



Chemistry

CONCEPTS AND APPLICATIONS

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STANDARDS	PAGE REFERENCES
Early High School	
STATE GOAL 11: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.	
Why This Goal Is Important: The inquiry process prepares learners to engage in science and apply methods of technological design. This understanding will enable students to pose questions, use models to enhance understanding, make predictions, gather and work with data, use appropriate measurement methods, analyze results, draw conclusions based on evidence, communicate their methods and results, and think about the implications of scientific research and technological problem solving.	
A. Know and apply the concepts, principles and processes of scientific inquiry.	
11.A.4a Formulate hypotheses referencing prior research and knowledge.	<p>Student Edition: 59, 61-68, 88-94, 230-231 <i>Art Connection</i> 759 <i>Biology Connection</i> 772 <i>ChemLab</i> 56-57, 136-137, 384-385 <i>Fact of the Matter</i> 398 <i>History Connection</i> 271</p> <p>Teacher Wraparound Edition: CD 54, 64; DE 54-55</p>

STANDARDS	PAGE REFERENCES
<p>11.A.4b Conduct controlled experiments or simulations to test hypotheses.</p>	<p>Student Edition: 59 <i>Chemistry and Technology</i> 216-217, 354-355, 754-755 <i>Chemistry Skill Handbook</i> 806 <i>ChemLab</i> 56-57, 136-137, 206-207, 362-363, 422-423, 542-543, 650-652, 674-675</p> <p>Teacher Wraparound Edition: CD 11; DE 6-7</p>
<p>11.A.4c Collect, organize and analyze data accurately and precisely.</p>	<p>Student Edition: 10-11, 36-37, 382-383, 391-392, 404-409, 414-421, 426-429, 539-541 <i>Chemistry Skill Handbook</i> 804-808 <i>ChemLab</i> 38-39, 56-57, 384-385, 422-423, 542-543</p> <p>Teacher Wraparound Edition: CD 11; DE 36-37, 54-55; DI 383</p>
<p>11.A.4d Apply statistical methods to the data to reach and support conclusions.</p>	<p>Student Edition: <i>ChemLab</i> 38-39, 384-385, 542-543 <i>MiniLAB</i> 63</p>
<p>11.A.4e Formulate alternative hypotheses to explain unexpected results.</p>	<p>Student Edition: 63-64, 238-239, 440-441 <i>Art Connection</i> 759 <i>Biology Connection</i> 772 <i>ChemLab</i> 8-9, 56-57, 172-173 <i>MiniLAB</i> 21, 30</p> <p>Teacher Wraparound Edition: CB 64; CJ 79; IS 246</p>

STANDARDS	PAGE REFERENCES
<p>11.A.4f Using available technology, report, display and defend to an audience conclusions drawn from investigations.</p>	<p>Student Edition: 74-79, 86-94, 567 <i>Art Connection</i> 759 <i>Biology Connection</i> 280, 772 <i>Chemistry and Society</i> 32, 146 <i>Chemistry and Technology</i> 424-425 <i>Chemistry Skill Handbook</i> 804-808 <i>Everyday Chemistry</i> 248-249 <i>History Connection</i> 58</p> <p>Teacher Wraparound Edition: CB 105</p>
<p>B. Know and apply the concepts, principles and processes of technological design.</p>	
<p>11.B.4a Identify a technological design problem inherent in a commonly used product.</p>	<p>Student Edition: <i>ChemLab</i> 504-505 <i>Everyday Chemistry</i> 501 <i>MiniLAB</i> 503</p> <p>Teacher Wraparound Edition: DE 506-507</p>
<p>11.B.4b Propose and compare different solution designs to the design problem based upon given constraints including available tools, materials and time.</p>	<p>Student Edition: 531-533, 535-538 <i>Fact of the Matter</i> 536 <i>MiniLAB</i> 532</p> <p>Teacher Wraparound Edition: QD 533, 536</p>
<p>11.B.4c Develop working visualizations of the proposed solution designs (e.g., blueprints, schematics, flowcharts, cad-cam, animations).</p>	<p>Student Edition: <i>MiniLAB</i> 532</p> <p>Teacher Wraparound Edition: QD 533</p>
<p>11.B.4d Determine the criteria upon which the designs will be judged, identify advantages and disadvantages of the designs and select the most promising design.</p>	<p>Student Edition: <i>Fact of the Matter</i> 536 <i>MiniLAB</i> 532</p> <p>Teacher Wraparound Edition: D 538; QD 533</p>

