



# Biology

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STANDARDS	PAGE REFERENCES
<p><b>Science, Standard A: Science Connections</b></p>	
<p>By the end of <b>grade eight</b>, students will:</p>	
<p>A.8.1 Develop their understanding of the science themes by using the themes to frame questions about science-related issues and problems</p>	<p>Themes of organization, systems, response, interconnectedness, homeostasis, and adaptation can be incorporated into discussion using the following references.</p> <p><b>Student Edition:</b> 6-10 <i>BioLab</i> 107, 843 <i>BioLab: Design Your Own</i> 83, 567, 593, 814 <i>Biology &amp; Society</i> 680, 870 <i>MiniLab</i> 42, 220, 429, 793</p> <p><b>Teacher Wraparound Edition:</b> SP 6</p>
<p>A.8.2 Describe limitations of science systems and give reasons why specific science themes are included in or excluded from those systems</p>	<p>Limitations of science, with regards to technology, human nature, and societal issues, can be incorporated into the following references.</p> <p><b>Student Edition:</b> 11-14, 16, 439 <i>Biology &amp; Society</i> 680, 1066, 1096 <i>MiniLab</i> 77</p> <p><b>Teacher Wraparound Edition:</b> AG 408; CB 401, 403; DC 394, 403; SP 468</p>

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<p>A.8.3 Defend explanations and models by collecting and organizing evidence that supports them and critique explanations and models by collecting and organizing evidence that conflicts with them</p>	<p><b>Student Edition:</b>            97-99, 277-282, 326-331, 402-407, 423-430, 1076-1077  <i>BioLab</i> 409, 443  <i>MiniLab</i> 281  <i>Section Assessment</i> 332 (#2), 407 (#6), 430 (#1-#4),  <b>Teacher Wraparound Edition:</b>            DC 277, 407; RS 419</p>
<p>A.8.4 Collect evidence to show that models developed as explanations for events were (and are) based on the evidence available to scientists at the time</p>	<p><b>Student Edition:</b>            182-183, 277-282, 326-331, 401-407, 418-422, 1076-1077  <i>BioDiscoveries</i> 350  <i>Launch Lab</i> 325  <i>Section Assessment</i> 332 (#2)  <b>Teacher Wraparound Edition:</b>            BA 350; CT 402</p>
<p>A.8.5 Show how models and explanations, based on systems, were changed as new evidence accumulated (the effects of constancy, evolution, change, and measurement should all be part of these explanations)</p>	<p><b>Student Edition:</b>            182-183, 326-331, 401-407, 418-422, 1076-1077  <i>BioDiscoveries</i> 350  <i>Launch Lab</i> 325  <i>Section Assessment</i> 332 (#2)  <b>Teacher Wraparound Edition:</b>            BA 350; CT 402</p>
<p>A.8.6 Use models and explanations to predict actions and events in the natural world</p>	<p><b>Student Edition:</b>  <i>BioLab</i> 409, 443  <i>BioLab: Design Your Own</i> 83, 287  <i>MiniLab</i> 203, 281  <i>Section Assessment</i> 282 (#3)  <b>Teacher Wraparound Edition:</b>            FA 282</p>
<p>A.8.7 Design real or thought investigations to test the usefulness and limitations of a model</p>	<p><b>Student Edition:</b>  <i>BioLab</i> 409, 443  <i>BioLab: Design Your Own</i> 83, 287  <i>MiniLab</i> 203, 281  <i>Section Assessment</i> 99 (#6)  <b>Teacher Wraparound Edition:</b>            DC 277</p>

