

## Textbook Alignment to the Utah Core – Chemistry

*This alignment has been completed using an “Independent Alignment Vendor” from the USOE approved list ([www.schools.utah.gov/curr/imc/indvendor.html](http://www.schools.utah.gov/curr/imc/indvendor.html).) Yes  No*

Name of Company and Individual Conducting Alignment: Robert Arnold

A “Credential Sheet” has been completed on the above company/evaluator and is (Please check one of the following):

On record with the USOE.

The “Credential Sheet” is attached to this alignment.

Instructional Materials Evaluation Criteria (name and grade of the core document used to align): Chemistry Core Curriculum

Title: Chemistry: Matter and Change © 2008 ISBN#: 0-07-874637-X

Publisher: Glencoe/McGraw-Hill

Overall percentage of coverage in the *Student Edition (SE) and Teacher Edition (TE)* of the Utah State Core Curriculum: \_\_\_\_\_ %

Overall percentage of coverage in *ancillary materials* of the Utah Core Curriculum: \_\_\_\_\_ %

**STANDARD I: Students will understand that all matter in the universe has a common origin and is made of atoms, which have structure and can be systematically arranged on the periodic table.**

Percentage of coverage in the *student and teacher edition* for Standard I: \_\_\_\_\_ %

Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard I: \_\_\_\_\_ %

**OBJECTIVES & INDICATORS**

*Coverage in Student Edition(SE) and Teacher Edition (TE) (pg #'s, etc.)*

*Coverage in Ancillary Material (titles, pg #'s, etc.)*

*Not covered in TE, SE or ancillaries ✓*

**Objective 1.1:** Recognize the origin and distribution of elements in the universe.

**a.** Identify evidence supporting the assumption that matter in the universe has a common origin.

**Student Edition:**  
4  
*Elements Handbook* 904-905, 945  
*Real-World Chemistry* 883  
**Teacher Wraparound Edition:**  
E 883; IHS 905

**b.** Recognize that all matter in the universe and on earth is composed of the same elements.

**Student Edition:**  
4, 84  
*Connection to Astronomy* 145  
*Elements Handbook* 904-905, 945  
*Real-World Chemistry* 883  
**Teacher Wraparound Edition:**  
DI 143; IHS 905

| OBJECTIVES & INDICATORS  |  | Coverage in <i>Student Edition (SE)</i> and <i>Teacher Edition (TE)</i> (pg #'s, etc.)   | Coverage in <i>Ancillary Material</i> (titles, pg #'s, etc.) | <i>Not covered in TE, SE or ancillaries</i> ✓ |
|--|--|--|--|---|
| c.   | Identify the distribution of elements in the universe.   | <b>Student Edition:</b><br>84<br><i>Elements Handbook</i> 901, 905, 945<br><b>Teacher Wraparound Edition:</b><br>DI 143; IHS 905                                   |  |   |
| d.   | Compare the occurrence of heavier elements on earth and the universe.  | <b>Student Edition:</b><br><i>Elements Handbook</i> 901, 905, 918, 945<br><b>Teacher Wraparound Edition:</b><br>DI 143; IHS 905                                    |  |   |
| <b>Objective 1.2:</b> Relate the structure, behavior, and scale of an atom to the particles that compose it. |  |  |  |   |
| a.   | Summarize the major experimental evidence that led to the development of various atomic models, both historical and current. | <b>Student Edition:</b><br>102-105, 106-114, 146-152<br><b>Teacher Wraparound Edition:</b><br>CB 149; CD 148; CJ 110; CU 145;<br>DE 106-107, 112-113; E 104; R 105 |  |   |
| b.   | Evaluate the limitations of using models to describe atoms.  | <b>Student Edition:</b><br>110-111, 136-143, 149-152<br><b>Teacher Wraparound Edition:</b><br>CP 137; E 104, 108, 114  |  |   |
| c.   | Discriminate between the relative size, charge, and position of protons, neutrons, and electrons in the atom.                | <b>Student Edition:</b><br>107-114, 136, 146-152, 158-160<br><i>Connection to Biology</i> 107<br><b>Teacher Wraparound Edition:</b><br>CP 137                      |  |   |

