



Science

LEVEL RED

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STANDARDS	PAGE REFERENCES
S8.A The Nature of Science	
ASSESSMENT ANCHOR	
S8.A.1 Reasoning and Analysis	
S8.A.1 1 Explain, interpret and apply scientific, environmental, or technological knowledge presented in a variety of formats (e.g., visuals, scenarios, graphs).	
<p>S8.A.1.1.1 Distinguish between a scientific theory and an opinion, explaining how a theory is supported with evidence, or how new data/information may change existing theories and practice.</p>	<p>Student Edition: 6-7, 100-105, 296-297 <i>Section Review</i> 11 <i>Applying Skills</i> 105 <i>Accidents in Science</i> 552 Teacher Wraparound Edition: CD 292; CFU 11; DIS 7</p>
<p>S8.A.1.1.2 Explain how certain questions can be answered through scientific inquiry and/or technological design.</p>	<p>Student Edition: 6-11, 12-20 <i>Applying Skills</i> 11 <i>Lab</i> 32-33, 118-119, 216-217 <i>Design Your Own Lab</i> 60-61, 88-89, 332-333 <i>MiniLAB</i> 100 <i>Use the Internet Lab</i> 152-153 Teacher Wraparound Edition: AIL 32; IL 232; SCB 4E-F</p>

STANDARDS	PAGE REFERENCES
<p>S8.A.1.1.3 Use evidence, such as observations or experimental results, to support inferences about a relationship.</p>	<p>Student Edition: <i>MiniLAB</i> 23, 197 <i>Lab</i> 32-33, 87, 118-119, 184-185, 363, 598 <i>Design Your Own Lab</i> 88-89, 244-245, 332-333, 580-581 <i>Launch Lab</i> 225, 341 Teacher Wraparound Edition: AIL 184</p>
<p>S8.A.1.1.4 Develop descriptions, explanations, predictions, and models using evidence.</p>	<p>Student Edition: 21-26 <i>Launch Lab</i> 5, 97 <i>Lab</i> 31, 32-33, 118-119, 184-185 <i>Design Your Own Lab</i> 60-61, 244-245, 332-333, 364-365 <i>MiniLAB</i> 270 Teacher Wraparound Edition: A 197; ACT 24; LD 14; UP 127</p>
<p>S8.A.1.2 Identify and explain the impacts of applying scientific, environmental, or technological knowledge to address solution to practical problems.</p>	
<p>S8.A.1.2.1 Describe the positive and negative, intended and unintended, effects of specific scientific results or technological developments (e.g., air/space travel, genetic engineering, nuclear fission/fusion, artificial intelligence, lasers, organ transplants).</p>	<p>Student Edition: 415-422, 423-429 <i>Science Online</i> 361 <i>Lab</i> 363 <i>Science and Society</i> 432, 490 Teacher Wraparound Edition: DI 418; SCB 4E-F</p>
<p>S8.A.1.2.2 Identify environmental issues and explain their potential long-term health effects (e.g., pollution, pest controls, vaccinations).</p>	<p>Student Edition: 655-662 <i>Section Review</i> 662 <i>Applying Science</i> 665 Teacher Wraparound Edition: ACT 660; IM 657; R 662; SCB 644E; SJ 656; TFYI 660</p>

STANDARDS	PAGE REFERENCES
<p>S8.A.1.2.3 Describe fundamental scientific or technological concepts that could solve practical problems (e.g., Newton’s laws of motion, Mendelian genetics, mechanical advantage).</p>	<p>Student Edition: 144-150, 157 #29, 194-200, 201-208, 209-214 <i>National Geographic</i> 142 <i>Use the Internet Lab</i> 152-153 <i>Science and History</i> 218 <i>Integrate Physics</i> 230 <i>Lab</i> 379</p> <p>Teacher Wraparound Edition: CD 145; CFU 143; DI 138; IM 140</p>
<p>S8.A.1.2.4 Explain society’s standard of living in terms of technological advancements and their impact on agriculture (e.g., transportation, processing, production, storage).</p>	<p>Student Edition: <i>Applying Science</i> 510</p> <p>Teacher Wraparound Edition: CC 332</p>
<p>S8.A.1.3 Identify evidence that certain variables may have caused measurable changes in natural or human-made-systems.</p>	
<p>S8.A.1.3.1 Use ratio to describe change (e.g., percents, parts per million, grams per cubic centimeter).</p>	<p>Student Edition: 376, 525 #32 <i>Applying Math</i> 264, 547, 603 <i>Math Skill Handbook</i> 708-710</p> <p>Teacher Wraparound Edition: ACT 26; CC 376; UAA 394</p>
<p>S8.A.1.3.2 Use evidence, observations, or explanations to make inferences about change in systems over time (e.g., carrying capacity, succession, population dynamics, loss of mass in chemical reactions, indicator fossils in geologic time scale) and the variables affecting these changes.</p>	<p>Student Edition: 80-86, 178-182, 356-362, 394-395, 458-459, 574-579 <i>Design Your Own Lab</i> 88-89, 520-521 <i>MiniLAB</i> 176 <i>Model and Invent Lab</i> 306-307</p> <p>Teacher Wraparound Edition: DI 85; IL 85, 622; LD 101; QD 8</p>
<p>S8.A.1.3.3 Examine systems changing over time, identifying the possible variables causing this change, and drawing inferences about how these variables affect this change.</p>	<p>Student Edition: 80-86, 178-182, 275-276, 356-362 <i>Integrate Health</i> 9 <i>Design Your Own Lab</i> 88-89, 332-333 <i>Lab</i> 277 <i>Model and Invent Lab</i> 306-307 <i>Applying Skills</i> 395</p> <p>Teacher Wraparound Edition: A 489; AIL 88; DI 458; QD 18; SCB 160F</p>

