*Chemistry Study Guide—Nature of Science & Scientific Measurement*

**I.** **Nature of Science** – Chap 1

 **a. Scientific method**
 🡪 Know the steps and what each step involves

1. Question 🡪 2. Research 🡪 3. Hypothesis 🡪 4. Experiment/Observe 🡪 5. Results 🡪 6. Conclude

**b. Philosophy of science**

**c. History of Chemistry**

🡪 Alchemy vs. Chemistry

🡪 Know names and what they did…

 -Antoine Lavoisier, John Dalton, Goldstein, J.J. Thompson, Marie Curie, Henry Moseley, Chadwick

**d. Types of Chemistry**

🡪Know each type and a basic description of what each focuses on

 -Organic, Analytical, Physical, Inorganic, Biochemistry

**e. Experimental methods**

🡪 Pure science vs. Applied science

**f. Lab equipment**

🡪 Know emergency equipment and procedures for the lab. Review the lab safety quiz.

**II**. **Scientific Measurement** – Chap 2

1. **Qualitative vs. quantitative measurements**

🡪Be able to distinguish between the two types

Qualitative:

Quantitative:

1. **Scientific notation**

🡪Be able to put numbers in standard form OR scientific notation

1. **Accuracy, precision, and error**🡪Be able to distinguish between accuracy and precision

🡪Be able to calculate percent error

🡪 $\% error=\left(\frac{True-Experimental}{True}\right)x100$

1. **SI units and unit conversions**

🡪Given conversion factors, be able to convert in time, distance, and volume

1. **Density**

🡪Be able to calculate density, mass, or volume



1. **Significant figures**

🡪Be able to count sigfigs

🡪Be able to explain WHY sigfigs matter

🡪Be able to explain how the “Box Straws” lab relates to sigfigs