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|---|--|--|--|--|
| d.  | Generalize the relationship of proton number to the element's identity.                        | <b>Student Edition:</b><br>115-116, 174-181<br><i>Elements Handbook</i> 901-945<br><b>Teacher Wraparound Edition:</b><br>E 116; IM 117   |  |  |
| e.  | Relate the mass and number of atoms to the gram-sized quantities of matter in a mole.          | <b>Student Edition:</b><br>320-324, 325-332, 336-340<br><i>Launch Lab</i> 319<br><i>Problem-Solving Lab</i> 326<br><b>Teacher Wraparound Edition:</b><br>CD 322; CU 323, 332, IM 334 |  |  |
| <b>Objective 1.3:</b> Correlate atomic structure and the physical and chemical properties of an element to the position of the element on the periodic table. |  |  |  |  |
| a.  | Use the periodic table to correlate the number of protons, neutrons, and electrons in an atom. | <b>Student Edition:</b><br>174-181, 182-186<br><i>Elements Handbook</i> 901-945<br><b>Teacher Wraparound Edition:</b><br>IM 176  |  |  |
| b.  | Compare the number of protons and neutrons in isotopes of the same element.                    | <b>Student Edition:</b><br>117-118<br><i>Chemlab</i> 126<br><i>MiniLab</i> 120<br><b>Teacher Wraparound Edition:</b><br>CD 115; DI 123; ICE 118; IM 117                              |  |  |

| <b>OBJECTIVES &amp; INDICATORS</b>   | <b>Coverage in Student Edition(SE) and Teacher Edition (TE) (pg #'s, etc.)</b>  | <b>Coverage in Ancillary Material (titles, pg #'s, etc.)</b> | <i>Not covered in TE, SE or ancillaries ✓</i> |
|--|---|--|---|
| <p><b>c.</b> Identify similarities in chemical behavior of elements within a group.</p>  | <p><b>Student Edition:</b><br/>175-181, 182-186<br/><i>Elements Handbook</i> 901-945<br/><i>Problem-Solving Lab</i> 180<br/><b>Teacher Wraparound Edition:</b><br/>MI 174</p> |  |   |
| <p><b>d.</b> Generalize trends in reactivity of elements within a group to trends in other groups.</p>                                   | <p><b>Student Edition:</b><br/>177-181, 187-194<br/><i>Elements Handbook</i> 901-945<br/><i>MiniLab</i> 193<br/><b>Teacher Wraparound Edition:</b><br/>CP 188; MIC 191</p>    |  |   |
| <p><b>e.</b> Compare the properties of elements (e.g., metal, nonmetallic, metalloid) based on their position in the periodic table.</p> | <p><b>Student Edition:</b><br/>177-181, 183-185<br/><i>Chemlab</i> 196<br/><i>Elements Handbook</i> 901-945<br/><b>Teacher Wraparound Edition:</b><br/>CJ 184; QD 179</p>     |  |   |

| OBJECTIVES & INDICATORS   | Coverage in <i>Student Edition (SE)</i> and <i>Teacher Edition (TE)</i> (pg #'s, etc.)   | Coverage in <i>Ancillary Material</i> (titles, pg #'s, etc.)  | <i>Not covered in TE, SE or ancillaries</i> ✓ |
|---|--|---|---|
| <b>STANDARD II: Students will understand the relationship between energy changes in the atom specific to the movement of electrons between energy levels in an atom resulting in the emission of absorption of quantum energy. They will also understand that the emission of high-energy particles results from nuclear changes and that matter can be converted to energy during nuclear reactions.</b> |  |   |   |
| Percentage of coverage in the <i>student and teacher edition</i> for Standard II: _____ %   |  | Percentage of coverage not in student or teacher edition, but covered in the <i>ancillary material</i> for Standard II: _____ %   |   |
| <b>Objective 2.1:</b> Evaluate quantum energy changes in the atom in terms of the energy contained in light emissions.  |  |   |   |
| <b>a.</b>   | Identify the relationship between wavelength and light energy.   | <b>Student Edition:</b><br>137-139, 142-143<br><b>Teacher Wraparound Edition:</b><br>QD 137; R 140, 145   |   |
| <b>b.</b>   | Examine evidence from the lab indicating that energy is absorbed or released in discrete units when electrons move from one energy level to another. | <b>Student Edition:</b><br>142-143, 146-148<br><i>Connection to Astronomy</i> 145<br><i>Problem-Solving Lab</i> 150<br><b>Teacher Wraparound Edition:</b><br>CD 148; IM 153 |   |
| <b>c.</b>   | Correlate the energy in a photon to the color of light emitted.  | <b>Student Edition:</b><br>138-139<br><i>Chemlab</i> 164<br><i>Connection to Astronomy</i> 145<br><b>Teacher Wraparound Edition:</b><br>CD 159; DE 156-157; E 141; R 145    |   |