STANDARDS	PAGE REFERENCES
<p>S8.A.1.3.4 Given a scenario, explain how a dynamically changing environment provides for the sustainability of living systems.</p>	<p>Student Edition: 618-625 <i>Science Online</i> 620 <i>National Geographic</i> 621 <i>Applying Skills</i> 625 <i>Lab</i> 626</p> <p>Teacher Wraparound Edition: A 625, 637; ACT 619; DI 624; R 625; UP 615; VL 619, 621</p>
<p>ASSESSMENT ANCHOR S8.A.2 Processes, Procedures and Tools of Scientific Investigations</p>	
<p>S8.A.2.1 Apply knowledge of scientific investigation or technological design in different contexts to make inferences to solve problems.</p>	
<p>S8.A.2.1.1 Use evidence, observations, or a variety of scales (e.g., time, mass, distance, volume, temperature) to describe relationships.</p>	<p>Student Edition: 130-135 <i>Applying Math</i> 26 <i>Lab</i> 32-33, 55, 87, 151, 184-185 <i>Design Your Own Lab</i> 60-61, 88-89, 244-245, 332-333, 488-489 <i>MiniLAB</i> 197 <i>Model and Invent Lab</i> 396-397 <i>Applying Science</i> 453</p>
<p>S8.A.2.1.2 Use space/time relationships, define concepts operationally, raise testable questions, or formulate hypotheses.</p>	<p>Student Edition: 12-20, 37 #24 <i>MiniLAB</i> 14 <i>Lab</i> 32-33, 118-119, 151, 183 <i>Design Your Own Lab</i> 60-61, 244-245, 332-333, 580-581, 636-637 <i>Applying Skills</i> 395</p> <p>Teacher Wraparound Edition: A 287; IL 17</p>
<p>S8.A.2.1.3 Design a controlled experiment by specifying how the independent variables will be manipulated, how the dependent variable will be measured, and which variables will be held constant.</p>	<p>Student Edition: 18 <i>Science Online</i> 18 <i>Lab</i> 32-33 <i>Design Your Own Lab</i> 88-89, 244-245, 332-333, 488-489, 520-521, 580-581, 636-637</p> <p>Teacher Wraparound Edition: AIL 88; CFU 20; IM 18; QD 18</p>

STANDARDS	PAGE REFERENCES
<p>S8.A.2.1.4 Interpret data/observations; develop relationships among variables based on data/observations to design models as solutions.</p>	<p>Student Edition: 21-26 <i>Lab 31</i>, 626 <i>MiniLAB 100</i>, 359 <i>Design Your Own Lab 332-333</i>, 364-365, 464-465 <i>Model and Invent Lab 396-397</i></p> <p>Teacher Wraparound Edition: ACT 24; IL 103, 317; LD 290; MM 25</p>
<p>S8.A.2.1.5 Use evidence from investigations to clearly communicate and support conclusions.</p>	<p>Student Edition: <i>Lab 32-33</i>, 118-119, 184-185, 216-217, 278-279, 322, 379 <i>Design Your Own Lab 60-61</i>, 88-89, 244-245, 332-333, 364-365, 488-489 <i>Use the Internet Lab 152-153</i> <i>MiniLAB 167</i></p>
<p>S8.A.2.1.6 Identify a design flaw in a simple technological system and devise possible working solutions.</p>	<p>Student Edition: <i>Design Your Own Lab 364-365</i>, 464-465</p> <p>Teacher Wraparound Edition: WQ 126</p>
<p>S8.A.2.2 Apply appropriate instruments for a specific purpose and describe the information the instrument can provide.</p>	
<p>S8.A.2.2.1 Describe the appropriate use of instruments and scales to accurately measure time, mass, distance, volume, or temperature safely under a variety of conditions.</p>	<p>Student Edition: 42-49, 50-54, 67 #19 <i>Integrate Career 43</i> <i>MiniLAB 44</i> <i>National Geographic 46</i> <i>Science Online 47</i> <i>Integrate Astronomy 51</i> <i>Applying Science 453</i></p> <p>Teacher Wraparound Edition: A 54, 55; CFU 54; SCB 40E; SJ 45</p>
<p>S8.A.2.2.2 Apply appropriate measurement systems (e.g., time, mass, distance, volume, temperature) to record and interpret observations under varying conditions.</p>	<p>Student Edition: 50-54 <i>MiniLAB 52</i>, 73 <i>Lab 55</i>, 87, 184-185, 573, 598 <i>Design Your Own Lab 60-61</i>, 244-245, 332-333, 364-365</p> <p>Teacher Wraparound Edition: IL 48; UP 3</p>

