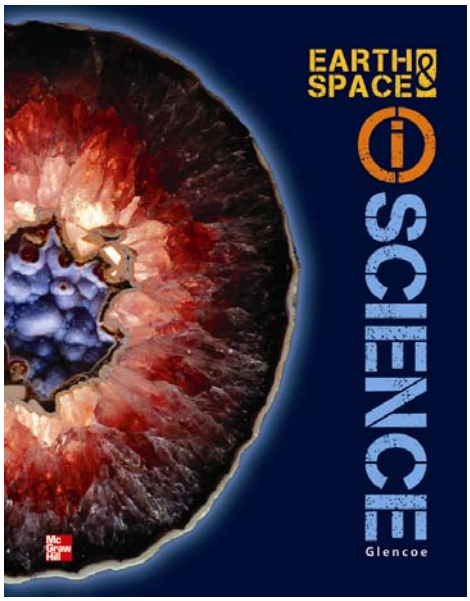
Glencoe

Science Standards
Earth and Space Sciences
Grades 6-8

Nebraska



NEBRASKA DEPARTMENT OF EDUCATION

STANDARDS	PAGE REFERENCES
SC K-12.1 Comprehensive Science Standard – Inquiry, the Nature of Science, and Technology Students will combine scientific processes and knowledge with scientific reasoning and critical thinking to ask questions about phenomena and propose explanations based on gathered evidence.	
1. Inquiry, the Nature of Science, and Technology	
1. Abilities to do Scientific Inquiry	
SC8.1.1 Students will design and conduct investigations that will lead to descriptions of relationships between evidence and explanations.	
Scientific Questioning SC8.1.1.a Formulate testable questions that lead to predictions and scientific investigations	**Student Edition:** *Nature of Science* NOS 6-7 *Inquiry Lab* NOS 28-29, 100-101, 166-167, 202-203, 440-441, 476-477, 512-513, 552-553 *Inquiry Skill Practice* 494 *MiniLab* 541 *Science Skill Handbook* SR5 **Teacher Edition:** ACT NOS 7, NOS 21; DI NOS 7; GQ NOS 2, NOS 6; SCB NOS 2E

Codes used for Teacher Edition pages are the initial caps of headings on that page.

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Scientific Investigations SC8.1.1.b Design and conduct logical and sequential investigations including repeated trials	**Student Edition:** *Nature of Science* NOS 6-7 *Inquiry Lab* NOS 28-29, 100-101, 202-203, 440-441, 476-477, 512-513, 552-553, 672-673 *Inquiry Skill Practice* 425, 494 *Launch Lab* 435, 496, 527 *MiniLab* 492 *Science Skill Handbook* SR2-10 **Teacher Edition:** GQ NOS 2; SCB NOS 2E; VL NOS 6
Scientific Controls and Variables SC8.1.1.c Determine controls and use dependent (responding) and independent (manipulated) variables	**Student Edition:** *Nature of Science* NOS 21 *Inquiry Lab* 440-441, 512-513, 552-553 *Inquiry Skill Practice* 494 *Launch Lab* 527 *Science Skill Handbook* SR 6 **Teacher Edition:** SCB NOS 2E; V NOS 20; VL NOS 25
Scientific Tools SC8.1.1.d Select and use equipment appropriate to the investigation, demonstrate correct techniques, and apply appropriate mathematical concepts	**Student Edition:** *Nature of Science* NOS 16-18 *Inquiry Skill Practice* NOS 19, 57, 93, 425, 494, 623, 697 *Inquiry Lab* NOS 28-29, 100-101, 440-441, 476-477, 512-513, 552-553 *MiniLab* 120, 492, 531, 611 *Launch Lab* 434, 527 **Teacher Edition:** GQ NOS 17; SCB NOS 2F
Scientific Observations SC8.1.1.e Make qualitative and quantitative observations	**Student Edition:** *Inquiry Skill Practice* NOS 19, 425, 494 *Inquiry Lab* 100-101, 476-477, 552-553, 632-633 *MiniLab* 531, 541, 565 *Launch Lab* 546 **Teacher Edition:** GQ NOS 12

