



Earth Science

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STANDARDS	PAGE REFERENCES
GRADES 6-8	
I. HISTORY AND NATURE OF SCIENCE	
A. Scientific World View	
The student will understand that science is a way of knowing about the world that is characterized by empirical criteria, logical argument and skeptical review.	
1. The student will explain and give examples of how science can be used to make informed ethical decisions by identifying likely consequences of particular actions.	<p>Student Edition: 20-22 <i>Integrate Career</i> 20 <i>Applying Science</i> 21 <i>Science and Society</i> 112, 476, 592, 652 <i>Science and History</i> 618</p> <p>Teacher Wraparound Edition: CC 11; SJ 20; TFYI 20</p> <p>Teacher's Resources: <i>Fast File The Nature of Science</i> 31, 34 <i>Fast File Earth's Energy and Mineral Resources</i> 30 <i>Fast File Our Impact on Land</i> 7-8, 9-12, 27</p>

STANDARDS	PAGE REFERENCES
<p>2. The student will explain the development, usefulness and limitations of scientific models in the explanation and prediction of natural phenomena.</p>	<p>Student Edition: 15-22, 36, 164-170, 470-472 <i>Lab</i> 142-143, 172-173, 382-383, 474-475, 548, 714-715 <i>Launch Lab</i> 209 <i>MiniLAB</i> 318</p> <p>Teacher Wraparound Edition: QD 165, 348; UP 269</p> <p>Teacher’s Resources: <i>Fast File Views of Earth</i> 7-8, 32 <i>Fast File Erosional Forces</i> 3 <i>Fast File Water Erosion and Deposition</i> 11-12 <i>Fast File Plate Tectonics</i> 13-15 <i>Fast File Earthquakes</i> 4 <i>Fast File Volcanoes</i> 7-8 <i>Fast File Geologic Time</i> 5-6 <i>Fast File Climate</i> 4, 5-6 <i>Fast File Exploring Space</i> 4</p>
<p>B. Scientific Inquiry</p>	
<p>The student will understand that scientific inquiry is used by scientists to investigate the natural world in systematic ways.</p>	
<p>1. The student will know that scientific investigations involve the common elements of systematic observations, the careful collection of relevant evidence, logical reasoning and innovation in developing hypotheses and explanations.</p>	<p>Student Edition: 6-14, 15-22, 272-275, 276-278, 280-289, 394-399 <i>Get Ready to Read</i> 6A-B <i>Lab</i> 23</p> <p>Teacher Wraparound Edition: D 273; IL 9; IM 8; ITC 4; R 14; VL 8; WQ 2</p> <p>Teacher’s Resources: <i>Fast File The Nature of Science</i> 5-6, 27 <i>Fast File Minerals</i> 7-8 <i>Fast File Weathering and Soil</i> 11-12 <i>Fast File Erosional Forces</i> 26 <i>Fast File Plate Tectonics</i> 7-8 <i>Fast File Earthquakes</i> 34 <i>Fast File Clues to Earth’s Past</i> 7-8 <i>Fast File Geologic Time</i> 28 <i>Fast File Oceanography</i> 13-16 <i>Fast File Stars and Galaxies</i> 33, 34</p>

STANDARDS	PAGE REFERENCES
<p>2. The student will describe how scientists can conduct investigations in a simple system and make generalizations to more complex systems.</p>	<p>Student Edition: 6-11, 15-22, 93, 272-275, 310-311, 374-375, 377-381, 394-396 <i>MiniLAB</i> 19, 274, 403 <i>Lab</i> 377</p> <p>Teacher Wraparound Edition: A 19; LD 8; WQ 2</p> <p>Teacher’s Resources: <i>Fast File The Nature of Science</i> 4, 37-38 <i>Fast File Matter</i> 7-8 <i>Fast File Weathering and Soil</i> 7-8 <i>Fast File Erosional Forces</i> 7-8 <i>Fast File Water Erosion and Deposition</i> 26 <i>Fast File Climate</i> 3, 5-6, 9-11 <i>Fast File Ocean Motion</i> 5-6 <i>Fast File The Sun-Earth-Moon System</i> 5</p>
<p>The student will use multiple skills to design and conduct scientific investigations.</p>	
<p>1. The student will specify variables to be changed, controlled and measured.</p>	<p>Student Edition: 10, 29 #24 <i>Integrate Life Science</i> 10 <i>MiniLAB</i> 11 <i>Lab</i> 24-25, 52-53, 200-201, 228-229, 260-261, 350-351, 444-445, 616-617, 680-681</p> <p>Teacher Wraparound Edition: AIL 229; QD 10</p> <p>Teacher’s Resources: <i>Fast File The Nature of Science</i> 3, 33 <i>Fast File Weathering and Soil</i> 7-8 <i>Fast File Erosional Forces</i> 7-8 <i>Fast File Water Erosion and Deposition</i> 7-8 <i>Fast File Volcanoes</i> 5-6, 7-8 <i>Fast File Climate</i> 5-6 <i>Fast File Our Impact on Water and Air</i> 7-8 <i>Fast File The Sun-Earth-Moon System</i> 9-10</p>