STANDARDS		PAGE REFERENCES	
S8.A.2.2.3	Describe ways technology extends and enhances human abilities for specific purposes (e.g., microscope, telescope, micrometer, hydraulics, barometer).	Student Edition: 11, 362, 408-413, 415-422, 423-429, 476-477 <i>Science and History</i> 218 <i>Integrate Physics</i> 230 <i>Integrate Health</i> 234 <i>Science Online</i> 361 <i>Lab</i> 363, 414	Teacher Wraparound Edition: CFU 481; SJ 410; TPK 476; UP 405
ASSESSMENT ANCHOR			
S8.A.3 Systems, Models and Patterns			
S8.A.3.1	Explain the parts of a simple system, their roles, and their relationships to the system as a whole.		
S8.A.3.1.1	Describe a system (e.g., watershed, circulatory system, heating system, agricultural system) as a group of related parts with specific roles that works together to achieve an observed result.	Student Edition: 8-9, 39 #22, 212-214, 478-481, 483-487, 619-625 <i>MiniLAB</i> 8 <i>Integrate Health</i> 9 <i>Launch Lab</i> 617 <i>Lab</i> 626	Teacher Wraparound Edition: QD 8; R 625; SCB 474E-F; UAA 479, 620
S8.A.3.1.2	Explain the concept of order in a system (e.g., first to last—manufacturing steps; trophic levels; simple to complex—cell, tissue, organ, organ system).	Student Edition: 8-9, 107-111, 448-455, 478-481, 483-487 <i>MiniLAB</i> 8 <i>National Geographic</i> 108, 486	Teacher Wraparound Edition: A 487; DI 486; IL 486; R 487; SCB 474E-F; SJ 8; VL 449
S8.A.3.1.3	Distinguish between system inputs, system processes, system outputs, and feedback (e.g., physical, ecological, biological, informational).	Student Edition: 146-147, 159 #26-#27, 560-572 <i>Section Review</i> 150	Teacher Wraparound Edition: CFU 572; QD 149; R 169; SCB 128E; VL 148
S8.A.3.1.4	Distinguish between open loop (e.g., energy flow, food web, open-switch) and closed loop (e.g., materials in the nitrogen and carbon cycles, closed-switch) systems.	Student Edition: 202-208, 223 #11-#12, 391-395, 480-481, 633-635 <i>Lab</i> 215 <i>National Geographic</i> 393	Teacher Wraparound Edition: CFU 208; DI 205, 634; LD 207; R 169; TFYI 633

STANDARDS	PAGE REFERENCES
<p>S8.A.3.1.5 Explain how components of a natural and human-made system play different roles in a working system.</p>	<p>Student Edition: 8-9 <i>MiniLAB</i> 8 <i>Design Your Own Lab</i> 464-465 Teacher Wraparound Edition: DI 24, 387; MM 206</p>
<p>S8.A.3.2 Apply knowledge of models to make predictions, draw inferences, or explain technological concepts.</p>	
<p>S8.A.3.2.1 Describe how scientists use models to explore relationships in natural systems (e.g., an ecosystem, river system, or the solar system).</p>	<p>Student Edition: 21-26, 100-105 <i>Section Review</i> 26 <i>MiniLAB</i> 480 Teacher Wraparound Edition: CC 477; DIS 101; IL 103, 289; LD 174, 290; MM 104; SCB 4F; TFYI 25</p>
<p>S8.A.3.2.2 Describe how engineers use models to develop new and improved technologies to solve problems.</p>	<p>Student Edition: 21-26 <i>Lab</i> 55 <i>Science Online</i> 361 Teacher Wraparound Edition: A 55; CFU 26, 208; DI 205, 213; FF 22; IL 353; TFYI 25; UP 405</p>
<p>S8.A.3.2.3 Given a model showing simple cause and effect relationships in a natural system, predict results that can be used to test the assumptions in the model (e.g., photosynthesis, water cycle, diffusion, infiltration).</p>	<p>Student Edition: <i>Design Your Own Lab</i> 244-245 <i>MiniLAB</i> 270, 295, 441, 457, 508, 543 <i>Lab</i> 298 <i>Model and Invent Lab</i> 306-307 Teacher Wraparound Edition: IL 538; LD 174; MM 179, 329; QD 228, 267</p>
<p>S8.A.3.3 Describe repeated processes or recurring elements in scientific and technological patterns.</p>	
<p>S8.A.3.3.1 Identify and describe patterns as repeated processes or recurring elements in human-made systems (e.g., triangles in bridges, hub and spoke system in communications and transportation systems, feedback controls in regulated systems).</p>	<p>Student Edition: 149 Teacher Wraparound Edition: ACT 202; IP 186; QD 149</p>

