



# Earth Science

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STANDARDS		PAGE REFERENCES
<p><b>Scientific Inquiry (Nature of Science Unifying Concept A)</b></p> <p>Scientific inquiry is the process by which humans systematically examine the natural world. Scientific inquiry is a human endeavor and involves observation, reasoning, insight, energy, skill, and creativity. Scientific inquiry is used to formulate and test explanations of nature through observation, experiments, and theoretical or mathematical models. Scientific explanations and evidence are constantly reviewed and examined by others. Questioning, response to criticism and open communication are integral to the process of science.</p> <p>By the end of grade band, students know and are able to do everything required in earlier grades and:</p>		
<p><b>N.8.A Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.</b></p>		
N.8.A.1	Students know how to identify and critically evaluate information in data, tables, and graphs. E/S	<p><b>Student Edition:</b></p> <p><i>Design Your Own Lab</i> 200-201, 228-229, 444-445, 616-617</p> <p><i>Use the Internet Lab</i> 290-291, 650-651</p> <p><i>Lab</i> 320-321, 504-505, 680-681</p> <p><i>Math Skill Handbook</i> 791, 798-799</p>
N.8.A.2	Students know how to critically evaluate information to distinguish between fact and opinion. E/S	<p><b>Student Edition:</b></p> <p>20-22</p> <p><i>Applying Science</i> 21</p> <p><i>Section Review</i> 22</p> <p><i>Lab</i> 434</p> <p><i>Science Skill Handbook</i> 756, 764</p> <p><b>Teacher Wraparound Edition:</b></p> <p>DIS 16, 69</p>

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<p>N.8.A.3 Students know that different explanations can be given for the same evidence. E/S</p>	<p><b>Student Edition:</b> 29 #27, 272-275, 660-661, 673-674, 690-691, 743-745 <i>Applying Skills</i> 694 <b>Teacher Wraparound Edition:</b> DI 394, 409; SJ 395; TFYI 691; TPK 690</p>
<p>N.8.A.4 Students know how to design and conduct a controlled experiment. E/L</p>	<p><b>Student Edition:</b> 8-11 <i>Integrate Life Science</i> 10 <i>MiniLab</i> 11 <i>Lab</i> 24-25, 80-81, 136, 504-505 <i>Design Your Own Lab</i> 52-53, 200-201, 228-229, 350-351, 444-445, 532-533, 616-617, 746-747 <b>Teacher Wraparound Edition:</b> A 53; R 14</p>
<p>N.8.A.5 Students know how to use appropriate technology and laboratory procedures safely for observing, measuring, recording, and analyzing data. E/L</p>	<p><b>Student Edition:</b> <i>Lab</i> 45, 67, 80-81, 110-111, 136, 504-505, 634 <i>Design Your Own Lab</i> 52-53, 616-617 <i>Use the Internet Lab</i> 290-291, 414-415, 562-563, 650-651 <i>Technology Skill Handbook</i> 781-784</p>
<p>N.8.A.6 Students know that scientific inquiry includes evaluating results of scientific investigations, experiments, observations, theoretical and mathematical models, and explanations proposed by other scientists. E/S</p>	<p><b>Student Edition:</b> 6-14, 15-22, 29 #27 <i>MiniLab</i> 11 <i>Section Review</i> 22 <i>Lab</i> 23 <i>Science Skill Handbook</i> 756-764 <b>Teacher Wraparound Edition:</b> A 23; CC 11; SCB 4E</p>
<p>N.8.A.7 Students know there are multiple methods for organizing items and information. E/S</p>	<p><b>Student Edition:</b> <i>Communicating Your Data</i> 351, 747 <i>Science Skill Handbook</i> 756-759 <i>Technology Skill Handbook</i> 781-784 <i>Math Skill Handbook</i> 798-799 <b>Teacher Wraparound Edition:</b> CYD 81, 111, 321, 445, 505, 563, 617, 681, 715</p>

**STANDARDS****PAGE REFERENCES****Science, Technology, and Society (Nature of Science Unifying Concept B)**

Technology defines a society or era. It can shape the environment in which people live, and it has increasingly become a larger part of people's lives. While many of technology's effects on society are regarded as desirable, other effects are seen as less desirable. Instruction in this area should not be solely in science or technology courses, but should be shared by science, math, technology, social studies and language arts. The development and use of technology affects society and the environment in which we live, and at the same time society influences the development of technology and its impact on culture.

