



# Science

LEVEL BLUE

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STANDARDS	PAGE REFERENCES
<b>A1—Science as Inquiry and Process</b>	
<p><b>SA</b> Students develop an understanding of the processes and applications of scientific inquiry.</p> <p><b>SA1</b> Students develop an understanding of the processes of science used to investigate problems, design and conduct repeatable scientific investigations, and defend scientific arguments.</p> <p><b>SA2</b> Students develop an understanding that the processes of science require integrity, logical reasoning, skepticism, openness, communication, and peer review.</p> <p><b>SA3</b> Students develop an understanding that culture, local knowledge, history, and interaction with the environment contribute to the development of scientific knowledge, and that local applications provide opportunity for understanding scientific concepts and global issues.</p>	
<b>The student develops an understanding of the processes of science by:</b>	
<p>[8] SA1.1 asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring and communicating.*</p>	<p><b>Student Edition:</b> 13, 16-17 <i>Applying Science</i> 260, 669 <i>LAB 72</i>, 129, 509 <i>Launch Lab 5</i>, 607 <i>MiniLAB</i> 345, 615 <i>National Geographic</i> 20, 339, 390 <i>Science and History</i> 114 <i>Use the Internet LAB</i> 28-29</p> <p><b>Teacher Wraparound Edition:</b> FYI 21</p>

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<p>[8] SA1.2 collaborating to design and conduct repeatable investigations, in order to record, analyze (i.e., range, mean, median, mode), interpret data, and present findings. (L)</p>	<p><b>Student Edition:</b>  18-19, 21-23, 25-27  <i>Applying Science</i> 14, 192  <i>Design Your Own LAB</i> 82-83, 392-393, 510-511, 540-541, 624-625  <i>Math Skill Handbook</i> 758, 765-766  <i>Science Skill Handbook</i> 724-732  <i>Technology Skill Handbook</i> 748-751</p> <p><b>Teacher Wraparound Edition:</b>  LD 19</p>
<p><b>The student demonstrates an understanding of the attitudes and approaches to scientific inquiry by:</b></p>	
<p>[8] SA2.1 recognizing and analyzing differing scientific explanations and models.</p>	<p><b>Student Edition:</b>  38-42, 50-53, 182-188, 195-199, 219-224, 229-231, 261, 279, 380-385, 388-391  <i>LAB</i> 189, 287  <i>National Geographic</i> 339  <i>Science and History</i> 328  <i>Science and Society</i> 56</p> <p><b>Teacher Wraparound Edition:</b>  FF 184; SJ 260</p>
<p><b>The student demonstrates an understanding that interactions with the environment provide an opportunity for understanding scientific concepts by:</b></p>	
<p>[8] SA3.1 conducting research to learn how the local environment is used by a variety of competing interests (e.g., competition for habitat/resources, tourism, oil and mining companies, hunting groups). (L)</p>	<p><b>Student Edition:</b>  122-128, 132-133, 135, 159, 164-165, 679-680  <i>Integrate Life Science</i> 617  <i>Integrate Social Studies</i> 245  <i>National Geographic</i> 90-91, 134, 518-519  <i>Science and Society</i> 172, 626, 658</p> <p><b>Teacher Wraparound Edition:</b>  CU 128; FF 160</p>

STANDARDS	PAGE REFERENCES
<b>B1—Concepts of Physical Science</b>	
<p><b>SB</b> Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.</p> <p><b>SB1</b> Students develop an understanding of the characteristic properties of matter and the relationship of these properties to their structure and behavior.</p> <p><b>SB2</b> Students develop an understanding that energy appears in different forms, can be transformed from one form to another, can be transferred or moved from one place or system to another, may be unavailable for use, and is ultimately conserved.</p> <p><b>SB3</b> Students develop an understanding of the interactions between matter and energy, including physical, chemical, and nuclear changes, and the effects of these interactions on physical systems.</p> <p><b>SB4</b> Students develop an understanding of motions, forces, their characteristics and relationships, and natural forces and their effects.</p>	
<b>The student demonstrates understanding of the structure and properties of matter by:</b>	
<p>[8] SB1.1 using physical and <u>chemical</u> properties (i.e., density, boiling point, freezing point, conductivity, flammability) to differentiate among materials (i.e., elements, compounds, and mixtures).</p>	<p><b>Student Edition:</b>  434-439, 441-446, 448-452, 646-647  <i>Design Your Own LAB</i> 624-625  <i>Integrate Chemistry</i> 456  <i>LAB</i> 12, 453  <i>Reference Handbooks</i> 768  <b>Teacher Wraparound Edition:</b>  FF 434, 477; FYI 436, 449; IL 446, 476; TC 432</p>
<b>The student demonstrates an understanding of how energy can be transformed, transferred, and conserved by:</b>	
<p>[8] SB2.1 identifying the initial source and resulting change in forms of energy in common phenomena (e.g., sun to tree to wood to stove to cabin heat).</p>	<p><b>Student Edition:</b>  138-139, 195, 212-213, 229-231, 580-584, 612-615, 619-623, 645, 678-680  <i>Design Your Own LAB</i> 624-625  <i>LAB</i> 618, 684-685  <i>National Geographic</i> 632-633  <i>Science and Society</i> 572  <b>Teacher Wraparound Edition:</b>  CD 566; FYI 613; LD 645; SJ 679; TC 208, 607</p>

