1 Unit 1

1.1 Change and the Scientific Method

- The change in the Crab Nebula was formed by an exploding star. This was found throught the Scientific Method.
- To understand change, one must understand the types of change.
  - Faster, or slower.
  - Visible, or invisible.
  - Destructive, or peaceful.
  - Lasting, or fleeting.
  - Monumental, or small.
  - Physical, or chemical.
  - Biological, or inert.
- The scientific method is a method for studying change.
- There are steps, obviously.
  1. Observe and question
  2. Research and gather information
  3. Form a hypothesis
  4. Experiment, to design a test for the hypothesis
  5. Data and Analysis, in which experiment is run, and data is gathered and organized.
  6. Conclusion.
- A theory is an hypothesis proven valid under all conditions and scrutiny.
- A law is a theory proven even more valid. It is “infallible” which is a super loaded term and I disapprove.

1.2 Scientific Notation

- Pretty simple stuff. A "Standardized way of expressing values in science, consisting of significant figures and a power of ten as well as a unit."
- Addition and subtraction go with decimal, Multiplication and division run with lowest sig figs.

1.3 Data

Data is Quantified attributes or characteristics of an item in an event of change—length, mass, time, or force.

MKS	Meter	Kilogram	Second	Newton
CGS	Centimeter	Gram	Second	Dyne
B.E.	Foot	Slug	Second	Pound

- Precision is data aligning with data, accuracy is data aligning with the truth.
- Measurement is a comparison to a standard.

1.4 Dimensional Analysis

Quantity	Dimension
Distance	L
Area	L^2
Volume	L^3

$$x = vt + x_0$$