



**Lab-Aids Correlations for  
New York State P-12 Science Learning Standards**

**LIFE SCIENCE**

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This document is intended to show how the *Science and Global Issues: Biology* materials align with the [New York State P-12 Science Learning Standards](#) for Life Science.

**ABOUT OUR PROGRAMS**

Lab-Aids has maintained its home offices and operations in Ronkonkoma, NY, since 1963. We publish over 200 kits and core curriculum programs to support science teaching and learning, grades 6-12. All core curricula support an inquiry-driven pedagogy, with support for literacy skill development and with assessment programs that clearly show what students know and are able to do as a result of program use. All programs have extensive support for technology and feature comprehensive teacher support. For more information, please visit [www.lab-aids.com/sgi](http://www.lab-aids.com/sgi)

**SEPUP**

Materials from the Science Education for Public Understanding Program (SEPUP) are developed at the Lawrence Hall of Science, at the University of California, Berkeley, and distributed nationally by LAB-AIDS, Inc. Since 1987, development of SEPUP materials has been supported by grants from the National Science Foundation and other public and private sources. SEPUP programs include student books, equipment kits, teacher materials, and online digital content, and are available as full year courses, or separately, as units.

**ABOUT THE LAB-AIDS CITATIONS**

*Citations included in the correlation document are as follows:*

\* indicates where Performance Expectation is assessed

Unit title, Activity Number

*Cells: 2, 3, 4, 5, 6\*, 7\*, 8*

NGSS Performance Expectations      HS-LS1-1

Disciplinary Core Ideas                LS1.A

Science and Engineering Practices    Constructing Explanations and Designing Solutions

Crosscutting Concepts                 Scale, Proportion, and Quantity

Common Core ELA                        SL.11-12.5

Common Core Math                        MP.4

| Performance Expectation  | SGI Biology:<br>Unit and<br>Activity<br>Number | Disciplinary<br>Core Ideas       | Science and<br>Engineering<br>Practices  | Crosscutting<br>Concepts   | Common Core<br>ELA/Math  |
|--|--|----------------------------------|--|--|--|
| <b>HS. Structure and Function</b>  |  |                                  |  |  |  |
| HS-LS1-1: Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells. | <i>Cells: 6</i>                                | LS1.A                            | Constructing Explanations and Designing Solutions<br><br>Developing and Using Models   | Scale, Proportion, and Quantity<br><br>Structure and Function<br><br>Systems and System Models   | ELA/Literacy:<br>SL.11-12.5<br>WHST.9-12.9   |
|  | <i>Genetics: 2, 7, 8, 9, 10*, 15</i>           | LS1.A<br>LS1.B<br>LS4.B<br>LS4.C | Asking Questions and Defining Problems<br><br>Constructing Explanations and Designing Solutions<br><br>Developing and Using Models<br><br>Obtaining, Evaluating, and Communicating Information | Cause and Effect<br><br>Patterns<br><br>Scale, Proportion, and Quantity<br><br>Structure and Function<br><br>Systems and System Models | ELA/Literacy:<br>WHST.9-12.2<br>WHST.9-12.9<br><br>Mathematics:<br>MP.4                              |
| HS-LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.   | <i>Cells: 2, 3, 4, 5, 6*, 7*, 8</i>            | LS1.A                            | Analyzing and Interpreting Data<br><br>Connections to Nature of Science<br><br>Constructing Explanations and Designing Solutions   | Cause and Effect<br><br>Scale, Proportion, and Quantity<br><br>Stability and Change<br><br>Structure and Function                      | ELA/Literacy:<br>RST.9-10.1<br>RST.9-10.7<br>RST.11-12.3<br>RST.11-12.9<br>SL.11-12.5<br>WHST.9-12.9 |

