



# Biology

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STANDARDS	PAGE REFERENCES
<b>Life Science</b>	
<b>LS1– All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, &amp; species).</b>	
<b>1. CLASSIFICATION</b>	
<p>S:LS1:11:1.1 Describe how organisms are classified into a hierarchy of groups and subgroups, which are based on similarities that reflect their evolutionary relationships.</p>	<p><b>Student Edition:</b> 486-488, 491-496, 498, 499-503, 609 <i>BioLab</i> 505 <i>National Geographic</i> 497, 608 <b>Teacher Wraparound Edition:</b> CT 487</p>
<p>S:LS1:11:1.2 Explain that organisms that possess similar DNA code are more closely related than those in which DNA varies greatly.</p>	<p><b>Student Edition:</b> 427, 461, 493-495 <i>Data Analysis Lab</i> 494 <i>Section Assessment</i> 498 (#7) <b>Teacher Wraparound Edition:</b> DC 493; SP 427</p>
<p>S:LS1:11:1.3 Identify plants and animals according to binomial nomenclature.</p>	<p><b>Student Edition:</b> 485-486 <i>Section Assessment</i> 489 (#2) <b>Teacher Wraparound Edition:</b> CB 486; DC 489; RS 487; SP 499; WS 486</p>

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<p>S:LS1:11:1.4 Differentiate between prokaryotic and eukaryotic cells according to general structure and degrees of complexity.</p>	<p><b>Student Edition:</b>  185-186, 499-501  <i>Launch Lab</i> 515  <i>National Geographic</i> 192  <i>Section Assessment</i> 186 (#5)  <b>Teacher Wraparound Edition:</b>  MI 191; SP 185</p>
<p><b>2. LIVING THINGS AND ORGANIZATION</b></p>	
<p>S:LS1:11:2.1 Identify the structures of different types of cell parts/organelles and explain the functions they perform.</p>	<p><b>Student Edition:</b>  187-190, 191, 193-200  <i>National Geographic</i> 192  <i>Section Assessment</i> 190 (#1), 200 (#1, #2)  <b>Teacher Wraparound Edition:</b>  CT 194; RS 195; WS 193</p>
<p>S:LS1:11:2.2 Recognize how cell functions are regulated through changes in the activity of the functions performed by proteins, and through the selective expression of individual genes; and explain how this regulation allows cells to respond to their environment and to control and coordinate cell growth and division.</p>	<p><b>Student Edition:</b>  253-254, 256-257, 342-345  <i>Reading Check</i> 343  <i>Section Assessment</i> 257 (#2), 349 (#3, #8)  <b>Teacher Wraparound Edition:</b>  DC 344; SP 253, 343</p>
<p>S:LS1:11:2.3 Recognize how an organism's organization and complexity accommodate its need for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain it.</p>	<p><b>Student Edition:</b>  6, 8, 10, 185-186, 218-221, 518, 520-521, 542-543, 576-578, 644-645, 692, 727, 732, 795, 825, 835-836  <i>MiniLab</i> 693  <b>Teacher Wraparound Edition:</b>  DE 576</p>
<p>S:LS1:11:2.4 Explain how the processes of photosynthesis and cellular respiration are interrelated and contribute to biogeochemical cycles.</p>	<p><b>Student Edition:</b>  42, 220, 222, 223, 228  <i>Caption Question</i> 47  <i>MiniLab</i> 220  <i>Section Assessment</i> 221 (#6)  <b>Teacher Wraparound Edition:</b>  CT 47; SP 47</p>

