



Earth Science

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STANDARDS	PAGE REFERENCES
<p>S8.A The Nature of Science</p>	
<p>ASSESSMENT ANCHOR S8.A.1 Reasoning and Analysis</p>	
<p>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>	
<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: 15-22, 36, 272-275, 276-278, 280-289, 673, 690-694 <i>Applying Science</i> 21 <i>Science and History</i> 618 Teacher Wraparound Edition: SJ 20, 692</p>

STANDARDS	PAGE REFERENCES
<p>S8.A.1.1.2 Explain how certain questions can be answered through scientific inquiry and/or technological design.</p>	<p>Student Edition: 6-14, 15-22 <i>Lab</i> 67, 260-261, 320-321, 376, 434, 504-505, 585, 608 <i>Applying Science</i> 169 <i>MiniLAB</i> 318 <i>Applying Math</i> 581 Teacher Wraparound Edition: SCB 4E-F; TFYI 7</p>
<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>Lab</i> 24-25, 98, 136, 503, 585, 608, 675, 680-681 <i>Design Your Own Lab</i> 52-53, 200-201, 228-229, 350-351, 444-445, 532-533, 616-617</p>
<p>S8.A.1.1.4 Develop descriptions, explanations, predictions, and models using evidence.</p>	<p>Student Edition: <i>Lab</i> 24-25, 136, 503, 634 <i>Design Your Own Lab</i> 52-53, 200-201, 228-229, 350-351, 444-445, 532-533, 616-617 <i>Model and Invent Lab</i> 142-143, 172-173, 474-475 Teacher Wraparound Edition: IL 132</p>
<p>S8.A.1.2</p>	<p>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: 432-433, 600-607, 609-615 <i>National Geographic</i> 13 <i>Science and Society</i> 476 <i>Science Online</i> 499 Teacher Wraparound Edition: CD 16, 558; CFU 14; DI 638</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: 432-433, 499-502, 557-561, 578-584, 600-607, 609-615 <i>Integrate Physics</i> 582 <i>Science and Society</i> 592 <i>MiniLAB</i> 613 Teacher Wraparound Edition: A 433; CC 560; DI 583; DIS 128; IL 253; SJ 251</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: 19, 628-633 <i>Lab</i> 24-25 <i>Science and History</i> 82 <i>Integrate Chemistry</i> 277 Teacher Wraparound Edition: CD 198; DI 198</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: 196-199 Teacher Wraparound Edition: CD 247, 580</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: <i>Applying Math</i> 108, 115, 251, 295, 325, 387, 411, 457, 537, 567, 595, 602 <i>Lab</i> 279</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: 39-44, 50-51, 90-93, 182-187, 193-194, 242-248, 272-275, 336-343, 362-369, 370-375, 392-399, 462-469, 574-575 <i>Design Your Own Lab</i> 200-201 <i>Lab</i> 376</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: 50-51, 90-93, 182-187, 193-194, 242-248, 336-343, 362-369, 370-375, 392-399, 462-469 <i>Lab</i> 24-25 <i>Design Your Own Lab</i> 200-201 Teacher Wraparound Edition: IM 180F; QD 187; TFYI 47</p>
<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: 578-584 <i>National Geographic</i> 189 Teacher Wraparound Edition: CD 580</p>

