












# Earth Science

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STANDARDS	PAGE REFERENCES
<b>GRADE 6</b>	
<b>SCIENCE PROCESSES AND INQUIRY</b>	
<p><b>Process Standard 1: Observe and Measure - Observing is the first action taken by the learner to acquire new information about an object, organism, or event. Opportunities for observation are developed through the use of a variety of scientific tools. Measurement allows observations to be quantified. The student will accomplish these objectives to meet this process standard.</b></p>	
<p>1. Identify qualitative and/or quantitative changes given conditions (e.g., temperature, mass, volume, time, position, length) before, during, and after an event.</p>	<p><b>Student Edition:</b>  <i>Lab</i> 24-25, 136, 260-261, 279, 320-321, 407, 504-505, 680-681  <i>Design Your Own Lab</i> 200-201, 228-229, 444-445  <i>MiniLAB</i> 456</p>
<p>2. Use appropriate tools (e.g., metric ruler, graduated cylinder, thermometer, balances, spring scales, stopwatches) to measure objects, organisms, and/or events.</p>	<p><b>Student Edition:</b>  <i>Lab</i> 45, 80-81, 136, 260-261, 504-505, 608  <i>Design Your Own Lab</i> 52-53, 200-201, 444-445, 616-617</p> <p><b>Teacher Wraparound Edition:</b>  <b>IL 464</b></p>
<p>3. Use appropriate System International (SI) units (i.e., grams, meters, liters, degrees Celsius, and seconds) and SI prefixes (i.e., micro-, milli-, centi-, and kilo-) when measuring objects, organisms, and/or events.</p>	<p><b>Student Edition:</b>  <i>Lab</i> 45, 171, 260-261, 279, 504-505, 548, 695  <i>Design Your Own Lab</i> 52-53, 228-229  <i>MiniLAB</i> 667  <i>Model and Invent Lab</i> 714-715</p>


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<p><b>Process Standard 2: Classify - Classifying establishes order. Objects, organisms, and events are classified based on similarities, differences, and interrelationships. The student will accomplish these objectives to meet this process standard.</b></p>	
<p>1. Using observable properties, place an object, organism, and/or event into a classification system (e.g., dichotomous keys).</p>	<p><b>Student Edition:</b>  <i>MiniLAB</i> 43, 104, 553  <i>Applying Skills</i> 51  <i>Lab</i> 98, 110-111, 195, 259  <b>Teacher Wraparound Edition:</b>  A 63, 72, 617; AIL 110; R 556</p>
<p>2. Identify properties by which a set of objects, organisms, or events could be ordered.</p>	<p><b>Student Edition:</b>  68-72, 96-97, 101-102, 104-109, 193-194, 458-460, 611, 734-739  <i>National Geographic</i> 64  <i>Lab</i> 344  <b>Teacher Wraparound Edition:</b>  ACT 36</p>
<p><b>Process Standard 3: Experiment - Experimenting is a method of discovering information. It requires making observations and measurements to test ideas. The student will accomplish these objectives to meet this process standard.</b></p>	
<p>*1. Ask questions about the world and design investigations that lead to scientific inquiry. </p>	<p><b>Student Edition:</b>  8-11  <i>Design Your Own Lab</i> 52-53, 200-201, 228-229, 350-351  <b>Teacher Wraparound Edition:</b>  A 221; AIL 229, 261; IL 9, 337, 430, 464</p>
<p>2. Evaluate the design of a scientific investigation. </p>	<p><b>Student Edition:</b>  <i>Model and Invent Lab</i> 172-173, 382-383, 476-477  <i>Use the Internet Lab</i> 650-651</p>
<p>3. Identify variables and/or controls in an experimental setup (i.e., tested, experimental, and measured variables).</p>	<p><b>Student Edition:</b>  10  <i>MiniLAB</i> 11  <i>Lab</i> 24-25, 260-261, 503, 680-681  <i>Design Your Own Lab</i> 52-53, 200-201, 228-229, 350-351, 616-617  <b>Teacher Wraparound Edition:</b>  R 14</p>