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A.8.8. Use the themes of evolution, equilibrium, and energy to predict future events or changes in the natural world	<p><b>Student Edition:</b> 62-64, 66, 105, 123-128, 429 <i>BioLab: Design Your Own</i> 83 <i>Biology &amp; Society</i> 50, 870 <i>Data Analysis Lab</i> 63 <i>MiniLab</i> 101 <i>National Geographic</i> 67</p> <p><b>Teacher Wraparound Edition:</b> DC 62, 67; DE 126, 429</p>
<b>Science, Standard B: Nature of Science</b>	
By the end of <b>grade eight</b> , students will:	
B.8.1 Describe how scientific knowledge and concepts have changed over time in the earth and space, life and environmental, and physical sciences	<p><b>Student Edition:</b> 12, 13, 182-183, 326-331, 401-402, 418-420, 484-485, 1076-1077 <i>BioDiscoveries</i> 350, 474 <i>In the Field</i> 408 <i>Launch Lab</i> 325</p> <p><b>Teacher Wraparound Edition:</b> RS 326; WS 12, 402</p>
B.8.2 Identify and describe major changes that have occurred over in conceptual models and explanations in the earth and space, life and environmental, and physical sciences and identify the people, cultures, and conditions that led to these developments	<p><b>Student Edition:</b> 12, 182-183, 277, 326-331, 401-402, 418-420, 484-485, 1076-1077 <i>BioDiscoveries</i> 350, 474 <i>Launch Lab</i> 325</p> <p><b>Teacher Wraparound Edition:</b> CB 277, 327, 418; GF 402; RS 326; WS 12, 402</p>
B.8.3 Explain how the general rules of science apply to the development and use of evidence in science investigations, model-making, and applications	<p><b>Student Edition:</b> 11-14, 16, 18-20 <i>National Geographic</i> 17 <i>Section Assessment</i> 15 (#1, #2), 21 (#1)</p> <p><b>Teacher Wraparound Edition:</b> CB 17; DC 16</p>
B.8.4 Describe types of reasoning and evidence used outside of science to draw conclusions about the natural world	<p>The following references can be used to meet this standard.</p> <p><b>Student Edition:</b> <i>Section Assessment</i> 21 (#2)</p> <p><b>Teacher Wraparound Edition:</b> DC 20; DE 16; WS 17</p>

STANDARDS	PAGE REFERENCES
B.8.5 Explain ways in which science knowledge is shared, checked, and extended, and show how these processes change over time	<b>Student Edition:</b> 11, 13-14, 20, 326-331, 372-373, 422 <i>BioDiscoveries</i> 350 <i>Cutting-Edge Biology</i> 106 <i>Data Analysis Lab</i> 14 <b>Teacher Wraparound Edition:</b> CB 20; WS 12
B.8.6 Explain the ways in which scientific knowledge is useful and also limited when applied to social issues	<b>Student Edition:</b> 15, 373 <i>Biology &amp; Society</i> 898, 1066, 1096 <i>Cutting-Edge Biology</i> 982 <i>In the Field</i> 1038 <i>Section Assessment</i> 379 (#2) <b>Teacher Wraparound Edition:</b> CB 363; RS 374
<b>Science, Standard C: Science Inquiry</b>	
By the end of <b>grade eight</b> , students will:	
C.8.1 Identify* questions they can investigate* using resources and equipment they have available	<b>Student Edition:</b> 16 <i>BioLab: Design Your Own</i> 23, 173, 235, 287, 533, 593, 653, 925, 1035 <i>BioLab: Internet</i> 783
C.8.2 Identify* data and locate sources of information including their own records to answer the questions being investigated	<b>Student Edition:</b> 18-19 <i>BioLab: Design Your Own</i> 23, 173, 235, 287, 533, 593, 653, 925, 1035 <i>BioLab: Internet</i> 783
C.8.3 Design and safely conduct investigations* that provide reliable quantitative or qualitative data, as appropriate, to answer their questions	<b>Student Edition:</b> 18-19 <i>BioLab: Design Your Own</i> 23, 173, 235, 287, 533, 567, 593, 653, 925, 1035 <i>BioLab: Internet</i> 783
C.8.4 Use inferences* to help decide possible results of their investigations, use observations to check their inferences	<b>Student Edition:</b> 20 <i>BioLab: Design Your Own</i> 23, 173, 235, 287, 533, 567, 593, 653, 925, 1035 <i>BioLab: Internet</i> 783

