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Chemistry

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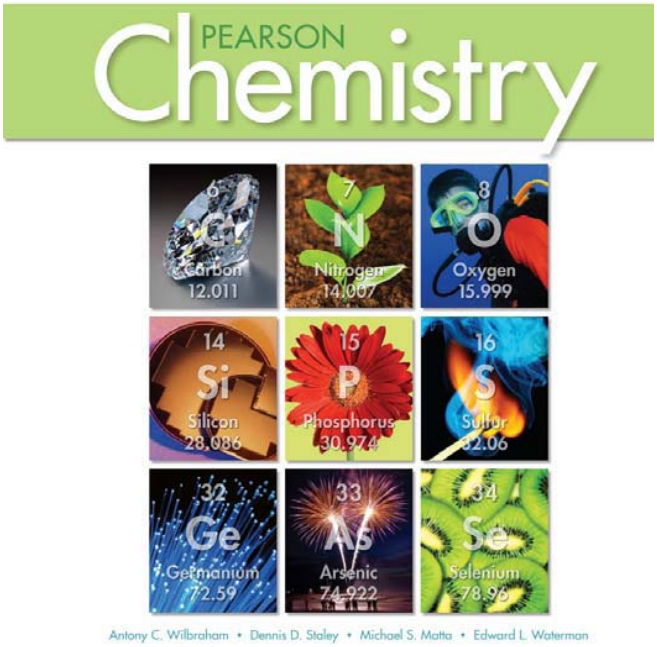

IDAHO CONTENT STANDARDS CHEMISTRY

GRADE 11-12

***Pearson Chemistry* ©2012**
Correlated to the Idaho Content Standards Chemistry

INTRODUCTION

This document demonstrates how ***Pearson Chemistry* ©2012** meets the Idaho Content Standards for Chemistry. Correlation page references are to the Student and Teacher's Editions and are cited at the page level.

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 integrates key concepts from the text and brings them alive online with complete Student and Teacher eTexts, animations, virtual labs, tutorials, practice problems, and a comprehensive teacher center. Digital references are referenced at point-of-use in the textbook. PearsonChem.com also offers valuable tools you can use to monitor student's progress through your course

Idaho Content Standards Chemistry	Pearson Chemistry
Students are expected to know content and apply skills from previous grades.	
Standard 1: Nature of Science	
Students exercise the basic tenets of scientific investigation, make accurate observations, exercise critical thinking skills, apply proper scientific instruments of investigation and measurement tools, and communicate results in problem solving. Students evaluate the validity of information by utilizing the tools of scientific thinking and investigation. Students summarize their findings by creating lab reports using technical writing including graphs, charts, and diagrams to communicate the results of investigations.	
Goal 1.1: Understand Systems, Order, and Organization	
Objective(s): By the end of Chemistry, the student will be able to:	
11-12.C.1.1.1 Use the periodic table to predict physical and chemical properties.	**SE/TE:** 164-166, 167-173, 174-175, 177-182, 183, 184, 185, 186-189, 191, 218, 260, 302, 342, 416, 446
Goal 1.2: Understand Concepts and Processes of Evidence, Models, and Explanation	
Objective(s): By the end of Chemistry, the student will be able to:	
11-12.C.1.2.1 Describe the historical development of the periodic table.	**SE/TE:** 160-162, 166, 185, 186-187, 260
11-12.C.1.2.2 Create and interpret graphs of data.	**SE/TE:** 175, 178, 429, 438, 456, 468, 587, 589, 601, 641, 665, 686-687, 765, 773, 882
11-12.C.1.2.3 Explain and interpret the key concepts of the kinetic molecular theory.	**SE/TE:** 5, 420-421, 424, 425, 430, 431, 434, 442, 444, 451-452, 454, 456, 463, 468, 475, 520
11-12.C.1.2.4 Distinguish the common theories defining acids and bases.	**SE/TE:** 646-652, 682, 684-686
Goal 1.3: Understand Constancy, Change, and Measurement	
Objective(s): By the end of Chemistry, the student will be able to:	
11-12.C.1.3.1 Identify, compare and contrast physical and chemical properties and changes and appropriate computations.	**SE/TE:** 35, 37, 43, 48-50, 54, 55-58, 59, 190, 218, 260, 302, 342, 380
11-12.C.1.3.2 Perform computations using scientific notation, the metric system and dimensional analysis.	**SE/TE:** 63, 72, 80, 82, 86-91, 92, 94, 96-98, 99, 124, 156, 190, 218, 260, 302
11-12.C.1.3.3 Compute measurement uncertainty to include precision, accuracy and the rules for significant digits.	**SE/TE:** 64, 66-72, 73, 95-96, 99, 190, 218, 260, 302, 514, 590
11-12.C.1.3.4 Perform calculations related to the conversion of grams to moles to particles, atoms, molecules and volume.	**SE/TE:** 309-315, 317-323, 324, 336, 337, 338-341, 343, 380, 416, 446, 484, 514, 552, 642
11-12.C.1.3.5 Analyze and solve reaction stoichiometry problems.	**SE/TE:** 386-389, 390-396, 398, 399, 400-406, 408, 409, 410, 411-415, 417, 446, 484, 514, 552, 590, 642
11-12.C.1.3.6 Express concentrations of solutions in various ways including molarity.	**SE/TE:** 525-526, 529-531, 533, 538-539, 545, 546, 547, 548-551, 724, 834

