# Hougang Primary School

# P3 SCIENCE WORKSHOP FOR PARENTS

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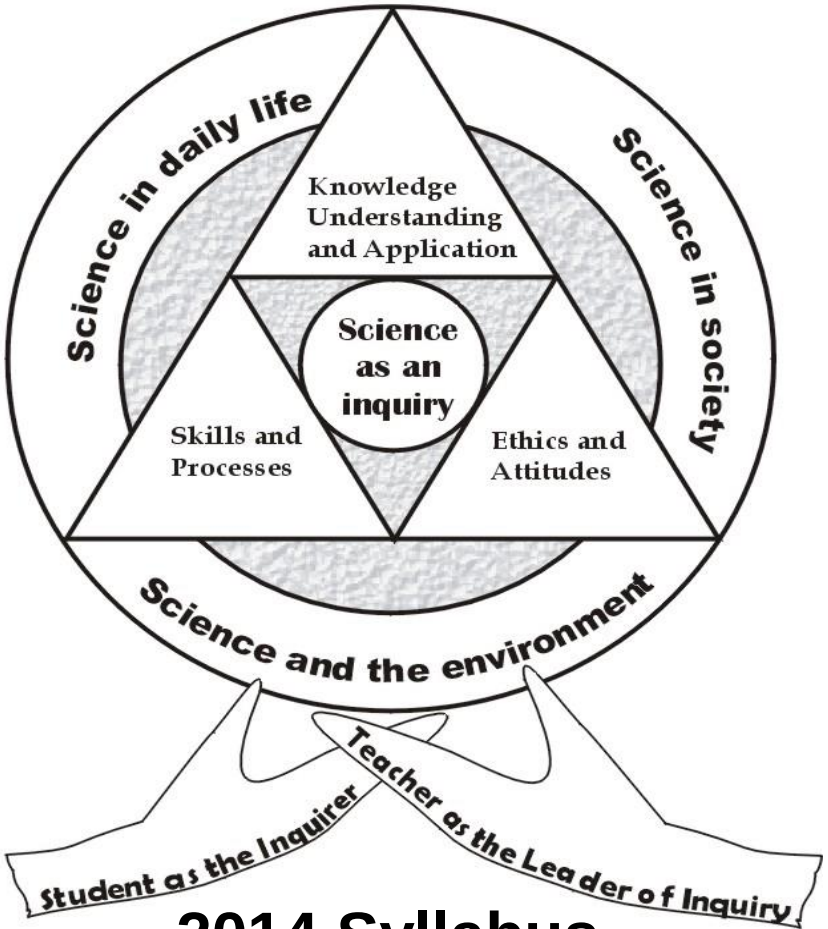
# OBJECTIVES OF WORKSHOP

- To equip parents with the skills and confidence to coach their children in the learning of Science
- To gain an insight on why certain answers are not acceptable

# OVERVIEW

- MOE Science framework
- P3 Themes / Topics
- Resources used in HGP
- Process Skills and Answering Techniques

# MOE SCIENCE FRAMEWORK – SCIENCE AS AN INQUIRY




**2014 Syllabus**

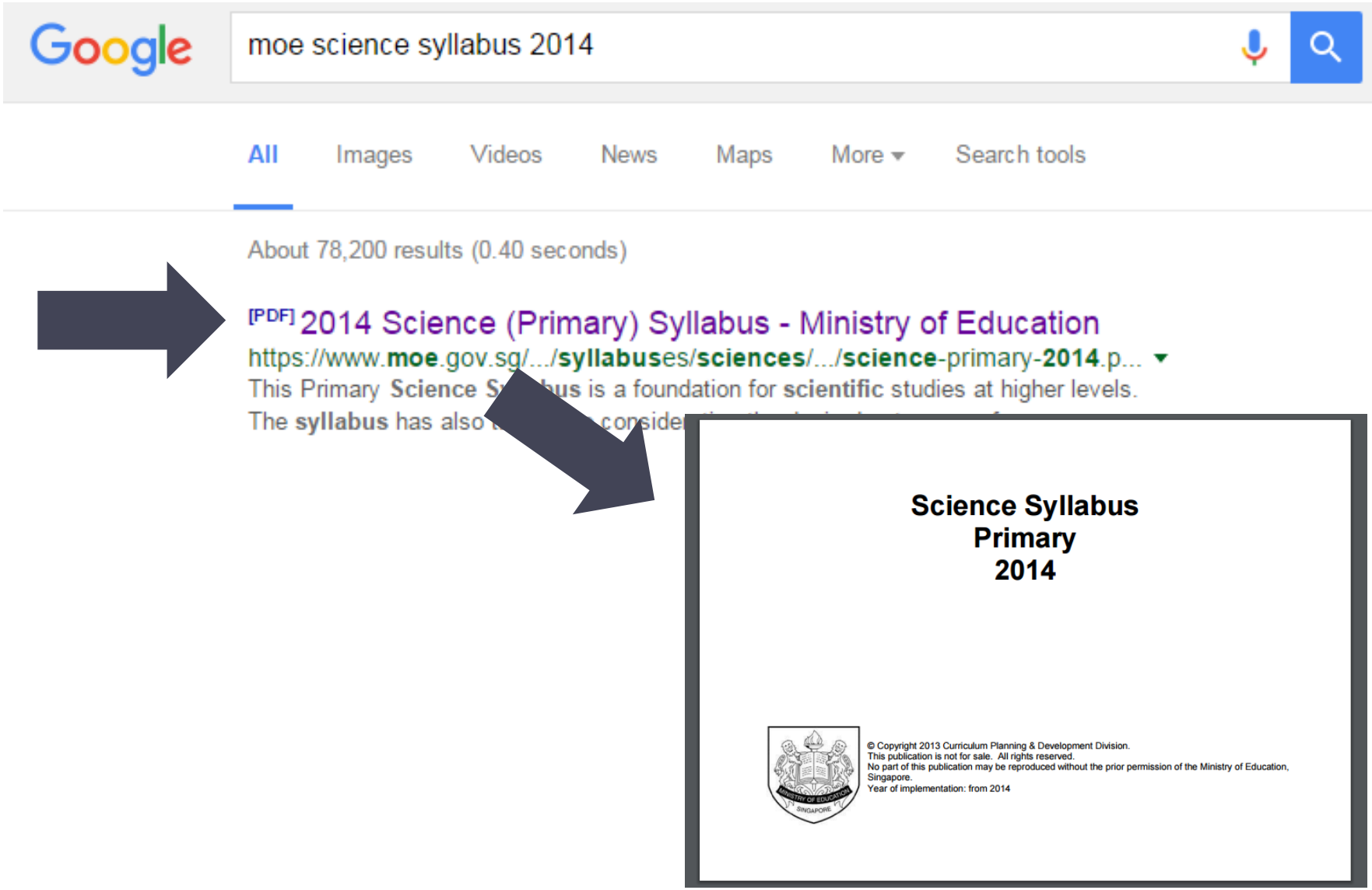
Through nurturing pupils as an inquirer, they:

- are curious in exploring their natural and physical world
- develop a rich understanding of concepts, principles, models, and theories.
- acquire skills and methodologies to solve problems

# INQUIRY-BASED LEARNING

- Understand that Science is more than knowing facts
- Pupils will take control of their own learning
- Allows the application of knowledge to new situations

# 2014 SCIENCE (PRIMARY) SYLLABUS



# RESOURCES USED IN HGP

**Textbook**

**Activity Books**

**Nature Study Exercise Book(for note-taking in class)**

**Worksheets**

**(Mental Science and topical worksheets)**

# THEMES / TOPICS FOR P3

## Diversity

- Classifying Living and Non-Living Things, Plants, Animals, Fungi, Bacteria
- Exploring Materials

## Systems

- Body Systems
- Plants and their parts

## Interactions

- Magnets and their characteristics

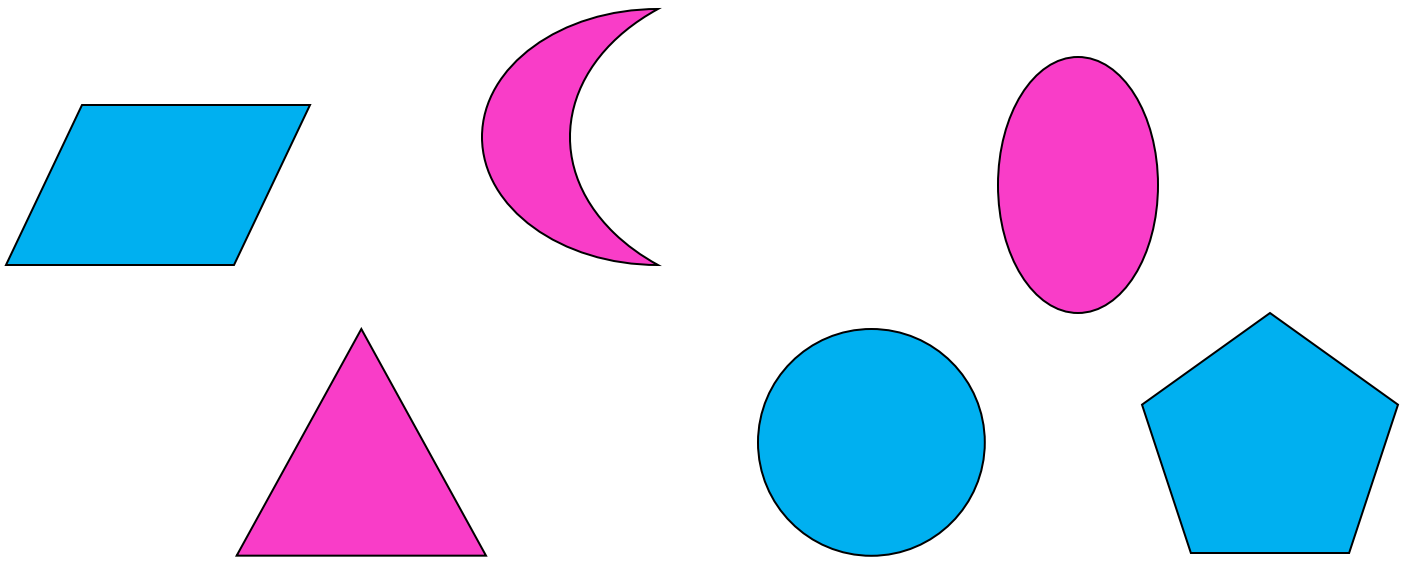
# PROCESS SKILLS

- Classifying
- Observing
- Comparing
- Communicating (bar graph)
- Inferring
- Fair Test

# CLASSIFYING

- Hands on activities (Random objects)

