

**AP Chemistry
First Semester**

Reporting Standards	Mark
Bonding	
States of Matter	
Stoichiometry and Reactions	
Thermodynamics	
Kinetics	
Lab Practices and Quantitative Reasoning	
Final Reporting Standard Mark	

<i>Bonding</i>
PS1: Atomic Structure and Periodicity: Atomic structure results in periodic trends and specific kinds of bonding.
PS2: Types of bonding: There are several types of chemical bonds. The type of bond affects chemical and physical properties.
PS3: Molecular Models: Models can be used to describe the molecular geometry and bonding of a substance.
<i>States of Matter</i>
PS4: Kinetic Molecular Theory: Kinetic molecular theory is used to describe the behavior of gases.
PS5: Intermolecular Forces: Intermolecular forces are used to predict and explain the properties of matter.
<i>Stoichiometry and Reactions</i>
PS6: Stoichiometry: Quantitative information can be derived from stoichiometric calculations utilizing the mole concept.
PS7: Chemical Reactions: Qualitative and quantitative predictions can be made about the reactants and products in chemical reactions.
<i>Thermodynamics</i>
PS8: Energy in reactions: The concept of enthalpy can be used to describe energy relationships in chemical and physical processes.
PS9: Spontaneity and free energy: The laws of thermodynamics can be used to describe the essential role of energy and explain and predict the direction of changes in matter.
<i>Kinetics</i>
PS10: Rates of reactions: The mechanism of a reaction along with outside factors such as temperature and catalysts can affect the rate of the reaction.
PS11: Rate Laws: Experimental data and graphical analysis can be used to determine rate laws.
<i>Lab Practices and Quantitative Reasoning</i>
PS12: Investigate and communicate: The scientific process can be used to answer research questions by gathering and analyzing appropriate data. It is important to communicate these processes and results clearly and effectively.
PS13: Explain: Conclusions must be logical, based on evidence, and consistent with prior established knowledge.
PS14: Additional aspects of chemistry: Additional chemistry topics can be explored through labs and projects.

**AP Chemistry
Second Semester**

Reporting Standards	Mark
Thermodynamics	
Kinetics	
Equilibrium	
Acids and Bases	
Electrochemistry	
Lab Practices and Quantitative Reasoning	
Final Reporting Standard Mark	

<i>Thermodynamics</i>
PS8: Energy in reactions: The concept of enthalpy can be used to describe energy relationships in chemical and physical processes.
PS9: Spontaneity and free energy: The laws of thermodynamics can be used to describe the essential role of energy and predict the direction of changes in matter.
<i>Kinetics</i>
PS10: Rates of reactions: The mechanism of a reaction along with outside factors such as temperature and catalysts can affect the rate of the reaction.
PS11: Rate Laws: Experimental data and graphical analysis can be used to determine rate laws.
<i>Equilibrium</i>
PS15: Dynamic Equilibrium: The dynamics of equilibrium systems can be used to describe and explain how a system responds to a stress.
PS16: Equilibrium constant: Quantitative analysis can be used to describe equilibrium systems.
PS17: Equilibrium and Free Energy: There is a relationship between the equilibrium constant and spontaneity in chemical reactions.
<i>Acids and Bases</i>
PS18: Qualitative Properties: Acids and bases can be described qualitatively.
PS19: Quantitative Properties: Acids and bases can be described quantitatively.
PS20: Buffers and Titrations: Quantitative relationships can be used to describe buffers and to explain acid/base neutralization.
<i>Electrochemistry</i>
PS21: Redox Reactions: Balanced redox reactions can be useful for calculating reaction potential.
PS22: Redox Reaction Potential: The potential of a redox reaction is related to its spontaneity and the direction of reactions in electrochemical cells.
<i>Lab Practices and Quantitative Reasoning</i>
PS12: Investigate and communicate: The scientific process can be used to answer research questions by gathering and analyzing appropriate data. It is important to communicate these processes and results clearly and effectively.
PS13: Explain: Conclusions must be logical, based on evidence, and consistent with prior established knowledge.
PS14: Additional aspects of chemistry: Additional chemistry topics can be explored through labs and projects.