Idaho Content Standards Chemistry	Pearson Chemistry
11-12.C.1.3.7 Interpret how the presence of solute particles affect the properties of a solution and be able to do calculations involving colligative properties	**SE/TE:** 534-537, 538-544, 545, 546, 547, 548-551, 553, 642, 724, 872
11-12.C.1.3.8 Analyze quantitative relationships involved in acid/base chemistry including pH.	**SE/TE:** 653-662, 663, 664-669, 670, 672-675, 681, 683, 684-687, 689, 724, 758, 794, 834, 872
Goal 1.4: Understand the Theory that Evolution is a Process that Relates to the Gradual Changes in the Universe and of Equilibrium as a Physical State	
No objectives in Chemistry.	
Goal 1.5: Understand Concepts of Form and Function	
No objectives in Chemistry.	
Goal 1.6: Understand Scientific Inquiry and Develop Critical Thinking Skills	
Objective(s): By the end of Chemistry, the student will be able to:	
11-12.C.1.6.1 Demonstrate an understanding of the scientific method.	**SE/TE:** 15-17, 19, 28-29, 31
11-12.C.1.6.2 Select and use appropriate scientific equipment, materials and techniques.	**SE/TE:** 51, 92, 120, 200, 254, 295, 324, 374, 399, 435, 475, 508, 583, 635, 670
Goal 1.7: Understand That Interpersonal Relationships Are Important in Scientific Endeavors	
Objective(s): By the end of Chemistry, the student will be able to:	
11-12.C.1.7.1 Explain how a series of historically related and documented experiments led to the current model and structure of the atom.	**SE/TE:** 102-104, 105-109, 122-124, 129-130, 133
Goal 1.8: Understand Technical Communication	
Objective(s): By the end of Chemistry, the student will be able to:	
11-12.C.1.8.1 Correctly write symbols, formulas and names for common elements, ions and compounds.	**SE/TE:** 45-47, 55, 218, 264-269, 271-279, 280-283, 292-294, 295, 297, 298-301, 303, 342, 380, 416, 446
11-12.C.1.8.2 Communicate scientific investigations and information clearly.	**SE/TE:** 51, 92, 120, 254, 374, 399, 435, 475, 508, 583, 635, 670, 717, 752, 887
Standard 2: Physical Science	
Students explain the structure and properties of atoms, including isotopes. Students explain how chemical reactions, while requiring or releasing energy, can neither destroy nor create energy or matter. Students explain the differences between fission and fusion. Students explain the interactions of force and mass in describing motion using Newton's Laws. Students explain how energy can be transformed from one form to another while the total amount of energy remains constant. Students classify energy as potential and/or kinetic, and as energy contained in a field.	
Goal 2.1: Understand the Structure and Function of Matter and Molecules and Their Interactions	
Objective(s): By the end of Chemistry, the student will be able to:	
11-12.C.2.1.1 Explain and understand how electrons are involved in the formation of chemical bonds using the octet rule and Lewis dot diagrams.	**SE/TE:** 195, 201, 203, 226-238, 256-259, 261, 302, 342