| Performance Expectation  | SGI Biology:<br>Unit and<br>Activity<br>Number | Disciplinary<br>Core Ideas       | Science and<br>Engineering<br>Practices   | Crosscutting<br>Concepts  | Common Core<br>ELA/Math  |
|--|--|----------------------------------|---|---|--|
| <b>HS. Structure and Function</b>  |  |                                  |   |   |  |
|  |  |                                  | Developing and<br>Using Models<br><br>Planning and<br>Carrying Out<br>Investigations  | Systems and<br>System Models  |  |
| HS-LS1-3: Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. | <i>Cells: 1, 2, 3, 4, 5, 7, 8, 9</i>           | LS1.A<br><br>LS1.C<br><br>ETS1.B | Analyzing and<br>Interpreting Data<br><br>Asking Questions<br>and Defining<br>Problems<br><br>Connections to<br>Nature of Science<br><br>Constructing<br>Explanations and<br>Designing<br>Solutions<br><br>Developing and<br>Using Models<br><br>Planning and<br>Carrying Out<br>Investigations | Cause and<br>Effect<br><br>Energy and<br>Matter<br><br>Patterns<br><br>Scale,<br>Proportion, and<br>Quantity<br><br>Stability and<br>Change<br><br>Systems and<br>System Models | ELA/Literacy:<br>RST.9-10.1<br>RST.9-10.7<br>RST.11-12.3<br>RST.11-12.7<br>RST.11-12.9               |
| <b>HS. Matter and Energy in Organisms and Ecosystems</b>   |  |                                  |   |   |  |
| HS-LS1-5: Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.    | <i>Cells: 11*, 12, 13, 15</i>                  | LS1.C<br><br>LS1.B               | Connections to<br>Nature of Science<br><br>Constructing<br>Explanations and<br>Designing<br>Solutions<br><br>Developing and<br>Using Models   | Cause and<br>Effect<br><br>Connections to<br>Nature of<br>Science<br><br>Energy and<br>Matter<br><br>Patterns   | ELA/Literacy:<br>RST.9-10.1<br>RST.11-12.3<br>RST.11-12.7<br>WHST.9-12.9<br><br>Mathematics:<br>MP.2 |

| Performance Expectation  | SGI Biology:<br>Unit and<br>Activity<br>Number | Disciplinary<br>Core Ideas                    | Science and<br>Engineering<br>Practices   | Crosscutting<br>Concepts  | Common Core<br>ELA/Math   |
|--|--|---|---|---|---|
| <b>HS. Structure and Function</b>  |  |   |   |   |   |
|  |  |   | Planning and Carrying Out Investigations<br><br>Using Mathematics and Computational Thinking  | Scale, Proportion, and Quantity<br><br>Stability and Change   |   |
| HS-LS1-6: Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules. | <i>Cells: 9, 10, 11, 13, 14, 15, 16*</i>       | LS1.A<br><br>LS1.C<br><br>LS2.B<br><br>ETS1.B | Analyzing and Interpreting Data<br><br>Connections to Nature of Science<br><br>Constructing Explanations and Designing Solutions<br><br>Developing and Using Models<br><br>Engaging in Argument from Evidence<br><br>Planning and Conducting Investigations<br><br>Using Mathematics and Computational Thinking | Cause and Effect<br><br>Connections to Nature of Science<br><br>Energy and Matter<br><br>Patterns<br><br>Scale, Proportion, and Quantity<br><br>Stability and Change<br><br>Systems and System Models | ELA/Literacy:<br>RST.9-10.1<br>RST.11-12.3<br>RST.11-12.7<br>WHST.9-12.2<br>WHST.9-12.9<br><br>Mathematics:<br>MP.2 |
| HS-LS1-7: Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are                               | <i>Cells: 9, 10, 14, 15*, 16</i>               | LS1.A<br><br>LS1.C<br><br>LS2.B<br><br>ETS1.B | Analyzing and Interpreting Data<br><br>Connections to Nature of Science   | Cause and Effect<br><br>Energy and Matter   | ELA/Literacy:<br>RST.11-12.3<br>RST.11-12.7<br>WHST.9-12.2<br>WHST.9-12.9   |

