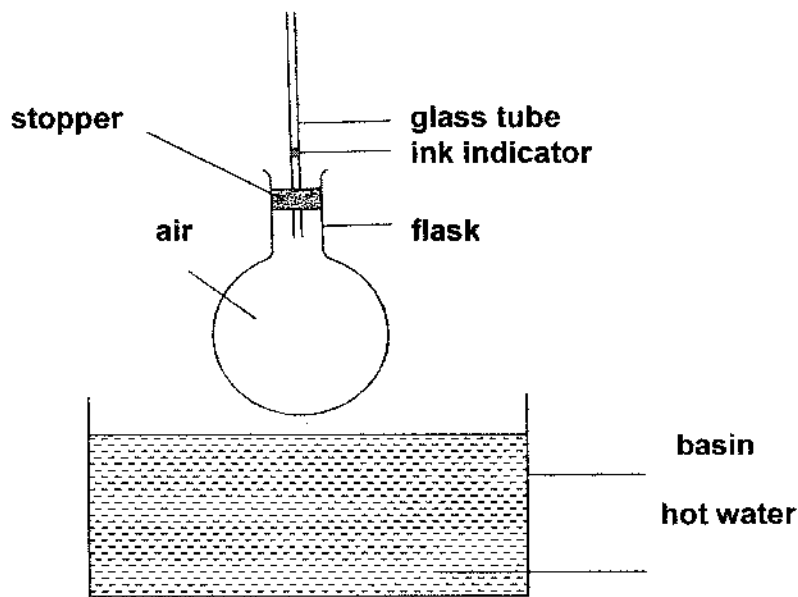
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(b) After 15 minutes, Mark realised that the temperature of the hot water in set-up A was **NO** longer as ~~hot~~ <sup>high</sup> as before when he started the experiment.

Give two reasons for his observation. [2]

<b>1<sup>st</sup> REASON</b>	
<b>2<sup>nd</sup> REASON</b>	

43 Mary set up an experiment using the apparatus as shown below.



Mary lowered the flask into a basin of hot water and observed that the ink indicator in the glass tube fell first before it rose.

(a) Give a reason for Mary's observation. [2]

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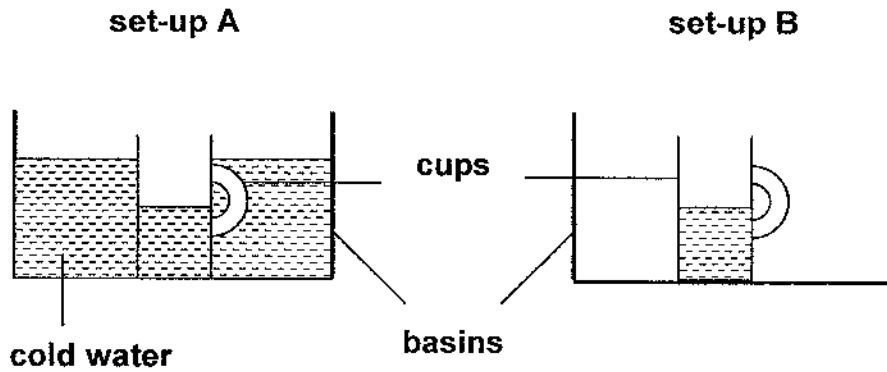
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(b) If Mary put the flask into a basin of cold water, predict what she would observe of the ink indicator in the glass tube. [1]

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- 44 Peter poured an equal amount of hot water into two identical porcelain cups. He placed one of the cups into a basin of cold water and another into an empty basin as shown in the diagrams below.



After 10 minutes, Peter measured the temperature of the water in each cup and observed that the water in the cup of set-up A had a lower temperature than the water in the cup of set-up B.

- (a) The temperature of the water in both cups became <sup>lower</sup> cooler.

Explain why the temperature of the water in both cups dropped in each of the following set-ups, A and B. [2]

<b>set-up A</b>	
<b>set-up B</b>	

- (b) What could Peter conclude from his experiment? [1]

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- END OF PAPER -

Setters: Mrs C. Lim, Mdm J. Woon & Mdm Prisca



# RAFFLES GIRLS' PRIMARY SCHOOL

## 2009 PRIMARY 4 SCIENCE SEMESTRAL ASSESSMENT 1 ANSWER KEY



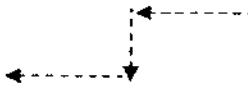
Setters : Mdm Prisca, \*Mrs Christina Lim (main compiler), Mdm Jane Woon

### SECTION A (30 X 2 marks)

1.	1	6.	4	11.	4	16.	1	21.	3	26.	2
2.	4	7.	1	12.	1	17.	3	22.	1	27.	1
3.	3	8.	1	13.	2	18.	4	23.	4	28.	1
4.	4	9.	3	14.	2	19.	4	24.	2	29.	1
5.	4	10.	1	15.	3	20.	3	25.	2	30.	3

### SECTION B (40 marks)

No.	Marks	Answers	Remarks	
31	a	2	X - gives birth to its young alive Y - lays eggs	
	b	1	<ul style="list-style-type: none"> <li>▪ ostrich</li> <li>▪ kiwi</li> <li>▪ cassowary</li> </ul>	any other kind of bird which <b>CANNOT</b> fly
	c	½	D	
32	a	1	To ensure that no moisture/ water vapour [½] from the surrounding [½] reach the two slices of bread	
	b	2	<p><b>Observation [1]</b> The bread would <b>NOT</b> turn mouldy.</p> <p><b>Reason [1]</b> The moisture in the bread was removed so the bread was less likely to grow mould.</p> <p><b>OR</b></p> <p>Without moisture on the bread, the mould would not grow.</p>	<p><b>NOT</b> acceptable: The bread remained the same.</p> <p>Correct observation made must be given before marks can be awarded for the right reason.</p>
33	3	B - metal spoon C - wooden ladle D - window pane	<p>[1] for each correct answer</p> <p>-[½] for each wrong spelling</p>	

