



Science

LEVEL BLUE

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STANDARDS	PAGE REFERENCES
<p>Standard 5.2 (Science and Society) All students will develop an understanding of how people of various cultures have contributed to the advancement of science and technology, and how major discoveries and events have advanced science and technology.</p>	
<p>Cultural Contributions</p>	
<p>Recognize that scientific theories: Develop over time Depend on the contributions of many people Reflect the social and political climate of their time</p>	<p>Student Edition: 26, 50-53, 182-185, 190-199, 404-413, 434-435 <i>LAB</i> 189 <i>National Geographic</i> 51, 390, 518-519 <i>Science and History</i> 426 <i>Science and Society</i> 56, 658 Teacher Wraparound Edition: CD 406; FYI 187, 411; IM 19; QD 191; SJ 50, 191</p>
<p>Historical Perspectives</p>	
<p>Describe the development and exponential growth of scientific knowledge and technological innovations.</p>	<p>Student Edition: 9-10, 24-27, 186-188, 338-340, 345, 388-391, 405-413, 619-623 <i>Accidents in Science</i> 716 <i>LAB</i> 189 <i>National Geographic</i> 632-633 <i>Science and History</i> 426, 512 Teacher Wraparound Edition: A 412; D 25, 26; FYI 187, 198</p>

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<p>Analyze and describe the cause and effect between science/technology and society.</p>	<p>Student Edition: 6-11, 24-27, 619-623 <i>Accidents in Science</i> 716 <i>Integrate Health</i> 452 <i>Integrate Physics</i> 450 LAB 585 <i>Science and History</i> 426, 512 <i>Science and Society</i> 56, 172, 572, 600, 626</p> <p>Teacher Wraparound Edition: DI 39; FF 25; FYI 7; IM 443; SJ 620</p>
<p>Standard 5.4 (Nature and Process of Technology) All students will understand the interrelationships between science and technology and develop a conceptual understanding of the nature and process of technology.</p>	
<p>Science and Technology</p>	
<p>Compare and contrast science with technology illustrating similarities and differences between these two human endeavors.</p>	<p>Student Edition: 9-10, 24-27, 44-48, 50-53, 620-623 <i>Accidents in Science</i> 716 <i>Science and History</i> 426, 512 <i>Science and Society</i> 56</p> <p>Teacher Wraparound Edition: D 25, 26; DI 39; F 25; FYI 53; SJ 46</p>
<p>Nature of Technology</p>	
<p>Analyze how a product or system will solve a problem; include design constraints, trade-offs and risks involved in using it.</p>	<p>Student Edition: 25, 345, 594-597, 622-623 <i>Accidents in Science</i> 716 <i>Design Your Own LAB</i> 598-599 LAB 379 <i>Model and Invent LAB</i> 360-361 <i>Science and History</i> 114, 512 <i>Science and Society</i> 56, 172, 572, 600 <i>Technology Skill Handbook</i> 748-750</p> <p>Teacher Wraparound Edition: FF 21; FYI 7, 198; IL 592</p>

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<p>Predict how the product or system might fail or be improved.</p>	<p>Student Edition: 25-27, 345, 594-597, 622-623 <i>Design Your Own LAB</i> 540-541, 598-599 <i>LAB</i> 379, 585, 672 <i>Science and History</i> 114, 512 <i>Science and Society</i> 572, 600 <i>Use the Internet LAB</i> 200-201 Teacher Wraparound Edition: AIL 200; D 622</p>
<p>Standard 5.5 (Characteristics of Life) All students will gain an understanding of structure, characteristics and basic needs of organisms and will investigate the diversity of Life.</p>	
<p>Matter, Energy and Organization in Living Systems</p>	
<p>Explain how the products of respiration and photosynthesis are recycled.</p>	<p>Student Edition: 76-77, 106, 123, 131-133, 136-139 <i>Design Your Own LAB</i> 82-83 <i>Integrate Chemistry</i> 107 <i>National Geographic</i> 134 Teacher Wraparound Edition: DI 76, 134; QD 123, 138</p>
<p>Diversity and Biological Evolution</p>	
<p>Discuss how the changing environmental conditions can result in evolution or extinction of a species.</p>	<p>Student Edition: 50-53, 286, 288, 291, 293 <i>National Geographic</i> 51 <i>Science Stats</i> 296 Teacher Wraparound Edition: A 276; D 275, 286; IM 50; PO 53</p>
<p>Recognize that individual organisms with certain traits are more likely to survive and have offspring.</p>	<p>Student Edition: 38-42, 50-53, 274-276, 288, 293 <i>Accidents in Science</i> 264 <i>LAB</i> 54-55, 287 <i>National Geographic</i> 51 Teacher Wraparound Edition: A 276; D 264, 275; IM 284</p>

