

**Texas Essential Knowledge and Skills Grades 9-12
correlated to CORD BIOLOGY: SCIENCE IN CONTEXT
Globe Fearon/Cord, 2000, ISBN: 0-538-68166-7**

STANDARDS	PAGE REFERENCES
<p>1. Scientific processes: The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices.</p>	
<p>(A) demonstrate safe practices during field and laboratory investigations; and</p>	<p>Student Text: pp. A-1 Laboratory Manual: 1-11, 14, 19, 24, 34, 39, 43, 47, 54, 58, 64, 71, 76, 80, 85, 90, 94, 99, 103, 106, 111, 115, 129, 136, 140, 146, 150, 154, 159, 163,166, 169, 173, 177, 181, 185, 189, 194, 198, 201, 206, 210, 213, 217, 220, 225, 228, 231, 236, 240, 243, 247, 251</p>
<p>(B) make wise choices in the use and conservation of resources and the disposal or recycling of materials.</p>	<p>Student Text: pp. A-1 Laboratory Manual: pp. 4, 16, 21, 27, 31, 36, 41, 45, 48, 51, 56, 60-61, 67, 73-74, 78, 83, 86, 91, 97, 100, 104, 107, 175, 178, 183, 186, 191, 195, 199, 204, 207, 212, 215, 218, 223, 226, 229, 234, 238, 241, 245, 249, 253</p>

<p>2. Scientific processes: The student uses scientific methods during field and laboratory investigations. The student is expected to:</p>	
<p>(A) plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;</p>	<p>Student Text: pp. 5, 48, 63, A-4, A-5 Laboratory Manual: pp. 45 Teacher’s Resource Book: pp. PA-5, PA-9, PA-11, PA-18, PA-22</p>
<p>(B) collect data and make measurements with precision;</p>	<p>Student Text: pp. A-4, A-5 Laboratory Manual: pp. 16, 19-21, 25-27, 30-31, 34-36, 42-44, 47-48, 51, 54-56, 59-60, 64-65, 71-73, 76-78, 80-82, 85-86, 90-91, 95-96, 99-100, 103-104, 106, 107, 112, 113, 116-118, 120-122, 125-127, 129-130, 132-133, 136, 137, 140-142, 146, 147, 150-152, 154-156, 159-161, 163, 164, 166, 167, 169, 170, 173, 174, 177, 178, 181-183, 185, 188-191, 194, 195, 198, 199, 201-203, 206, 207, 210, 211, 213-215, 217, 218, 220-223, 225, 226, 228, 229, 231-233, 236, 237, 240, 241, 243, 244, 247-249, 251-253 Teacher’s Resource Book: pp. PA-1 - PA-36</p>
<p>(C) organize, analyze, evaluate, make inferences, and predict trends from data; and</p>	<p>Student Text: pp. A-4, A-5 Laboratory Manual: pp. 17, 21, 22, 25-27, 30-32, 34-36, 41, 42-45, 49, 51, 56, 61, 68, 74, 78, 83, 87, 92, 97, 101, 104, 109, 113, 118, 123, 127, 130, 134, 138, 143, 144, 148, 152, 157, 161, 164, 167, 171, 175, 179, 183, 186, 192, 196, 199, 204, 208, 212, 215, 218, 223, 226, 229, 234, 238, 241, 245, 249, 254 Teacher’s Resource Book: pp. PA-1 – PA-36</p>
<p>(D) communicate valid conclusions.</p>	<p>Student Text: pp. A-4, A-5 Laboratory Manual: pp. 17, 21, 22, 25-27, 30-32, 34-36, 41, 42-</p>

	45, 49, 51, 56, 61, 68, 74, 78, 83, 87, 92, 97, 101, 104, 109, 113, 118, 123, 127, 130, 134, 138, 143, 144, 148, 152, 157, 161, 164, 167, 171, 175, 179, 183, 186, 192, 196, 199, 204, 208, 212, 215, 218, 223, 226, 229, 234, 238, 241, 245, 249, 254 Teacher's Resource Book: pp. PA-1 – PA-36
3. Scientific processes: The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:	
(A) analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	Student Text: pp. A-4, A-5 Laboratory Manual: pp. 17, 21, 22, 25-27, 30-32, 34-36, 41, 42-45, 49, 51, 56, 61, 68, 74, 78, 83, 87, 92, 97, 101, 104, 109, 113, 118, 123, 127, 130, 134, 138, 143, 144, 148, 152, 157, 161, 164, 167, 171, 175, 179, 183, 186, 192, 196, 199, 204, 208, 212, 215, 218, 223, 226, 229, 234, 238, 241, 245, 249, 254 Teacher's Resource Book: PA-1 – PA-36
(D) describe the connection between biology and future careers;	Student Text: pp. 7, 32, 33, 65, 74, 75, 76, 110, 112, 113, 114, 148, 149, 123, 177, 182, 183, 184, 209, 229, 230, 231, 232, 243, 268, 269, 270, 292, 307, 308, 309, 317, 340, 341, 342, 381, 382, 383, 368, 400, 418, 419, 420, 455, 456, 457, 443, 482, 490, 491, 492, 512, 531, 532, 533, 534, 542, 564, 565, 566, 567, 585, 598, 599, 600, 601, 621, 628, 629, 630, 631, 648, 659, 660, 661, 664, 682, 683, 684, 685, 701, 708, 709, 710, 730, 731, 732, 733, 716, 739, 757, 758, 759, 760, 780, 790, 791792, 793

