



Science

LEVEL GREEN

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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><i>Cultural Contributions</i></p>	
<p>Explain that scientists are men and women of many cultures who often work together to solve scientific and technological problems.</p>	<p>Student Edition: 221, 290-291 <i>National Geographic</i> 15 <i>Oops! Accidents in Science</i> 298, 460 <i>Time: Science and History</i> 50, 238, 356, 392 <i>Time: Science and Society</i> 426 Teacher Wraparound Edition: CDIV 322; SJ 336</p>
<p>Describe how people from different cultures have made and continue to make contributions to science and technology.</p>	<p>Student Edition: 221, 290-291, 335-337, 381, 609 <i>Time: Science and History</i> 50, 238, 356, 392 <i>Time: Science and Society</i> 426 Teacher Wraparound Edition: CC 379</p>

STANDARDS	PAGE REFERENCES
Historical Perspectives	
Describe the impact of major events and people in the history of science and technology, in conjunction with other world events.	<p>The following page references can be incorporated to meet this standard.</p> <p>Student Edition: 335-337, 379, 381 <i>Time: Science and History</i> 50, 392</p> <p>Teacher Wraparound Edition: CC 339, 379; DIF 731</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>	
Science and Technology	
Compare and contrast science with technology .	<p>The following page references can be incorporated to meet this standard.</p> <p>Student Edition: 12-14, 16-18, 290-291, 321-323, 563-566 <i>Oops! Accidents in Science</i> 460, 524 <i>Science Skill Handbook</i> 748-756 <i>Time: Science and History</i> 392</p> <p>Teacher Wraparound Edition: AC 567; CDIV 322; TFYI 322</p>
Nature of Technology	
Analyze a product or system to determine the problem it was designed to solve, the design constraints, trade-offs and risks involved in using the product or system.	<p>Student Edition: 563-566, 731-737 <i>Lab: Model and Invent</i> 138-139, 202-203, 582-583 <i>MiniLab</i> 733 <i>Oops! Accidents in Science</i> 460, 524 <i>Time: Science and Society</i> 140</p> <p>Teacher Wraparound Edition: DI 563, 734; SJ 735</p>
Technological Design	
Define feedback , loops and control systems .	<p>The following page references can be incorporated to meet this standard.</p> <p>Student Edition: 436, 449-450, 468, 472 <i>Section Review</i> 437 (#3), 472 (#3)</p> <p>Teacher Wraparound Edition: AC 470</p>

STANDARDS	PAGE REFERENCES
Recognize how feedback loops are used to control systems.	<p>The following page references can be incorporated to meet this standard.</p> <p>Student Edition: 436, 449-450, 468, 472 <i>Section Review</i> 437 (#3), 472 (#3)</p> <p>Teacher Wraparound Edition: AC 470</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><i>Matter, Energy, and Organization in Living Systems</i></p>	
<p>Recognize that complex multicellular organisms, including humans, are composed of and defined by the interactions of the following:</p> <ul style="list-style-type: none"> cells tissues organs organ systems organisms 	<p>Student Edition: 214-215, 230, 280, 371, 401-404, 413-414, 512-515 <i>Integrate Health</i> 515</p>
<p><i>Diversity and Biological Evolution</i></p>	
<p>Compare and contrast kinds of organisms using their internal and external characteristics.</p>	<p>Student Edition: 214-216, 224, 347-349, 505, 516-518 <i>Lab</i> 231 <i>Launch Lab</i> 213 <i>National Geographic</i> 504 <i>Section Assessment</i> 505 (#2)</p> <p>Teacher Wraparound Edition: AC 504; DI 224; RT 505</p>
<p><i>Reproduction and Heredity</i></p>	
<p>Describe the process of sorting and recombining of genetic material in humans and in other species.</p>	<p>Student Edition: 285-287, 306, 312 <i>Lab</i> 313 <i>Section Review</i> 289 (#4)</p> <p>Teacher Wraparound Edition: TTPK 306; VL 307</p>

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<p>Standard 5.6 (Physical Science - Chemistry) All students will gain an understanding of the structure and behavior of matter.</p>	
<p><i>Structure and Properties of Matter</i></p>	
<p>Explain how all matter is composed of atoms that may join together to form molecules.</p>	<p>Student Edition: 248 <i>Section Review 253 (#1)</i></p>
<p>Explain properties of elements.</p>	<p>Student Edition: 247, 620</p>
<p><i>Chemical Reactions</i></p>	
<p>Show how substances can chemically react with each other to form new substances having properties different from those of the original substances.</p>	<p>Student Edition: 248, 602-606 <i>Science Online 603</i> Teacher Wraparound Edition: VL 602</p>
<p>Show that in most chemical reactions, energy is transferred into or out of a system.</p>	<p>Student Edition: 604 Teacher Wraparound Edition: SJ 604</p>
<p>Illustrate how atoms are rearranged when substances react and that the total number of atoms remains the same as the original substances.</p>	<p>Student Edition: 609</p>
<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><i>Motion and Forces</i></p>	
<p>Cite examples of a reference point e.g., equator as 0° latitude, 0° Celsius as freezing point of H₂O.</p>	<p>Student Edition: 148, 659, 661, 662, 685 <i>Applying Math 606</i> <i>Lab 665</i> Teacher Wraparound Edition: VL 685</p>
<p>Explain how an object is in motion and how motion is related to a reference point.</p>	<p>Student Edition: 684-685 Teacher Wraparound Edition: VL 685</p>