# CLASSIFYING



**How can we classify the above figures?**

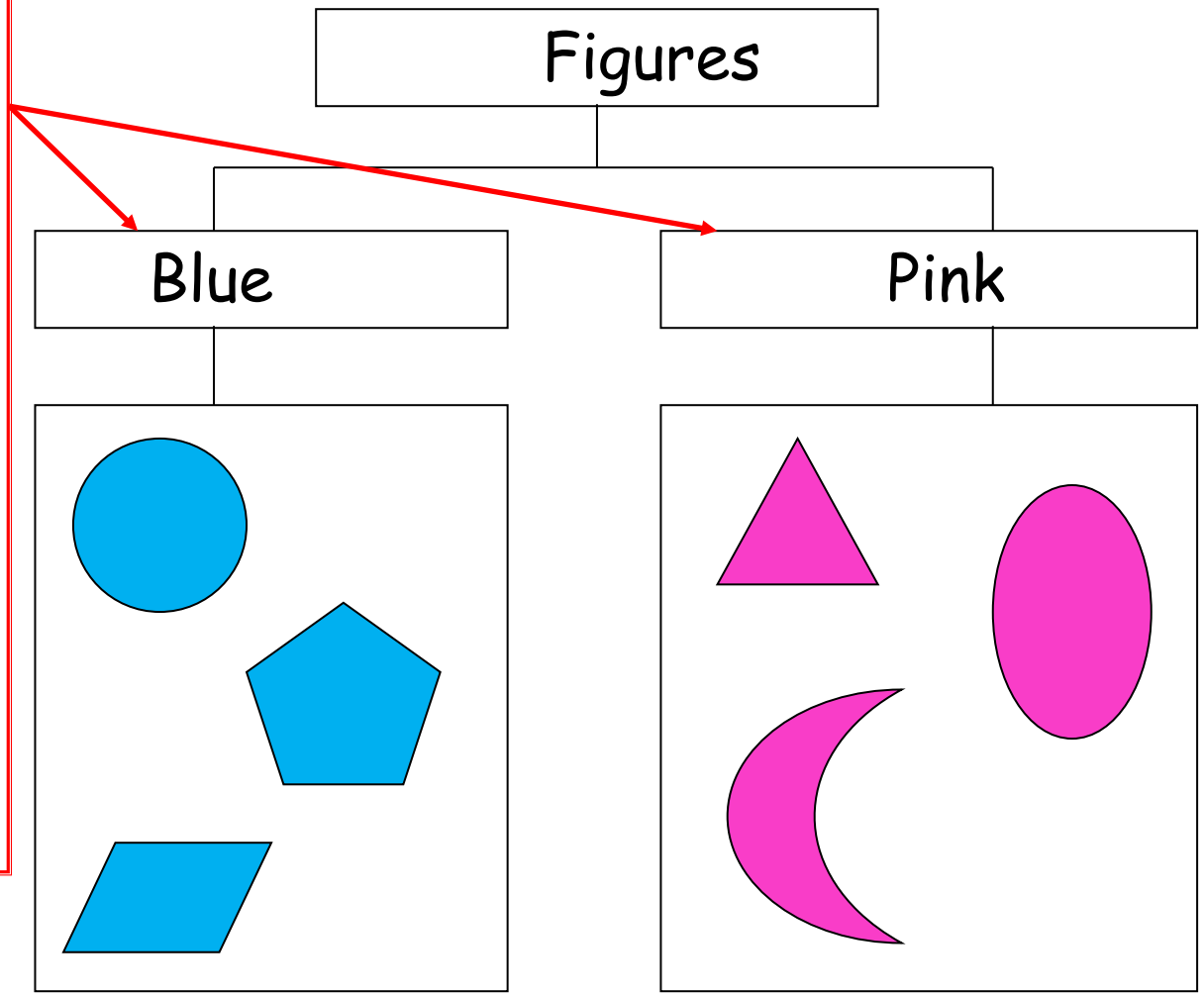
*** Discuss**

# CLASSIFYING

**RULE**:

Classification must be based on the same type of characteristic!

The figures are classified according to their colour

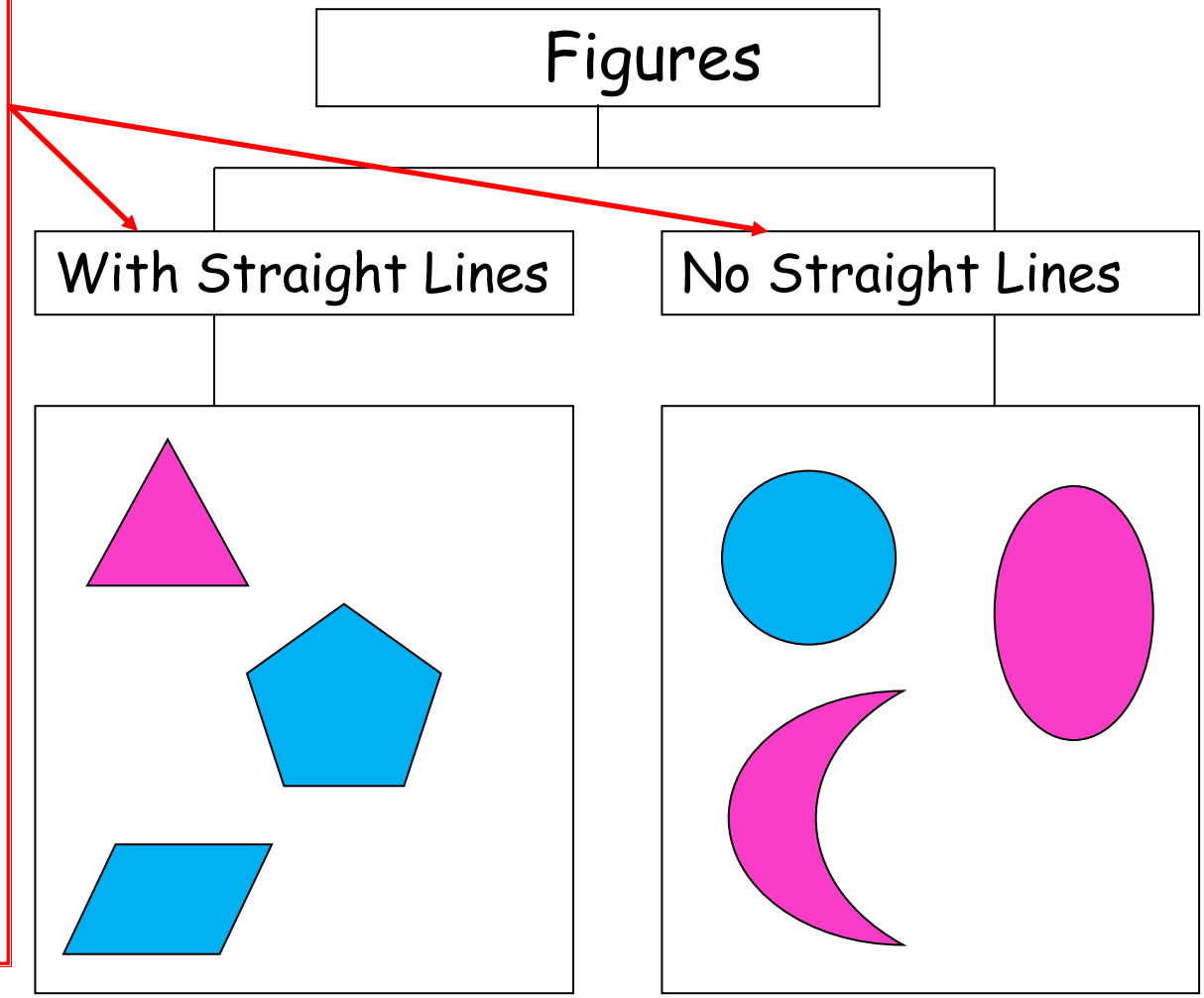


# CLASSIFYING

**RULE**:

Classification must be based on the same type of characteristic!

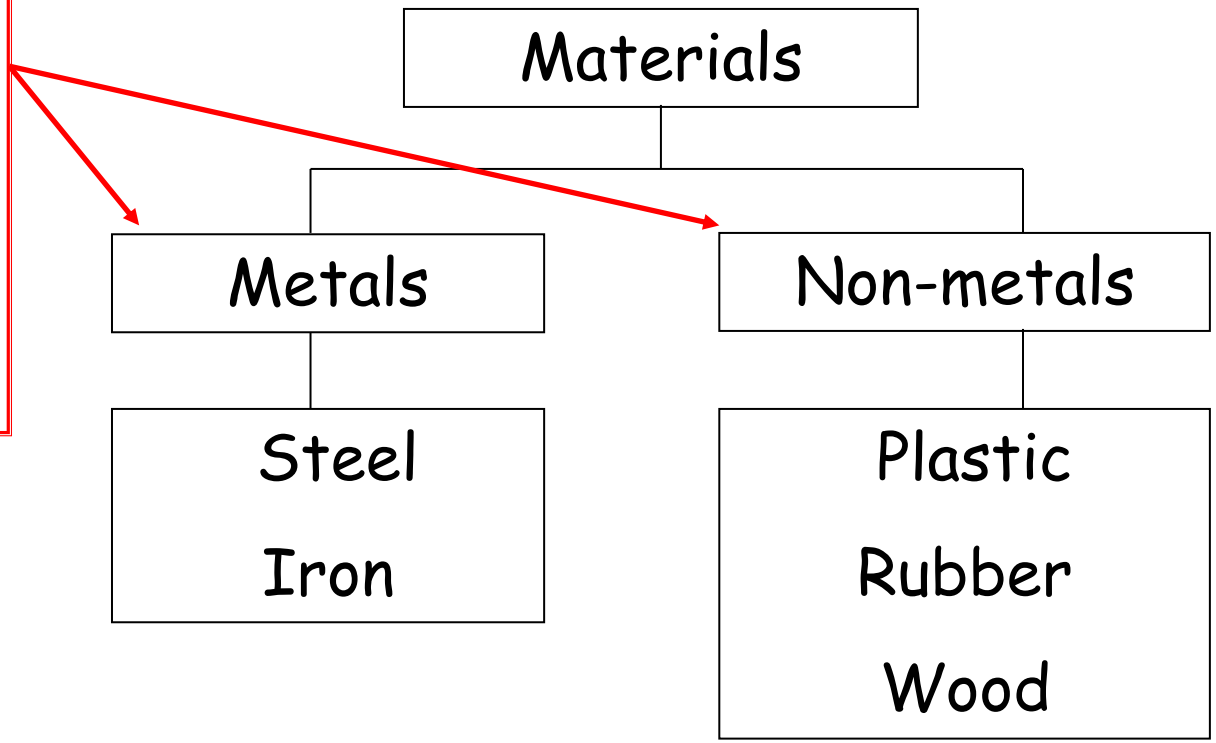
The figures are classified according to their geometrical properties