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<p>S:LS1:11:2.5 Describe the structures of proteins and their role in cell function.</p>	<p><b>Student Edition:</b> 159-160, 170, 200, 205, 253 <i>BioLab</i> 173 <i>MiniLab</i> 159 <i>Section Assessment</i> 160 (#4), 171 (#5) <b>Teacher Wraparound Edition:</b> DC 159</p>
<p>S:LS1:11:2.6 Describe the chemical reactions involved in cell functions using examples from the nervous, immune and endocrine systems in multicellular animals.</p>	<p><b>Student Edition:</b> 228-231, 962-964, 1031-1035, 1037, 1086, 1088-1090 <i>National Geographic</i> 966, 1087 <i>Section Assessment</i> 967 (#2) <b>Teacher Wraparound Edition:</b> DC 964</p>
<p>S:LS1:11:2.7 Recognize that because all matter tends toward more disorganized states, living systems need a continuous input of energy to maintain their chemical and physical organizations.</p>	<p><b>Student Edition:</b> 10, 218-219 <i>Caption Question</i> 219 <i>Section Assessment</i> 221 (#5) <b>Teacher Wraparound Edition:</b> CQ 219</p>
<p>S:LS1:11:2.8 Use data and observation to make connections between, to explain, or to justify how specific cell organelles produce/regulate what the cell needs or what a unicellular or multi-cellular organism needs for survival (e.g., protein synthesis, DNA transport, nerve cells). [LS1(9-11)INQ+SAE+FAF-1]</p>	<p><b>Student Edition:</b> 171, 193, 336-338, 340-341, 342-345 <i>National Geographic</i> 339 <i>Section Assessment</i> 341 (#1, #2) <b>Teacher Wraparound Edition:</b> DC 344; MI 336; WS 193</p>
<p><b>3. REPRODUCTION</b></p>	
<p>S:LS1:11:3.1 Describe the chemical and structural properties of DNA and explain its role in identifying the characteristics of an organism.</p>	<p><b>Student Edition:</b> 270, 329-331 <i>MiniLab</i> 331 <i>Section Assessment</i> 332 (#3) <b>Teacher Wraparound Edition:</b> AC 329; DC 329; DE 330; MI 270</p>
<p>S:LS1:11:3.2 Recognize that new heritable characteristics can only result from new combinations of existing genes or from mutations of genes in an organism's sex cells; and explain why other changes in an organism cannot be passed on.</p>	<p><b>Student Edition:</b> 270-271, 275-276, 283, 349, 434 <i>Section Assessment</i> 277 (#5) <b>Teacher Wraparound Edition:</b> CT 349; DC 276</p>

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<p>S:LS1:11:3.3 Describe the alternation of generations, life cycles with haploid and diploid phases in living organisms, such as bacteria, plants and animals.</p>	<p><b>Student Edition:</b> 270-271, 520, 555, 560, 562-563, 583, 584, 607, 674-679, 695, 1051 <i>National Geographic</i> 548 <i>Section Assessment</i> 609 (#4)</p> <p><b>Teacher Wraparound Edition:</b> DC 607</p>
<p>S:LS1:11:3.4 Explain or justify with evidence how the alteration of the DNA sequence may produce new gene combinations that make little difference, enhance capabilities, or can be harmful to the organism (e.g., selective breeding, genetic engineering, mutations). [LS1(9-11)FAF+POC-2]</p>	<p><b>Student Edition:</b> 345-349, 360-362, 363-371, 419 <i>Data Analysis Lab</i> 420 <i>Launch Lab</i> 359 <i>Section Assessment</i> 349 (#4)</p> <p><b>Teacher Wraparound Edition:</b> DC 347, 370</p>
<p><b>LS2– Energy flows and matter recycles through an ecosystem.</b></p>	
<p><b>1. ENVIRONMENT</b></p>	
<p>S:LS2:11:1.1 Explain how the amount of life an environment can sustain is restricted by the availability of matter and energy, and the ability of the ecosystem to recycle materials.</p>	<p>The following page references can be incorporated to meet this standard.</p> <p><b>Student Edition:</b> 42-44, 61, 68-73, 74-81 <i>BioLab: Design Your Own</i> 83</p> <p><b>Teacher Wraparound Edition:</b> AC 71; DC 61, 70</p>
<p>S:LS2:11:1.2 Describe how the interrelationships and interdependencies among organisms generate stable ecosystems that fluctuate around a state of rough equilibrium for hundreds or thousands of years.</p>	<p><b>Student Edition:</b> 62-64 <i>Data Analysis Lab</i> 62 <i>Section Assessment</i> 64 (#4)</p> <p><b>Teacher Wraparound Edition:</b> DC 63; RS 64</p>
<p>S:LS2:11:1.3 Identify the factors in an ecosystem that can affect its carrying capacity.</p>	<p><b>Student Edition:</b> 98 <i>Chapter Assessment</i> 110 (#15) <i>Section Assessment</i> 99 (#2)</p> <p><b>Teacher Wraparound Edition:</b> FA 99</p>

