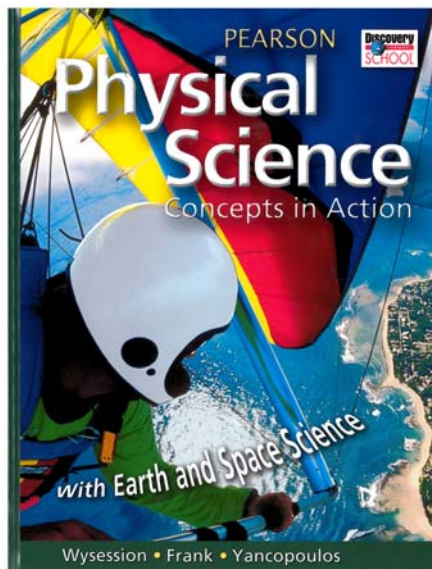


A Correlation of

Physical Science Concepts in Action

with Earth & Space Science
© 2011



To the

Minnesota Academic Standards in Science Physical Science and Earth & Space Science Strands

Grades 9-12

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INTRODUCTION

This document demonstrates how Pearson's *Physical Science: Concepts in Action, with Earth & Space Science © 2011* meets the Minnesota Academic Standards in Science, grades 9-12. Correlation page references are to the Student and Teacher's Editions and cited at the page level.

Physical Science: Concepts in Action helps students make the important connection between the science they read and what they experience every day. Relevant content, lively explorations and a wealth of hands-on activities take students' understanding of science beyond the page and into the world around them.

Concepts in Action with Earth & Space Science includes five additional chapters: *Earth's Interior, Earth's Surface, Weather and Climate, The Solar System, Exploring the Universe*.

21st Century Skills

Each chapter in *Physical Science* begins with an activity geared toward developing one or more 21st century skills. All of these activities task students to capture what they are learning in biology class and apply the knowledge to solving real-life problems in order to encourage productive, thoughtful members of the 21st century world.

Virtual Physical Science

A Pearson exclusive, this is the most robust interactive lab available. A proven formula for reading success before, during, and after every lesson enables students to fully understand key concepts.

The Complete Interactive Textbook

Available online and on CD-ROM. Audio of the full text read-aloud supports English language learners and reluctant readers. PresentationEXPRESS helps you create dynamic presentations with slides, videos, and participatory activities.

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Grades 9-12	
2. PHYSICAL SCIENCE	
1. Matter	
1. The structure of the atom determines chemical properties of elements.	
9.2.1.1.1 Describe the relative charges, masses, and locations of the protons, neutrons, and electrons in an atom of an element.	<p>SE: 98-99, 100-105, 106-107, 108-112, 113-118, 21st Century Learning, 98, Inquiry Activity, 99, Discovery Channel School: Video Field Trip, 99, 107, Reading Focus, 100, 108, 113, Key Concepts, 100, 108, 113, Vocabulary, 100, 108, 113, Reading strategy, 100, 108, 113, Problem-Solving Activity, 109, Go Online, Science News, 109, Calculating 109, Applying Concepts, 110, Using Tables, 112, Reading Checkpoint, 103, 110, 116, Section Assessment, 105, 112, 118, Connecting Concepts, 112, Figure, 100, 102, 103, 104, 108, 109, 110, 112, 113, 116, 117, 118, Observing, 101, Predicting, 102, Science and History, 114-115, Writing in Science, 105, 115, 118, Go Online NSTA SciLinks, 104, 116, Compare and Contrast, 116, Quick Lab, 102, 117, Study Guide, 120, Assessment, 121-122, Standardized Test Prep, 123, Performance-Based Assessment, 122, Go Online PHSchool.com, 122</p> <p>TE: Planning Guide, 98A-B, Before You Teach, 98C-D, From the Author, 98C, Chemistry Refresher, 98C-D, Build Reading Literacy, 98D, Go Online 98D, Assess Prior Knowledge, 98, Review Science Concepts, 98, Review Math Skills, 98, Chapter Pretest, 98, Discovery Channel School: Video Field Trip, 99, 107, Engage/Explore: Inquiry Activity, 99, Focus, 100, 108, 113, Objectives, 100, 108, 113, Instruct, 100, 108, 113, Assess, 112, 118, Reading Focus, 100, 108, 113, Build Vocabulary, 100, 108, 113, Reading Strategy, 100, 108, 113, Building Reading Literacy, 103, 110, 113, Use Visuals, 100, 108, 118, FYI, 101, 102, 103, 104, 108, 110, 114, 115, 117, Section Resources, 100, 108, 113, Customize for Inclusion Students, 109, Customize for English Language Learners, 101, Build Science Skills, 101, 105, 106, 109, 112, 116, Problem-Solving Activity, 109, For Extra Help, 109, Go Online, Science News, 109, Go Online, NSTA SciLinks, 104, 116, Teacher Demo, 104, 110, 116, How it Works, 111, Facts and Figures, 104, 111, 115, 116, For Enrichment, 111, Address Misconceptions, 101, 112, 114, Assess, 105, 112, 118, Evaluate Understanding, 105, 112, 118, Connecting Concepts, 112, Interactive</p>

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<p>(Continued) 9.2.1.1.1 Describe the relative charges, masses, and locations of the protons, neutrons, and electrons in an atom of an element.</p>	<p>(Continued) Textbook, 112, 118, Section Assessment, 105, 112, 118, Integrate Biology, 105, Integrate Space Science, 114, Customize for English Language Learners, 114, Science and History, 115, Writing in Science, 105, 115, 118, Use Community Resources, 103, 115, Quick Lab, 102, 117, Concepts in Action, 106-107, Background, 106, Study Tip, 120, Assessment, 121-123, Chapter Resources, 120, Homework Guide, 121, Performance-Based Assessment, 122, Go Online PHSchool.com, 122</p>
<p>9.2.1.1.2 Describe how experimental evidence led Dalton, Rutherford, Thompson, Chadwick and Bohr to develop increasingly accurate models of the atom.</p>	<p>SE: 98-99, 100-105, 113-118, 21st Century Learning, 98, Inquiry Activity, 99, Discovery Channel School: Video Field Trip, 99, Reading Focus, 100, 113, Key Concepts, 100, 113, Vocabulary, 113, Reading strategy, 100, 113, Problem-Solving Activity, 109, Go Online, Science News, 109, Calculating 109, Applying Concepts, 110, Using Tables, 112, Reading Checkpoint, 101, 103, 116, Section Assessment, 105, 118, Writing in Science, 105, 115, 118, Using Analogies, 105, Connecting Concepts, 112, Figure, 100, 101, 102, 103, 104, 105, 113, 116, 117, 118, Predicting, 102, Science and History, 114-115, Go Online NSTA SciLinks, 104, 116, Compare and Contrast, 116, Quick Lab, 117</p> <p>TE: Planning Guide, 98A-B, Before You Teach, 98C-D, From the Author, 98C, Chemistry Refresher, 98C-D, Build Reading Literacy, 98D, Go Online 98D, Assess Prior Knowledge, 98, Review Science Concepts, 98, Review Math Skills, 98, Chapter Pretest, 98, Discovery Channel School: Video Field Trip, 99, Engage/Explore: Inquiry Activity, 99, Focus, 100, 113, Build Vocabulary, 100, 113, Reading Strategy, 100, 113, Instruct, 100, 113, Assess, 105, 118, Reading Focus, 100, 113, Building Reading Literacy, 103, 113, Use Visuals, 100, FYI, 101, 102, 103, 104, 114, 115, 117, Section Resources, 100, 113, Customize for Inclusion Students, 109, Build Science Skills, 101, 105, 116, Problem-Solving Activity, 109, For Extra Help, 109, Go Online, NSTA SciLinks, 104, 116, Teacher Demo, 104, 116, How it Works, 111, Facts and Figures, 102, 104, 115, 116, For Enrichment, 111, Address Misconceptions, 101, 114, Assess, 112, 118, Evaluate Understanding, 112, 118, Connecting Concepts, 112, Interactive</p>

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<p>(Continued) 9.2.1.1.2 Describe how experimental evidence led Dalton, Rutherford, Thompson, Chadwick and Bohr to develop increasingly accurate models of the atom.</p>	<p>(Continued) Textbook, 112, 118, Section Assessment, 105, 118, Writing in Science, 105, 115, 118, Integrate Biology, 105, Integrate Space Science, 105, 114, Evaluate Understanding, 105, Reteach, 105, Customize for English Language Learners, 101, 114, Science and History, 115, Use Community Resources, 103, 115, Quick Lab, 102, 117, Use Visuals, 101, 118</p>
<p>9.2.1.1.3 Explain the arrangement of the elements on the Periodic Table, including the relationships among elements in a given column or row.</p>	<p>SE: 124-125, 126-129, 130-138, 139-145, 146-147, 148-149, 152-155, 21st Century Learning, 124, Inquiry Activity, 124, Discovery Channel School: Video Field Trip, 124, 149, Reading Focus, 126, 130, 139, Key Concepts, 126, 130, 139, Vocabulary, 126, 130, 139, Reading Strategy, 126, 128, 130, 139, Figure, 126, 127, 130, 132-133, 134, 135, 136, 138, 139, 140, 141, 142, 143, 144, 145, Go Online, Science News, 140, Go Online, NSTA SciLinks, 128, 130, Go Online, Active Art, 133, How it Works, 137, Predicting, 140, Analyzing Data, 143, Applying Concepts, 144, Using Tables, 127, 134, Reading Checkpoint, 128, 134, 136, 140, 142, Section Assessment, 129, 138, 145, Writing in Science, 129, 138, Observing, 130, 138, Connecting Concepts, 145, Go Online NSTA SciLinks, 128, Compare and Contrast, 129, 131, Quick Lab, 128, 135, Concepts in Action, 146-147, 148-149, Go Further, 149, Study Guide, 152, Assessment, 153-154, Standardized Test Prep, 155</p> <p>TE: Planning Guide, 124A-B, Before You Teach, 124C-D, From the Author, 124C, Chemistry Refresher, 124C-D, Build Reading Literacy, 124D, Go Online, NSTA PDLinks, 124D, Assess Prior Knowledge, 124, Review Science Concepts, 124, Chapter Pretest, 124, Discovery Channel School: Video Field Trip, 125, Engage/Explore: Inquiry Activity, 125, Inquiry Activity, 125, For Enrichment, 125, Focus, 126, 130, 139, Build Vocabulary, 126, 130, 139, Reading Strategy, 126, 130, 139, Instruct, 126, 139, Assess, 129, Building Reading Literacy, 126, 131, 136, 143, 144, Use Visuals, 132, 140, FYI, 127, 129, 132, 133, 134, 136, 137, 140, 141, 143, Section Resources, 126, 130, 139, Customize for Inclusion Students, 126, Build Science Skills, 131, 133, 140, 145, Go Online, Active Art, 133, Go Online, Science News, 140, Go Online, NSTA SciLinks, 128, 131, Go Online, PHSchool.com, 154, Teacher Demo, 138, How it Works, 137,</p>