# CLASSIFYING

**RULE**:

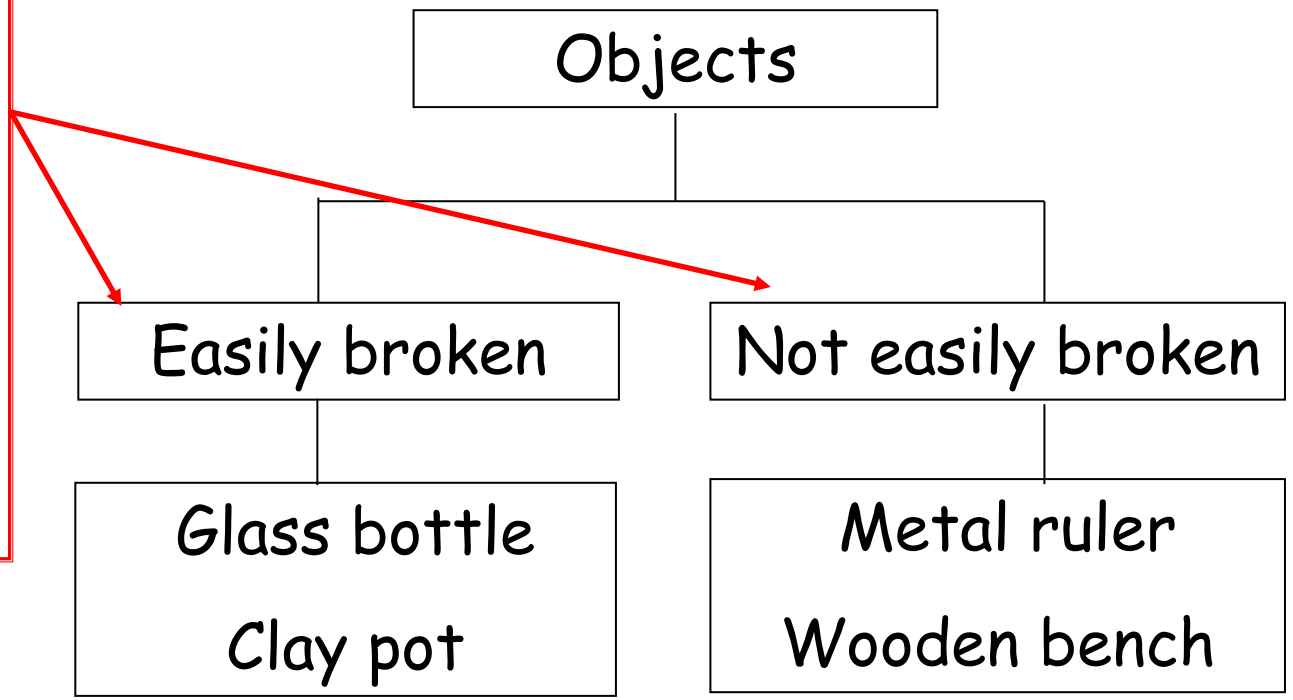
Classification must be based on the same type of characteristic!



# CLASSIFYING

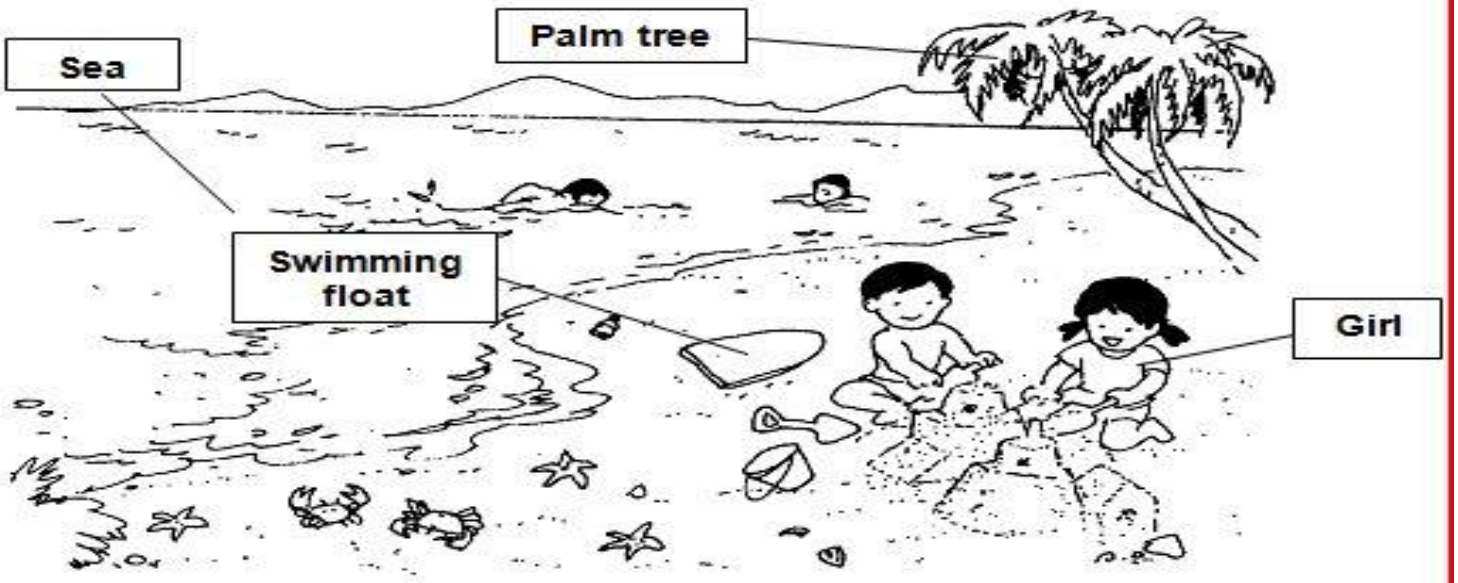
**RULE**:

Classification must be based on the same type of property!

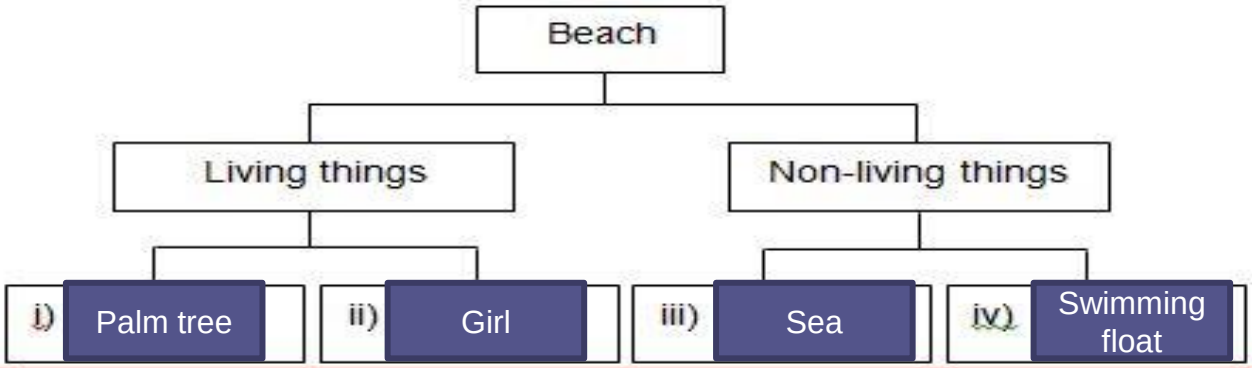


# CLASSIFYING

26. Observe the picture below.

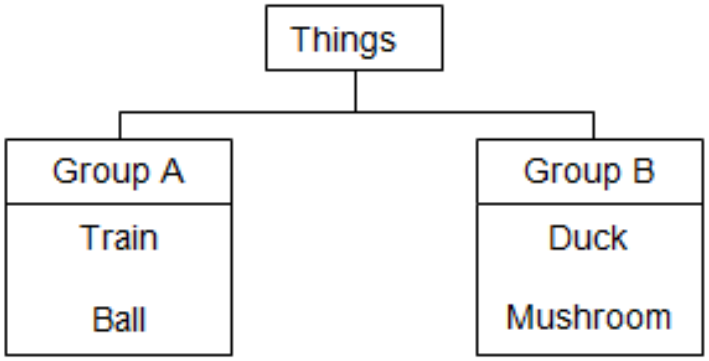



In the boxes provided, classify the four labelled items accordingly. [2m]



# CLASSIFYING

16. The classification chart below shows how some things are grouped.




Based on the information above, answer the following questions:

(a) In which group would you place a "book"? (1m)

Group: A

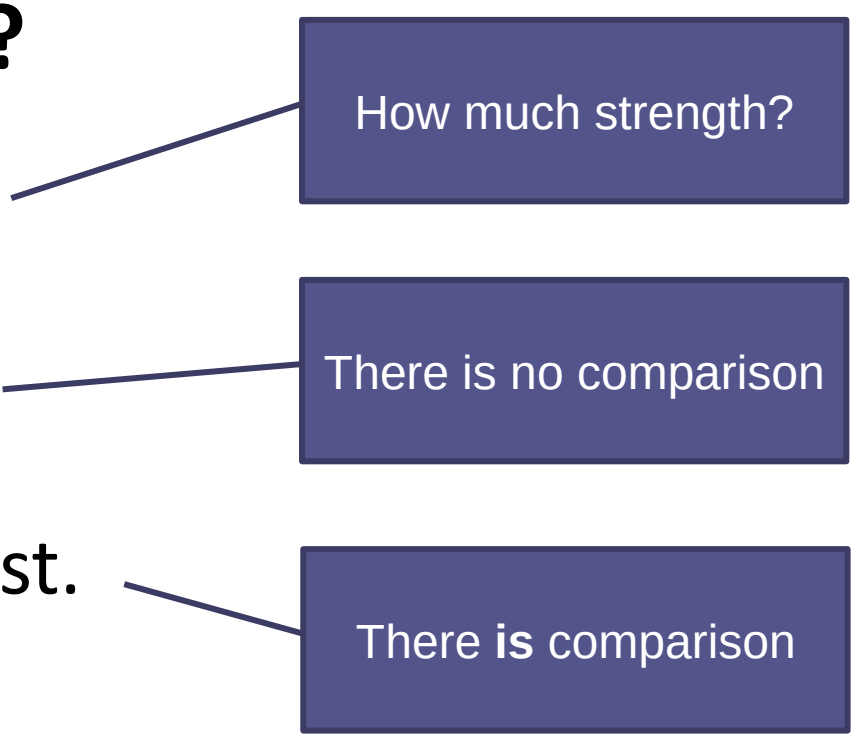
(b) Give a reason for your answer in (a) (1m)

Group A consists of non-living things and a book is a non-living thing.