| Performance Expectation   | SGI Biology:<br>Unit and<br>Activity<br>Number | Disciplinary<br>Core Ideas | Science and<br>Engineering<br>Practices   | Crosscutting<br>Concepts   | Common Core<br>ELA/Math                          |
|---|--|----------------------------|---|--|--|
| <b>HS. Structure and Function</b>   |  |                            |   |  |  |
| formed, resulting in a net transfer of energy.  |  |                            | Constructing Explanations and Designing Solutions<br><br>Developing and Using Models<br><br>Engaging in Argument from Evidence<br><br>Planning and Conducting Investigations  | Scale, Proportion, and Quantity<br><br>Patterns<br><br>Systems and System Models |  |
| HS-LS2-3: Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions. | <i>Ecology: 6, 7, 8*</i>                       | LS2.B                      | Constructing Explanations and Designing Solutions<br><br>Connections to Nature of Science: Knowledge is Open to Revision in Light of New Evidence<br><br>Obtaining, Evaluating, and Communicating Information<br><br>Using Mathematics and Computational Thinking | Energy and Matter<br><br>Scale, Proportion, and Quantity                         | ELA/ Literacy:<br><br>RST.11-12.7<br>RST.11-12.9 |
|   | <i>Cells: 10, 15*</i>                          | LS1.C<br>LS2.B             | Connections to Nature of Science<br><br>Constructing Explanations and   | Energy and Matter  | ELA/Literacy:<br>RST.11-12.3<br>WHST.9-12.9      |

| Performance Expectation   | SGI Biology:<br>Unit and<br>Activity<br>Number | Disciplinary<br>Core Ideas | Science and<br>Engineering<br>Practices  | Crosscutting<br>Concepts  | Common Core<br>ELA/Math  |
|---|--|----------------------------|--|---|--|
| <b>HS. Structure and Function</b>   |  |                            |  |   |  |
|   |  |                            | Designing Solutions<br><br>Developing and Using Models<br><br>Engaging in Argument from Evidence   | Scale, Proportion, and Quantity<br><br>Systems and System Models                          |  |
| HS-LS2-4: Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.  | <i>Ecology: 6, 7, 9, 10*</i>                   | LS2.B                      | Constructing Explanations and Designing Solutions<br><br>Developing and Using Models<br><br>Engaging in Argument from Evidence<br><br>Using Mathematics and Computational Thinking | Energy and Matter<br><br>Scale, Proportion, and Quantity<br><br>Systems and System Models | ELA/ Literacy:<br>RST.11-12.7<br>RST.11-12.9<br><br>Mathematics:<br>MP.2<br>MP.4 |
| HS-LS2-5: Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere. | <i>Ecology: 11, 12*</i>                        | LS2.B<br><br>PS3.D         | Analyzing and Interpreting Data<br><br>Developing and Using Models   | Energy and Matter<br><br>Systems and System Models  | ELA/ Literacy:<br>RST.11-12.5<br><br>Mathematics:<br>MP.2<br>MP.4                |
| <b>HS. Interdependent Relationships in Ecosystems</b>   |  |                            |  |   |  |

| Performance Expectation   | SGI Biology:<br>Unit and<br>Activity<br>Number | Disciplinary<br>Core Ideas | Science and<br>Engineering<br>Practices   | Crosscutting<br>Concepts   | Common Core<br>ELA/Math   |
|---|--|----------------------------|---|--|---|
| <b>HS. Structure and Function</b>   |  |                            |   |  |   |
| HS-LS2-1: Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.                     | <i>Ecology: 1, 2, 3*, 4</i>                    | LS2.A<br>LS2.C             | Analyzing and Interpreting Data<br><br>Asking Questions and Defining Problems<br><br>Constructing Explanations and Designing Solutions<br><br>Developing and Using Models<br><br>Obtaining, Evaluating, and Communicating Information<br><br>Using Mathematics and Computational Thinking | Cause and Effect<br><br>Patterns<br><br>Scale, Proportion, and Quantity<br><br>Stability and Change<br><br>Systems and System Models | ELA/ Literacy:<br>RST.11-12.5<br><br>Mathematics:<br>MP.2<br><br>MP.4 HSN.Q.A.1<br>HSN.Q.A.2 HSS-IC.A.1 |
| HS-LS2-2: Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales. | <i>Ecology: 3, 4, 5*</i>                       | LS2.A<br>LS2.C             | Analyzing and Interpreting Data<br><br>Connections<br><br>to Nature of Science: Scientific Knowledge is Open to Revision in Light of New Evidence<br><br>Constructing Explanations and Designing Solutions  | Cause and Effect<br><br>Patterns<br><br>Scale, Proportion, and Quantity<br><br>Systems and System Models                             | ELA/ Literacy:<br>RST.11-12.5<br><br>Mathematics:<br>MP.2<br>MP.4 HSN.Q.A.1<br>HSN.Q.A.2 HSS-IC.A.1     |