STANDARDS	PAGE REFERENCES
<p>S8.A.3.3.2 Describe repeating structure patterns in nature (e.g., veins in a leaf, tree rings, crystals, water waves) or periodic patterns (e.g., daily, monthly, annually).</p>	<p>Student Edition: 226-230, 256-258, 387, 440-446 <i>Lab</i> 236, 447 <i>National Geographic</i> 242 <i>Science Online</i> 387</p> <p>Teacher Wraparound Edition: A 230; IM 258; R 230, SCB 254E; 438E; TBI 438; VL 258</p>
<p>S8.B Biological Sciences</p>	
<p>ASSESSMENT ANCHOR</p>	
<p>S8.B.1 Structure and Function of Organisms</p>	
<p>S8.B.1.1 Describe and compare structural and functional similarities and differences that characterize diverse living things.</p>	
<p>S8.B.1.1.1 Describe the structures of living things that help them function affectively in specific ways (e.g., adaptations and characteristics).</p>	<p>Student Edition: 389-390, 498-500, 501-505, 506-511, 513-518, 530-534, 535-539, 541-544 <i>Section Review</i> 395 <i>Launch Lab</i> 497, 529 <i>Science Stats</i> 522</p> <p>Teacher Wraparound Edition: A 395; R 511; V 533</p>
<p>S8.B.1.1.2 Compare similarities or differences in both internal structures (e.g., invertebrate/vertebrate, vascular/nonvascular, single-celled/multi-celled) and external structures (e.g., appendages, body segments, type of covering, size, shape) of organisms.</p>	<p>Student Edition: 389-390, 498-500, 501-505, 506-511, 513-518, 530-534, 535-539 <i>National Geographic</i> 78 <i>Launch Lab</i> 497</p> <p>Teacher Wraparound Edition: A 511; ACT 499; IL 390; IM 499; MM 503; QD 505, 517</p>
<p>S8.B.1.1.3 Apply knowledge of characteristic structures to identify or categorize organisms (i.e., plants, animals, fungi, bacteria, and protista).</p>	<p>Student Edition: 389-390, 498-500, 501-505, 506-511, 513-518, 530-534, 535-539 <i>Launch Lab</i> 497</p> <p>Teacher Wraparound Edition: A 500; ACT 502; DIS 511; R 395, 549; VL 500</p>

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S8.B.1.1.4	Identify the levels of organization from cell to organism and describe how specific structures (parts), which underlie larger systems, enable the system to function as a whole.	Student Edition: 476-481, 483-487, 495 #20 <i>National Geographic</i> 486 <i>Applying Skills</i> 487 Teacher Wraparound Edition: A 487; DI 485, 486; IL 486; R 487; SCB 474E-F; TPK 501; UAA 479	
ASSESSMENT ANCHOR			
S8.B.2		Continuity of Life	
S8.B.2.1		Explain the basic concepts of natural selection.	
S8.B.2.1.1	Explain how inherited structures or behaviors help organisms survive and reproduce in different environments.	Student Edition: 508, 534-539, 541-544, 545-549 <i>MiniLAB</i> 508, 546 <i>National Geographic</i> 533 Teacher Wraparound Edition: ACT 547; CFU 511; DI 515, 531; QD 536; TPK 535; V 533; VL 541	
S8.B.2.1.2	Explain how different adaptations in individuals of the same species may affect survivability or reproduction success.	Student Edition: 603-605, 611 #23, 613 #24	
S8.B.2.1.3	Explain that mutations can alter a gene and are the original source of new variations.	Student Edition: 604, 613 #24 <i>Section Review</i> 605	
S8.B.2.1.4	Describe how selective breeding or biotechnology can change the genetic makeup of organisms.	Student Edition: 594, 605, 613 #20 <i>Applying Skills</i> 605 <i>Science Online</i> 605 Teacher Wraparound Edition: DIS 594, 603	
S8.B.2.1.5	Explain that adaptations are developed over long periods of time and are passed from one generation to another.	Student Edition: 602	