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<p>(Continued) 9.2.1.1.3 Explain the arrangement of the elements on the Periodic Table, including the relationships among elements in a given column or row.</p>	<p>(Continued) Facts and Figures, 128, 136, 143, 144, For Enrichment, 137, Address Misconceptions, 129,134, 143, Assess, 138, Evaluate Understanding, 129, 138, 145, Connecting Concepts, 145, Interactive Textbook, 129, 138, 145, 153, Section Assessment, 129, 138, 145, Writing in Science, 129, 138, Integrate Language Art, 133, Integrate Health, 136, Integrate Social Studies, 127, Integrate Space Science, 139, Integrate Math, 142, Reteach, 129, 145, Customize for English Language Learners, 131, 140, Use Community Resources, 142, Quick Lab, 128, 135, Use Visuals, 127, 132, 140, Study Tips, 152, Chapter Resources, 152, Homework Guide, 153, Performance-Based Assessment, 154</p>
<p>9.2.1.1.4 Explain that isotopes of an element have different numbers of neutrons and that some are unstable and emit particles and/or radiation. <i>For example:</i> Some rock formations and building materials emit radioactive radon gas. <i>Another example:</i> The predictable rate of decay of radioactive isotopes makes it possible to estimate the age of some materials, and makes them useful in some medical procedures.</p>	<p>SE: 112, 134, 292-297, 298-301, 302, 303-305, 306-307, 21st Century Learning, 290, Inquiry Activity, 291, Discovery Channel School: Video Field Trip, 291, 307, Reading Focus, 292, 298, 303, Key Concepts, Vocabulary, 292, 298, 303, Reading strategy, 292, 298, 303, Reading Checkpoint, 294, 299, 304, Section Assessment, 297, 301, 305, Writing in Science, 301, 305, Go Online NSTA SciLinks, 300, Go Online Planet Diary, 294, Go Online PHSchool.com, 302, Quick Lab, 300, 304, Figure, 112, 134, 292, 293, 294, 296, 297, 298, 299, 301, 303, 304, 305, Using Tables, 112, 134, Section Assessment, 112, Connecting Concepts, 112, Reading Checkpoint, 134, Compare and Contrast, 293, Interpreting Diagrams, 294, Inferring, 296, Math Skills, 295, Math Practice, 295, 297, Calculating, 299, Concepts in Action, 306-307 TE: Planning Guide, 290A-B, Before You Teach, 290C-D, From the Author, 290C, Chemistry Refresher, 290C-D, Build Reading Literacy, 290D, Go Online NSTA PDLinks, 290D, Assess Prior Knowledge, 290, Review Science Concepts, 290, Review Math Skills, 290, Chapter Pretest, 290, Discovery Channel School: Video Field Trip, 291, 307, Engage/Explore: Inquiry Activity, 291, Focus, 292, 298, 303, Objectives, 292, 298, 303, Reading Focus, 292, 298, 303, Build Vocabulary, 292, Reading Strategy, 292, Instruct, 292, 298, 303, Build Science Skills, 112, 293, 298, 301, 305, Section Resources, 292, 298, 303, Building Reading Literacy, 293, 304, Use Visuals, 294, 299, FYI, 134, Customize for Inclusion Students, 299, 304,</p>

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<p>(Continued) 9.2.1.1.4 Explain that isotopes of an element have different numbers of neutrons and that some are unstable and emit particles and/or radiation. <i>For example:</i> Some rock formations and building materials emit radioactive radon gas. <i>Another example:</i> The predictable rate of decay of radioactive isotopes makes it possible to estimate the age of some materials, and makes them useful in some medical procedures.</p>	<p>(Continued) Customize for English Language Learners, 293, For Extra Help, 295, Additional Problems, 295, Go Online, NSTA SciLinks, 300, Go Online Planet Diary, 294, Go Online PHSchool.com, 302, Concepts in Action, Teacher Demo, 294, 299Facts and Figures, 134, 294, 296, 300, Math Practice, 295, 297, For Enrichment, Address Misconceptions, 112, 292, 300, 303, Assess, 112, 297, 301, 305, Evaluate Understanding, 112, 297, 301, 305, Reteach, 112, 297, 301, 305, Interactive Textbook, 112, 297, 301, 305, Section Assessment, 297, 301, Writing in Science, 301, Integrate Earth Science, 296, Use Community Resources, 296, Quick Lab, 300, 304, Issues in Science, 302, Concepts in Action, 306-307</p>

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2. Chemical reactions involve the rearrangement of atoms as chemical bonds are broken and formed through transferring or sharing of electrons and the absorption or release of energy.	
9.2.1.2.1 Describe the role of valence electrons in the formation of chemical bonds.	<p>SE: 139-145, Reading Focus, 139, Key Concepts, 139, Vocabulary, 139, Reading Strategy, 139, Figure, 139, 140, 141, 142, 143, 144, 145, Go Online, Science News, 140, Predicting, 140, Analyzing Data, 143, Applying Concepts, 144, Reading Checkpoint, 140, 142, Section Assessment, 145, Connecting Concepts, 145</p> <p>TE: Focus, 139, Objectives, 139, Build Vocabulary, 139, Reading Strategy, 139, Instruct, 139, Building Reading Literacy, 143, 144, FYI, 140, 141, 143, Section Resources, 139, Build Science Skills, 140, 145, Go Online, Science News, 140, Facts and Figures, 143, 144, Address Misconceptions, 143, Evaluate Understanding, 145, Connecting Concepts, 145, Interactive Textbook, 145, Section Assessment, 145, Integrate Space Science, 139, Integrate Math, 142, Reteach, 145, Customize for English Language Learners, 140, Use Community Resources, 142, Use Visuals, 140</p>
9.2.1.2.2 Explain how the rearrangement of atoms in a chemical reaction illustrates the law of conservation of mass.	<p>SE: 192-198, Reading Focus, 192, Key Concepts, 192, Vocabulary, 192, Reading Strategy, 192, Figure, 192, 193, 194, 195, 196, 197, Reading Checkpoint, 193, 197, Go Online NSTA SciLinks, 193, Go Online Active Art, 194, Go Online Science News, 198, Using Models, 193, Using Analogies, 197, Applying Concepts, 194, Inferring, 196, Math Skills, 195, Math Practice, 195, 198, Quick Lab, 196, Section Assessment, 198</p> <p>TE: Focus, 192, Objectives, 192, Reading Focus, 192, Build Vocabulary, 192, Reading Strategy, 192, Instruct, 192, Use Visuals, 192, 194, Section Resources, 192, Customize for Inclusion Students, 193, Address Misconceptions, 193, Build Math Skills, 193, Go Online NSTA SciLinks, 193, Go Online Active Art, 194, Facts and Figures, 194, 197, Math Practice, 195, 198, Teacher Demo, 195, Quick Lab, 196, Build Science Skills, 197, Building Reading Literacy, 197, Assess, 198, Evaluate Understanding, 198, Reteach, 198, Interactive Textbook, 198, Go Online Science News, 198</p>

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<p>9.2.1.2.3 Describe a chemical reaction using words and symbolic equations. <i>For example:</i> The reaction of hydrogen gas with oxygen gas can be written: $2H_2 + O_2 \rightarrow 2H_2O$</p>	<p>SE: 190C, 192-198, 199-205, 206-210, 215, 216-219, 222-225, Reading Focus, 192, 199, 206, 216, Key Concepts, 192, 199, 206, 216, Vocabulary, 192, 199, 206, 216, Reading strategy, 192, 197, 199, 206, 216, Figure, 192, 193, 194, 195, 199, 200, 202, 203, 204, 206, 207, 208, 209, 216, 217, 218, 219, Reading Checkpoint, 193, 200, 202, 207, 217, Problem-Solving Activity, Using Models, 193, Applying Concepts, 194, Math Skills, 195, Math Practice, 195, 198, Section Assessment, 198, 204, 209, 219, Writing in Science, 204, Using Analogies, 197, Interpreting Photos, 200, 204, Inferring, 207, Using Graphs, 208, Connecting Concepts, 209, 219, Interpreting Diagrams, 217, Go Online NSTA SciLinks, 193, 200, 204, 217, Go Online Active Art, 194, Go Online, Science News, 198, Compare and Contrast, 203, Problem-Solving Activity, 218, Study Guide, 222, Assessment, 223-224, Standardized Test Prep, 225, Performance-based Assessment, 225, Go Online PHSchool.com, 225</p> <p>TE: Before Your Teach, 190C, From the Author, 190C, Focus, 192, 199, 206, Objectives, 192, 199, 206, Reading Focus, 192, 199, 206, Build Vocabulary, 192, 199, 206, Reading Strategy, 192, 199, 206, Instruct, 192, 206, Assess, 198, 209, Use Visuals, 192, 194, 208, Section Resources, 192, 199, 206, Customize for Inclusion Students, 193, 207, Building Math Skills, 193, Build Science Skills, 197, 204, 206, 208, Building Reading Literacy, 197, 204, 207, 218, Go Online, Science News, 198, Go Online, NSTA SciLinks, 193, 200, 205, Go Online Active Art, 194, Facts and Figures, 194, 197, 202, 204, 208, 210, Address Misconceptions, 193, 207, 209, Teacher Demo, 195, 200, Math Practice, 195, 198, Assess, 198, 205, 209, Evaluate Understanding, 198, 205, 209, Reteach, 198, 205, 209, Interactive Textbook, 198, 205, Integrate Earth Science, 199, Integrate Biology, 200, Section Assessment, 198, 204, 209, 219, Writing in Science, 204, 205, Connecting Concepts, 209, 209, 219, Customize for English Language Learners, 200, 207, Use Visuals, 202, 208, Study Tip, 222, Chapter Resources, 222, Homework Guide, 223, Interactive Textbook, 223, Performance-based Assessment, 225, Go Online PHSchool.com, 225</p>