# OBSERVING AND COMPARING

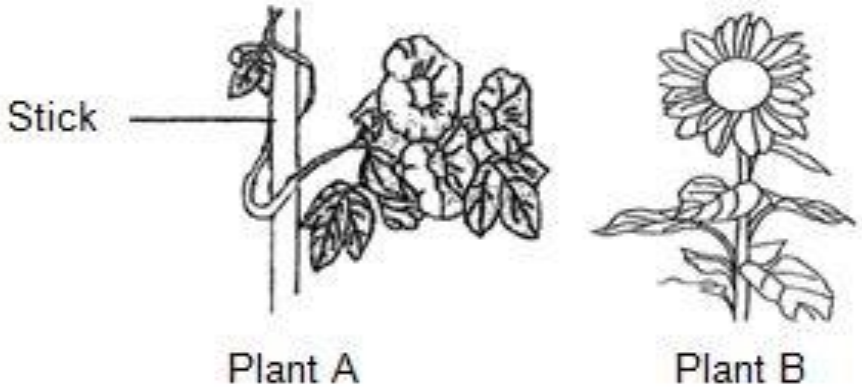
**Is there a difference between the following statements?**

- String A has strength.
- String A is strong.
- String A is the strongest.



# OBSERVING AND COMPARING

28. The picture below shows two plants.




Plant A Plant B

Based on what you observe in the above pictures,

a) State two similarities between the two plants. [2]

(i) _____

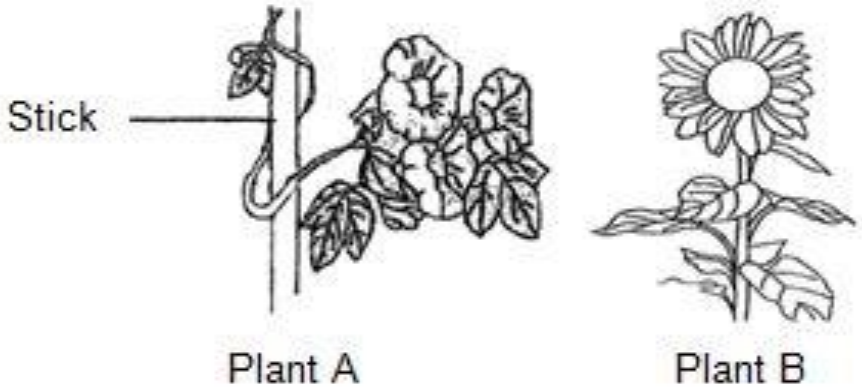
(ii) _____

b) State one difference between the two plants. [1]

_____

# OBSERVING AND COMPARING

28. The picture below shows two plants.




Plant A Plant B

Based on what you observe in the above pictures,

a) State two similarities between the two plants.

(i) Both are plants. ✗

(ii) Both reproduce from seeds. ✗

b) State one difference between the two plants.

Plant A has a weak stem. ✗

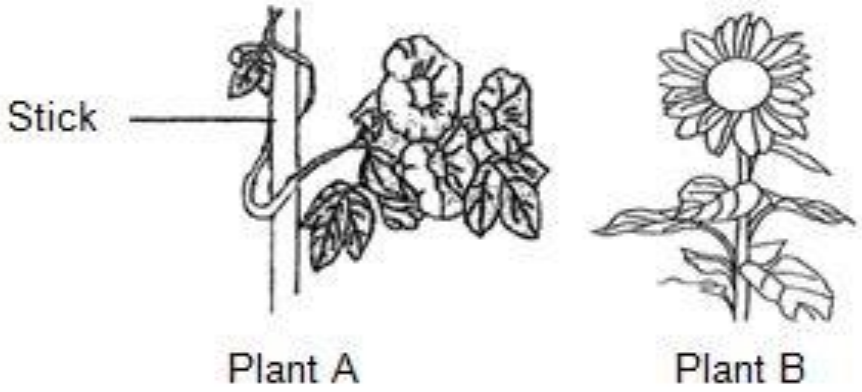
Already stated in question

Must be observed from the diagram. Cannot be based on prior knowledge

No comparison. How about plant B?

# OBSERVING AND COMPARING

28. The picture below shows two plants.




Based on what you observe in the above pictures,

a) State two similarities between the two plants. [2]

(i) Both have leaves.

(ii) Both have flowers.

b) State one difference between the two plants. [1]

A has a weak stem **but** B has a strong stem.

# OBSERVING AND COMPARING

6. Observe the butterfly and bird carefully.

**Butterfly**

**Bird**

Based on the diagram, list two similarities between the butterfly and the bird.

(a)_____

(b)_____

Based on the diagram, how different are they with regard to the:

(c)Number of wings:_____

# OBSERVING AND COMPARING

6. Observe the butterfly and bird carefully.

Butterfly

Bird

Based on the diagram, list two similarities between the butterfly and the bird.

(a) Both can fly ✗

(b) Both lay eggs ✗

Must be observed from the diagram.
Cannot be based on prior knowledge.

Based on the diagram, how different are they with r

What about the bird?

(c)Number of wings: Butterfly has 4 wings ✗

# OBSERVING AND COMPARING

6. Observe the butterfly and bird carefully.

**Butterfly**

**Bird**

Based on the diagram, list two similarities between the butterfly and the bird.

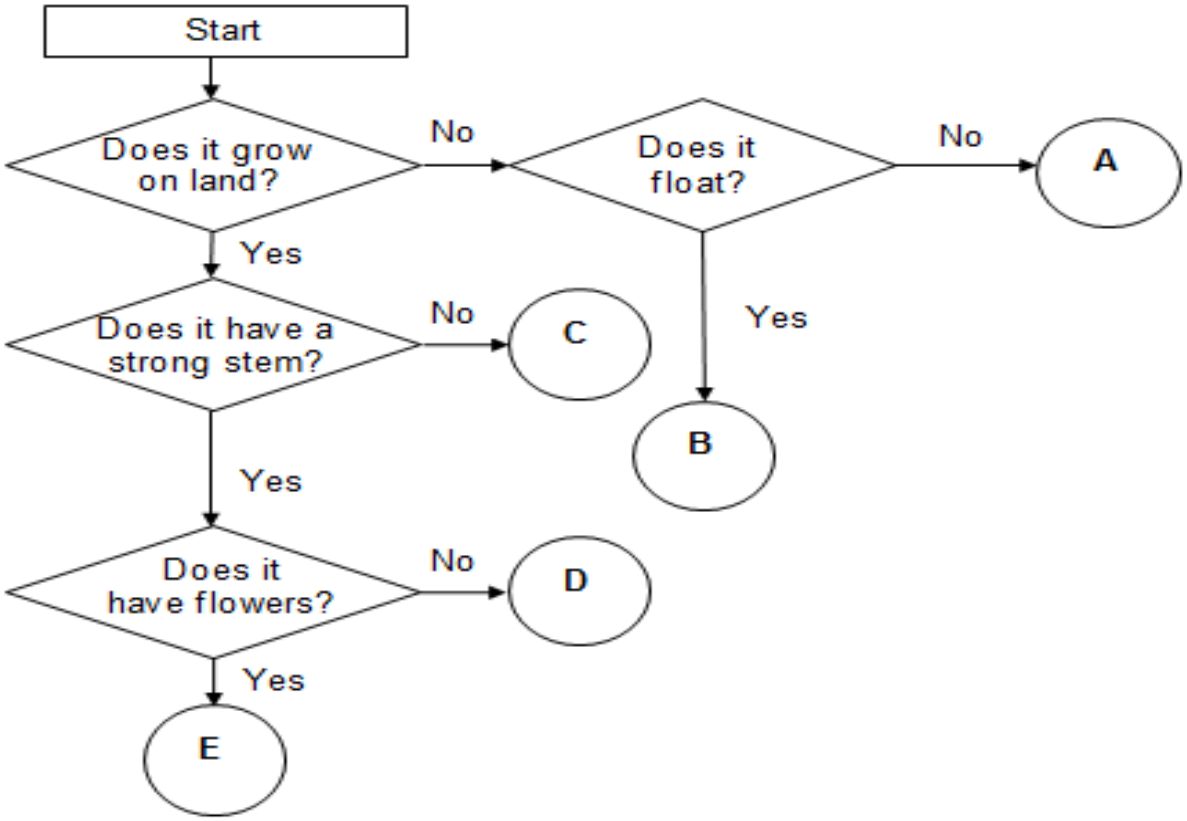
(a) Both have wings

(b) Both have legs

Based on the diagram, how different are they with regard to the:

(c)Number of wings: Butterfly has 4 wings **but** bird has 2 wings.

