

CP Chemistry 2017-18 Syllabus

Mr. Castagno and Mrs. Rai

Semester 1

Unit 1 – Introduction to Chemistry Part 1

- Definition of Chemistry
- Scientific Method
- Units of Measurement
- Using Measurements

Unit 1 – Introduction to Chemistry Part 2

- Classification of Matter
 - o States, Laws, Concentration
- The Elements
- Properties of Matter
- Energy and Matter

Unit 2 – The Atom Part 1 – Structure

- History of Atomic Theory
- Structure of the Atom
- Development of a New Atomic Model
- The Quantum Model of the Atom
- Electron Configuration

Unit 2 – The Atom Part 2 – Nuclear Chemistry

- Nuclear Decay
- Nuclear Fission
- Nuclear Fusion

Unit 3 – The Periodic Table

- History of the Periodic Table
- Electron Configuration and the Periodic Table
- Electron Configuration and Periodic Properties

Unit 4 – Chemical Bonding

- Introduction to Chemical Bonding
- Molecular Compounds: Covalent Bonding and Naming
- Ionic Compounds: Ionic Bonding and Naming
- Metallic Bonding
- Molecular Geometry

Midterm Examination

Semester 2

Unit 5 Part 1 – Reactions

- Describing Chemical Reactions
- Types of Chemical Reactions
- Acid – Base Reactions
 - o Neutralization
 - o Strong v Weak Acids/Bases
 - o Le Chatelier's (wrt above)
- Activity Series of the Elements

Unit 5 Part 2 – The Mole

- The Mole (use)
- Molar Mass
- Percent Composition
- Empirical/Molecular Formula Determination
- Ideal Gas Law (moles & mass)
- Solution Concentration (M & m)

Unit 5 Part 3 –Stoichiometry

- Ideal Stoichiometry Calculations (mole-mole and mass-mass)
- Limiting Reactants
- Percent Yield

Unit 6 - Thermochemistry

- Role of Heat
- "Driving Forces" of chemical processes
- Calorimetry

Unit 7 – Chemistry in the Environment

- Natural chemical processes
- Soil/Water/Air Chemistry
- Impact of Human activities

Final Examination

Labs: Weekly depending on schedule (holidays, in-services, weather cancellations, etc.) Full Lab Reports are not expected on **all** labs.

Projects: Biggest project is the Elements Champions League. Other activities/projects will be announced accordingly.

*Order of topics within unit may change slightly

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