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9.2.1.2.4 Relate exothermic and endothermic chemical reactions to temperature and energy changes.	<p>SE: 86, 206-209, 232-233, Reading Focus, 206, Key Concepts, 206, Vocabulary, 206, Reading Strategy, 192, 206, Figure, 86, 206, 207, 208, 209, Applying Concepts, 86, Reading Checkpoint, 86, 207, 232, Section Assessment, 209, Inferring, 207, Using Graphs, 208, Connecting Concepts, 209, Go Online SciLinks, 232, Quick Lab, 232, How it Works, 233</p> <p>TE: Integrate Biology, 86, Teacher Demo, 86, Focus, 206, Objectives, 206, Reading Focus, 206, Build Vocabulary, 206, Reading Strategy, 206, Instruct, 206, Assess, 206, Section Resources, 206, Customize for Inclusion Students, 207, Build Science Skills, 206, 208, 233, Building Reading Literacy, 207, Facts and Figures, 86, 208, 233, Address Misconceptions, 207, 209, Assess, 209, Evaluate Understanding, 209, Reteach, 209, Section Assessment, 209, Connecting Concepts, 209, Customize for English Language Learners, 207, Use Visuals, 208, Go Online SciLinks, 232, Quick Lab, 232, For Enrichment, 233</p>
2. Motion	
2. An object's mass and the forces on it affect the motion of an object.	
9.2.2.2.1 Recognize that inertia is the property of an object that causes it to resist changes in motion.	<p>SE: 363-367, Reading Focus, 363, Key Concepts, 363, Vocabulary, 363, Reading Strategy, 363, Problem-Solving Activity, Reading Checkpoint, 364, Section Assessment, 369, Figure, 363, 364, Quick Lab, 364, How it Works, 366, Math Skills, 367, Math Practice, 367, 369</p> <p>TE: Focus, 363, Objectives, 363, Reading Focus, 363, Build Vocabulary, 363, Reading Strategy, 363, Instruct, 363, Build Science Skills, 364, Section Resources, 363, Integrate Social Studies, 363, Use Visuals, 364, Customize for Inclusion Students, 365, For Extra Help, 367, Additional Problems, 367, Teacher Demo, 365, 367, Math Practice, 367, How it Works, 366, For Enrichment, 366, Use Community Resources, 366, For Extra Help, 367, Additional Problems 367, Facts and Figures, 366, Quick Lab, 364, Address Misconceptions, 364, Integrate Social Studies, Instruct, 363</p>

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9.2.2.2.2 Explain and calculate the acceleration of an object subjected to a set of forces in one dimension ($F=ma$).	SE: 365, 367, 369, Math Skills, 367, Math Practice, 367, 369 TE: Teacher Demo, 367, Math Practice, 367, For Extra Help, 367, Additional Problems, 367, Assess, Evaluate Understanding, 369, Math Practice, 369
9.2.2.2.3 Demonstrate that whenever one object exerts force on another, a force equal in magnitude and opposite in direction is exerted by the second object back on the first object.	SE: 358, 372-377, Reading Focus, 372, Key Concepts, 372, Vocabulary, 372, Reading Strategy, 372, Figure, 358, 373, 376, Interpreting Photos, 358, Compare and Contrast, 373, Reading Checkpoint, 358, Calculating, 376, Go Online NSTA SciLinks.com, 373, Go Online Active Art, 376, Writing in Science, 375, 377, Science and History, 374-375, Science Assessment, 377, Data Analysis, 377 TE: Focus, 372, Objective, 372, Reading Focus, 372, Build Vocabulary, 372, Reading Strategy, 372, Build Reading Literacy, 372, Section Resources, 372, Integrate Health, 358, Address Misconception, 358, Use Visual, 358, 376, Facts and Figures, 358, Go Online NSTA SciLinks.com, 373, Build Science Skills, 373, Customize for English Language Learners, 373, Teacher Demo, 374, FYI, 374, Build Math Skills, 375, Writing in Science, 375, Science and History, 374-375, Go Online Active Art, 376, Science Assessment, 377, Writing in Science, 377, Data Analysis, 377, Assess, 377, Evaluate Understanding, 377, Reteach, 377, For Extra Help, 377
9.2.2.2.4 Use Newton's universal law of gravitation to describe and calculate the attraction between massive objects based on the distance between them. <i>For example:</i> Calculate the weight of a person on different planets using data of the mass and radius of the planets.	SE: 368-369, Go Online NSTA SciLinks, 368, Figure, 369 TE: Go Online NSTA SciLinks, 368

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3. Energy	
2. Energy can be transformed within a system or transferred to other systems or the environment, but is always conserved.	
<p>9.2.3.2.1 Identify the energy forms and explain the transfers of energy involved in the operation of common devices. <i>For example:</i> Light bulbs, electric motors, automobiles or bicycles.</p>	<p>SE: 446-452, 453-459, 460-461, 479-483, 484-485, 486-492, 493, 494-497, 21st Century Learning, 444, Inquiry Activity, 445, Discovery Channel School: Video Field Trip, 445, 485, 461, SE: Reading Focus, 446, 453, 479, 486, Key Concepts, 446, Vocabulary, 446, Reading strategy, 446, Applying Concepts, 447, 454, 456, 457, Reading Checkpoint, 449, 451, 454, 457, 481, 489, 490, 491, Section Assessment, 459, 483, 492, Writing in Science, 492, Connecting Concepts, 483, Figure, 446, 447, 448, 450, 451, 454, 455, 456, 457, 459, 479, 480, 482, 483, 487, 489, 490, 491, 492, Observing, 451, Inferring, 455, 490, Classify, 487, Relating Cause and Effect, 489, Math Practice, 448, 452, 458, 459, Math Skills, 448, 458, Predicting, 480, Interpreting Photos, 491, Interpreting Diagrams, 492, Design Your Own Lab, 493, Go Online NSTA SciLinks, 449, 482, Go Online Active Art, 487, Go Online Science News 490, How it Works, 488, Data Analysis, 491, Quick Lab, 450, 454, 481, Concepts in Action, 460-461, 484-485, Study Guide, 494, Assessment, 495-496, Standardized Test Prep, 497, Performance-Based Assessment, 496, Go Online PHSchool.com, 496</p> <p>TE: Planning Guide, 444A-B, Before You Teach, 444C-D, From the Author, 444C, Physics Refresher, 444C-D, Build Reading Literacy, 444D, Go Online NSTA PDLinks, 444D, Assess Prior Knowledge, 444, Review Science Concepts, 444, Review Math Skills, 444, Chapter Pretest, 444, Discovery Channel School: Video Field Trip, 445, 485, 461, Engage/Explore: Inquiry Activity, 445, Focus, 446, 453, 479, 486, Objectives, 446, 453, 479, 486, Reading Focus, 446, 453, 479, 486, Build Vocabulary, 446, 453, 479, 486, Reading Strategy, 446, 453, 479, 486, Instruct, 446, 454, 479, 486, Build Science Skills, 447, 452, 461, 482, 484, 487, Section Resources, 446, 453, 479, 486, Building Reading Literacy, 446, 455, 480, 486, Build Math Skills, 449, Use Visuals, 449, 457, 479, 489, 492, FYI, 451, Math Practice, 448, 452, 458, 459, Additional Problems, 448, 458, Customize for Inclusion Students, 454, 480, Customize for English Language Learners, 447, 487, For Extra Help, 458, 491, Go Online, NSTA SciLinks, 449, 455,</p>

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<p>(Continued) 9.2.3.2.1 Identify the energy forms and explain the transfers of energy involved in the operation of common devices. <i>For example:</i> Light bulbs, electric motors, automobiles or bicycles.</p>	<p>(Continued) 482, Go Online, Active Art, 487, Go Online Science News 490, Data Analysis, 491, Teacher Demo, 451, 456, 480, 490, How it Works, 488, Facts and Figures, 451, 455, 458, 481, 482, 489, Design Your Own Lab, 493, For Enrichment, 450, 488, Address Misconceptions, 448, 450, 454, 457, 481, 482, 489, 493, Quick Lab, 450, 454, Concepts in Action, 460-461, 484-485, Background, 460, 484, Assess, 452, 459, 483, 492, Evaluate Understanding, 452, 459, 483, 492, Reteach, 452, 459, 483, 492, Interactive Textbook, 452, 459, 483, 492, Section Assessment, 452, 459, 483, 492, Writing in Science, 492, Connecting Concepts, 483, Integrate Health, 447, Integrate Space Science, 483, Integrate Chemistry, 490, Use Community Resources, 487, Study Tip, 494, Assessment, 494, Chapter Resources, 494, Homework Guide, 495, Performance-Based Assessment, 497, Go Online PHSchool.com, 497</p>
<p>9.2.3.2.2 Calculate and explain the energy, work and power involved in energy transfers in a mechanical system. <i>For example:</i> Compare walking and running up or down steps.</p>	<p>SE: 410-411, 412-416, 417-420, 421-426, 427-435, 436-437, 438-439, 440-443, 21st Century Learning, 410, Inquiry Activity, 411, Discovery Channel School: Video Field Trip, 411, 437, Reading Focus, 412, 417, 421, 427, Key Concepts, 412, 417, 421, 427, Vocabulary, 412, 417, 421, 427, Reading strategy, 412, 417, 421, 427, Applying Concepts, 412, 430, Reading Checkpoint, 413, 414, 418, 423, 424, 429, 431, 433, Section Assessment, 416, 426, 435, Writing in Science, 423, 435, Figure, 412, 413, 414, 416, 417, 419, 421, 424, 427, 428, 430, 431, 432, Inferring, 417, 421, Relating Cause and Effect, 431, Predicting, 419, Interpreting Photos, 432, Science and History, 422-423, Go Online NSTA SciLinks, 413, 418, 422, 429, Go Online PHSchool.com, 439, Compare and Contrasting, 414, Math Skills, 415, 425, Math Practice, 415, 416, 425, 426, Quick Lab, 424, Go Online Active Art, 433, Data Analysis, 433, Consumer Lab, 438-439, Study Guide, 440, Assessment, 441-442, Standardized Test Prep, 443, Performance-Based Assessment, 443, Go Online PHSchool.com, 443</p> <p>TE: Planning Guide, 410A-B, Before You Teach, 410C-D, From the Author, 410C, Physics Refresher, 410C-D, Build Reading Literacy, 410D, Go Online NSTA PDLinks, 410D, Assess Prior Knowledge, 410, Review Science Concepts,</p>