STANDARDS	PAGE REFERENCES
<b>The student demonstrates understanding of the interactions between matter and energy and the effects of these interactions on systems by:</b>	
[8] SB3.1 exploring changes of state with increase or decrease of particle speed associated with heat transfer. (L)	<b>Student Edition:</b> 130-131, 611, 612-613, 622-623 <i>Integrate Chemistry</i> 228 <i>MiniLAB</i> 614 <b>Teacher Wraparound Edition:</b> FYI 221, 610
[8] SB3.2 exploring through a variety of models (e.g., gumdrops and toothpicks) how atoms may bond together into well defined molecules or bond together in large arrays. (L)	<b>Student Edition:</b> 470-471, 472-477 <i>LAB</i> 481 <i>Model and Invent LAB</i> 482-483 <i>Science and History</i> 512 <b>Teacher Wraparound Edition:</b> IL 476; R 480
<b>The student demonstrates an understanding of motions, forces, their characteristics, relationships, and effects by:</b>	
[8] SB4.1 demonstrating (L) and explaining circular motion.	<b>Student Edition:</b> 338, 560-561 <i>Integrate Physics</i> 338, 340 <i>LAB</i> 341 <i>National Geographic</i> 339 <b>Teacher Wraparound Edition:</b> D 560
[8] SB4.2 describing the interactions between charges.	<b>Student Edition:</b> 636-641, 643, 673, 678-681 <i>Integrate Physics</i> 473 <i>Launch Lab</i> 635 <b>Teacher Wraparound Edition:</b> D 641; TC 634

STANDARDS	PAGE REFERENCES
<b>C1—Concepts of Life Science</b>	
<p><b>SC</b> Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.</p> <p><b>SC1</b> Students develop an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection, and biological evolution.</p> <p><b>SC2</b> Students develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms.</p> <p><b>SC3</b> Students develop an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy.</p>	
<p><b>The student demonstrates an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution by:</b></p>	
<p>[8] SC1.1 describing the role of genes in sexual reproduction (i.e., traits of the offspring).</p>	<p><b>Student Edition:</b> 38-39, 44-48, 50-53, 276</p> <p><b>Teacher Wraparound Edition:</b> FYI 53; R 48; SJ 46; TPK 38</p>
<p><b>The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by:</b></p>	
<p>[8] SC2.1 placing vertebrates into correct classes of taxonomy based on external, observable features.</p>	<p><b>Student Edition:</b> 106-107, 109-110</p> <p><b>Teacher Wraparound Edition:</b> AS 110; USW 107</p> <p>Note: This text classifies organisms according to their methods for obtaining energy. See Glencoe's <i>Biology</i> © 2007 for discussions of taxonomic classification.</p>
<p>[8] SC2.2 explaining that most organisms utilize inherited and learned behaviors to meet the basic requirements of life.</p>	<p><b>Student Edition:</b> 38-42, 50-52, 106-110</p> <p><i>LAB</i> 54-55, 111</p> <p><i>National Geographic</i> 51</p> <p><b>Teacher Wraparound Edition:</b> FYI 53; TPK 44</p>
<p>[8] SC2.3 describing the functions and interdependence of human body systems (i.e., circulatory, respiratory, nervous).</p>	<p><b>Student Edition:</b> 68-71, 73-81</p> <p><i>LAB</i> 72</p> <p><i>Launch Lab</i> 63</p> <p><i>National Geographic</i> 69, 638</p> <p><b>Teacher Wraparound Edition:</b> FF 66; LD 70; QD 78; R 71; TPK 64</p>

