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| --- | --- | --- | --- |
| **1st TERM** (*PAP concepts in italics)* | **2nd TERM**  *(PAP concepts in italics)* | **3rd TERM** (*PAP concepts in italics)* | **4th TERM** (*PAP concepts in italics)* |
| **1: Safety** | **5: Electrons in Atoms and Periodic Table History/Structure*** Atomic models: plum pudding, Bohr, Schrodinger
* Electromagnetic spectrum, energy, frequency/wavelength
* Electron configurations (intro to Lewis dot structures and ions)
* Periodic table history
* Periodic table trends (including valence electrons, ions)
 | **8: Empirical/Molecular Formulas*** Review molar mass
* Empirical/molecular concepts
* *Empirical/molecular calculations*
* *Hydrates*
 | **12: Gas Laws*** Conceptual gas laws
* KMT
* Diffusion/effusion
* Real vs ideal
* Boyles, Charles, Gay Lussac
* Combined Gas Law
* Dalton’s Partial Pressures
* Avogadro’s Hypothesis
* Ideal Gas Law
* Ideal vs Real gases
 |
| **2: Properties of Matter*** Substance/Compound
* Homogeneous/Heterogeneous
* Physical/Chemical
* Intensive/Extensive
* Qualitative/Quantitative
 | **6: Bonding and Intermolecular Forces*** Ionic bonding, properties
* Metallic bonding, properties
* Covalent bonding, properties
* Ionic vs Covalent compounds
* Lewis dot structures for cmpds
* VSEPR
* Polar bonds; polar molecules
* *IMF’s and physical properties of cmpds*
 | **9: Balancing/Reaction Types*** Writing equations
* Balancing equations
* Reaction types/predicting products (ACA is limited)
* *Intro to Redox*
 | **13: Solids, Liquids, and Phase Changes*** States of Matter/properties
* Phase Diagrams
* Phase Change Diagrams
* Properties of Water
* *Allotropes*
 |
| **3: Measurement*** Accuracy/Precision
* SI units and metric
* Significant Figures and Calculations
* Dimensional Analysis (intro to mole quantity for calculations)
 | **7: Nomenclature*** Ionic
* Binary Covalent
* Polyatomic
* Acids and Bases
 | **10: Stoichiometry*** Mole-mole and mass-mass
* Mass-volume-rep particles
* Limiting reagents, % yield concepts
* *Lim reagent, % yield calcs*
 | **14: Solutions, Mixtures, Molarity*** Solution vs Mixture
* Types of Mixtures
* Molarity calculations
* Solubility rules
* *Net Ionic Equations*
 |
| **4: Atomic Theory and Structure*** Dalton’s Atomic Theory
* Subatomic particles and their discoveries: Thomson, Rutherford
* Isotopes
* Atomic number, Mass number
* Average Atomic Mass
* Moles/molar mass
 |  | **11: Thermochemistry*** Heat vs Temperature
* Calorimetry
* Enthalpy diagrams
* Thermochemical Equations
* Heats of Formation
* *Hess’s Law*
 | **15: Acids and Bases*** Properties of acids, bases, salts
* Review of naming
* pH scale and calculations
* Neutralization and titration calcs
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|  |  |  | **16: Nuclear (if time permits!)*** Types of radiation
* Balancing nuclear equations
* Half life
* Fission vs Fusion
* Uses of nuclear energy
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