



# Life Science

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STANDARDS	PAGE REFERENCES
<p><b>Standard 5.1 (Scientific Processes)</b> All students will develop problem-solving, decision-making and inquiry skills, reflected by formulating usable questions and hypotheses, planning experiments, conducting systematic observations, interpreting and analyzing data, drawing conclusions, and communicating results.</p> <hr/> <p>Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:</p> <hr/> <p><b>A. Habits of Mind</b></p>	
<p>1. Evaluate the strengths and weaknesses of data, claims, and arguments.</p>	<p><b>Student Edition:</b> 9 <i>Lab</i> 730-731 <i>Lab: Design Your Own</i> 28-29, 418-419 <i>Lab: Use the Internet</i> 446-447 <i>Science Skill Handbook</i> 809-810 <i>Time: Science and Society</i> 294 <b>Teacher Wraparound Edition:</b> DE 294</p>
<p>2. Communicate experimental findings to others.</p>	<p><b>Student Edition:</b> 10 <i>Lab</i> 86-87, 730-731 <i>Lab: Design Your Own</i> 174-175, 292-293, 418-419, 702-703 <i>Lab: Model and Invent</i> 230-231 <i>Science Skill Handbook</i> 810</p>

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3. Recognize that the results of scientific investigations are seldom exactly the same and that replication is often necessary.	<p><i>*This objective can be incorporated into labwork.</i></p> <p><b>Student Edition:</b> 9-10</p> <p><i>*Lab: Design Your Own 28-29, 418-419, 702-703</i></p> <p><i>Science Skill Handbook 810</i></p>
4. Recognize that curiosity, skepticism, open-mindedness, and honesty are attributes of scientists.	<p><b>Student Edition:</b> 6-11</p> <p><i>Oops! Accidents in Science 118</i></p> <p><i>Time: Science and History 58, 560</i></p> <p><i>Time: Science and Society 532</i></p> <p><b>Teacher Wraparound Edition:</b> SJ 7; TFYI 10; TTPK 6</p>
<b>B. Inquiry and Problem Solving</b>	
1. Identify questions and make predictions that can be addressed by conducting investigations.	<p><b>Student Edition:</b> <i>Lab: Design Your Own 28-29, 292-293, 418-419, 612-613, 702-703</i></p> <p><b>Teacher Wraparound Edition:</b> AS 29, 293</p>
2. Design and conduct investigations incorporating the use of a control.	<p><b>Student Edition:</b> 9</p> <p><i>Lab: Design Your Own 28-29, 292-293, 418-419, 612-613, 702-703</i></p> <p><i>Science Skill Handbook 806</i></p> <p><b>Teacher Wraparound Edition:</b> AS 29, 293</p>
3. Collect, organize, and interpret the data that result from experiments.	<p><b>Student Edition:</b> <i>Lab 86-87, 318-319, 530-531, 642-643, 787</i></p> <p><i>Lab: Design Your Own 28-29, 292-293, 418-419, 612-613, 702-703</i></p> <p><b>Teacher Wraparound Edition:</b> AS 319, 703</p>
<b>C. Safety</b>	
1. Know when and how to use appropriate safety equipment with all classroom materials.	<p><b>Student Edition:</b> 13</p> <p><i>Lab 665</i></p> <p><i>Lab: Design Your Own 28-29, 56-57, 418-419, 672-673</i></p> <p><i>Science Skill Handbook 811-813</i></p> <p><b>Teacher Wraparound Edition:</b> 19T; AS 13</p>

