



Science

LEVEL GREEN

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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).	
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.	Student Edition: 14, 221, 334-337 Teacher Wraparound Edition: 223
S8.A.1.1.2	Explain how certain questions can be answered through scientific inquiry and/or technological design.	Student Edition: 9-11, 12-14, 16-18 <i>Lab</i> 20-21 <i>Lab: Design Your Own</i> 108-109, 550-551, 674-675 <i>Lab: Model and Invent</i> 202-203 <i>National Geographic</i> 15 Teacher Wraparound Edition: TTPK 6

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: 14, 17-18 <i>Lab 19</i>, 167, 266-267 <i>Lab: Design Your Own</i> 108-109, 424-425, 550-551 <i>MiniLab</i> 14, 95 Teacher Wraparound Edition: LD 14</p>
<p>S8.A.1.1.4 Develop descriptions, explanations, predictions, and models using evidence.</p>	<p>Student Edition: <i>Lab</i> 167, 538, 701 <i>Lab: Design Your Own</i> 108-109, 674-675, 706-707 <i>Lab: Model and Invent</i> 202-203 <i>Launch Lab</i> 95 <i>MiniLab</i> 101, 669 Teacher Wraparound Edition: AS 109, 167, 675</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: 321-323, 564, 571, 576, 731-732 <i>Integrate Environment</i> 322 <i>Lab</i> 167, 577 <i>Oops! Accidents in Science</i> 460 <i>Time: Science and History</i> 392 <i>Time: Science and Society</i> 140 Teacher Wraparound Edition: CDIV 322; DE 140; SJ 564</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: 163-166, 562, 564, 568-576 <i>Lab</i> 167, 577 <i>MiniLab</i> 562 <i>Science Online</i> 163, 570 Teacher Wraparound Edition: DI 569; DIF 571; TFYI 564, 575</p>

STANDARDS		PAGE REFERENCES	
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).	Student Edition: 306-308, 310-312, 320, 321, 690-693, 694-698, 700, 702-705 <i>Lab</i> 674-675 <i>National Geographic</i> 309 <i>Time: Science and Society</i> 708 Teacher Wraparound Edition: RE 708; TTPK 321	
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).	Student Edition: 321-323 <i>Time: Science and Society</i> 426 Teacher Wraparound Edition: CDIV 322; CFU 323; TFYI 322; TTPK 321	
S8.A.1.3	Identify evidence that certain variables may have caused measurable changes in natural or human-made systems.		
S8.A.1.3.1	Use ratio to describe change (e.g., percents, parts per million, grams per cubic centimeter).	Student Edition: 311 <i>Applying Math</i> 331, 469 <i>Applying Science</i> 384 <i>Lab</i> 313 <i>Math Skill Handbook</i> 779 Teacher Wraparound Edition: AS 313	
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.	Student Edition: 156-157, 160-164, 541-542, 659, 661-664 <i>Applying Science</i> 546 <i>Lab</i> 167, 538, 550-551, 577, 665 <i>MiniLab</i> 157, 339 <i>National Geographic</i> 158-159, 660 Teacher Wraparound Edition: AR 161	
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.	Student Edition: 157, 160-166 <i>Applying Science</i> 546 <i>Lab</i> 167, 538, 577 <i>National Geographic</i> 158-159 Teacher Wraparound Edition: AR 161; CB 159; LD 164	

