**FORMAT FOR CORRELATION TO THE GEORGIA PERFORMANCE STANDARDS**

**Subject Area:** Biology I **State-Funded Course:** 26.01200

**Textbook Title:** BioComm

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*The GPSs for grades K-12 Science and 9-12 Mathematics may be accessed on-line at: http://www.georgiastandards.org/.*

| **Standard** (Cite Number) | **Standard** (Cite specific standard) | **Where Taught** (If print component, cite page number; if non-print, cite appropriate location.) |
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| **SCSh1** | **Students will evaluate the importance of curiosity, honesty, openness, and skepticism in science.** | |
| SCSh1.a | Exhibit the above traits in their own scientific activities. | 2-7; 12-12; 17-23; 57; 64-67; 72-75; 89; 106-107; 118-119; 132-133; 140-142; 180-184; 191-193; 199; 172-276; 282-284; 358-349; 366-368; 416-420; 426-427; 482-485; 490-496; 508; 51-; 522-525; 565-567; 572-576; 608-611; 660-662; 746-753. |
| SCSh1.b | Recognize that different explanations often can be given for the same evidence. | 30-31; 45-46; 64-67; 72-75; 132-133; 565-567; 572-576; 608-611; 746-753. |
| SCSh1.c | Explain that further understanding of scientific problems relies on the design and execution of new experiments which may reinforce or weaken opposing explanations. | 24-27; 49-55; 64-67; 358-359; 590-592; 608-611. |
| **SCSh2** | **Students will use standard safety practices for all classroom laboratory and field investigations.** | |
| SCSh2.a | Follow correct procedures for use of scientific apparatus. | 7-8; 29; 41-54; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 257-265; 267-269; 353-355; 261-264; 326-329; 378-380; 386-389; 392-396. |

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| SCSh2.b | Demonstrate appropriate techniques in all laboratory situations. | 6; 24; 49-54; 79; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 253-269; 376-380; 386-389; 392-396; 538 |
| SCSh2.c | Follow correct protocol for identifying and reporting safety problems and violations. | 8; 14; 24; 41; 51; 54; 122; 124; 138; 203-205; 211-215; 225-227; 229; 232-235; 260; 262; 386-389; 393-394 |
| **SCSh3** | **SCSh3. Students will identify and investigate problems scientifically.** | |
| SCSh3.a | Suggest reasonable hypotheses for identified problems. | 2-6; 13, 15; 30; 50; 55; 78; 115; 124-125; 203; 207; 211-215; 225-227; 232-235; 243-244; 253-255; 257-259; 267-269; 378-380; 386-389; 392-396; 636-639. |
| SCSh3.b | Develop procedures for solving scientific problems. | 23-25; 27; 29-30; 47-48; 51; 54-55; 78-80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269; 378-380; 386-398; 392-396. |
| SCSh3.c | Collect, organize and record appropriate data. | 31; 49; 50; 51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269; 378-380; 386-398; 392-396. |
| SCSh3.d | Graphically compare and analyze data points and/or summary statistics. | 31; 49; 50; 51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269; 378-380; 386-398; 392-396; |
| SCSh3.e | Develop reasonable conclusions based on data collected. | 31; 49; 50 #4; 51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269; 378-380; 386-398; 392-396. |
| SCSh3.f | Evaluate whether conclusions are reasonable by reviewing the process and checking against other available information. | 31; 49; 50 #4; 51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269; 378-380; 386-398; 392-396. |

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| **SCSh4** | **Students will use tools and instruments for observing, measuring, and manipulating scientific equipment and materials.** | |
| SCSh4.a | Develop and use systematic procedures for recording and organizing information. | 31; 49; 50 #4; 51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269; 378-380; 386-398; 392-396. |
| SCSh4.b | Use technology to produce tables and graphs. | 538; 555-557; |
| SCSh4.c | Use technology to develop, test, and revise experimental or mathematical models. | 546; 551. |
| **SCSh5** | **Students will demonstrate the computation and estimation skills necessary for analyzing data and developing reasonable scientific explanations.** | |
| SCSh5.a | Trace the source on any large disparity between estimated and calculated answers to problems. | 31; 49; 50 #4; 51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269; 378-380; 386-398; 392-396. |
| SCSh5.b | Consider possible effects of measurement errors on calculations. | 567-569. |
| SCSh5.c | Recognize the relationship between accuracy and precision | |
| SCSh5.d | Express appropriate numbers of significant figures for calculated data, using scientific notation where appropriate. | 544-546. |