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C.8.5 Use accepted scientific knowledge, models*, and theories* to explain* their results and to raise further questions about their investigations*	<b>Student Edition:</b> 20 <i>BioLab: Design Your Own</i> 23, 173, 235, 287, 533, 567, 593, 653, 925, 1035 <i>BioLab: Internet</i> 783
C.8.6 State what they have learned from investigations*, relating their inferences* to scientific knowledge and to data they have collected	<b>Student Edition:</b> 20 <i>BioLab: Design Your Own</i> 23, 173, 235, 287, 533, 567, 593, 653, 925, 1035 <i>BioLab: Internet</i> 783
C.8.7 Explain* their data and conclusions in ways that allow an audience to understand the questions they selected for investigation* and the answers they have developed	<b>Student Edition:</b> 20 <i>BioLab: Design Your Own</i> 23, 173, 235, 287, 533, 567, 593, 653, 925, 1035 <i>BioLab: Internet</i> 783
C.8.8 Use computer software and other technologies to organize, process, and present their data	<b>Student Edition:</b> 20 <i>BioLab: Design Your Own</i> 23, 173, 235, 287, 533, 567, 593, 653, 925, 1035 <i>BioLab: Internet</i> 783
C.8.9 Evaluate*, explain*, and defend the validity of questions, hypotheses, and conclusions to their investigations*	<b>Student Edition:</b> 20 <i>BioLab: Design Your Own</i> 23, 173, 235, 287, 533, 567, 593, 653, 925, 1035 <i>BioLab: Internet</i> 783
C.8.10 Discuss the importance of their results and implications of their work with peers, teachers, and other adults	<b>Student Edition:</b> 20 <i>BioLab: Design Your Own</i> 23, 173, 235, 287, 533, 567, 593, 653, 925, 1035 <i>BioLab: Internet</i> 783
C.8.11 Raise further questions which still need to be answered	<b>Student Edition:</b> 20 <i>BioLab: Design Your Own</i> 23, 173, 235, 287, 533, 567, 593, 653, 925, 1035 <i>BioLab: Internet</i> 783

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<b>Science, Standard F: Life and Environmental Science</b>	
By the end of <b>grade eight</b> , students will:	
<b>STRUCTURE AND FUNCTION IN LIVING THINGS</b>	
<p>F.8.1 Understand the structure and function of cells, organs, tissues, organ systems, and whole organisms</p>	<p><b>Student Edition:</b>  6, 8-10, 193-199, 694, 936-939, 941-942, 947-948, 992-996, 1005-1007  <i>Launch Lab</i> 181  <i>National Geographic</i> 192  <i>Section Assessment</i> 10 (#2)  <b>Teacher Wraparound Edition:</b>  DE 694; WS 694</p>
<p>F.8.2 Show how organisms have adapted structures to match their functions, providing means of encouraging individual and group survival within specific environments</p>	<p><b>Student Edition:</b>  10, 428-430, 434-436, 581, 605-607, 692-695  <i>BioLab</i> 443  <i>Data Analysis Lab</i> 435  <i>MiniLab</i> 429  <b>Teacher Wraparound Edition:</b>  DE 70, 420, 429; RE 430</p>
<p>F.8.3 Differentiate between single-celled and multiple-celled organisms (humans) through investigation, comparing the cell functions of specialized cells for each type of organism</p>	<p><b>Student Edition:</b>  6, 185-186, 191, 193, 516-519, 632-633, 637, 692, 694, 962-963, 997  <i>Launch Lab</i> 515  <i>National Geographic</i> 192  <i>Section Assessment</i> 186 (#5)  <b>Teacher Wraparound Edition:</b>  DE 694; SP 185</p>
<b>REPRODUCTION AND HEREDITY</b>	
<p>F.8.4 Investigate and explain that heredity is comprised of the characteristic traits found in genes within the cell of an organism</p>	<p><b>Student Edition:</b>  270, 277-282, 296-298, 302-309  <i>BioLab</i> 317  <i>BioLab: Design Your Own</i> 287  <i>Launch Lab</i> 295  <b>Teacher Wraparound Edition:</b>  BI 294; DC 296</p>