STANDARDS	PAGE REFERENCES
<p>S8.B.2.2 Explain how a set of genetic instructions determines inherited traits of organisms.</p>	
<p>S8.B.2.2.1 Identify and explain differences between inherited and acquired traits.</p>	<p>Student Edition: 600-605* <i>Use the Internet Lab</i> 606-607 Teacher Wraparound Edition: AIL 606; R 605 *Page references discuss inherited traits, not acquired traits.</p>
<p>S8.B.2.2.2 Recognize that the gene is the basic unit of inheritance, that there are dominant and recessive genes, that traits are inherited.</p>	<p>Student Edition: 599-605 <i>Use the Internet Lab</i> 606-607 Teacher Wraparound Edition: AIL 606; DI 604; IM 588F, 602; SCB 588E; TFYI 603</p>
<p>ASSESSMENT ANCHOR</p>	
<p>S8.B.3 Ecological Behavior and Systems</p>	
<p>S8.B.3.1 Explain the relationships among and between organisms in different ecosystems and their abiotic and biotic components.</p>	
<p>S8.B.3.1.1 Explain the flow of energy through an ecosystem (e.g., food chains, food webs).</p>	<p>Student Edition: 392-395, 401 #22, 403 #7, 633-635 <i>Science Online</i> 392 <i>National Geographic</i> 393 <i>Applying Skills</i> 635 Teacher Wraparound Edition: ACT 393, 634; CFU 635; MM 391, 634; R 635; V 393; VL 634</p>
<p>S8.B.3.1.2 Identify major biomes and describe abiotic and biotic components (e.g., abiotic: different soil types, air, water, sunlight).</p>	<p>Student Edition: 375-378, 622-625 <i>MiniLAB</i> 623 Teacher Wraparound Edition: A 625; ACT 624; CC 391; CFU 625; DI 624</p>
<p>S8.B.3.1.3 Explain relationships among organisms (e.g., producers/consumers, predator/prey, in an ecosystem).</p>	<p>Student Edition: 390-395, 401 #20, 630, 633 <i>Section Review</i> 395 Teacher Wraparound Edition: ACT 391; DIS 630; R 395; SCB 372E; TFYI 630; UP 473</p>

STANDARDS	PAGE REFERENCES
<p>S8.B.3.2 Identify evidence of change to infer and explain the ways different variables may affect change in natural or human-made systems.</p>	
<p>S8.B.3.2.1 Use evidence to explain factors that affect changes in populations (e.g., deforestation, disease, land use, natural disaster, invasive species).</p>	<p>Student Edition: 401 #21, 627-629 <i>Applying Skills</i> 395 <i>Accidents in Science</i> 552 <i>Section Review</i> 632 <i>Design Your Own Lab</i> 636-637 Teacher Wraparound Edition: AIL 636; DI 393; QD 631; SJ 629; V 393</p>
<p>S8.B.3.2.2 Use evidence to explain how diversity affects the ecological integrity of natural systems.</p>	<p>Teacher Wraparound Edition: DI 392</p>
<p>S8.B.3.2.3 Describe the response of organisms to environmental changes (e.g., changes in climate, hibernation, migration, coloration) and how those changes affect survival.</p>	<p>Student Edition: 535-539 <i>Section Review</i> 539 <i>Science Online</i> 629 Teacher Wraparound Edition: DI 536; USW 536</p>
<p>S8.B.3.3 Explain how renewable and nonrenewable resources provide for human needs or how these needs impact the environment.</p>	
<p>S8.B.3.3.1 Explain how human activities may affect local, regional, and global environments.</p>	<p>Student Edition: 655-662 <i>Science Online</i> 507, 536 <i>Integrate Social Studies</i> 507 <i>Applying Science</i> 510 <i>Section Review</i> 662 Teacher Wraparound Edition: A 662; ACT 660; CD 508, 658; SCB 644E; SJ 656; WQ 614</p>
<p>S8.B.3.3.2 Explain how renewable and nonrenewable resources provide for human needs (i.e., energy, food, water, clothing, and shelter).</p>	<p>Student Edition: 214, 646-653 <i>Launch Lab</i> 645 Teacher Wraparound Edition: A 653; CC 661; CD 651; CFU 662; DI 647; DIS 651; QD 647</p>