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*4. Identify a testable hypothesis for an experiment.	<b>Student Edition:</b> 29 #25 <i>Design Your Own Lab</i> 52-53, 228-229, 350-351, 444-445, 532-533, 616-617 <i>Lab</i> 260-262, 320-321, 376 <b>Teacher Wraparound Edition:</b> IL 9, 193; R 14
*5. Design and conduct experiments.	<b>Student Edition:</b> 233 #28 <i>MiniLAB</i> 11 <i>Design Your Own Lab</i> 200-201, 228-229, 350-351, 444-445, 532-533, 616-617, 746-747 <b>Teacher Wraparound Edition:</b> A 221, 229, 261; IL 9
6. Recognize potential hazards and practice safety procedures in all science activities.	<b>Student Edition:</b> <i>Design Your Own Lab</i> 52-53, 200-201, 228-229, 444-445, 616-617 <i>Lab</i> 80-81, 503, 616-617, 680-681 <i>Science Skill Handbook</i> 765-767 <b>Teacher Wraparound Edition:</b> SJ 110
	<b>Process Standard 4:</b> Interpret and Communicate - Interpreting is the process of recognizing patterns in collected data by making inferences, predictions, or conclusions. Communicating is the process of describing, recording, and reporting experimental procedures and results to others. Communication may be oral, written, or mathematical and includes organizing ideas, using appropriate vocabulary, graphs, other visual representations, and mathematical equations. The student will accomplish these objectives to meet this process standard.
*1. Report data in an appropriate method when given an experimental procedure or data. 	<b>Student Edition:</b> <i>Lab</i> 80-81, 503 <i>Design Your Own Lab</i> 200-201, 444-445, 616-617 <i>Communicating Your Data</i> 351, 747 <i>Use the Internet Lab</i> 650-651
2. Interpret data tables, line, bar, trend, and/or circle graphs. 	<b>Student Edition:</b> <i>Lab</i> 136, 320-321, 344, 503, 504-505, 680-681 <i>Design Your Own Lab</i> 200-201, 444-445, 616-617 <b>Teacher Wraparound Edition:</b> IL 464


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3. Evaluate data to develop reasonable explanation and/or predictions. 	<b>Student Edition:</b> <i>Lab 98, 136, 260-261, 320-321, 376, 407, 504-505</i> <i>Design Your Own Lab 200-201, 228-229</i> <i>Use the Internet Lab 290-291</i> <b>Teacher Wraparound Edition:</b> IL 464
*4. Accept or reject hypotheses when given results of an investigation. 	<b>Student Edition:</b> <i>Design Your Own Lab 350-351, 444-445, 616-617</i>
*5. Communicate scientific procedures and explanations. 	<b>Student Edition:</b> <i>Lab 23, 221</i> <i>Communicating Your Data 53, 445, 503, 617, 651</i> <i>Model and Invent Lab 142-143</i> <i>Design Your Own Lab 228-229</i> <i>Use the Internet Lab 290-291</i> <b>Teacher Wraparound Edition:</b> A 415
<p><b>Process Standard 5: Inquiry - Inquiry can be defined as the skills necessary to carry out the process of scientific or systemic thinking. In order for inquiry to occur, students must have the opportunity to ask a question, formulate a procedure, and observe phenomena. The student will accomplish these objectives to meet this process standard.</b></p>	
*1. Use systematic observations, make accurate measurements, and identify and control variables.	<b>Student Edition:</b> <i>MiniLAB 11</i> <i>Lab 24-25, 45, 260-261, 503, 504-505</i> <i>Design Your Own Lab 52-53, 200-201, 228-229, 444-445</i> <i>Use the Internet Lab 650-651</i>
*2. Use technology to gather data and analyze results of investigations. 	<b>Student Edition:</b> <i>Science Online 125, 404</i> <i>Design Your Own Lab 260-261, 616-617</i> <i>Use the Internet Lab 290-291, 414-415, 562-563, 650-651</i> <b>Teacher Wraparound Edition:</b> IL 464; UP 423
*3. Review data, summarize data, and form logical conclusions. 	<b>Student Edition:</b> <i>Design Your Own Lab 52-53</i> <i>Lab 221, 260-261, 376, 434, 503, 585, 590-591</i> <i>Use the Internet Lab 290-291</i> <i>MiniLAB 431</i>