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Scientific Data Collection SC8.1.1.f Record and represent data appropriately and review for quality, accuracy, and relevancy	**Student Edition:** *Inquiry Skill Practice* NOS 19, 156, 425, 494 *Inquiry Lab* NOS 28-29, 100-101, 138-139, 202-203, 440-441, 476-477, 512-513, 552-553, 632-633, 674-675 *MiniLab* 492 *Nature of Science* 522-523
Scientific Interpretations, Reflections, and Applications SC8.1.1.g Evaluate predictions, draw logical inferences based on observed patterns/relationships, and account for non-relevant information	**Student Edition:** *Nature of Science* NOS 6-7, NOS 10 *Inquiry Skill Practice* NOS 19, 425 *Inquiry Lab* NOS 28-29, 100-101, 202-203, 316-317, 440-441, 476-477, 512-513, 632-633, 674-675 *MiniLab* 492 **Teacher Edition:** IM NOS 2H; VL NOS 7, NOS 10
Scientific Communication SC8.1.1.h Share information, procedures, results, and conclusions with appropriate audiences	**Student Edition:** *Inquiry Skill Practice* NOS 19, 425, 432, 494 *Communicate Your Results* NOS 29, 67, 101, 139, 203, 395, 441, 477, 513, 553, 633, 675, 751 *MiniLab* 492 *Launch Lab* 527
SC8.1.1.i Analyze and provide appropriate critique of scientific investigations	**Student Edition:** *Nature of Science* NOS 6-7, NOS 20-27 *Inquiry Skill Practice* NOS 19, 156, 425, 494 *Inquiry Lab* NOS 28-29, 66-67, 138-139, 202-203, 440-441, 476-477, 512-513, 552-553, 632-633 *Inquiry Extension* 101 *MiniLab* 492 **Teacher Edition:** DI NOS 25; GQ NOS 23, NOS 24, NOS 25; IM NOS 2H; VL NOS 7, NOS 23, NOS 24

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Mathematics SC8.1.1.j Use appropriate mathematics in all aspects of scientific inquiry	**Student Edition:** 11 *Nature of Science* NOS 12-15, 522-523 *Inquiry Skill Practice* NOS 19, 17, 57, 93, 157, 369, 658 *Math Skills* 11 *MiniLab* 22, 348, 453, 509, 548 *Inquiry Lab* 66-67, 394-395, 440-441, 476-477, 512-513 *Launch Lab* 434 **Teacher Edition:** DI 11; SCB NOS 2F; VL NOS 15
2. Nature of Science	
SC8.1.2 Students will apply the nature of science to their own investigations.	
Scientific Knowledge SC8.1.2.a Recognize science is an ongoing process and the scientific community accepts and uses explanations until they encounter new experimental evidence not matching existing explanations	**Student Edition:** 216-222, 224-230, 232-241 *Nature of Science* NOS 4-9, NOS 20-27 **Teacher Edition:** DI 219, 221, 237; GQ NOS 27, 229, 237, 240; IM NOS 2H; IWS NOS 20; SCB NOS 2E, 214E-F; VL NOS 9
Science and Society SC8.1.2.b Describe how scientific discoveries influence and change society	**Student Edition:** 24-29, 703 *Nature of Science* NOS 8, 684-685 *Unit 1* 2-3 *MiniLab* 685 **Teacher Edition:** DI 685; FF 29; GQ 24, 26, 703; TD NOS 9; VL 684
Science as a Human Endeavor SC8.1.2.c Recognize scientists from various cultures have made many contributions to explain the natural world	**Student Edition:** 216-222, 329 *Nature of Science* NOS 20-27 *Unit 1* 2-3 *Careers in Science* 47, 85, 117, 223, 335, 385, 416, 503, 535, 571, 767, 783 *Unit 2* 210-211 *Unit 3* 402-403 *Unit 4* 520-521 *Unit 5* 682-683 **Teacher Edition:** CD 159, 301; DI 219, 221, 329; FF 53, 221; RWS 271; SCB 324E

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3. Technology	
SC8.1.3 Students will solve a design problem which involves one or two science concepts.	
Abilities to do Technical Design SC8.1.3.a Identify problems for technical design	**Student Edition:** *Inquiry Skill Practice* 17, 697 *Inquiry Lab* 202-203, 632-633, 714-715 *It's Your Turn* 667
SC8.1.3.b Design a solution or product	**Student Edition:** *Inquiry Skill Practice* 17, 697 *Inquiry Lab* 202-203, 632-633, 714-715 *It's Your Turn* 667
SC8.1.3.c Implement the proposed design	**Student Edition:** *Inquiry Skill Practice* 17, 697 *Inquiry Lab* 202-203, 632-633, 714-715 **Teacher Edition:**
SC8.1.3.d Evaluate completed technological designs or products	**Student Edition:** *Inquiry Skill Practice* 17 *Inquiry Lab* 202-203, 632-633, 714-715
SC8.1.3.e Communicate the process of technical design	**Student Edition:** *Inquiry Skill Practice* 17, 697 *Inquiry Lab* 202-203, 632-633, 714-715 *It's Your Turn* 667
Understanding of Technical Design SC8.1.3.f Distinguish between scientific inquiry (asking questions about the natural world) and technological design (using science to solve practical problems)	**Student Edition:** *Nature of Science* NOS 4-8, 684-685 **Teacher Edition:** DI NOS 9; GQ NOS 8, 402
SC8.1.3.g Describe how science and technology are reciprocal	**Student Edition:** 24-29, 37#13, 298-299, 470-475, 509, 550, 567, 688-696, 698-704, 706-713 *Nature of Science* NOS 8, 404-405, 684-685 *Unit 2* 210-211 *Unit 3* 402-403 *Writing in Science* 481 *Inquiry Lab* 476-477 *Unit 4* 520-521 *Unit 5* 682-683 **Teacher Edition:** DI NOS 9; FF 29; GQ NOS 8, 2, 520, 684; VL NOS 8

