

The Mauritius Institute of Education

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Design Question at HSC



What is a scientific investigation?

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The Scientific Method involves the following process skills:

Basic Process Skills

- ▶ Observing
- ▶ Measuring
- ▶ Inferring
- ▶ Classifying
- ▶ Predicting
- ▶ Communicating

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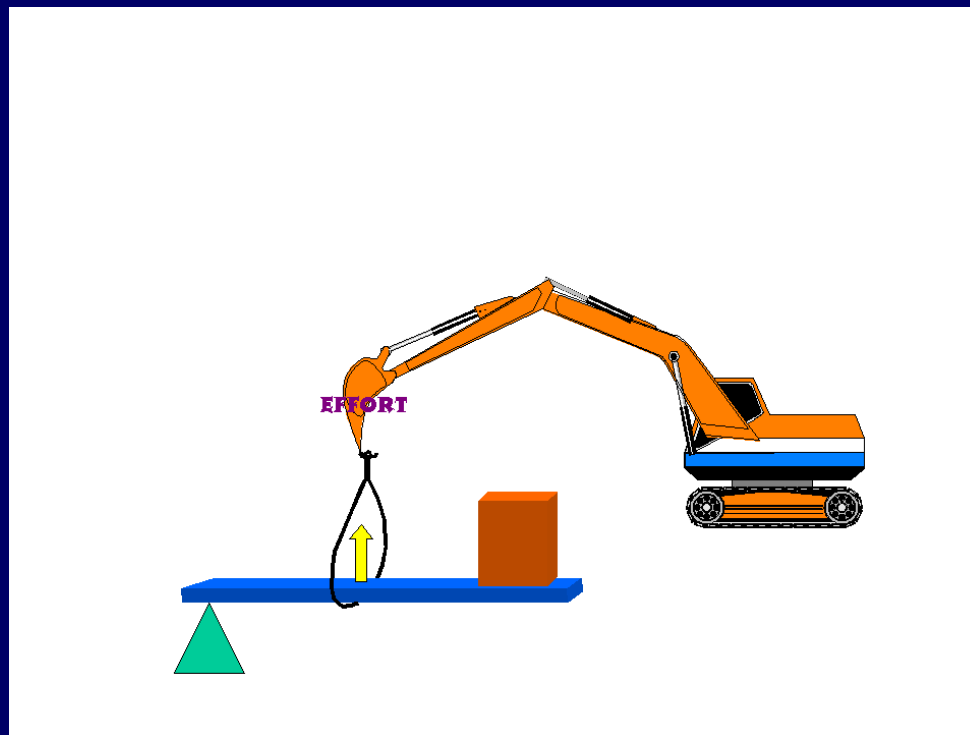
Observation- You observe something in the material world, using your senses or machines which are basically extensions of those senses.

This information is considered **qualitative data**



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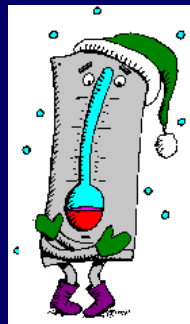
Observation



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Measuring – Using standard measures or estimation to describe specific dimensions of an object or event.

This information is considered **quantitative data**



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Inferring – formulating assumptions or possible explanations based upon observations.



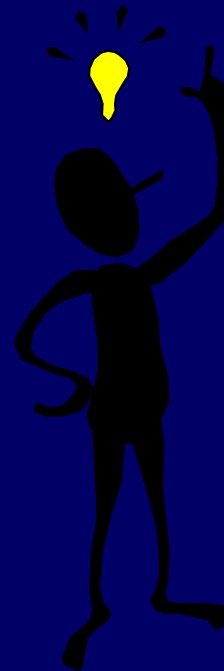
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Classifying – Grouping or ordering objects or events into categories based upon characteristics or defined criteria.



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Predicting – Guessing the most likely outcome of a future event base upon a pattern of evidence.



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Communicating – Using words, symbols, or graphics to describe an object, action or event.



Attempting the Design Question at HSC



Aim of the design question:

The aim of this question is to ...

Control of variables:

Dependent variable

Independent variable

$$y = mx + c$$

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Control of variables:

What about if there is more than one independent variable?



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Identifying Variables – Stating the changeable factors that can affect an experiment.

Only one variable (the one to be tested) should be changed while the rest should be kept constant.

The one being manipulated is the **independent variable**.

The one being measured to determine its response is the **dependent variable**.

All variables that do not change and may be potential independent variables are **constants**.

Attempting the Design Question at HSC



Experimental set up:

A well labelled diagram

Methodology:

Procedure

- well structured steps
- sequential items
- how variables are collected
- graphical representation of relationship

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Interpretation of Results:

Emanates from the graphical relationship

Recommendation:

How the experiment could be improved for better reliable results