| <b>OBJECTIVES &amp; INDICATORS</b>  | <b>Coverage in Student Edition(SE) and Teacher Edition (TE) (pg #'s, etc.)</b>   | <b>Coverage in Ancillary Material (titles, pg #'s, etc.)</b> | <b>Not covered in TE, SE or ancillaries ✓</b> |
|---|--|--|---|
| <p><b>d.</b> After observing spectral emissions in the lab (e.g., flame test, spectrum tubes), identify unknown elements by comparison to known emission spectra.</p> | <p><b>Student Edition:</b><br/>144-145<br/><i>Chemlab</i> 164<br/><i>Elements Handbook</i> 907, 911, 913, 944<br/><i>MiniLab</i> 144<br/><b>Teacher Wraparound Edition:</b><br/>AT 944; DE 156-157; DI 143</p> |  |   |
| <p><b>Objective 2.2:</b> Evaluate how changes in the nucleus of an atom result in emission of radioactivity.</p>  |  |  |   |
| <p><b>a.</b> Recognize that radioactivity particles and wavelike radiations are products of the decay of an unstable nucleus.</p>                                     | <p><b>Student Edition:</b><br/>122-124, 860-868<br/><i>MiniLab</i> 873<br/><b>Teacher Wraparound Edition:</b><br/>CU 124; DE 866-867; QD 123</p>   |  |   |
| <p><b>b.</b> Interpret graphical data relating half-life and age of a radioactive substance.</p>  | <p><b>Student Edition:</b><br/>870-874<br/><i>Connection to Earth Science</i> 874<br/><i>MiniLab</i> 873<br/><b>Teacher Wraparound Edition:</b><br/>AC 872; CB 882; QD 870; VL 871</p>                         |  |   |
| <p><b>c.</b> Compare the mass, energy, and penetrating power of alpha, beta, and gamma radiation.</p>   | <p><b>Student Edition:</b><br/>122-124, 861-864<br/><b>Teacher Wraparound Edition:</b><br/>E 864</p>   |  |   |

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| d.  | Compare the strong nuclear force to the amount of energy released in a nuclear reaction and contrast it to the amount of energy released in a chemical reaction. | <b>Student Edition:</b><br>865, 877-880<br><i>Problem-Solving Strategy</i> 878<br><b>Teacher Wraparound Edition:</b><br>MIC 877; QD 878   |  |   |
| e.  | After researching, evaluate and report the effects of nuclear radiation on humans or other organisms.  | <b>Student Edition:</b><br>887-889<br><i>Chemlab</i> 892<br><i>Elements Handbook</i> 915, 925<br><b>Teacher Wraparound Edition:</b><br>AS 871; CD 865, 868; CJ 888;<br>E 864, 889; QD 123, 885; R 874 |  |   |
| <b>STANDARD III: Students will understand chemical bonding and the relationship of the type of bonding to the chemical and physical properties of substances.</b> |  |   |  |   |
| <b>Percentage of coverage in the <i>student and teacher edition</i> for Standard III: _____ %</b>   |  | <b>Percentage of coverage not in student or teacher edition, but covered in the <i>ancillary material</i> for Standard III: _____ %</b>   |  |   |
| <b>Objective 3.1:</b> Analyze the relationship between the valence (outermost) electrons of an atom and the type of bond formed between atoms.                    |  |   |  |   |
| a.  | Determine the number of valence electrons in atoms using the periodic table.   | <b>Student Edition:</b><br>161, 182-185, 192-193, 206-207<br><b>Teacher Wraparound Edition:</b><br>CB 161; CD 208; K 183  |  |   |

