Scientific Method Notes

Hypothesis and Variables

- **Hypothesis**- a **testable explanation** of an observation.
- A hypothesis is **NOT just an educated guess** about what you think will happen. It must be able to be tested!

We write the hypothesis in an **If-Then statement**

Ex: **If** the amount of fertilizer is increased, **then** the height of the plant will increase.

Variables & Controls

- A **variable** is anything that ***changes*** in a scientific experiment.
- The **control** is what you use to ***compare*** the results to in the end of the experiment.

There are 2 types of variables:

Independent variable

Dependent variable

The Independent Variable goes after the "If"

The Dependent Variable goes after the "then"

If the amount of fertilizer is increased,

then the height of the plant will increase.

Example:

- If you spend more time studying, then your grade will improve.
- Independent Variable = amount of time spent studying
- Dependent Variable = grade

Example:

- If the temperature of the room is increased, then the bacteria will grow faster.
- Independent Variable = temperature of room
- Dependent Variable = bacterial growth

A **variable** is anything that ***changes*** in a scientific experiment.

The **control** is what you use to ***compare*** the results to in the end of the experiment.

Independent Variable vs. Dependent Variable

	Independent Variable	Dependent variable
Also known as:	Manipulated variable	Responding Variable
Results:	Cause	Effect
On a graph:	X-axis	Y-axis

After all of the data from the experiment is collected, then it is time to organize the data.

- Put your data into a **data table**
- Make the data table into a **graph**
- **GRAPHS make it EASIER to see patterns in the data!**
- DRY MIX
    - **D**ependent Variable = **R**esponding Variable = **Y** axis
    - **M**anipulated Variable = **I**ndependent Variable = **X** axis