STANDARDS	PAGE REFERENCES
<p>2. The student will use sufficient trials and adequate sample size to ensure reliable data.</p>	<p>Student Edition: 11, 31 #13-14 <i>Lab 24-25, 52-53, 350-351, 504-505, 650-651</i></p> <p>Teacher’s Resources: <i>Fast File The Nature of Science 3, 7-8, 9-10, 11-14</i> <i>Fast File Minerals 7-8</i> <i>Fast File Atmosphere 11-12</i> <i>Fast File Climate 7-8</i> <i>Fast File Ocean Motion 5-6</i> <i>Fast File Our Impact on Water and Air 7-8</i> <i>Fast File Stars and Galaxies 5-6</i></p>
<p>3. The student will use appropriate technology and mathematics skills to access, gather, store, retrieve and organize data.</p>	<p>Student Edition: <i>Lab 24-25, 45, 52-53, 67, 80-81, 136, 200-201, 221, 279, 350-351, 414-415, 444-445, 504-505, 562-563, 608</i></p> <p>Teacher’s Resources: <i>Fast File The Nature of Science 11-14</i> <i>Fast File Matter 5-6</i> <i>Fast File Earth’s Energy and Mineral Resources 5-6, 9-11</i> <i>Fast File Plate Tectonics 5-6</i> <i>Fast File Clues to Earth’s Past 32</i> <i>Fast File Oceanography 13-16</i> <i>Fast File The Solar System 7-8</i></p>
<p>C. Scientific Enterprise</p>	
<p>The student will know that science and technology are human efforts that both influence and are influenced by civilizations and cultures worldwide.</p>	
<p>1. The student will evaluate the credibility and validity of scientific and technological information from various sources.</p>	<p>Student Edition: 20-22 <i>Applying Science 21</i> <i>Lab 23, 434</i> <i>Science Skill Handbook 756</i></p> <p>Teacher Wraparound Edition: A 23; CC 21; D 16, 69; DI 19; 409; LD 8; SCB 4E-F</p> <p>Teacher’s Resources: <i>Fast File The Nature of Science 5-6</i> <i>Fast File Plate Tectonics 27</i> <i>Fast File Atmosphere 5-6</i></p>

STANDARDS	PAGE REFERENCES
D. Historic Perspectives	
The student will understand how scientific discovery, culture, societal norms and technology have influenced one another in different time periods.	
1. The student will relate personal experiences in scientific investigation to the experiences of scientists throughout history.	<p>Student Edition: <i>Launch Lab 5</i> <i>Lab 52-53, 80-81, 136, 142-143, 200-201, 474-475, 634, 650-651, 746-747</i> <i>MiniLAB 632</i></p> <p>Teacher Wraparound Edition: <i>A 275; AIL 532; LD 646; TBI 4</i></p> <p>Teacher’s Resources: <i>Fast File The Nature of Science 4, 5-6, 37-38</i> <i>Fast File Views of Earth 7-8</i> <i>Fast File Geologic Time 9-10</i> <i>Fast File Oceanography 9-11</i> <i>Fast File The Sun-Earth-Moon System 13-14</i></p>
2. The student will cite examples of how science and technology contributed to changes in agriculture, manufacturing, sanitation, medicine, warfare, transportation, information processing or communication.	<p>Student Edition: 12-14, 170, 470, 516-517, 603, 649 <i>National Geographic 13</i></p> <p>Teacher Wraparound Edition: <i>CFU 14; D 637; DI 37; SCB 626F; V 13</i></p> <p>Teacher’s Resources: <i>Fast File Weathering and Soil 27, 28</i> <i>Fast File Ocean Motion 28</i> <i>Fast File Oceanography 31</i> <i>Fast File Our Impact on Land 29</i> <i>Fast File Stars and Galaxies 32</i></p>
III. EARTH AND SPACE SCIENCE	
A. Earth Structure and Processes	
The student will identify Earth’s composition, structure and processes.	
1. The student will explain how earthquakes, volcanoes, sea-floor spreading and mountain building are evidence of the movement of crustal plates.	<p>Student Edition: 272-275, 276-278, 280-289, 300-303, 330-335 <i>Lab 279, 290-291</i> <i>Applying Science 282</i></p> <p>Teacher Wraparound Edition: <i>A 335; ACT 276; CC 287; D 278; MM 287; TBI 270</i></p> <p>Teacher’s Resources: <i>Fast File Plate Tectonics 5-6, 7-8, 9-12, 31, 39-42</i> <i>Fast File Earthquakes 29</i> <i>Fast File Volcanoes 25, 31, 37-40, 45-46</i></p>