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| SCSh5.e | Solve scientific problems by substituting quantitative values, using dimensional analysis and/or simple algebraic formulas as appropriate. | 31; 49; 50 #4; 51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269; 378-380; 386-398; 392-396 |
| **SCSh6** | **Students will communicate scientific investigations and information clearly.** | |
| SCSh6.a | Write clear, coherent laboratory reports related to scientific investigations. | 31; 49; 50; 51; 54-55;62-63; 80; 115-116; 124-125; 132-134; 203-205; 132-134; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269; 342; 378-380; 386-398; 392-396; 510; 522-525. |
| SCSh6.b | Write clear, coherent accounts of current scientific issues, including possible alternative interpretations of the data. | 31; 49; 50; 51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269; 272-276; 342; 378-380; 386-398; 392-396. |
| SCSh6.c | Use data as evidence to support scientific arguments and claims in written or oral presentations. | 31; 49; 50-51; 54-55; 80; 115-116; 124-125;130; 132-134; 203-205; 211-215; 225-227; 232-235; 243-244; 252-255; 257-269; 355-359; 378-380; 386-398; 392-396; 510; 522-525. |
| SCSh6.d | Participate in group discussions of scientific investigation and current scientific issues. | 62-67; 130; 132-134; 141; 152; 272-276; 342; 358-359; 403-404; 426-427; 470; 482-485; 510; 522-525 |
| **SCSh7** | **Students will analyze how scientific knowledge is developed.** | |
| SCSh7.a | The universe is a vast single system in which the basic principles are the same everywhere. | |
| SCSh7.b | Universal principles are discovered through observation and experimental verification. | 23-25; 27; 29-30; 47-48; 51; 54-55; 78-80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269; 378-380; 386-398; 392-396. |
| SCSh7.c | From time to time, major shifts occur in the | |

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| | scientific view of how the world works. More often, however, the changes that take place in the body of scientific knowledge are small modifications of prior knowledge. Major shifts in scientific views typically occur after the observation of a new phenomenon or an insightful interpretation of existing data by an individual or research group. | 322-323; 316-317; 436-442; 456-459; 460-461. |
| SCSh7.d | Hypotheses often cause scientists to develop new experiments that produce additional data. | 13, 15; 30; 50; 55; 78; 115; 124-125; 203; 207; 211-215; 225-227; 232-235; 243-244; 253-255; 257-259; 267-269; 378-380; 386-389; 392-396; |
| SCSh7.e | Testing, revising, and occasionally rejecting new and old theories never ends | 322-323; 316-317; 436-442; 456-459; 460-461 |
| **SCSh8** | **Students will understand important features of the process of scientific inquiry.** | |
| SCSh8.a | Scientific investigators control the conditions of their experiments in order to produce valuable data. | 31; 49-51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269 |
| SCSh8.b | Scientific researchers are expected to critically assess the quality of data including possible sources of bias in their investigations' hypotheses, observations, data analyses, and interpretation | 31; 49-51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269 |
| SCSh8.c | Scientists use practices such as peer review and publication to reinforce the integrity of scientific activity and | 31; 49-51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269 |

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| | reporting. | |
| SCSh8.d | The merit of a new theory is judgedby how well scientific data are explained by the new theory | 31; 49-51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269 |
| SCSh8.e | The ultimate goal of science is to develop an understanding of the natural universe which is free of biases. | 31; 49-51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269 |
| SCSh8.f | Science disciplines and traditions differ from one another in what is studied, techniques used, and outcomes sought. | 31; 49-51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269 |
| **SCSh9** | **SCSh9. Students will enhance reading in all curriculum areas by:** | |
| SCSh9.a | .Reading in All Curriculum Areas<br>∞ Read a minimum of 25 grade-level appropriate books per year from a variety of subject disciplines and participate in discussions related to curricular learning in all areas<br>∞ Read both informational and fictional texts in a variety of genres and modes of discourse<br>∞ Read technical texts related to various subject areas. | Essays and follow-up activities on 565-758. |
| SCSh9.b | Discussing books<br>∞ Discuss messages and themes from books in all subject areas.<br>∞ Respond to a variety of texts in multiple modes of discourse.<br>∞ Relate messages and themes from one | Essays and follow-up activities on 565-758. |

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| | subject area to messages and themes in another area.<br>∞ Evaluate the merit of texts in every subject discipline.<br>∞ Examine author's purpose in writing.<br>∞ Recognize the features of disciplinary texts | |
| SCSh9.c | Building vocabulary knowledge<br>∞ Demonstrate an understanding of contextual vocabulary in various subjects.<br>∞ Use content vocabulary in writing and speaking.<br>∞ Explore understanding of new words found in subject area texts. | Essays and follow-up activities on 565-758. |
| SCSh9.d | Establishing context<br>∞ Explore life experiences related to subject area content.<br>∞ Discuss in both writing and speaking how certain words are subject area related<br>∞ Determine strategies for finding content and contextual meaning for unknown words. | Essays and follow-up activities on 565-758. |
| **SB1** | Students will analyze the nature of the Relationships between structures and functions in living cells. | |
| SB1.a | Explain the role of cell organelles for both prokaryotic and eukaryotic cells, including the cell membrane, in maintaining homeostasis and cell reproduction. | 120; 206-211; 214-216; 208-209. |