STANDARDS	PAGE REFERENCES
<p>11.B.4e Develop and test a prototype or simulation of the solution design using available materials, instruments and technology.</p>	<p>Student Edition: <i>MiniLAB</i> 532</p> <p>Teacher Wraparound Edition: DE 532-533</p>
<p>11.B.4f Evaluate the test results based on established criteria, note sources of error and recommend improvements.</p>	<p>Student Edition: 535-538</p> <p>Teacher Wraparound Edition: QD 533</p>
<p>11.B.4g Using available technology, report to an audience the relative success of the design based on the test results and criteria.</p>	<p>Student Edition: 535-538</p> <p><i>MiniLAB</i> 532</p> <p>Teacher Wraparound Edition: QD 533</p>
<p>STATE GOAL 12: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.</p>	
<p>Why This Goal Is Important: This goal is comprised of key concepts and principles in the life, physical and earth/space sciences that have considerable explanatory and predictive power for scientists and non-scientists alike. These ideas have been thoroughly studied and have stood the test of time. Knowing and being able to apply these concepts, principles and processes help students understand what they observe in nature and through scientific experimentation. A working knowledge of these concepts and principles allows students to relate new subject matter to material previously learned and to create deeper and more meaningful levels of understanding.</p>	
<p>A. Know and apply concepts that explain how living things function, adapt and change.</p>	
<p>12.A.4a Explain how genetic combinations produce visible effects and variations among physical features and cellular functions of organisms.</p>	<p>This standard falls outside the scope of this text. See Glencoe's <i>Biology</i> © 2007.</p>
<p>12.A.4b Describe the structures and organization of cells and tissues that underlie basic life functions including nutrition, respiration, cellular transport, biosynthesis and reproduction.</p>	<p>This standard falls outside the scope of this text. See Glencoe's <i>Biology</i> © 2007.</p>
<p>12.A.4c Describe processes by which organisms change over time using evidence from comparative anatomy and physiology, embryology, the fossil record, genetics and biochemistry.</p>	<p>This standard falls outside the scope of this text. See Glencoe's <i>Biology</i> © 2007.</p>

STANDARDS	PAGE REFERENCES
B. Know and apply concepts that describe how living things interact with each other and with their environment.	
12.B.4a Compare physical, ecological and behavioral factors that influence interactions and interdependence of organisms.	Student Edition: 670-672, 692-700, 733-737 Teacher Wraparound Edition: EX 671
12.B.4b Simulate and analyze factors that influence the size and stability of populations within ecosystems (e.g., birth rate, death rate, predation, migration patterns).	Student Edition: 736-737 Teacher Wraparound Edition: CD 672
C. Know and apply concepts that describe properties of matter and energy and the interactions between them.	
12.C.4a Use kinetic theory, wave theory, quantum theory and the laws of thermodynamics to explain energy transformations.	Student Edition: 69-75, 233-235, 348-361, 364-365, 711-714, 726 <i>ChemLab</i> 362-363 Teacher Wraparound Edition: CB 238, 349; DE 70-71; DI 232, 711
12.C.4b Analyze and explain the atomic and nuclear structure of matter.	Student Edition: 53-55, 61-68, 69-79, 230-235, 238-239, 243-251, 744-751, 761-767 <i>ChemLab</i> 752-753 <i>Physics Connection</i> 232 Teacher Wraparound Edition: CB 64, 238, 761; CE 65; CM 66, 70; DI 72; IS 246
D. Know and apply concepts that describe force and motion and the principles that explain them.	
12.D.4a Explain and predict motions in inertial and accelerated frames of reference.	Student Edition: 69-70 Teacher Wraparound Edition: CM 70; QD 231
12.D.4b Describe the effects of electromagnetic and nuclear forces including atomic and molecular bonding, capacitance and nuclear reactions.	Student Edition: 134-135, 143-147, 302-311, 762-763 Teacher Wraparound Edition: CD 144; DE 322-323; RM 303