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F.8.5 Show how different structures both reproduce and pass on characteristics of their group	<p><b>Student Edition:</b>            9, 270-271, 560, 580-581, 583-585, 663-667, 695, 887, 1048-1051, 1054-1055  <i>Launch Lab</i> 661  <i>MiniLab</i> 666</p> <p><b>Teacher Wraparound Edition:</b>            DE 1051; SP 667</p>
<b>REGULATION AND BEHAVIOR</b>	
F.8.6 Understand that an organism is regulated both internally and externally	<p><b>Student Edition:</b>            9, 10, 187, 205-207, 253-254, 344-345, 636, 837, 861, 908-910, 1007, 1031-1035  <i>MiniLab</i> 1035  <i>Section Assessment</i> 190 (#1), 1037 (#3)</p> <p><b>Teacher Wraparound Edition:</b>            DC 636; RS 10</p>
F.8.7 Understand that an organism's behavior evolves through adaptation to its environment	<p><b>Student Edition:</b>            908-910, 916-923  <i>Data Analysis Lab</i> 918  <i>National Geographic</i> 911  <i>Section Assessment</i> 915 (#1), 923 (#1)</p> <p><b>Teacher Wraparound Edition:</b>            CB 921; DE 910; WS 911</p>
<b>POPULATIONS AND ECOSYSTEMS</b>	
F.8.8 Show through investigations how organisms both depend on and contribute to the balance or imbalance of populations and/or ecosystems, which in turn contribute to the total system of life on the planet	<p><b>Student Edition:</b>            35, 38-39, 94-98, 105  <i>BioLab</i> 83, 107  <i>Data Analysis Lab</i> 98  <i>Launch Lab</i> 31, 91  <i>MiniLab</i> 101  <i>Section Assessment</i> 40 (#6), 105 (#3)</p> <p><b>Teacher Wraparound Edition:</b>            CT 105; FA 99</p>

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<b>DIVERSITY AND ADAPTATIONS OF ORGANISMS</b>	
<p>F.8.9 Explain how some of the changes on the earth are contributing to changes in the balance of life and affecting the survival or population growth of certain species</p>	<p><b>Student Edition:</b>  66, 123-128  <i>BioDiscoveries</i> 842  <i>Biology &amp; Society</i> 50, 870  <i>National Geographic</i> 67  <i>Section Assessment</i> 128 (#1, #4)  <b>Teacher Wraparound Edition:</b>  CB 124; SP 127</p>
<p>F.8.10 Project how current trends in human resource use and population growth will influence the natural environment, and show how current policies affect those trends</p>	<p><b>Student Edition:</b>  100-105, 123-128, 129-130  <i>In the Field</i> 82  <i>MiniLab</i> 120  <i>Reading Check</i> 124  <b>Teacher Wraparound Edition:</b>  BA 82; DC 94</p>
<b>Science Applications, Performance Standards G</b>	
By the end of <b>grade eight</b> , students will:	
<p>G.8.1 Identify* and investigate* the skills people need for a career in science or technology and identify the academic courses that a person pursuing such a career would need</p>	<p><b>Student Edition:</b>  5-6  <i>Careers in Biology</i> 28, 118, 144, 184, 370, 663, 970  <i>In the Field</i> 172, 286, 316, 1038  <b>Teacher Wraparound Edition:</b>  AG 316; DI 172; GF 5; WS 6</p>
<p>G.8.2 Explain* how current scientific and technological discoveries have an influence on the work people do and how some of these discoveries also lead to new careers</p>	<p><b>Student Edition:</b>  184-185, 363-371, 373-374, 375-376, 378-379  <i>BioLab: Forensics</i> 381  <i>Careers in Biology</i> 184, 370, 373  <i>Cutting-Edge Biology</i> 106, 208  <i>In the Field</i> 1038  <i>Section Assessment</i> 379 (#2, #3)  <b>Teacher Wraparound Edition:</b>  AG 106; BA 106; DC 375; FUD 208</p>