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<p>(Continued) 9.2.3.2.2 Calculate and explain the energy, work and power involved in energy transfers in a mechanical system. <i>For example:</i> Compare walking and running up or down steps.</p>	<p>(Continued) 410, Review Math Skills, 410, Chapter Pretest, 410, Discovery Channel School: Video Field Trip, 411, 437, Engage/Explore: Inquiry Activity, 411, Focus, 412, 417, 421, 427, Objectives, 412, 417, 421, 427, Build Vocabulary, 412, 417, 421, 427, Reading Strategy, 412, 417, 421, 427, Instruct, 412, 417, 421, 427, Build Science Skills, 412, 414, 419, 423, 430, 432, 437, Section Resources, 412, 417, 421, 427, Building Reading Literacy, 414, 418, 422, 431, Build Math Skills, 426, Use Visuals, 416, 419, 421, 428, 431, 432, 435, FYI, 416, 431, 432, Customize for Inclusion Students, 418, 428, Customize for English Language Learners, 413, 422, Go Online NSTA SciLinks, 413, 418, 422, 429, Go Online Active Art, 433, Go Online PHSchool.com, 439, Concepts in Action, 436-437, Teacher Demo, 413, 423, 430, How it Works, 434, Facts and Figures, 414, 419, 425, 430, 432, For Enrichment, 415, 425, 429, 434, Additional Problems, 415, 425, Address Misconceptions, 413, 414, 417, 424, 425, 427, Math Practice, 415, 416, 425, 426, Assess, 416, 420, 426, 435, Evaluate Understanding, 416, 420, 426, 435, Reteach, 416, 420, 426, 435, Interactive Textbook, 416, 420, 426, 435, Section Assessment, 416, 420, 426, 435, Writing in Science, 422, 435, Connecting Concepts, 420, Science and History, 422, Quick Lab, 424, 429, Integrate Social Studies, 428, Integrate History, 431, Use Community Resources, 428, Data Analysis, 433, How it Works, 434, Concepts in Action, 436-437, Consumer Lab, 438, Study Tip, 440, Assessment, 441, Chapter Resources, 440, Homework Guide, 441, Performance-Based Assessment, 443, Go Online PHSchool.com, 443</p>

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<p>9.2.3.2.3 Describe how energy is transferred through sound waves and how pitch and loudness are related to wave properties of frequency and amplitude.</p>	<p>SE: 498A-D, 498-503, 504-507, 514-521, 522-523, 524-525, 526-529, 21st Century Learning, 498, Inquiry Activity, 498, Discovery Channel School: Video Field Trip, 498, 523, Reading Focus, 500, 504, 514, Key Concepts, 500, 504, 514, Vocabulary, 500, 504, 514, Reading strategy, 500, 504, 514, Reading Checkpoint, 505, 515, Section Assessment, 503, 507, 521, Writing in Science, 519, Connecting Concepts, 503, 521, Figure, 500, 502, 503, 504, 505, 507, 514, 515, 516, 517, Make Generalizations, 503, 514, Inferring, 505, 516, Math Practice, 506, 507, Math Skills, 506, Analyzing Data, 515, Go Online NSTA SciLinks, 501, 506, Go Online Planet Diary, 507, 516, Go Online Science News, 517, Compare and Contrast, 501, Quick Lab, 502, 505, Applying Concepts, 507, Science and History, 518-519, How It Works, 520, Concepts in Action, 522-523, Exploration Lab, 524-525, Study Guide, 526, Assessment, 527-528, Standardized Test Prep, 529, Go Online PHSchool.com, 528</p> <p>TE: Planning Guide, 498A-B, Before You Teach, 498C-D, From the Author, 498C, Physics Refresher, 498C-D, Build Reading Literacy, 498D, Go Online NSTA PDLinks, 498D, Assess Prior Knowledge, 498, Review Science Concepts, 498, Review Math Skills, 498, Chapter Pretest, 498, Discovery Channel School: Video Field Trip, 499, 523, Engage/Explore: Inquiry Activity, 499, Focus, 498, 504, 514, Objectives, 498, 504, 514, Reading Focus, 500, 504, 514, Build Vocabulary, 500, 504, 514, Reading Strategy, 498, 504, 514, Instruct, 498, 504, 514, Build Science Skills, 498, 505, 506, 515, 523, Section Resources, 498, 504, 514, Customize for English Language Learners, 501, Customize for Inclusion Students, 505, 515, Assess, 503, 507, 521, Building Reading Literacy, 503, 507, 516, Use Visuals, 501, 504, 507, 516, 517, Go Online, NSTA SciLinks, 501, 506, 517, Go Online Planet Diary, 507, 516, Teacher Demo, 501, Facts and Figures, 502, 516, 518, Math Practice, 506, 507, For Extra Help, 506, Additional Problems, 506, Address Misconceptions, 506, 518, 524, Evaluate Understanding, 503, 521, Reteach, 503, 507, 521, Interactive Textbook, 503, 507, 521, Section Assessment, 503, 507, 521, Connecting Concepts, 503, 521, Writing in Science, 518, Integrate Social Studies, 519, Integrate Language Arts, 521, Use Community Resources, 514, Quick Lab, 502, 505, For</p>

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<p>(Continued) 9.2.3.2.3 Describe how energy is transferred through sound waves and how pitch and loudness are related to wave properties of frequency and amplitude.</p>	<p>(Continued) Enrichment, 502, 505, 520, Science and History, 518, How It Works, 520, Concepts in Action, 522, Background, 523, Study Tip, 526, Assessment, 526, Chapter Resources, 526, Homework Guide, 526, Performance-Based Assessment, 528, Go Online PHSchool.com, 528</p>
<p>9.2.3.2.4 Explain and calculate current, voltage and resistance, and describe energy transfers in simple electric circuits.</p>	<p>SE: 598A-D, 598-599, 604-607, 608, 609-613, 21st Century Learning, 598, Discovery Channel School Video Field Trip, 599, Engage/Explore, 599, Inquiry Activity, 599, Chapter Preview, 599, Reading Focus, 604, 609, Key Concepts, 604, 609, Vocabulary, 604, 609, Reading strategy, 604, 609, Interpreting Diagrams, 604, 610, Applying Concepts, 605, Reading Checkpoint, 609, Section Assessment, 607, 613, Writing in Science, 607, 613, Analyzing Data, 613, Figure, 604, 605, 606, 607, 609, 610, 613, Go Online NSTA SciLinks, 605, 611, Math Skills, 611, Math Practice, 611, Quick Lab, 606, 612, Issues in Science, 608</p> <p>TE: Planning Guide, 598A-B, Before You Teach, 598C-D, From the Author, 598C, Physics Refresher, 598C, Build Reading Literacy, 598D, Go Online NSTA PDLINKS, 598D, 608, Assess Prior Knowledge, 598, Review Science Concepts, 598, Review Math Skills, 508, Chapter Pretest, 598, Discovery Channel School Video Field Trip, 599, Engage/Explore, 599, Inquiry Activity, 599, Address Misconception, 599, 605, 611, Focus, 604, 609, Objectives, 604, 609, Reading Focus, 604, 609, Build Vocabulary, 604, 609, Instruct, 604, 609, Building Reading Literacy, 606, 609, Use Visuals, 604, 610, Section Resources, 604, 609, Build Science Skills, 607, Go Online, NSTA SciLinks, 605, 611, Facts and Figures, 606, Assess, 607, Evaluate Understanding, 607, Interactive Textbook, 607, Section Assessment, 607, Writing in Science, 607, Integrate Earth Science, 605, Customize for English Language Learners, 605, 610, Quick Lab, 606, Issues in Science, 608, Teacher Demo, 610, Math Practice, 611, For Extra Help, 611, Additional Problems, 611</p>

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<p>9.2.3.2.5 Describe how an electric current produces a magnetic force, and how this interaction is used in motors and electromagnets to produce mechanical energy.</p>	<p>SE: 628A-D, 628-629, 630-634, 635-639, 640-641, 642-647, 648-649, 650-653, 21st Century Learning, 628, Inquiry Activity, 629, Discovery Channel School: Video Field Trip, 629, 641, Reading Focus, 630, 635, 642, Key Concepts, 630, 635, 642, Vocabulary, 630, 635, 642, Reading strategy, 630, 635, 642, Applying Concepts, 637, Reading Checkpoint, 632, 638, 646, Section Assessment, 633, 639, 647, Writing in Science, 647, Connecting Concepts, 633, 639, Figure, 630, 631, 633, 635, 636, 637, Inferring, 636, 642, 643, 645, Predicting, 630, 643, Interpreting Diagrams, 631, Formulating Hypotheses, 643, Go Online NSTA SciLinks, 638, 644, Go Online PHSchool.com, 649, Quick Lab, 632, 637, How it Works, 634, Concepts in Action, 640-641, Problem-Solving Activity, 646, Application Lab, 648-649, Study Guide, 650, Assessment, 651-652, Standardized Test Prep, 653, Performance-Based Assessment, 652, Go Online PHSchool.com, 652</p> <p>TE: Planning Guide, 628A-B, Before You Teach, 628C-D, From the Author, 628 C, Physics Refresher, 628C-D, Build Reading Literacy, 628D, Go Online NSTA PDLinks, 628D, Assess Prior Knowledge, 628, Review Science Concepts, 628, Review Math Skills, 628, Chapter Pretest, 628, Discovery Channel School: Video Field Trip, 629, 641, Engage/Explore: Inquiry Activity, 629, Focus, 630, 635, 642, Objectives, 630, 635, 642, Reading Focus, 630, 635, 642, Build Vocabulary, 630, 635, 642, Reading Strategy, 630, 635, 642, Instruct, 630, 635, 642, Build Science Skills, 631, 639, 640, 642, Section Resources, 630, 642, Building Reading Literacy, 630, 635, 645, Use Visuals, 636, 643, 647, FYI, 632, Customize for Inclusion Students, 636, Customize for English Language Learners, 631, 643, Quick Lab, 632, For Extra Help, 646, Go Online, NSTA SciLinks, 638, 644, Go Online PHSchool.com, 649, Concepts in Action, 640-641, Teacher Demo, 636, 638, 643, How it Works, 634, Facts and Figures, 632, 637, 638, 644, 646, For Enrichment, 634, Address Misconceptions, 629, 633, 638, Assess, 633, 639, 647, Evaluate Understanding, 633, 639, 644, 647, Reteach, 633, 639, 647, Interactive Textbook, 633, 639, 647, Section Assessment, 633, 639, 647, Writing in Science, 647, Connecting Concepts, 633, 639, Integrate Earth Science, 631, Integrate Social Studies, 644,</p>