# COMPARING USING FLOWCHART



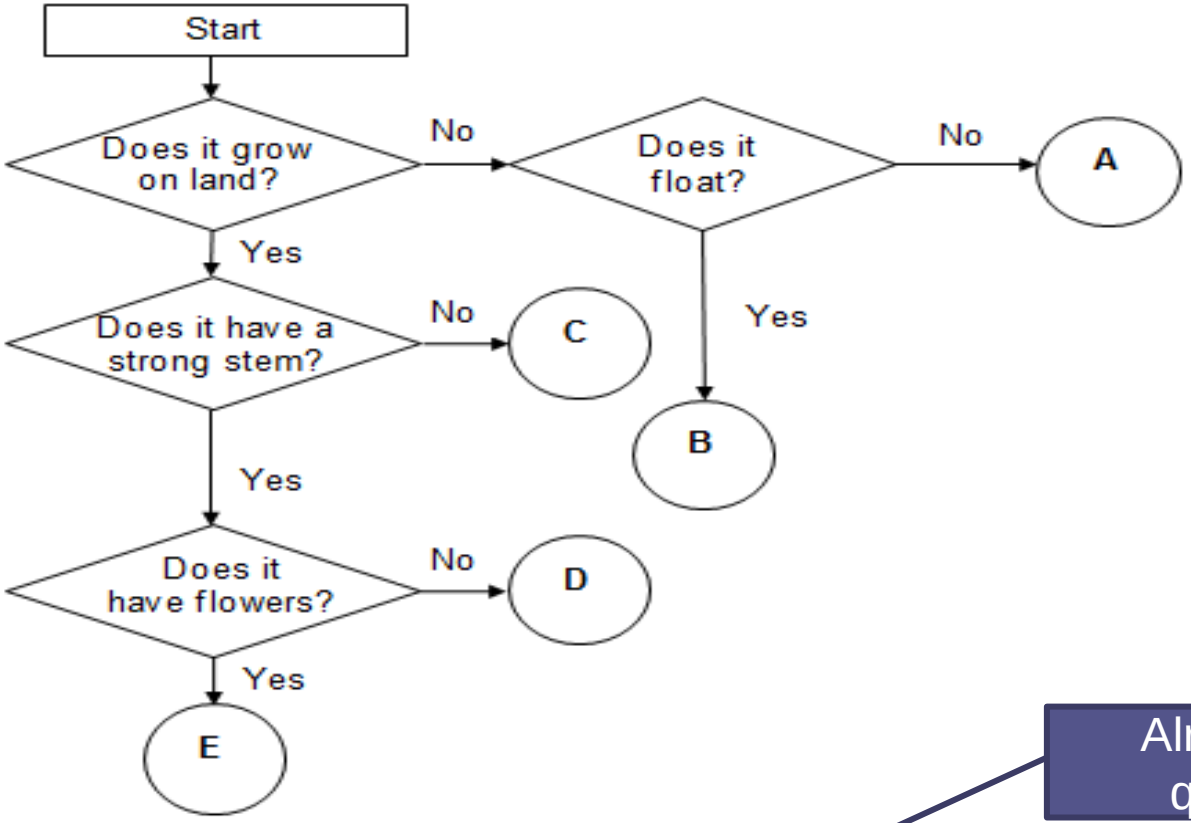

(a) What is the similarity between plants A and B? (1m)

_____

(b) What is the difference between plants C and E? (1m)

_____

# COMPARING USING FLOWCHART




(a) What is the similarity between plants A and B? (1m)

Both are plants. ✗

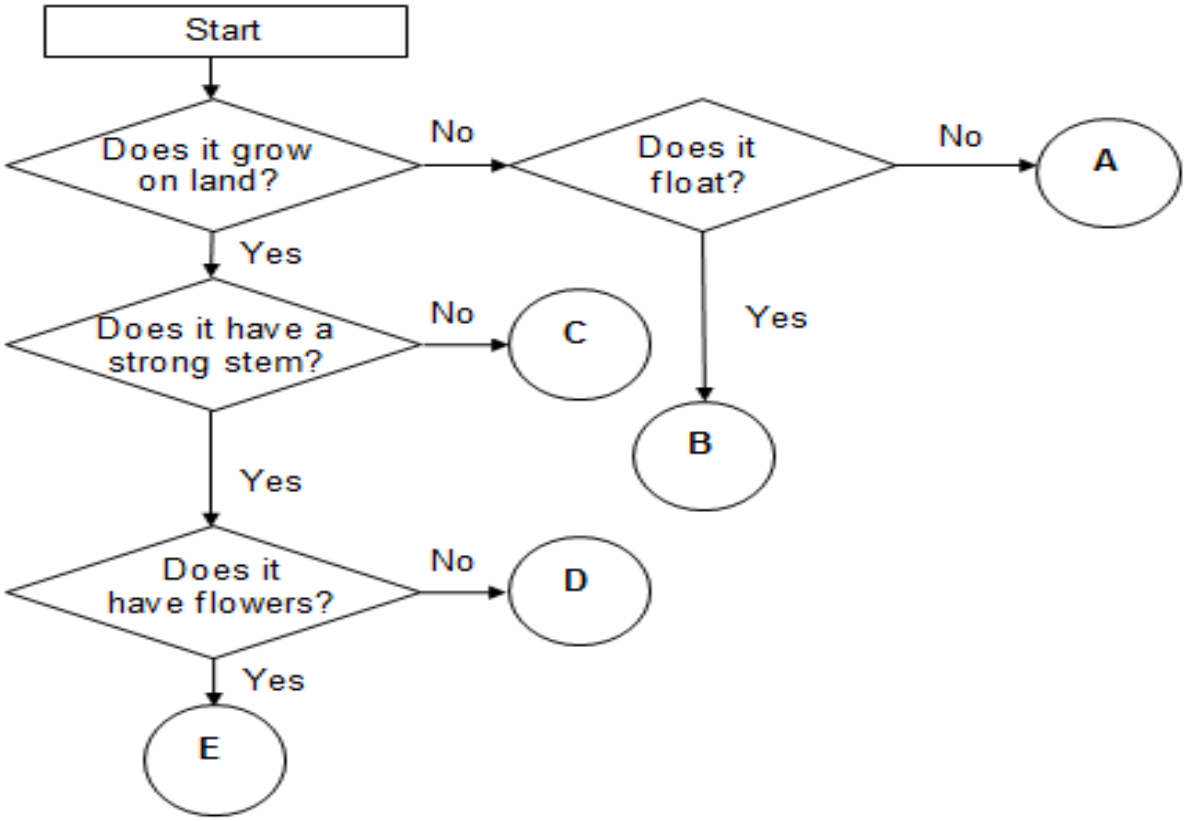
Already stated in question stem

(b) What is the difference between plants C and E? (1m)

C does not have a strong stem but E has flowers. ✗

Must compare the same characteristics

# COMPARING USING FLOWCHART




(a) What is the similarity between plants A and B? (1m)

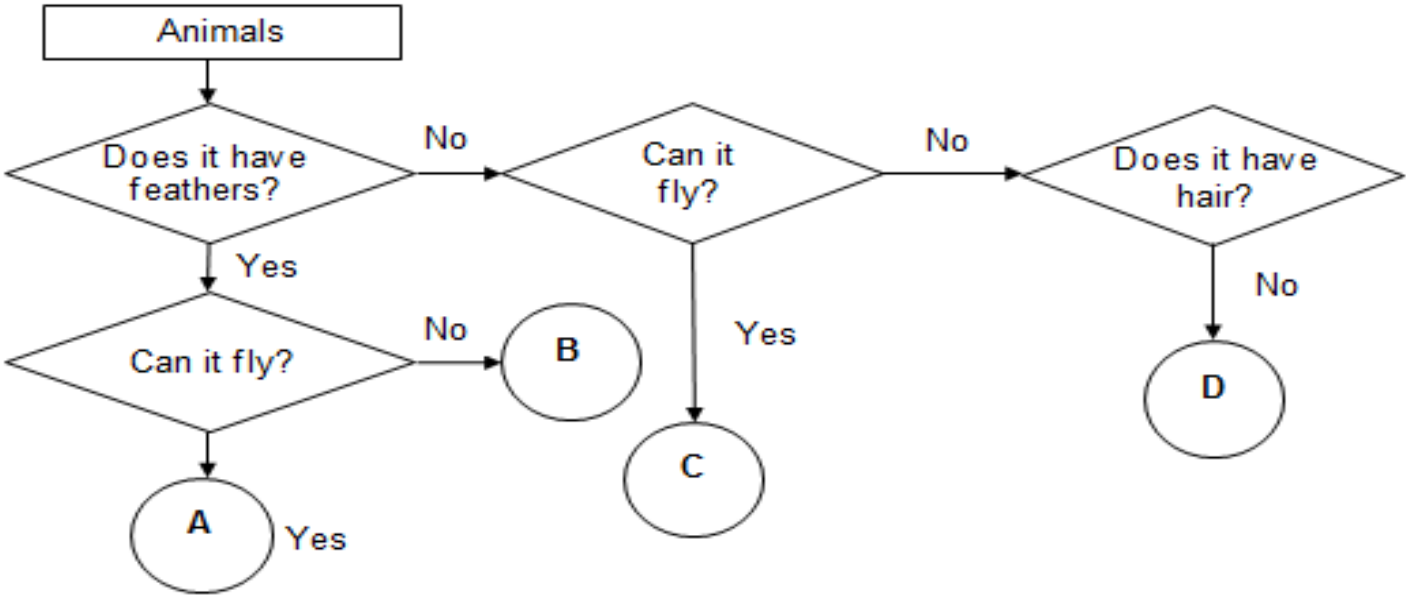
Both plants do not grow on land.

(b) What is the difference between plants C and E? (1m)

E has a strong stem **but** C does not have a strong stem.

# COMPARING USING FLOWCHART

Study the flow chart below and answer the questions below.




(a) State a common characteristic between animals C and D. (1m)

_____

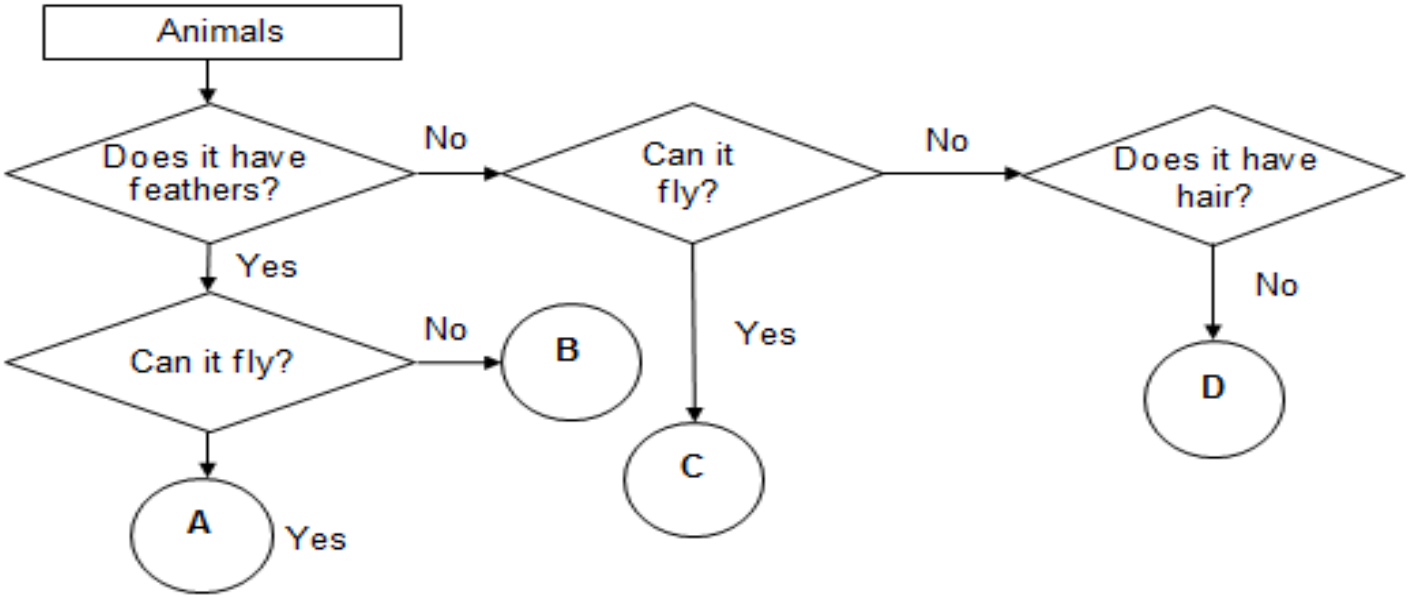
(b) A turkey is a bird that cannot fly. Explain why animal C cannot be a turkey. (1m)

_____

_____

# COMPARING USING FLOWCHART

Study the flow chart below and answer the questions below.