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<p><b>The student demonstrates an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy by:</b></p>	
<p>[8] SC3.1 stating that energy flows and that matter cycles but is conserved within an ecosystem.</p>	<p><b>Student Edition:</b> 130-135, 136-139 <i>LAB</i> 140-141 <b>Teacher Wraparound Edition:</b> DI 132, 137; FYI 138; TPK 130</p>
<p>[8] SC3.2 organizing a food web that shows the cycling of matter.</p>	<p><b>Student Edition:</b> 107, 137-139 <i>LAB</i> 140-141 <b>Teacher Wraparound Edition:</b> DI 137; MM 108; VL 109</p>
<p><b>D1—Concepts of Earth Science</b></p>	
<p><b>SD</b> Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.</p> <p><b>SD1</b> Students develop an understanding of Earth's geochemical cycles.</p> <p><b>SD2</b> Students develop an understanding of the origins, ongoing processes, and forces that shape the structure, composition, and physical history of the Earth.</p> <p><b>SD3</b> Students develop an understanding of the cyclical changes controlled by energy from the sun and by Earth's position and motion in our solar system.</p> <p><b>SD4</b> Students develop an understanding of the theories regarding the evolution of the universe.</p>	
<p><b>The student demonstrates an understanding of geochemical cycles by:</b></p>	
<p>[8] SD1.1 making connections between components of the locally observable geologic environment and the rock cycle. (L)</p>	<p><b>Student Edition:</b> 195, 222-224 <i>Integrate Chemistry</i> 221 <i>Integrate Earth Science</i> 202 <b>Teacher Wraparound Edition:</b> CD 195; FYI 197, 221 Note: The rock cycle is not explicitly discussed but is covered by the description of the behavior of molten rock in the formation of volcanoes.</p>
<p>[8] SD1.2 applying knowledge of the water cycle to explain changes in the Earth's surface.</p>	<p><b>Student Edition:</b> 130-131, 154-161 <i>Integrate Earth Science</i> 128 <b>Teacher Wraparound Edition:</b> IM 131; QD 156</p>

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<b>The student demonstrates an understanding of the forces that shape Earth by:</b>	
[8] SD2.1 interpreting topographical maps to identify features (i.e., rivers, lakes, mountains, valleys, islands, and tundra).	<b>Student Edition:</b> 190, 211, 221-223, 252 <i>National Geographic</i> 193 <i>Reference Handbooks</i> 767 <b>Teacher Wraparound Edition:</b> CC 220; DI 227
[8] SD2.2 using models to show the relationship between convection currents within the mantle and the large-scale movement of the surface. (L)	<b>Student Edition:</b> 186-188, 195, 212-213, 229-231 <i>MiniLAB</i> 195 <b>Teacher Wraparound Edition:</b> MM 230; R 199; UA 231
<b>The student demonstrates an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system by:</b>	
[8] SD3.1 recognizing the relationship between the seasons and Earth's tilt relative to the sun and describing the day/night cycle as caused by the rotation of the Earth every 24 hrs.	<b>Student Edition:</b> 307, 309-310 <i>LAB</i> 326-327 <i>Launch Lab</i> 305 <b>Teacher Wraparound Edition:</b> FYI 309; QD 310; R 311; TC 304
[8] SD3.2 recognizing types of energy transfer (convection, conduction, and radiation) and how they affect weather.	<b>Student Edition:</b> 127, 195, 231, 310, 612-615 <i>MiniLAB</i> 195, 615 <i>Science and Society</i> 626 <b>Teacher Wraparound Edition:</b> CU 617; D 614; LD 616; UA 231
<b>The student demonstrates an understanding of the theories regarding the origin and evolution of the universe by:</b>	
[8] SD4.1 creating models of the solar system illustrating size, location/position, composition, moons/rings, and conditions. (L)	<b>Student Edition:</b> 336-337, 354-355 <i>Integrate Physics</i> 340 <i>Model and Invent LAB</i> 360-361 <b>Teacher Wraparound Edition:</b> CU 353; QD 352; SJ 355

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[8] SD4.2 comparing the brightness of a star to its distance and size.	<b>Student Edition:</b> 372, 378, 380-381 <i>Applying Science</i> 372 <b>Teacher Wraparound Edition:</b> AS 374; QD 372
<b>E1—Science and Technology</b>	
<p><b>SE</b> Students develop an understanding of the relationships among science, technology, and society.</p> <p><b>SE1</b> Students develop an understanding of how scientific knowledge and technology are used in making decisions about issues, innovations, and responses to problems and everyday events.</p> <p><b>SE2</b> Students develop an understanding that solving problems involves different ways of thinking, perspectives, and curiosity that lead to the exploration of multiple paths that are analyzed using scientific, technological, and social merits.</p> <p><b>SE3</b> Students develop an understanding of how scientific discoveries and technological innovations affect and are affected by our lives and cultures.</p>	
<p><b>The student demonstrates understanding of how to integrate scientific knowledge and technology to address problems by:</b></p>	
[8] SE1.1 describing how public policy affects their lives and participating diplomatically in evidence-based discussions relating to their community. (L)	<b>Student Edition:</b> 6-11, 14-15, 322-325 <i>Integrate Environment</i> 15 <i>National Geographic</i> 152 <i>Science and History</i> 114 <i>Science and Society</i> 172, 572, 658 <b>Teacher Wraparound Edition:</b> A 114, 658; CC 16; CD 10; DI 152; TPK 6
<p><b>The student demonstrates an understanding that solving problems involves different ways of thinking by:</b></p>	
[8] SE2.1 identifying, designing, testing, and revising solutions to a local problem.* (L)	<b>Student Edition:</b> 6, 14-15 <i>Accidents in Science</i> 716 <i>Design Your Own LAB</i> 540-541, 624-625 <i>Integrate Social Studies</i> 7 <i>LAB</i> 12 <i>MiniLAB</i> 18 <i>Science and Society</i> 172, 572, 600, 658 <i>Use the Internet LAB</i> 200-201 <b>Teacher Wraparound Edition:</b> A 8; FYI 7; TPK 6

