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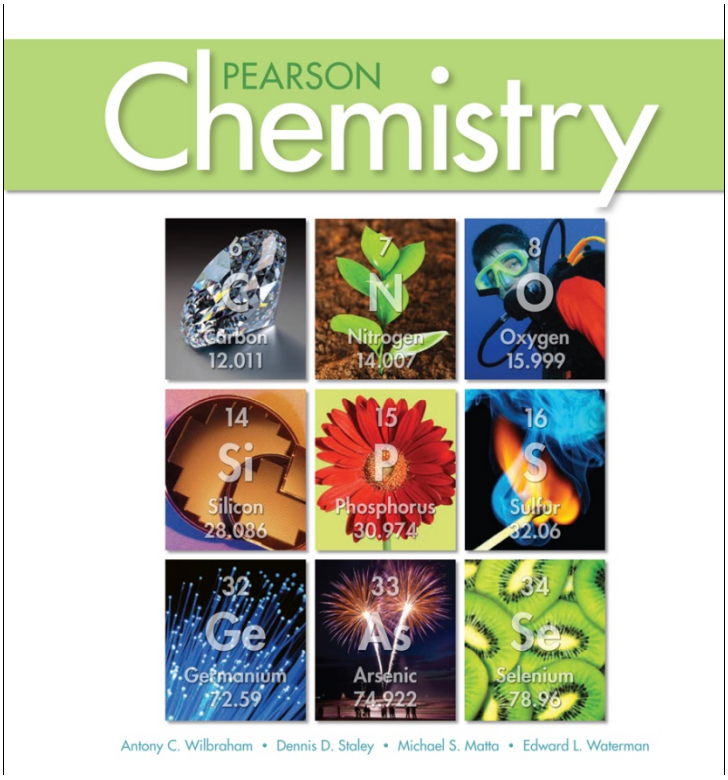

to the

Alabama Content Standards for Chemistry

High School

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INTRODUCTION

This document demonstrates how ***Pearson Chemistry,* ©2012** meets the Alabama Content Standards for Chemistry, grades 9-12. Correlation page references are to the Student and Teacher's Editions.

Pearson Chemistry combines proven and tested content with cutting-edge digital support and hands-on learning opportunities. This program provides you with everything you need to engage and motivate your students, as well as the tools to support the varied types of learners in your classroom.

Built on Grant Wiggins' *Understanding by Design* framework, this learning model connects curriculum, instruction, and assessment to the "Big Ideas" of chemistry that develops deep understanding.

Pearson Chemistry provides all of the problem-solving and math support that students need to be successful in the course, with ample opportunity for practice both in the Student Edition and in the program's digital resources.

Pearson Chemistry helps you meet the unique learning styles of each student in your classroom with a variety of resources. A variety of assessment opportunities helps you monitor student progress ensure student success on high-stakes tests.

Pearsonchem.com provides cutting-edge digital content that engages students and teachers – anytime, anywhere, with numerous practice opportunities and visual support, including interactive art and animations. Online tutors step students through chemistry and math problems, expanding learning beyond the classroom.

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Alabama Content Standards for Chemistry High School	Pearson Chemistry ©2012
ALABAMA COURSE OF STUDY – SCIENCE	
CHEMISTRY CORE – HIGH SCHOOL	
Students will:	
1. Differentiate among pure substances, mixtures, elements, and compounds.	**SE / TE:** 42-44, 47
• Distinguishing between intensive and extensive properties of matter	**SE / TE:** 34, 37
• Contrasting properties of metals, nonmetals, and metalloids	**SE / TE:** 165-166
• Distinguishing between homogeneous and heterogeneous forms of matter	**SE / TE:** 39, 41
2. Describe the structure of carbon chains, branched chains, and rings.	**SE / TE:** 762-771, 779-781
3. Use the periodic table to identify periodic trends, including atomic radii, ionization energy, electronegativity, and energy levels.	**SE / TE:** 174-182
• Utilizing electron configurations, Lewis dot structures, and orbital notations to write chemical formulas	**SE / TE:** 134-137, 194-199, 834
• Calculating the number of protons, neutrons, and electrons in an isotope	**SE / TE:** 112-119
• Utilizing benchmark discoveries to describe the historical development of atomic structure, including photoelectric effect, absorption, and emission spectra of elements Example: Thompson's cathode ray, Rutherford's gold foil, Millikan's oil drop, and Bohr's bright line spectra experiments	**SE / TE:** 105-109, 123, 128-133, 138-149
4. Describe solubility in terms of energy changes associated with the solution process.	**SE / TE:** 520-524
• Using solubility curves to interpret saturation levels	**SE / TE:** 521

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• Explaining the conductivity of electrolytic solutions	**SE / TE:** 496-497
• Describing acids and bases in terms of strength, concentration, pH, and neutralization reactions	**SE / TE:** 653-662, 664-669, 672-675
• Describing factors that affect the rate of solution	**SE / TE:** 518-524
• Solving problems involving molarity, including solution preparation and dilution	**SE / TE:** 525-531
5. Use the kinetic theory to explain states of matter, phase changes, solubility, and chemical reactions. Example: water at 25 degrees Celsius remains in the liquid state because of the strong attraction between water molecules while kinetic energy allows the sliding of molecules past one another	**SE / TE:** 5, 420, 451-454, 520-521
6. Solve stoichiometric problems involving relationships among the number of particles, moles, and masses of reactants and products in a chemical reaction.	**SE / TE:** 384-389, 390-399, 400-409, 411-416
• Predicting ionic and covalent bond types and products given known reactants	**SE / TE:** 201-207, 214, 226-238, 247-253, 256
• Assigning oxidation numbers for individual atoms of monatomic and polyatomic ions	**SE / TE:** 701-703, 704-706, 709, 710, 711
• Identifying the nomenclature of ionic compounds, binary compounds, and acids	**SE / TE:** 271-279, 280-284, 285-288, 295
• Classifying chemical reactions as composition, decomposition, single replacement, or double replacement	**SE / TE:** 356-367
• Determining the empirical or molecular formula for a compound using percent composition data	**SE / TE:** 330-331, 332-333, 340

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7. Explain the behavior of ideal gases in terms of pressure, volume, temperature, and number of particles using Charles's law, Boyle's law, Gay-Lussac's law, the combined gas law, and the ideal gas law.	**SE / TE:** 456-463, 464-468, 480
8. Distinguish among endothermic and exothermic physical and chemical changes. Examples: - endothermic physical—phase change from ice to water, - endothermic chemical—reaction between citric acid solution and baking soda, - exothermic physical—phase change from water vapor to water, - exothermic chemical—formation of water from combustion of hydrogen and oxygen	**SE / TE:** 556-559, 566, 570, 573
• Calculating temperature change by using specific heat	**SE / TE:** 559-561
• Using Le Châtelier's principle to explain changes in physical and chemical equilibrium	**SE / TE:** 612-615, 624, 654, 847
9. Distinguish between chemical and nuclear reactions.	**SE / TE:** 876
• Identifying atomic and subatomic particles, including mesons, quarks, tachyons, and baryons	**SE / TE:** 105-107, 881
• Calculating the half-life of selective radioactive isotopes	**SE / TE:** 882-884, 887
• Identifying types of radiation and their properties	**SE / TE:** 877-879
• Contrasting fission and fusion	**SE / TE:** 891
• Describing carbon-14 decay as a dating method	**SE / TE:** 883, 903