(a) State a common characteristic between animals C and D. (1m)

Both are animals. ✗

Already stated in question stem

(b) A turkey is a bird that cannot fly. Explain why animal C cannot be a turkey. (1m)

It can fly. ✗

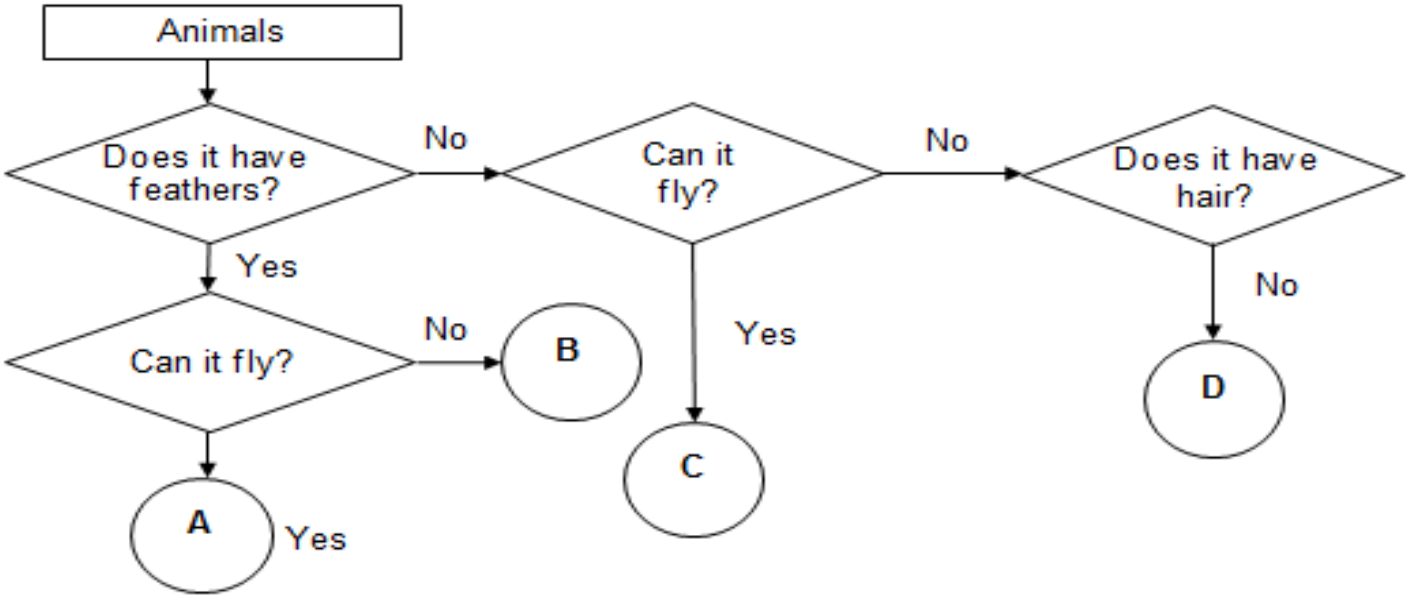
Avoid using 'it'; not clear if it refers to turkey or animal C.

If C is a turkey, it should not fly. ✗

Avoid answering indirectly

# COMPARING USING FLOWCHART

Study the flow chart below and answer the questions below.




(a) State a common characteristic between animals C and D. (1m)

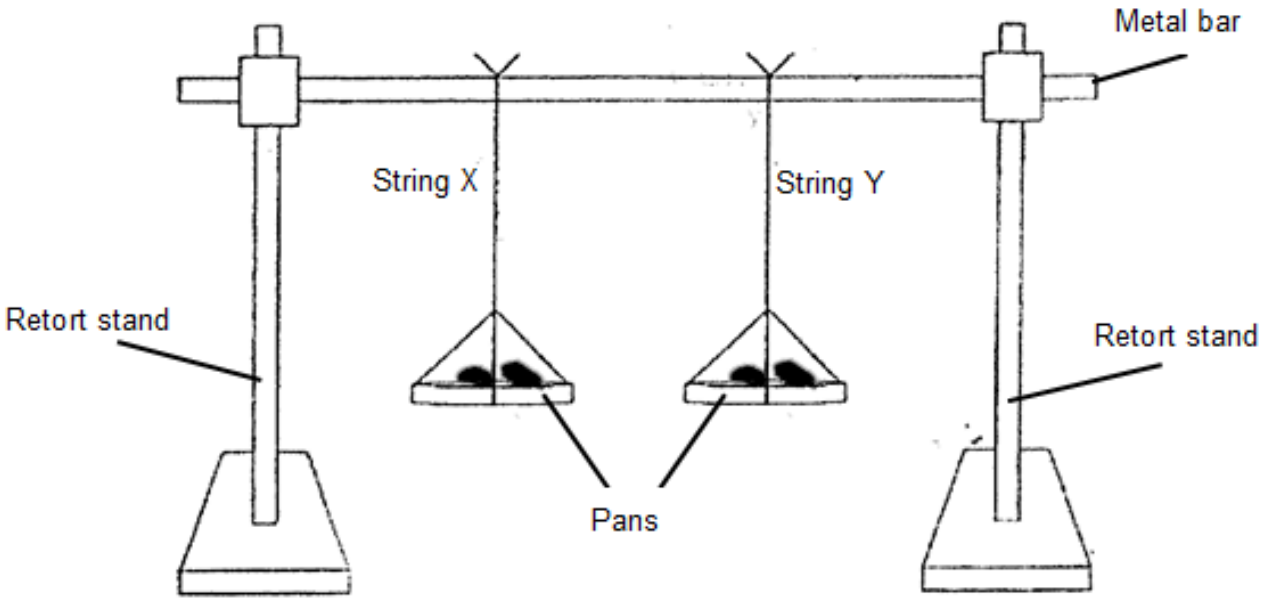
Both animals don't have feathers.

(b) A turkey is a bird that cannot fly. Explain why animal C cannot be a turkey. (1m)

Animal C cannot be a turkey as animal C can fly.

# COMPARING AND INFERRING

9. Eddy sets up an experiment to test the strength of two strings, X and Y, as shown in the diagram below. The strings were of the same thickness.
When Eddy put two bricks on each pan, String X broke but not String Y.



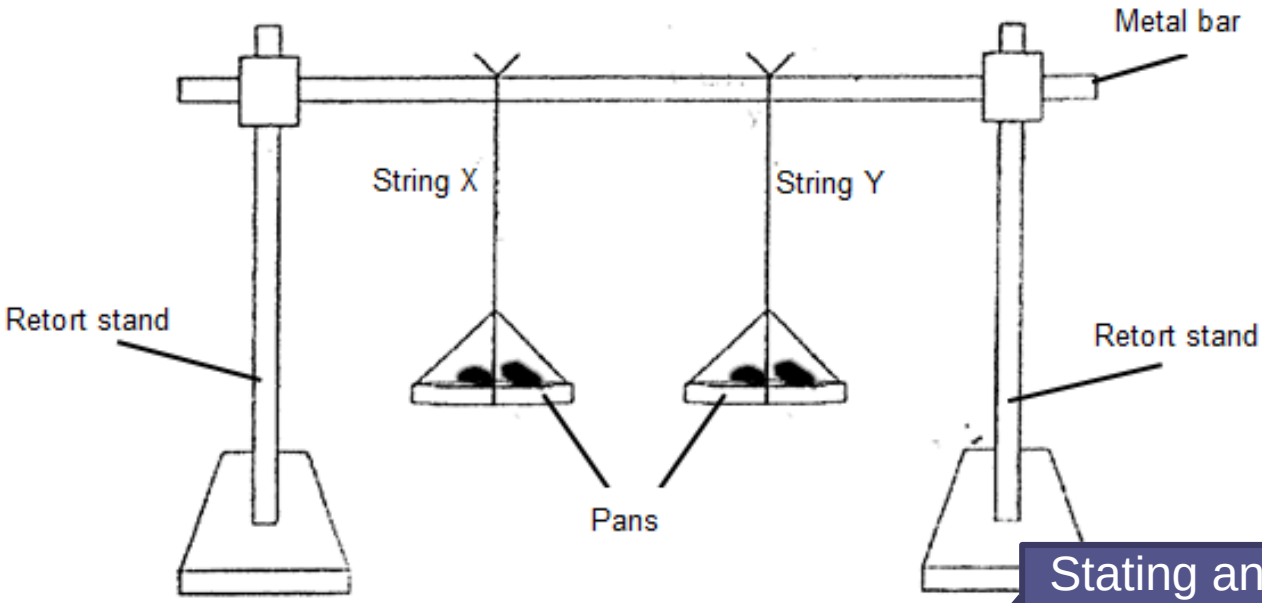

(a) What does this show about String X and String Y?

_____

_____

# COMPARING AND INFERRING

9. Eddy sets up an experiment to test the strength of two strings, X and Y, as shown in the diagram below. The strings were of the same thickness. When Eddy put two bricks on each pan, String X broke but not String Y.