By the end of grade band, students know and are able to do everything required in earlier grades and:

**N.8.B Students understand the interactions of science and society in an ever-changing world.**

**N.8.B.1** Students understand that consequences of technologies can cause resource depletion and environmental degradation, but technology can also increase resource availability, mitigate environmental degradation, and make new resources economical.

**Student Edition:**

12-14, 127-129, 130-135, 141, 578-584, 586-589, 609-615

*National Geographic* 13, 126

*Model and Invent Lab* 142-143

*Integrate Physics* 582

**Teacher Wraparound Edition:**

CFU 14; DI 134; SJ 611

**N.8.B.2** Students know scientific knowledge is revised through a process of incorporating new evidence gained through ongoing investigation and collaborative discussion. E/S

**Student Edition:**

6-14, 15-22, 272-275, 276-278, 280-289, 673-674, 690-694

*Science Skill Handbook* 756-764

**Teacher Wraparound Edition:**

DI 693; SJ 692

**Atmospheric Processes and the Water Cycle (Earth and Space Science Unifying Concept A)**

Earth systems have internal and external sources of energy, both of which create heat. Driven by sunlight and Earth's internal heat, a variety of cycles connect and continually circulate energy and material through the components of the earth systems.

By the end of grade band, students know and are able to do everything required in earlier grades and:

**E.8.A Students understand the relationship between the Earth's atmosphere, topography, weather and climate.**

**E.8.A.1** Students know seasons are caused by variations in the amounts of the Sun's energy reaching Earth's surface due to the planet's axial tilt. E/S

**Student Edition:**

492-493, 663-665, 685 #18, 687 #16

*Section Review* 502

*Get Ready to Read* 660A-B

*Science Online* 665

**Teacher Wraparound Edition:**

ACT 663; DIS 664; IM 482F; QD 664

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E.8.A.2	Students know how the processes involved in the water cycle affect climatic patterns. E/S	<p><b>Student Edition:</b> 437, 449 #19, #25, 451 #15-#17, 456-461 <i>Section Review</i> 438</p> <p><b>Teacher Wraparound Edition:</b> A 437, 438; DI 457, 460; R 438; SJ 437; TFYI 460; VL 437, 458</p>
E.8.A.3	Students know the properties that make water an essential component of the earth system. E/S	<p><b>Student Edition:</b> 40-42, 50, 59 #16, 600</p> <p><b>Teacher Wraparound Edition:</b> A 44; ACT 42; CFU 502; SCB 424E; TFYI 42; VL 42</p>
E.8.A.4	Students understand the composition of Earth's atmosphere, emphasizing the role of the atmosphere in Earth's weather and climate. I/S	<p><b>Student Edition:</b> 426-433, 435-438, 499-501 <i>Launch Lab</i> 425 <i>Get Ready to Read</i> 426A-426B <i>Science Online</i> 428, 499 <i>Applying Skills</i> 433 <i>Lab</i> 503</p> <p><b>Teacher Wraparound Edition:</b> CFU 433; IM 428; SCB 424E; TFYI 429, 431; VL 427</p>
E.8.A.5	Students know the difference between local weather and regional climate. I/S	<p><b>Student Edition:</b> 454-461, 462-469, 481 #17-#18, 484-487, 488-489 <i>Lab</i> 473 <i>Launch Lab</i> 473</p> <p><b>Teacher Wraparound Edition:</b> A 469; CC 464; DI 464; SCB 452F; TPK 454, 484</p>
E.8.A.6	Students know topography and patterns of global and local atmospheric movement influence local weather which occurs primarily in the lower atmosphere. E/S	<p><b>Student Edition:</b> 439-443, 454-461, 462-464, 484-487 <i>Applying Science</i> 487</p> <p><b>Teacher Wraparound Edition:</b> A 487; ACT 486; CC 485; CFU 487; DI 442; R 487; SCB 452F; TFYI 486</p>