STANDARDS		PAGE REFERENCES
ASSESSMENT ANCHOR		
S8.A.2	Processes, Procedures and Tools of Scientific Investigations	
S8.A.2.1	Apply knowledge of scientific investigation or technological design in different contexts to make inferences to solve problems.	
S8.A.2.1.1 Use evidence, observations, or a variety of scales (e.g., time, mass, distance, volume, temperature) to describe relationships.	Student Edition: <i>Design Your Own Lab</i> 52-53, 200-201, 228-229, 350-351, 444-445, 532-533, 616-617, 746-747 <i>Lab</i> 260-261, 503, 504-505, 680-681	
S8.A.2.1.2 Use space/time relationships, define concepts operationally, raise testable questions, or formulate hypotheses.	Student Edition: <i>Lab</i> 24-25, 80-81, 260-261, 503, 504-505, 680-681 <i>Design Your Own Lab</i> 52-53, 200-201, 228-229, 350-351, 444-445, 532-533, 616-617	
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.	Student Edition: <i>Design Your Own Lab</i> 52-53, 200-201, 228-229, 350-351, 444-445, 532-533, 616-617, 746-747 <i>Lab</i> 260-261, 503, 504-505, 680-681	
S8.A.2.1.4 Interpret data/observations; develop relationships among variables based on data/observations to design models as solutions.	Student Edition: <i>Design Your Own Lab</i> 52-53, 200-201, 228-229, 350-351, 444-445, 532-533, 616-617, 746-747 <i>Lab</i> 260-261, 503, 504-505, 680-681	
S8.A.2.1.5 Use evidence from investigations to clearly communicate and support conclusions.	Student Edition: <i>Lab</i> 24-25, 80-81, 260-261, 503, 504-505, 680-681 <i>Design Your Own Lab</i> 52-53, 200-201, 228-229, 350-351, 444-445, 532-533, 616-617 <i>Use the Internet Lab</i> 290-291, 562-563	
S8.A.2.1.6 Identify a design flaw in a simple technological system and devise possible working solutions.	Student Edition: <i>Model and Invent Lab</i> 142-143, 474-475 <i>MiniLAB</i> 318 Teacher Wraparound Edition: ACT 133; DI 516; IL 515; R 319	
S8.A.2.2	Apply appropriate instruments for a specific purpose and describe the information the instrument can provide.	
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.	Student Edition: <i>Lab</i> 24-25, 45, 136, 260-261, 503, 504-505, 680-681 <i>Launch Lab</i> 33 <i>Design Your Own Lab</i> 52-53, 200-201, 444-445 Teacher Wraparound Edition: A 254	

STANDARDS	PAGE REFERENCES
<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>Launch Lab</i> 33 <i>Lab</i> 45, 136, 260-261, 503, 504-505, 680-681 <i>Design Your Own Lab</i> 52-53, 200-201, 444-445, 746-747 <i>Model and Invent Lab</i> 714-715</p>
<p>S8.A.2.2.3 Describe ways technology extends and enhances human abilities for specific purposes (e.g., microscope, telescope, micrometer, hydraulics, barometer).</p>	<p>Student Edition: 12-14, 16-17, 307-311, 470-472, 628-633, 635-642, 728 <i>Integrate Earth Science</i> 26 Teacher Wraparound Edition: CC 545; DI 277; DIS 637; IL 464; TFYI 277</p>
<p>ASSESSMENT ANCHOR</p>	
<p>S8.A.3 Systems, Models and Patterns</p>	
<p>S8.A.3.1 Explain the parts of a simple system, their roles, and their relationships to the system as a whole.</p>	
<p>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.</p>	<p>Student Edition: 188-194, 243-248, 249-254, 336-343, 426-433, 437-438, 439-443, 462-469, 492-502, 549-556, 582 <i>National Geographic</i> 603 Teacher Wraparound Edition: R 254; V 603</p>
<p>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).</p>	<p>Student Edition: 243-246, 426-433, 549-556 <i>National Geographic</i> 189, 603 Teacher Wraparound Edition: TPK 62</p>
<p>S8.A.3.1.3 Distinguish between system inputs, system processes, system outputs, and feedback (e.g., physical, ecological, biological, informational).</p>	<p>Student Edition: 90-93, 188-194, 246-248, 249-254, 426-433, 437-438, 439-443, 462-469, 492-502, 549-556, 557-561 <i>National Geographic</i> 92 Teacher Wraparound Edition: DIS 252: LD 132</p>
<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>90-93, 188-194, 243-248, 249-254, 426-433, 437-438, 439-443, 492-502, 549-556, 582 <i>National Geographic</i> 603 Teacher Wraparound Edition: DIS 251</p>

