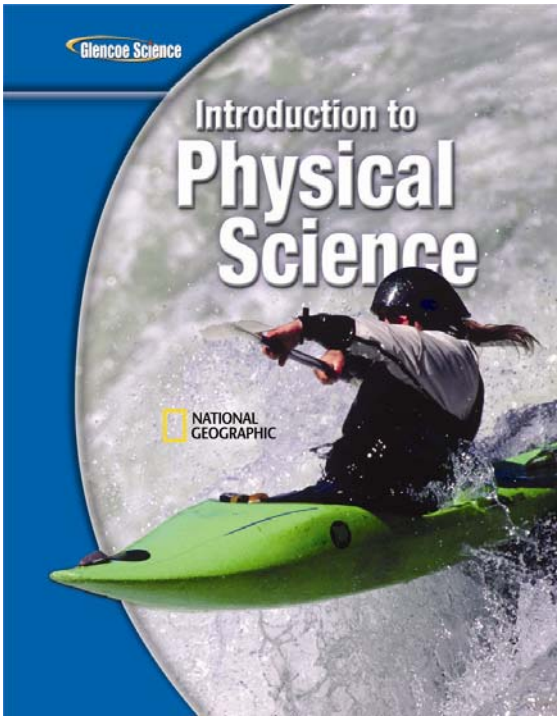
Glencoe

Physical Science Content Standards Grades 6-8



Introduction to

Physical Science

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STANDARDS	PAGE REFERENCES
Grade 6 It is essential that these standards be addressed in contexts that promote scientific inquiry, use of evidence, critical thinking, making connections, and communication.	
6.1 Structure and Function: **Living and non-living systems are organized groups of related parts that function together and have characteristics and properties.**	
6.1P.1 Describe physical and chemical properties of matter and how they can be measured.	**Student Edition:** 132-142 *Launch Lab* 133 *Mini Lab* 136 *Science Online* 138 *Section 2 Review* 142 **Teacher Wraparound Edition:** A 140; As 133, 136, 142; BI 132; CU 138; DI 135; R 142; SCB 132E; TPK 134

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

STANDARDS	PAGE REFERENCES
6.1P.2 Compare and contrast the characteristic properties of forms of energy.	**Student Edition:** 376-378, 466 *Figure 4* 376 *Figure 5 & 6* 377 *Section 1 Review* 378 **Teacher Wraparound Edition:** A 376; DI 377; IL 375; R 378; TFYI 376
6.2 Interaction and Change: **The related parts within a system interact and change.**	
6.2P.1 Describe and compare types and properties of waves and explain how they interact with matter.	**Student Edition:** 462-471 *Figure 1* 462 *Figure 2* 463 *Lab* 472 *Mini Lab* 465 **Teacher Wraparound Edition:** A 464, 469; As 465, 466; DI 463; Di 463; IL 468; IM 463; MM 463; TFYI 464; TPK 467
6.2P.2 Describe the relationships between: electricity and magnetism, static and current electricity, and series and parallel electrical circuits.	**Student Edition:** 585, 591, 598-599 *Figure 16* 598 *Figure 17* 599 **Teacher Wraparound Edition:** IM 594; R 590; TFYI 585; VL 598
Grade 7 It is essential that these standards be addressed in contexts that promote scientific inquiry, use of evidence, critical thinking, making connections, and communication**.**	
7.1 Structure and Function: **Living and non-living systems are composed of components which affect the characteristics and properties of the system.**	
7.1P.1 Explain that all matter is made of atoms, elements are composed of a single kind of atom, and compounds are composed of two or more elements.	**Student Edition:** 73, 78-79, 80, 87-88 *Chapter 3 Study Guide* 95 *Integrate History* 73 *Mini Lab* 88 **Teacher Wraparound Edition:** A 76; As 79, 88; Di 89; MM 78; TPK 87

STANDARDS		PAGE REFERENCES
7.2 Interaction and Change: **The components and processes within a system interact.**		
7.2P.1	Identify and describe types of motion and forces and relate forces qualitatively to the laws of motion and gravitation.	**Student Edition:** 310-315, 317-318, 320-321, 323, 326 *Design Your Own Lab* 330-331 *Figure 2* 311 *Figure 4* 313 *Figure 8 & 9* 318 *Integrate History* 317 *Launch Lab* 309 *National Geographic* 325 **Teacher Wraparound Edition:** A 312; AIL 330; Di 320; IH 317; IL 324; IM 308F; NG 325; SCB 308E; VL 311, 318
Grade 8 It is essential that these standards be addressed in contexts that promote scientific inquiry, use of evidence, critical thinking, making connections, and communication**.**		
8.1 Structure and Function: **Systems and their components function at various levels of complexity.**		
8.1P.1	Describe the atomic model and explain how the types and arrangements of atoms determine the physical and chemical properties of elements and compounds.	**Student Edition:** 73-80, 83-85, 87-88 *Figure 9* 79 *Figure 19* 88 *Lab* 86, 180-181 *Mini Lab* 88 **Teacher Wraparound Edition:** A 76, 81; As 79, 181; DI 83; Di 89; IL 77; MM 78, 88; R 79; SCB 70E; VL 83
8.1P.2	Explain how the Periodic Table is an organization of elements based on their physical and chemical properties.	**Student Edition:** 81, 83-85 *Figure 13* 83 *Lab* 86 *National Geographic* 82 **Teacher Wraparound Edition:** A 82, 84; As 85; Di 83; NG 82; R 85; TFYI 82