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<p>S:LS2:11:1.4 Analyze and describe how environmental disturbances, such as climate changes, natural events, human activity and the introduction of invasive species, can affect the flow of energy or matter in an ecosystem.</p>	<p><b>Student Edition:</b> 66, 122-128 <i>Biology &amp; Society</i> 870 <i>National Geographic</i> 67 <i>Section Assessment</i> 128 (#1, #4) <b>Teacher Wraparound Edition:</b> DC 67; FA 128</p>
<p>S:LS2:11:1.5 Using data from a specific ecosystem, explain relationships or make predictions about how environmental disturbance (human impact or natural events) affects the flow of energy or cycling of matter in an ecosystem. [LS2(9-11)INQ+SAE-3]</p>	<p><b>Student Edition:</b> 66, 122-128 <i>Biology &amp; Society</i> 870 <i>National Geographic</i> 67 <i>Section Assessment</i> 128 (#1, #4) <b>Teacher Wraparound Edition:</b> DC 67; FA 128</p>
<p>S:LS2:11:1.6 Explain or evaluate potential bias in how evidence is interpreted in reports concerning a particular environmental factor that impacts the biology of humans. [LS2(9-11)NOS-5]</p>	<p>The following page references can be incorporated to meet this standard. <b>Student Edition:</b> 66 <i>Biology &amp; Society</i> 1010 <i>National Geographic</i> 67 <i>Problem-Solving Skills</i> 1111 <b>Teacher Wraparound Edition:</b> DC 67; WS 346</p>
<p><b>2. FLOW OF ENERGY AND RECYCLING OF MATERIALS</b></p>	
<p>S:LS2:11:2.1 Use examples from local ecosystems to describe the relationships among organisms at the different trophic levels.</p>	<p>The following page references can be incorporated to meet this standard. <b>Student Edition:</b> 42-44 <i>MiniLab</i> 42 <i>Section Assessment</i> 44 (#2, #5, #6) <b>Teacher Wraparound Edition:</b> DE 43</p>
<p><b>3. RECYCLING OF MATERIALS</b></p>	
<p>S:LS2:11:3.1 Explain that as matter and energy flow through different levels of organization in living systems and between living systems and the environment, elements, such as carbon and nitrogen, are recombined in different ways.</p>	<p><b>Student Edition:</b> 41-44, 45-49, 218-220 <i>MiniLab</i> 42, 220 <i>Section Assessment</i> 49 (#1, #3, #4), 221 (#6) <b>Teacher Wraparound Edition:</b> DC 45; FA 49; SP 47</p>