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|---|---|--|--|--|
| b.  | Predict that charge an atom will acquire when it forms an ion by gaining or losing electrons.   | <b>Student Edition:</b><br>192-193, 207-209, 218-221<br><b>Teacher Wraparound Edition:</b><br>CJ 189; DE 218-219   |  |  |
| c.  | Predict bond types based on the behavior of valence (outermost) electrons.  | <b>Student Edition:</b><br>206-209, 210-212, 225, 241-247<br><i>Problem-Solving Strategy</i> 254<br><b>Teacher Wraparound Edition:</b><br>CB 258; CJ 214; CP 210; MI 240 |  |  |
| d.  | Compare covalent, ionic, and metallic bonds with respect to electron behavior and relative bond strengths.  | <b>Student Edition:</b><br>210-217, 225-227, 240-247<br><i>MiniLab</i> 242<br><b>Teacher Wraparound Edition:</b><br>CD 246; VL 225                                       |  |  |
| <b>Objective 3.2:</b> Explain that the properties of a compound may be different from those of the elements or compounds from which it is formed. |   |  |  |  |
| a.  | Use a chemical formula to represent the names of elements and numbers of atoms in a compound and recognize that the formula is unique to the specific compound. | <b>Student Edition:</b><br>85, 218-224, 351<br><b>Teacher Wraparound Edition:</b><br>CP 353; CU 224; ICE 220, 222;<br>MI 218   |  |  |
| b.  | Compare the physical properties of a compound to the elements that form it.   | <b>Student Edition:</b><br>77, 86-87, 282<br><i>Elements Handbook</i> 904-945<br><b>Teacher Wraparound Edition:</b><br>AT 933  |  |  |

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|--|--|--|--|---|
| <b>c.</b>  | Compare the chemical properties of a compound to the elements that form it.  | <b>Student Edition:</b><br>77, 86-87, 282, 289<br><i>Elements Handbook</i> 904-945<br><b>Teacher Wraparound Edition:</b><br>AT 933                 |  |   |
| <b>d.</b>  | Explain that combining elements in different proportions results in the formation of different compounds with different properties.  | <b>Student Edition:</b><br>89-90<br><b>Teacher Wraparound Edition:</b><br>CB 89; CP 88, DE 214-215; R 284  |  |   |
| <b>Objective 3.3:</b> Relate the properties of simple compounds to the type of bonding, shape of molecules, and intermolecular forces. |  |  |  |   |
| <b>a.</b>  | Generalize, from investigations, the physical properties (e.g., malleability, conductivity, solubility) of substances with different bond types.   | <b>Student Edition:</b><br>212-215, 226-227, 269-270<br><i>MiniLab</i> 242<br><b>Teacher Wraparound Edition:</b><br>CD 246; R 270; VL 225          |  |   |
| <b>b.</b>  | Given a model, describe the shape and resulting polarity of water, ammonia, and methane molecules.   | <b>Student Edition:</b><br>261-263, 267-268<br><i>Chemlab</i> 272<br><b>Teacher Wraparound Edition:</b><br>MIC 262                                 |  |   |
| <b>c.</b>  | Identify how intermolecular forces of hydrogen bonds in water affect a variety of physical, chemical, and biological phenomena (e.g., surface tension, capillary action, boiling point). | <b>Student Edition:</b><br>411-414, 415-419, 425-427, 457-458, 489-492<br><b>Teacher Wraparound Edition:</b><br>DE 606-607; DI 415; MI 489; QD 418 |  |   |

| OBJECTIVES & INDICATORS   | Coverage in <i>Student Edition (SE)</i> and <i>Teacher Edition (TE)</i> (pg #'s, etc.)    | Coverage in <i>Ancillary Material</i> (titles, pg #'s, etc.)  | <i>Not covered in TE, SE or ancillaries</i> ✓ |
|---|---|---|---|
| <b>STANDARD IV: Students will understand that in chemical reactions matter and energy change forms, but the amounts of matter and energy do not change.</b> |   |   |   |
| <b>Percentage of coverage in the <i>student and teacher edition</i> for Standard IV: _____ %</b>  |   | <b>Percentage of coverage not in student or teacher edition, but covered in the <i>ancillary material</i> for Standard IV: _____ %</b>                |   |
| <b>Objective 4.1:</b> Identify evidence of chemical reactions and demonstrate how chemical equations are used to describe them.                             |   |   |   |
| <b>a.</b>   | Generalize evidences of chemical reactions.   | <b>Student Edition:</b><br>77, 282-283, 290-291, 300-305<br><i>How It Works</i> 309<br><b>Teacher Wraparound Edition:</b><br>CJ 282; QD 285           |   |
| <b>b.</b>   | Compare the properties of reactants to the properties of products in a chemical reaction. | <b>Student Edition:</b><br>77, 86-87, 282<br><i>Elements Handbook</i> 904-945<br><b>Teacher Wraparound Edition:</b><br>AT 933; QD 86                  |   |
| <b>c.</b>   | Use a chemical equation to describe a simple chemical reaction.                           | <b>Student Edition:</b><br>285-286, 300-308, 659-660, 680-682, 718-727, 790-791<br><b>Teacher Wraparound Edition:</b><br>CU 288; ICE 287, 306; IM 286 |   |
| <b>d.</b>   | Recognize that the number of atoms in a chemical reaction does not change.                | <b>Student Edition:</b><br>77-79, 105, 285-286, 288, 335, 368-369<br><b>Teacher Wraparound Edition:</b><br>CJ 78, 369; DI 286                         |   |