Stating an observation, not an explanation

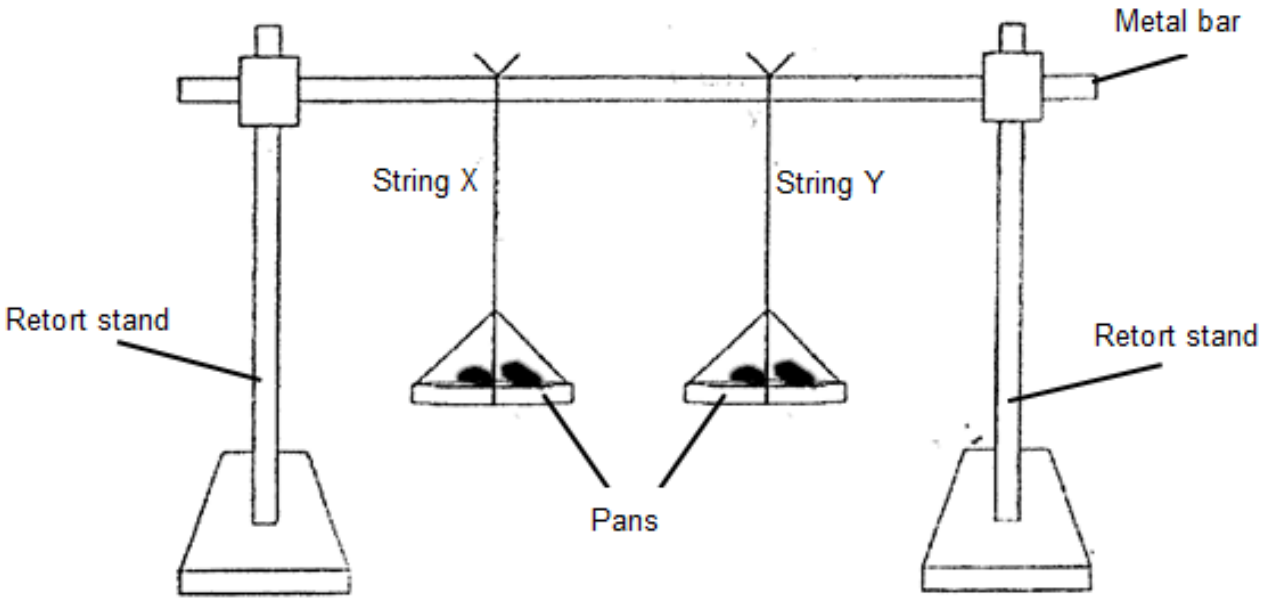
(a) What does this show about String X and String Y?

Y can carry 2 bricks but X cannot carry 2 bricks. ✗

Y did not break but X broke. ✗

# COMPARING AND INFERRING

9. Eddy sets up an experiment to test the strength of two strings, X and Y, as shown in the diagram below. The strings were of the same thickness.
When Eddy put two bricks on each pan, String X broke but not String Y.

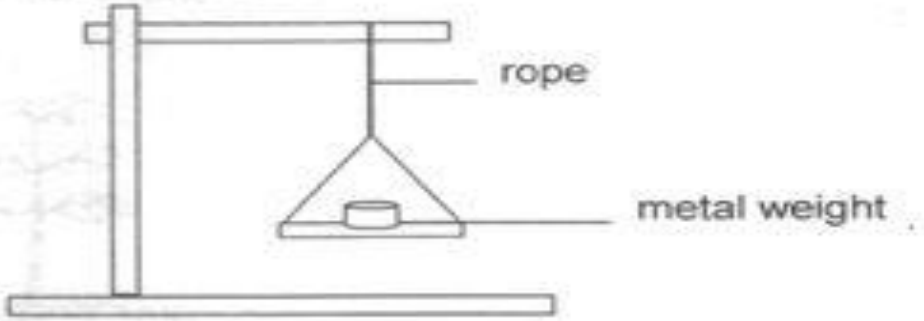



(a) What does this show about String X and String Y?

String Y is stronger than string X.

# COMMUNICATING AND INFERRING

33. Jayne set up an experiment to find out which type of rope is the strongest.




He labelled his ropes as **P, Q** and **R.** He added identical weights one at a time until the rope broke. The table below shows the number of weights that each rope could hold before it broke.

| Rope | Number of weights each rope could hold |
|---|---|
| P | 5 |
| Q | 10 |
| R | 15 |

a) Which rope (**P, Q** or **R**) is the strongest?

Rope R is the strongest.

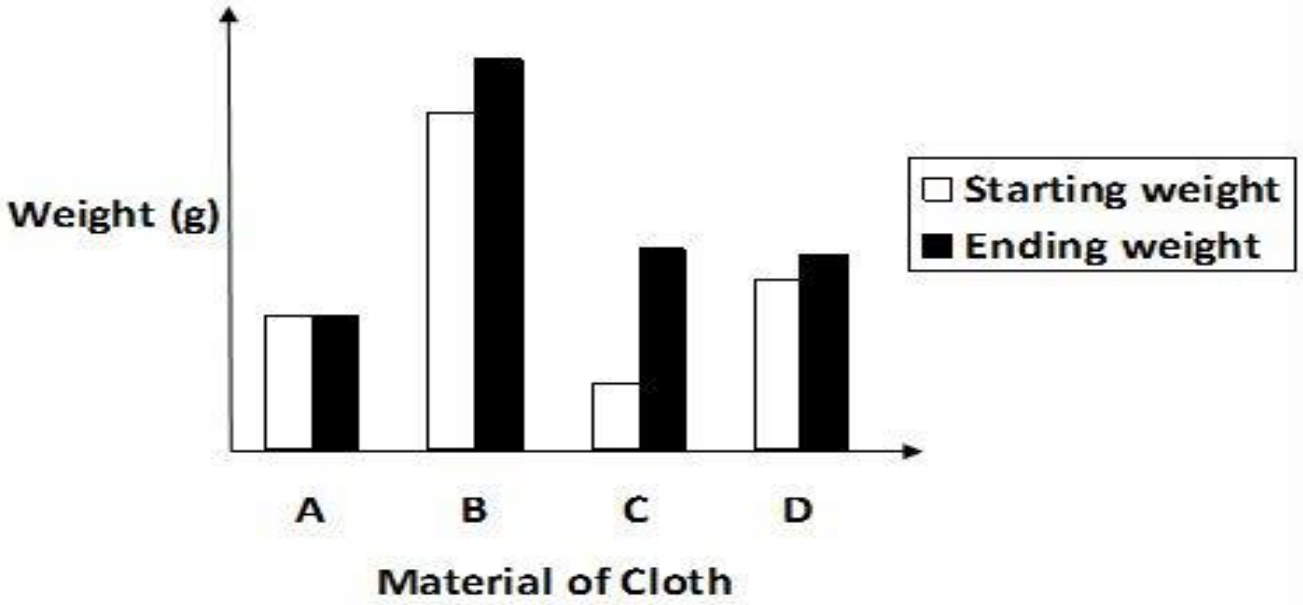
Observe & Compare.
Use superlatives: ***most***

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

Rope R can hold the most number of weights before it broke.

# COMMUNICATING AND INFERRING

29. Four pieces of cloth of A, B, C and D of the same size but made of different materials were weighed and then left to soak in a basin of water for five minutes. The cloth were then removed and weighed again. The graph shows the weight of the cloth at the start and end of the experiment.




(a) Based on the graph above, which material (A, B, C and D) is the most absorbent? (1m)

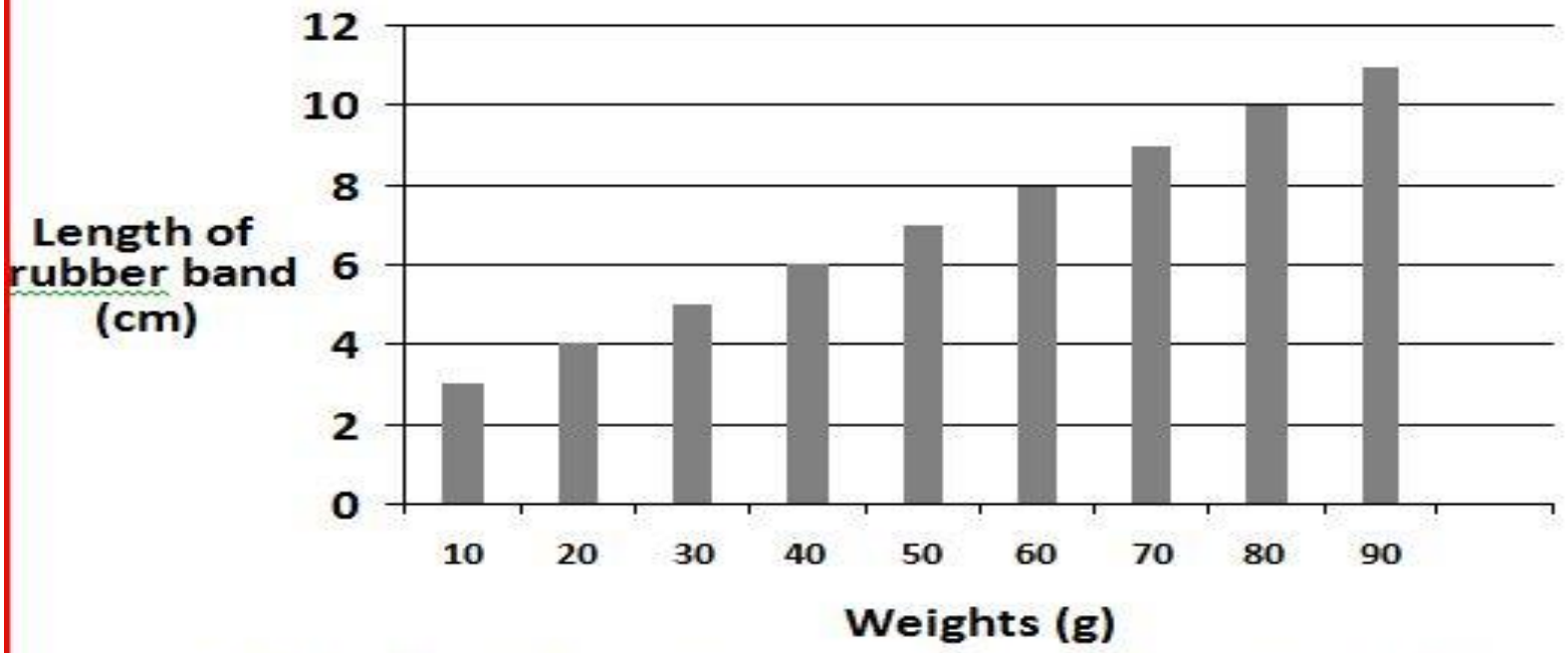
Material C is the most absorbent.

(b) Explain your answer in (a) above. (2m)

Weight of C increased the most so it must have absorbed the most water

# COMMUNICATING AND INFERRING

25. The bar graph below the length of a rubber band when different weights were attached to it.

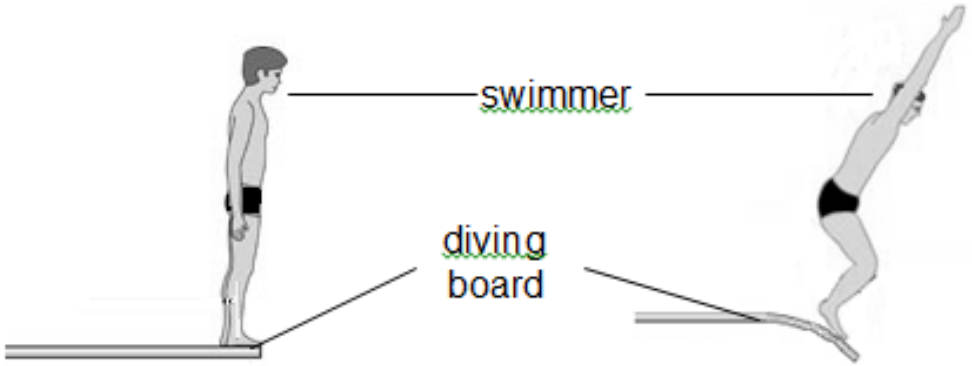



(a) What is the relationship between the weight attached to the rubber band and the length of the rubber band? (1m)

As the weight attached to the rubber band increases, the length of rubber band also increases.