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<p>S:LS2:11:3.2 Trace the cycling of matter (e.g., carbon cycle) and the flow of energy in a living system from its source through its transformation in cellular, biochemical processes (e.g., photosynthesis, cellular respiration, fermentation). [LS2(9-11)POC+SAE-4]</p>	<p><b>Student Edition:</b> 41-44, 45-49, 218-220 <i>MiniLab</i> 42, 220 <i>Section Assessment</i> 49 (#1, #3, #4), 221 (#6)</p> <p><b>Teacher Wraparound Edition:</b> DC 43, 45; FA 49; SP 47</p>
<p><b>LS3– Groups of organisms show evidence of change over time (e.g. evolution, natural selection, structures, behaviors, and biochemistry).</b></p>	
<p><b>1. CHANGE</b></p>	
<p>S:LS3:11:1.1 Identify ways humans can impact and alter the stability of ecosystems, such as habitat destruction, pollution, and consumption of resources; and describe the potentially irreversible effects these changes can cause.</p>	<p><b>Student Edition:</b> 66, 128-128, 129-130 <i>Biology &amp; Society</i> 50, 680, 870, 1010 <i>MiniLab</i> 120 <i>National Geographic</i> 67 <i>Section Assessment</i> 128 (#1)</p> <p><b>Teacher Wraparound Edition:</b> CB 124, 125</p>
<p>S:LS3:11:1.2 Identify ways of detecting, and limiting or reversing environmental damage.</p>	<p><b>Student Edition:</b> 130-131, 133-134 <i>BioLab</i> 137 <i>In the Field</i> 82, 136 <i>Section Assessment</i> 128 (#5, #6), 135 (#1, #3)</p> <p><b>Teacher Wraparound Edition:</b> AG 136; BA 82; DC 130, 131</p>
<p>S:LS3:11:1.3 Analyze the aspects of environmental protection, such as ecosystem protection, habitat management, species conservation and environmental agencies and regulations; and evaluate and justify the need for public policy in guiding the use and management of the environment.</p>	<p><b>Student Edition:</b> 131, 133-135 <i>BioLab</i> 137 <i>In the Field</i> 82, 136 <i>MiniLab</i> 77 <i>Section Assessment</i> 135 (#5)</p> <p><b>Teacher Wraparound Edition:</b> BA 82, 136; CT 135; WS 133</p>

STANDARDS	PAGE REFERENCES
<b>2. EVIDENCE OF EVOLUTION</b>	
<p>S:LS3:11:2.1 Explain the currently accepted theory for the development of life on Earth, including the history of its origin and the evolutionary process.</p>	<p><b>Student Edition:</b> 392-393, 396, 398-400, 402-407, 420, 431-436 <i>BioLab</i> 443 <i>National Geographic</i> 397, 421 <i>Section Assessment</i> 407 (#1) <b>Teacher Wraparound Edition:</b> DC 407; RS 403; SP 392</p>
<p>S:LS3:11:2.2 Recognize that the abilities and behaviors an organism has, and likelihood of its survival strongly depend on its heritable characteristics, which can be biochemical and anatomical.</p>	<p><b>Student Edition:</b> 428-430, 605-607, 909-910 <i>MiniLab</i> 429 <i>Section Assessment</i> 915 (#1) <b>Teacher Wraparound Edition:</b> DE 420, 428, 429, 910; FA 430</p>
<p>S:LS3:11:2.3 Explain the contributions of Darwin, Malthus, Wallace and Russell to the advancement of life science.</p>	<p><b>Student Edition:</b> 418-420, 422, 423 <i>Section Assessment</i> 422 (#4) <b>Teacher Wraparound Edition:</b> RS 419</p>
<p>S:LS3:11:2.4 Explain evolution in terms of how the Earth's present-day life forms evolved from earlier, distinctly different species as a consequence of the interactions of (1) the potential for a species to increase its numbers, (2) the genetic variability of offspring due to mutation and recombination of genes, (3) a finite supply of the resources required for life, and (4) the ensuing selection.</p>	<p><b>Student Edition:</b> 418-420, 422, 434-436 <i>BioLab</i> 443 <i>National Geographic</i> 420 <i>Section Assessment</i> 422 (#3) <b>Teacher Wraparound Edition:</b> DC 421, 434; FA 422</p>
<p>S:LS3:11:2.5 Explain how evidence from technological advances supports or refutes the genetic relationships among groups of organisms (e.g., DNA analysis, protein analysis). [LS3(9-11)NOS-6]</p>	<p><b>Student Edition:</b> 427, 461, 493-495 <i>Data Analysis Lab</i> 494 <i>Section Assessment</i> 430 (#3), 498 (#7) <b>Teacher Wraparound Edition:</b> CT 493; DC 493; RS 495; SP 427</p>