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|---|--|---|--|--|---|
| <b>HS. Structure and Function</b>   |  |   |  |  |   |
|   |  |   | Developing and Using Models<br><br>Obtaining, Evaluating, and Communicating Information<br><br>Using Mathematics and Computational Thinking  |  |   |
| HS-LS2-6: Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem. | <i>Ecology: 13, 14*, 15, 16</i>                | LS2.A<br>LS2.C<br>LS4.D<br>ETS1.A<br>ETS1.B | Constructing Explanations and Designing Solutions<br><br>Engaging in Argument from Evidence<br><br>Connections to Nature of Science: Scientific Knowledge is Open to Revision in Light of New Evidence<br><br>Obtaining, Evaluating, and Communicating Information | Cause and Effect<br><br>Stability and Change | ELA/ Literacy:<br>RST.11-12.5<br>RST.11-12.7<br>RST.11-12.9<br>WHST.9- 12.1<br>WHST.9- 12.7<br><br>Mathematics:<br>MP.2<br>HSS-IC.B.6 |
| HS-LS2-7: Design, evaluate, and refine a solution for reducing the impacts of   | <i>Ecology: 13, 14, 15, 16, 17*</i>            | LS2.A<br>LS2.C                              | Constructing Explanations and  | Cause and Effect                             | ELA/ Literacy:<br>RST.11-12.5<br>RST.11-12.7<br>RST.11-12.9   |



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|---|--|---|--|---|--|
| <b>HS. Structure and Function</b>                     |  |   |  |   |  |
| human activities on the environment and biodiversity. |  | LS4.D<br><br>ETS1.A<br><br>ETS1.B<br><br>S2.C | Designing Solutions<br><br>Engaging in Argument from Evidence<br><br>Connections to Nature of Science: Scientific Knowledge is Open to Revision in Light of New Evidence<br><br>Obtaining, Evaluating, and Communicating Information   | Stability and Change  | WHST.9- 12.1<br>WHST.9- 12.7<br><br>Mathematics:<br>MP.2<br><br>HSS-IC.B.6                           |
|   | <i>Cells: 1, 2, 3, 7, 13, 17</i>               | LS1.A<br><br>LS1.C<br><br>LS2.B<br><br>ETS1.B | Asking Questions and Defining Problems<br><br>Constructing Explanations and Designing Solutions<br><br>Developing and Using Models<br><br>Planning and Carrying Out Investigations<br><br>Using Mathematics and Computational Thinking | Cause and Effect<br><br>Connections to Nature of Science<br><br>Energy and Matter<br><br>Patterns<br><br>Scale, Proportion, and Quantity<br><br>Stability and Change<br><br>Systems and System Models | ELA/ Literacy:<br>RST.9-10.1<br>RST.11-12.3<br>RST.11-12.7<br>SL.11-12.5<br><br>Mathematics:<br>MP.2 |