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**Solar System and Universe (Earth and Space Science Unifying Concept B)**

The universe is a dynamic system of matter and energy. The universe is extremely large and massive with its components separated by vast distances. Tools of technology will continue to aid in the investigation of the components, origins, processes and age of the universe. Earth is one part in our solar system, which is within the Milky Way galaxy. The Sun is the energy-producing star for our solar system. Most objects in our solar system are in predictable motion, resulting in phenomena such as day/night, year, phases of the moon, tides, and eclipses.

By the end of grade band, students know and are able to do everything required in earlier grades and:

**E.8.B Students understand characteristics of our solar system that is part of the Milky Way galaxy.**

E.8.B.1 Students know the universe contains many billions of galaxies, and each galaxy contains many billions of stars. W/L	<b>Student Edition:</b> 740-741 <b>Teacher Wraparound Edition:</b> SCB 733F; TBI 722; TPK 740
E.8.B.2 Students know the solar system includes a great variety of planetary moons, asteroids, and comets. I/S	<b>Student Edition:</b> 666-674, 701, 702-709, 710-713 <i>Lab</i> 675 <i>Accidents in Science</i> 716 <b>Teacher Wraparound Edition:</b> A 713; CC 705; CFU 706, 713; DIS 705, 711; R 713; SJ 709; TFYI 712; TPK 710
E.8.B.3 Students know characteristics of the planets in our solar system. I/S	<b>Student Edition:</b> 690-694, 696-701, 702-709 <i>Launch Lab</i> 689 <i>Get Ready to Read</i> 690A-690B <i>Science Online</i> 691 <i>MiniLAB</i> 704 <b>Teacher Wraparound Edition:</b> ACT 703; DI 692; QD 698; SCB 688E
E.8.B.4 Students know Earth is part of a solar system located within the Milky Way Galaxy. E/S	<b>Student Edition:</b> 690-694, 740-741 <i>National Geographic</i> 693 <b>Teacher Wraparound Edition:</b> CFU 745; DI 692, 693; MM 691; SCB 722F; SJ 692; TBI 688; TFYI 691; TPK 740; USW 692; V 693
E.8.B.5 Students know the Sun is many thousands of times closer to Earth than any other star, and billions of times closer than the far end of the Milky Way Galaxy. W/L	<b>Student Edition:</b> 732, 741, 751 #16, 753 #14-#16 <i>Section Review</i> 732 <b>Teacher Wraparound Edition:</b> DIS 748

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<p>E.8.B.6 Students know the Sun is a medium-sized star located in the Milky Way Galaxy, part of which can be seen as a glowing band of light spanning the clear night sky. W/L</p>	<p><b>Student Edition:</b> 732, 734-738, 741, 751 #19, 753 #19 <i>Section Review</i> 739 <i>Science Stats</i> 748 <b>Teacher Wraparound Edition:</b> ACT 748; TPK 740</p>
<p>E.8.B.7 Students know regular and predictable motions of Earth around the Sun and the Moon around the Earth explain such phenomena as the day, the year, phases of the Moon, and eclipses. E/S</p>	<p><b>Student Edition:</b> 661-665, 666-671 <i>Launch Lab</i> 659 <i>Science Online</i> 669 <i>Lab</i> 675 <b>Teacher Wraparound Edition:</b> A 675; ACT 670; DIS 669, 670; IM 658F; LD 670; QD 669; R 674; SJ 667; VL 668</p>
<p><b>Earth's Composition and Structure (Earth and Space Science Unifying Concept C)</b> Earth is composed of materials that move through the biogeochemical cycles. Earth's features are shaped by ongoing and dynamic processes. These processes can be constructive or destructive and occur over geologic time scales.</p>	
<p>By the end of grade band, students know and are able to do everything required in earlier grades and:</p>	
<p><b>E.8.C Students understand that landforms result from a combination of constructive and destructive processes.</b></p>	
<p>E.8.C.1 Students know sedimentary rocks and fossils provide evidence for changing environments and the constancy of geologic processes. E/S</p>	<p><b>Student Edition:</b> 272-274, 362-369, 370-375, 381 <i>MiniLAB</i> 274 <i>Section Review</i> 275 <i>Launch Lab</i> 361 <i>Science Online</i> 374 <i>Lab</i> 376 <b>Teacher Wraparound Edition:</b> ACT 367; DI 274; IM 360F; SCB 360E; TBI 360; TFYI 274</p>
<p>E.8.C.2 Students know rocks at Earth's surface weather, forming sediments that are buried, then compacted, heated and often recrystallized into new rock. E/S</p>	<p><b>Student Edition:</b> 90-93, 94-97, 99-102, 103-109, 115 #25 <i>Get Ready to Read</i> 90A-90B <i>MiniLAB</i> 91 <i>National Geographic</i> 92 <b>Teacher Wraparound Edition:</b> CFU 93; MM 109; QD 107; SCB 88E-SCB 88F; SJ 105; TBI 88; UAA 100; V 92</p>