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<p>*4. Formulate and evaluate explanations proposed by examining and comparing evidence, pointing out statements that go beyond evidence, and suggesting alternative explanations.</p>	<p><b>Student Edition:</b>  <i>Lab 67, 80-81</i>  <i>Model and Invent Lab 382-383, 474-475</i>  <i>Design Your Own Lab 444-445</i>  <i>Communicating Your Data 681</i></p> <p><b>Teacher Wraparound Edition:</b>  A 181, 533; CYD 259</p>
<p><b>EARTH/SPACE SCIENCE</b></p>	
<p><b>Standard 5: Structures of the Earth and the Solar System - The earth is mostly rock, three-fourths of its surface is covered by a relatively thin layer of water, and the entire planet is surrounded by a relatively thin blanket of air, and is able to support life. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives:</b></p>	
<p>*1. Earth has four main systems that interact: the atmosphere, the hydrosphere, the biosphere, and the geosphere.</p>	<p><b>Student Edition:</b>  182-187, 188-194, 238-248, 253-254, 406, 437, 518-521</p> <p><i>Integrate Earth Science 202</i></p> <p><b>Teacher Wraparound Edition:</b>  CC 485; IM 180F; R 523; SCB 512E</p>
<p>2. Water, which covers the majority of the Earth's surface, circulates through the crust, oceans, and atmosphere in what is known as the water cycle.</p>	<p><b>Student Edition:</b>  437</p> <p><b>Teacher Wraparound Edition:</b>  A 437, 503; R 438</p>
<p>3. The sun provides the light and heat necessary to maintain life on Earth and is the ultimate source of energy (i.e., producers receive their energy from the sun).</p>	<p><b>Student Edition:</b>  130, 435-437, 549, 729</p> <p><b>Teacher Wraparound Edition:</b>  A 438; TFYI 436</p>
<p><b>GRADE 7</b></p>	
<p><b>SCIENCE PROCESSES AND INQUIRY</b></p>	
<p><b>Process Standard 1: Observe and Measure - Observing is the first action taken by the learner to acquire new information about an object, organism, or event. Opportunities for observation are developed through the use of a variety of scientific tools. Measurement allows observations to be quantified. The student will accomplish these objectives to meet this process standard.</b></p>	
<p>1. Identify qualitative and/or quantitative changes given conditions (e.g., temperature, mass, volume, time, position, length) before, during, and after an event.</p>	<p><b>Student Edition:</b>  <i>Lab 24-25, 136, 260-261, 279, 320-321, 407, 504-505, 680-681</i>  <i>Design Your Own Lab 200-201, 228-229, 444-445</i>  <i>MiniLAB 456</i></p>



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2. Use appropriate tools (e.g., metric ruler, graduated cylinder, thermometer, balances, spring scales, stopwatches) when measuring objects, organisms, and/or events.	<b>Student Edition:</b> <i>Lab 45, 80-81, 136, 260-261, 504-505, 608</i> <i>Design Your Own Lab 52-53, 200-201, 444-445, 616-617</i> <b>Teacher Wraparound Edition:</b> IL 464
3. Use appropriate System International (SI) units (i.e., grams, meters, liters, degrees Celsius, and seconds) and SI prefixes (i.e., micro-, milli-, centi-, and kilo-) when measuring objects, organisms, and/or events.	<b>Student Edition:</b> <i>Lab 45, 171, 260-261, 279, 504-505, 548, 695</i> <i>Design Your Own Lab 52-53, 228-229</i> <i>MiniLAB 667</i> <i>Model and Invent Lab 714-715</i>
<b>Process Standard 2: Classify - Classifying establishes order. Objects, organisms, and events are classified based on similarities, differences, and interrelationships. The student will accomplish these objectives to meet this process standard.</b>	
1. Use observable properties to place an object, organism, and/or event into a classification system (e.g., dichotomous keys).	<b>Student Edition:</b> <i>MiniLAB 43, 104, 553</i> <i>Applying Skills 51</i> <i>Lab 98, 110-111, 195, 259</i> <b>Teacher Wraparound Edition:</b> A 63, 72, 617; AIL 110; R 556
2. Identify properties by which a set of objects, organisms, and/or events could be ordered.	<b>Student Edition:</b> 68-72, 96-97, 101-102, 104-109, 193-194, 458-460, 611, 734-739 <i>National Geographic 64</i> <i>Lab 344</i> <b>Teacher Wraparound Edition:</b> ACT 36
<b>Process Standard 3: Experiment - Experimenting is a method of discovering information. It requires making observations and measurements to test ideas. The student will accomplish these objectives to meet this process standard.</b>	
*1. Ask questions about the world and design investigations that lead to scientific inquiry. 	<b>Student Edition:</b> 8-11 <i>Design Your Own Lab 52-53, 200-201, 228-229, 350-351</i> <b>Teacher Wraparound Edition:</b> A 221; AIL 229, 261; IL 9, 337, 430, 464
2. Evaluate the design of a scientific investigation. 	<b>Student Edition:</b> <i>Model and Invent Lab 172-173, 382-383, 476-477</i> <i>Use the Internet Lab 650-651</i>