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>The following pages can be used to meet this standard. Student Edition: 541-542, 544 <i>Lab 538</i> <i>Lab: Design Your Own 550-551</i> Teacher Wraparound Edition: LD 546</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: 17 <i>Applying Math 229</i> <i>Lab 438, 577</i> <i>Lab: Design Your Own 108-109, 354-355, 706-707</i> <i>Lab: Model and Invent 138-139</i> <i>MiniLab 687</i> <i>Science Skill Handbook 753-755</i> Teacher Wraparound Edition: IL 128</p>
<p>S8.A.2.1.2 Use space/time relationships, define concepts operationally, raise testable questions, or formulate hypotheses.</p>	<p>Student Edition: 14 <i>Lab: Design Your Own 108-109, 424-425, 458-459, 550-551</i> <i>Science Skill Handbook 751</i> Teacher Wraparound Edition: AC 15; DI 16; DIF 15</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: 16-17 <i>Lab: Design Your Own 108-109, 424-425, 458-459, 550-551</i> <i>Science Skill Handbook 752</i> <i>Section Review 18 (#6)</i> Teacher Wraparound Edition: AS 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: <i>Lab: Design Your Own</i> 674-675 <i>Lab: Model and Invent</i> 138-139, 202-203, 582-583 Teacher Wraparound Edition: IN 460</p>
<p>S8.A.2.1.5 Use evidence from investigations to clearly communicate and support conclusions.</p>	<p>Student Edition: 18 <i>Lab</i> 167, 168-169, 488-489 <i>Lab: Design Your Own</i> 108-109, 354-355 <i>Science Skill Handbook</i> 756 <i>Technology Skill Handbook</i> 775 Teacher Wraparound Edition: DI 18</p>
<p>S8.A.2.1.6 Identify a design flaw in a simple technological system and devise possible working solutions.</p>	<p>The following pages can be used to meet this standard. Student Edition: <i>Lab: Design Your Own</i> 674-675 <i>Lab: Model and Invent</i> 138-139, 202-203, 582-583 Teacher Wraparound Edition: IN 460</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: <i>Lab</i> 168-169, 577, 633 <i>Lab: Design Your Own</i> 108-109 <i>Lab: Model and Invent</i> 138-139 <i>MiniLab</i> 95, 507 <i>Science Skill Handbook</i> 752-755 Teacher Wraparound Edition: IL 128</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: <i>Lab</i> 168-169, 577, 633 <i>Lab: Design Your Own</i> 108-109 <i>Lab: Model and Invent</i> 138-139 <i>MiniLab</i> 95, 507 <i>Science Skill Handbook</i> 752-755 Teacher Wraparound Edition: IL 128</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: 9, 134, 221 <i>Lab</i> 193 <i>Lab: Design Your Own</i> 236-237 <i>National Geographic</i> 222-223 Teacher Wraparound Edition: AIL 236; CB 223; IL 128; QD 9	
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.	The following pages can be used to meet this standard. Student Edition: 230, 371-374, 419-421, 436, 468, 472, 515, 532-537, 563, 564, 726-727 <i>Integrate Health</i> 515 <i>Lab</i> 538 Teacher Wraparound Edition: AS 727; IH 515; TTPK 371	
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).	The following pages can be used to meet this standard. Student Edition: 230, 547, 731-737 <i>Section Review</i> 727 (#3) Teacher Wraparound Edition: AS 727; DIF 547	
S8.A.3.1.3 Distinguish between system inputs, system processes, system outputs, and feedback (e.g., physical, ecological, biological, informational).	The following pages can be used to meet this standard. Student Edition: 374, 420, 436, 449-450, 472, 731-737 <i>Lab</i> 167, 538, 577 Teacher Wraparound Edition: SJ 450; TFYI 421	

STANDARDS	PAGE REFERENCES
<p>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.</p>	<p>Student Edition: 436, 449-450, 472, 544-549, 731-737 <i>MiniLab</i> 548 <i>National Geographic</i> 545 Teacher Wraparound Edition: AC 544; SJ 450</p>
<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>The following pages can be used to meet this standard. Student Edition: 230, 371-374, 419-421, 436, 468, 472, 515, 532-537, 563, 564, 726-727 <i>Integrate Health</i> 515 <i>Lab</i> 538 Teacher Wraparound Edition: AS 727; IH 515; TTPK 371</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>The following pages can be used to meet this standard. Student Edition: <i>Lab</i> 167, 538, 577, 665 <i>MiniLab</i> 157, 186, 548 Teacher Wraparound Edition: CFU 192; DIF 533; TFYI 535</p>
<p>S8.A.3.2.2 Describe how engineers use models to develop new and improved technologies to solve problems.</p>	<p>The following pages can be used to meet this standard. Student Edition: <i>Lab</i> 733 <i>Lab: Design Your Own</i> 674-675 <i>Lab: Model and Invent</i> 138-139, 202-203, 582-583 <i>Time: Science and Society</i> 708 Teacher Wraparound Edition: RE 708</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>Lab</i> 167, 260, 266-267, 538, 577, 665 <i>MiniLab</i> 157, 548, 669 Teacher Wraparound Edition: AIL 266, 665; AS 167</p>

