**The Scientific Method**

**Steps:**



**The Scientific Method**

**Details:**

1). Observation

* Using the five senses, especially sight
* Could be used to identify a problem
* May be driven by curiosity

2). Question

* Form a question based on the observation
* Need to include variables (see below for more info)

3). Hypothesis

* An educated guess or prediction
* Based on background research
* Needs to be testable
* “If.., then…” statement

4). Experiment

* Includes materials and methods (procedure)
  + Materials: items needed for the experiment
  + Methods: the steps needed to carry out the experiment
* Variables:
  + Independent variable: the factor that the scientist changes
  + Dependent variable: the factor that responds to the independent variable (the results of the experiment)
  + Controlled variable (or control group): factor that is not treated and left alone, used as a comparison
  + Constant: factor that is kept the same throughout the experiment

5). Data

* Record results/data from the experiment
* Qualitative data: cannot be measured
* Quantitative data: can be measured
* Includes data tables and graphs
* Calculations, statistical analysis of data

6). Analysis

* Outcomes of experiment (refer to data)
* Explain what the data indicates
* Sources of error: what went (or possibly went) wrong in your experiment
* Improvements: changes that you would make next time

7). Conclusion

* State if the hypothesis was supported or not
* “Since… , then…” statement