<p>(F) research and describe the history of biology and contributions of scientists.</p>	<p>Student Text: pp. 22, 42, 59, 98, 102, 106, 135, 138,162, 163, 207, 215, 223, 252, 263, 264, 295, 379, 400, 438, 547, 556, 608, 609, 620, 667, 702, 703, 755, 756, 813</p>
<p>4. Science concepts: The student knows that cells are the basic structures of all living things and have specialized parts that perform specific functions, and that viruses are different from cells and have different properties and functions. The student is expected to:</p>	<p style="background-color: #cccccc;"></p>
<p>(A) identify the parts of prokaryotic and eukaryotic cells;</p>	<p>Student Text: pp. 54-63, 244, 245</p>
<p>(B) investigate and identify cellular processes including homeostasis, permeability, energy production, transportation of molecules, disposal of wastes, function of cellular parts, and synthesis of new molecules;</p>	<p>Student Text: pp. 24, 25, 26, 27, 46, 47, 82-91, 92-101, 103-111,48-52, 65-72</p>
<p>(C) compare the structures and functions of viruses to cells and describe the role of viruses in causing diseases and conditions such as acquired immune deficiency syndrome, common colds, smallpox, influenza, and warts; and</p>	<p>Student Text: pp. 249-253</p>
<p>(D) identify and describe the role of bacteria in maintaining health such as in digestion and in causing diseases such as in streptococcus infections and diphtheria.</p>	<p>Student Text: pp. 9, 56, 238, 242, 247, 248, 260, 261, 262, 263, 264, 265, 266, 267</p>
<p>5. Science concepts. The student knows how an organism grows and how specialized cells, tissues, and organs develop. The student is expected to:</p>	<p style="background-color: #cccccc;"></p>

(A) compare cells from different parts of plants and animals including roots, stems, leaves, epithelia, muscles, and bones to show specialization of structure and function;	Student Text: pp. 53-64, 356, 357, 466, 500, 501, 502, 503, 504, 505, 673, 675, 676, 698, 699
(B) identify cell differentiation in the development of organisms; and	Student Text: pp. 356
(C) sequence the levels of organization in multicellular organisms; and	Student Text: pp. 256-366
6. Science concepts. The student knows the structures and functions of nucleic acids in the mechanisms of genetics. The student is expected to:	
(A) describe components of deoxyribonucleic acid (DNA), and illustrate how information for specifying the traits of an organism is carried in the DNA;	Student Text: pp. 124, 125, 159, 160, 161, 163, 174, 175
(B) explain replication, transcription, and translation using models of DNA and ribonucleic acid (RNA);	Student Text: pp. 23, 165, 166, 168, 169, 170, 173, 174, 175, 176
(C) identify and illustrate how changes in DNA cause mutations and evaluate the significance of these changes;	Student Text: pp. 179, 180, 181, 192
(D) compare genetic variations observed in plants and animals;	Student Text: pp. 190, 191, 192, 193, 194
(E) compare the processes of mitosis and meiosis and their significance to sexual and asexual reproduction; and	Student Text: pp. 68, 69, 70, 71, 130, 131, 132, 133, 141, 142, 191, 192

(F) identify and analyze karyotypes.	Student Text: pp. 120, 121

<p>7. Science concepts. The student knows the theory of biological evolution. The student is expected to:</p>	
<p>(A) identify evidence of change in species using fossils, DNA sequences, anatomical similarities, physiological similarities, and embryology; and</p>	<p>Student Text: pp. 191, 192, 193, 195, 196, 197, 198, 199, 201-218</p>
<p>(B) illustrate the results of natural selection in speciation, diversity, phylogeny, adaptation, behavior, and extinction.</p>	<p>Student Text: pp. 29, 30, 197, 198, 199, 205, 206, 208, 209, 210, 211, 609, 610, 611, 612, 613, 614</p>