STANDARDS		PAGE REFERENCES
S8.A.3.3 Describe repeated processes or recurring elements in scientific and technological patterns.		
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>The following pages can be used to meet this standard.</p> <p>Student Edition: 472 <i>Launch Lab</i> 365</p> <p>Teacher Wraparound Edition: AS 365</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>Student Edition: 30-31, 180-183, 185-190, 290-293 <i>MiniLab</i> 31, 186 <i>National Geographic</i> 32 <i>Reference Handbook</i> 800-801 <i>Science Online</i> 181, 188</p> <p>Teacher Wraparound Edition: CC 292; IL 32; TFYI 515; TTPK 30</p>	
S8.B Biological Sciences		
ASSESSMENT ANCHOR		
S8.B.1 Structure and Function of Organisms		
S8.B.1.1 Describe and compare structural and functional similarities and differences that characterize diverse living things.		
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>Student Edition: 336, 338, 502-503 <i>Lab</i> 342 <i>Launch Lab</i> 333 <i>MiniLab</i> 351 <i>Section Review</i> 341 (#5), 505 (#3)</p> <p>Teacher Wraparound Edition: AC 336, 503; AS 342</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>Student Edition: 214, 224, 230, 505, 506-511, 512-519 <i>Section Review</i> 220 (#5), 230 (#5), 505 (#1)</p> <p>Teacher Wraparound Edition: AC 518; DI 224, 504; QD 224</p>	

STANDARDS	PAGE REFERENCES
<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: 212, 218-220 <i>Launch Lab</i> 213 <i>National Geographic</i> 504 <i>Reference Handbook</i> 796-799 Teacher Wraparound Edition: AC 220; TBI 212</p>
<p>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.</p>	<p>Student Edition: 214, 230, 535</p>
<p>ASSESSMENT ANCHOR S8.B.2 Continuity of Life</p>	
<p>S8.B.2.1 Explain the basic concepts of natural selection.</p>	
<p>S8.B.2.1.1 Explain how inherited structures or behaviors help organisms survive and reproduce in different environments.</p>	<p>Student Edition: 332, 336, 337, 338, 502-503 <i>Launch Lab</i> 333 <i>MiniLab</i> 351 <i>Section Review</i> 341 (#5) Teacher Wraparound Edition: AC 336, 503; ATP 332; QD 336</p>
<p>S8.B.2.1.2 Explain how different adaptations in individuals of the same species may affect survivability or reproduction success.</p>	<p>Student Edition: 154-155, 336-338 <i>Lab: Design Your Own</i> 354-355 <i>Section Review</i> 341 (#2) Teacher Wraparound Edition: LD 338</p>
<p>S8.B.2.1.3 Explain that mutations can alter a gene and are the original source of new variations.</p>	<p>Student Edition: 294-295, 338 <i>Lab: Use the Internet</i> 296-297 Teacher Wraparound Edition: IM 294; SJ 294</p>
<p>S8.B.2.1.4 Describe how selective breeding or biotechnology can change the genetic makeup of organisms.</p>	<p>Student Edition: 321-323 <i>Integrate Environment</i> 322 Teacher Wraparound Edition: CDIV 322; CFU 341; IE 322; TTPK 321</p>

STANDARDS		PAGE REFERENCES	
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: 154-155, 336-341 Teacher Wraparound Edition: CC 340	
	S8.B.2.2 Explain how a set of genetic instructions determines inherited traits of organisms.		
S8.B.2.2.1 Identify and explain differences between inherited and acquired traits.		The following pages can be used to meet this standard. Student Edition: 154-155, 306-308, 310, 312, 338 Teacher Wraparound Edition: TTPK 306	
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.		Student Edition: 292-294, 306-308, 310-312, 319-321 <i>Lab</i> 313 <i>National Geographic</i> 309 <i>Section Review</i> 312 (#1) Teacher Wraparound Edition: IM 308	
ASSESSMENT ANCHOR			
	S8.B.3 Ecological Behavior and Systems		
	S8.B.3.1 Explain the relationships among and between organisms in different ecosystems and their abiotic and biotic components.		
S8.B.3.1.1 Explain the flow of energy through an ecosystem (e.g., food chains, food webs).		Student Edition: 544, 546-547 <i>Applying Science</i> 546 <i>National Geographic</i> 545 <i>Section Review</i> 549 (#1, #4) Teacher Wraparound Edition: AC 544; DI 545; IL 546	
S8.B.3.1.2 Identify major biomes and describe abiotic and biotic components (e.g., abiotic: different soil types, air, water, sunlight).		Student Edition: 532-537 <i>Science Online</i> 536 <i>Section Review</i> 537 (#7) Teacher Wraparound Edition: DI 536; TFYI 533	

