



STANDARDS	PAGE REFERENCES
<b>Life Science Content Standards</b>	
<b>H.1 Structure and Function: A system's characteristics, form, and function are attributed to the quantity, type, and nature of its components.</b>	
<p>H.1L.1 Compare and contrast the four types of organic macromolecules. Explain how they compose the cellular structures of organisms and are involved in critical cellular processes.</p>	<p><b>Student Edition:</b> 167-171, 188-190, 191, 193, 198, 205-206, 329 <i>Data Analysis Lab</i> 189, 194 <b>Teacher Wraparound Edition:</b> DC 188; FA 171</p>
<p>H.1L.2 Describe the chemical structure of DNA and its relationship to chromosomes. Explain the role of DNA in protein synthesis.</p>	<p><b>Student Edition:</b> 171, 270, 329-332, 336-338, 340 <i>MiniLab</i> 331 <i>National Geographic</i> 339 <b>Teacher Wraparound Edition:</b> AC 329; AS 270; DE 330, 339; FA 341</p>
<p>H.1L.3 Explain and apply laws of heredity and their relationship to the structure and function of DNA.</p>	<p><b>Student Edition:</b> 270-271, 277-280, 283-284, 336-338, 345-349 <i>MiniLab</i> 281, 284 <i>National Geographic</i> 316, 339 <b>Teacher Wraparound Edition:</b> DC 279; RS 279</p>

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<p>H.1L.4 Explain how cellular processes and cellular differentiation are regulated both internally and externally in response to the environments in which they exist.</p>	<p><b>Student Edition:</b> 201-207, 253-254, 256, 342-345 <i>BioLab</i> 209 <i>MiniLab</i> 203 <b>Teacher Wraparound Edition:</b> DC 344; DE 205</p>
<p><b>H.2 Interaction and Change: The components in a system can interact in dynamic ways that may result in change. In systems, changes occur with a flow of energy and/or transfer of matter.</b></p>	
<p>H.2L.1 Explain how energy and chemical elements pass through systems. Describe how chemical elements are combined and recombined in different ways as they cycle through the various levels of organization in biological systems.</p>	<p><b>Student Edition:</b> 41-44, 45-49, 233 <i>MiniLab</i> 42 <b>Teacher Wraparound Edition:</b> DC 43, 45, 46; MI 45; SP 44, 47</p>
<p>H.2L.2 Explain how ecosystems change in response to disturbances and interactions. Analyze the relationships among biotic and abiotic factors in ecosystems.</p>	<p><b>Student Edition:</b> 35, 38-40, 60-64, 94-99 <i>BioLab</i> 107 <i>Data Analysis Lab</i> 39, 98 <b>Teacher Wraparound Edition:</b> CT 35; DC 35; RS 38</p>
<p>H.2L.3 Describe how asexual and sexual reproduction affect genetic diversity.</p>	<p><b>Student Edition:</b> 270-271, 275-276, 279-280, 283 <b>Teacher Wraparound Edition:</b> AC 275; DC 276; MI 283; RS 283</p>
<p>H.2L.4 Explain how biological evolution is the consequence of the interactions of genetic variation, reproduction and inheritance, natural selection, and time.</p>	<p><b>Student Edition:</b> 420, 422, 431-437 <i>BioLab</i> 443 <i>Data Analysis Lab</i> 435 <i>Launch Lab</i> 417 <i>National Geographic</i> 421 <b>Teacher Wraparound Edition:</b> AC 421</p>
<p>H.2L.5 Explain how multiple lines of scientific evidence support biological evolution.</p>	<p><b>Student Edition:</b> 423-430 <i>Cutting-Edge Biology</i> 442 <b>Teacher Wraparound Edition:</b> DE 424; MI 423; SP 423, 427</p>

