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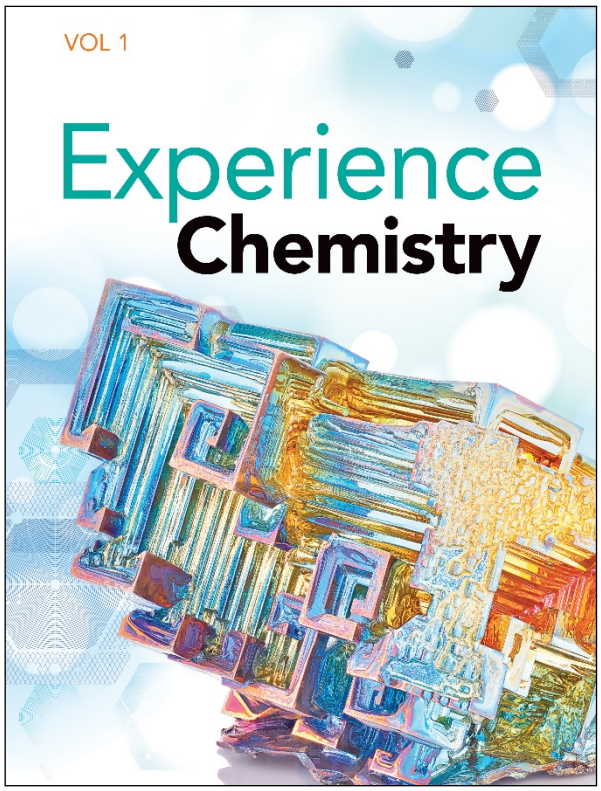

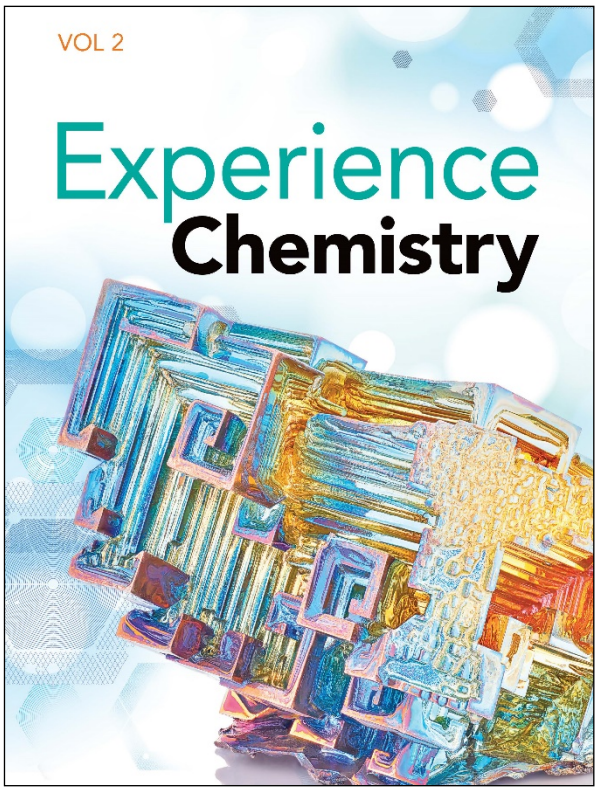

To the

Nebraska 2017 College- and Career-Ready Standards for Science Plus Standards for High School Chemistry

Prepared by Savvas Learning Company, formerly Pearson K12 Learning

A Correlation of Experience Chemistry ©2021 to the
Nebraska 2017 College- and Career-Ready Standards for Science
Plus Standards for High School Chemistry

Introduction

This document demonstrates how **Experience Chemistry ©2021** supports **[insert standards here].** Correlation references include the Experience Notebook (Vol. 1 and 2), Teacher Guide, and online digital assets.

Savvas Learning Company is excited to introduce **Experience Chemistry!** From climate change, water quality, and the newest energy sources, to the foods we grow and eat, your students will experience chemistry like never before. The program uses cool, weird, and amazing phenomena to engage students in 3-D science. Give students an up-close, first-hand experience they'll never forget.

Be the first to *Experience It!*

Storylines are organized around a real-world Anchoring Phenomena that sparks student curiosity, gives a purpose to learning and connects chemistry concepts through a unifying unique occurrence. Students encounter everyday phenomena through Claims-Evidence Reasoning Exercises, Authentic Readings, STEM Projects, and Engineering Performance Tasks.