| Performance Expectation           | SGI Biology:<br>Unit and<br>Activity<br>Number | Disciplinary<br>Core Ideas | Science and<br>Engineering<br>Practices                       | Crosscutting<br>Concepts  | Common Core<br>ELA/Math   |  |  |  |
|-----------------------------------|--|----------------------------|---|---|---|--|--|--|
| <b>HS. Structure and Function</b> |  |                            |   |   |   |  |  |  |
|                                   | <i>Genetics: 16,<br/>17</i>                    | LS2.C                      | Analyzing and<br>Interpreting Data                            | Patterns<br><br>Stability and<br>Change   | ELA/ Literacy:<br>RST.11-12.8<br>WHST.9- 12.9   |  |  |  |
|                                   |  | LS4.B                      | Constructing<br>Explanations and<br>Designing<br>Solutions    |   |   |  |  |  |
| LS4.C                             |  |                            |   |   |   |  |  |  |
| LS4.D                             |  |                            |   |   |   |  |  |  |
| ETS1.B                            |  |                            |   |   |   |  |  |  |
|                                   | <i>Evolution: 10,<br/>13, 14*, 15*</i>         | ETS1.B                     | Constructing<br>Explanations and<br>Designing<br>Solutions    | Cause and<br>Effect<br><br>Connections to<br>Engineering,<br>Technology, and<br>Applications of<br>Science:<br>Influence of<br>Science,<br>Engineering,<br>and Technology<br>on Society and<br>the Natural<br>World | ELA/ Literacy:<br>RST.9-10.8<br>RST.11-12.1<br>RST.11-12.7<br>RST.11-12.8<br>SL.11-12.4<br>WHST.9- 12.2<br>WHST.9- 12.7<br><br>Mathematics:<br>HSN.QA.1<br>MP.2<br>MP.4 |  |  |  |
|                                   |  | LS2.C                      | Obtaining,<br>Evaluating, and<br>Communicating<br>Information |   |   |  |  |  |
|                                   |  | LS4.A                      |   |   |   |  |  |  |
|                                   |  | LS4.B                      | Using<br>Mathematics and<br>Computational<br>Thinking         |   |   |  |  |  |
|                                   |  | LS4.C                      |   |   |   |  |  |  |
|                                   |  | LS4.D                      |   |   |   |  |  |  |
|                                   |  |                            | <i>Evolution: 1,<br/>3*</i>                                   | LS2.D   |   | Analyzing and<br>Interpreting Data   | Cause and<br>Effect  | ELA/Literacy:<br>RST.9-12.2<br>RST.11-12.1<br>RST.11-12.7<br>RST.11-12.8<br><br>Mathematics:<br>MP.2<br>MP.4 |
|                                   |  |                            |   | LS4.B   |   | Connections to<br>Nature of Science:<br>Scientific<br>Knowledge is<br>Open to Revision | Connections to<br>Nature of<br>Science:<br>Scientific<br>Knowledge<br>Assumes an |  |
| LS4.C                             |  |                            |   |   |   |  |  |  |

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|---|--|---------------------------------|--|---|--|
| <b>HS. Structure and Function</b>   |  |                                 |  |   |  |
|   |  |                                 | in Light of New<br>Evidence<br><br>Constructing<br>Explanations and<br>Designing<br>Solutions<br><br>Engaging in<br>Argument from<br>Evidence  | Order and<br>Consistency in<br>Natural Systems<br><br>Patterns  |  |
| <b>HS. Inheritance and Variation of Traits</b>  |  |                                 |  |   |  |
| HS-LS1-4: Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.                               | <i>Genetics: 3, 8*</i>                         | LS1.A<br><br>LS1.B<br><br>LS3.A | Developing and<br>Using Models   | Systems and<br>Systems Models<br><br>Structure and<br>Function  | Mathematics:<br>MP.4   |
| HS-LS3-1: Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring. | <i>Genetics: 4, 5, 7, 10, 11*, 12*</i>         | LS1.A<br><br>LS3.A<br><br>LS3.B | Analyzing and<br>Interpreting Data<br><br>Asking Questions<br>and Defining<br>Problems<br><br>Constructing<br>Explanations and<br>Designing<br>Solutions<br><br>Developing and<br>Using Models<br><br>Engaging in<br>Argument from<br>Evidence<br><br>Using<br>Mathematics and | Cause and<br>Effect<br><br>Scale,<br>Proportion, and<br>Quantity<br><br>Structure and<br>Function<br><br>Systems and<br>System Models | ELA/Literacy:<br>RST.11-12.1<br>RST.11-12.9<br>WHST.9-12.1<br>WHST.9-12.2<br>WHST.9-12.9<br><br>Mathematics:<br>MP.2 |

