

Viziscience Catalog 2019

High School Chemistry

Basic Concepts

Matter

History of the Atom

Atomic Structure, Isotopes, & Ions

The Periodic Table

Isotopes and Relative abundance

Formulas of compounds

Molecular Formula & Empirical Formula

Polyatomic Ions - Oxyanions

Polyatomic Ions - Acids

Mole Concept & Stoichiometry

Moles & Molar Mass

Balancing Equations

Dimensional Analysis

Stoichiometry

Percent Composition

Limiting Reactant

Percent Yield

Molarity & Solutions Stoichiometry

Electron Configuration

Introduction to Electron Configurations

The Order of Electron Filling

Ground State and Excited State

Quantum Numbers

Coulomb's Law, Ionization Energy & PES

The Periodic Table Trends

Lewis Dot Structure & Formal Charges

VSEPR

Intermolecular Forces

Acids and Bases (Part I)

Acids and Bases Introduction

Arrhenius Theory

Bronsted-Lowry Theory

Lewis Theory

Conjugate Acids and Bases

Amphoteric Vs Amphiprotic

Neutralization

Acids and Bases (Part II)

Calculating pH & pOH

Strong and Weak Acids and Bases

Equilibrium Constants for Acids and Bases: K_a , K_b & K_w

Buffers

Henderson-Hasselbalch Equation for Buffers

Polyprotic Acids Dissociation

Calculate dissociation constants (K_{a1} and K_{a2}) using ICE table

Gas Laws

Introduction & Kinetic Theory

Ideal Gas Law

Avogadro's law

Charle's law

Boyle's Law

Gay-Lussac's Law

Dalton's Law of Partial Pressures

Atmospheric Pressure, Barometer & Pressure Units

Thermodynamics

Collision Theory

Bond Energy

Entropy & The Laws of Thermodynamics

State Function

Enthalpy

Spontaneous & Non-Spontaneous Process, & Gibbs Free Energy

Hess's Law

Redox & Electrochemistry

Chemical Reactions & REDOX

Balancing REDOX Using Oxidation Numbers & Half Reactions

Balancing REDOX in Acidic and Basic Conditions

Voltaic Cells

Calculate Standard Cell Potentials