STANDARDS		PAGE REFERENCES	
S8.B.3.1.3 Explain relationships among organisms (e.g., producers/consumers, predator/prey, in an ecosystem).		Student Edition: 262, 542-543, 544 <i>MiniLab</i> 542 Teacher Wraparound Edition: AS 549; DIF 542; SJ 542	
	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.		
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).		Student Edition: 536, 539, 541, 569, 573 <i>Applying Science</i> 546 <i>Lab</i> 538 <i>Section Review</i> 155 (#3) Teacher Wraparound Edition: AC 541; AS 155	
S8.B.3.2.2 Use evidence to explain how diversity affects the ecological integrity of natural systems.		Student Edition: <i>Applying Science</i> 546 <i>Lab</i> 538	
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.		Student Edition: 154-155 Teacher Wraparound Edition: MAM 154	
	S8.B.3.3 Explain how renewable and nonrenewable resources provide for human needs or how these needs impact the environment.		
S8.B.3.3.1 Explain how human activities may affect local, regional, and global environments.		Student Edition: 163-166, 568-576, 730, 731, 732 <i>Lab</i> 167, 577 <i>Science Online</i> 163, 165 Teacher Wraparound Edition: TFYI 570	
S8.B.3.3.2 Explain how renewable and nonrenewable resources provide for human needs (i.e., energy, food, water, clothing, and shelter).		Student Edition: 511, 519-520, 560-566, 730-737 <i>Lab: Use the Internet</i> 522-523, 738-739 <i>Science Online</i> 519 Teacher Wraparound Edition: AC 561	

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: 564, 573, 574, 575-576, 578-581, 731 <i>Applying Science</i> 580 Teacher Wraparound Edition: DIF 575; QD 579; TFYI 564</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>The following pages can be used to meet this standard. Student Edition: 336-337, 341, 573</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: 247-253, 620-622 <i>Section Review</i> 625 (#1) Teacher Wraparound Edition: MAM 621; QD 249, 622; RT 625</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: 30, 36-40, 247-248 <i>Applying Science</i> 38 <i>MiniLab</i> 40 Teacher Wraparound Edition: LD 38; TTPK 36</p>
<p>S8.C.1.1.3 Identify and describe reactants and products of simple chemical reactions.</p>	<p>The following pages can be used to meet this standard. 262-265, 602-606 <i>Science Online</i> 603 <i>Section Review</i> 265 (#5) Teacher Wraparound Edition: QD 605; TFYI 605</p>

STANDARDS		PAGE REFERENCES
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: 560-566, 718-720, 729-737 <i>Lab 728</i> <i>Lab: Use the Internet 738-739</i> <i>Section Review 566 (#2)</i> Teacher Wraparound Edition: RT 720; TTPK 729	
S8.C.2.1.2 Explain how heat is transferred from one place to another through convection, conduction, or radiation.	Student Edition: 100-101, 565 Teacher Wraparound Edition: DI 100; DIF 100; QD 565	
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: 261-265, 721-723, 725-727, 731, 733, 735 <i>Lab 728</i> <i>National Geographic 724</i> <i>Science Online 722</i> <i>Section Review 727 (#3)</i> Teacher Wraparound Edition: DI 725; DIF 725; LD 722; TFYI 725	
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: 565-566, 733-734 <i>Lab 577</i> <i>MiniLab 733</i> <i>National Geographic 567</i> <i>Section Review 737 (#2)</i> Teacher Wraparound Edition: AC 567	

STANDARDS		PAGE REFERENCES
S8.C.2.2.2 Compare the time spans of renewability for fossil fuels and alternative fuels.	<p>The following pages can be used to meet this standard.</p> <p>Student Edition: 560-566, 729-737 <i>Integrate Earth Science</i> 730 <i>Section Review</i> 737 (#4)</p> <p>Teacher Wraparound Edition: CFU 737; IES 730; TTPK 560; UAA 730</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>Student Edition: 163, 562, 563, 564, 568, 569, 570, 730, 731, 732 <i>MiniLab</i> 562 <i>Section Review</i> 566 (#3)</p> <p>Teacher Wraparound Edition: DI 563</p>	
ASSESSMENT ANCHOR		
S8.C.3 Principles of Motion and Force		
S8.C.3.1 Describe the effect of multiple forces on the movement, speed, or direction of an object.		
S8.C.3.1.1 Describe forces acting on objects (e.g., friction, gravity, balanced versus unbalanced, inertia, momentum).	<p>Student Edition: 690-693, 694-698, 700, 702-705 <i>Applying Math</i> 695 <i>Lab</i> 701 <i>Lab: Design Your Own</i> 706-707 <i>Launch Lab</i> 683 <i>National Geographic</i> 699 <i>Science Online</i> 692 <i>Time: Science and Society</i> 708</p> <p>Teacher Wraparound Edition: QD 692; RT 693; TBI 682; TTPK 694; VL 691</p>	
S8.C.3.1.2 Distinguish between kinetic and potential energy.	<p>Student Edition: 717-718</p> <p>Teacher Wraparound Edition: IL 717</p>	