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<p>(Continued) 9.2.3.2.5 Describe how an electric current produces a magnetic force, and how this interaction is used in motors and electromagnets to produce mechanical energy.</p>	<p>(Continued) Use Community Resources, 645, Quick Lab, 632, 637, Problem-Solving Activity, 646, Application Lab, 648-649, Study Tip, 650, Assessment, 651, Chapter Resources, 650, Homework Guide, 651, Performance-Based Assessment, 652, Go Online PHSchool.com, 652</p>
<p>9.2.3.2.6 Compare fission and fusion in terms of the reactants, the products and the conversion from matter into energy. <i>For example:</i> The fusion of hydrogen produces energy in the sun. <i>Another example:</i> The use of chain reactions in nuclear reactors.</p>	<p>SE: 308-315, 316-317, 318-321, 459, 832-834, Reading Focus, 308, Key Concepts, 308, Vocabulary, 308, Reading strategy, 308, Go Online Science News, 310, Reading Checkpoint, 311, 833, Section Assessment, 315, Writing in Science, 313, 315, Figure, 308, 309, 310, 311, 459, 833, Using Models, 308, Compare and Contrast, 310, Building Math Skills, 310, Interpreting Diagrams, 311, 833, Science and History, 312-313, How it Works, 314, Exploration Lab, 316-317, Study Guide, 318, Assessment, 319-320, Standardized Test Prep, 321</p> <p>TE: Focus, 308, Objectives, 308, Build Vocabulary, 308, Reading Strategy, 308, Instruct, 308, Build Science Skills, 315, Section Resources, 308, Assess, 315, Building Reading Literacy, 309, Integrate Language Arts, 309, Use Visuals, 308, 310, Build Math Skills, 310, Customize for English language Learners, 309, 833, Science and History, 312, How it Works, 314, Background, 314, For Enrichment, 314, Teacher Demo, 311, 833, Facts and Figures, 311, Address Misconceptions, 315, Evaluate Understanding, 315, Reteach, 315, Interactive Textbook, 315, Section Assessment, 315, Connecting Concepts, 315, Writing in Science, 312, Use Community Resources, 313, Study Tip, 318, Assessment, 318, Chapter Resources, 318, Homework Guide, 319, Performance-Based Assessment, 320, Go Online PHSchool.com, 320</p>

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<p>9.2.3.2.7 Describe the properties and uses of forms of electromagnetic radiation from radio frequencies through gamma radiation. <i>For example:</i> Compare the energy of microwaves and X-rays.</p>	<p>SE: 530A-D, 532-538, 539-545, 21st Century Learning, 530, Inquiry Activity, 531, Discovery Channel School Video Field Trip, 531, Reading Focus, 532, 539, Key Concepts, 532, 539, Vocabulary, 532, 539, Reading strategy, 532, 539, Reading Checkpoint, 533, 536, 537, 540, 543, Figure, 532, 533, 534, 536, 538, 540, 542, 543, 544, 545, Interpreting Diagrams, 533, 540, Inferring, 534, 544, Math Skills, 535, Math Practice, 535, Predicting, 536, Using Models, 538, Data Analysis, 542, Using Tables, 543, Section Assessment, 538, 545, Writing in Science, 538, 545, Go Online NSTA SciLinks, 533, Go Online Planet Diary, 543, Go Online Active Art, 544, Quick Lab, 544</p> <p>TE: Planning Guide, 530A-B, Before You Teach, 530C-D, From the Author, 530C,a Physics Refresher, 530C, Build Reading Literacy, 530D, Go Online NSTA PDLinks, 530D, Assess Prior Knowledge, 530, Review Science Concepts, 530, Review Math Skills, 530, Chapter Pretest, 530, Discovery Channel School Video Field Trip, 531, Engage/Explore, 599, Inquiry Activity, 531, Address Misconception, 531, 543, Focus, 532, 539, Objectives, 532, 539, Build Vocabulary, 532, 539, Reading Strategy, 532, 539, Instruct, 533, 539, Assess, 538, 545, Evaluate Understanding, 538, 545, Reteach, 538, 545, Building Reading Literacy, 534, 539, Use Visuals, 533, 536, 540, 543, FYI, 534, 536, 537, 540, Section Resources, 532, 538, 539, Customize for Inclusion Students, 540, Build Science Skills, 535, 537, 538, 540, Math Practice, 535, 538, For Extra Help, 535, Additional Problems, 535, Teacher Demo, 537, 541, Go Online, NSTA SciLinks, 533, 540, Teacher Demo, 537, 541, Facts and Figures, 534, 542, Section Assessment, 538, 544, Writing in Science, 538, 545, Integrate Biology, 545, Integrate Space Science, 545, Customize for English Language Learners, 533, 540, Use Community Resources, 541, Data Analysis, 542, For Extra Help, 542, Go Online Planet Diary, 543, Go Online Active Art, 543, Quick Lab, 544</p>

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4. Human Interactions with Physical Systems	
1. There are benefits, costs and risks to different means of generating and using energy.	
<p>9.2.4.1.1 Compare local and global environmental and economic advantages and disadvantages of generating electricity using various sources or energy. <i>For example:</i> Fossil fuels, nuclear fission, wind, sun or tidal energy.</p>	<p>SE: 260-261, 267-268, 270-271, 308-315, 462-466, 21st Century Learning, 260, Discovery Channel School: Video Field Trip, 261, 271, 462, Reading Focus, 308, 462, Key Concepts, 308, 462, Vocabulary, 308, 462, Reading strategy, 308, 462, Applying Concepts, 463, Reading Checkpoint, 311, Section Assessment, 315, 466, Writing in Science, 313, 466, Connecting Concepts, 315, Figure, 267, 268, 308, 310, 311, 315, 462, 463, 464, 466, Using Models, 308, Inferring, 466, Relating Cause and Effect, Predicting, Interpreting Diagrams, 268, 311, Go Online NSTA SciLinks, 267, 310, Go Online, Science News, 464, Concepts in Action, 270-271, Science and History, 312-313, Compare and Contrasting, 310, 464, Data Analysis, 463, How it Works, 314, 465</p> <p>TE: Focus, 308, 462, Objectives, 308, 462, Reading Focus, 308, 462, Build Vocabulary, 308, 462, Reading Strategy, 308, 462, Instruct, 308, 462, Build Science Skills, 268, 270, 315, 466, Section Resources, 308, 308, Building Reading Literacy, 309, 464, Use Visuals, 308, 310, FYI, 268, Build Math Skills, 268, 310, Customize for English Language Learners, 309, 463, Problem-Solving Activity, Data Analysis, 463, For Extra Help, 463, 465, Go Online, Science News, 464, Go Online, NSTA SciLinks, 267, 310, Go Online Planet Diary, 268, Concepts in Action, 270-271, Teacher Demo, 267, 311, 464, How it Works, 314, 465, Facts and Figures, 268, 270, 311, 464, Address Misconceptions, 315, 466, Assess, 315, 466, Evaluate Understanding, 315, 466, Reteach, 315, 466, Interactive Textbook, 466, Section Assessment, 315, 466, Writing in Science, 312, 466, Science and History, 312-313, Connecting Concepts, 315, Data Analysis, 463, Integrate Language Arts, 309, Discovery Channel School Video Field Trip, 261, 271, Use Community Resources, 464, Science and History, 312-313, For Enrichment, 314</p>

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<p>9.2.4.1.2 Describe the trade-offs involved when technological developments impact the way we use energy, natural resources, or synthetic materials. <i>For example:</i> Fluorescent light bulbs use less energy than incandescent lights, but contain toxic mercury.</p>	<p>SE: 462-466, 484-485, 488, 608, 718, Reading Focus, 462, Key Concepts, 462, Vocabulary, 462, Reading Strategy, 462, Figure, 462, 463, 464, 466, Applying Concepts, 463, Data Analysis, 463, Reading Checkpoint, 464, Comparing and Contrasting, 464, Inferring, 466, Concepts in Action, 484-485, Discovery Channel School Video Field Trip, 485, How it Works, 465, 488, Issues in Science, 608, 718, Go Online Science News, 464, 718, Section Assessment, 466, Writing in Science, 466</p> <p>TE: Focus, 462, Objectives, 462, Reading Focus, 462, Build Vocabulary, 462, Reading Strategy, 462, Instruct, 462, Use Visuals, 462, Section Resources, 462, Customize for English Language Learners, 463, Integrate Earth Science, 463, For Extra Help, 463, Data Analysis, 463, Teacher Demo, 464, Use Community Resources, 464, Build Reading Literacy, 464, Address Misconceptions, 466, Background, 484, Build Science Skills, 466, 484, Discovery Channel School Video Field Trip, 485, How it Works, 465, 488, For Enrichment, 465, 488, Issues in Science, 608, 718, Go Online PHSchool.com 608, Facts and Figures, 718, Go Online Science News, 464, 718, Assess, 466, Evaluate Understanding, 466, Reteach, 466, Writing in Science, 466, Interactive Textbook, 466</p>