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3. Identify variables and/or controls in an experimental setup (i.e., tested, experimental, and measured variables).	<b>Student Edition:</b> 10 <i>MiniLAB 11</i> <i>Lab 24-25, 260-261, 503, 680-681</i> <i>Design Your Own Lab 52-53, 200-201, 228-229, 350-351, 616-617</i> <b>Teacher Wraparound Edition:</b> R 14
*4. Identify a testable hypothesis for an experiment.	<b>Student Edition:</b> 29 #25 <i>Design Your Own Lab 52-53, 228-229, 350-351, 444-445, 532-533, 616-617</i> <i>Lab 260-261, 320-321, 376</i> <b>Teacher Wraparound Edition:</b> IL 9, 193; R 14
*5. Design and conduct experiments.	<b>Student Edition:</b> 233 #28 <i>MiniLAB 11</i> <i>Design Your Own Lab 200-201, 228-229, 350-351, 444-445, 532-533, 616-617, 746-747</i> <b>Teacher Wraparound Edition:</b> A 221, 229, 261; IL 9
6. Recognize potential hazards and practice safety procedures in all science activities.	<b>Student Edition:</b> <i>Design Your Own Lab 52-53, 200-201, 228-229, 444-445, 616-617</i> <i>Lab 80-81, 503, 616-617, 680-681</i> <i>Science Skill Handbook 765-767</i>
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2. Interpret data tables, line, bar, trend, and/or circle graphs. 	<b>Student Edition:</b> <i>Lab 136, 320-321, 344, 503, 504-505, 680-681</i> <i>Design Your Own Lab 200-201, 444-445, 616-617</i> <b>Teacher Wraparound Edition:</b> IL 464
3. Evaluate data to develop reasonable explanations and/or predictions. 	<b>Student Edition:</b> <i>Lab 98, 136, 260-261, 320-321, 376, 407, 504-505</i> <i>Design Your Own Lab 200-201, 228-229</i> <i>Use the Internet Lab 290-291</i> <b>Teacher Wraparound Edition:</b> IL 464
*4. Accept or reject hypotheses when given results of an investigation. 	<b>Student Edition:</b> <i>Design Your Own Lab 350-351, 444-445, 616-617</i>
*5. Communicate scientific procedures and explanations. 	<b>Student Edition:</b> <i>Lab 23, 221</i> <i>Communicating Your Data 53, 445, 503, 617, 651</i> <i>Model and Invent Lab 142-143</i> <i>Design Your Own Lab 228-229</i> <i>Use the Internet Lab 290-291</i> <b>Teacher Wraparound Edition:</b> A 415
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*2. Use technology to gather data and analyze results of investigations. 	<b>Student Edition:</b> <i>Science Online 125, 404</i> <i>Design Your Own Lab 260-261, 616-617</i> <i>Use the Internet Lab 290-291, 414-415, 562-563, 650-651</i> <b>Teacher Wraparound Edition:</b> IL 464; UP 423