STANDARDS	PAGE REFERENCES
E. Know and apply concepts that describe the features and processes of the Earth and its resources.	
12.E.4a Explain how external and internal energy sources drive Earth processes (e.g., solar energy drives weather patterns; internal heat drives plate tectonics).	Student Edition: <i>Chemistry and Technology</i> 728-729 <i>Earth Science Connection</i> 524
12.E.4b Describe how rock sequences and fossil remains are used to interpret the age and changes in the Earth.	Student Edition: <i>Chemistry and Technology</i> 754-755
F. Know and apply concepts that explain the composition and structure of the universe and Earth's place in it.	
12.F.4a Explain theories, past and present, for changes observed in the universe.	This standard falls outside the scope of this text. See Glencoe's <i>Earth Science: Geology, the Environment, and the Universe</i> © 2005.
12.F.4b Describe and compare the chemical and physical characteristics of galaxies and objects within galaxies (e.g., pulsars, nebulae, black holes, dark matter, stars).	This standard falls outside the scope of this text. See Glencoe's <i>Earth Science: Geology, the Environment, and the Universe</i> © 2005.
STATE GOAL 13: Understand the relationships among science, technology and society in historical and contemporary contexts.	
Why This Goal Is Important: Understanding the nature and practices of science such as ensuring the validity and replicability of results, building upon the work of others and recognizing risks involved in experimentation gives learners a useful sense of the scientific enterprise. In addition, the relationships among science, technology and society give humans the ability to change and improve their surroundings. Learners who understand this relationship will be able to appreciate the efforts and effects of scientific discovery and applications of technology on their own lives and on the society in which we live.	
A. Know and apply the accepted practices of science.	
13.A.4a Estimate and suggest ways to reduce the degree of risk involved in science activities.	Student Edition: 774-776 <i>ChemLab</i> 16-17, 136-137, 206-207, 362-363, 504-505, 542-543, 650-652 <i>History Connection</i> 271 <i>Safety Handbook</i> 839-840 Teacher Wraparound Edition: DE 40-41, 174-175, 248-249, 292-293, 636-637; QD 588

STANDARDS	PAGE REFERENCES
<p>13.A.4b Assess the validity of scientific data by analyzing the results, sample set, sample size, similar previous experimentation, possible misrepresentation of data presented and potential sources of error.</p>	<p>Student Edition: <i>Chemistry Skill Handbook</i> 804-808 <i>ChemLab</i> 38-39, 56-57, 172-173, 206-207, 422-423, 542-543, 650-652, 722-723 <i>MiniLAB</i> 63</p> <p>Teacher Wraparound Edition: CD 11; CE 23, 54, 65, 157, 159, 193, 199; CM 70; DE 6-7</p>
<p>13.A.4c Describe how scientific knowledge, explanations and technological designs may change with new information over time (e.g., the understanding of DNA, the design of computers).</p>	<p>Student Edition: 52-55, 61-65, 69-70, 77-79, 88-94, 111-113, 688-691, 756-760 <i>Art Connection</i> 759 <i>Biology Connection</i> 280, 772 <i>Chemistry and Technology</i> 216-217, 240-241, 728-729 <i>History Connection</i> 58, 307</p> <p>Teacher Wraparound Edition: AC 405; CD 15, 62; CM 70; IS 144, 428; P 68</p>
<p>13.A.4d Explain how peer review helps to assure the accurate use of data and improves the scientific process.</p>	<p>Student Edition: 61-65, 77, 230-231 <i>Art Connection</i> 759 <i>Chemistry and Society</i> 32, 146 <i>Chemistry and Technology</i> 728-729 <i>History Connection</i> 58, 307</p> <p>Teacher Wraparound Edition: CD 11</p>