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3. EARTH AND SPACE SCIENCE	
1. Earth Structure and Processes	
1. The relationships among earthquakes, mountains, volcanoes, fossil deposits, rock layers and ocean features provide evidence for the theory of plate tectonics.	
<p>9.3.1.1.1 Compare and contrast the interaction of tectonic plates at convergent and divergent boundaries. <i>For example:</i> Compare the kinds of magma that emerge at plate boundaries.</p>	<p>SE: 676-683, 690-696, 697, 698-701, Reading Focus, 676, 690, Key Concepts, 676, 690, Vocabulary, 676, 690, Reading strategy, 676, 690, Reading Checkpoint, 693, Section Assessment, 683, 696, Writing in Science, 681, 683, 696, Figure, 676, 677, 678, 679, 680, 682, 683, 690, 691, 692, 693, Inferring, 678, 683, Relating Cause and Effect, 679, 693, <i>Interpreting Maps</i>, 682, Predicting, 691, Formulating Hypotheses, 692, Science and History, 680-681, Go Online NSTA SciLinks, 693, Go Online Science News, 679, Go Online Planet Diary, 693, Discovery Channel School Video Field Trip, 695, Exploration Lab, 697, Study Guide, 698, Assessment, 699-700, Standardized Test Prep, 701, Performance-Based Assessment, 700, Go Online PHSchool.com, 700</p> <p>TE: Focus, 676, 690, Objectives, 676, 690, Build Vocabulary, 676, 690, Reading Strategy, 676, 690, Instruct, 676, 691, Build Science Skills, 678, 682, 691, 694, FYI, 677, 691, 692, 693, Section Resources, 676, Assess, 683, 696, Building Reading Literacy, 678, 681, 683, 692, Use Visuals, 677, 678, 682, 693, Customize for Inclusion Students, 677, 691, Go Online, Science News, 679, Go Online Planet Diary, 693, Teacher Demo, 680, Facts and Figures, 678, 679, 680, 681, 682, 692, 694, Address Misconceptions, 676, 696, Evaluate Understanding, 683, Reteach, 683, 696, Interactive Textbook, 683, 696, Section Assessment, 683, 696, Writing in Science, 680, 696, Connecting Concepts, 683, Concepts in Action, 694-695, Background, 694, Integrate Social Studies, 679, Science and History, 680, Discovery Channel School Video Field Trip, 695, Exploration Lab, 697, Study Tip, 698, Assessment, 699-700, Chapter Resources, 698, Homework Guide, 699, Performance-Based Assessment, 700, Go Online PHSchool.com, 700</p>

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<p>9.3.1.1.2 Use modern earthquake data to explain how seismic activity is evidence for the process of subduction. <i>For example:</i> Correlate data on distribution, depth and magnitude of earthquakes with subduction zones.</p>	<p>SE: 676-683, 697, Reading Focus, 676, Key Concepts, 676, Vocabulary, 676, Reading strategy, 676, Reading Checkpoint, 678, Figure, 676, 677, 678, 679, 682, 683, Inferring, 678, 683, Relating Cause and Effect, 679, Interpreting Maps, 682, Go Online, Science News, 679, Science and History, 680-681, Writing in Science, 681, Science Assessment, 683, Connecting Concepts, 683</p> <p>TE: Focus, 676, Objectives, 676, Build Vocabulary, 676, Reading Strategy, 676, Instruct, 676, Building Reading Literacy, 678, 681, 683, FYI, 677, Section Resources, 676, Build Science Skills, 678, 682, Go Online, Science News, 679, Facts and Figures, 678, 679, 680, 681, Address Misconceptions, 676, Integrate Into Social Studies, 679, Customize for English Language Learners, 677, Use Visuals, 677, 678, 682, Teacher Demo, 680, Science and History, 680-681, Writing in Science, 681, Science Assessment, 683, Connecting Concepts, 683, Assess, 683, Evaluate Understanding, 683, Reteach, 683, Interactive Textbook 683</p>
<p>9.3.1.1.3 Describe how the pattern of magnetic reversals and rock ages on both sides of a mid-ocean ridge provides evidence of sea-floor spreading.</p>	<p>SE: 676-683, Reading Focus, 676, Key Concepts, 676, Vocabulary, 676, Reading strategy, 676, Reading Checkpoint, 678, Figure, 676, 677, 678, 679, 682, 683, Inferring, 678, 683, Relating Cause and Effect, 679, Interpreting Maps, 682, Go Online, Science News, 679, Science and History, 680-681, Writing in Science, 681, Science Assessment, 683, Connecting Concepts, 683</p> <p>TE: Focus, 676, Objectives, 676, Build Vocabulary, 676, Reading Strategy, 676, Instruct, 676, Building Reading Literacy, 678, 681, 683, FYI, 677, Section Resources, 676, Build Science Skills, 678, 682, Go Online, Science News, 679, Facts and Figures, 678, 679, 680, 681, Address Misconceptions, 676, Integrate Into Social Studies, 679, Customize for English Language Learners, 677, Use Visuals, 677, 678, 682, Teacher Demo, 680, Science and History, 680-681, Writing in Science, 681, Science Assessment, 683, Connecting Concepts, 683, Assess, 683, Evaluate Understanding, 683, Reteach, 683, Interactive Textbook 683</p>

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<p>9.3.1.1.4 Explain how the rock record provides evidence for plate movement. <i>For example:</i> Similarities found in fossils, certain types of rocks, or patterns of rock layers in various locations.</p>	<p>SE: 676-683, Reading Focus, 676, Key Concepts, 676, Vocabulary, 676, Reading strategy, 676, Reading Checkpoint, 678, Figure, 676, 677, 678, 679, 682, 683, Inferring, 678, 683, Relating Cause and Effect, 679, Interpreting Maps, 682, Go Online, Science News, 679, Science and History, 680-681, Writing in Science, 681, Science Assessment, 683, Connecting Concepts, 683</p> <p>TE: Focus, 676, Objectives, 676, Build Vocabulary, 676, Reading Strategy, 676, Instruct, 676, Building Reading Literacy, 678, 681, 683, FYI, 677, Section Resources, 676, Build Science Skills, 678, 682, Go Online, Science News, 679, Facts and Figures, 678, 679, 680, 681, Address Misconceptions, 676, Integrate Into Social Studies, 679, Customize for English Language Learners, 677, Use Visuals, 677, 678, 682, Teacher Demo, 680, Science and History, 680-681, Writing in Science, 681, Science Assessment, 683, Connecting Concepts, 683, Assess, 683, Evaluate Understanding, 683, Reteach, 683, Interactive Textbook 683</p>
<p>9.3.1.1.5 Describe how experimental and observational evidence led to the theory of plate tectonics.</p>	<p>SE: 676-683, Reading Focus, 676, Key Concepts, 676, Vocabulary, 676, Reading strategy, 676, Reading Checkpoint, 678, Figure, 676, 677, 678, 679, 682, 683, Inferring, 678, 683, Relating Cause and Effect, 679, Interpreting Maps, 682, Go Online, Science News, 679, Science and History, 680-681, Writing in Science, 681, Science Assessment, 683, Connecting Concepts, 683</p> <p>TE: Focus, 676, Objectives, 676, Build Vocabulary, 676, Reading Strategy, 676, Instruct, 676, Building Reading Literacy, 678, 681, 683, FYI, 677, Section Resources, 676, Build Science Skills, 678, 682, Go Online, Science News, 679, Facts and Figures, 678, 679, 680, 681, Address Misconceptions, 676, Integrate Into Social Studies, 679, Customize for English Language Learners, 677, Use Visuals, 677, 678, 682, Teacher Demo, 680, Science and History, 680-681, Writing in Science, 681, Science Assessment, 683, Connecting Concepts, 683, Assess, 683, Evaluate Understanding, 683, Reteach, 683, Interactive Textbook 683</p>

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3. By observing rock sequences and using fossils to correlate the sequences at various locations, geologic events can be inferred and geologic time can be estimated.	
9.3.1.3.1 Use relative dating techniques to explain how the structures of the Earth and life on Earth have changed over short and long periods of time.	<p>SE: 298-301, 732-738, 781, Reading Focus, 298, 732, Key Concepts, 298, 732, Vocabulary, 298, 732, Reading Strategy, 298, 732, Problem-Solving Activity, 734, Reading Checkpoint, 735, Section Assessment, 301, 738, Writing in Science, 301, Math Practice, 738, Figure, 298, 299, 301, 732, 733, 734, 735, 736-737, 738, Interpreting Diagrams, 733, 734, 736-737, Go Online Science News, 735, Go Online NSTA SciLinks, 300, Quick Lab, 300</p> <p>TE: Focus, 298, 732, Objective, 298, 732, Build Vocabulary, 298, 732, Reading Strategy, 298, 732, Building Reading Literacy, 732, 735, Use Visuals, 734, 736, Section Resources, 298, 732, Build Science Skills, 298, 301, 733, 736, Problem-Solving Activity, 734, Go Online, Science News, 735, Facts and Figures, 300, 734, 735, 736, 737, Address Misconceptions, 737, Use Visuals, 299, Assess, 301, 738, Evaluate Understanding, 301, 738, Reteach, 301, 738, Interactive Textbook, 301, 738, Go Online, NSTA SciLinks, 300, Teacher Demo, 299, Math Practice, 738, Integrate Chemistry, 735, Customize for English Language Learners, 298, Quick Lab, 300, For Enrichment, 781, Integrate Anthropology, 737, Customize for English Language Learners, 733, Section Assessment, 301, 738, For Enrichment, 301, 781</p>

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<p>9.3.1.3.2 Cite evidence from the rock record for changes in the composition of the global atmosphere as life evolved on Earth. <i>For example:</i> Banded iron formations as found in Minnesota's Iron Range.</p>	<p>SE: 732-738, 781, Reading Focus, 732, Key Concepts, 732, Vocabulary, 732, Reading Strategy, 732, Problem-Solving Activity, 734, Reading Checkpoint, 735, Section Assessment, 738, Math Practice, 738, Figure, 732, 733, 734, 735, 736-737, 738, Interpreting Diagrams, 733, 734, 736-737, Go Online Science News, 735</p> <p>TE: Focus, 732, Objective, 732, Build Vocabulary, 732, Reading Strategy, 732, Building Reading Literacy, 732, 735, Use Visuals, 734, 736, Section Resources, 732, Build Science Skills, 733, 736, Problem-Solving Activity, 734, Go Online, Science News, 735, Facts and Figures, 734, 735, 736, 737, Address Misconceptions, 737, Assess, 738, Evaluate Understanding, 738, Reteach, 738, Math Practice, 738, Integrate Chemistry, 735, Integrate Anthropology, 737, Customize for English Language Learners, 733, Section Assessment, 738, Interactive Textbook, 738, For Enrichment, 781</p>