STANDARDS	PAGE REFERENCES
<p>S8.B.3.3.3 Describe how waste management affects the environment (e.g., recycling, composting, landfills, incineration, sewage treatment).</p>	<p>Student Edition: 663-667 <i>MiniLAB</i> 664 <i>Applying Science</i> 665 Teacher Wraparound Edition: CFU 667; DI 657; IM 657; MM 320; QD 634; SCB 644E; TBI 644, 657; TFYI 666; TPK 655</p>
<p>S8.B.3.3.4 Explain the long-term effects of using integrated pest management (e.g., herbicides, natural predators, biogenetics) on the environment.</p>	<p>Student Edition: <i>Design Your Own Lab</i> 520-521 Teacher Wraparound Edition: A 322, 521; CC 332; CD 516</p>
<p>S8.C Physical Sciences</p>	
<p>ASSESSMENT ANCHOR</p>	
<p>S8.C.1 Structure, Properties, and Interaction of Matter and Energy</p>	
<p>S8.C.1.1 Explain concepts about the structure and properties (physical and chemical) of matter.</p>	
<p>S8.C.1.1.1 Explain the differences among elements, compounds, and mixtures.</p>	<p>Student Edition: 106-111, 113-117, 123 #22 <i>Science Online</i> 107, 116 <i>Lab</i> 112 <i>MiniLAB</i> 114 <i>Integrate Earth Science</i> 117 <i>Applying Skills</i> 117 Teacher Wraparound Edition: ACT 116; AIL 118; DI 116; DIS 115; SCB 96E; TPK 113</p>
<p>S8.C.1.1.2 Use characteristic physical or chemical properties to distinguish one substance from another (e.g., density, thermal expansion/contraction, freezing/melting points, streak test).</p>	<p>Student Edition: 70-79, 80-86 <i>Launch Lab</i> 69 <i>Science Online</i> 71, 72 <i>MiniLAB</i> 73 <i>Section Review</i> 86 <i>Lab</i> 87 Teacher Wraparound Edition: ACT 77; DI 78; LD 72; SCB 68E-F; TPK 80; USW 72; VL 73</p>

STANDARDS		PAGE REFERENCES	
S8.C.1.1.3	Identify and describe reactants and products of simple chemical reactions.	Student Edition: 82-83, 95 #16, 178-182, 480-481 <i>Section Review</i> 182	Teacher Wraparound Edition: A 86; LD 480
ASSESSMENT ANCHOR			
S8.C.2		Forms, Sources, Conversion, and Transfer of Energy	
S8.C.2.1		Describe energy sources, transfer of energy, or conversion of energy.	
S8.C.2.1.1	Distinguish among forms of energy (e.g., electrical, mechanical, chemical, heat, light, sound, nuclear) and sources of energy (i.e., renewable and nonrenewable energy).	Student Edition: 162, 178-179, 189 #23, 201-208 <i>Integrate Physics</i> 267	Teacher Wraparound Edition: TFYI 166
S8.C.2.1.2	Explain how heat is transferred from one place to another through convection, conduction, or radiation.	Student Edition: 174-177, 191 #21, 349 <i>Section Review</i> 177 <i>Applying Skills</i> 355	Teacher Wraparound Edition: A 177; QD 175; R 177
S8.C.2.1.3	Describe how one form of energy (e.g., electrical, mechanical, chemical, heat, light, sound, nuclear) can be converted into a different form of energy.	Student Edition: 162-163, 191 #14, #25, 213-214, 480-481 <i>Launch Lab</i> 161 <i>Integrate Life Science</i> 164 <i>Applying Skills</i> 169 <i>Section Review</i> 182 <i>Integrate Physics</i> 634	Teacher Wraparound Edition: A 161; QD 179; SCB 160E; SJ 163
S8.C.2.2		Compare the environmental impact of different energy sources chosen to support human endeavors.	
S8.C.2.2.1	Describe the sun as a major source of energy that impacts on the environment.	Student Edition: 230, 347, 348-355, 481, 624 <i>Get Ready to Read</i> 342A-B <i>National Geographic</i> 346 <i>Section Review</i> 355	Teacher Wraparound Edition: LD 354; WQ 404

