

CA2

Methodist Girls' School (Primary)

**Science
Continual Assessment 2**

2005

Section A (30 marks)	
Section B (20 marks)	
Total (50 marks)	

Name: _____ ()

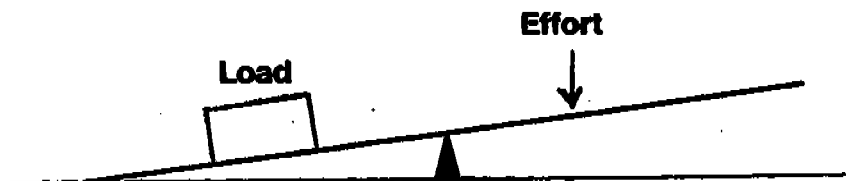
Class: Primary 5. _____

Date: 29th August 2005

Section A (30 marks)

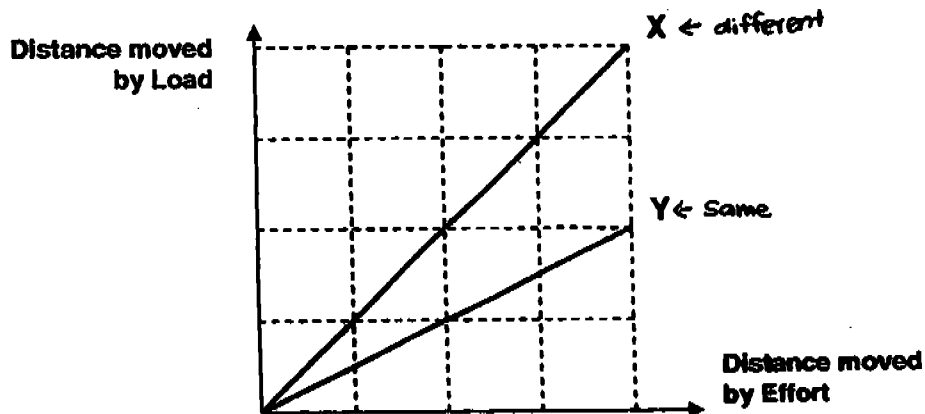
Choose the most suitable answer and write its number in the brackets provided.

1. Look at the diagram below. Which of the following will enable you to lift the load without increasing the effort?



- (*) Move the effort nearer the fulcrum.
- (X) Move the fulcrum nearer to the effort.
- (S) Move the load further away from the fulcrum.
- (A) Move the load and fulcrum together away from the effort.

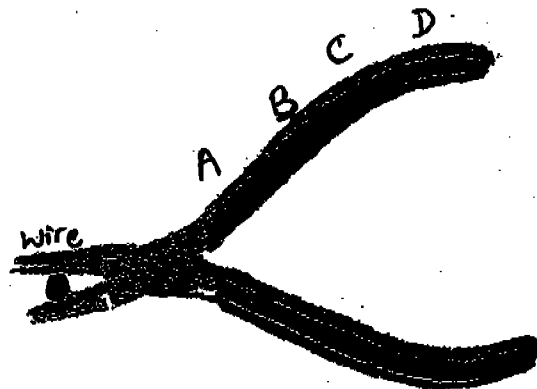
2. The graphs, X and Y show the relationship between distance moved by effort and distance moved by load.



Which type of pulley systems, fixed pulley or movable pulley, do relationships X and Y represent?

- | | Relationship X | Relationship Y |
|-----|-----------------------|-----------------------|
| (1) | Fixed Pulley | Fixed Pulley |
| (2) | Fixed Pulley | Movable Pulley |
| (3) | Movable Pulley | Fixed Pulley |
| (4) | Movable Pulley | Movable Pulley |

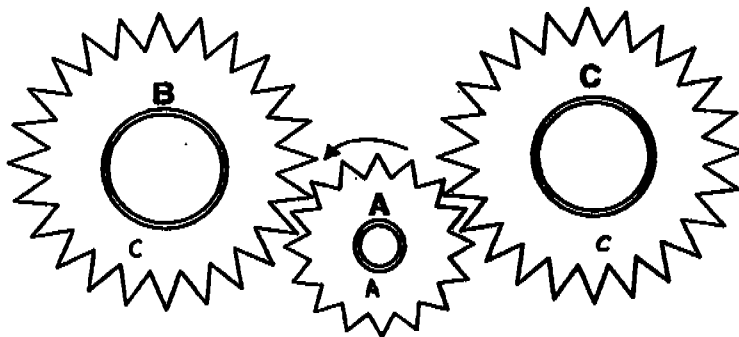
3. The diagram below shows a pair of pliers.