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2. Interdependence Within the Earth System	
1. The Earth system has internal and external sources of energy, which produce heat and drive the motion of material in the oceans, atmosphere and solid earth.	
9.3.2.1.1 Compare and contrast the energy sources of the Earth, including the sun, the decay of radioactive isotopes and gravitational energy.	<p>SE: 292-297, 361, 378- 381, 449, 462-466, 601, 734, 752-753, 755-759, 805, 832-839, Reading Focus, 292, 378, 462, 752, 755, 832, Key Concepts, 292, 378, 462, 752, 755, 832, Vocabulary, 292, 378, 462, 832, Reading strategy, 292, 378, 462, 752, 755, 752, 755, 832, Applying Concepts, 463, Reading Checkpoint, 379, 381, 449, 464, 601, 753, 757, 833, 835, Section Assessment, 297, 466, 754, 759, 837, Writing in Science, 466, 754, 837, Connecting Concepts, 759, Figure, 292, 293, 294, 296, 361, 378, 380, 381, 462, 463, 464, 466, 601, 734, 752, 753, 754, 755, 757, 758, 759, 805, 832, 833, 834, 836, 837, Inferring, 296, 361, Predicting, Interpreting Diagrams, 294, 734, 753, 833, 834, Data Analysis, 463, Interpreting Visuals, 754, 758, Compare and Contrasting, 464, 757, Interpreting Photos, 836, Go Online NSTA SciLinks, 381, 449, 757, 834, Go Online, Science News, 464, Go Online Planet Diary, 294, 835, Math Skills, 295, Math Practice, 295, 297, 805, How it Works, 465, 756, Problem-Solving Activity, 734, Quick Lab, 380, 836</p> <p>TE: Focus, 292, 378, 462, 752, 755, 832, Objectives, 292, 378, 462, 752, 755, 832, Reading Focus, 292, 378, 462, 752, 755, 832, Build Vocabulary, 292, 378, 462, 752, 755, 832, Reading Strategy, 292, 378, 462, 752, 755, 832, Instruct, 292, 378, 462, 752, 755, 832, Build Science Skills, 293, 381, 466, 601, 752, 757, 835, Section Resources, 292, 378, 462, 752, 755, 832, Building Reading Literacy, 293, 378, 464, 755, 834, Building Math Skills, 449, Use Visuals, 294, 361, 381, 449, 462, 734, 754, 758, 832, 834, FYI, 805, Customize for Inclusion Students, 379, 753, Customize for English Language Learners, 293, 601, 463, 757, 833, Data Analysis, 463, For Extra Help, 295, 463, 734, Additional Problems, 295, Go Online, Science News, 464, Go Online, NSTA SciLinks, 381, 449, 757, 834, Go Online Planet Diary, 294, 835, Teacher Demo, 294, 379, 464, 601, 753, 757, 758, 833, 837, Quick Lab, 380, 836, Problem-Solving Activity, 734, How it Works, 465, 756, Facts and Figures, 294, 296, 361, 380, 464, 734, 756, 758, 834, For Enrichment, 465, 756, 836, Address Misconceptions, 292,</p>

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<p>(Continued) 9.3.2.1.1 Compare and contrast the energy sources of the Earth, including the sun, the decay of radioactive isotopes and gravitational energy.</p>	<p>(Continued) 361, 379, 466, 754, 755, 837, Math Practice, 295, 297, 805, Assess, 297, 466, 754, 759, 837, Evaluate Understanding, 297, 466, 754, 759, 837, Reteach, 297, 466, 754, 759, 837, Interactive Textbook, 297, 466, 754, 759, 837, Section Assessment, 297, 466, 754, 759, 837, Writing in Science, 466, 754, 837, Connecting Concepts, 759, Integrate Biology, 835, Integrate Earth Science, 296, 463, Integrate Physics, 756, Use Community Resources, 296, 464</p>
<p>9.3.2.1.2 Explain how the outward transfer of Earth's internal heat drives the convection circulation in the mantle to move tectonic plates.</p>	<p>SE: 678-683, 693, Figure, 678, 679, 682, 683, 693, Go Online Science News, 679, Relating Cause and Effect, 679, 693, Science and History, 680-681, Writing in Science, 681, Interpreting Maps, 682, Inferring, 683, Reading Checkpoint, 693, Go Online Planet Diary, 693</p> <p>TE: Build Science Skills, 678, 682, Use Visuals, 678, Build Reading Literacy, 678, Facts and Figures, 678, 679, 680, 681, 682, Integrate Social Studies, 679, Go Online Science News, 679, Teacher Demo, 680, Writing in Science, 680, Build Reading Literacy, 681, Use Visuals, 682, 693, Go Online Planet Diary, 693, FYI, 693</p>

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2. Global climate is determined by distribution of energy from the sun at the Earth's surface.	
9.3.2.2.1 Explain how Earth's rotation, ocean currents, configuration of mountain ranges, and composition of the atmosphere influence the absorption and distribution of energy, which contributes to global climatic patterns.	<p>SE: 725-729, 744-751, 752-754, 755-759, 765-773, 774-777, 778-787, 788-791, 21st Century Learning, 744, Inquiry Activity, 745, Discovery Channel School: Video Field Trip, 745, 773, Reading Focus, 725, 746, 752, 755, 765, 774, 778, Key Concepts, 725, 746, 752, 755, 765, 774, 778, Vocabulary, 725, 746, 752, 755, 765, 774, 778, Reading Strategy, 725, 746, 752, 755, 765, 774, 778, Applying Concepts, 748, 768, 771, Using Tables, 747, Reading Checkpoint, 727, 748, 750, 753, 767, 769, 776, 784, Section Assessment, 729, 751, 754, 759, 771, 786, Writing in Science, 754, Connecting Concepts, 729, 759, 771, 786, Math Practice, 751, Figure, 725, 726, 727, 728, 729, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 758, 759, 765, 766, 767, 768, 771, 774, 775, 776, 779, 781, 782, 784, 785, Inferring, 784, Relating Cause and Effect, 728, Predicting, Interpreting Diagrams, 750, 753, 766, 779, 782, Interpreting Maps, 727, Interpreting Visuals, 754, 758, 776, Go Online NSTA SciLinks, 757, 784, Go Online Planet Diary, 751, 771, 777, 783, Go Online Active Art, 768, Go Online, Science News, 776, Go Online PHSchool.com, 787, Quick Lab, 749, 766, Data Analysis, 775, 783, How it Works, 756, Concepts in Action, 772-773, Exploration Lab, 787, Study Guide, 788, Assessment, 789-790, Performance-Based Assessment, 790, Go Online PHSchool.com, 790, Standardized Test Prep, 791</p> <p>TE: Planning Guide, 744A-B, Before You Teach, 744C-D, From the Author, 744C, Earth Science Refresher, 744C-D, Build Reading Literacy, 745D, Go Online NSTA PDLINKS, 745, Assess Prior Knowledge, 744, Review Science Concepts, 744, Chapter Pretest, 744, Discovery Channel School: Video Field Trip, 745, 773, Engage/Explore: Inquiry Activity, 745, Focus, 725, 746, 752, 755, 765, 774, 778, Objectives, 725, 746, 752, 755, 765, 774, 778, Reading Focus, 725, 746, 752, 755, 765, 774, 778, Build Vocabulary, 725, 746, 752, 755, 765, 774, 778, Instruct, 747, 752, 755, 765, 774, 778, Reading Strategy, 725, 746, 752, 755, 765, 774, 778, Build Science Skills, 728, 750, 757, 765, 768, 772, 777, 780, 784, 785, Section Resources, 725, 746, 752, 755, 765, 774, 778, Building Reading Literacy, 726, 747, 753, 757, 767, 769,</p>

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<p>(Continued) 9.3.2.2.1 Explain how Earth's rotation, ocean currents, configuration of mountain ranges, and composition of the atmosphere influence the absorption and distribution of energy, which contributes to global climatic patterns.</p>	<p>(Continued) 770, 774, 780, 785, Use Visuals, 727, 748, 754, 758, 767, 768, 776, 779, FYI, 727, 728, Customize for English Language Learners, 726, 747, 753, 766, 775, 779, 785, For Extra Help, 775, Go Online, Science News, 776, Go Online, NSTA SciLinks, 757, 784, Go Online Planet Diary, 751, 771, 777, 783, Go Online Active Art, 768, Go Online PHSchool.com, 787, Quick Lab, 749, 766, Concepts in Action, 772-773, Teacher Demo, 726, 748, 753, 757, 758, 782, How it Works, 756, Facts and Figures, 727, 728, 748, 749, 756, 758, 769, 770, 772, 776, 780, 783, 784, For Enrichment, 756, 781, 782, 785, Address Misconceptions, 726, 745, 747, 749, 755, 750, 754, 769, 776, 778, 784, Assess, 729, 751, 754, 759, 771, 777, 785, 786, Evaluate Understanding, 729, 751, 754, 759, 771, 777, 786, Reteach, 729, 751, 754, 759, 771, 777, 786, Interactive Textbook, 729, 751, 754, 759, 771, 777, 786, Section Assessment, 751, 754, 759, 771, 777, 786, Writing in Science, 754, 777, Connecting Concepts, 729, 771, 786, Integrate Biology, 725, Integrate Physics, 756, 770, Data Analysis, 775, 783, Use Community Resources, 775, 783, Study Tip, 788, Assessment, 788, Chapter Resources, 788, Homework Guide, 789, Performance-Based Assessment, 791, Go Online PHSchool.com, 791</p>
<p>9.3.2.2.2. Explain how evidence from the geologic record, including ice core samples, indicates that climate changes have occurred at varying rates over geologic time and continue to occur today.</p>	<p>SE: 781-786, Figure, 781, 782, 785, 786, Interpreting Diagrams, 782, Data Analysis, 783, Go Online Planet Diary, 783, Go Online NSTA SciLinks, 784, Reading Checkpoint, 784, Section Assessment, 786, Connecting Concepts, 786</p> <p>TE: For Enrichment, 781, 782, 786, Teacher Demo, 782, Facts and Figures, 783, Use Community Resources, 783, Data Analysis, 783, Go Online Planet Diary, 783, Go Online NSTA SciLinks, 784, Build Science Skills, 784, 785, Address Misconceptions, 784, Customize for Inclusion Students, 785, Build Reading Literacy, 785, Assess, 786, Evaluate Understanding, 786, Section Assessment, 786, Connecting Concepts, 786, Interactive Textbook, 786</p>