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<p>S:LS3:11:2.6 Given information about living or extinct organisms, cite evidence to explain the frequency of inherited characteristics of organisms in a population; or explain the evolution of varied structures (with defined functions) that affected the organisms' survival in a specific environment (e.g., giraffe, wind pollination of flowers). [LS3(9-11)INQ+FAF+POC-8]</p>	<p><b>Student Edition:</b> 428-430, 431-436 <i>BioLab</i> 443 <i>Launch Lab</i> 417 <i>MiniLab</i> 429 <i>National Geographic</i> 421 <b>Teacher Wraparound Edition:</b> DE 420</p>
<p>3. NATURAL SELECTION</p>	
<p>S:LS3:11:3.1 Explain the concept of natural selection.</p>	<p><b>Student Edition:</b> 420, 434-436 <i>BioLab</i> 443 <i>Launch Lab</i> 417 <i>National Geographic</i> 421 <i>Section Assessment</i> 422 (#3) <b>Teacher Wraparound Edition:</b> DC 421; FA 422</p>
<p>S:LS3:11:3.2 Explain the diversity and unity of past and present life forms on Earth using currently accepted theories.</p>	<p><b>Student Edition:</b> 418-420, 422, 434-436, 498, 499-503 <i>BioLab</i> 443 <i>National Geographic</i> 421 <b>Teacher Wraparound Edition:</b> MI 418</p>
<p>S:LS3:11:3.3 Recognize how a species' chance of survival increases with each variation of an organism within the species; and explain how, in the event of a major global change, the greater the diversity of species on Earth, the greater the chance for survival of life.</p>	<p><b>Student Edition:</b> 116-117 <i>Section Assessment</i> 121 (#1) <b>Teacher Wraparound Edition:</b> DE 117; MI 116</p>
<p>S:LS3:11:3.4 Analyze present day data and research in areas, including antibiotic resistance in bacteria, changes in viral genomes, such as bird flu, and DNA sequencing; and relate it to the concepts of natural selection.</p>	<p><b>Student Edition:</b> 427, 429, 493-495 <i>BioDiscoveries</i> 716 <i>Cutting-Edge Biology</i> 234, 442, 504, 532 <i>Data Analysis Lab</i> 494 <i>Section Assessment</i> 1083 (#7) <b>Teacher Wraparound Edition:</b> DE 429; RS 495</p>

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S:LS3:11:3.5 Identify and describe ways genes may be changed and combined to create genetic variation within a species.	<b>Student Edition:</b> 270-276, 283-284, 345-349, 434 <i>Section Assessment 276 (#5), 285 (#1)</i> <b>Teacher Wraparound Edition:</b> CT 349; DC 276; DE 283; RS 283
S:LS3:11:3.6 Explain that gene mutations and new combinations may have a variety of effects on the organism, including positive and negative ones, or none at all.	<b>Student Edition:</b> 345-349, 434 <b>Teacher Wraparound Edition:</b> CT 349
S:LS3:11:3.7 Explain the concepts of Mendelian genetics.	<b>Student Edition:</b> 277-280 <i>BioLab: Design Your Own 287</i> <i>Section Assessment 282 (#2)</i> <b>Teacher Wraparound Edition:</b> CT 278; DC 277; WS 280
S:LS3:11:3.8 Use pedigree charts and Punnet Squares to determine patterns of inheritance.	<b>Student Edition:</b> 280-282, 299-301 <i>MiniLab 281, 300</i> <i>Section Assessment 282 (#1, #3)</i> <b>Teacher Wraparound Edition:</b> CT 297, 299; DC 299
S:LS3:11:3.9 Given a scenario, provide evidence that demonstrates how sexual reproduction results in a great variety of possible gene combinations and contributes to natural selection (e.g., Darwin's finches, isolation of a species, Tay Sach's disease). [LS3(9-11)INQ+POC-7]	<b>Student Edition:</b> 270-271, 275-276, 431-437 <i>Section Assessment 276 (#5)</i> <b>Teacher Wraparound Edition:</b> DC 276; MI 431
<b>LS4– Humans are similar to other species in many ways, and yet are unique among Earth's life forms.</b>	
<b>1. BEHAVIOR</b>	
S:LS4:11:1.1 Recognize that the immune system, endocrine system, and nervous system can affect the homeostasis of an organism.	<b>Student Edition:</b> 971-972, 1031-1035, 1037, 1080, 1085-1086, 1088-1091 <i>MiniLab 1035</i> <i>National Geographic 1087</i> <i>Section Assessment 972 (#6), 1037 (#3, #6)</i> <b>Teacher Wraparound Edition:</b> MI 1031, 1084; RS 1085; WS 971, 1035