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<p>2. The student will describe how features on the Earth's surface are created and constantly changing through a combination of slow and rapid processes of weathering, erosion, sediment deposition, landslides, volcanic eruptions and earthquakes.</p>	<p>Student Edition: 182-187, 196-199, 210-214, 215-220, 222-227, 238-248, 313-319, 330-335 <i>MiniLAB</i> 186, 211 <i>Lab</i> 200-201, 221 <i>Science and Society</i> 263</p> <p>Teacher Wraparound Edition: IM 208F; TFYI 183</p> <p>Teacher's Resources: <i>Fast File Weathering and Soil</i> 16, 35-38 <i>Fast File Erosional Forces</i> 5-6, 9-10, 29-31, 40 <i>Fast File Water Erosion and Deposition</i> 7-8 <i>Fast File Earthquakes</i> 9-13, 15-17, 34 <i>Fast File Volcanoes</i> 11-14, 15, 17-18, 26, 28</p>
<p>3. The student will describe the various processes and interactions of the rock cycle.</p>	<p>Student Edition: 90-93, 94-97, 99-102, 103-109 <i>Get Ready to Read</i> 90A-B <i>MiniLAB</i> 91 <i>National Geographic</i> 92 <i>Science Online</i> 96 <i>Lab</i> 98, 110-111</p> <p>Teacher Wraparound Edition: A 91; TBI 88</p> <p>Teacher's Resources: <i>Fast File Rocks</i> 3, 5-6, 9-10, 15-18, 23-26, 28, 30, 31-33, 37-40</p>
<p>4. The student will interpret successive layers of sedimentary rocks and their fossils to document the age and history of the Earth.</p>	<p>Student Edition: 370-375 <i>Science Online</i> 371, 374 <i>National Geographic</i> 373</p> <p>Teacher Wraparound Edition: A 375; ACT 373, 376; CFU 369, 375; DI 372; IL 374; QD 371; R 375; V 373</p> <p>Teacher's Resources: <i>Fast File Plate Tectonics</i> 3, 9-12, 20, 27 <i>Fast File Clues to Earth's Past</i> 5-6, 7-8, 9-11, 13-15, 20-22, 28, 39-42 <i>Fast File Geologic Time</i> 3, 7-8, 25</p>

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<p>5. The student will recognize that constructive and destructive Earth processes can affect the evidence of Earth's history.</p>	<p>Student Edition: 154-159, 272-275, 280-289, 362-369, 370-375, 387 #19 <i>Launch Lab</i> 361 <i>MiniLAB</i> 363 <i>Lab</i> 376</p> <p>Teacher Wraparound Edition: CFU 159; D 372; IM 361F; QD 366; V 373</p> <p>Teacher's Resources: <i>Fast File Weathering and Soil</i> 26 <i>Fast File Erosional Forces</i> 7-8, 11-12, 43-44 <i>Fast File Plate Tectonics</i> 5-6, 19-21, 28, 30-31 <i>Fast File Volcanoes</i> 9-10 <i>Fast File Clues to Earth's Past</i> 9-11, 31</p>
<p>6. The student will classify and identify rocks and minerals using characteristics including but not limited to density, hardness and streak.</p>	<p>Student Edition: 62-66, 68-72 <i>Launch Lab</i> 61 <i>National Geographic</i> 64 <i>Applying Science</i> 70 <i>MiniLAB</i> 72 <i>Lab</i> 80-81, 98, 110-111</p> <p>Teacher Wraparound Edition: A 81; DI 91, 95; LD 70; R 97; SCB 60E</p> <p>Teacher's Resources: <i>Fast File Minerals</i> 3, 4, 7-8, 17, 23-24, 27, 29-30, 35-38 <i>Fast File Rocks</i> 5-6, 7-8, 11-12, 24-26, 27, 30, 31-33, 37-40</p>