STANDARDS	PAGE REFERENCES
<p>S8.C.2.2.2 Compare the time spans of renewability for fossil fuels and alternative fuels.</p>	<p>Student Edition: 651-653 Teacher Wraparound Edition: CFU 653; SCB 644E</p>
<p>S8.C.2.2.3 Describe the waste (i.e., quantity, kind, and potential to cause environmental impacts) derived from the use of renewable and nonrenewable energy sources and their potential impact on the environment.</p>	<p>Student Edition: 655-662 <i>Applying Science</i> 510 Teacher Wraparound Edition: IL 659; IM 657; R 662; SCB 644E; TFYI 649, 660</p>
<p>ASSESSMENT ANCHOR S8.C.3 Principles of Motion and Force</p>	
<p>S8.C.3.1 Describe the effect of multiple forces on the movement, speed, or direction of an object.</p>	
<p>S8.C.3.1.1 Describe forces acting on objects (e.g., friction, gravity, balanced versus unbalanced, inertia, momentum).</p>	<p>Student Edition: 136-143 <i>Launch Lab</i> 5 <i>Integrate Life Science</i> 137 <i>National Geographic</i> 142 <i>Lab</i> 151 Teacher Wraparound Edition: A 151; ACT 137; IL 141; IM 128F; LD 141; QD 137; SCB 128E; TFYI 139; V 142; VL 139</p>
<p>S8.C.3.1.2 Distinguish between kinetic and potential energy.</p>	<p>Student Edition: 164-169 <i>Get Ready to Read</i> 162A-B <i>National Geographic</i> 165 <i>MiniLAB</i> 167 <i>Lab</i> 183 Teacher Wraparound Edition: A 169; DIS 167; IL 166; MM 179; SCB 160E-F; TBI 160; TFYI 166; V 165; VL 164</p>
<p>S8.C.3.1.3 Explain that the mechanical advantages produced by simple machines helps to do work (physics) by either overcoming a force or changing the direction of the applied force.</p>	<p>Student Edition: 144-150 <i>MiniLAB</i> 147 <i>Section Review</i> 150 Teacher Wraparound Edition: ACT 149; CFU 150; DIS 146; TBI 128; VL 148</p>

STANDARDS	PAGE REFERENCES
S8.D Earth and Space Sciences	
ASSESSMENT ANCHOR	
S8.D.1 Earth Features and Processes that Change Earth and Its Resources	
S8.D.1.1 Describe constructive and destructive natural processes that form different geologic structures and resources.	
<p>S8.D.1.1.1 Explain the rock cycle as changes in the solid earth and rock types found in Pennsylvania (igneous – granite, basalt, obsidian, pumice; sedimentary – limestone, sandstone, shale, coal; and metamorphic – slate, quartzite, marble, gneiss).</p>	<p>Student Edition: 265-271, 272-276 <i>Get Ready to Read</i> 256A-B <i>National Geographic</i> 268 <i>Lab</i> 277</p> <p>Teacher Wraparound Edition: A 271, 277; DIS 266; MM 269; QD 267, 274; R 271, 276; SCB 254F; VL 275</p>
<p>S8.D.1.1.2 Compare and contrast (i.e., geological processes, length of time over which change occurs, and factors affecting the rate of change) different types of changes in Earth’s surface (e.g., landslides, volcanic eruptions, earthquakes, mountain building, new land being formed, weathering, erosion, sedimentation, soil formation).</p>	<p>Student Edition: 288-297, 299-305, 316-321, 323-331 <i>Get Ready to Read</i> 288A-B <i>National Geographic</i> 294 <i>MiniLAB</i> 295 <i>Model and Invent Lab</i> 306-307 <i>Launch Lab</i> 315 <i>Section Review</i> 321</p> <p>Teacher Wraparound Edition: DI 325; SCB 286E-F; TBI 286; V 324</p>
<p>S8.D.1.1.3 Identify soil types (i.e., humus, topsoil, subsoil, loam, loess, and parent material) and their characteristics (i.e., particle size, porosity, and permeability) found in different biomes and in Pennsylvania, and explain how they formed.</p>	<p>Student Edition: 320-321, 622-623 <i>MiniLAB</i> 320, 623 <i>Lab</i> 322</p> <p>Teacher Wraparound Edition: A 322; ACT 624; CFU 321; IM 314F; QD 321; R 321; TFYI 623; UP 253; VL 320</p>
<p>S8.D.1.1.4 Explain how fossils provide evidence about plants and animals that lived long ago throughout Pennsylvania’s history (e.g., fossils provide evidence of different environments).</p>	<p>Student Edition: 271 <i>MiniLAB</i> 270</p> <p>Teacher Wraparound Edition: CB 552</p>