# COMPARING AND INFERRING

Swimmers jump off a diving board to dive into the pool as shown in the diagram below.




Suggest two properties of the material used to make the diving board.
Explain how the property is suitable for swimmers to jump off the board.

Property 1: _____

Explanation: _____

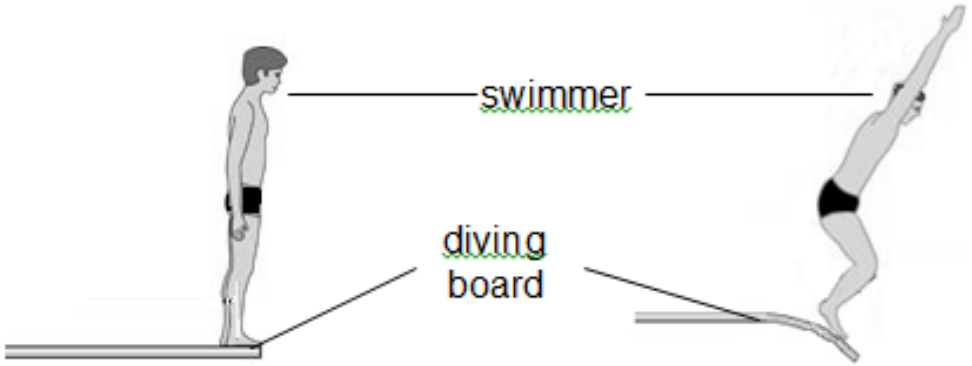
_____

Property 2: _____

Explanation: _____

# COMPARING AND INFERRING

Swimmers jump off a diving board to dive into the pool as shown in the diagram below.




Suggest two properties of the material used to make the diving board.
Explain how the property is suitable for swi

Property 1: Strength ✗

Not clear if the material is strong or not strong

Explanation: It does not break. ✗

Material will eventually break beyond a certain load

Property 2: Flexibility ✗

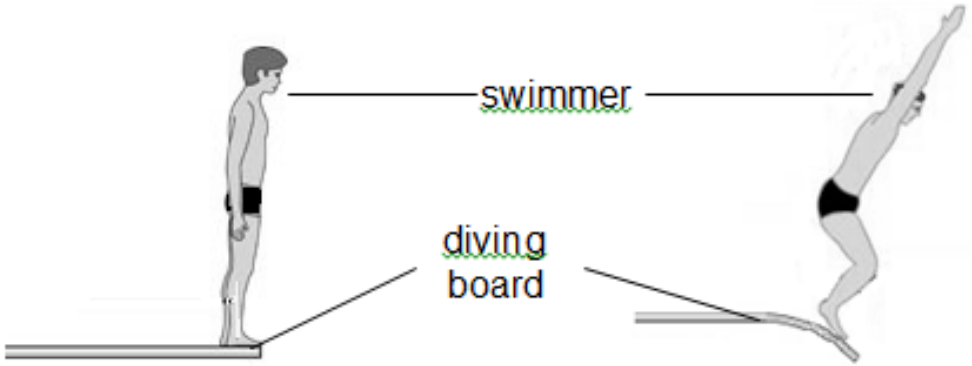
Not clear if the material is flexible or not flexible

Explanation: It is easy to jump off the board. ✗

Vague, no comparison

# COMPARING AND INFERRING

Swimmers jump off a diving board to dive into the pool as shown in the diagram below.




Suggest two properties of the material used to make the diving board.
Explain how the property is suitable for swimmers to jump off the board.

Property 1: Strong

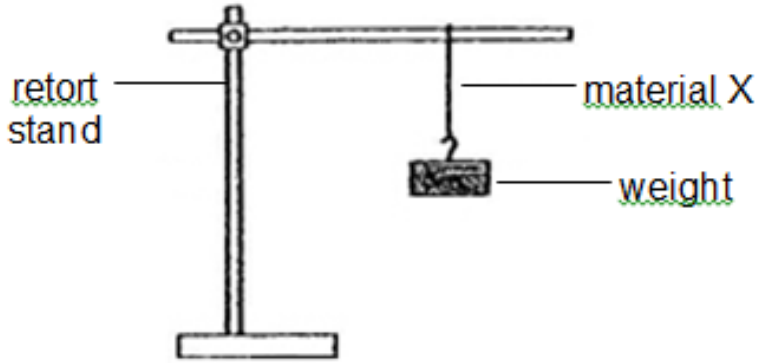
Explanation: It does not break easily.

Property 2: Flexible

Explanation: It is easier to jump higher.

# FAIR TEST

Avik set up an experiment as shown below.




He added 10-kg weights one at a time until material X broke. State the property of material X that Avik was investigating.

_____

He then repeated the experiment using different materials and recorded his results in the table below.

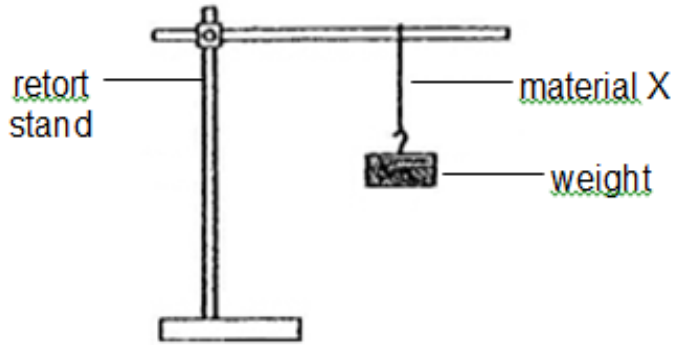
| Material | Number of 10-kg weights added |
|---|---|
| X | 10 |
| Y | 1 |
| Z | 4 |

What is a possible aim of his experiment? (1m)

_____

# FAIR TEST

Avik set up an experiment as shown below.




He added 10-kg weights one at a time until material X broke. State the property of material X that Avik was investigating.

Strong/ how strong the material is ✗

Specific adjective/ Aim of experiment

He then repeated the experiment using different materials and recorded his results in the table below.

| Material | Number of 10-kg weights added |
|---|---|
| X | 10 |
| Y | 1 |
| Z | 4 |

What is a possible aim of his experiment? (1m)

No comparison

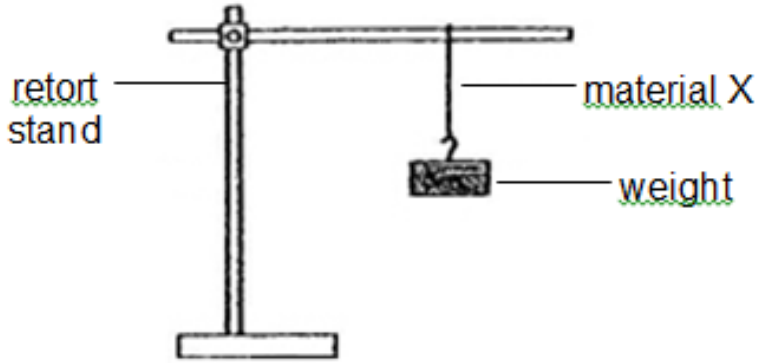
He wanted to find out which material is strong. ✗

Not relating to property of material

He wanted to find out which material can hold the most weight. ✗

# FAIR TEST

Avik set up an experiment as shown below.




He added 10-kg weights one at a time until material X broke. State the property of material X that Avik was investigating.

Strength

He then repeated the experiment using different materials and recorded his results in the table below.

| Material | Number of 10-kg weights added |
|---|---|
| X | 10 |
| Y | 1 |
| Z | 4 |

What is a possible aim of his experiment? (1m)

He wanted to find out the strength of different materials/ which material is the strongest

# FAIR TEST

8. James planted 5 identical seedlings in similar pots with the same amount of water and type of soil. He watered the seedlings daily with different amounts of water. He measured the height of each seedling at the end of the 2 weeks.

| Pot | Amount of water | Height( 1st Day) | Height (End of 2nd week) |
|---|---|---|---|
| A | 10ml | 9 cm | 12 cm |
| B | 20 ml | 9 cm | 16 cm |
| C | 30 ml | 9 cm | 18 cm |
| D | 40 ml | 9 cm | 20 cm |
| E | 50 ml | 9 cm | 20 cm |

(a) What do you think he is trying to find out?

_____

_____

# FAIR TEST

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| D | 40 ml | 9 cm | 20 cm |
| E | 50 ml | 9 cm | 20 cm |

(a) What do you think he is trying to find out?

He is trying to find out if which plant can grow the highest. ✗

He is trying to find out if which plant can grow the fastest. ✗

He is trying to find out if water affects the plant from growing ✗

Did not include the changed variable

Growth of plant can be horizontal or vertical

# FAIR TEST

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| E | 50 ml | 9 cm | 20 cm |

(a) What do you think he is trying to find out?

He is trying to find out if the amount of water will affect the height of the plant.

## State …. (function / variable / property ...)

- Straight to the point.

  (No need to give reason / explanation needed.)

## Give a reason / Explain

- Link it with Science Concept / Process Skill
  - Draw information and make meaning from Graphs

  (PSLE 2016 Q35a) / Tables (PSLE 2017 Q30) / Diagrams (PSLE 2017 Q29biii)

## Based on his observation / result / information / diagram …

- Include diagrams and labels

  (PSLE 2016 Q38 / PSLE 2017 Q34c / PSLE 2017 Q31))

## Describe

- Processes, How,  Details
- step 1, step 2, step 3  …

# BACK HOME

- Practise good answering habits in daily work
- Understand why certain answers are not acceptable
- Draw up a schedule to revise the content areas (constant revision boost memory)
- Make notes effectively – learning maps, concept maps, diagrams
- Practise process skills
- Make Science relevant in daily lives
- Keep all Science textbooks, notes and worksheets from P3 to P6

# Q & A

# PARENTS' WORKSHOPS 2018

**Presentation slides will be available on our school website within one week after the workshops.**

# THANK YOU