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2. Understand and practice safety procedures for conducting science investigations.	<b>Student Edition:</b> 13 <i>Lab</i> 665 <i>Lab: Design Your Own</i> 28-29, 56-57, 418-419, 672-673 <i>Science Skill Handbook</i> 811-813 <b>Teacher Wraparound Edition:</b> 19T; AS 13
<p><b>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.</b></p> <hr/> <p><b>Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:</b></p> <hr/> <p><b>A. Cultural Contributions</b></p>	
1. Recognize that scientific theories: <ul style="list-style-type: none"> <li>• develop over time,</li> <li>• depend on the contributions of many people, and</li> <li>• reflect the social and political climate of their time.</li> </ul>	<b>Student Edition:</b> 10, 19, 21, 51, 154-161, 657-658 <i>National Geographic</i> 20 <b>Teacher Wraparound Edition:</b> CDIV 10; DIF 659; IM 10; TFYI 21; TTPK 154
2. Know that scientists are men and women of many cultures who often work together to solve scientific and technological problems.	<b>Student Edition:</b> 10-11, 19, 21, 22-23, 110-111 <i>National Geographic</i> 20 <i>Time: Science and History</i> 58, 176, 560 <b>Teacher Wraparound Edition:</b> CC 9; CDIV 42, 98
3. Describe how different people in different cultures have made and continue to make contributions to science and technology.	<b>Student Edition:</b> 10-11, 19, 21, 22-23, 110-111 <i>National Geographic</i> 20 <i>Time: Science and History</i> 58, 176, 560 <b>Teacher Wraparound Edition:</b> CC 9; CDIV 42, 98

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<b>B. Historical Perspectives</b>	
1. Describe the impact of major events and people in the history of science and technology, in conjunction with other world events.	<b>Teacher Wraparound Edition:</b> CC 159, 661; DIF 20
2. Describe the development and exponential growth of scientific knowledge and technological innovations.	<b>Student Edition:</b> 19, 21, 47, 51, 110-111, 141-143 <i>National Geographic</i> 20, 48-49 <b>Teacher Wraparound Edition:</b> DIF 20; SJ 48; VL 20
<p><b>Standard 5.3 (Mathematical Applications) All students will integrate mathematics as a tool for problem-solving in science, and as a means of expressing and/or modeling scientific theories.</b></p> <p>.....</p> <p><b>Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:</b></p> <p>.....</p>	
<b>A. Numerical Operations</b>	
1. Express quantities using appropriate number formats, such as: <ul style="list-style-type: none"> <li>• decimals.</li> <li>• percents.</li> <li>• scientific notation.</li> </ul>	<b>Student Edition:</b> <i>Applying Math</i> 72, 131, 290, 374 <i>Math Skill Handbook</i> 835, 837, 844 <b>Teacher Wraparound Edition:</b> DIF 777; VL 139
<b>B. Geometry and Measurement</b>	
1. Perform mathematical computations using labeled quantities and express answers in correctly derived units.	<b>Student Edition:</b> <i>Applying Math</i> 44, 404, 487, 609 <i>Lab</i> 501 <i>Math Skill Handbook</i> 842-843 <i>MiniLab</i> 572 <b>Teacher Wraparound Edition:</b> AS 572
<b>C. Patterns and Algebra</b>	
1. Express physical relationships in terms of mathematical equations derived from collected data.	<b>Student Edition:</b> <i>Applying Math</i> 72, 404, 609 <i>Lab: Design Your Own</i> 703 <i>Math Skill Handbook</i> 837 <i>MiniLab</i> 630, 655 <b>Teacher Wraparound Edition:</b> DIF 691

