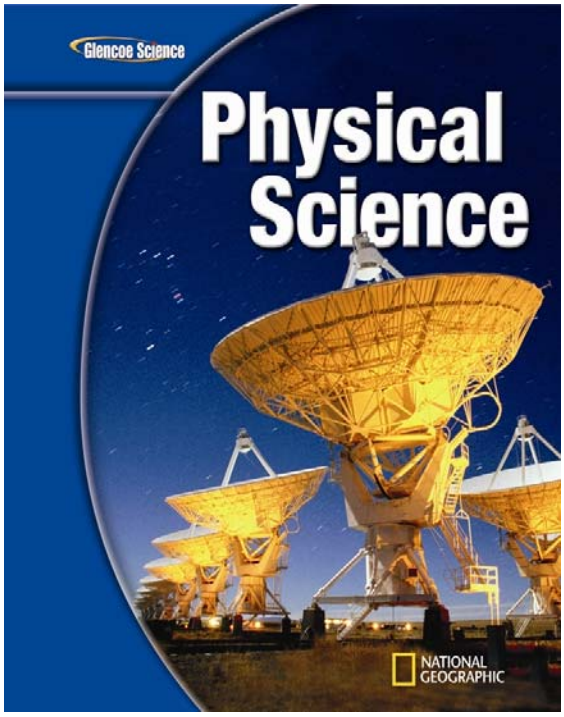
Glencoe

Core Curriculum
Science
High School



Physical Science

STANDARDS	PAGE REFERENCES

Science

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.

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.

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.

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

STANDARDS	PAGE REFERENCES
Science as Inquiry	
■ Identifies questions and concepts that guide scientific investigations.	**Student Edition:** 7-10 *Design Your Own Lab* 58-59, 214-215, 246-247, 344-345 **Teacher Wraparound Edition:** AIL 246, 652; DI 7; IL 12, 364
■ Designs and conducts scientific investigations.	**Student Edition:** *Design Your Own Lab* 58-59, 116-117, 214-215, 406-407, 716-717 **Teacher Wraparound Edition:** A 9; AIL 214, 246, 374; R 13
■ Uses technology and mathematics to improve investigations and communications.	**Student Edition:** *Lab* 90-91, 312-313 *Model and Invent Lab* 148-149 *Science Online* 479 *Use the Internet Lab* 652-653 **Teacher Wraparound Edition:** AIL 116; CYD 117, 497, 593; DI 139
■ Formulates and revises scientific explanations and models using logic and evidence.	**Student Edition:** *Lab* 496-497 *Launch Lab* 289, 449, 663 *MiniLab* 486 **Teacher Wraparound Edition:** A 117, 181, 406, 695; CYD 313
■ Recognizes and analyzes alternative explanations and models.	**Student Edition:** *Design Your Own Lab* 246-247, 592-593 *Lab* 778-779 *Model and Invent Lab* 148-149 *Use the Internet Lab* 278-279 **Teacher Wraparound Edition:** AIL 278, 344; IL 174, 328, 479
■ Communicates and defends a scientific argument.	**Student Edition:** *Communicating Your Data* 149, 405, 779 *Science and Society* 280 *Science Online* 7 **Teacher Wraparound Edition:** A 399, 407, 653; CYD 467; IL 774

STANDARDS	PAGE REFERENCES
■ Understands about scientific inquiry.	**Student Edition:** 6-13 *Oops! Accidents in Science* 654, 750 *Science and History* 376, 560 **Teacher Wraparound Edition:** A 9; AE 750; AIL 28; DI 7; IL 12
Physical Science	
■ Understands and applies knowledge of the structure of atoms.	**Student Edition:** 507-508, 511, 520-521, 536-538 *MiniLab* 509 *National Geographic* 510 **Teacher Wraparound Edition:** CU 515; D 513; QD 513; R 511
■ Understands and applies knowledge of the structure and properties of matter.	**Student Edition:** 450-456, 458-465, 476-483 *Lab* 457, 466-467, 484 **Teacher Wraparound Edition:** A 461, 483; CU 465; QD 481
■ Understands and applies knowledge of chemical reactions.	**Student Edition:** 632-633, 641-645 *Lab* 651 *Launch Lab* 631 *Use the Internet Lab* 652-653 **Teacher Wraparound Edition:** A 642; CU 637, 640; IL 643; QD 642
■ Understands and applies knowledge of motions and forces.	**Student Edition:** 38-56, 68-88 *Design Your Own Lab* 58-59 *Lab* 57, 90-91 *Launch Lab* 67 **Teacher Wraparound Edition:** A 51, 59; IL 44, 80

STANDARDS	PAGE REFERENCES
■ Understands and applies knowledge of conservation of energy and increase in disorder.	Conservation of energy is discussed and applied as follows: **Student Edition:** 111-113 *Design Your Own Lab* 116-117 *National Geographic* 110 *Science and History* 118 **Teacher Wraparound Edition:** LD 110; USW 111 Disorder can be covered in classroom discussion of the following material on the second law of thermodynamics: **Student Edition:** 175 **Teacher Wraparound Edition:** DI 177
■ Understands and applies knowledge of interactions of energy and matter.	**Student Edition:** 164-170, 290-295, 646-649 *Lab* 302, 484, 622-623 *Launch Lab* 353 **Teacher Wraparound Edition:** A 170, 649; LD 291