

TO: 2023 – 2024 AP Chemistry students

May 5, 2023

There will be no assigned reading over the summer.

On the first day of the school year, I will give an Initial Assessment, checking your understanding of basic scientific principles and knowledge of facts, your ability to reason mathematically and the proper use of units, and to express written answers coherently.

This assessment will give you a clear idea of the rigor of this course and the skills needed to finish it successfully.

Therefore, you should take it very seriously.

Numerical problems will be set up so that they can be easily estimated or solved.

Units need to be used throughout any numerical problem to receive credit.

The topics are:

1. Basic algebraic conversions
2. Scientific Method, graphing, units of measurement, conversion of units, significant figures, scientific notation and metric prefixes
3. Classification of matter and energy, physical and chemical properties, Kinetic Theory of Heat and Temperature
4. Atomic structure, subatomic particles, emission and absorption spectra
5. Chemical nomenclature, molecular mass, % composition, The Mole, chemical equations and reaction types
6. Properties of solids, liquids, and gases, Kinetic-Molecular Theory of Gases
7. Electron configurations and The Periodic Table
8. Chemical Bonding (covalent, ionic, metallic) and molecular geometry (VSEPR)
9. Solutions
10. Reaction diagrams, enthalpy/entropy, dynamic equilibria, LeChatelier's Principle
11. Acids and Bases: theories, properties of acids and bases, pH, indicators, titration
12. Redox reactions, oxidation states, voltaic and electrolytical cells, activity series
13. Nomenclature, structure and reactions of organic molecules, functional groups
14. Radioactive decay, types of radiation, fission and fusion reactions

The test will contain 30 multiple-choice questions and 7 free-response questions.

You will be given an AP Chemistry Periodic Table with element symbols, atomic numbers, atomic masses and relevant mathematical formulas and constants.

It will not include numerical prefixes, units, names of elements, polyatomic ions, acids and bases, organic prefixes, functional groups, and oxidation states.

This test will count as two tests for the first marking period. **It will not be curved.**

Florian König