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<b>D. Data Analysis and Probability</b>	
1. Represent and describe mathematical relationships among variables using: <ul style="list-style-type: none"> <li>• graphs.</li> <li>• tables.</li> </ul>	<b>Student Edition:</b> <i>Lab</i> 133, 310, 603, 642-643, 787 <i>Lab: Design Your Own</i> 28-29, 418-419, 702-703 <i>Math Skill Handbook</i> 845-846 <b>Teacher Wraparound Edition:</b> AIL 642
2. Analyze experimental data sets using measures of central tendency: <ul style="list-style-type: none"> <li>• mean.</li> <li>• mode.</li> <li>• median.</li> </ul>	<b>Student Edition:</b> <i>Applying Math</i> 313 <i>Lab</i> 603, 642-643 <i>Lab: Design Your Own</i> 174-175 <i>Math Skill Handbook</i> 838 <i>MiniLab</i> 9
3. Construct and use a graph of experimental data to draw a line of best fit and identify a linear relationship between variables.	<b>Student Edition:</b> <i>Lab</i> 787 <i>Lab: Design Your Own</i> 418-419, 702-703 <i>Math Skill Handbook</i> 845
4. Use computer spreadsheets, graphing and database applications to assist in quantitative analysis of data.	<i>*All of the following labs and activities are appropriate for the use of computer applications.</i> <b>Student Edition:</b> <i>Lab</i> 642-643 <i>Lab: Design Your Own</i> 174-175, 418-419, 702-703 <i>Lab: Use the Internet</i> 446-447 <i>Technology Skill Handbook</i> 828-831 <b>Teacher Wraparound Edition:</b> AIL 642; CYD 419, 703
<b>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.</b>	
<b>Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:</b>	
<b>A. Science and Technology</b>	
1. Compare and contrast science with technology, illustrating similarities and differences between these two human endeavors.	<b>Student Edition:</b> 6-11, 47, 141-143, 773-776 <i>National Geographic</i> 48-49, 777 <i>Time: Science and Society</i> 294 <b>Teacher Wraparound Edition:</b> ISS 773

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<b>B. Nature of Technology</b>	
1. 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, how the product or system might fail, and how the product or system might be improved.	<b>Student Edition:</b> <i>Lab: Model and Invent</i> 230-231, 472-473, 792-793 <i>National Geographic</i> 777 <i>Oops! Accidents in Science</i> 264, 504 <b>Teacher Wraparound Edition:</b> AS 793
<b>C. Technological Design</b>	
1. Recognize how feedback loops are used to control systems.	<b>Student Edition:</b> 623-624, 626 <i>Section Review</i> 626 (#3) <b>Teacher Wraparound Edition:</b> AC 624; UAA 497
<b>Standard 5.5 (Characteristics of Life) All students will gain an understanding of the structure, characteristics, and basic needs of organisms and will investigate the diversity of life.</b>	
<b>Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:</b>	
<b>A. Matter, Energy and Organization in Living Systems</b>	
1. Explain how the products of respiration and photosynthesis are recycled.	<b>Student Edition:</b> 82-85, 725 <i>National Geographic</i> 724 <b>Teacher Wraparound Edition:</b> AS 85; VL 85
2. Recognize that complex multicellular organisms, including humans, are composed of and defined by interactions of the following: <ul style="list-style-type: none"> <li>● cells</li> <li>● tissues</li> <li>● organs</li> <li>● systems</li> </ul>	<b>Student Edition:</b> 14, 38, 39, 45, 51, 252-255, 330, 525-529, 568-571, 577-580 <i>Integrate Health</i> 225 <i>Section Review</i> 45 (#3)

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<b>B. Diversity and Biological Evolution</b>	
1. Compare and contrast kinds of organisms using their internal and external characteristics.	<p><b>Student Edition:</b>            25-26, 167-169  <i>Lab</i> 221, 261, 280  <i>Lab: Design Your Own</i> 350-351  <i>Lab: Model and Invent</i> 230-231  <i>Lab: Use the Internet</i> 502-503  <i>Launch Lab</i> 5</p> <p><b>Teacher Wraparound Edition:</b>            VL 25</p>
2. Discuss how changing environmental conditions can result in evolution or extinction of a species.	<p><b>Student Edition:</b>            155-159, 417  <i>Lab</i> 162</p> <p><b>Teacher Wraparound Edition:</b>            152F; DIF 156; IM 161</p>
3. Recognize that individual organisms with certain traits are more likely to survive and have offspring.	<p><b>Student Edition:</b>            155-159  <i>Applying Science</i> 157  <i>Lab</i> 162  <i>Lab: Design Your Own</i> 174-175</p> <p><b>Teacher Wraparound Edition:</b>            LD 158</p>
<b>C. Reproduction and Heredity</b>	
1. Describe how the sorting and recombining of genetic material results in the potential for variation among offspring of humans and other species.	<p><b>Student Edition:</b>            104-107, 126, 128, 130, 132  <i>National Geographic</i> 129</p> <p><b>Teacher Wraparound Edition:</b>            DI 156; VL 127</p>