



Physical Science

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STANDARDS	PAGE REFERENCES
<p>Content Standard 1—Students design, conduct, evaluate, and communicate processes and results of scientific investigations, and demonstrate thinking skills associated with this procedural knowledge.</p>	
<p>1. generate a question, identify dependent and independent variables, formulate testable, multiple hypotheses, plan an investigation, predict its outcome, safely conduct the scientific investigations, and collect and analyze data.</p>	<p>Student Edition: 7, 8, 10, 509-511 <i>Design Your Own LAB</i> 28-29 <i>LAB</i> 90-91 <i>Launch LAB</i> 67 <i>MiniLAB</i> 71 <i>Model and Invent LAB</i> 116-117, 148-149 Teacher Wraparound Edition: A 17, 18, 20; AIL 90; DF 72; IL 12, 44; QD 10</p>
<p>2. select and accurately use appropriate tools including technology to make measurements (in metric units), gather, process and analyze data from scientific investigations using appropriate mathematical analysis, error analysis, and graphical representation.</p>	<p>Student Edition: 17-18, 38-43 <i>Design Your Own LAB</i> 28-29 <i>LAB</i> 27, 90-91, 180-181 <i>Launch LAB</i> 37 <i>MiniLAB</i> 25 <i>National Geographic</i> 20 Teacher Wraparound Edition: A 40; DI 45; QD 41</p>

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<p>3. critically review evidence, communicate and defend results, and recognize that the results of a scientific investigation are always open to revision by further investigations.</p>	<p>Student Edition: 10 <i>Design Your Own LAB</i> 28-29, 246-247 <i>LAB</i> 57, 147, 245 <i>Launch LAB</i> 223, 289 <i>Model and Invent LAB</i> 148-149 <i>Use the Internet LAB</i> 278-279 Teacher Wraparound Edition: AIL 312; AM 498; ID 460; IM 499; QD 492</p>
<p>4. compare observations of the real world to a mental model resulting from hypothetical, unobservable entities. (e.g., atom, expanding universe)</p>	<p>Student Edition: 11, 509-511 <i>Integrate Earth Science</i> 11 <i>LAB</i> 557 <i>MiniLAB</i> 509 <i>Model and Invent LAB</i> 558-559 <i>National Geographic</i> 510 Teacher Wraparound Edition: A 11; D 11; DI 509; MM 70, 108, 178</p>
<p>5. identify strengths, weaknesses, and assess the validity of the experimental design of an investigation through analysis and evaluation.</p>	<p>Student Edition: 7-10 <i>Applying Science</i> 269 <i>Design Your Own LAB</i> 58-59, 344-345 <i>LAB</i> 90-91 <i>Model and Invent LAB</i> 148-149 Teacher Wraparound Edition: AIL 58; FF 10; IL 12</p>
<p>Content Standard 2—Students demonstrate knowledge of properties, forms, changes and interactions of physical and chemical systems, and demonstrate thinking skills associated with this knowledge.</p>	
<p>1. describe experimental evidence that matter consists of molecules in motion and explain physical interactions of matter using conceptual models. (e.g., the conservation of matter, kinetic molecular theory)</p>	<p>Student Edition: 450-456, 458-460, 465, 476-480, 667 <i>Launch LAB</i> 475 Teacher Wraparound Edition: DI 465; IM 478; LD 478; QD 477, 665</p>
<p>2. explain the states of matter using a conceptual model consistent with kinetic molecular theory and intermolecular forces. (e.g., transition from solids to liquids to gases)</p>	<p>Student Edition: 476-483, 490 <i>LAB</i> 484, 496-497 <i>Launch LAB</i> 475 Teacher Wraparound Edition: LD 478; UA 477</p>