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<p>E.8.C.3 Students know Earth is composed of a crust (both continental and oceanic); hot convecting mantle; and dense, a metallic core. E/S</p>	<p><b>Student Edition:</b> 280-285, 309-311 <i>Section Review</i> 311</p> <p><b>Teacher Wraparound Edition:</b> CC 309; CFU 311; DI 310; QD 310; UAA 310</p>
<p>E.8.C.4 Students know the very slow movement of large crustal plates result in geological events. E/S</p>	<p><b>Student Edition:</b> 280-288, 300-303, 333-335 <i>Science Online</i> 282 <i>Section Review</i> 289 <i>Use the Internet Lab</i> 290-291 <i>Integrate Earth Science</i> 292</p> <p><b>Teacher Wraparound Edition:</b> A 291, 335; CC 287, 334; DI 288, 302; SCB 270E-270F; TPK 280</p>
<p>E.8.C.5 Students know how geologic processes account for state and regional topography. E/S</p>	<p><b>Student Edition:</b> 154-159, 281-288, 333-335, 340-341, 345-349 <i>Section Review</i> 159 <i>Design Your Own Lab</i> 350-351</p> <p><b>Teacher Wraparound Edition:</b> A 289; ACT 155; CFU 159; LD 282; MM 158, 348; QD 157; R 159; VL 284</p>
<p>E.8.C.6 Students know minerals have different properties and different distributions according to how they form. E/S</p>	<p><b>Student Edition:</b> 62-66, 68-72, 73-79 <i>Get Ready to Read</i> 62A-62B <i>National Geographic</i> 64 <i>Lab</i> 67, 80-81 <i>Applying Science</i> 70 <i>MiniLAB</i> 72</p> <p><b>Teacher Wraparound Edition:</b> DI 65; LD 70; QD 71; R 66; SCB 60E; TBI 60</p>
<p>E.8.C.7 Students know the characteristics, abundances, and location of renewable and nonrenewable resources found in Nevada. E/S</p>	<p><b>Student Edition:</b> 77-79, 120-129, 130-135, 137-141, 149 #21</p> <p><b>Teacher Wraparound Edition:</b> ACT 138; DI 140; IL 133; LD 132; MM 132; SCB 118E-118F; VL 132</p>

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<p>E.8.C.8 Students know soils have properties, such as color, texture, and water retention, and provide nutrients for life according to how they form. E/S</p>	<p><b>Student Edition:</b>  188-194  <i>Get Ready to Read</i> 182A-182B  <i>MiniLAB</i> 190  <i>Integrate Chemistry</i> 191  <i>Applying Math</i> 192  <i>Lab</i> 195</p> <p><b>Teacher Wraparound Edition:</b>  ACT 189; DI 189, 193; IL 193; QD 191; TFYI 192;  V 189</p>