Lesson 2: Intro to Chemistry Key Terms

Scientific Method:

1. **Scientific method** – a method of research in which a problem is identified, relevant data are gathered, a hypothesis is formulated from these data, and the hypothesis is empirically tested.
2. **Observation** – the act of noting and recording something with instruments.
3. **Hypothesis** – a tentative explanation for an observation or scientific problem that can be tested by further investigation.
4. **Experiment** – a test under controlled conditions that is made to demonstrate a known truth, examine the validity of a hypothesis, or determine the efficacy of something previously untried.
5. **Independent variable (manipulated variable)** – variable whose value is being altered to bring a change in some condition.
6. **Dependent variable (responding variable)** – the observed variable in an experiment or study whose changes are determined by the presence or degree of one or more independent variables.
7. **Controlled variable** – a sample in which a factor whose effect is being estimated is absent or is held constant, in order to provide a comparison.
8. **Conclusion** – a position reached after consideration of data obtained from an experiment.

Measurements and Calculations:

9. **Qualitative data** – data described in terms of some quality or categorization that may be informal or may use ill-defined characteristics such as warmth and flavor.
10. **Quantitative data** – data described in terms of quantity and in which numerical values are used.
11. **Mass** – a property of matter equal to the measure of an object's resistance to changes in either its speed or direction of its motion. The mass of an object is not dependent on gravity and therefore is different from but proportional to its weight.
12. **Volume** – the amount of space occupied by a three-dimensional object or region of space.

13. **Length** – the measurement of the extent of something along its greatest dimension.
14. **Temperature** – a measure of the average kinetic energy of the particles in a sample of matter, expressed in terms of units or degrees designated on a standard scale.
15. **Metric system** – a decimal system of units based on the meter as a unit length, the kilogram as a unit mass, and the second as a unit time.
16. **Scientific notation** – a method of writing or displaying numbers in terms of a decimal number between 1 and 10 multiplied by a power of 10.
17. **Dimensional analysis** – a technique that involves the study of dimensions of physical quantities.
18. **Significant figures** – all of the numbers in a measurement that are known to be accurate plus one that is uncertain.