

Science Standard	Correlation By Page Numbers Make all correlations using the teacher text. Identify only <i>significant</i> areas of correlation. Use each bullet of the standard in the context of the stem. Please consult the 2003 Science Curriculum Framework for further information about each standard.
BIO.1 The student will plan and conduct investigations in which	
a) observations of living organisms are recorded in the lab and in the field;	This objective is addressed throughout. See, for example: 24–25, 58–59, 85–86, 112–113, 236, 239–240, 254, 274–275, 330–331, 490, 496–497, 506, 511, 522–523, 530, 544–545, 561, 566, 675, 683, 686–687, 702, 712, 714–715, 734–735, 756–757, 764, 773, 776–777, 830, 860
b) hypotheses are formulated based on direct observations and information from the scientific literature;	58, 164, 236, 274, 330, 492, 496, 522, 544, 586, 734, 756, 834, 875, 910, 964, 1060, 1104
c) variables are defined and investigations are designed to test hypotheses;	59, 85, 275, 331, 523, 545, 735, 757, 835, 867, 911, 965
d) graphing and arithmetic calculations are used as tools in data analysis;	20, 25, 59, 72, 92, 102, 155, 203, 215, 311, 350, 353, 429, 567, 578, 619, 704, 713, 746, 872, 928, 932, 1010
e) conclusions are formed based on recorded quantitative and qualitative data;	59, 236, 275, 330, 497, 523, 545, 735, 757, 835, 965
f) sources of error inherent in experimental design are identified and discussed;	85, 95, 165, 189, 215, 275, 331, 387, 415, 437, 523, 545, 627, 735, 777, 811, 835, 911, 965, 989
g) validity of data is determined;	14, 16, 85, 95, 165, 189, 215, 275, 331, 387, 415, 437, 523, 545, 735, 777, 811, 835, 911, 965, 989
h) chemicals and equipment are used in a safe manner;	14, 15, 151, 155, 165, 182, 198, 496–497, 530, 658, 714, 964, 1107, 1108–1109

Science Textbook Correlation Matrices
Biology Standards of Learning

Publisher: Glencoe/McGraw-Hill

Text/Instructional Material Title: Glencoe Biology: The Dynamics of Life ©2004

i) appropriate technology, including computers, graphing calculators, and probeware, is used for gathering and analyzing data and communicating results;	25, 126, 173, 239, 415, 545, 598–599, 627, 687, 777, 852–853, 1042–1043
j) research utilizes scientific literature;	58, 126, 215, 437, 461, 497, 523, 545, 571, 659, 715, 735, 757, 777, 810, 835, 906, 1017, 1042
k) differentiation is made between a scientific hypothesis and theory;	18
l) alternative scientific explanations and models are recognized and analyzed; and	115, 235, 293, 331, 447, 571, 811, 835, 911
m) a scientific viewpoint is constructed and defended (the nature of science).	26, 60, 106, 388, 600, 854, 990, 1044

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BIO.2 The student will demonstrate scientific reasoning and logic by	
a) evidence supporting the cell theory;	172, 244
b) scientific explanations of the development of organisms through time (biological evolution);	393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 417, 418, 419
c) evidence supporting the germ theory of infectious disease;	1024, 1025, 1030
d) development of the structural model of DNA; and	281, 282, 283, 284, 305
e) the collaborative efforts of scientists, past and present.	172, 193, 230, 244, 281, 282, 283, 388, 411, 416, 429, 430, 431, 572, 1024, 1025, 1061, 1064

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BIO.3 The student will investigate and understand the chemical and biochemical principles essential for life. Key concepts include	
a) water chemistry and its impact on life processes;	53, 54, 106, 147, 152, 153, 154, 155, 156, 167, 168, 169, 195, 196, 197, 227, 228, 247
b) the structure and function of macromolecules;	158, 167
c) the nature of enzymes; and	161, 162, 163, 164, 165, 167, 168, 169, 211, 219, 245, 281, 342, 348, 355, 358, 359, 508, 918, 923, 936, 937, 940
d) the capture, storage, transformation, and flow of energy through the processes of photosynthesis and respiration.	225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 971, 972, 973, 974, 988, 989, 991, 992, 993

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BIO.4 The student will investigate and understand relationships between cell structure and function. Key concepts include	
a) characteristics of prokaryotic and eukaryotic cells;	173, 174, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 191, 192, 245, 293, 384, 385, 456, 467, 484, 485, 1071, 1072, 1073
b) exploring the diversity and variation of eukaryotes;	173, 174, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 191, 192, 384, 385, 458, 459, 467, 1071, 1072, 1073
c) similarities between the activities of a single cell and a whole organism; and	175, 179, 180, 183, 184, 185, 190
d) the cell membrane model (diffusion, osmosis, and active transport).	175, 176, 177, 178, 179, 187, 191, 192, 195, 196, 197, 198, 199, 200, 201, 217, 218, 219, 246, 247, 248, 249