STANDARDS		PAGE REFERENCES
8.1P.3	Explain how the motion and spacing of particles determines states of matter.	**Student Edition:** 102-106 *Figure 2* 103 *Figure 4* 104 *Figure 5* 105 *Figure 6* 106 *Section 1 Review* 106 **Teacher Wraparound Edition:** A 104; As 106; BI 100; SCB 100E; TFYI 103; VL 105
	8.2 Interaction and Change: **Systems interact with other systems.**	
8.2P.1	Compare and contrast physical and chemical changes and describe how the law of conservation of mass applies to these changes.	**Student Edition:** 143-146, 190, 194 *Figure 4* 194 *Lab* 149 *Launch Lab* 189 *Mini Lab* 145, 194 *Science Online* 146 **Teacher Wraparound Edition:** A 147; As 145; CU 148; DI 146; LD 145; IM 144; TPK 143
8.2P.2	Explain how energy is transferred, transformed, and conserved.	**Student Edition:** 374, 377-381, 383-385 *Figure 6* 377 *Figure 12* 383 *Figure 14* 384 *Integrate Life Science* 381 *Lab* 386 *Mini Lab* 381 *National Geographic* 382 *Science Online* 380 **Teacher Wraparound Edition:** As 381, 385; DI 383; Di 383; IM 383; NG 381; R 385; SJ 377; TPK 379

STANDARDS		PAGE REFERENCES
	8.3 Scientific Inquiry: **Scientific inquiry is the investigation of the natural world based on observation and science principles that includes proposing questions or hypotheses, designing procedures for questioning, collecting, analyzing, and interpreting multiple forms of accurate and relevant data to produce justifiable evidence-based explanations and new explorations.**	
8.3S.1	Based on observations and science principles propose questions or hypotheses that can be examined through scientific investigation. Design and conduct a scientific investigation that uses appropriate tools, techniques, independent and dependent variables, and controls to collect relevant data.	**Student Edition:** *Design Your Own Lab* 60-61, 124-125, 150-151, 208-209, 424-425, 510-511 **Teacher Wraparound Edition:** AIL 150, 208, 604; As 231, 329, 648
8.3S.2	Organize, display, and analyze relevant data, construct an evidence-based explanation of the results of a scientific investigation, and communicate the conclusions including possible sources of error. Suggest new investigations based on analysis of results.	**Student Edition:** *Analyze Your Data/Conclude and Apply* 61, 93, 151, 209, 425, 605 **Teacher Wraparound Edition:** A 61, 209; CYD 151, 231, 425, 511
8.3S.3	Explain how scientific explanations and theories evolve as new information becomes available.	**Student Edition:** 73-79, 629-631, 654-655 *Figure 2* 73 *Integrate Astronomy* 496 *Integrate Chemistry* 593, 646 *Integrate History* 73 *National Geographic* 82, 532 *Research* 34 **Teacher Wraparound Edition:** CC 630; DI 78, 389, 655; NG 82, 532; R 34; SJ 656
	8.4 Engineering Design: **Engineering design is a process of identifying needs, defining problems, identifying constraints, developing solutions, and evaluating proposed solutions.**	
8.4D.1	Define a problem that addresses a need, and using relevant science principles investigate possible solutions given specified criteria, constraints, priorities, and trade-offs.	**Student Edition:** *Design Your Own Lab* 124-125, 300-301, 330-331, 424-425 *Lab* 396-397 **Teacher Wraparound Edition:** A 332; AIL 124, 330, 396, 424; As 125; DI 390

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8.4D.2	Design, construct, and test a proposed engineering design solution and collect relevant data. Evaluate a proposed design solution in terms of design and performance criteria, constraints, priorities, and trade-offs. Identify possible design improvements.	**Student Edition:** *Communicating Your Data* 301, 425 *Design Your Own Lab* 124-125, 300-301, 424-425 **Teacher Wraparound Edition:** AIL 124; As 125; CYD 301; DI 390
8.4D.3	Explain how creating a new technology requires considering societal goals, costs, priorities, and trade-offs.	**Student Edition:** *Oops! Accidents in Science* 574 *Time Science and History* 152 *Time Science and Society* 272, 332, 426, 452 **Teacher Wraparound Edition:** CB 152, 272, 332; Di 426, 574; DR 452; R 426