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<p>3. recognize that energy is conserved and can be changed into different forms within a variety of practical and technological applications.</p>	<p>Student Edition: 107-111 <i>Design Your Own LAB</i> 116 <i>National Geographic</i> 110</p> <p>Teacher Wraparound Edition: DI 108; LD 110; MM 108; QD 108; SJ 111</p>
<p>4. identify, measure, calculate, and analyze quantitative and qualitative relationships associated with matter and energy transfer or transformations, and the associated conservation laws using words, symbolic equations, and particulate representations.</p>	<p>Student Edition: 107-113, 192-193 <i>Design Your Own LAB</i> 116-117 <i>Launch LAB</i> 99 <i>MiniLAB</i> 103 <i>National Geographic</i> 110 <i>Science and History</i> 118</p> <p>Teacher Wraparound Edition: FF 112; IL 113; MM 108; QD 108</p>
<p>5. recognize and describe how forces interact with matter. (e.g., gravitation, electromagnetic, laws of motion)</p>	<p>Student Edition: 68-72, 75-77, 83-88 <i>LAB</i> 89, 90-91 <i>Launch LAB</i> 67 <i>MiniLAB</i> 71</p> <p>Teacher Wraparound Edition: FF 76; QD 76-77</p>
<p>6. utilize thinking skills in multiple scientific contexts of increasing complexity. (e.g., mass ∝ moles ∝ number of particles)</p>	<p>Student Edition: 506-509, 516-524 <i>Design Your Own LAB</i> 466-467 <i>LAB</i> 27 <i>Launch LAB</i> 191 <i>MiniLAB</i> 25, 517 <i>National Geographic</i> 510</p> <p>Teacher Wraparound Edition: A 522; IL 523; QD 513</p>

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Content Standard 5—Students understand how scientific knowledge and technological developments impact today’s societies and cultures.	
1. predict how key factors (e.g., technology, competitiveness, world events) affect the development and acceptance of scientific thought.	Student Edition: 400-404, 764-770, 771-776 <i>Integrate History</i> 403 <i>National Geographic</i> 769 <i>Science and History</i> 248 <i>Science and Society</i> 280 Teacher Wraparound Edition: A 769; D 767; DI 775
2. give examples of scientific innovation challenging commonly held perceptions.	Student Edition: 264-269, 434 <i>National Geographic</i> 510 <i>Science and History</i> 118, 528 <i>Science and Society</i> 150 Teacher Wraparound Edition: CB 118, 150; FYI 433; HS 118
3. evaluate the ongoing, collaborative scientific process by gathering and critiquing information from the popular media.	Student Edition: <i>Science and Language Arts</i> 30, 60, 216, 408 <i>Science Online</i> 268, 701 <i>Use the Internet LAB</i> 278-279, 374-375, 652-653 Teacher Wraparound Edition: UL 30, 60, 216, 408
4. analyze benefits, limitations, costs, consequences, and ethics involved in using scientific and technological innovations. (e.g., biotechnology, environmental issues)	Student Edition: 248, 264-266, 554, 556, 764-776 <i>Applying Science</i> 766 <i>Integrate Environment</i> 772 Teacher Wraparound Edition: D 774; DI 775; FF 768; TFYI 774; LD 766
Content Standard 6—Students understand historical developments in science and technology.	
1. give examples of scientific discoveries and describe the interrelationship between technological advances and scientific understanding.	Student Edition: 554, 556, <i>National Geographic</i> 2, 180, 555 <i>Oops! Accidents in Science</i> 624, 654, 750 <i>Science and History</i> 248, 594 <i>Science and Society</i> 150, 280 Teacher Wraparound Edition: CB 594; DI 554; HS 594

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<p>2. analyze and illustrate the historical impact of scientific and technological advances.</p>	<p>Student Edition: 264-269 <i>Integrate Social Studies</i> 267 <i>Oops! Accidents in Science</i> 624 <i>Science and History</i> 560 <i>Science and Society</i> 280 <i>Use the Internet LAB</i> 652-653</p> <p>Teacher Wraparound Edition: A 268; D 269; DI 268; FYI 268; IM 267</p>
<p>3. describe, explain, and predict science as a human endeavor.</p>	<p>Student Edition: 764-766 <i>Design Your Own LAB</i> 716-717 <i>Oops! Accidents in Science</i> 654, 750 <i>Science and History</i> 248, 560 <i>Science and Society</i> 780</p> <p>Teacher Wraparound Edition: FF 768; FYI 766; LD 766</p>