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*3. Review data, summarize data, and form logical conclusions. 	<b>Student Edition:</b> <i>Design Your Own Lab</i> 52-53 <i>Lab</i> 221, 260-261, 376, 434, 503, 585, 590-591 <i>Use the Internet Lab</i> 290-291 <i>MiniLAB</i> 431
*4. Formulate and evaluate explanations proposed by examining and comparing evidence, pointing out statements that go beyond evidence, and suggesting alternative explanations.	<b>Student Edition:</b> <i>Lab</i> 67, 80-81 <i>Model and Invent Lab</i> 382-383, 474-475 <i>Design Your Own Lab</i> 444-445 <i>Communicating Your Data</i> 681 <b>Teacher Wraparound Edition:</b> A 181, 533; CYD 259
<b>EARTH/SPACE SCIENCE</b>	
<b>Standard 5: Structures of the Earth System - The earth is mostly rock, three-fourths of its surface is covered by a relatively thin layer of water, and the entire planet is surrounded by a relatively thin blanket of air, and is able to support life. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives:</b>	
1. Global patterns of atmospheric movement influence local weather such as oceans' effect on climate.	<b>Student Edition:</b> 439-443, 462-464, 485-486, 509 #27 <i>Science Online</i> 440 <i>National Geographic</i> 441 <b>Teacher Wraparound Edition:</b> A 443; CC 485; DI 442; DIS 442; VL 440
2. Clouds, formed by the condensation of water vapor, affect local weather and climate.	<b>Student Edition:</b> 458-461, 487 <i>Integrate Physics</i> 486 <b>Teacher Wraparound Edition:</b> A 460; CFU 461; DI 460; TFYI 460; VL 458
<b>Standard 6: Earth and the Solar System - The earth is the third planet from the sun in a system that includes the moon, the sun, eight other planets and their moons, and smaller objects, such as asteroids and comets. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives:</b>	
1. Most objects in the solar system are in regular and predictable motion. Those motions explain such phenomena as the day, the year, phases of the moon, and eclipses.	<b>Student Edition:</b> 660-665, 666-670 <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

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<p>*2. Seasons result from variations in the amount of the sun’s energy hitting the surface, due to the tilt of the earth’s rotation on its axis and the length of the day.</p>	<p><b>Student Edition:</b> 492, 663-665, 685 #18 <i>Science Online</i> 665 <i>Lab</i> 680-681</p> <p><b>Teacher Wraparound Edition:</b> ACT 663; IM 482F; QD 664; R 665</p>
<b>GRADE 8</b>	
<b>SCIENCE PROCESSES AND INQUIRY</b>	
<p><b>Process Standard 1: Observe and Measure - Observing is the first action taken by the learner to acquire new information about an object, organism, or event. Opportunities for observation are developed through the use of a variety of scientific tools. Measurement allows observations to be quantified. The student will accomplish these objectives to meet this process standard.</b></p>	
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<p>2. Use appropriate tools (e.g., metric ruler, graduated cylinder, thermometer, balances, spring scales, stopwatches) when measuring objects, organisms, and/or events.</p>	<p><b>Student Edition:</b> <i>Lab</i> 45, 80-81, 136, 260-261, 504-505, 608 <i>Design Your Own Lab</i> 52-53, 200-201, 444-445, 616-617</p> <p><b>Teacher Wraparound Edition:</b> IL 464</p>
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6. Recognize potential hazards and practice safety procedures in all science activities.	<b>Student Edition:</b> <i>Design Your Own Lab</i> 52-53, 200-201, 228-229, 444-445, 616-617 <i>Lab</i> 80-81, 503, 616-617, 680-681 <i>Science Skill Handbook</i> 765-767
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*5. Communicate scientific procedures and explanations. 	<b>Student Edition:</b> <i>Lab</i> 23, 221 <i>Communicating Your Data</i> 53, 445, 503, 617, 651 <i>Model and Invent Lab</i> 142-143 <i>Design Your Own Lab</i> 228-229 <i>Use the Internet Lab</i> 290-291 <b>Teacher Wraparound Edition:</b> A 415