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BIO.5 The student will investigate and understand life functions of archaeobacteria, monerans (eubacteria), protists, fungi, plants, and animals, including humans. Key concepts include	
a) how their structures and functions vary between and within the kingdoms;	564, 577, 588, 633, 680, 681, 682, 683, 684, 693, 721, 728, 741, 770, 793, 803, 817, 826, 841
b) comparison of their metabolic activities;	147, 161, 491, 531, 532, 544, 545, 608, 619, 620, 701, 709, 725, 927, 1015
c) analyses of their responses to the environment;	8, 9, 30, 31, 522, 523, 544, 545, 590, 591, 622, 623, 624, 625, 629, 734, 735, 756, 757, 860, 944, 945, 946
d) maintenance of homeostasis;	8, 9, 30, 31, 175, 193, 195, 896, 929, 930, 931, 932, 974, 985, 987, 1049, 1051, 1054
e) human health issues, human anatomy, body systems, and life functions; and	893, 899, 905, 917, 924, 929, 943, 956, 971, 975, 985, 995, 1023, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055
f) how viruses compare with organisms.	475, 476, 478, 479, 483, 499, 500, 501

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BIO.6 The student will investigate and understand common mechanisms of inheritance and protein synthesis. Key concepts include	
a) cell growth and division;	201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219
b) gamete formation;	253, 265, 266, 267, 268, 269, 270, 271, 277, 278, 279, 999, 1000, 1005, 1006, 1055
c) cell specialization;	210, 676, 677, 679, 689, 690, 691
d) prediction of inheritance of traits based on the Mendelian laws of heredity;	253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 270, 276, 277, 278, 279, 360, 361
e) genetic variation (mutation, recombination, deletions, additions to DNA);	296, 297, 298, 299, 300, 301, 305, 306, 307, 406, 407, 417, 462
f) the structure, function, and replication of nucleic acids (DNA and RNA);	163, 202, 203, 204, 205, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 302, 303, 305, 306, 307, 341, 342, 343, 344
g) events involved in the construction of proteins;	160, 161, 163, 167, 168, 245, 288, 289, 290, 291, 292, 293, 294, 295, 305, 306, 307
h) use, limitations, and misuse of genetic information; and	341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 363, 364, 365, 498, 462, 660, 688
i) exploration of the impact of DNA technologies.	341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 363, 364, 365, 498, 462, 660, 688

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BIO.7 The student will investigate and understand bases for modern classification systems. Key concepts include	
a) structural similarities in organisms;	400, 401, 402, 445, 446, 450, 452, 453, 454, 455, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 1110, 1111
b) fossil record interpretation;	417, 399–400, 468
c) comparison of developmental stages in different organisms;	451, 656, 657, 661, 662, 663, 676, 677, 678, 679, 689, 690, 691
d) examination of biochemical similarities and differences among organisms; and	402, 403, 417, 418, 446, 451, 468
e) systems of classification that are adaptable to new scientific discoveries.	445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465

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BIO.8 The student will investigate and understand how populations change through time. Key concepts include	
a) evidence found in fossil records;	370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 389, 390, 391, 393, 399, 400, 436–437, 466, 468
b) how genetic variation, reproductive strategies, and environmental pressures impact the survival of populations;	93, 94, 96, 97, 98, 99, 107, 108, 109, 134, 404, 405, 406, 407, 408, 417, 418, 419, 468
c) how natural selection leads to adaptations;	395, 396, 397, 398, 399, 414–415, 407, 408, 413, 417, 418, 419
d) emergence of new species; and	395, 396, 409, 410, 411, 412, 417, 418, 419, 468
e) scientific explanations for biological evolution.	393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 417, 418, 419

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BIO.9 The student will investigate and understand dynamic equilibria within populations, communities, and ecosystems. Key concepts include	
a) interactions within and among populations including carrying capacities, limiting factors, and growth curves;	58, 59, 65, 66, 69, 87, 88, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 134
b) nutrient cycling with energy flow through ecosystems;	46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 61, 62, 63, 133
c) succession patterns in ecosystems;	67, 68, 69, 84–85, 87, 88, 89, 135
d) the effects of natural events and human influences on ecosystems; and	97, 103, 108, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 129, 130, 131
e) analysis of the flora, fauna, and microorganisms of Virginia ecosystems including the Chesapeake Bay and its tributaries.	The opportunity to address this objective is available. See the following: 112, 446, 620, 658–659, 830