Explore Phenomena with Flinn Scientific!

Experience Chemistry and Flinn Scientific partner to deliver high-quality inquiry opportunities to chemistry classrooms. Lab Experiments, Engineering Challenges, Performance Tasks, Virtual Reality Simulations, and Lab Videos by Flinn Scientific immerse students in hands-on chemistry.

Hands-On Labs
• Assign student-friendly labs focused on real-world phenomena in every learning experience.
• Customize your lessons with four versions of every lab including Open-Ended, Guided, Shortened, and Advanced.

Lab Videos
• Background videos, demo videos and summary videos engage and connect students to the phenomena, prepare students and instructors for set-up and revisit concepts before assessments.

Design Challenges and Performance Tasks
• Students mimic the real-world activities of engineers as they define and solve problems and design, test and evaluate solutions.
• Students demonstrate mastery of three-dimensional learning at the end of every Investigation with a Performance-Based assessment.

Lab Kits
• Simplify lab set-up and solution preparation with time-saving lab kits.

Virtual Reality
• Immerse your students in 360º simulations that bring chemistry to life.

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Plus Standards: Chemistry	
SC.HSP.3 Structure and Properties of Matter	
SC.HSP.3.1 Gather, analyze, and communicate evidence of the structure, properties, and interactions of matter.	
SC.HSP.3.1.A Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.	**Experience Notebook, Vol 1:** **Investigation 1** Types of Atoms, 13-14 Patterns in Electron Configurations, 36-38 Valence Electrons, 39 Revisit Investigative Phenomenon, 40 **TG:** **Inquiry Labs:** Develop a Periodic Table, Periodic Trends and Properties; Elemental Metals, Nonmetals, and Metalloids **Digital Activities:** Periodic Properties; Predict Reactivity Using Periodic Trends **Performance Based Assessment:** Evaluate Atomic Structure with Flame Tests; Gravimetric Analysis of Periodic Trends
SC.HSP.3.1.B Plan and conduct an investigation to gather evidence to compare the structure of substances at the macro scale to infer the strength of electrical forces between particles.	**Experience Notebook, Vol 1:** **Investigation 4** Ductility and Malleability, 142 **TG:** **Inquiry Labs:** Correlate Material Properties and Bond Type; Melt Ionic and Covalent Compounds **Digital Activities:** Intermolecular Forces in Liquids; Tough Tools **Performance Based Assessment:** Qualitative Analysis and Chemical Bonding; Identify Evidence of Chemical Reactions
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SC.HSP.3.3.E Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.	**Experience Notebook, Vol 2:** **Investigation 17** Strong and Weak Nuclear Forces, 361-364 Radioactive Decay Chains, 367 Revisit Investigative Phenomenon, 372 Nuclear Fusion, 380 **TG:** **Inquiry Labs:** Radioactive Decay; Nuclear Energy **Digital Activities:** What Happens When an Atom Decays? **Performance Based Assessment:** Natural Radiation
SC.HSP.3.3.F.Develop and use models to describe and predict mechanisms of the quantum mechanical model of the atom.	**Experience Notebook, Vol 1:** **Investigation 1** Revisiting the Atomic Model, 28-29 Revisit Investigative Phenomenon, 32 **TG:** **Digital Activities:** The Quantum Mechanical Model and Atomic Orbitals; Evaluate Atomic Models
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SC.HSP.4 Energy: Chemistry	
SC.HSP.4.2 Gather, analyze, and communicate evidence of the interactions of energy.	
SC.HSP.4.2.A Use statistical and mathematical techniques to describe qualitative and quantitative thermodynamic relationships.	**Experience Notebook, Vol 1:** **Investigation 8** Bond Enthalpy, 285-286 Sample Problem: Using Enthalpy of Reaction to Calculate Enthalpy Change, 289 Heat Summation, 292 Sample Problem: Calculating the Standard Enthalpy of Reaction, 295 Sample Problem: Calculating the Enthalpy Change in Solution Formation, 297 Revisit Investigative Phenomenon, 298 Sample Problem: Using the Heat of Fusion in Phase-Change Calculations, 301 Sample Problem: Using the Heat of Vaporization in Phase-Change Calculations, 303 **Experience Notebook, Vol 2:** **Investigation 12** Sample Problem: Determining Thermodynamic Favorability, 186 Sample Problem: Using the Crossover Temperature, 189-190 **TG:** **Inquiry Labs:** The Thermodynamics of Hand Warmers; Hess's Law and the Combustion of a Metal; The Heat of Melting Ice **Digital Activities:** Temperature Changes in Chemical Reactions; Energy in Reactions; Energy Input for the Rusting of Iron; Interpret Thermodynamic Data **Performance Based Assessment:** Enthalpy of a Neutralization Reaction