Idaho Content Standards Chemistry	Pearson Chemistry
11-12.C.2.1.2 Predict the polarity of chemical bonds using electronegativity.	**SE/TE:** 248-249, 253, 257, 261, 302, 342
11-12.C.2.1.3 Predict physical properties of compounds based upon the attractive forces between atoms and molecules.	**SE/TE:** 204-207, 209-210, 212, 214-217, 225, 252-253, 256-258, 261
11-12.C.2.1.4 Distinguish and classify all matter into appropriate categories.	**SE/TE:** 36-37, 38-39, 41, 42-45, 47, 55-56, 59, 124, 156, 218, 380, 504-507, 509, 510, 512
11-12.C.2.1.5 Explain the relationship and reactions of acids, bases, and salts.	**SE/TE:** 646-652, 672-673, 675, 682, 684-686, 689, 724
11-12.C.2.1.6 Explain the role of dissociation and ionization in producing strong, weak, and nonelectrolytes.	**SE/TE:** 496-497, 501, 510
Goal 2.2: Understand Concepts of Motion and Forces	
Objective(s): By the end of Chemistry, the student will be able to:	
11-12.C.2.2.1 Describe the Kinetic Molecular Theory as it applies to phases of matter.	**SE/TE:** 5, 420-421, 424, 425, 430, 431, 434, 442, 444, 451-452, 454, 456, 463, 468, 475
Goal 2.3: Understand the Total Energy in the Universe is Constant	
Objective(s): By the end of Chemistry, the student will be able to:	
11-12.C.2.3.1 Explain and calculate the changes in heat energy that occur during chemical reactions and phase changes.	**SE/TE:** 562-568, 569-575, 578-582, 583, 584, 585, 586-589, 591, 642, 688, 758, 794, 872
11-12.C.2.3.2 Demonstrate the conservation of matter by balancing chemical equations.	**SE/TE:** 349-354, 359, 361, 363, 367, 377-379, 416, 446, 475, 484, 514, 671, 758, 794, 904
11-12.C.2.3.3 Differentiate between exothermic and endothermic chemical reactions during chemical or physical changes.	**SE/TE:** 557-558, 561, 563-564, 577, 586-588, 642, 688
Goal 2.4: Understand the Structure of Atoms	
Objective(s): By the end of Chemistry, the student will be able to:	
11-12.C.2.4.1 Interpret the classic historical experiments that were used to identify the components of an atom and its structure.	**SE/TE:** 105-109, 122-124
11-12.C.2.4.2 Deduce the number of protons, neutrons and electrons for an atom or ion.	**SE/TE:**112-114, 119, 122, 125, 156, 260, 302, 484
11-12.C.2.4.3 Describe the relationship between the structure of atoms and light absorption and emission.	**SE/TE:** 140, 142, 148, 149, 153-154
11-12.C.2.4.4 Determine and illustrate electron arrangements of elements using electron configurations and orbital energy diagrams.	**SE/TE:** 131-132, 134-137, 152-154, 157, 218, 260, 302, 342, 416, 552, 642

Idaho Content Standards Chemistry	Pearson Chemistry
Goal 2.5: Understand Chemical Reactions	
Objective(s): By the end of Chemistry, the student will be able to:	
11-12.C.2.5.1 Illustrate the Law of Conservation of Mass and the Law of Definite Proportions.	**SE/TE:** 50, 57, 156, 289, 294, 299, 355, 387, 389, 405, 411, 414-415, 417
11-12.C.2.5.2 Classify, write and balance chemical equations for common types of chemical reactions and predict the products.	**SE/TE:** 348-354, 356-367, 373, 374, 376, 377-379, 381, 413-416, 446, 484, 514, 552, 642, 688, 758
11-12.C.2.5.3 Describe the factors that influence the rates of chemical reactions.	**SE/TE:** 598-601, 603, 636, 638, 640, 643, 794
Standard 3: Biology	
No goals or objectives in Chemistry.	
Standard 4: Earth and Space Systems	
No goals or objectives in Chemistry.	
Standard 5: Personal and Social Perspectives; Technology	
Students understand that science and technology interact and impact both society and the environment.	
Goal 5.1: Understand Common Environmental Quality Issues, Both Natural and Human Induced	
Objective(s): By the end of Chemistry, the student will be able to:	
11-12.C.5.1.1 Demonstrate the ability to work safely and effectively in a chemistry laboratory.	**SE/TE:** 20-21, 254, 374, 399, 435, 475, 508, 545, 583, 600, 635, 670, 717, 752, 849
Goal 5.2: Understand the Relationship between Science and Technology	
Objective(s): By the end of Chemistry, the student will be able to:	
11-12.C.5.2.1 Assess the role of chemistry in enabling technological advances.	**SE/TE:** 9-10, 12-13, 104, 146, 239, 334-335, 397, 440-441, 476-477, 502-503, 602-603, 784, 889, 891, 892-893
Goal 5.3: Understand the Importance of Natural Resources and the Need to Manage and Conserve Them	
Objective(s): By the end of Chemistry, the student will be able to:	
11-12.C.5.3.1 Evaluate the role of chemistry in energy and environmental issues.	**SE/TE:** 1, 8-11, 30, 52-53, 83, 270, 440-441, 476-477, 502-503, 576-577, 602-603, 681, 784, 803, 892-893