STANDARDS	PAGE REFERENCES
B. Know and apply concepts that describe the interaction between science, technology and society.	
<p>13.B.4a Compare and contrast scientific inquiry and technological design as pure and applied sciences.</p>	<p>Student Edition: 531-533, 536, 563-565, 585-589, 599-605, 608-609, 611-615, 726, 730-732 <i>Chemistry and Technology</i> 288-291, 590-592, 728-729 <i>ChemLab</i> 606-607 <i>Health Connection</i> 610 <i>How It Works</i> 569 <i>MiniLAB</i> 568</p> <p>Teacher Wraparound Edition: AC 613; CB 599; CD 520; D 538, 615, 730; DE 590-591, 602-603; E 564; QD 533, 565; VL 588</p>
<p>13.B.4b Analyze a particular occupation to identify decisions that may be influenced by a knowledge of science.</p>	<p>Student Edition: <i>Chemistry and Society</i> 32, 146, 447, 537 <i>People in Chemistry</i> 12-13, 212-213, 316-317, 448-449, 490-491, 596-597, 634-635, 678-679</p>
<p>13.B.4c Analyze ways that resource management and technology can be used to accommodate population trends.</p>	<p>Student Edition: 764-765, 778-779 <i>Chemistry and Society</i> 447, 495 <i>Everyday Chemistry</i> 715</p> <p>Teacher Wraparound Edition: D 765</p>
<p>13.B.4d Analyze local examples of resource use, technology use or conservation programs; document findings; and make recommendations for improvements.</p>	<p>Student Edition: 725, 778-779 <i>Chemistry and Society</i> 60, 495, 659 <i>Chemistry and Technology</i> 590-592, 728-729</p> <p>Teacher Wraparound Edition: AC 65; D 765; E 661</p>
<p>13.B.4e Evaluate claims derived from purported scientific studies used in advertising and marketing strategies.</p>	<p>Student Edition: <i>MiniLAB</i> 30</p> <p>Teacher Wraparound Edition: E 18, 397</p>

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Late High School	
STATE GOAL 11: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.	
As a result of their schooling students will be able to:	
Why This Goal Is Important: The inquiry process prepares learners to engage in science and apply methods of technological design. This understanding will enable students to pose questions, use models to enhance understanding, make predictions, gather and work with data, use appropriate measurement methods, analyze results, draw conclusions based on evidence, communicate their methods and results, and think about the implications of scientific research and technological problem solving.	
A. Know and apply the concepts, principles and processes of scientific inquiry.	
11.A.5a Formulate hypotheses referencing prior research and knowledge.	Student Edition: 59, 61-68, 88-94, 230-231 <i>Art Connection</i> 759 <i>Biology Connection</i> 772 <i>ChemLab</i> 56-57, 136-137, 384-385 <i>Fact of the Matter</i> 398 <i>History Connection</i> 271 Teacher Wraparound Edition: CD 54, 64; DE 54-55
11.A.5b Design procedures to test the selected hypotheses.	Student Edition: 59 <i>Art Connection</i> 759 <i>Biology Connection</i> 772 <i>ChemLab</i> 56-57, 136-137, 206-207, 362-363, 384-385, 422-423, 542-543, 650-652, 674-675 Teacher Wraparound Edition: CB 64; DE 54-55, 88-89; DI 231