STANDARDS	PAGE REFERENCES
III EARTH AND SPACE SCIENCE	
A. Earth Structure and Processes	
The student will investigate the impact humans have on the environment.	
<p>1. The student will identify and research an environmental issue and evaluate its impact.</p>	<p>Student Edition: 196-199, 574-577, 578-584, 600-607, 609-615 <i>Lab</i> 142-143, 616-617 <i>Science and Society</i> 592</p> <p>Teacher Wraparound Edition: DI 198, 583; IL 253, 605; LD 124; R 199; V 126</p> <p>Teacher’s Resources: <i>Fast File The Nature of Science</i> 27 <i>Fast File Earth’s Energy and Mineral Resources</i> 7-8, 9-11, 42 <i>Fast File Views of Earth</i> 28 <i>Fast File Weathering and Soil</i> 28, 30-31 <i>Fast File Volcanoes</i> 30 <i>Fast File Climate</i> 41 <i>Fast File Oceanography</i> 29, 32 <i>Fast File Our Impact on Land</i> 4, 5-6, 7-8, 9-12, 25-27, 37-40 <i>Our Impact on Water and Air</i> 5-6, 7-8, 11-12, 23-24, 27-29, 33-36</p>
B. The Water Cycle, Weather and Climate	
The student will investigate how the atmosphere interacts with the Earth system.	
<p>1. The student will define radiation, conduction and convection and explain their effects on weather and climate.</p>	<p>Student Edition: 435-438, 451 #23 <i>MiniLAB</i> 437</p> <p>Teacher Wraparound Edition: CFU 438; D 436; SCB 424E; TPK 435; UAA 436; USW 436</p> <p>Teacher’s Resources: <i>Fast File Atmosphere</i> 4, 16, 24, 30, 34, 35-38 <i>Fast File Climate</i> 3</p>

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<p>2. The student will identify the forces that create currents and layers in the Earth's atmosphere and water systems.</p>	<p>Student Edition: 426-433, 439-443, 518-523 <i>Science Online</i> 428, 519 <i>Launch Lab</i> 513 <i>MiniLAB</i> 521</p> <p>Teacher Wraparound Edition: A 521; ACT 441; CFU 523; IM 28; LD 522; QD 440; R 523; TFYI 429</p> <p>Teacher's Resources: <i>Fast File Atmosphere</i> 17, 25, 31, 33 <i>Fast File Ocean Motion</i> 3, 13, 16, 24, 35-37</p>
<p>3. The student will describe the effect of Earth's rotation on the winds and ocean currents.</p>	<p>Student Edition: 439-443, 518-523, 539 #18 <i>Science Online</i> 519</p> <p>Teacher Wraparound Edition: ACT 441; DI 519; QD 440; R 523; TBI 512; TFYI 440</p> <p>Teacher's Resources: <i>Fast File Atmosphere</i> 17, 18, 31, 34, 35-36 <i>Fast File Ocean Motion</i> 16, 24, 29, 34</p>
<p>4. The student will collect and use data to predict the weather.</p>	<p>Student Edition: 470-472 <i>Science Online</i> 17, 463 <i>MiniLAB</i> 471, 473 <i>Lab</i> 473, 474-475</p> <p>Teacher Wraparound Edition: A 469; CFU 472; DI 471; IL 464; LD 456; T 423; UP 423; VL 471</p> <p>Teacher's Resources: <i>Fast File Atmosphere</i> 11-12 <i>Fast File Weather</i> 3, 4, 5-6, 7-8, 28, 30-32, 41</p>
<p>5. The student will identify the composition and structures of the atmosphere.</p>	<p>Student Edition: 426-433 <i>Science Online</i> 428 <i>Section Review</i> 433</p> <p>Teacher Wraparound Edition: CFU 433; IES 446; IM 428; MM 432; SCB 424E; TFYI 431; VL 427</p> <p>Teacher's Resources: <i>Fast File Atmosphere</i> 13, 15-16, 29-30, 35-38 <i>Fast File Climate</i> 5-6</p>