STANDARDS	PAGE REFERENCES
<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>The following pages can be used to meet this standard. Student Edition: 440 <i>National Geographic</i> 441 Teacher Wraparound Edition: AC 440, 441</p>
<p>S8.D Earth and Space Sciences</p>	
<p>ASSESSMENT ANCHOR</p>	
<p>S8.D.1 Earth Features and Processes that Change Earth and Its Resources</p>	
<p>S8.D.1.1 Describe constructive and destructive natural processes that form different geologic structures and resources.</p>	
<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: 58-59, 61, 64-65, 69-70, 72-77 <i>Lab</i> 66, 78-79 <i>Launch Lab</i> 57 <i>MiniLab</i> 59 <i>National Geographic</i> 60 <i>Section Review</i> 61 (#3, #6) Teacher Wraparound Edition: AC 74; DI 76; DIF 64; TBI 56; TTPK 58</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: 57, 62-63, 71-73, 344, 534, 575 <i>Launch Lab</i> 559 <i>National Geographic</i> 60 Teacher Wraparound Edition: AS 537; ATP 57; TBI 56; TTPK 62</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>The following pages can be used to meet this standard. Student Edition: 534, 575 <i>Launch Lab</i> 559 <i>Science Online</i> 536 Teacher Wraparound Edition: AS 537</p>

STANDARDS	PAGE REFERENCES
<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: 343-345, 347, 351, 352, 501 <i>Integrate Earth Science</i> 347 <i>Science Online</i> 345 Teacher Wraparound Edition: DI 352; VL 501</p>
<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: 561-562, 578-581, 726-727, 729-732 <i>Applying Science</i> 580, 732 <i>Integrate Earth Science</i> 730 <i>Science Online</i> 580 Teacher Wraparound Edition: CFU 581; TTPK 560, 729</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: 561-562, 568-576 <i>Lab</i> 577 <i>Launch Lab</i> 559 <i>MiniLab</i> 562 Teacher Wraparound Edition: DI 569</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: 99-101, 548 <i>Lab</i> 665 <i>MiniLab</i> 548 <i>Section Review</i> 102 (#3) Teacher Wraparound Edition: TFYI 100</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: 533 <i>Integrate Environment</i> 627 <i>Science Stats</i> 644 Teacher Wraparound Edition: AC 644; DIF 644; IE 627; TFYI 536</p>

STANDARDS		PAGE REFERENCES
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.	The following pages can be used to meet this standard. Student Edition: 149-150, 533, 536, 574-575 Teacher Wraparound Edition: TFYI 536	
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).	The following pages can be used to meet this standard. Student Edition: 573-574 Teacher Wraparound Edition: DIF 574	
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.		
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).	Student Edition: 101, 106-107, 149-151 <i>Section Review</i> 107 (#6) Teacher Wraparound Edition: AS 107; CC 149	
S8.D.2.1.2 Identify how global patterns of atmospheric movement influence regional weather and climate.	Student Edition: 103-104, 106 <i>National Geographic</i> 105 <i>Science Online</i> 104 Teacher Wraparound Edition: TFYI 104, 106; VL 104	
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.	Student Edition: 122-125, 126-130, 132-133, 134-136 <i>Lab</i> 137 <i>Science Online</i> 127 Teacher Wraparound Edition: DIF 124, 127; IL 128; TFYI 124; VL 122	

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: 180-183, 186-189 <i>Lab: Model and Invent</i> 202-203 <i>Science Online</i> 181, 188 <i>Section Review</i> 183 (#6), 192 (#6) Teacher Wraparound Edition: AC 187; LD 180; QD 180, 187, 189	
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: 179, 696, 704 <i>Science Online</i> 697 Teacher Wraparound Edition: TFYI 704	
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: 178-180, 184-185, 194-200 <i>Science Online</i> 198 Teacher Wraparound Edition: DIF 195, 200; RT 201; SJ 185; VL 196	