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<p><b>H.3 Scientific inquiry is the investigation of the natural world by a systematic process that includes proposing a testable question or hypothesis and developing procedures for questioning, collecting, analyzing, and interpreting multiple forms of accurate and relevant data to produce justifiable evidence-based explanations and new explorations.</b></p>	
<p>H.3S.1 Based on observations and science principles formulate a question or hypothesis that can be investigated through the collection and analysis of relevant information.</p>	<p><b>Student Edition:</b> 16, 18-20 <i>BioLab: Design Your Own</i> 23, 51, 83, 173, 235, 287, 533, 567, 593, 653, 925, 1035 <i>National Geographic</i> 17 <b>Teacher Wraparound Edition:</b> CT 18</p>
<p>H.3S.2 Design and conduct a controlled experiment, field study, or other investigation to make systematic observations about the natural world, including the collection of sufficient and appropriate data.</p>	<p><b>Student Edition:</b> 16, 18-20 <i>BioLab: Design Your Own</i> 83, 173, 533, 567, 593, 653, 925, 1035 <i>National Geographic</i> 17 <b>Teacher Wraparound Edition:</b> CT 18</p>
<p>H.3S.3 Analyze data and identify uncertainties. Draw a valid conclusion, explain how it is supported by the evidence, and communicate the findings of a scientific investigation.</p>	<p><b>Student Edition:</b> 16, 18-20 <i>BioLab: Design Your Own</i> 83, 173, 533, 567, 593, 653, 925, 1035 <i>Data Analysis Lab</i> 232, 303, 340, 420, 590, 714, 743, 859, 918, 950, 980 <i>National Geographic</i> 17 <b>Teacher Wraparound Edition:</b> CT 18</p>
<p>H.3S.4 Identify examples from the history of science that illustrate modification of scientific knowledge in light of challenges to prevailing explanations.</p>	<p><b>Student Edition:</b> 11-13, 182-183, 326-331, 401-404, 418-420, 422, 484-486, 1076-1077 <i>BioDiscoveries</i> 350 <i>BioLab</i> 409 <i>Cutting-Edge Biology</i> 442 <i>In the Field</i> 408 <i>Launch Lab</i> 325 <b>Teacher Wraparound Edition:</b> WS 12, 402</p>

<p>H.3S.5 Explain how technological problems and advances create a demand for new scientific knowledge and how new knowledge enables the creation of new technologies</p>	<p><b>Student Edition:</b>  5-6, 182-185, 256-257, 363-371  <i>BioLab</i> 1067  <i>Cutting-Edge Biology</i> 208, 504, 808, 952, 982  <i>MiniLab</i> 365  <b>Teacher Wraparound Edition:</b>  DC 364; SP 182</p>
<p><b>H.4 Engineering design is a process of formulating problem statements, identifying criteria and constraints, proposing and testing possible solutions, incorporating modifications based on test data, and communicating the recommendations.</b></p>	
<p>H.4D.1 Define a problem and specify criteria for a solution within specific constraints or limits based on science principles. Generate several possible solutions to a problem and use the concept of trade-offs to compare them in terms of criteria and constraints.</p>	<p>The following references can be used to meet this objective.  <b>Student Edition:</b>  <i>BioLab</i> 505, 623  <i>BioLab: Design Your Own</i> 23, 871  <i>Biology &amp; Society</i> 50  <i>Cutting-Edge Biology</i> 982  <b>Teacher Wraparound Edition:</b>  WIB 982</p>
<p>H.4D.2 Create and test or otherwise analyze at least one of the more promising solutions. Collect and process relevant data. Incorporate modifications based on data from testing or other analysis.</p>	<p>The following references can be used to meet this objective.  <b>Student Edition:</b>  <i>BioLab</i> 505, 623  <i>BioLab: Design Your Own</i> 23, 871  <i>Biology &amp; Society</i> 50  <i>Cutting-Edge Biology</i> 982  <b>Teacher Wraparound Edition:</b>  WIB 982</p>
<p>H.4D.3 Analyze data, identify uncertainties, and display data so that the implications for the solution being tested are clear.</p>	<p>The following references can be used to meet this objective.  <b>Student Edition:</b>  <i>BioLab</i> 505, 623  <i>BioLab: Design Your Own</i> 23, 871  <i>Biology &amp; Society</i> 50  <i>Cutting-Edge Biology</i> 982  <b>Teacher Wraparound Edition:</b>  WIB 982</p>

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<p>H.4D.4 Recommend a proposed solution, identify its strengths and weaknesses, and describe how it is better than alternative designs. Identify further engineering that might be done to refine the recommendations.</p>	<p>The following references can be used to meet this objective.</p> <p><b>Student Edition:</b>  <i>BioLab</i> 505, 623  <i>BioLab: Design Your Own</i> 23, 871  <i>Biology &amp; Society</i> 50  <i>Cutting-Edge Biology</i> 982</p> <p><b>Teacher Wraparound Edition:</b>            WIB 982</p>
<p>H.4D.5 Describe how new technologies enable new lines of scientific inquiry and are largely responsible for changes in how people live and work.</p>	<p><b>Student Edition:</b>            5-6, 182-185, 256-257, 363-371  <i>BioLab</i> 1067  <i>Cutting-Edge Biology</i> 208, 504, 808, 952, 982  <i>MiniLab</i> 365</p> <p><b>Teacher Wraparound Edition:</b>            DC 364; SP 182</p>
<p>H.4D.6 Evaluate ways that ethics, public opinion, and government policy influence the work of engineers and scientists, and how the results of their work impact human society and the environment.</p>	<p><b>Student Edition:</b>            5-6, 256-257, 314-315, 370-371  <i>Biology &amp; Society</i> 258, 680, 1066  <i>Cutting-Edge Biology</i> 532, 982  <i>In the Field</i> 316</p> <p><b>Teacher Wraparound Edition:</b>            DC 257, 370; DIB 680, 1066; RS 370</p>