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<p>6. The student will describe climate changes that have occurred over time.</p>	<p>Student Edition: 492-502 <i>Integrate Environment</i> 468 <i>MiniLAB</i> 493 <i>National Geographic</i> 494-495 <i>Science Online</i> 499 <i>Science and History</i> 506</p> <p>Teacher Wraparound Edition: A 502; CB 495; D 499, 501; IM 496; SCB 482E; TFYI 427, 498; V 494</p> <p>Teacher’s Resources: <i>Fast File Erosional Forces</i> 30, 43-44 <i>Fast File Plate Tectonics</i> 20, 33, 42 <i>Fast File Climate</i> 21, 29, 32, 35, 38</p>
<p>C. The Universe</p>	
<p>The student will compare objects in the solar system and explain their interactions with the Earth.</p>	
<p>1. The student will recognize that the sun is the principal energy source for the solar system and that this energy is transferred in the form of radiation.</p>	<p>Student Edition: 130-131, 435-438, 497, 628-629, 664 <i>MiniLAB</i> 437</p> <p>Teacher Wraparound Edition: A 438; SCB 424E; TPK 628; WQ 624</p> <p>Teacher’s Resources: <i>Fast File Earth’s Energy and Mineral Resources</i> 45 <i>Fast File Atmosphere</i> 4, 24, 27, 30, 35-36 <i>Fast File Climate</i> 3, 9-11 <i>Fast File The Solar System</i> 9-12</p>
<p>2. The student will explain how the combination of the Earth’s tilted axis and revolution around the sun causes the progression of seasons and weather patterns.</p>	<p>Student Edition: 492, 663-665, 687 #16 <i>Science Online</i> 665</p> <p>Teacher Wraparound Edition: AIL 680; IM 482F; QD 664; R 665</p> <p>Teacher’s Resources: <i>Fast File Climate</i> 3, 21, 29, 34 <i>Fast File The Sun-Earth-Moon System</i> 9-10, 18, 25, 28, 31-32, 38, 39-40, 47-48</p>

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<p>3. The student will compare and contrast the planets, taking into account their composition, mass and distance from the sun and recognize the conditions that have allowed life to flourish on Earth.</p>	<p>Student Edition: 51, 690-694, 696-701, 702-709, 719 #19 <i>Get Ready to Read</i> 690A-B <i>Science Online</i> 691 <i>Lab</i> 695, 714-715</p> <p>Teacher Wraparound Edition: ACT 703; QD 698; SCB 688E; TFYI 697; UP 625; WQ 2</p> <p>Teacher’s Resources: <i>Fast File The Solar System</i> 4, 7-8, 9-12, 17, 19-22, 28-29, 36-38, 41-42, 43-46, 53-54, 55</p>
<p>4. The student will use the predictability of the motions of the Earth, and sun to explain the length of day, length of year, phases of the moon, eclipses, tides and shadows.</p>	<p>Student Edition: 527-530, 539 #10-11, 660-665, 666-670 <i>Launch Lab</i> 659 <i>Science Online</i> 669 <i>Lab</i> 675</p> <p>Teacher Wraparound Edition: D 530; IM 658F; LD 670; QD 527, 669; R 665; SCB 658E; TFYI 529</p> <p>Teacher’s Resources: <i>Fast File Ocean Motion</i> 25, 30 <i>Fast File The Sun-Earth-Moon System</i> 7-8, 17, 19, 25-26, 29, 31-33, 38, 39-42</p>
<p>The student will describe the composition and structure of the universe.</p>	
<p>1. The student will recognize that the universe consists of many billions of galaxies, each containing many billions of stars and that there are vast distances that separate these galaxies and stars from one another.</p>	<p>Student Edition: 724-728, 740-745 <i>MiniLAB</i> 742 <i>Science Stats</i> 748</p> <p>Teacher Wraparound Edition: A 728, 742; CC 727; D 727; TBI 722</p> <p>Teacher’s Resources: <i>Fast File Exploring Space</i> 11-12 <i>Fast File Stars and Galaxies</i> 4, 30, 38, 42</p>
<p>2. The student will recognize that the sun is a medium-sized star and is the closest star to Earth. It is the central and largest body in the solar system and is one of billions of stars in the Milky Way Galaxy.</p>	<p>Student Edition: 724-728, 729-732, 734-739, 740-745, 751 #19, 753 #22 <i>Section Review</i> 739</p> <p>Teacher Wraparound Edition: IM 688F; WQ 624</p> <p>Teacher’s Resources: <i>Fast File Stars and Galaxies</i> 28, 29, 31, 35-36, 43</p>