<p>8. Science concepts. The student knows applications of taxonomy and can identify its limitations. The student is expected to:</p>	
<p>(A) collect and classify organisms at several taxonomic levels such as species, phylum, and kingdom using dichotomous keys;</p>	<p>Student Text: pp. 205, 206, 220, 221, 222, 223, 224, 225, 226, 227, 609, 610, 613, A-8 – A-11 Laboratory Manual: pp. 124-127</p>
<p>(B) analyze relationships among organisms and develop a model of a hierarchical classification system based on similarities and differences using taxonomic nomenclature; and</p>	<p>Student Text: pp. 224, 225, 226, 227, 379, 380 Laboratory Manual: pp. 124-127</p>
<p>(C) identify characteristics of kingdoms including monerans, protists, fungi, plants, and animals.</p>	<p>Student Text: pp. A- 8,A-9, 221, 222, 237-735</p>
<p>9. Science concepts. The students knows metabolic processes and energy transfers that occur in living organisms. The student is expected too:</p>	
<p>(A) compare the structures and functions of different types of biomolecules such as carbohydrates, lipids, proteins, and nucleic acids;</p>	<p>Student Text: pp. 13, 14, 481, 482, 483, 487</p>
<p>(B) compare the energy flow in photosynthesis to the energy flow in cellular respiration;</p>	<p>Student Text: pp. 94-97, 105-107, 697, 698, 699</p>

(C) investigate and identify the effects of enzymes on food molecules; and	Student Text: pp. 15, 16, 471, 472, 474, 475 Laboratory Manual: pp. 153-157
(D) analyze the flow of matter and energy through different trophic levels and between organisms and the physical environment.	Student Text: pp. 88-91, 769, 773-775
10. Science concepts. The student knows that, at all levels of nature, living systems are found within other living systems, each with its own boundary and limits. The student is expected to:	
(A) interpret the functions of systems in organisms including circulatory, digestive, nervous, endocrine, reproductive, integumentary, skeletal, respiratory, muscular, excretory, and immune;	Student Text: pp. 358-364, 389-425, 428-442, 434, 451-453, 463-497, 499-518, 519 -530, 547-549, 551-563, 573-605
(B) compare the interrelationships of organ systems to each other and to the body as a whole; and	Student Text: pp. 358-364, 389-425, 428-442, 434, 451-453, 463-497, 499-518, 519 -530, 547-549, 551-563, 573-605
(C) analyze and identify characteristics of plant systems and subsystems.	Student Text: pp. 667, 668, 669, 670, 672, 673, 674, 675, 676, 677, 680, 681, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 715, 716, 717, 718, 721, 722, 723, 724, 725, 727, 727, 728
11. Science concepts. The student knows that organisms maintain homeostasis. The student is expected to:	
(A) identify and describe the relationships between internal feedback mechanisms in the maintenance of	Student Text: pp. 24, 26, 27, 524, 525, 526

homeostasis;	
(C) analyze the importance of nutrition, environmental conditions, and physical exercise on health; and	Student Text: pp. 103, 107, 110, 111, 396, 399, 479-489, 810-812
(D) summarize the role of microorganisms in maintaining and disrupting equilibrium including diseases in plants and animals and decay in an ecosystem.	Student Text: pp. 238-246, 249-252, 259, 260-266, 284-288, 295-300, 303-306, 317-321, 323, 330, 333-334
12. Science concepts. The student knows that interdependence and interactions occur within an ecosystem. The students is expected to:	
(A) analyze the flow of energy through various cycles including the carbon, oxygen, nitrogen, and water cycles	Student Text: pp. 85, 86, 87, 88, 89, 89, 90, 91, 806
(B) interpret interactions among organisms exhibiting predation, parasitism, commensalism, and mutualism;	Student Text: pp. 248, 300, 338, 353
(C) compare variations, tolerances, and adaptations of plants and animals in different biomes;	Student Text: pp. 782-789
(D) identify and illustrate that long-term survival of species is dependent on a resource base that may be limited;	Student Text: pp. 800-806, 808-812, 813-818
(E) investigate and explain the interactions in an ecosystem including food chains, food webs, and food pyramids.	Student Text: pp. 90, 91, 479, 480, 772-775

13. Science concepts. The student knows the significance of plants in the environment. The student is expected to:	
(A) evaluate the significance of structural and physiological adaptations of plants to their environments; and	Student Text: pp. 643-646, 648-652, 692-696, 697-699
(B) survey and identify methods of re production, growth, and development of various types of plants..	Student Text: pp. 664-670, 672-677, 679-681, 701-706, 715-719, 721-728