STANDARDS	PAGE REFERENCES
<p>S:LS4:11:1.2 Describe how the functions of all the human body systems are interrelated at a chemical level and how they maintain homeostasis.</p>	<p><b>Student Edition:</b>            938-939, 942, 948, 962-963, 968-972, 1002, 1007, 1031-1035, 1037, 1086, 1088-1091  <i>MiniLab</i> 1002, 1035  <i>National Geographic</i> 949, 1087  <i>Section Assessment</i> 972 (#6), 1009 (#1), 1037 (#3)  <b>Teacher Wraparound Edition:</b>            DC 948</p>
<p>2. DISEASE</p>	
<p>S:LS4:11:2.1 Explain that disease in organisms can be caused by intrinsic failures of the system or infection by other organisms, and describe as well as provide examples of how some diseases are caused by: the breakdown in cellular function, congenital conditions, genetic disorders, malnutrition, and emotional health, including stress.</p>	<p><b>Student Edition:</b>            296-298, 524, 530-531, 999, 1008, 1090-1091, 1092-1095, 1076  <i>Section Assessment</i> 1091 (#5), 1095 (#4)  <b>Teacher Wraparound Edition:</b>            DC 1092; RS 1008; WS 298</p>
<p>S:LS4:11:2.2 Explain that vaccines were developed to reduce or eliminate diseases; and provide examples of how these medical advances have proven to be successful.</p>	<p><b>Student Edition:</b>            527, 1089-1090  <i>Biology &amp; Society</i> 1096  <i>Chapter Assessment</i> 1101 (#41-#43)  <i>Cutting-Edge Biology</i> 532  <b>Teacher Wraparound Edition:</b>            CT 527</p>
<p>S:LS4:11:2.3 Describe and provide examples of how new medical techniques, efficient health care delivery systems, improved sanitation, and a more complete understanding of the nature of disease provides today's humans a better chance of staying healthier than their forebears.</p>	<p><b>Student Edition:</b>            101, 314-315, 370-371, 378-379, 992-993, 1009, 1076-1083, 1089-1090  <i>BioDiscoveries</i> 22  <i>Cutting-Edge Biology</i> 532, 808, 952  <i>MiniLab</i> 314  <b>Teacher Wraparound Edition:</b>            CB 363</p>
<p>S:LS4:11:2.4 Describe how some drugs mimic or block the molecules involved in transmitting nerve or hormone signals and explain how this disturbs the normal operations of the brain and body.</p>	<p><b>Student Edition:</b>            977-980  <i>Data Analysis Lab</i> 980  <i>Section Assessment</i> 981 (#1, #2, #3)  <b>Teacher Wraparound Edition:</b>            AC 980; CT 980; DC 979; FA 981</p>