At which point will least effort be required to cut a wire?

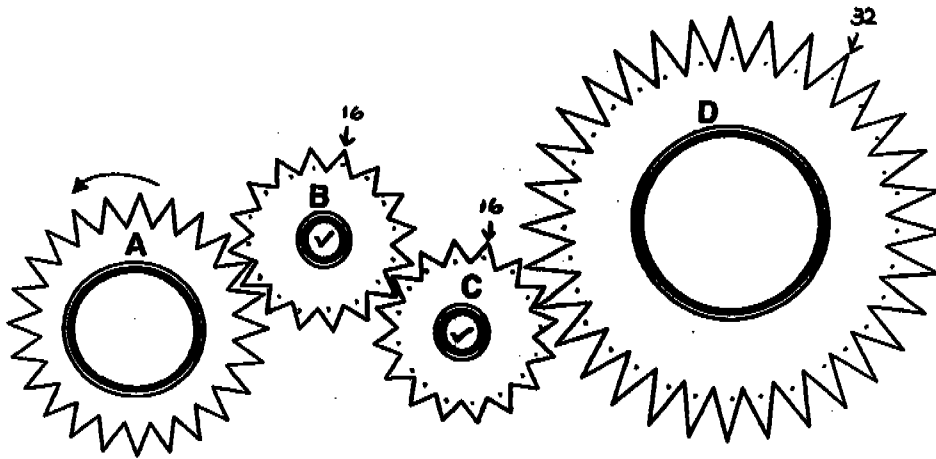
- (1) A
- (2) B
- (3) C
- (4) D

4. The diagram below shows a set of gears. The direction of rotation of gear A is as shown. Which of the following describes correctly the direction of rotation of gear B and C?



- | | Gear B | Gear C |
|-----|----------------|----------------|
| (1) | Clockwise | Anti-clockwise |
| (2) | Anti-clockwise | Clockwise |
| (3) | Anti-clockwise | Anti-clockwise |
| (4) | Clockwise | Clockwise |

5. Which of the gears has a speed twice as fast as Gear D?



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

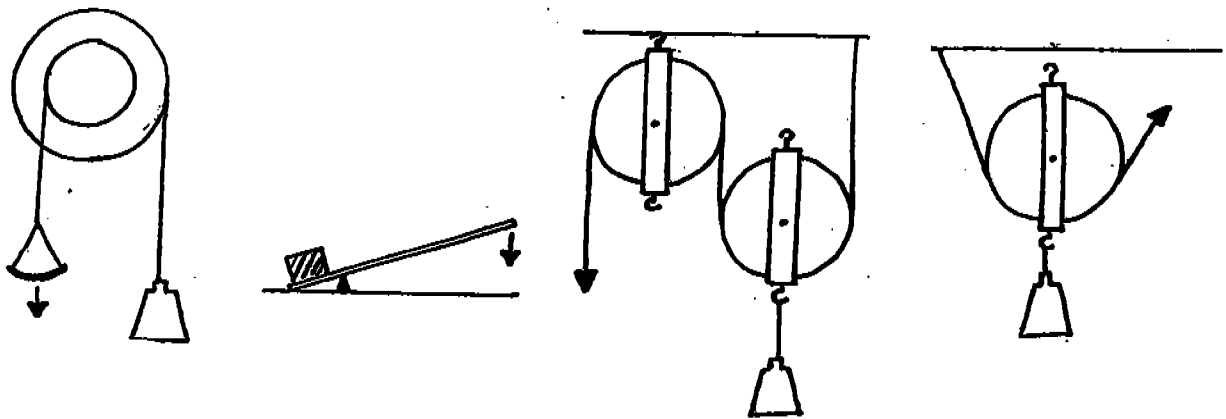
()

