Stonelaw High School

Faculty of Science

Identifying Variables

Variables

A variable is something which can be changed in an investigation.

To make an investigation fair only one variable should be changed at a time.

Why are variables so important in Science? Watch the video below!

https://www.youtube.com/watch?v=iaewZmc4TYQ&feature=emb_logo

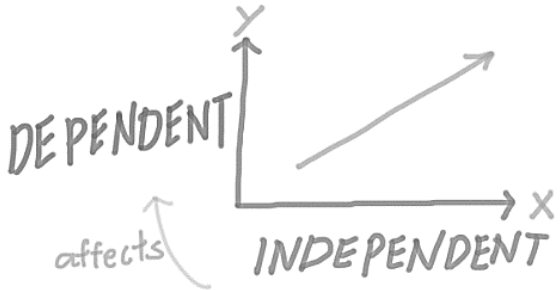
Variable Terms

Term	*What it is used to describe*	*Example*
Volume	How much there is of a liquid / gas	Volume of water
Concentration	Something in solution	Concentration of enzyme solution
Type	Kind of something	Type of yeast
Mass	How much there is of a solid	Mass of sugar
Number	How many there is of something	Number of seeds
Size / height	How big something is	Size of stain
Length	How long something is left for / runs for	Time
Temperature	How hot or cold something is	Temperature of water bath

Types of Variables

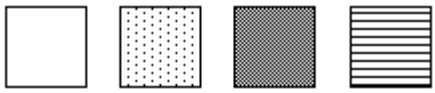
- An **independent** variable is what you are investigating and is the only variable to be changed with each experiment. This is always the first column in a table and plotted on the x axis.

- A **dependent** variable is what you are measuring. This is always the second column(s) in a table and plotted on the y axis.



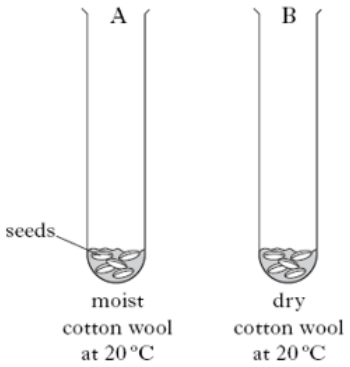
- **Controlled** variables are factors which might also affect the dependent variable
  - For a fair test, and to be sure the independent variable caused the result, all other variables must be the kept the same between the different experiments

Example 1



The pattern of each square is different- this is the independent variable.
The size and type of shape is the same for each square- these are the controlled variables.

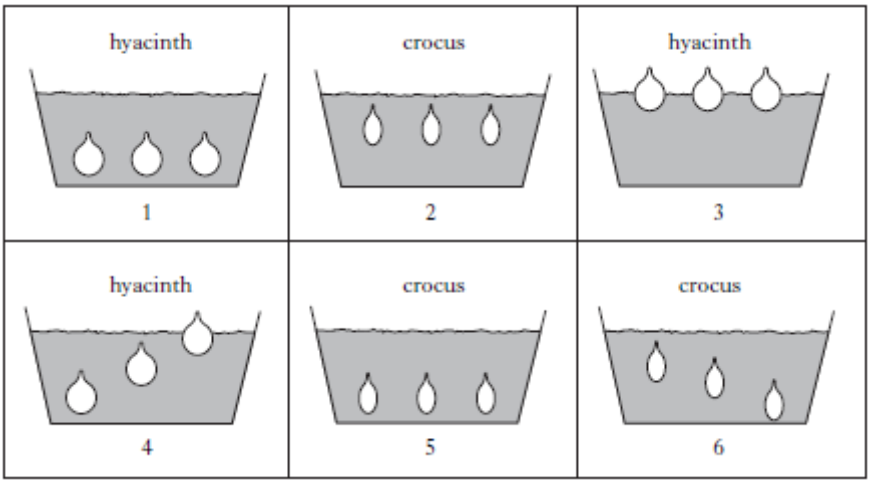
Example 2



The volume of water is different in each test tube- this is the independent variable.
The number of seeds which being to grow is what is observed or measured- this is the dependent variable.
For a fair experiment, anything which might affect how well a seed can grow should be controlled.

- type of seed
- number of seeds
- temperature
- length of time seeds given to germinate

Example 3



If experiment 2 and 3 are compared, they pupil is trying to find out if how deep they are planted affects how well they will grow.
If experiment 1 and 5 are compared, the student is trying to find out about the growth of different types of bulbs.
Experiment 1 and 2 cannot be compared because there is more than one variable which is different- the type of bulb and how deep the bulbs are planted.