STANDARDS	PAGE REFERENCES
<p>S8.D.1.2 Describe the potential impact of human-made processes on changes to Earth's resources and how they affect everyday life.</p>	
<p>S8.D.1.2.1 Describe a product's transformation process from production to consumption (e.g., prospecting, propagating, growing, maintaining, adapting, treating, converting, distributing, disposing) and explain the process's potential impacts on Earth's resources.</p>	<p>Student Edition: <i>Science and Society</i> 670 Teacher Wraparound Edition: CB 670; DIS 670; ITI 670</p>
<p>S8.D.1.2.2 Describe potential impacts of human-made processes (e.g., manufacturing, agriculture, transportation, mining) on Earth's resources, both nonliving (i.e., air, water, or earth materials) and living (i.e., plants and animals).</p>	<p>Student Edition: 646-653, 655-662 <i>Applying Science</i> 392, 510 <i>Science Online</i> 507 <i>Integrate Social Studies</i> 507 Teacher Wraparound Edition: ACT 660; CB 334; CD 658; R 662; SCB 644E; SJ 656; TFYI 660</p>
<p>S8.D.1.3 Describe characteristic features of Earth's water systems or their impact on resources.</p>	
<p>S8.D.1.3.1 Describe the water cycle and the physical processes on which it depends (i.e., evaporation, condensation, precipitation, transpiration, runoff, infiltration, energy inputs, and phase changes).</p>	<p>Student Edition: 345-347, 369 #2, 371 #7 <i>National Geographic</i> 346 <i>MiniLAB</i> 347 <i>Section Review</i> 347 Teacher Wraparound Edition: ACT 346; CFU 347; DI 346; DIS 658; UAA 351; V 346</p>
<p>S8.D.1.3.2 Compare and contrast characteristics of freshwater and saltwater systems on the basis of their physical characteristics (i.e., composition, density, and electrical conductivity) and their use as natural resources.</p>	<p>Student Edition: 374-378 <i>Launch Lab</i> 373 <i>Science Online</i> 377 <i>Section Review</i> 378 <i>Integrate Earth Science</i> 658 Teacher Wraparound Edition: CC 330; DI 324, 346; DIS 376</p>

STANDARDS	PAGE REFERENCES
<p>S8.D.1.3.3 Distinguish among different water systems (e.g., wetland systems, ocean systems, river systems, watersheds) and describe their relationships to each other as well as to landforms.</p>	<p>Student Edition: 325-331, 345, 374-378, 380-384, 388 <i>Launch Lab</i> 315 <i>Science Online</i> 330 <i>Section Review</i> 331 Teacher Wraparound Edition: A 331; CFU 384; DI 324; TFYI 318, 375</p>
<p>S8.D.1.3.4 Identify the physical characteristics of a stream and how these characteristics determine the types of organisms found in an aquatic environment (e.g., biological diversity, water quality, flow rate, tributaries, surrounding watershed).</p>	<p>Student Edition: 329-331 Teacher Wraparound Edition: TFYI 330</p>
<p>ASSESSMENT ANCHOR S8.D.2 Weather, Climate, and Atmospheric Processes S8.D.2.1 Explain how pressure, temperature, moisture, and wind are used to describe atmospheric conditions that affect regional weather or climate.</p>	
<p>S8.D.2.1.1 Explain the impact of water systems on the local weather or the climate of a region (e.g., lake effect snow, land/ocean breezes).</p>	<p>Student Edition: 356, 361, 380-382, 403 #12 Teacher Wraparound Edition: AIL 364; DI 361; SCB 372E; TFYI 382</p>
<p>S8.D.2.1.2 Identify how global patterns of atmospheric movement influence regional weather and climate.</p>	<p>Student Edition: 353-355 Teacher Wraparound Edition: A 355; AIL 364; SCB 340E; TFYI 354; VL 354</p>
<p>S8.D.2.1.3 Identify how cloud types, wind directions, and barometric pressure changes are associated with weather patterns in different regions of the country.</p>	<p>Student Edition: 348-355, 356-362 <i>Science Online</i> 350, 357 <i>Integrate Social Studies</i> 353 <i>Section Review</i> 355 <i>MiniLAB</i> 359 <i>Lab</i> 363 Teacher Wraparound Edition: CD 353; DI 351; DIS 351, 358; R 355, 362; SCB 340; TFYI 358</p>

STANDARDS		PAGE REFERENCES
ASSESSMENT ANCHOR		
S8.D.3 Composition and Structure of the Universe		
S8.D.3.1 Explain the relationships between and among the objects of our solar system.		
S8.D.3.1.1 Describe patterns of Earth's movements (i.e., rotation and revolution) in relation to the moon and sun (i.e., phases, eclipses, and tides).	Student Edition: 387, 440-446, 469 #22 <i>Section Review</i> 388, 446 <i>MiniLAB</i> 441 <i>Science Online</i> 444 <i>Lab</i> 447 Teacher Wraparound Edition: CFU 446; IM 441; QD 387; SCB 438E; TFYI 444; VL 387, 443	
S8.D.3.1.2 Describe the role of gravity as the force that governs the movement of the solar system and universe.	Student Edition: 323, 448, 459 <i>Launch Lab</i> 5 Teacher Wraparound Edition: IA 466	
S8.D.3.1.3 Compare and contrast characteristics of celestial bodies found in the solar system (e.g., planets, moons, asteroids, comets, meteors, meteoroids, meteorites, inner and outer planets).	Student Edition: 440-446, 448-455, 469 #23 <i>Get Ready to Read</i> 440A-B <i>MiniLAB</i> 450 <i>Applying Science</i> 453 <i>Applying Skills</i> 455 Teacher Wraparound Edition: ACT 450, 452; IM 453; QD 451; R 455; SCB 438E; UAA 443; VL 449	