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<p>G.8.3 Illustrate* the impact that science and technology have had, both good and bad, on careers, systems, society, environment, and quality of life</p>	<p><b>Student Edition:</b>  360-361, 363, 370-371, 373-376, 378-379  <i>Biology &amp; Society</i> 258, 680, 1066, 1096  <i>Cutting-Edge Biology</i> 982  <i>Section Assessment</i> 371 (#3)  <b>Teacher Wraparound Edition:</b>  AG 680; CB 363; DC 363; RS 370, 374</p>
<p>G.8.4 Propose a design (or re-design) of an applied science model or a machine that will have an impact in the community or elsewhere in the world and show* how the design (or re-design) might work, including potential side-effects</p>	<p><b>Student Edition:</b>  <i>BioLab</i> 871  <i>MiniLab</i> 77  <i>Section Assessment</i> 121 (#6), 128 (#5)  <i>Writing in Biology</i> 318  <b>Teacher Wraparound Edition:</b>  CT 980; DC 133</p>
<p>G.8.5 Investigate* a specific local problem to which there has been a scientific or technological solution, including proposals for alternative courses of action, the choices that were made, reasons for the choices, any new problems created, and subsequent community satisfaction</p>	<p><b>Student Edition:</b>  <i>BioLab</i> 137  <i>Biology &amp; Society</i> 50, 592, 870  <i>In the Field</i> 136  <i>MiniLab</i> 77  <b>Teacher Wraparound Edition:</b>  DIB 50; FUD 592</p>
<p>G.8.6 Use current texts, encyclopedias, source books, computers, experts, the popular press, or other relevant sources to identify* examples of how scientific discoveries have resulted in new technology</p>	<p><b>Student Edition:</b>  370-371, 374-376, 378-379  <i>BioLab</i> 381  <i>Biology &amp; Society</i> 258  <i>Cutting-Edge Biology</i> 532, 808, 982  <i>In the Field</i> 566, 1038  <b>Teacher Wraparound Edition:</b>  DC 15, 370; MI 372; RS 370</p>
<p>G.8.7 Show* evidence* of how science and technology are interdependent, using some examples drawn from personally conducted investigations*</p>	<p><b>Student Edition:</b>  182-185, 326-331, 363-371, 372-376, 378-379  <i>BioDiscoveries</i> 350  <i>BioLab: Forensics</i> 381  <i>Data Analysis Lab</i> 376  <i>MiniLab</i> 365  <i>Section Assessment</i> 186 (#1)  <b>Teacher Wraparound Edition:</b>  MI 372; SP 182; WS 366</p>

STANDARDS	PAGE REFERENCES
<b>Science, Standard H: Science in Personal and Social Perspectives</b>	
By the end of <b>grade eight</b> , students will:	
<p>H.8.1 Evaluate the scientific evidence used in various media (for example, television, radio, Internet, popular press, and scientific journals) to address a social issue, using criteria of accuracy, logic, bias, relevance of data, and credibility of source</p>	<p>The following references can be used to meet this standard.</p> <p><b>Student Edition:</b> 15 <i>BioLab: Internet</i> 1011 <i>Biology &amp; Society</i> 258 <i>Section Assessment</i> 15 (#4) <i>Skillbuilder Handbook</i> 1111</p> <p><b>Teacher Wraparound Edition:</b> DC 13, 15, 370; SP 129</p>
<p>H.8.2 Present a scientific solution to a problem involving the earth and space, life and environmental, or physical sciences and participate in a consensus-building discussion to arrive at a group decision</p>	<p>The following references can be used to meet this standard.</p> <p><b>Student Edition:</b> <i>BioLab</i> 137 <i>Biology &amp; Society</i> 50, 680, 1066, 1096 <i>MiniLab</i> 77 <i>Section Review</i> 135 (#5)</p> <p><b>Teacher Wraparound Edition:</b> DIB 50, 680, 1066, 1096</p>
<p>H.8.3 Understand the consequences of decisions affecting personal health and safety</p>	<p><b>Student Edition:</b> 939-940, 978-981, 1025-1030 <i>Bioblog: Internet</i> 1011 <i>Data Analysis Lab</i> 980</p> <p><b>Teacher Wraparound Edition:</b> DC 979, 1027; DE 1026; WS 981, 1026</p>