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|---|--|---|--|---|
| e.  | Determine the molar proportions of the reactants and products in a balanced chemical reaction.   | <b>Student Edition:</b><br>368-372, 373-377, 380-383<br><i>Chemlab</i> 390<br><i>MiniLab</i> 378<br><i>Problem-Solving Strategy</i> 374<br><b>Teacher Wraparound Edition:</b><br>E 371; QD 369      |  |   |
| f.  | Investigate everyday chemical reactions that occur in a student's home (e.g., baking, rusting, bleaching, cleaning).                                   | <b>Student Edition:</b><br>77, 282-283, 718-722<br><i>Everyday Chemistry</i> 431, 669, 815<br><i>MiniLab</i> 683<br><b>Teacher Wraparound Edition:</b><br>AC 305; CD 486; CJ 375; CP 526;<br>ICE 78 |  |   |
| <b>Objective 4.2:</b> Analyze evidence for the laws of conservation of mass and conservation of energy in chemical reactions. |  |   |  |   |
| a.  | Using data from quantitative analysis, identify evidence that supports the conservation of mass in a chemical reaction.                                | <b>Student Edition:</b><br>77-79, 285-286, 288, 335, 368-369,<br>373-377<br><i>MiniLab</i> 378<br><b>Teacher Wraparound Edition:</b><br>CJ 78, 369; DI 286  |  |   |
| b.  | Use molar relationships in a balanced chemical reaction to predict the mass of product produced in a simple chemical reaction that goes to completion. | <b>Student Edition:</b><br>368-372, 373-377, 380-383<br><i>Chemlab</i> 390<br><i>MiniLab</i> 378<br><b>Teacher Wraparound Edition:</b><br>AS 374; CU 384; E 371                                     |  |   |

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|-------------------------|--|---|--|---|
| c.                      | Report evidence of energy transformations in a chemical reaction.  | <b>Student Edition:</b><br>518, 527-528, 532-533, 708-711, 844-848<br><i>Chemlab</i> 550<br><i>How It Works</i> 549<br><b>Teacher Wraparound Edition:</b><br>DE 518-519                   |  |   |
| d.                      | After observing or measuring, classify evidence of temperature change in a chemical reaction as endothermic or exothermic.   | <b>Student Edition:</b><br>216, 247, 527-528, 565, 572<br><b>Teacher Wraparound Edition:</b><br>CD 606; CU 522; QD 518, 536, 537  |  |   |
| e.                      | Using either a constructed or a diagrammed electrochemical cell, describe how electrical energy can be produced in a chemical reaction (e.g., half reaction, electron transfer). | <b>Student Edition:</b><br>708-714, 718-723<br><i>Launch Lab</i> 707<br><b>Teacher Wraparound Edition:</b><br>DE 714-715; MI 708; QD 719  |  |   |
| f.                      | Use collected data, report the loss or gain of heat energy in a chemical reaction.   | <b>Student Edition:</b><br>525-528, 529, 532-533, 534-540, 564-565<br><i>Chemlab</i> 550<br><i>Connection to Biology</i> 532<br><b>Teacher Wraparound Edition:</b><br>DI 531; QD 530, 536 |  |   |