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: 120-129, 130-135, 188-194, 196-199, 249-254, 426-433, 492-502, 549-556, 557-561, 600-607, 609-615 <i>Science Online</i> 499 Teacher Wraparound Edition: VL 132</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: 36, 164-170 <i>Lab</i> 67, 260-261 <i>Launch Lab</i> 181, 209, 689 <i>MiniLAB</i> 211, 285, 334, 525 <i>Design Your Own Lab</i> 444-445 Teacher Wraparound Edition: IM 152F</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: <i>MiniLAB</i> 132, 318 <i>Model and Invent Lab</i> 142-143 Teacher Wraparound Edition: IL 133, 515; R 319; UP 571</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>Launch Lab</i> 33 <i>MiniLAB</i> 186 <i>Design Your Own Lab</i> 200-201, 228-229, 444-445 <i>Lab</i> 260-261, 675, 680-681 Teacher Wraparound Edition: A 109, 438, 503; DIS 92; IL 193; QD 107</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: 127-129, 198-199, 307-308 <i>Integrate Physics</i> 166 Teacher Wraparound Edition DI 75</p>

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<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: 62-66, 90-93, 370-375, 492-495, 524-530, 660-665, 666-670 <i>MiniLAB</i> 63 <i>Lab</i> 376 <i>National Geographic</i> 441 <i>Launch Lab</i> 659 Teacher Wraparound Edition: ACT 7; IL 64; IM 482F, 651F</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: 394-399, 488-490 <i>Integrate Life Science</i> 455 Teacher Wraparound Edition: A 391; ACT 396, 555; CFU 491; DI 489; DIS 395, 396, 491; FF 489; VL 404, 490</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: 397-398, 409-410, 551-553 <i>MiniLAB</i> 553 Teacher Wraparound Edition: IL 551</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: 551-553, 567 #24 <i>MiniLAB</i> 553 Teacher Wraparound Edition: IL 551; R 556</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>See Glencoe's <i>Life Science</i> © 2008. Student Edition: 38-45, 240-245, 281-288, 302-309, 399-403, 428-432, 484-489, 490-495, 496-500, 523-529, 540-548, 550-555, 556-557, 568-572, 577-582, 594-602, 622-629 <i>Lab</i> 46, 583 <i>National Geographic</i> 79</p>

STANDARDS		PAGE REFERENCES
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: 394-399, 488-490 <i>Integrate Life Science</i> 529 Teacher Wraparound Edition: A 391, 399; ACT 396, 555; CFU 491; DI 489; DIS 395; FF 489; ILS 455; VL 490	
S8.B.2.1.2 Explain how different adaptations in individuals of the same species may affect survivability or reproduction success.	Student Edition: 394-399 <i>Lab</i> 307 <i>Launch Lab</i> 391 Teacher Wraparound Edition: ACT 396	
S8.B.2.1.3 Explain that mutations can alter a gene and are the original source of new variations.	See Glencoe's <i>Life Science</i> © 2008. Student Edition: 114-115, 137-139 <i>Design Your Own Lab</i> 174-175 <i>Use the Internet Lab</i> 116-117	
S8.B.2.1.4 Describe how selective breeding or biotechnology can change the genetic makeup of organisms.	Student Edition: 396 Teacher Wraparound Edition: CD 396	
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: 394-399, 402-404	
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.	See Glencoe's <i>Life Science</i> © 2008. Student Edition: 126-128, 136, 154-159 <i>MiniLab</i> 128, 159 <i>National Geographic</i> 129	

STANDARDS	PAGE REFERENCES
<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>See Glencoe's <i>Life Science</i> © 2008. Student Edition: 110-115, 126-128, 130-132 <i>MiniLab</i> 111 <i>National Geographic</i> 129 <i>Use the Internet Lab</i> 116-117</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: <i>Applying Science</i> 556 Teacher Wraparound Edition: MM 550; TPK 549; VL 550</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: 488-491 <i>Launch Lab</i> 483 Teacher Wraparound Edition: R 491; SCB 540F</p>
<p>S8.B.3.1.3 Explain relationships among organisms (e.g., producers/consumers, predator/prey, in an ecosystem).</p>	<p>Student Edition: 549-553 Teacher Wraparound Edition: DI 554; TFYI 551</p>
<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: 406, 411, 574-577 Teacher Wraparound Edition: DIS 406</p>
<p>S8.B.3.2.2 Use evidence to explain how diversity affects the ecological integrity of natural systems.</p>	<p>See Glencoe's <i>Life Science</i> © 2008. Student Edition: 158-159, 684-693, 696-700, 740-745 <i>Design Your Own Lab</i> 174-175 <i>MiniLab</i> 689 <i>National Geographic</i> 694</p>

