A Correlation of

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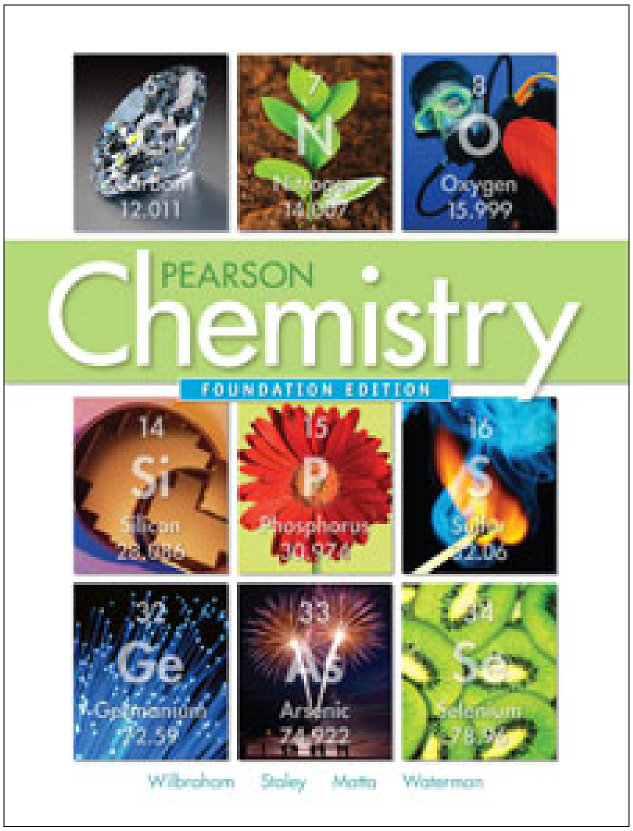

To the

Oklahoma
Academic Standards
for Chemistry

Oklahoma Academic Standards for Chemistry Performance Expectations	**Pearson Chemistry Foundation Edition, ©2012**
CHEMISTRY	
HS-PS1-1 Matter and Its Interactions	
Performance Expectations	
HS-PS1-1 Students who demonstrate understanding can: 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.	**SE / TE:** Quick Lab—Periodic Trends in Ionic Radii, page 169-Table in Lesson 6.3, Periodic Trends, pp. 162-171 Related Content: Lesson 6.1, Organizing the Elements, pp. 148-153; Lesson 6.2, Classifying the Elements, pp. 154-161
HS-PS1-2 Students who demonstrate understanding can: Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, knowledge of the patterns of chemical properties, and formation of compounds.	**SE / TE:** Lesson 7.2, Ionic Bonds and Ionic Compounds, pp. 186-192 Lesson 8.1, Molecular Compounds, pp. 204-207 Lesson 8.2, The Nature of Covalent Bonding, pp. 208-219 Related content: Lesson 7.1, Ions, pp. 180-192
HS-PS1-3 Students who demonstrate understanding can: Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.	**SE / TE:** Related Content: Lesson 13.1, The Nature of Gases, pp. 396-400; Lesson 13.2, The Nature of Liquids, p. 401-406; Lesson 13.3, The Nature of Solids, pp. 407-410; Lesson 13.4, Changes of State, pp. 411-414
HS-PS1-4 Students who demonstrate understanding can: Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.	**SE / TE:** Lesson 8.2, The Nature of Covalent Bonding, “Bond Dissociation Energies”, p. 217 Lesson 17.4, Calculating Heats of Reaction, pp. 550-555 Related Content: Lesson 17.1, The Flow of Energy, pp. 526-532; Lesson 17.2, Measuring and Expressing Enthalpy Changes, pp. 533-540; Lesson 17.3, Heat in Changes of State, pp. 541-549

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HS-PS1-5 Students who demonstrate understanding can: Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.	**SE/TE:** Lesson 18.1, Rates of Reaction, pp. 564-571 Lesson 18.2, The Progress of Chemical Reactions, pp. 572-574 Lesson 18.3, Reversible Reactions and Equilibrium, "Factors Affecting Equilibrium: Le Châtelier's Principle", pp. 578-579 and "Equilibrium Constants", p. 582
HS-PS1-6 Students who demonstrate understanding can: Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium.*	**SE/TE:** Related Content: Lesson 12.3, Limiting Reagent and Percent Yield, pp. 374-387, Lesson 18.1, "Factors Affecting Reaction Rates", pp. 568-571; Lesson 18.3, Reversible Reactions and Equilibrium, pp. 575-585
HS-PS1-7 Students who demonstrate understanding can: Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.	**SE/TE:** Lesson 11.1, Describing Chemical Reactions, pp. 316-325 Lesson 11.3, Reactions in Aqueous Solution, pp. 340-345 Lesson 12.1, The Arithmetic of Equations, pp. 354-359 Lesson 12.2, Chemical Calculations, pp. 360-373 Lesson 12.3, Limiting Reagent and Percent Yield, pp. 374-387
HS-PS1-8 Students who demonstrate understanding can: 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.	**SE/TE:** Related content: Lesson 25.1, Nuclear Radiation, pp. 818-821; Lesson 25.2, Nuclear Transformations, pp. 822-829; Lesson 25.3, Fission and Fusion, pp. 830-833
HS-PS2-6 Motion and Stability: Forces and Interactions	
Performance Expectations	
HS-PS2-6 Students who demonstrate understanding can: Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.*	**SE/TE:** Related content: Lesson 8.1, Molecular Compounds, pp. 204-207

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HS-PS3-3 Energy	
Performance Expectations	
HS-PS3-3 Students who demonstrate understanding can: Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.*	**SE/TE:** Related content: Lesson 17.1, The Flow of Energy, Energy Transformations, p. 526
HS-PS3-4 Students who demonstrate understanding can: Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).	**SE/TE:** This expectation may be presented within Chapter 17 content on Thermochemistry, pp. 526-556.
HS-PS4-1 Waves and Their Applications in Technologies for Information Transfer	
Performance Expectations	
HS-PS4-1 Students who demonstrate understanding can: Use mathematical representations to describe relationships among the frequency, wavelength, and speed of waves.	**SE/TE:** Lesson 5.3, Atomic Emission Spectra and the Quantum Mechanical Model, " Light and Atomic Emission Spectra", pp. 129-132
HS-PS4-3 Students who demonstrate understanding can: Evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.	**SE/TE:** Related content: Lesson 5.3, Atomic Emission Spectra and the Quantum Mechanical Model, "The Quantum Concept and Photons", pp. 134-136, "An Explanation for Atomic Spectra", p. 137, and "Quantum Mechanics", pp. 138-140