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11.A.5c Conduct systematic controlled experiments to test the selected hypotheses.	<p>Student Edition: 59 <i>Art Connection</i> 759 <i>Biology Connection</i> 772 <i>Chemistry Skill Handbook</i> 806 <i>ChemLab</i> 56-57, 136-137, 206-207, 362-363, 422-423, 542-543, 650-652, 674-675</p> <p>Teacher Wraparound Edition: CD 11; DE 6-7</p>
11.A.5d Apply statistical methods to make predictions and to test the accuracy of results.	<p>Student Edition: <i>ChemLab</i> 38-39, 384-385, 542-543 <i>MiniLAB</i> 63</p>
11.A.5e Report, display and defend the results of investigations to audiences that may include professionals and technical experts.	<p>Student Edition: 86-94, 567 <i>Art Connection</i> 759 <i>Biology Connection</i> 280, 772 <i>Chemistry and Society</i> 32, 146 <i>Chemistry and Technology</i> 424-425 <i>Chemistry Skill Handbook</i> 804-808 <i>Everyday Chemistry</i> 248-249 <i>History Connection</i> 58</p> <p>Teacher Wraparound Edition: CB 105</p>
B. Know and apply the concepts, principles and processes of technological design.	
11.B.5a Identify a design problem that has practical applications and propose possible solutions, considering such constraints as available tools, materials, time and costs.	<p>Student Edition: <i>ChemLab</i> 504-505 <i>Everyday Chemistry</i> 501 <i>MiniLAB</i> 503</p> <p>Teacher Wraparound Edition: DE 506-507</p>

STANDARDS	PAGE REFERENCES
11.B.5b Select criteria for a successful design solution to the identified problem.	Student Edition: <i>Fact of the Matter</i> 536 <i>MiniLAB</i> 532 Teacher Wraparound Edition: D 538; QD 533
11.B.5c Build and test different models or simulations of the design solution using suitable materials, tools and technology.	Student Edition: <i>Fact of the Matter</i> 536 <i>MiniLAB</i> 532 Teacher Wraparound Edition: DE 532-533
11.B.5d Choose a model and refine its design based on the test results.	Student Edition: <i>Fact of the Matter</i> 536 <i>MiniLAB</i> 532 Teacher Wraparound Edition: D 538; QD 533
11.B.5e Apply established criteria to evaluate the suitability, acceptability, benefits, drawbacks and consequences for the tested design solution and recommend modifications and refinements.	Student Edition: 535-538 Teacher Wraparound Edition: QD 533
11.B.5f Using available technology, prepare and present findings of the tested design solution to an audience that may include professional and technical experts.	Student Edition: 535-538 <i>MiniLAB</i> 532 Teacher Wraparound Edition: QD 533

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<p>STATE GOAL 12: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.</p>	
<p>As a result of their schooling students will be able to:</p>	
<p>Why This Goal Is Important: This goal is comprised of key concepts and principles in the life, physical and earth/space sciences that have considerable explanatory and predictive power for scientists and non-scientists alike. These ideas have been thoroughly studied and have stood the test of time. Knowing and being able to apply these concepts, principles and processes help students understand what they observe in nature and through scientific experimentation. A working knowledge of these concepts and principles allows students to relate new subject matter to material previously learned and to create deeper and more meaningful levels of understanding.</p>	
<p>A. Know and apply concepts that explain how living things function, adapt and change.</p>	
<p>12.A.5a Explain changes within cells and organisms in response to stimuli and changing environmental conditions (e.g., homeostasis, dormancy).</p>	<p>This standard falls outside the scope of this text. See Glencoe's <i>Biology</i> © 2007.</p>
<p>12.A.5b Analyze the transmission of genetic traits, diseases and defects.</p>	<p>This standard falls outside the scope of this text. See Glencoe's <i>Biology</i> © 2007.</p>
<p>B. Know and apply concepts that describe how living things interact with each other and with their environment.</p>	
<p>12.B.5a Analyze and explain biodiversity issues and the causes and effects of extinction.</p>	<p>This standard falls outside the scope of this text. See Glencoe's <i>Biology</i> © 2007.</p>
<p>12.B.5b Compare and predict how life forms can adapt to changes in the environment by applying concepts of change and constancy (e.g., variation within a population increase the likelihood of survival under new conditions).</p>	<p>This standard falls outside the scope of this text. See Glencoe's <i>Biology</i> © 2007.</p>
<p>C. Know and apply concepts that describe properties of matter and energy and the interactions between them.</p>	
<p>12.C.5a Analyze reactions (e.g., nuclear reactions, burning of fuel, decomposition of waste) in natural and man-made energy systems.</p>	<p>Student Edition: 42-43, 567, 599-605, 611-615, 696-700, 726, 734-737, 761-767 <i>Chemistry and Technology</i> 573, 728-729 <i>ChemLab</i> 606-607 <i>Everyday Chemistry</i> 221, 275, 571 <i>How It Works</i> 197, 614, 710 <i>MiniLAB</i> 196 <i>Physics Connection</i> 566 Teacher Wraparound Edition: CB 761; CM 697; DE 706-707; VL 41</p>