STANDARDS	PAGE REFERENCES
<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: 488-491 <i>Integrate Life Science</i> 455, 529 Teacher Wraparound Edition: DIS 491; FF 489</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: 196-199, 213-214, 432-433, 500-502, 557-561, 578-584, 600-607 <i>Science and Society</i> 112, 262 <i>Science Online</i> 197, 501 Teacher Wraparound Edition: IL 253; R 199; V 127; VL 125</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: 73-79, 120-129, 130-135, 137-141, 250-253 Teacher Wraparound Edition: ACT 133; QD 140; SCB 118E-F; SJ 78</p>
<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: 141, 582-584, 586-589 <i>Applying Science</i> 140 <i>National Geographic</i> 588, 603 <i>Science and Society</i> 592 Teacher Wraparound Edition: ACT 588; FF 583; LD 582; MM 580; SCB 572F; VL 583</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: 578, 601</p>

STANDARDS	PAGE REFERENCES
S8.C Physical Sciences	
ASSESSMENT ANCHOR	
S8.C.1 Structure, Properties, and Interaction of Matter and Energy	
S8.C.1.1 Explain concepts about the structure and properties (physical and chemical) of matter.	
S8.C.1.1.1 Explain the differences among elements, compounds, and mixtures.	Student Edition: 34-38, 39-44, 57 #26, 59 #14 <i>MiniLAB</i> 43 Teacher Wraparound Edition: A 43; DI 35, 43; DIS 40; SCB 32E; TFYI 42
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).	Student Edition: 39-44, 46-51, 68-72 <i>Design Your Own Lab</i> 52-53 <i>MiniLAB</i> 72 <i>Lab</i> 80-81, 98 Teacher Wraparound Edition: A 53, 81; DIS 47; IL 41; LD 70; QD 71; TPK 46; VL 70
S8.C.1.1.3 Identify and describe reactants and products of simple chemical reactions.	Student Edition: 185-186 <i>MiniLAB</i> 186 <i>Integrate Chemistry</i> 253 Teacher Wraparound Edition: QD 40
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: 120-129, 130-135, 147 #22 <i>National Geographic</i> 126 Teacher Wraparound Edition: A 135; IL 133; LD 132; MM 133; QD 131; R 135; SCB 118E
S8.C.2.1.2 Explain how heat is transferred from one place to another through convection, conduction, or radiation.	Student Edition: 435-438, 451 #23 <i>MiniLAB</i> 437 Teacher Wraparound Edition: CFU 438; DI 436; DIS 436; UAA 436; USW 436

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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: 127-128, 132, 735-736
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: 131, 435-438, 663-665 Teacher Wraparound Edition: A 438; QD 664; TC 424; TFYI 436
S8.C.2.2.2 Compare the time spans of renewability for fossil fuels and alternative fuels.		Student Edition: 120-129, 130-135, 141 Teacher Wraparound Edition: R 135; TFYI 131
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.		Student Edition: 129, 132-135, 500-502, 578-584, 600-607, 609-615 <i>Science and Society</i> 592 <i>Lab</i> 608 <i>Design Your Own Lab</i> 616-617 Teacher Wraparound Edition: DI 583; DIS 501; IL 605; LD 500; SCB 598E-F; V 126
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).		Student Edition: 637
S8.C.3.1.2 Distinguish between kinetic and potential energy.		See Glencoe's <i>Physical Science</i> © 2008. Student Edition: 102-105, 108-111, 477 <i>Design Your Own LAB</i> 116-117 <i>LAB</i> 106 <i>National Geographic</i> 110