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Reproduction and Heredity	
Describe how the sorting and recombining of genetic material results in the potential for variation among offspring of humans and other species.	Student Edition: 38-39, 44-48 <i>Launch Lab</i> 37 Teacher Wraparound Edition: CU 42; R 48; VL 39
Standard 5.6 (Physical Science - Chemistry) All students will gain an understanding of the structure and behavior of matter.	
Structure and Properties of Matter	
Recognize that the state of matter is determined by the arrangement and motion of atoms and molecules and that the motion of these particles is related to the energy of the system.	Student Edition: 492 <i>Integrate Chemistry</i> 228 <i>National Geographic</i> 478 <i>Science and History</i> 512 Teacher Wraparound Edition: CB 512; VCS 478
Recognize, demonstrate, and observe that mixtures often can be separated into the original substances using one or more of their characteristic physical properties .	Student Edition: 130-131 <i>MiniLAB</i> 124 <i>Science and Society</i> 172 Teacher Wraparound Edition: D 167; IM 165
Chemical Reactions	
Demonstrate and explain that regardless of how substances within a simple closed system interact the total mass of the system remains the same.	Student Edition: 496-497 <i>Applying Math</i> 498 <i>MiniLAB</i> 496 Teacher Wraparound Edition: DI 497; VL 496

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<p>Standard 5.7 (Physical Science – Physics) All students will gain an understanding of natural laws as they apply to motion, forces and energy transformations.</p>	
<p>Motion and Force</p>	
<p>Use quantitative data to show more than one force acting on an object at the same time reinforcing or canceling each other producing a net force (unbalanced force) that will change speed and/or direction.</p>	<p>Student Edition: 551, 556-559 <i>Applying Math</i> 559 <i>Design Your Own LAB</i> 570-571 <i>Launch Lab</i> 549 Teacher Wraparound Edition: IM 597; SJ 559; USW 551</p>
<p>Identify and describe simple machines:</p> <ul style="list-style-type: none"> Levers Pulleys Screws Wheels and Axle Inclined Planes 	<p>Student Edition: 586-590, 591-597 <i>Design Your Own LAB</i> 598-599 <i>National Geographic</i> 595 Teacher Wraparound Edition: FYI 588; LD 594; SJ 592</p>
<p>Use quantitative data to calculate work, mechanical advantage, and efficiency of simple machines</p>	<p>Student Edition: 582, 586-589, 592-597 <i>Applying Math</i> 582, 587, 589 <i>Design Your Own LAB</i> 598-599 <i>LAB</i> 585 <i>MiniLAB</i> 583 Teacher Wraparound Edition: DI 582; FF 588; TPK 591</p>
<p>Energy Transformation</p>	
<p>Describe the relationship between work and energy.</p>	<p>Student Edition: 580-582, 584 <i>Applying Math</i> 582 <i>MiniLAB</i> 583 Teacher Wraparound Edition: QD 581; TPK 580</p>
<p>Trace all forms of energy such as infrared, ultraviolet radiation and visible light to the Sun.</p>	<p>Student Edition: 106, 123-125, 136, 138-139, 381, 613, 710 Teacher Wraparound Edition: FF 108, 613; FYI 138; TPK 375</p>

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Recognize heat as a form of energy that moves from warmer objects to cooler objects.	Student Edition: 612-616, 619-623 <i>Design Your Own LAB</i> 624-625 <i>Integrate Life Science</i> 617 Teacher Wraparound Edition: LD 616; TPK 612; VL 622
Demonstrate the movement of heat through materials and across space by radiation , conduction and convection .	Student Edition: 125, 612-616 <i>Design Your Own LAB</i> 624-625 <i>MiniLAB</i> 615 Teacher Wraparound Edition: LD 616; VL 615
Trace energy transformations from one form to another e.g., solar → light → heat → chemicals → mechanical → electrical → sound →	Student Edition: 136-137, 498-501, 619-620, 644-645, 673-679 <i>Integrate Environment</i> 420 <i>LAB</i> 655, 684-685 <i>National Geographic</i> 621, 632-633 Teacher Wraparound Edition: LD 645; 678; SJ 498
Standard 5.8 (Earth Science) All students will gain an understanding of the structure, dynamics, and geophysical systems of the Earth.	
Atmosphere and Water	
Describe conditions in the atmosphere that lead to weather systems e.g., high and low fronts , warm and cold fronts , high and low pressure systems .	Student Edition: 127, 642 Teacher Wraparound Edition: D 127 <i>Also see Glencoe's Physical Science with Earth Science</i> © 2006.
Processes that Shape the Earth	
Explain how technology, designed to investigate features of the Earth's surface, impacts how scientists study the Earth.	Student Edition: 186-188, 198-199, 213-214, 218, 257-260 <i>LAB</i> 189 Teacher Wraparound Edition: FYI 187, 198

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<p>Standard 5.10 (Environmental Studies) All students will develop an understanding of the environment as a system of interdependent components affected by Human activity and natural phenomena.</p>	
<p><i>Natural Systems and Interactions</i></p>	
<p>Investigate the impact of catastrophic events e.g., forest fires, floods and hurricanes an ecosystem in New Jersey and other states.</p>	<p>Student Edition: 151-153, 215 <i>National Geographic</i> 152 Teacher Wraparound Edition: D 151; FYI 222; SJ 215</p>
<p><i>Human Interactions and Impact</i></p>	
<p>Compare and contrast practices that affect the use and management of natural resources and analyze the ethical issues associated with industries e.g., farming, fishing, energy production etc.</p>	<p>Student Edition: 150-153, 157-161, 163-165, 166-169 <i>Integrate Earth Science</i> 160 <i>LAB</i> 162 <i>National Geographic</i> 90-91, 152, 518-519 <i>Science and Society</i> 172, 658 <i>Use the Internet LAB</i> 170-171 Teacher Wraparound Edition: DI 152; FYI 157, 165</p>