



STANDARDS	PAGE REFERENCES
Science	
<p>The Iowa Science Core Curriculum is a framework of science concepts and skills. This document provides a scaffold upon which each district will develop grade level expectations. The vision is that all Iowa students will have access to this common core and that individual districts will decide how they will extend this core to meet the needs of their students.</p> <p>The committee used international, national, and state level documents in this process. The final core concepts and skills are drawn from the respected work of the National Research Council's (NRC) National Science Education Standards (NSES). This document is framed upon the four content categories (Science as Inquiry; Physical Science; Earth and Space Science; and Life Science). The remaining categories (Science and Technology; Science in Personal and Social Perspectives; and The History and Nature of Science) address the application of knowledge and should be integrated throughout the content categories.</p> <p>For this core to become viable, teachers will need to be aware of and effectively use research-based, best practice instructional strategies. The Iowa Content Network - http://www.iowa.gov/educate/prodev/main.html scrutinizes research in instruction and learning. This research base provided the impetus for the Every Learner Inquires (ELI) initiative. The purpose of ELI is to establish a learning community among Iowa teachers as they utilize best practices (such as learning cycles) to help students become more scientifically literate. ELI is a state-wide teaching and learning initiative that will improve Iowa students' access to this core of science concepts and skills. These two Department of Education programs should work hand-in-hand to help students attain the scientific literacy necessary for success in the 21st century.</p>	

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Science as Inquiry	
<ul style="list-style-type: none"> ■ Identifies questions and concepts that guide scientific investigations. 	<p>Student Edition: 6-8, 38-39, 45, 54, 104-105, 128-129, 239-241, 501-506, 565-566 <i>Applying Science</i> 499, 586 <i>Design Your Own Lab</i> 144-145, 414-415, 568-569 <i>Lab</i> 51, 406, 741 <i>Science and History</i> 120, 146, 478, 810 <i>Science Skill Handbook</i> 850 <i>Use the Internet Lab</i> 508-509 Teacher Wraparound Edition: CC 39; FF 105; IL 202, 236</p>
<ul style="list-style-type: none"> ■ Designs and conducts scientific investigations. 	<p>Student Edition: 7-10, 14-21, 22-26, 54-57 <i>Applying Science</i> 428, 499 <i>Design Your Own Lab</i> 88-89, 144-145, 242-243, 344-345, 414-415, 540-541, 568-569 <i>Science Skill Handbook</i> 850-858 <i>Use the Internet Lab</i> 508-509 Teacher Wraparound Edition: D 11; DI 23; IL 12, 54; QD 10</p>
<ul style="list-style-type: none"> ■ Uses technology and mathematics to improve investigations and communications. 	<p>Student Edition: 14-21, 40-41, 54-56 <i>Applying Math</i> 130, 158, 325, 537, 757 <i>Integrate Astronomy</i> 74 <i>Integrate Physics</i> 220 <i>Math Skill Handbook</i> 872-878 <i>Science and History</i> 312, 478 <i>Science Skill Handbook</i> 850, 857-858 Teacher Wraparound Edition: CC 18; QD 41; VL 55</p>

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<ul style="list-style-type: none"> ■ Formulates and revises scientific explanations and models using logic and evidence. 	<p>Student Edition: 7-11, 40-41, 54-55, 98-103, 113-117, 581-583 <i>Applying Science</i> 428, 586 <i>Integrate Earth Science</i> 11 <i>Lab</i> 51, 379, 380-381, 468, 830 <i>Science and History</i> 478 <i>Science Skill Handbook</i> 853-858</p> <p>Teacher Wraparound Edition: IL 54; QD 10, 580; VL 55</p>
<ul style="list-style-type: none"> ■ Recognizes and analyzes alternative explanations and models. 	<p>Student Edition: 38-39, 56-57, 110-111, 501-506, 581-583, 669-675, 836-839 <i>Applying Science</i> 586 <i>National Geographic</i> 582 <i>Science and History</i> 120 <i>Science and Language Arts</i> 30 <i>Science and Society</i> 510 <i>Science Skill Handbook</i> 858</p> <p>Teacher Wraparound Edition: CC 39; CD 503; IL 12; VL 55</p>
<ul style="list-style-type: none"> ■ Communicates and defends a scientific argument. 	<p>Student Edition: 7-10, 193-195, 823-825, 836-839 <i>Design Your Own Lab</i> 414-415, 540-541 <i>Integrate Astronomy</i> 105, 324 <i>Integrate Environment</i> 137, 466 <i>Lab</i> 51, 230, 616 <i>Science and History</i> 120, 478 <i>Science Skill Handbook</i> 858</p> <p>Teacher Wraparound Edition: FYI 48; LD 193; QD 10</p>
<ul style="list-style-type: none"> ■ Understands about scientific inquiry. 	<p>Student Edition: 7-8, 38-39, 46-50, 54-55 <i>Applying Science</i> 428, 499 <i>Design Your Own Lab</i> 344-345, 540-541 <i>Model and Invent Lab</i> 58-59, 176-177 <i>Science Skill Handbook</i> 850-858</p> <p>Teacher Wraparound Edition: A 9; IL 54; R 50; TPK 38</p>