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|---|---|---|---|--|
| <b>STANDARD V: Students will understand that many factors influence chemical reactions and some reactions can achieve a state of dynamic equilibrium.</b>                 |   |   |   |  |
| Percentage of coverage in the <i>student and teacher edition</i> for Standard V: _____ %  | Percentage of coverage not in student or teacher edition, but covered in the <i>ancillary material</i> for Standard V: _____ %                |   |   |  |
| OBJECTIVES & INDICATORS   | Coverage in <i>Student Edition (SE)</i> and <i>Teacher Edition (TE)</i> (pg #'s, etc.)  | Coverage in <i>Ancillary Material</i> (titles, pg #'s, etc.)  | <i>Not covered in TE, SE or ancillaries</i> ✓ |  |
| <b>Objective 5.1:</b> Evaluate factors specific to collisions (e.g., temperature, particle size, concentration, and catalysts) that affect the rate of chemical reaction. |   |   |   |  |
| <b>a.</b>   | Design and conduct an investigation of the factors affecting reaction rate and use the findings to generalize the results to other reactions. | <b>Student Edition:</b><br>564-565, 568-573<br><i>Chemistry &amp; Health</i> 583<br><i>Chemlab</i> 584<br><i>Launch Lab</i> 559<br><i>MiniLab</i> 571<br><b>Teacher Wraparound Edition:</b><br>MI 568; QD 569 |   |  |
| <b>b.</b>   | Use information from graphs to draw warranted conclusions about reaction rates.   | <b>Student Edition:</b><br>564-565, 570, 572, 578, 581-582<br><i>Chemistry &amp; Health</i> 583<br><b>Teacher Wraparound Edition:</b><br>TS 583; VL 578   |   |  |

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|--|--|---|--|---|
| <b>c.</b>  | Correlate frequency and energy of collisions to reaction rate.   | <b>Student Edition:</b><br>563-565<br><i>Problem-Solving Lab</i> 566<br><b>Teacher Wraparound Edition:</b><br>CU 567; DI 564; MI 560  |  |   |
| <b>d.</b>  | Identify that catalysts are effective in increasing reaction rates.                                    | <b>Student Edition:</b><br>571-573, 611, 805, 829-830<br><i>Chemlab</i> 850<br><i>Launch Lab</i> 559<br><i>Real-World Chemistry</i> 829<br><b>Teacher Wraparound Edition:</b><br>DI 572; IM 570; QD 830 |  |   |
| <b>Objective 5.2:</b> Recognize that certain reactions do not convert all reactants to products, but achieve a state of dynamic equilibrium that can be changed. |  |   |  |   |
| <b>a.</b>  | Explain the concept of dynamic equilibrium.  | <b>Student Edition:</b><br>594-605<br><b>Teacher Wraparound Edition:</b><br>CD 597; IM 598  |  |   |
| <b>b.</b>  | Given an equation, identify the effect of adding either product or reactant to a shift in equilibrium. | <b>Student Edition:</b><br>606-611, 620-621, 650-651<br><i>MiniLab</i> 611<br><b>Teacher Wraparound Edition:</b><br>AC 609; MI 606; R 614   |  |   |

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|--|--|---|--|---|
| c.   | Indicate the effect of a temperature change on the equilibrium, using an equation showing a heat term.   | <b>Student Edition:</b><br>609-610<br><i>MiniLab</i> 611<br><b>Teacher Wraparound Edition:</b><br>R 610                                 |  |   |
| <b>STANDARD VI: Students will understand the properties that describe solutions in terms of concentration, solutes, solvents, and the behavior of acids and bases.</b> |  |   |  |   |
| Percentage of coverage in the <i>student and teacher edition</i> for Standard VI: _____ %  |  | Percentage of coverage not in student or teacher edition, but covered in the <i>ancillary material</i> for Standard VI: _____ %         |  |   |
| <b>Objective 6.1:</b> Describe factors affecting the process of dissolving and evaluate the effects that changes in concentration have on solutions.                   |  |   |  |   |
| a.   | Use the terms solute and solvent in describing a solution.   | <b>Student Edition:</b><br>299, 478-479, 480-488, 489-491<br><b>Teacher Wraparound Edition:</b><br>MI 489                               |  |   |
| b.   | Sketch a solution at the particle level.   | <b>Student Edition:</b><br>489-491, 498-499<br><i>Connection to Biology</i> 504<br><b>Teacher Wraparound Edition:</b><br>AC 491; CD 492 |  |   |
| c.   | Describe the relative amount of solute particles in concentrated and dilute solutions and express concentration in terms of molarity and molality. | <b>Student Edition:</b><br>480-488<br><b>Teacher Wraparound Edition:</b><br>CD 480; CJ 482; ICE 487                                     |  |   |