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SC.HSP.4.2.C Analyze and interpret data to explain changes in energy within a system and/or energy flows in and out of a system.	**Experience Notebook, Vol 1:** **Investigation 6** Energy of Reactions, 223-224 **Investigation 8** Bond Enthalpy, 285-286 Activation Energy, 287 Representations of Enthalpy, 288 Sample Problem: Using Enthalpy of Reaction to Calculate Enthalpy Change, 289 Heat Summation, 292 Standard Enthalpy of Reaction, 294 Revisit Investigative Phenomenon, 298, 306 Sample Problem: Using the Heat of Fusion in Phase-Change Calculations, 301 Sample Problem: Using the Heat of Vaporization in Phase-Change Calculations, 303 **Experience Notebook, Vol 2:** **Investigation 12** Changes in Free Energy, 185 **TG:** **Inquiry Labs:** The Thermodynamics of Hand Warmers; Hess's Law and the Combustion of a Metal **Digital Activities:** Temperature Changes in Chemical Reactions; Energy in Reactions **Performance Based Assessment:** Enthalpy of a Neutralization Reaction

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SC.HSP.5 Chemical Reactions	
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SC.HSP.5.3.A Plan and conduct an investigation to generate evidence that answers scientific questions related to changes in solution chemistry.	**Experience Notebook, Vol 1:** **Investigation 6** Ions in Aqueous Solution, 241-242 Sample Problem: Writing and Balancing Net Ionic Equations, 243, 247 Solubility and Strength of Intermolecular Forces and Bonds, 244 Formation of a Precipitate, 245 Predicting the Formation of a Precipitate, 246 Revisit Investigative Phenomenon, 248 **TG:** **Inquiry Labs:** Predict Chemical Reactions **Digital Activities:** Cation Meets Anion; Predict Whether a Precipitate Will Form
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SC.HSP.5.3.C Use mathematical and/or computational representations to predict and explain relationships within chemical systems.	**Experience Notebook, Vol 1:** **Investigation 6** Energy of Reactions, 223-224 What Causes Reactions?, 225 Revisit Investigative Phenomenon, 226 Combination Reactions, 228 Decomposition Reactions, 229 **Investigation 7** Proportionality of Reactants and Products, 257 Revisit Investigative Phenomenon, 258, 268, 278 Mole-Mole Calculations, 260 Sample Problem: Calculating Moles of a Product, 261 Sample Problem: Calculating the Mass of a Product, 263 A Roadmap for Solving Stoichiometric Problems, 266 Sample Problem: Calculating Molecules of a Product, 267 Sample Problem: Determining the Limiting Reagent, 272 Sample Problem: Using the Limiting Reagent to Find the Quantity of a Product, 273 Sample Problem: Calculating the Percent Yield, 277 Assessment, 279 **TG:** **Inquiry Labs:** Determination of Reaction Output; Formation of Barium Iodate **Digital Activities:** Analyzing Chemical Reactions; Proportional Relationships in Chemical Reactions; Parts and the Whole; Choosing a Practical Unit; Stoichiometry Calculations **Performance Based Assessment:** The Stoichiometry of Filling a Balloon

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SC.HSP.5.3.D Use mathematical representations to analyze the proportion and quantity of particles in solution.	**Experience Notebook, Vol 1:** **Investigation 5** Molarity, 203-204 Sample Problem: Calculating Molarity, 205 Sample Problem: Calculating Moles of Solute in Solution, 206 Sample Problem: Preparing a Dilute Solution, 209 Percent Solution, 210-211 Sample Problem: Calculating Percent by Volume, 211 Revisit Investigative Phenomenon, 212 **TG:** **Inquiry Labs:** Preparation of Solutions **Digital Activities:** Making Dilutions; Solubility and Percent by Mass
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