6. The wheel and axle is a simple machine. If the size of the wheel increases, the _____.

- effort will increase
- effort will decrease
- load will move a longer distance
- effort will move a shorter distance

()

7. Study the 4 simple machines below. Which machines demonstrate that a smaller effort can overcome a greater load?

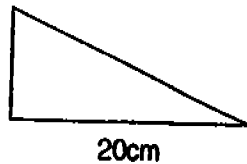


- (1) Q and R
- (2) P, R and S
- (3) Q, R and S
- (4) P, Q, R and S

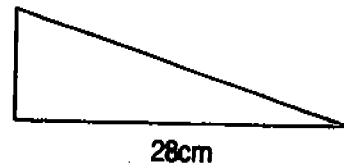
()

8. On which plane would the least effort be required to push a heavy load up?

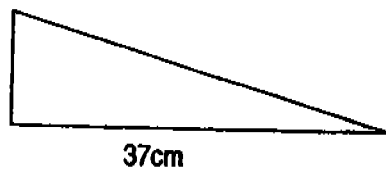
(1)



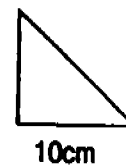
(2)



(3)



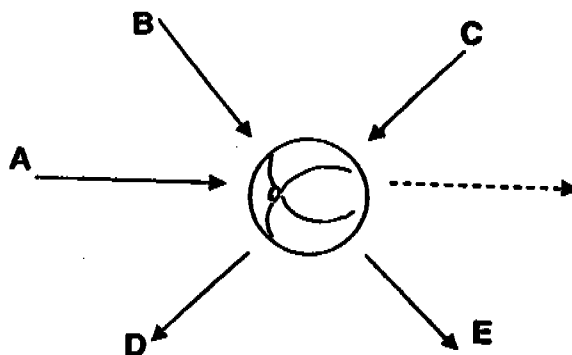
(4)



()

Look at the diagram below to answer questions 9 and 10.

9.



In which direction will the ball likely move if Pete applies a force at C?

- (1) A
- (2) B
- (3) D
- (4) E

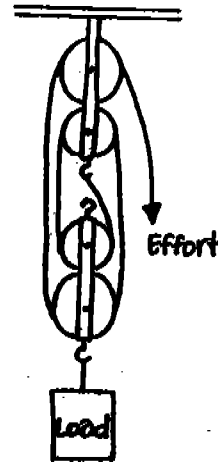
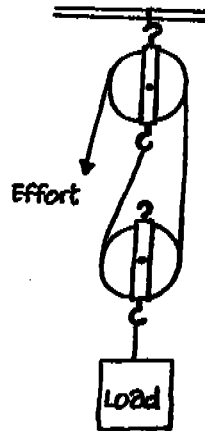
()

10. What will happen to the moving ball if John applies a smaller force opposite C?

- (1) The ball will slow down.
- (2) The ball will stop immediately.
- (3) The ball will increase in speed in the direction of C.
- (4) The ball will increase in speed in the direction opposite C.

()

11.



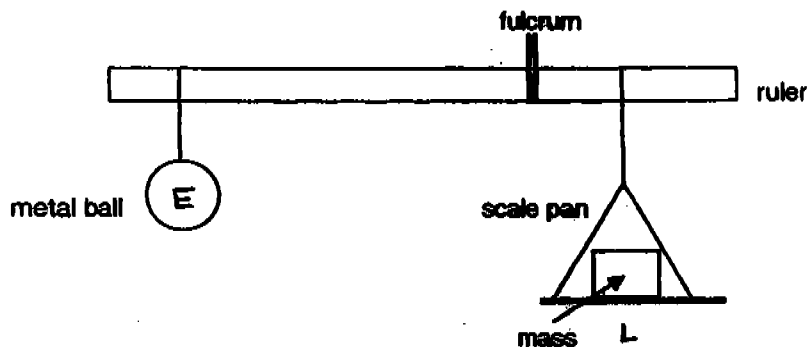
Which statements about the two pulley systems are true?