Additional Criteria	Evidence Please provide information that will assist the reviewers in identifying support for the following criterion indicators.
<p>1. Safe use of materials and equipment is encouraged.</p>	<p>Safety is encouraged throughout the text. Examples can be found on pages 14,15. A Safety Symbols Chart with hazards, examples, precautions and remedies is included in the front of the text.</p>
<p>2. Materials emphasize the use of effective instructional practices and learning theories.</p> <ul style="list-style-type: none"> • Students are guided through different approaches such as the learning cycle. • Students are provided the opportunity to conduct scientific inquiry appropriate for their age, grade, and maturity. • Concepts are introduced through concrete experiences • Students are required to use manipulative materials during investigations and activities. • Multiple opportunities are provided for students to apply concepts. • Learning activities offer opportunities for students to revise their prior knowledge and create new knowledge. • Students are encouraged to pose questions and to identify problems, as well as propose multiple solutions and design and conduct tests of inference. • Students collect and interpret data through a variety of technologies and draw conclusions based on that data. 	<ul style="list-style-type: none"> • This is covered in Chapter 1-pages 11-23 • This opportunity is included in the 39 BioLabs ex. page 910, The 39 MiniLabs, ex. page 675 and the 39 Problem-Solving Labs, ex. page 262 • Throughout the text. The 39 INSIDE STORY features are examples-see page 373 for one example • This is covered in the 39 BioLabs, ex. pages 496-497 • These are included in the Chapter Assessments at the end of each chapter, ex. pages 168-169. • Covered throughout. In the TWE, the feature “Revealing Misconceptions”, ex. page 40 provides evidence. • Covered in Assessment questions, ex. #19 on page 193. Also covered in “Problem-Solving Labs”-ex. Lab 6.2 page 154 • Besides the variety of technologies included in the text, there are projects available on the website-bdol.glencoe.com

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Additional Criteria	Evidence Please provide information that will assist the reviewers in identifying support for the following criterion indicators.
<p>3. Materials present content in an accurate, unbiased manner, and are based on sound science.</p> <ul style="list-style-type: none">• Materials do not contain content errors (omissions of current content, out-of-date content, overgeneralizations, etc.).• Materials do not contain production errors (misspelled words, word omissions, incorrect answers).• Diverse groups (racial, ethnic, cultural, linguistic), males and females, people with disabilities, and people of all ages are represented appropriately.• The materials are free of non-scientific explanation.	<ul style="list-style-type: none">• The material was reviewed by consultant, reviewers, Teacher Advisory Board and content editors in order to prevent content errors.• Page proofs were thoroughly checked by the editors in order to correct production errors.• As a matter of policy, all photos were checked to assure that diverse groups, males and females, people with disabilities and people of all ages were represented appropriately• The material was checked by consultants, reviewers, Teacher Advisory Board and editors to assure that non-scientific explanation was not included.

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Additional Criteria	Evidence Please provide information that will assist the reviewers in identifying support for the following criterion indicators.
<p>4. Materials promote student assessment as an integral part of the instructional process.</p> <ul style="list-style-type: none">• Assessment suggestions and scoring criteria for student performances on work such as lab practicals or tasks, concept maps, research projects, observation checklists, etc., are provided.• Assessment items include multiple-choice, short answer, essay and open-ended questions with charts, graphs, and diagrams imbedded within the items.• Options include techniques for assessing students’ prior knowledge.• Assessment items reflect the rigor and the intent of the standards. For example, they require students to use higher order thinking skills to apply, analyze, synthesize, evaluate, and make judgments or recommendations.	<ul style="list-style-type: none">• Assessment suggestions and scoring criteria information are found in the TWE on page 9T.• Every chapter has assessments including these. Examples can be found on pages 28, 29• Examples throughout. Specific example-page 1012 “Growing in Leaps and Bounds”.• Examples can be found throughout the text. For example Apply-page 387 Apply Your Skill, Analyze-Page 398 MiniLab 15.1, Synthesize-page 427 Section Assessment #3. Evaluate-page 459 Section Assessment #5. Make Judgements-page 433 “Problem-Solving Lab” 16.2 “Thinking Critically” # 2

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Additional Criteria	Evidence Please provide information that will assist the reviewers in identifying support for the following criterion indicators.
<p>5. Materials are presented in an organized, logical manner and are appropriate for the age, grade, and maturity of the students.</p> <ul style="list-style-type: none">• Materials are organized appropriately within and among units of study.• Format design includes titles, subheadings, and appropriate cross-referencing for ease of use.• Writing style, length of sentences, and vocabulary are appropriate.• Graphics and illustrations are appropriate• Level of abstraction is appropriate, and real life examples, including careers are provided.• Sufficient applications are provided to promote depth of understanding.	<ul style="list-style-type: none">• The material was reviewed by consultants, reviewers and Teacher Advisory Board and found to be organized appropriately• The design includes titles, subheadings, etc., ex. page 1012• The writing style, length of sentences and vocabulary were reviewed by consultants, reviewers and Teacher Advisory Board and were found to be appropriate.• The graphics and illustrations were reviewed by consultants, reviewers and Teacher Advisory Board and found to be appropriate.• These are provided in Biology and Society, ex. page 836, BioTechnology, ex. page 876 and Careers in Biology, ex. page 674.• Examples include: Understanding Key Concepts, Vocabulary Review, Finding Main Ideas, Using an Analogy. Some examples can be found on pages 192-193.