



Mesquite ISD Curriculum Sequence Second Semester CHEMISTRY

| 4th Six Weeks | 5th Six Weeks | 6th Six Weeks |
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| <p>Students will investigate the following:</p> <p><u>Energy</u></p> <p>Students will understand energy and its forms, including kinetic, potential, chemical, and thermal energies.</p> <p>Students will understand the law of conservation of energy and the processes of heat transfer.</p> <p>Students will use thermochemical equations to calculate energy changes that occur in chemical reactions and classify reactions as exothermic or endothermic.</p> <p>Students will perform calculations involving heat, mass, temperature change, and specific heat.</p> <p>Students will use calorimetry to calculate the heat of a chemical process.</p> <p><u>Solutions</u></p> <p>Students will describe the unique role of water in chemical and biological systems.</p> <p>Students will develop and use general rules regarding solubility through investigations with aqueous solutions.</p> <p>Students will calculate the concentration of solutions in units of molarity.</p> <p>Students will use molarity to calculate the dilutions of solutions.</p> <p>Students will distinguish between types of solutions such as electrolytes and nonelectrolytes and unsaturated, saturated, and supersaturated solutions.</p> <p>Students will investigate factors that influence solubilities and rates of dissolution such as temperature, agitation, and surface area.</p> <p>Students will understand and differentiate among acid-base reactions, precipitation reactions, and oxidation-reduction reactions.</p> | <p>Students will investigate the following:</p> <p><u>Stoichiometry</u></p> <p>Students will quantify the changes that occur during chemical reactions.</p> <p>Students will perform stoichiometric calculations, including determination of mass relationships between reactants and products, calculation of limiting reagents, and percent yield.</p> <p><u>Acids and Bases</u></p> <p>Students will name ionic compounds containing main group or transition metals, covalent compounds, acids, and bases, using International Union of pure and Applied Chemistry (IUPAC) nomenclature rules.</p> <p>Students will write the chemical formulas of common polyatomic ions, ionic compounds containing main group or transition metals, covalent compounds, acids, and bases.</p> <p>Students will define acids and bases and distinguish between Arrhenius and Bronsted-Lowry definitions and predict products in acid base reactions that form water.</p> <p>Students will understand and differentiate among acid-base reactions, precipitation reactions, and oxidation-reduction reactions.</p> <p>Students will define pH and use the hydrogen or hydroxide ion concentrations to calculate the pH of a solution.</p> <p>Students will distinguish between degrees of dissociation for strong and weak acids and bases.</p> <p><u>Types of Reactions</u></p> <p>Students will understand and differentiate among acid-base reactions, precipitation reactions, and oxidation-reduction reactions.</p> | <p>Students will investigate the following:</p> <p><u>Gas Laws</u></p> <p>Students will describe and calculate the relations between volume, pressure, number of moles, and temperature for an ideal gas as described by Boyle's law, Charles' law, Avogadro's law, Dalton's law of partial pressure, and the ideal gas law.</p> <p>Students will perform stoichiometric calculations, including determination of mass and volume relationships between reactants and products for reactions involving gases.</p> <p>Students will describe the postulates of kinetic molecular theory.</p> <p><u>Nuclear Chemistry</u></p> <p>Students will describe the characteristics of alpha, beta, and gamma radiation.</p> <p>Students will describe radioactive decay process in terms of balanced nuclear equations.</p> <p>Students will compare fission and fusion reactions.</p> |