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|---|--|----------------------------------|---|--|--|
| <b>HS. Structure and Function</b>   |  |                                  |   |  |  |
|   |  |                                  | Computational<br>Thinking   |  |  |
| HS-LS3-2: Make and defend a claim based on evidence that inheritable genetic variations may result from (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors. | <i>Genetics: 1, 6, 11, 12, 13*</i>             | LS1.A<br>LS3.A<br>LS3.B          | Analyzing and Interpreting Data<br><br>Asking Questions and Defining Problems<br><br>Developing and Using Models<br><br>Engaging in Argument from Evidence  | Cause and Effect<br><br>Scale, Proportion, and Quantity<br><br>Systems and System Models | ELA/Literacy:<br>RST.11-12.1<br>RST.11-12.9<br>WHST.9-12.1<br>WHST.9-12.2<br>WHST.9-12.9<br><br>Mathematics:<br>MP.2 |
| HS-LS3-3: Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.   | <i>Genetics: 4, 5, 6*, 14*</i>                 | LS3.A<br>LS3.B<br>LS4.B<br>LS4.C | Analyzing and Interpreting Data<br><br>Asking Questions and Defining Problems<br><br>Engaging in Argument from Evidence<br><br>Obtaining, Evaluating, and Communicating Information<br><br>Using Mathematics and Computational Thinking | Cause and Effect<br><br>Patterns<br><br>Scale, Proportion, and Quantity                  | ELA/Literacy:<br>RST.11-12.1<br>RST.11-12.9<br>WHST.9-12.1<br>WHST.9-12.9<br><br>Mathematics:<br>MP.2                |
| HS-LS1-8: Use models to illustrate how human reproduction and development maintains continuity of life.   | <i>Cells: 4.1, 4.2</i>                         | LS1.A<br>LS1.B                   | Constructing Explanations and Designing Solutions   | Systems and System Models<br><br>Connections to Nature of Science: Science               | ELA/Literacy:<br>SL.11-12.5<br><br>Mathematics:<br>MP.2  |

| Performance Expectation   | SGI Biology:<br>Unit and<br>Activity<br>Number | Disciplinary<br>Core Ideas                | Science and<br>Engineering<br>Practices  | Crosscutting<br>Concepts  | Common Core<br>ELA/Math  |
|---|--|---|--|---|--|
| <b>HS. Structure and Function</b>   |  |   |  |   |  |
|   |  |   | Developing and<br>Using Models   | is a Human<br>Endeavor  |  |
| <b>HS. Natural Selection and Evolution</b>  |  |   |  |   |  |
| HS-LS4-1: Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.   | <i>Evolution: 6, 7, 8, 9, 10</i>               | LS2.C<br>LS4.A<br>LS4.B<br>LS4.C<br>LS4.D | Analyzing and Interpreting Data<br><br>Constructing Explanations and Designing Solutions<br><br>Engaging in Argument from Evidence<br><br>Obtaining, Evaluating, and Communicating Information | Cause and Effect<br><br>Patterns<br><br>Connections to Nature of Science: Scientific Knowledge Assumes an Order and Consistency in Natural Systems<br><br>Scale, Proportion, and Quantity<br><br>Stability and Change | ELA/Literacy:<br>RST.11-12.1<br>RST.11-12.7<br>RST.11-12.8<br>SL.11-12.4<br>WHST.9-12.2<br>WHST.9-12.9<br><br>Mathematics:<br>MP.2         |
| HS-LS4-2: Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better | <i>Evolution: 1, 2, 3, 4, 5*, 6, 12</i>        | LS2.D<br>LS4.A<br>LS4.B<br>LS4.C<br>LS4.D | Analyzing and Interpreting Data<br><br>Connections to Nature of Science: Scientific Knowledge is Open to Revision in Light of New Evidence<br><br>Constructing Explanations and                | Cause and Effect<br><br>Patterns<br><br>Connections to Nature of Science: Scientific Knowledge Assumes an Order and Consistency in Natural Systems  | ELA/Literacy:<br>RST.11-12.1<br>RST.11-12.7<br>RST.11-12.8<br>SL.11-12.4<br>WHST.9-12.2<br>WHST.9-12.9<br><br>Mathematics:<br>MP.2<br>MP.4 |