- A: The effort is greater than the load.
- B: The direction of the effort is opposite to that of the load.
- C: The distance moved by the effort is longer than that moved by the load.
- D: The effort needed to lift the load is smaller when more pulleys are used.

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

()

12.



Tom made a simple balance as shown above. He placed different masses on the scale pan and then shifting the metal ball to balance the ruler. The results were recorded in the table below.

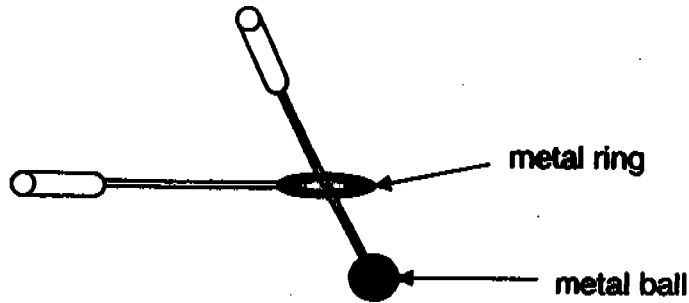
Mass on scale pan (grams)	Distance between fulcrum and metal ball (cm)
100	6
200	11
300	16
400	21

What could Tom conclude from the experiment?

- (X) The experiment was not a fair test, thus Tom could not conclude anything from it.
- (X) The greater the mass on the scale pan, the nearer the metal ball had to move to the fulcrum.
- (X) The greater the mass on the scale pan, the further the metal ball had to move from the fulcrum.
- (X) The smaller the mass on the scale pan, the further the metal ball had to move from the fulcrum.

(. .)

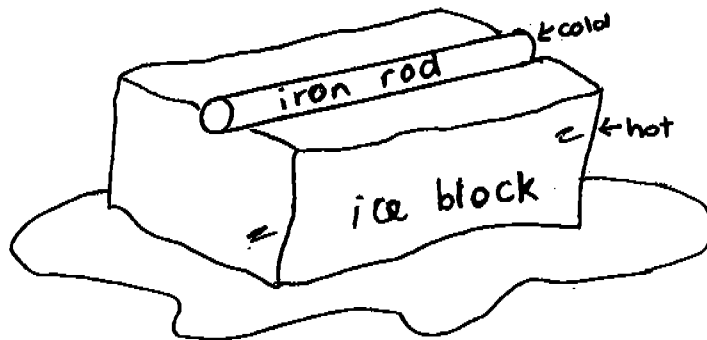
13. Linda found two objects stuck together in the Science Room as shown below. She tried pulling them apart but it did not work. What should Linda do to separate the metal ring and ball?



- Heat the metal ball only.
- Heat the metal ring and the ball.
- Place both the metal ring and ball in a basin of cold water.
- Heat the metal ring and place the ball in a basin of cold water.

()

14. The diagram below shows the set-up of an experiment on heat. The iron rod becomes cold because the _____.

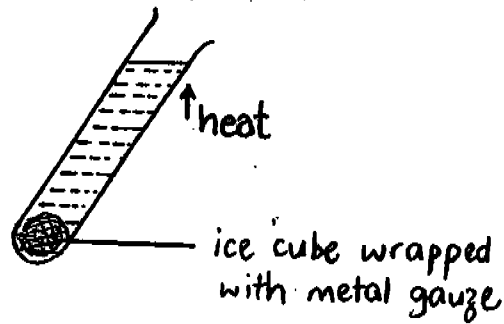


- A. ice loses heat
- B. ice gains heat
- C. iron rod loses heat
- D. iron rod gains heat

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

()

15. An experiment is set up as shown below. Heat was introduced at the top of the test-tube. After a few minutes, the water at the top of the test-tube starts to boil while the ice cube at the bottom of the test-tube has yet to melt. The experiment shows that _____.