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3. The cycling of materials through different reservoirs of the Earth's system is powered by the Earth's sources of energy.	
<p>9.3.2.3.1 Trace the cyclical movement of carbon, oxygen and nitrogen through the lithosphere, hydrosphere, atmosphere and biosphere. <i>For example:</i> The burning of fossil fuels contributes to the greenhouse effect.</p>	<p>SE: 462, 466, 746-751, 755, 756, 784-786, Reading Focus, 746, Key Concepts, 746, Vocabulary, 746, Reading Strategy, 746, How it Works, 756, Go Online NSTA SciLinks, 784, Figure, 746, 747, 755, 784, 785, 786, Inferring, 784, Using Tables, 747, Reading Checkpoint, 748, 784, Quick Lab, 749, Section Assessment, 751, 786, Math Practice, 751, Connecting Concepts, 786,</p> <p>TE: Focus, 746, Objectives, 746, Reading Focus, 746, Build Vocabulary, 746, Reading Strategy, 746, Section Resources, 746, Customize for English Language Learners, 747, Teacher Demo, 748, Use Visuals, 748, Address Misconceptions, 749, 750, 755, 784, How it Works, 756, Integrate Physics, 756, Build Science Skills, 784, 785, Go Online NSTA SciLinks, 784, Facts and Figures, 748, 749, 756, 784, Customize for Inclusion Students, 785, Build Reading Literacy, 755, 785, Quick Lab, 749, For Enrichment, 756, 786, Build Science Skills, 750, Assess, 751, 786, Evaluate Understanding, 751, 786, Reteach, 751, 786, Section Assessment, 751, 786, Math Practice, 751, Connecting Concepts, 786, Interactive Textbook, 751, 786</p>
3. The Universe	
2. The solar system, sun, and Earth formed over billions of years.	
<p>9.3.3.2.1 Describe how the solar system formed from a nebular cloud of dust and gas 4.6 billion years ago.</p>	<p>SE: 822-824, 833, 858-859, Reading Focus, 822, Key Concepts, 822, Vocabulary, 822, Reading Strategy, 822, Applying Concepts, 822, Reading Checkpoint, 823, Section Assessment, 824, 859, Writing in Science, 824, Figure, 822, 824, 858, Predicting, 824, Quick Lab, 823, Connecting Concepts, 859, Quick Lab, 859</p> <p>TE: Focus, 822, Objectives, 822, Build Vocabulary, 822, Reading Strategy, 822, Instruct, 822, Build Science Skills, 823, Section Resources, 822, Building Reading Literacy, 824, 858, Use Visuals, 822, Customize for English Language Learners, 823, Address Misconceptions, 822, 858, Assess, 824, 859, Evaluate Understanding, 824, 859, Reteach, 824, 859, Interactive Textbook, 824, 859, Section Assessment, 824, Writing in Science, 824, Quick Lab, 823, For Enrichment, 823, Facts and Figures, 858, Quick Lab, 859, Connecting Concepts, 859</p>

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<p>9.3.3.2.2. Explain how the Earth evolved into its present habitable form through interactions among the solid earth, the oceans, the atmosphere and organisms.</p>	<p>SE: 732-738, 781, 809-810, Reading Focus, 732, Key Concepts, 732, Vocabulary, 732, Reading Strategy, 732, Problem-Solving Activity, 734, Reading Checkpoint, 735, Section Assessment, 738, Math Practice, 738, Figure, 732, 733, 734, 735, 736-737, 738, 809, Interpreting Diagrams, 733, 734, 736-737, Go Online Science News, 735, Formulating Hypotheses, 809, Go Online NSTA SciLinks, 810</p> <p>TE: Focus, 732, Objective, 732, Build Vocabulary, 732, Reading Strategy, 732, Building Reading Literacy, 732, 735, 809, Use Visuals, 734, 736, Section Resources, 732, Build Science Skills, 733, 736, 809, Problem-Solving Activity, 734, Go Online, Science News, 735, Facts and Figures, 734, 735, 736, 737, 809, Address Misconceptions, 737, Assess, 738, Evaluate Understanding, 738, Reteach, 738, Math Practice, 738, Integrate Chemistry, 735, Integrate Anthropology, 737, Customize for English Language Learners, 733, Section Assessment, 738, Interactive Textbook, 738, For Enrichment, 781, Go Online NSTA SciLinks, 810</p>

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<p>9.3.3.2.3. Compare and contrast the environmental conditions that make life possible on Earth with conditions found on the other planets and moons of our solar system.</p>	<p>SE: 807-813, 814-819, Reading Focus, 807, 814, Key Concepts, 807, 814, Vocabulary, 807, 814, Reading strategy, 807, 814, Reading Checkpoint, 808, 817, Section Assessment, 813, 819, Writing in Science, 811, 813, Connecting Concepts, 819, Figure, 807, 808, 809, 812, 813, 814, 815, 816, 817, 819, Inferring, 817, Science and History, 810-811, Go Online NSTA SciLinks, 810, Go Online, Science News, 817, Compare and Contrast, 808, 813, Using Tables, 808, 815, Formulating Hypotheses, 809, 816</p> <p>TE: Focus, 807, 814, Objectives, 807, 814, Build Vocabulary, 807, 814, Reading Strategy, 807, 814, Instruct, 807, 817, Build Science Skills, 808, 809, 812, 816, 817, Section Resources, 807, 814, Building Reading Literacy, 809, 811, 815, Use Visuals, 808, 812, 815, 816, 817, FYI, 816, Customize for Inclusion Students, 815, Customize for English Language Learners, 808, Go Online, Science News, 817, Go Online, NSTA SciLinks, 810, Teacher Demo, 813, 817, Facts and Figures, 809, 811, 816, For Enrichment, 814, Address Misconceptions, 807, 815, Assess, 813, 819, Evaluate Understanding, 813, 819, Reteach, 813, 819, Interactive Textbook, 813, Section Assessment, 813, 819, Writing in Science, 810, 813, Connecting Concepts, 819, Integrate Biology, 817, Integrate Geology, 811, Integrate Language Arts, 808, Science and History, 810, Build Math Skills, 819</p>

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3. The big bang theory states that the universe expanded from a hot, dense chaotic mass, after which chemical elements formed and clumped together to eventually form stars and galaxies.	
9.3.3.3.1 Explain how evidence, including the Doppler shift of light from distant stars and cosmic background radiation, is used to understand the composition, early history and expansion of the universe.	<p>SE: 856-859, Reading Focus, 856, Key Concepts, 856, Vocabulary, 856, Reading Strategy, 856, Reading Checkpoint, 857, Section Assessment, 859, Connecting Concepts, 859, Figure, 856, 857, 858, Inferring, 856, Data Analysis, 857, Quick Lab, 859</p> <p>TE: Focus, 856, Objectives, 856, Build Vocabulary, 856, Reading Strategy, 856, Instruct, 856, Build Science Skills, 857, Section Resources, 856, Data Analysis, 857, Address Misconceptions, 858, Building Reading Literacy, 858, Use Visuals, 856, Customize for English Language Learners, 857, For Extra Help, 857, Assess, 859, Evaluate Understanding, 859, Reteach, 859, Interactive Textbook, 859, Section Assessment, 859, Connecting Concepts, 859, Facts and Figures, 858, Quick Lab, 859</p>
9.3.3.3.2 Explain how gravitational clumping leads to nuclear fusion, producing energy and the chemical elements of a star.	<p>SE/TE: 832-833, 844-848, 849, Reading Focus, 832, 844, Key Concepts, 832, 844, Vocabulary, 832, 844, Reading strategy, 832, 844, Reading Checkpoint, 833, 845, 847, Section Assessment, 848, Writing in Science, 848, Figure, 833, 844, 846-847, Interpreting Diagrams, 833, 846, Predicting, 833, Go Online, Science News, 845, How it Works, 849</p> <p>TE: Focus, 832, 844, Objectives, 832, 844, Build Vocabulary, 832, 844, Reading Strategy, 832, 844, Instruct, 832, 844, Build Science Skills, 845, Section Resources, 832, 844, Building Reading Literacy, 844, Use Visuals, 832, 846, 848, Customize for English Language Learners, 833, 845, Go Online, Science News, 845, Teacher Demo, 833, 847, How it Works, 849, Facts and Figures, 847, For Enrichment, 849, Address Misconceptions, 845, Assess, 848, Evaluate Understanding, 848, Reteach, 848, Interactive Textbook, 848, Section Assessment, 848, Writing in Science, 848, Integrate Physics, 846</p>

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4. Human Interactions with Earth Systems	
1. People consider potential benefits, costs and risks to make decisions on how they interact with natural systems.	
<p>9.3.4.1.1 Analyze the benefits, costs, risks and tradeoffs associated with natural hazards, including the selection of land use and engineering mitigation. <i>For example:</i> Determining land use in floodplains and areas prone to landslides.</p>	<p>SE: 708, 710-711, 718, 750, 755, 756, 781, 784-785, 786, Go Online Planet Diary, 708, Go Online SciLinks, 710, 784, Reading Checkpoint, 711, 784, Issues in Science, 718, Go Online Science New, 718, Figure, 750, 755, 784, 785, Interpreting Diagrams, 750, How it Works, 756, Inferring, 784</p> <p>TE: 786, Go Online Planet Diary, 708, Go Online SciLinks, 710, 784, Customize for Inclusion Students, 710, Building Reading Literacy, 711, 785, Address Misconceptions, 711, 755, 784, Issues in Science, 718, Go Online Science New, 718, Facts and Figures, 718, 756, 784, How it Works, 756, For Enrichment, 756, 781, 786, Integrate Physics, 756, Building Science Skills, 784, 785, Assess, 786, Evaluate Understanding, 786, Reteach, 786, Connect Concepts, 786, Interactive Textbook, 786</p>
<p>9.3.4.1.2 Explain how human activity and natural processes are altering the hydrosphere, biosphere, lithosphere and atmosphere, including pollution, topography and climate. <i>For example:</i> Active volcanoes and the burning of fossil fuels contribute to the greenhouse effect.</p>	<p>SE: 708, 710-711, 718, 750, 755, 756, 781, 784-785, 786, Go Online Planet Diary, 708, Go Online SciLinks, 710, 784, Reading Checkpoint, 711, 784, Issues in Science, 718, Go Online Science New, 718, Figure, 750, 755, 784, 785, Interpreting Diagrams, 750, How it Works, 756, Inferring, 784</p> <p>TE: 786, Go Online Planet Diary, 708, Go Online SciLinks, 710, 784, Customize for Inclusion Students, 710, Building Reading Literacy, 711, 785, Address Misconceptions, 711, 755, 784, Issues in Science, 718, Go Online Science New, 718, Facts and Figures, 718, 756, 784, How it Works, 756, For Enrichment, 756, 781, 786, Integrate Physics, 756, Building Science Skills, 784, 785, Assess, 786, Evaluate Understanding, 786, Reteach, 786, Connect Concepts, 786, Interactive Textbook, 786</p>