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Earth and Science	
<ul style="list-style-type: none"> ■ Understands and applies knowledge of energy in the earth system. 	<p>Student Edition: 269, 360-361, 362-369, 373-378, 486-493, 494-499, 501-506, 520-522, 536-539 <i>Integrate Earth Science</i> 505 <i>Integrate Environment</i> 139 <i>National Geographic</i> 268, 488 Teacher Wraparound Edition: CU 270, 539; D 520; FF 487; FYI 360</p>
<ul style="list-style-type: none"> ■ Understands and applies knowledge of Geochemical cycles. 	<p>Student Edition: 466, 522, 536-537, 634-635, 648-649, 652, 663 <i>Integrate Chemistry</i> 631 Teacher Wraparound Edition: CB 466; CU 522; LD 634</p>
<ul style="list-style-type: none"> ■ Understands and applies knowledge of the origin and evolution of the earth system. 	<p>Student Edition: 206-207, 221, 354-361, 372, 373-376, 518-519, 646-652 <i>National Geographic</i> 666 Teacher Wraparound Edition: FYI 360; IM 649; VL 206</p>
<ul style="list-style-type: none"> ■ Understands and applies knowledge of the origin and evolution of the universe. 	<p>Student Edition: 221, 223-229, 823-825, 833, 836-839 <i>Lab</i> 830 <i>National Geographic</i> 826 Teacher Wraparound Edition: D 825; SJ 824; VL 221</p>
Physical Science	
<ul style="list-style-type: none"> ■ Understands and applies knowledge of the structure of atoms. 	<p>Student Edition: 579-583, 584-587, 588-596, 786-790, 801-802 <i>MiniLab</i> 581, 802 <i>Model and Invent Lab</i> 808-809 <i>National Geographic</i> 582 <i>Science and History</i> 810 Teacher Wraparound Edition: D 579; FYI 585, 590; IM 586, 591; R 790</p>

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<ul style="list-style-type: none"> ■ Understands and applies knowledge of the structure and properties of matter. 	<p>Student Edition: 19, 260-265, 552-558, 560-563, 838-839 <i>Integrate Environment</i> 561 <i>Lab</i> 559 <i>MiniLab</i> 19</p> <p>Teacher Wraparound Edition: A 563; D 556, 838; DI 264; FYI 555; QD 261; R 265</p>
<ul style="list-style-type: none"> ■ Understands and applies knowledge of chemical reactions. 	<p>Student Edition: 563-566, 688-689, 720, 730-733, 734-740 <i>Accidents in Science</i> 60, 712, 744 <i>Integrate Earth Science</i> 565 <i>Lab</i> 741, 742-743 <i>Launch Lab</i> 710 <i>National Geographic</i> 737 <i>Science and Society</i> 778</p> <p>Teacher Wraparound Edition: D 739; QD 691; R 740; TPK 720</p>
<ul style="list-style-type: none"> ■ Understands and applies knowledge of motions and forces. 	<p>Student Edition: 70-75, 76-80, 81-86, 98-103, 104-111, 113-117, 166-174, 199, 358-361, 435-437 <i>Applying Math</i> 72, 102 <i>Design Your Own Lab</i> 88-89 <i>Lab</i> 87, 112, 118-119, 379 <i>Model and Invent Lab</i> 176-177 <i>National Geographic</i> 78, 441</p> <p>Teacher Wraparound Edition: A 101; D 86; DI 80; FYI 107; IM 74, 82, 116; QD 105</p>
<ul style="list-style-type: none"> ■ Understands and applies knowledge of conservation of energy and increase in disorder. 	<p>Student Edition: 135-141, 163, 273-274, 276-277, 734 <i>Design Your Own Lab</i> 144-145 <i>Integrate Environment</i> 139 <i>Lab</i> 134 <i>Science and History</i> 146</p> <p>Teacher Wraparound Edition: DI 136; IL 141; LD 138</p>

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<ul style="list-style-type: none"> ■ Understands and applies knowledge of interactions of energy and matter. 	<p>Student Edition: 128-129, 135-136, 264-265, 266-270, 288-293, 327-328, 331-337, 396, 501-502, 520 <i>Design Your Own Lab</i> 344-345 <i>Integrate Earth Science</i> 293, 565 <i>Integrate Life Science</i> 827 <i>Lab</i> 338, 507 <i>Launch Lab</i> 485 <i>National Geographic</i> 397</p> <p>Teacher Wraparound Edition: D 520; IM 269, 328; LD 289; QD 333; VL 502</p>