- (X) water is a poor conductor of heat
- (X) glass is a good conductor of heat
- (X) metal is a good conductor of heat
- (*) water is a good conductor of heat

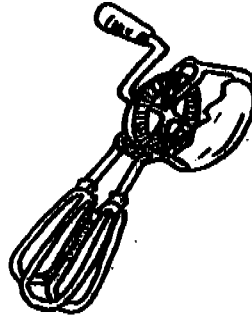
()

✂ End of Section A ✂

Section B (20 marks)

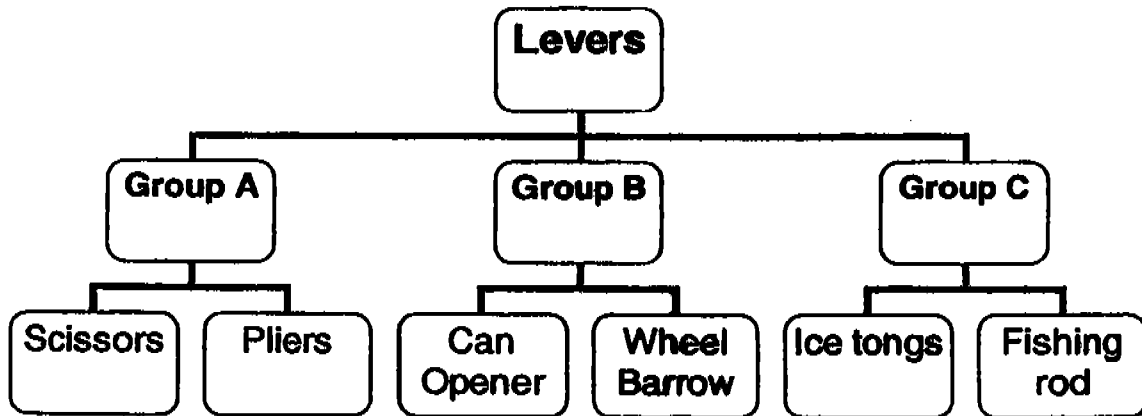
Complete questions 16 – 23 in the spaces provided.

16. Name the 2 simple machines working together in the egg-beater as shown in the diagram below. (2)



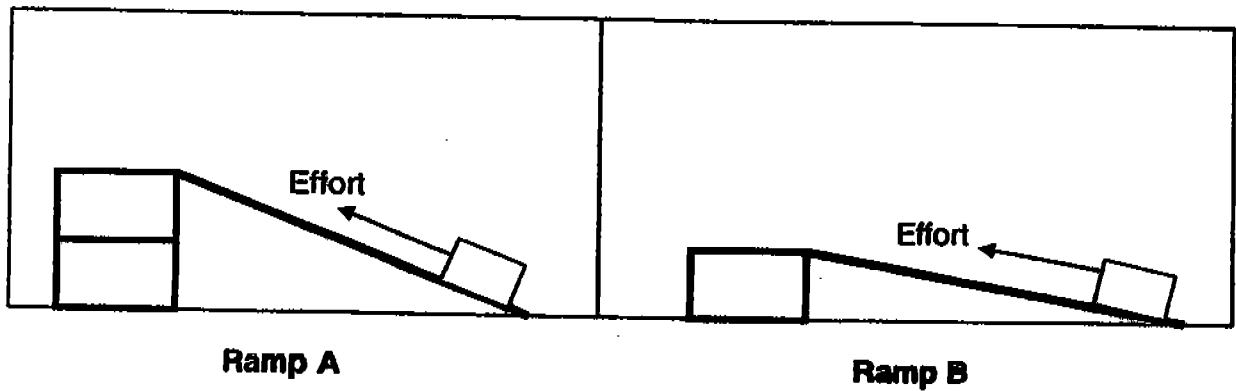
- (a) _____
(b) _____

- 17.



- (a) Which group of levers does a broom belong to? _____ (1)
(b) Which group(s) of levers has/have its fulcrum positioned at the end of the simple machine? _____ (1)

18. Joe did an experiment as shown below.



He pulled the load up each ramp. Then he measured and recorded the effort used.

(a) What was Joe trying to find out? (1)

The _____ the slope of the ramp, the _____ the effort is needed to pull the load up.