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SC8.1.3.h Recognize that solutions have intended and unintended consequences	**Student Edition:** 433-439, 504-507, 546-549, 588-595, 646-650, 652-658 *Launch Lab* 433 *MiniLab* 548 **Teacher Edition:** CD 199; DI 549, 657; GQ 434, 438, 547, 549, 591, 656; TD 549
SC8.1.3.i Compare and contrast the reporting of scientific knowledge and the reporting of technological knowledge	**Student Edition:** *Nature of Science* NOS 4-8 *Science Skill Handbook* SR10 **Teacher Edition:** DI NOS 9; IM NOS 2H; SCB NOS 2E; TA 29
SC K-12.4 Comprehensive Science Standard – Earth and Space Sciences Students will integrate and communicate the information, concepts, principles, processes, theories, and models of Earth and Space Sciences to make connections with the natural and engineered world.	
4. Earth and Space Sciences	
1. Earth in Space	
SC8.4.1 Students will investigate and describe Earth and the solar system.	
Objects in the Sky and Universe SC8.4.1.a Describe the components of the solar system (the Sun, planets, moons, asteroids, comets)	**Student Edition:** 724-732, 734-740, 760-766, 768-774, 776-782, 784-789 *Launch Lab* 725, 769, 785 *MiniLab* 772, 781 *Inquiry Skill Practice* 775 *Careers in Science* 783 *Inquiry Lab* 790-791 **Teacher Edition:** ACT 763, 773, 781; DI 771, 781; GQ 769, 770, 777, 778, 779, 785; IM 758H; IWS 758D; SCB 758E-F; VL 779, 780

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Motion of Objects in the Solar System SC8.4.1.b Describe the relationship between motion of objects in the solar system and the phenomena of day, year, eclipses, phases of the Moon and seasons	**Student Edition:** 498-499, 729-732, 742-747 *Inquiry Skill Practice* 733 *Launch Lab* 735, 743 *MiniLab* 744 *Inquiry Lab* 750-751 **Teacher Edition:** DI 499, 729, 739, 745, 747; GQ 498, 499, 729, 739, 744, 745; IM 484H, 722H; SCB 722F; VL 498, 499, 729, 731, 739
Gravitational Effects SC8.4.1.c Describe the effects of gravity on Earth (tides) and the effect of gravity on objects in the solar system	**Student Edition:** 43-45, 414, 576-577, 726, 747-748, 762 *MiniLab* 577, 726 *Inquiry Skill Practice* 579 *Launch Lab* 707 **Teacher Edition:** ACT 577; DI 43, 577; FF 45; GQ 43, 414, 576, 726; IM 38H; IWS 560D; SCB 560E, 722E-F; TD 756; VL 43, 577
2. Earth Structures and Processes	
SC8.4.2 Students will investigate and describe Earth's structure, systems, and processes.	
Properties of Earth SC8.4.2.a Describe the layers of Earth (core, mantle, crust, atmosphere)	**Student Edition:** 42, 45, 48-56, 234, 408-415 *Launch Lab* 41, 49 *MiniLab* 44, 51 *Inquiry Lab* 66-67 **Teacher Edition:** DI 51, 53; FF 51; GQ 52, 54, 234, 411; IM 38H: IWS 38D; SCB 38E-F; TA 413; TD 53; VL 45, 53, 411
SC8.4.2.b Describe the physical composition of soil	**Student Edition:** 157-165 *Launch Lab* 158 *MiniLab* 159 *Inquiry Lab* 166-167 **Teacher Edition:** ACT 163; DI 159, 161, 163; GQ 159, 161, 163; IM 146H; IWS 146D; SCB 146F; TA 165; VL 161, 162, 164

