

Section 2: The Scientific Method

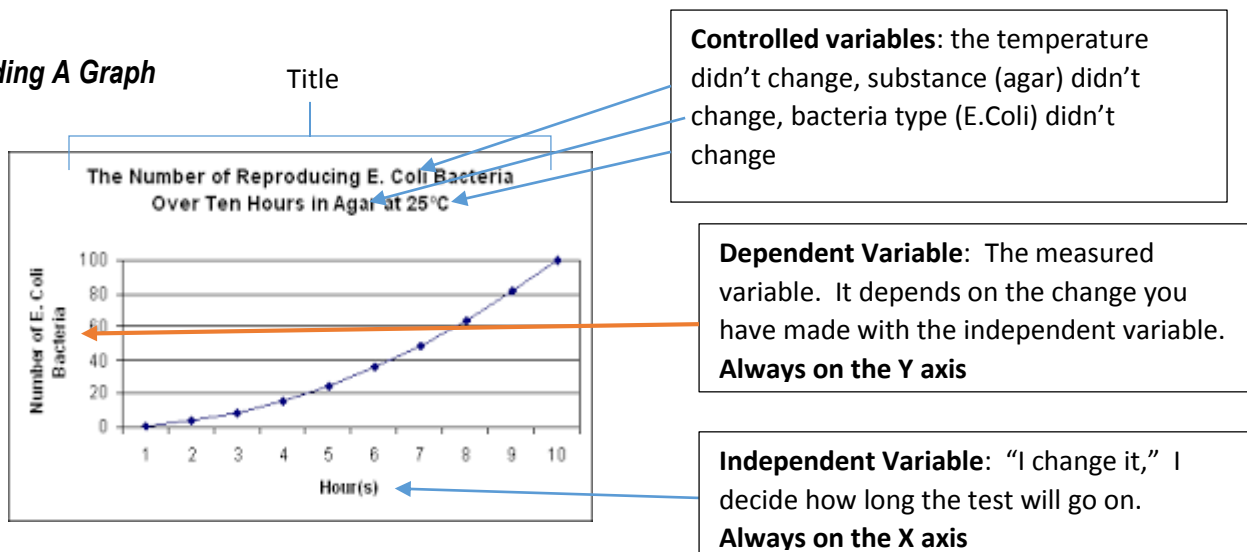
- Scientific Method (See Flow Chart Organization)

Definition: A systematic approach to solving problems.

- Must be **Reproducible**
 - Must be able to replicate other people's research. The replication brings support and credibility to the research.
- Observation vs. Experimentation
 - **Observation:** looking and watching (uses the five senses)
 - **Experimentation:** trying/testing, trial and error
- Quantitative vs. Qualitative
 - **Quantitative:** measurable (involves a #)
 - **The plant grew 5 inches over the thirty day trial.**
 - **Qualitative:** subjective (descriptions)
 - **The plant's leaves were red and glossy.**
- **Hypothesis:** an "educated" prediction or answer to the problem
 - Must be **testable**
 - **Written:** **IF** the independent variable does this, **THEN** the dependent variable does this.
 - **IF** the amount of fertilizer is increased, **THEN** the plant's height will increase.
- Experimentation (Controlled Experiment)
 - Experiment in which all factors are controlled except that which is being tested.
 - **Independent Variable:** the variable being manipulated; i.e., the variable "I" change as the scientist
 - **Dependent Variable:** the variable being measured in the experiment (the data you are collecting)
 - **Controlled Variable:** the group in an experiment that does not get tested and is used as a comparison for checking results of an experiment

Scientific Method Flow Chart on Next Page!

Reading A Graph



Scientific Method Flow Chart