STANDARDS	PAGE REFERENCES
<p>12.C.5b Analyze the properties of materials (e.g., mass, boiling point, melting point, hardness) in relation to their physical and/or chemical structures.</p>	<p>Student Edition: 36-37, 88-94, 111-113, 120-129, 303-305, 315-325, 344-365, 440-446, 602, 623-638, 670-691 <i>Chemistry and Society</i> 32 <i>Chemistry and Technology</i> 108-109, 326-327 <i>ChemLab</i> 38-39, 172-173, 650-652</p> <p>Teacher Wraparound Edition: CB 35, 310; CD 62; CM 34</p>
<p>D. Know and apply the concepts that describe force and motion and the principles that explain them.</p>	
<p>12.D.5a Analyze factors that influence the relative motion of an object (e.g., friction, wind shear, cross currents, potential differences).</p>	<p>Student Edition: 773</p> <p>Teacher Wraparound Edition: CD 747; DE 756-757; TPK 773</p>
<p>12.D.5b Analyze the effects of gravitational, electromagnetic and nuclear forces on a physical system.</p>	<p>Student Edition: 69-70, 773 <i>Everyday Chemistry</i> 320, 571 <i>How It Works</i> 410</p> <p>Teacher Wraparound Edition: CD 747; CM 70; QD 231</p>
<p>E. Know and apply concepts that describe the features and processes of the Earth and its resources.</p>	
<p>12.E.5 Analyze the processes involved in naturally occurring short-term and long-term Earth events (e.g., floods, ice ages, temperature, sea-level fluctuations).</p>	<p>Student Edition: <i>Earth Science Connection</i> 524 <i>Literature Connection</i> 26 <i>Physics Connection</i> 73</p>
<p>F. Know and apply concepts that explain the composition and structure of the universe and Earth's place in it.</p>	
<p>12.F.5a Compare the processes involved in the life cycle of stars (e.g., gravitational collapse, thermonuclear fusion, nova) and evaluate the supporting evidence.</p>	<p>Student Edition: 766-767</p> <p>Teacher Wraparound Edition: E 767</p>
<p>12.F.5b Describe the size and age of the universe and evaluate the supporting evidence (e.g., red-shift, Hubble's constant).</p>	<p>This standard falls outside the scope of this text. See Glencoe's <i>Earth Science: Geology, the Environment, and the Universe</i> © 2005.</p>

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<p>Why This Goal Is Important: Understanding the nature and practices of science such as ensuring the validity and replicability of results, building upon the work of others and recognizing risks involved in experimentation gives learners a useful sense of the scientific enterprise. In addition, the relationships among science, technology and society give humans the ability to change and improve their surroundings. Learners who understand this relationship will be able to appreciate the efforts and effects of scientific discovery and applications of technology on their own lives and on the society in which we live.</p>	
<p>A. Know and apply the accepted practices of science.</p>	
<p>13.A.5a Design procedures and policies to eliminate or reduce risk in potentially hazardous science activities.</p>	<p>Student Edition: <i>ChemLab</i> 8-9, 56-57, 136-137, 172-173, 362-363, 384-385 <i>MiniLAB</i> 77 <i>Safety Handbook</i> 839-840</p> <p>Teacher Wraparound Edition: DE 40-41, 104-105, 118-119</p>
<p>13.A.5b Explain criteria that scientists use to evaluate the validity of scientific claims and theories.</p>	<p>Student Edition: 4-7, 44, 59 <i>Art Connection</i> 759 <i>Biology Connection</i> 280, 772 <i>Chemistry and Society</i> 32, 146 <i>ChemLab</i> 8-9 <i>Health Connection</i> 693 <i>History Connection</i> 271</p> <p>Teacher Wraparound Edition: CD 11</p>