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<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>See Glencoe's <i>Physical Science</i> © 2008. Student Edition: 136, 141-143 <i>LAB 147</i> <i>Model and Invent LAB 148-149</i> <i>National Geographic 140</i></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: 90-93, 94-97, 99-102, 103-109, 115 #25 <i>MiniLAB 91</i> <i>National Geographic 92</i> <i>Lab 98</i> <i>Science Online 100</i> Teacher Wraparound Edition: A 109; DI 91; MM 109; QD 95; SCB 88E-F; SJ 105</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: 154-159, 182-187, 210-214, 215-220, 222-227, 276-289, 300-303, 330-335, 336-343, 345-349 <i>Science Online 185</i> Teacher Wraparound Edition: IM 180F; LD 282; SJ 183</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: 188-194 <i>National Geographic 189</i> <i>MiniLAB 190</i> <i>Integrate Chemistry 191</i> <i>Lab 195</i> Teacher Wraparound Edition: ACT 189; DI 189; LD 192; R 194; VL 193</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: 272-275, 362-369, 397-399 <i>MiniLAB</i> 274, 363 <i>Launch Lab</i> 361 <i>Model and Invent Lab</i> 382-383 Teacher Wraparound Edition: A 383; ACT 367; DI 363, 368; SCB 360E; SJ 367; USW 366; VL 368</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: 124-127</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: 196-199, 432-433, 500-502, 557-561, 574-577, 578-584, 600-607, 609-615 <i>Science Online</i> 197, 501 <i>Applying Science</i> 581 <i>Science and Society</i> 592 Teacher Wraparound Edition: DIS 560; R 199; SJ 251</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: 437-438, 451 #15-17 Teacher Wraparound Edition: A 437, 438; IM 437; R 438; SJ 437; VL 437</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: 238-248, 249-254, 514-517, 518-523, 537 #16, 539 #14 <i>Use the Internet Lab</i> 562-563 Teacher Wraparound Edition: AIL 562; LD 522; MM 516, 521; QD 517; SCB 236E-F, 512E-F</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: 238-248, 249-254, 255-258, 514-517, 518-523, 524-530, 542-547 <i>Science Online</i> 242, 543 Teacher Wraparound Edition: A 254; ACT 253; R 248, 254; SCB 236E-F; SJ 253</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: 238-248, 265 #25 <i>National Geographic</i> 244-245 <i>Lab</i> 260-261 Teacher Wraparound Edition: ACT 243, 244; V 244</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: 484-487, 493, 518-520, 539 #15 <i>MiniLAB</i> 493 <i>National Geographic</i> 494-495 Teacher Wraparound Edition: ACT 494; CB 495; CC 485, 494; DI 521; DIS 520; TFYI 486; V 494</p>
<p>S8.D.2.1.2 Identify how global patterns of atmospheric movement influence regional weather and climate.</p>	<p>Student Edition: 439-443, 462-469 <i>Science Online</i> 440 <i>National Geographic</i> 441 <i>Launch Lab</i> 453 Teacher Wraparound Edition: A 443, 469; CC 464; CFU 443, 469; DI 442, 464; DIS 442; VL 440</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: 454-461, 462-469 <i>Science Online</i> 463 <i>National Geographic</i> 467 <i>Lab</i> 473 <i>Model and Invent Lab</i> 474-475 Teacher Wraparound Edition: CFU 472; DI 460; R 469, 472; SCB 452E-F; TFYI 460, 465; VL 458</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.	
<p>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).</p>	<p>Student Edition: 527-530, 660-665, 666-670, 687 #14-15 <i>Launch Lab</i> 659 <i>Science Online</i> 663, 669 <i>Lab</i> 675 Teacher Wraparound Edition: DIS 670; IM 658F; LD 670; QD 669; R 665; VL 668</p>
<p>S8.D.3.1.2 Describe the role of gravity as the force that governs the movement of the solar system and universe.</p>	<p>Student Edition: 527-530, 637, 685 #22, 690-694, 712, 721 #10, 736-738, 740 <i>MiniLAB</i> 699 Teacher Wraparound Edition: A 699; QD 527; TFYI 529; V 693</p>
<p>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).</p>	<p>Student Edition: 660-662, 671-674, 696-701, 702-709, 710-713 <i>Applying Math</i> 700 <i>MiniLAB</i> 704 <i>Model and Invent Lab</i> 714-715 Teacher Wraparound Edition: ACT 703; CFU 701, 707; DI 692; QD 662, 698; V 672</p>