No.	Marks	Answers	Remarks
34	a	2 <b>Observation [1]</b> Both the white paper and cloth turned red/ were stained red [ $\frac{1}{2}$ ] while the white plastic remained white. [ $\frac{1}{2}$ ]  <b>Explanation [1]</b> The white plastic was waterproof [ $\frac{1}{2}$ ] while the white paper and cloth were not waterproof. [ $\frac{1}{2}$ ]	<b>NOT</b> acceptable: The plastic remained the same.  Mark <b>INDEPENDENTLY</b>  Explanation is <b>NOT</b> dependent on right observation.
	b	1 plastic(s)	-[ $\frac{1}{2}$ ] for each wrong spelling
35	a	1 <b>A C B</b>	<b>NO</b> partial marks
	b	2 <ul style="list-style-type: none"> <li>Air occupies space</li> <li>Air can be <b>compressed</b></li> </ul>	-[ $\frac{1}{2}$ ] for each wrong spelling in bold
36	a	1½ A – sand B – carbonated drink C – air	[ $\frac{1}{2}$ ] for each correct answer <b>NO</b> marks for wrong spelling
	b	1 0 cm	- [ $\frac{1}{2}$ ] for missing/ wrong unit (cm)
37	a	1 <ul style="list-style-type: none"> <li>The water level in the beaker would rise.</li> <li>The water level in the beaker would overflow.</li> </ul>	
	b	1 Marbles (which are matter) take up space.	<b>NO</b> marks: <ul style="list-style-type: none"> <li>Matter takes up space</li> <li>Marbles have a definite volume</li> </ul>
38	a	1 <b>A and C</b>	<b>NO</b> partial marks
	b	1 Any one of the following: <ul style="list-style-type: none"> <li>it would become bigger.</li> <li>It would enlarge.</li> <li>It would increase its size.</li> <li>Its size would increase.</li> </ul>	<b>NO</b> marks: less sharp (question ask for size)
	c	1 Move the torch nearer to the wooden cubes.	<b>NOT</b> acceptable: Move the torch nearer.
39	2	[2]  [1] 	<b>NO</b> partial marks -[ $\frac{1}{2}$ ] for letters of different height
40	a	1 	
	b	2 <ul style="list-style-type: none"> <li>Light travels in a <b>straight</b> line</li> <li>Light can be <b>reflected</b></li> </ul>	-[ $\frac{1}{2}$ ] for each wrong spelling of word in bold

No.	Marks	Answers	Remarks	
41	3	8 am	P	[1] for each pair of corresponding answer e.g. P and C
		12 pm	Q	
		6 pm	R	
42	(a)	1	Fill all the cups with an equal amount [ $\frac{1}{2}$ ] of the same type [ $\frac{1}{2}$ ] of liquid.	
	(b)	2	<ul style="list-style-type: none"> <li>▪ Heat from the hot water was <b>conducted</b> away / travelled to the cup of cold water.</li> <li>▪ Heat from the hot water was lost / travelled / <b>transferred</b> to the surrounding air.</li> </ul>	<ul style="list-style-type: none"> <li>▪ [1] for each correct answer</li> <li>▪ -[<math>\frac{1}{2}</math>] for each wrong spelling of word in bold</li> </ul>
43	(a)	2	The flask <b>expanded</b> first before the air in the flask <b>expanded</b> .	<ul style="list-style-type: none"> <li>▪ -[<math>\frac{1}{2}</math>] for each wrong spelling of word in bold</li> <li>▪ Penalise <b>ONCE</b> only</li> </ul>
	(b)	1	The ink indicator would fall/ drop	<b>NOT</b> acceptable: would decrease
44	(a)	2	<p><b>SET-UP A :</b> Heat from the water in the cup had been <b>transferred</b> [<math>\frac{1}{2}</math>]</p> <ul style="list-style-type: none"> <li>- to the cold water</li> <li>- to its surroundings</li> <li>- to the cold water and the surrounding air } [<math>\frac{1}{2}</math>]</li> </ul> <p><b>SET-UP B :</b> Heat from the water in the cup had been <b>transferred</b> [<math>\frac{1}{2}</math>]</p> <ul style="list-style-type: none"> <li>- to its surroundings</li> <li>- to the surrounding air } [<math>\frac{1}{2}</math>]</li> </ul> <p><b>OR</b> <b>SET-UP A &amp; SET-UP B :</b> Heat from the water in the cup was lost to its surroundings. [2]</p>	<ul style="list-style-type: none"> <li>▪ [1] for each correct reason in each set-up</li> <li>▪ -[<math>\frac{1}{2}</math>] for each wrong spelling of word in bold</li> <li>▪ Penalise <b>ONCE</b> only</li> </ul>
	(b)	1	Water is a better <b>conductor</b> of heat than air.	<ul style="list-style-type: none"> <li>▪ -[<math>\frac{1}{2}</math>] for each wrong spelling of word in bold</li> <li>▪ Comparison between water and air <b>MUST</b> be made</li> </ul>

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