STANDARDS	PAGE REFERENCES
<p>S:LS4:11:2.5 Explain that gene mutation in a cell can result in uncontrolled division, which is called cancer; and describe how exposure of cells to certain chemicals and radiation increase mutation, and thus the chance for cancer.</p>	<p><b>Student Edition:</b>            254-255, 348-349, 1093  <i>Data Analysis Lab</i> 348  <i>MiniLab</i> 1093  <i>Section Assessment</i> 257 (#2, #3), 349 (#2)  <b>Teacher Wraparound Edition:</b>            CT 254, 348</p>
<p>S:LS4:11:2.6 Use evidence to make and support conclusions about the ways that humans or other organisms are affected by environmental factors or heredity (e.g., pathogens, diseases, medical advances, pollution, mutations).            [LS4(9-11)INQ+NOS-9]</p>	<p><b>Student Edition:</b>            123-128, 296-301, 313, 345-349, 524, 527, 530-531, 552, 1076-1083  <i>Cutting-Edge Biology</i> 532, 952, 982  <i>MiniLab</i> 120  <i>National Geographic</i> 312  <i>Section Assessment</i> 128 (#1)  <b>Teacher Wraparound Edition:</b>            DE 127; WS 298, 346</p>
<p><b>3. HUMAN IDENTITY</b></p>	
<p>S:LS4:11:3.1 Describe how the length and quality of human life are influenced by many factors, including sanitation, diet, medical care, gender, genes, and environmental conditions and personal health behaviors.</p>	<p>The following pages can be incorporated to meet this standard.  <b>Student Edition:</b>            100-105, 939-940, 980-981, 1025-1031, 1078-1083, 1089, 1090  <i>BioLab</i> 1011  <i>Biology &amp; Society</i> 1010  <i>Cutting-Edge Biology</i> 532, 952  <i>Section Assessment</i> 981 (#4), 1030 (#1)  <b>Teacher Wraparound Edition:</b>            AC 1027; CT 105; WS 939, 1026</p>
<p>S:LS4:11:3.2 Explain how the immune system functions to prevent and fight disease.</p>	<p><b>Student Edition:</b>            998, 1084-1086, 1088-1091  <i>National Geographic</i> 1087  <i>Section Assessment</i> 1091 (#1-#3)  <b>Teacher Wraparound Edition:</b>            DC 1084, 1087, 1088; SP 1089</p>

STANDARDS	PAGE REFERENCES
<p>S:LS4:11:3.3 Explain how the immune system, endocrine system, or nervous system works and draw conclusions about how systems interact to maintain homeostasis in the human body. [LS4(9-11)SAE+FAF-10]</p>	<p><b>Student Edition:</b> 968-972, 1031-1035, 1037, 1084-1086, 1088-1091 <i>MiniLab</i> 1035 <i>National Geographic</i> 1036, 1087 <i>Section Assessment</i> 972 (#6), 1037 (#3) <b>Teacher Wraparound Edition:</b> BI 960; MI 1031; SP 1032</p>
<p><b>LS5– The growth of scientific knowledge in Life Science has been advanced through the development of technology and is used (alone or in combination with other sciences) to identify, understand and solve local and global issues.</b></p>	
<p><b>1. DESIGN TECHNOLOGY</b></p>	
<p>S:LS5:11:1.1 Describe ways in which technology has increased our understanding of the life sciences.</p>	<p><b>Student Edition:</b> 182-185, 326-328, 364-370, 372-376, 378-379 <i>BioDiscoveries</i> 350 <i>Cutting-Edge Biology</i> 106, 234 <i>Section Assessment</i> 186 (#1) <b>Teacher Wraparound Edition:</b> BA 350; CB 184; DC 150; SP 182; WS 374</p>
<p>S:LS5:11:1.2 Understand that technology is designed with a particular function in mind, and principles of life science are useful in creating technology for the life sciences.</p>	<p><b>Student Edition:</b> 5-6, 363-370 <i>Cutting-Edge Biology</i> 106, 504, 808, 952, 982 <i>In the Field</i> 566 <b>Teacher Wraparound Edition:</b> CB 367; CT 365; DC 364; FA 371; RS 5</p>
<p><b>2. TOOLS</b></p>	
<p>S:LS5:11:2.1 Describe the use and benefits of equipment such as light microscopes, transmission electron microscopes, scanning electron microscopes, spectrophotometers, probes, and robotics to the study of the life sciences.</p>	<p><b>Student Edition:</b> 182-185, 364-370, 373, 375-376 <i>Cutting-Edge Biology</i> 504 <i>Data Analysis Lab</i> 376 <i>National Geographic</i> 377 <i>Section Assessment</i> 186 (#1, #2) <b>Teacher Wraparound Edition:</b> CB 184; DC 184</p>