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SC8.4.2.c Describe the mixture of gasses in Earth's atmosphere and how the atmosphere's properties change at different elevations	**Student Edition:** 408-415 *Careers in Science* 416 **Teacher Edition:** DI 411, 413; GQ 411, 412, 413, 414; IM 406H; IWS 406D; MA 411; RS 411; SCB 406E; TA 413; TD 411; VL 411, 412, 413, 414
SC8.4.2.d Describe evidence of Earth's magnetic field	**Student Edition:** 55, 56#8, 71#18 **Teacher Edition:** DI 55; GQ 38, 55; IM 214H; SCB 38F; TD 55; VL 55
Earth's Processes SC8.4.2.e Compare and contrast constructive and destructive forces (deposition, erosion, weathering, plate motion causing uplift, volcanoes, earthquakes) that impact Earth's surface	**Student Edition:** 148-155, 176-184, 186-193, 195-201, 232-236, 252-258, 260-266, 268-274, 292-296, 306-315 *Launch Lab* 149, 187 *MiniLab* 153 *How Nature Works* 185 **Teacher Edition:** ACT 183; DI 153; GQ 151, 152, 189, 235; IM 174H; IWS 174D, 214D, 250D; SCB 146E, 174E-F, 250E-F; VL 151, 154, 178, 183, 200
SC8.4.2.f Describe the rock cycle	**Student Edition:** 110-116, 118-121, 126-130, 133-134, 145#12-13 *MiniLab* 115, 134 *Launch Lab* 119, 133 *Inquiry Extension* 139 *Writing in Science* 143 **Teacher Edition:** ACT 115; DI 115, 127, 135; GQ 113, 114, 121, 129; RS 135; SCB 108E-F; VL 115
SC8.4.2.g Describe the water cycle (evaporation, condensation, precipitation)	**Student Edition:** 454-455, 532-533 *Launch Lab* 451 **Teacher Edition:** DI 533; GQ 454, 455, 532, 533; IM 448H, 524H; SCB 448E, 524E; TD 533; VL 454, 455, 533

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Use of Earth Materials SC8.4.2.h Classify Earth materials as renewable or nonrenewable	**Student Edition:** 642-650, 652-658 *Launch Lab* 653, 661 *MiniLab* 657 *Green Science* 667 **Teacher Edition:** DI 655; GQ 643, 646, 653, 654, 655, 656, 657; IWS 640D; SCB 640E; VL 649
3. Energy in Earth's Systems SC8.4.3 Students will investigate and describe energy in Earth's systems.	
Energy Sources SC8.4.3.a Describe how energy from the Sun influences the atmosphere and provides energy for plant growth	**Student Edition:** 417-424, 426-431, 488 *Launch Lab* 418 *Inquiry Skill Practice* 425 **Teacher Edition:** DI 421; GQ 417, 420, 421, 422, 427; IM 484H; SCB 406E, 448E, 484E-F; VL 419, 420
Weather and Climate SC8.4.3.b Identify factors that influence daily and seasonal changes on Earth (tilt of the Earth, humidity, air pressure, air masses)	**Student Edition:** 426-431, 450-456, 458-468, 486-493, 498-499 *Launch Lab* 427 *MiniLab* 453 *Science & Society* 457 *Inquiry Lab* 476-477 *Inquiry Skill Practice* 733 **Teacher Edition:** ACT 461; DI 453, 461, 465, 499; GQ 430, 452, 453, 461, 462; SCB 448E-F, 484E-F; VL 499
SC8.4.3.c Describe atmospheric movements that influence weather and climate (air masses, jet stream)	**Student Edition:** 426-431, 458-468, 486-493 *Inquiry Skill Practice* 468 **Teacher Edition:** ACT 461; DI 461, 463, 489; GQ 461, 462, 487, 488; IM 448H; SCB 406F, 448E-F, 484E-F; TD 465; VL 463

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4. Earth's History	
SC8.4.4 Students will use evidence to draw conclusions about changes in Earth.	
Past/Present Earth SC8.4.4.a Recognize that the earth processes we see today are similar to those that occurred in the past (uniformity of processes)	**Student Edition:** 149, 177-184, 257, 280, 328, 336-342, 357#18 *How Nature Works* 185 *Unit 2* 210-211 *Launch Lab* 337 **Teacher Edition:** ACT 281; DI 329; GQ 250, 328, 332; SCB 324E; TD 329; VL 178
SC8.4.4.b Describe how environmental conditions have changed through use of the fossil record	**Student Edition:** 326-334, 341, 362-368, 370-376, 378-384 *Careers in Science* 223, 335, 385 *Launch Lab* 327 *Inquiry Lab* 352-353, 394-395 **Teacher Edition:** GQ 326, 332, 333, 360, 364, 375; IWS 360D; SCB 324E-F, 360E-F