(b) In order for Joe to carry out a fair test, he had to consider some factors that he must change or not change. Tick (✓) the appropriate boxes in the table below to show his decision for each variable. (2)

Variables	Changed	Unchanged
Load		
Length of the ramp		
Surface of the ramp		
Height of the ramp		

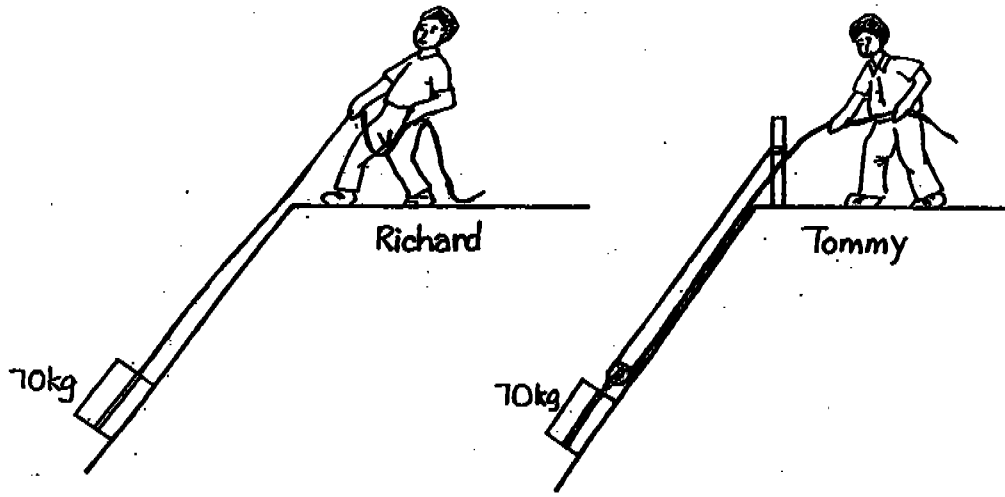
19. Mr Lim wanted to shift some potted plants from the general office to the Science garden. He decided to use a wheel barrow to help him.

What is ONE advantage and ONE disadvantage of using this simple machine? (2)

Option :
**WHEEL
BARROW**

Advantage	Disadvantage
<ul style="list-style-type: none">• Able to move a few pots of plants at a time• Saves time• It _____ effort	<ul style="list-style-type: none">• It is _____ to balance

20. Look at the diagram below carefully.



It shows two boys trying to pull a box up the same slope using two different methods.

(a) Who will use less effort to pull the load up? (1)

(b) Give a reason for your answer in (a). (1)

21. Two wheel and axle machines, A and B, are shown below. The effort applied in each case is just enough to lift the 200g load.

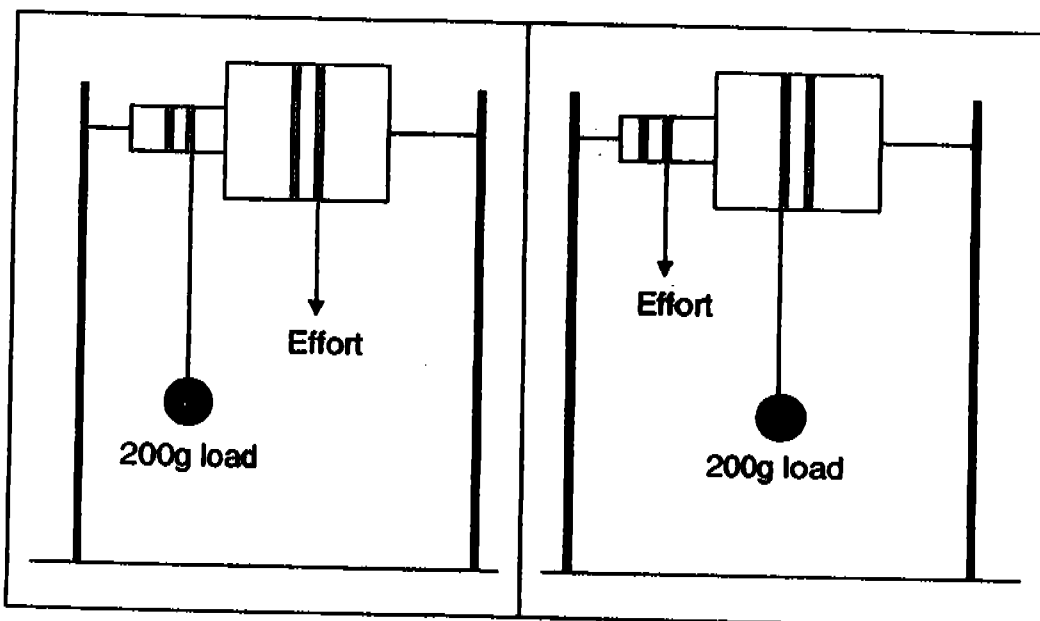


Diagram A

Diagram B

- (a) Estimate the effort needed in B by circling the correct answer. (1)