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<p><b>Process Standard 5:</b> Inquiry - Inquiry can be defined as the skills necessary to carry out the process of scientific or systemic thinking. In order for inquiry to occur, students must have the opportunity to ask a question, formulate a procedure, and observe phenomena. The student will accomplish these objectives to meet this process standard.</p>	
<p>*1. Use systematic observations, make accurate measurements, and identify and control variables.</p>	<p><b>Student Edition:</b>  <i>MiniLAB</i> 11  <i>Lab</i> 24-25, 45, 260-261, 503, 504-505  <i>Design Your Own Lab</i> 52-53, 200-201, 228-229, 444-445  <i>Use the Internet Lab</i> 650-651</p>
<p>*2. Use technology to gather data and analyze results of investigations. </p>	<p><b>Student Edition:</b>  <i>Science Online</i> 125, 404  <i>Design Your Own Lab</i> 260-261, 616-617  <i>Use the Internet Lab</i> 290-291, 414-415, 562-563, 650-651</p> <p><b>Teacher Wraparound Edition:</b>  IL 464; UP 423</p>
<p>*3. Review data, summarize data, and form logical conclusions. </p>	<p><b>Student Edition:</b>  <i>Design Your Own Lab</i> 52-53  <i>Lab</i> 221, 260-261, 376, 434, 503, 585, 590-591  <i>Use the Internet Lab</i> 290-291</p>
<p>*4. Formulate and evaluate explanations proposed by examining and comparing evidence, pointing out statements that go beyond evidence, and suggesting alternative explanations.</p>	<p><b>Student Edition:</b>  <i>Lab</i> 67, 80-81  <i>Model and Invent Lab</i> 382-383, 474-475  <i>Design Your Own Lab</i> 444-445  <i>Communicating Your Data</i> 681</p> <p><b>Teacher Wraparound Edition:</b>  A 181, 533; CYD 259</p>
<p><b>EARTH/SPACE SCIENCE</b></p>	
<p><b>Standard 4:</b> Structures and Forces of the Earth and Solar System - The earth is mostly rock, three-fourths of its surface is covered by a relatively thin layer of water, and the entire planet is surrounded by a relatively thin blanket of air, and is able to support life. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives:</p>	
<p>1. Landforms result from constructive forces such as crustal deformation, volcanic eruption, and deposition of sediment and destructive forces such as weathering and erosion.</p>	<p><b>Student Edition:</b>  154-159, 182-187, 210-214, 215-220, 286-288, 336-343  <i>Science Stats</i> 230</p> <p><b>Teacher Wraparound Edition:</b>  A 159, 289; CFU 159; QD 157; SJ 183</p>

STANDARDS	PAGE REFERENCES
2. The formation, weathering, sedimentation, and reformation of rock constitute a continuing "rock cycle" in which the total amount of material stays the same as its form changes.	<b>Student Edition:</b> 90-93, 94-97, 98-102, 103-109 <i>MiniLAB</i> 91 <i>National Geographic</i> 92 <i>Lab</i> 98 <b>Teacher Wraparound Edition:</b> A 109; CFU 93; MM 109
*3. Gravity is the force that governs the motion of the solar system and holds us to the earth's surface.	<b>Student Edition:</b> 210, 637, 690-694, 712 <i>MiniLAB</i> 641, 699 <b>Teacher Wraparound Edition:</b> TS 641; V 693
<b>Standard 5: Earth's History - The Earth's history involves periodic changes in the structures of the earth over time. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives:</b>	
1. Earth's history has been punctuated by occasional catastrophic events, such as the impact of asteroids or comets, enormous volcanic eruptions, periods of continental glaciation, and the rise and fall of sea level.	<b>Student Edition:</b> 406, 411, 419 #22, 496-497, 509 #29 <i>Science and History</i> 506 <b>Teacher Wraparound Edition:</b> FF 496; SJ 496; TFYI 411
2. Fossils provide important evidence of how life and environmental conditions have changed.	<b>Student Edition:</b> 273, 362-369, 397-398 <i>Launch Lab</i> 361 <i>Integrate Life Science</i> 368 <i>Use the Internet Lab</i> 414-415 <b>Teacher Wraparound Edition:</b> ACT 367; DI 368; DIS 366; SJ 367; VL 368

**NOTE:**

Asterisks (\*) have been used to identify standards and objectives that must be assessed by the local school district. All other skills may be assessed by the Oklahoma School Testing Program (OSTP).

Book icons (📖) identify Information Literacy skills. Students are best served when these are taught in collaboration and cooperation between the classroom teacher and the library media specialist.