Topic Breakdown For Regents Chemistry

Intro and Matter

- safety
- scientific method
- sig figs
- equipment
- elements, compounds and mixtures
- dimensional analysis
- metric units
- scientific notation
- density
- percent error
- physical and chemical changes

Atomic Structure

- subatomic particles
- average atomic mass
- isotopes
- ions
- history of the atom
- electron configurations
- bright line spectrum

Periodic Table

- periodic law
- properties of metals, nonmetals, metalloids
- trends of the periodic table
- groups
- states of matter at STP
- valence electrons
- element dot diagrams

First Quarterly

Naming and Reactions

- formula naming for ionic compounds
- formula naming for covalent compounds
- stock system
- formula writing for ionic and covalent compounds
- types of reactions
- balancing
- predicting products/reactants
- find the missing products/reactants
- writing equations from words
- conservation of mass problems

Bonding

- types of bonds
- lewis dot diagrams for compounds, ions,
- shapes
- polarity
- intermolecular forces of attraction
- types of solids

Heat Energy

- temperature conversions
- heating/cooling curves
- potential and kinetic energies
- phases of matter
- phase changes
- heat calculations

Midterm

Gas Laws

- Boyles
- Charles
- Gay-lussac
- Combined gas law
- Vapor pressure
- Avogardo's hypothesis

Stoichiometry

- Gfm
- Percent comp
- Composition of a hydrate
- Moles
- Empirical to molecular formulas
- Mole ratios

Solutions

- Factors affecting solubility
- Solubility curve
- Molarity
- Colligative properties

Kinetics and Equilibrium

- Potential energy diagrams
- Entropy
- Enthalpy
- Spontaneous reactions
- Exothermic and endothermic reactions
- Heats of reactions
- Types of equilibrium
- Definition of equilibrium
- Le chatelier's principle

Third Quarterly to only go up to Kinetics

Acids and Bases

- Acid properties
- Base properties
- Arrhenius theory
- Alternate theory
- pH and pOH
- pH scale
- relationship between pH change and concentration
- indicators
- titrations

Redox

- assigning oxidation numbers
- writing half reactions
- balancing redox reactions
- voltaic cell
- electrolytic cell

Organic Chemistry

- hydrocarbons
- functional groups
- organic reactions
- naming isomers

Nuclear Chemistry

- nuclear particles
- solving nuclear reactions
- fission and fusion
- artificial and natural transmutation
- half life

Review for the Regents Exam