| <b>OBJECTIVES &amp; INDICATORS</b>  | <b>Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)</b>   | <b>Coverage in Ancillary Material (titles, pg #'s, etc.)</b> | <b>Not covered in TE, SE or ancillaries ✓</b> |
|---|---|--|---|
| <b>d.</b> Design and conduct an experiment to determine the factors (e.g., agitation, particle size, temperature) affecting the relative rate of dissolution. | <b>Student Edition:</b><br>492<br><br><b>Teacher Wraparound Edition:</b><br>CD 492; MI 489  |  |   |
| <b>e.</b> Relate the concept of parts per million (PPM) to relevant environmental issues found through research.  | <b>Student Edition:</b><br>8, 480-481<br><br><b>Teacher Wraparound Edition:</b><br>E 488  |  |   |
| <b>Objective 6.2:</b> Summarize the quantitative and qualitative effects of colligative properties on a solution when a solute is added.                      |   |  |   |
| <b>a.</b> Identify the colligative properties of a solution.  | <b>Student Edition:</b><br>498-503<br><i>Connection to Biology</i> 504<br><br><b>Teacher Wraparound Edition:</b><br>CJ 501; IM 499                                    |  |   |
| <b>b.</b> Measure change in boiling and/or freezing point of a solvent when a solute is added.  | <b>Student Edition:</b><br>500-503<br><i>MiniLab</i> 502<br><br><b>Teacher Wraparound Edition:</b><br>CP 500  |  |   |
| <b>c.</b> Describe how colligative properties affect the behavior of solutions in everyday applications (e.g., road salt, cold packs, antifreeze).            | <b>Student Edition:</b><br>501-502<br><i>Connection to Biology</i> 504<br><i>Real-World Chemistry</i> 503<br><br><b>Teacher Wraparound Edition:</b><br>AC 500; CJ 501 |  |   |

| <b>OBJECTIVES &amp; INDICATORS</b>   | <b>Coverage in Student Edition(SE) and Teacher Edition (TE) (pg #'s, etc.)</b>  | <b>Coverage in Ancillary Material (titles, pg #'s, etc.)</b> | <b>Not covered in TE, SE or ancillaries ✓</b> |
|--|---|--|---|
| <b>Objective 6.3:</b> Differentiate between acids and bases in terms of hydrogen ion concentration.  |   |  |   |
| <b>a.</b> Relate hydrogen ion concentration to pH values and to the terms acidic, basic, or neutral.   | <b>Student Edition:</b><br>636, 650-655, 659-660<br><i>Chemlab</i> 670<br><b>Teacher Wraparound Edition:</b><br>ICE 655; MI 650, 659  |  |   |
| <b>b.</b> Using an indicator, measure the pH of common household solutions and standard laboratory solutions, and identify them as acids or bases. | <b>Student Edition:</b><br>650-657, 658<br><i>Everyday Chemistry</i> 669<br><i>Launch Lab</i> 633<br><b>Teacher Wraparound Edition:</b><br>CP 656; ICE 654, 655   |  |   |
| <b>c.</b> Determine the concentration of an acid or a base using a simple acid-base titration.   | <b>Student Edition:</b><br>660-664<br><i>Chemlab</i> 670<br><b>Teacher Wraparound Edition:</b><br>CD 662; E 663; ICE 664  |  |   |
| <b>d.</b> Research and report on the uses of acids and bases in industry, agriculture, medicine, mining, manufacturing, or construction.           | <b>Student Edition:</b><br>637, 639, 643, 654<br><i>Elements Handbook</i> 924, 931, 942<br><i>Everyday Chemistry</i> 669<br><i>In the Field</i> 849<br><i>Problem-Solving Lab</i> 668<br><b>Teacher Wraparound Edition:</b><br>CB 636, 637; CD 661; CJ 651, 653;<br>CP 656, 659 |  |   |

| <b>OBJECTIVES &amp; INDICATORS</b>  | <b>Coverage in <i>Student Edition (SE)</i> and <i>Teacher Edition (TE)</i> (pg #'s, etc.)</b>   | <b>Coverage in <i>Ancillary Material</i> (titles, pg #'s, etc.)</b> | <b><i>Not covered in TE, SE or ancillaries</i> ✓</b> |
|---|---|---|--|
| <p>e. Evaluate mechanisms by which pollutants modify the pH of various environments (e.g., aquatic, atmospheric, soil).</p> | <p><b>Student Edition:</b><br/> 637<br/> <i>Connection to Earth Science</i> 643<br/> <i>Elements Handbook</i> 920<br/> <i>In the Field</i> 505<br/> <i>Real-World Chemistry</i> 722</p> <p><b>Teacher Wraparound Edition:</b><br/> BA 920; CP 636; MI 606</p> |   |  |