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Investigate, measure, and describe what happens to the motion, speed, velocity and acceleration of moving objects.	Student Edition: 685-689, 691-692, 694-696, 702 <i>Applying Math</i> 686 <i>MiniLab</i> 687 Teacher Wraparound Edition: AS 689; LD 687; VL 691
Identify the factors that determine the friction force between two surfaces.	Student Edition: 697-698, 700 <i>Lab</i> 701 <i>Launch Lab</i> 683 <i>National Geographic</i> 699 Teacher Wraparound Edition: AS 701; DI 697; IL 698
State the Law of Universal Gravitation and describe the effects gravity and air resistance have on objects in free fall.	Student Edition: 696, 700, 704 Teacher Wraparound Edition: QD 696
Energy Transformation	
Recognize that the Sun is the major source of the Earth's energy .	Student Edition: 95, 99-101, 216, 262, 544 <i>Lab: Model and Invent</i> 202-203 <i>National Geographic</i> 545 <i>Section Review</i> 102 (#1) Teacher Wraparound Edition: TFYI 100, 216; TTPK 544
Describe the various forms of energy such as heat, light, chemical and solar .	Student Edition: 99, 216, 261, 565-566, 658, 718-720 <i>National Geographic</i> 567 Teacher Wraparound Edition: AC 718; DIF 719; SJ 658; TTPK 261
Describe the various forms of energy such as heat, light, sound, chemical, mechanical, nuclear, solar and electrical .	Student Edition: 99, 216, 261, 565-566, 658, 717-720, 731 <i>Lab</i> 728 <i>Launch Lab</i> 715 <i>National Geographic</i> 567 Teacher Wraparound Edition: AC 718; DIF 719; IL 717; QD 731; RT 720

STANDARDS	PAGE REFERENCES
Describe light as the visible part of the spectrum .	This standard can be met during teacher class discussion. Also see Glencoe's <i>Science Level Blue</i> © 2008 Chapter 24.
Differentiate between luminous and illuminated objects.	This standard can be met during teacher class discussion. Also see Glencoe's <i>Science Level Blue</i> © 2008 Chapter 24.
Describe how light energy is refracted as it interacts with different liquids.	This standard can be met during teacher class discussion. Also see Glencoe's <i>Science Level Blue</i> © 2008 Chapter 24.
Describe how light energy is reflected as it interacts with different matter.	The following page reference can be incorporated to meet this standard. Student Edition: 99 Also see Glencoe's <i>Science Level Blue</i> © 2008 Chapter 24.
Describe how light energy is absorbed as it interacts with different matter.	The following page references can be incorporated to meet this standard. Student Edition: 99-100 Also see Glencoe's <i>Science Level Blue</i> © 2008 Chapter 24.
<p>Standard 5.8 (Earth Science) All students will gain an understanding of the structure, dynamics, and geophysical systems of the earth.</p>	
<p><i>Atmosphere and Water</i></p>	
Describe how weather systems are represented on weather maps.	<p>Student Edition: 136 <i>Lab 137</i> <i>Section Review 136 (#4)</i></p> <p>Teacher Wraparound Edition: AS 136, 137</p>
<p><i>Processes that Shape the Earth</i></p>	
Define erosion .	<p>Student Edition: 72, 575</p>

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<p>Analyze how Earth's landforms and materials are created through constructive and destructive processes</p> <p>e.g.,</p> <ul style="list-style-type: none"> weathering water erosion river systems ocean waves wind glaciers and ice earthquakes volcanic eruptions landslides 	<p>Student Edition: 59, 61, 161, 575 <i>Launch Lab</i> 593 <i>National Geographic</i> 60, 159 <i>Time: Science and History</i> 170</p> <p>Teacher Wraparound Edition: AC 60; ATP 592</p>
<p>How We Study the Earth</p>	
<p>Utilize data gathered from emerging technologies e.g., Global Positioning System (GPS) and Geographic Information System (GIS) to create representations and describe processes of change on the Earth's surface.</p>	<p>The following page references can be incorporated to meet this standard.</p> <p>Student Edition: 134-136 <i>Lab</i> 137 <i>Section Review</i> 136 (#1)</p>
<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>Natural Systems and Interactions</p>	
<p>Investigate the impact of catastrophic events, e.g., forest fires, floods, and hurricanes, on the environment of New Jersey.</p>	<p>The following page references can be incorporated to meet this standard.</p> <p>Student Edition: 125, 129-130, 132-133 <i>National Geographic</i> 131, 158-159</p> <p>Teacher Wraparound Edition: AC 131, 158; CC 158; DIF 129</p>

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<i>Human Interactions and Impact</i>	
<p>Compare and contrast practices that affect the use and management of natural resources.</p>	<p>Student Edition: 165-166, 560-566, 729-737 <i>Applying Science</i> 732 <i>Lab: Use the Internet</i> 738-739 <i>Launch Lab</i> 559 <i>MiniLab</i> 562 <i>National Geographic</i> 608 <i>Science Online</i> 165 <i>Time: Science and Society</i> 80, 140</p> <p>Teacher Wraparound Edition: AC 561; AIL 738; DIF 565</p>