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| SB1.b | Explain how enzymes function as catalysts. | 28-34; 49-53; 232-234; 257-259; 262-267; 573; 577; 588; 605; 757 |
| SB1.c | Identify the function of the four major macromolecules (i.e., carbohydrates, proteins, lipids, nucleic acids). | 1-6; 35-38; 79-81; 106-110; 112; 128-129; 207; 225-226; 335; 502-504; 35-38. |
| SB1.d | Explain the impact of water on life processes (i.e., osmosis, diffusion). | 211-216; 504; 593-603; 730-749; 614-617 |
| **SB2** | Students will analyze how biological traits are passed on to successive generations. | |
| SB2.a | Distinguish between DNA and RNA. | 290; 329-337; 347-349. |
| SB2.b | Explain the role of DNA in storing and transmitting cellular information. | 285-291; 299-303; 307; 310-316; 329-338; 344-346 |
| SB2.c | Using Mendel's laws, explain the role of meiosis in reproductive variability | 299-303; 290-292; 312-316; 339; 316-323; 669-671; 678-681 |
| SB2.d | Describe the relationships between changes in DNA and potential appearance of new traits including<br>∞ Alterations during replication.<br>∞ Insertions<br>∞ Deletions<br>∞ Substitutions<br>∞ Mutagenic factors that can alter DNA.<br>∞ High energy radiation (x-rays and ultraviolet)<br>∞ Chemical | 310-312; 318-321; 338; 344-346; 354 |

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| SB2 .e | Compare the advantages of sexual reproduction and asexual reproduction in different situations | 292-298 |
| SB2 .f | Examine the use of DNA technology in forensics, medicine, and agriculture | 282-285; 298; 309-310; 324-326; 335-340; 349-354; 669-672; 682-685 |
| **SB3** | **Students will derive the relationship between single-celled and multi-celled organisms and the increasing complexity of systems** | |
| SB3.a | Explain the cycling of energy through the processes of photosynthesis and respiration | 26; 32-40; 43; 54-55; 81-84; 86-88; 102-111; 129; 200-201; 209; 431; 447; 437; 502 |
| SB3.b | Compare how structures and function vary between the six kingdoms (archaebacteria, eubacteria, protists, fungi, plants, and animals) | 13-25; 40-43; 428-430; 439-450; 471; 506-507; 536 |
| SB3 .c | Examine the evolutionary basis of modern classification systems | 13-25; 40-43; 428-430; 439-450; 471; 506-507; 536. |
| SB3.d | Compare and contrast viruses with living organisms | 210 |
| **SB4** | **Students will assess the dependence of all** | |

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| | **organisms on one another and the flow of energy and matter within their ecosystems** | |
| SB4.a | Investigate the relationships among organisms, populations, communities, ecosystems, and biomes | 2-12; 14-15; 18.22; 45; 49-54; 58-61; 72-77; 94-105; 118-120; 122-123; 126-127; 140-178; 180-189; 547-549 |
| SB4.b | Explain the flow of matter and energy through ecosystems by<br>∞ Arranging components of a food chain according to energy flow.<br>∞ Comparing the quantity of energy in the of an energy pyramid.<br>∞ Explaining the need for cycling of major nutrients (C, O, H, N, P). | 1-5; 2-10; 13; 16-22; 26; 32-43; 56-60; 72-77; 86-88; 91-92; 98-104; 107-111; 117-118; 126; 140-141; 156; 183-185; 188; 426-427; 468-471; 452; 472; 492-496; 502; 586-589; 593-597; 608-617; 623-626; 636-639; 641-645; 707-711; 716-729; 736-742; 746-753 |
| SB4.c | Relate environmental conditions to successional changes in ecosystems. | 104-105; |
| SB4.d | Assess and explain human activities that influence and modify the environment such as global warming, population growth, pesticide use, and water and power consumption. | 1-10; 13; 16-22; 56-60; 72-77; 117-118; 126; 140-141; 143-150; 156; 165-168; 174-178; 183-185; 188; 426-427; 468-471; 452; 472; 492-496; 586-589; 593-597; 608-617; 623-626; 636-639; 641-645; 707-711; 716-729; 736-742; 746-753. |
| SB4.e | Relate plant adaptations, including tropisms, to the ability to survive stressful environmental conditions | 459; 472-479. |
| SB4.f | Relate animal adaptations, including behaviors, to the ability to survive stressful environmental conditions | 459; 472-479 |

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| **SB5** | **Students will evaluate the role of natural selection in the development of the theory of evolution** | |
| SB5.a | Trace the history of the theory | 162-168; 428-433; 452-459; 462-464; 666-668 |
| SB5.b | Explain the history of life in terms of biodiversity, ancestry, and the rates of evolution | 426-427; 430-433;436-437; 440; 468; 477-479; 452-458; 464-464 |
| SB5.c | Explain how fossil and biochemical evidence support the theory | 428-433; 439-442; 451; 456-461; 660-66 |
| SB5.d | Relate natural selection to changes in organisms | 162-168; 428-433; 452-459; 462-464; 666-668 |
| SB5.e | Recognize the role of evolution to biological resistance (pesticide and antibiotic resistance). | 248-250; 401 |