- ❖ less than 200 g
- ❖ 200 g
- ❖ more than 200 g

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

- (c) In Diagram A, the effort required to lift the load is _____ the load. (1)

22.

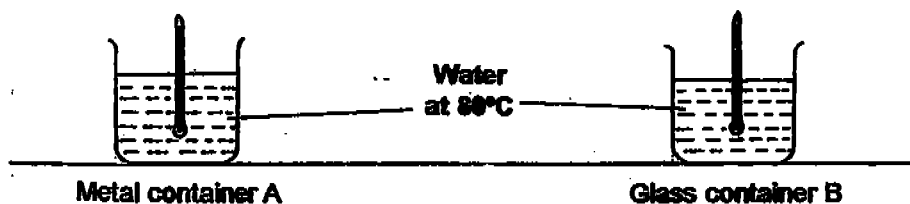
- (a) Classify the following substances and write your answers in the table provided. (2 marks)

Copper	Clay	Aluminium	Plastic
--------	------	-----------	---------

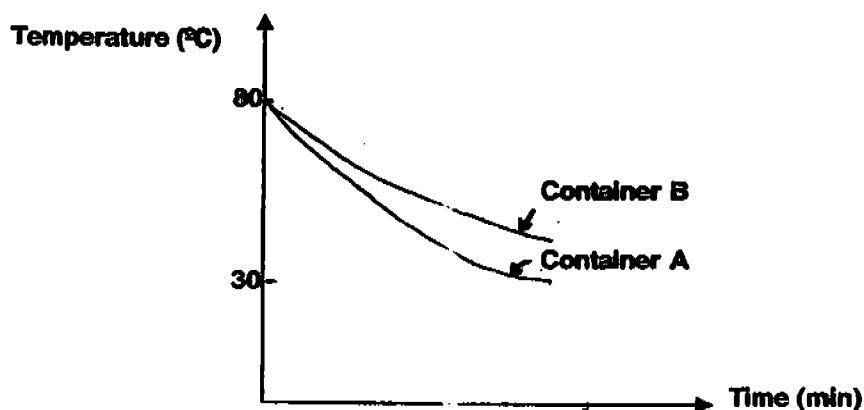
Heat conductors	Heat insulators

- (b) When touched by a warm hand, which group of substances above will feel colder? (1)

23. Sarah set up the experiment shown below to see the changes in the temperature of water in metal container A and glass container B.



She filled the two containers with water at 80°C and recorded the temperature of the water at 15-minute intervals. Then she plotted her results on a graph shown below.



- (a) Which container of water cooled down more quickly? (1)
-
- (b) Why do you think the container mentioned in (a) cooled down more quickly? (1)
-
-
- (c) What would the final temperature of both container of water be? (1)
-

✕ End of Section B ✕

Methodist Girls Primary School
Primary 5 Science CA2 (2005)

Exam Sheet

Answer Sheets

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

16a. Wheel and axis
 16b. Gears

17a. C
 17b. Group B and C

18a. Steeper more

18b.

	✓
	✓
	✓
✓	

19. Difficult

reduces

20a.

20b. Tommy is using a movable pulley to pull up the box. The movable pulley reduces the effort needed to overcome the load, so he would use less effort to pull the load up.

21a. More than 200g

21b. The effort travels a shorter distance and thus requires a greater effort.
 21c. Less

- 22a. Copper Plastic
 Aluminium Clay
- 22b. Heat conductors
- 23a. Container A
- 23b. Metal is a good conductor of heat, so it would conduct heat away faster than the glass container. Glass is also a poor conductor of heat and would conduct heat away slowly.
- 23c. 25°C