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<p>[8] SE2.2 comparing the student’s work to the work of peers in order to identify multiple paths that can be used to investigate <u>and evaluate potential solutions</u> to a question or problem. (L)</p>	<p><b>Student Edition:</b>  10-11  <i>Communicate Your Data</i> 256, 509, 618, 655, 706  <i>Design Your Own LAB</i> 540-541  LAB 414  <i>Science and Society</i> 56, 172, 600, 658  <b>Teacher Wraparound Edition:</b>  CYD 162, 569</p>
<p><b>The student demonstrates an understanding of how scientific discoveries and technological innovations affect our lives and society by:</b></p>	
<p>[8] SE3.1 <u>predicting the possible effects of a recent scientific discovery, invention, or scientific breakthrough.</u> (L)</p>	<p><b>Student Edition:</b>  619-623, 681-683  <i>Accidents in Science</i> 716  <i>National Geographic</i> 632-633  <i>Science and History</i> 512  <i>Science and Society</i> 172, 572, 600  <b>Teacher Wraparound Edition:</b>  D 25, 26; FYI 594</p>
<p><b>F1—Cultural, Social, Personal Perspectives, and Science</b></p>	
<p><b>SF</b> Students develop an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives.</p> <p><b>SF1</b> Students develop an understanding of the interrelationships among individuals, cultures, societies, science, and technology.</p> <p><b>SF2</b> Students develop an understanding that some individuals, cultures, and societies use other beliefs and methods in addition to scientific methods to describe and understand the world.</p> <p><b>SF3</b> Students develop an understanding of the importance of recording and validating cultural knowledge.</p>	
<p><b>The student demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives by:</b></p>	
<p>[8] SF1.1-SF3.1 describing how local knowledge, culture, and the technologies of various activities (e.g., hunting, fishing, subsistence) influence the development of scientific knowledge. (L) Cross referenced with SA3.1, grade 8</p>	<p><b>Student Edition:</b>  132-133  <i>Accidents in Science</i> 716  <i>Integrate Earth Science</i> 160  <i>National Geographic</i> 400-401, 518-519, 565  <i>Science and History</i> 512  <i>Science and Society</i> 172, 600  <b>Teacher Wraparound Edition:</b>  TPK 136</p>

STANDARDS	PAGE REFERENCES
<b>G1—History and Nature of Science</b>	
<p><b>SG</b> Students develop an understanding of the history and nature of science.</p> <p><b>SG1</b> Students develop an understanding that historical perspectives of scientific explanations demonstrate that scientific knowledge changes over time, building on prior knowledge.</p> <p><b>SG2</b> Students develop an understanding that the advancement of scientific knowledge embraces innovation and requires empirical evidence, repeatable investigations, logical arguments, and critical review in striving for the best possible explanations of the natural world.</p> <p><b>SG3</b> Students develop an understanding that scientific knowledge is ongoing and subject to change as new evidence becomes available through experimental and/or observational confirmation(s).</p> <p><b>SG4</b> Students develop an understanding that advancements in science depend on curiosity, creativity, imagination, and a broad knowledge base.</p>	
<b>The student demonstrates an understanding of the bases of the advancement of scientific knowledge by:</b>	
[8] SG2.1 describing how repeating experiments improves the likelihood of accurate results.	<p><b>Student Edition:</b> 22 <i>Design Your Own LAB</i> 510-511 LAB 43, 287, 509 <i>Science Skill Handbook</i> 732</p> <p><b>Teacher Wraparound Edition:</b> A 22; AS 509; EA 511</p>
<b>The student demonstrates an understanding that scientific knowledge is ongoing and subject to change by:</b>	
[8] SG3.1 revising a personal idea when presented with experimental/observational data inconsistent with that personal idea (e.g., the rates of falling bodies of different masses).* (L)	<p><b>Student Edition:</b> 42, 182-185, 190-195, 274-276, 388-391, 408-413 <i>Accidents in Science</i> 716 LAB 140-141 <i>National Geographic</i> 152 <i>Science and Society</i> 56, 172, 658</p> <p><b>Teacher Wraparound Edition:</b> A 412; D 42, 151; DI 152; FYI 187</p>