STANDARDS	PAGE REFERENCES
<p>13.A.5c Explain the strengths, weaknesses and uses of research methodologies including observational studies, controlled laboratory experiments, computer modeling and statistical studies.</p>	<p>Student Edition: 4-7, 10-11, 59 <i>Biology Connection</i> 772 <i>Chemistry and Society</i> 32 <i>Chemistry Skill Handbook</i> 785-808 <i>ChemLab</i> 8-9, 38-39 <i>History Connection</i> 307</p> <p>Teacher Wraparound Edition: DE 6-7</p>
<p>13.A.5d Explain, using a practical example (e.g., cold fusion), why experimental replication and peer review are essential to scientific claims.</p>	<p>Student Edition: <i>ChemLab</i> 38-39, 384-385, 542-543 <i>How It Works</i> 569 <i>MiniLAB</i> 63 <i>Physics Connection</i> 232</p> <p>Teacher Wraparound Edition: AC 259; DE 6-7; E 767</p>
<p>B. Know and apply concepts that describe the interaction between science, technology and society.</p>	
<p>13.B.5a Analyze challenges created by international competition for increases in scientific knowledge and technological capabilities (e.g., patent issues, industrial espionage, technology obsolescence).</p>	<p>Student Edition: <i>Art Connection</i> 759 <i>Chemistry and Society</i> 146 <i>Chemistry and Technology</i> 216-217, 288-291 <i>History Connection</i> 58, 307 <i>How It Works</i> 468</p> <p>Teacher Wraparound Edition: AC 65; CD 216, 250</p>
<p>13.B.5b Analyze and describe the processes and effects of scientific and technological breakthroughs.</p>	<p>Student Edition: 63-68, 69-77, 88-94, 198-199, 376, 382-395, 567, 588-589, 608-615, 648-649, 690, 762-765 <i>Biology Connection</i> 280 <i>Chemistry and Technology</i> 216-217, 326-327 <i>History Connection</i> 58, 307</p> <p>Teacher Wraparound Edition: AC 235, 259, 405; CB 64, 269; P 68</p>

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13.B.5c Design and conduct an environmental impact study, analyze findings and justify recommendations.	This standard falls outside the scope of this text. See Glencoe's <i>Earth Science: Geology, the Environment, and the Universe</i> © 2005.
13.B.5d Analyze the costs, benefits and effects of scientific and technological policies at the local, state, national and global levels (e.g., genetic research, Internet access).	<p>Student Edition: 762-765 <i>Biology Connection</i> 203 <i>Chemistry and Technology</i> 216-217 <i>Earth Science Connection</i> 387 <i>Everyday Chemistry</i> 715 <i>How It Works</i> 569</p> <p>Teacher Wraparound Edition: B 216; CJ 766</p>
13.B.5e Assess how scientific and technological progress has affected other fields of study, careers and job markets and aspects of everyday life.	<p>Student Edition: <i>Art Connection</i> 346, 759 <i>Biology Connection</i> 203, 632, 772 <i>Chemistry and Society</i> 447, 659 <i>Chemistry and Technology</i> 573, 728-729 <i>Everyday Chemistry</i> 221, 417, 715 <i>How It Works</i> 569, 748 <i>Literature Connection</i> 96 <i>People in Chemistry</i> 12-13, 448-449</p> <p>Teacher Wraparound Edition: IS 35</p>