

# Welcome to Advanced Placement Chemistry!

## Summer Assignment

Please read through this entire sheet before starting the assignment.

AP Chemistry is a fast-paced course. In order to have time to cover all the topics and to spend time reviewing problems in class, it is important that you start the year with a good understanding of Chemistry 1 topics. We do not have time to completely review everything you learned before. You are therefore responsible for reviewing and creating 4 study guides as follows:

### General Study Guide Instructions

- Each study guide should fit on **one** 8.5 x 11 sheet of paper (you can use both sides if necessary)
- You may type or hand write, but it must be neat and concise.
- You may use your notes from Chemistry 1 and/or other resources such as those found online. However, you must put the information in your own words. **Copying, or cutting and pasting information from other sources (including other students) will result in a zero.**
- **All assignments are due the first day of class and will be for a class grade.**
- It is strongly recommended that you set aside time to work through these assignments gradually over the Summer and do NOT leave them until a few days before school starts.

### Study Guide 1: Math, Measurement, and Moles.

Your study guide should include all of the following:

- Units of metric measurement, their abbreviations and what they measure (ex: mass – grams (g))
- Metric prefixes and examples of conversions (Ex: converting cm to km)
- Definitions and examples of precision and accuracy.
- Rules for determining significant figures with examples.
- Density formula and example.
- Mole problems and examples– how to calculate molar mass, percent composition, empirical formula and molecular formula, and how to perform mole conversions (mole-mass and mole-particle).

### Study Guide 2: Classification and Properties of Matter.

Your study guide should include all of the following:

- States of matter with a description of particle arrangement, particle movement, and energy of the particles in each state. A particle diagram depicting a substance in each state should also be included.
- Definitions and examples for the following:
  - Matter
  - Pure substance
  - Element
  - Compound
  - Mixture
    - Heterogeneous mixture
    - Homogeneous mixture/ solution
  - Methods to separate mixtures (such as filtration)
  - Physical change
  - Chemical change
    - Evidence for chemical reactions
    - How to write a balanced chemical equation.

### Study Guide 3: Development of Atomic Theory.

Your study guide should include the following:

- The Law of Conservation of Mass
- The Law of Definite Proportions
- The Law of Multiple Proportions
- The following scientists with a brief description of their main contribution to our understanding of atomic theory and their experiments (if appropriate).

Dalton

Bohr

Heisenberg

J.J. Thomson

Planck

Pauli.

Rutherford

DeBroglie

Millikan

Schroedinger

### Study Guide 4: Naming and Formulas.

Your study guide should include the following:

- How to name the following types of compounds, with at least one example of each.

#### **Ionic**

Make sure you include

Naming of polyatomic ions

Roman numerals for transition metals

Hydrates

#### **Acids**

#### **Covalent**