STANDARDS	PAGE REFERENCES
<p><b>3. SOCIAL ISSUES (LOCAL AND GLOBAL)</b>  <b>MEDICAL TECHNOLOGY</b>  <b>BIOTECHNOLOGY</b></p>	
<p>S:LS5:11:3.1 Describe ways technology can support and improve our understanding of environmental issues.</p>	<p><b>Student Edition:</b>  134, 494-495  <i>BioDiscoveries</i> 652  <i>Biology &amp; Society</i> 592  <i>Careers in Biology</i> 495  <i>Cutting-Edge Biology</i> 504  <i>Data Analysis Lab</i> 494  <i>National Geographic</i> 67  <b>Teacher Wraparound Edition:</b>  DC 134</p>
<p>S:LS5:11:3.2 Describe aspects of the medical system available to help people in Rhode Island, including: prevention programs, vaccines and pharmaceuticals, hospitals and rehabilitation facilities.</p>	<p>The following page references can be applied to all states, including Rhode Island.  <b>Student Edition:</b>  1082-1083, 1089-1090  <i>Biology &amp; Society</i> 1096  <i>Careers in Biology</i> 939, 974, 1028, 1060, 1079  <b>Teacher Wraparound Edition:</b>  ATD 1011; DC 1079, 1080; DIB 1096; SL/CS 933; WS 1091</p>
<p>S:LS5:11:3.3 Recognize that biotechnology is used in many areas, such as agriculture, pharmaceuticals, the environment, and genetic engineering; and understand that it requires extensive knowledge of the systems being changed.</p>	<p><b>Student Edition:</b>  256-257, 363, 370-371, 378-379  <i>Biology &amp; Society</i> 258, 680, 1066  <i>Cutting-Edge Biology</i> 532, 952  <i>Section Assessment</i> 379 (#4)  <b>Teacher Wraparound Edition:</b>  AG 680; DC 257, 363; DIB 680, 1066; RS 370</p>
<p>S:LS5:11:3.4 Explain how advances in agriculture made using biotechnology have directly affected the food production over the past 100 years; and that this change has profoundly affected societies all over the globe, making larger populations and urban centers a possibility.</p>	<p><b>Student Edition:</b>  101, 360-361, 370-374  <i>Biology &amp; Society</i> 592, 680  <i>Data Analysis Lab</i> 420  <i>In the Field</i> 286  <i>MiniLab</i> 361  <b>Teacher Wraparound Edition:</b>  CB 363; DC 370; FUD 286</p>

**STANDARDS****PAGE REFERENCES****4. CAREER TECHNICAL EDUCATION CONNECTIONS**

S:LS5:11:4.1 Explain the kinds of applications of knowledge and skills necessary for jobs/careers specific to the life sciences.

**Student Edition:**

5-6

*Careers in Biology* 9, 35, 118, 371, 522, 663, 910, 939, 1028

*In the Field* 82, 172, 286, 566, 1038

*MiniLab* 314

**Teacher Wraparound Edition:**

AG 286; GF 5; WS 6