| Performance Expectation  | SGI Biology:<br>Unit and<br>Activity<br>Number | Disciplinary<br>Core Ideas | Science and<br>Engineering<br>Practices   | Crosscutting<br>Concepts  | Common Core<br>ELA/Math  |
|--|--|----------------------------|---|---|--|
| <b>HS. Structure and Function</b>  |  |                            |   |   |  |
| able to survive and reproduce in the environment.  |  |                            | Designing Solutions<br><br>Engaging in Argument from Evidence<br><br>Obtaining, Evaluating, and Communicating Information<br><br>Using Mathematics and Computational Thinking |   |  |
| HS-LS4-3: Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait. | <i>Genetics: 14, 15, 16</i>                    | LS1.A                      | Analyzing and Interpreting Data   | Patterns<br><br>Scale, Proportion, and Quantity<br><br>Stability and Change<br><br>Structure and Function | ELA/Literacy:<br>RST.11-12.8<br>WHST.9-12.9<br><br>Mathematics:<br>MP.2                                |
|  |  | LS2.C                      | Asking Questions and Defining Problems  |   |  |
|  |  | LS3.B                      | Constructing Explanations and Designing Solutions   |   |  |
|  |  | LS4.B                      | Obtaining, Evaluating, and Communicating Information  |   |  |
|  |  | LS4.C                      |   |   |  |
|  |  | LS4.D                      |   |   |  |
|  |  | ETS1.B                     |   |   |  |
|  | <i>Evolution: 1, 2, 3, 4*, 5, 6</i>            | LS2.D                      | Analyzing and Interpreting Data   | Cause and Effect  | ELA/Literacy:<br>RST.11-12.1<br>RST.11-12.7<br>RST.11-12.8<br>SL.11-12.4<br>WHST.9-12.2<br>WHST.9-12.9 |
|  |  | LS4.A                      | Connections to Nature of Science: Scientific Knowledge is Open to Revision  | Patterns  |  |
|  |  | LS4.B                      |   | Connections to Nature of Science: Scientific  |  |
|  |  | LS4.C                      |   |   |  |

| Performance Expectation   | SGI Biology:<br>Unit and<br>Activity<br>Number     | Disciplinary<br>Core Ideas                                       | Science and<br>Engineering<br>Practices   | Crosscutting<br>Concepts  | Common Core<br>ELA/Math   |
|---|--|--|---|---|---|
| <b>HS. Structure and Function</b>   |  |  |   |   |   |
|   |  |  | <p>in Light of New Evidence</p> <p>Constructing Explanations and Designing Solutions</p> <p>Engaging in Argument from Evidence</p> <p>Using Mathematics and Computational Thinking</p>  | <p>Knowledge Assumes an Order and Consistency in Natural Systems</p>  | <p>Mathematics:<br/>MP.2<br/>MP.4</p>   |
| <p>HS-LS4-4: Construct an explanation based on evidence for how natural selection leads to adaptation of populations.</p> | <p><i>Evolution: 1, 2, 3, 4, 5, 6*, 11, 12</i></p> | <p>LS2.D</p> <p>LS4.A</p> <p>LS4.B</p> <p>LS4.C</p> <p>LS4.D</p> | <p>Analyzing and Interpreting Data</p> <p>Connections to Nature of Science: Scientific Knowledge is Open to Revision in Light of New Evidence</p> <p>Constructing Explanations and Designing Solutions</p> <p>Developing and Using Models</p> <p>Engaging in Argument from Evidence</p> <p>Obtaining, Evaluating, and</p> | <p>Cause and Effect</p> <p>Patterns</p> <p>Connections to Nature of Science: Scientific Knowledge Assumes an Order and Consistency in Natural Systems</p> | <p>ELA/Literacy:<br/>RST.11-12.1<br/>RST.11-12.7<br/>RST.11-12.8<br/>SL.11-12.4<br/>WHST.9-12.2<br/>WHST.9-12.9</p> <p>Mathematics:<br/>MP.2<br/>MP.4</p> |

| Performance Expectation   | SGI Biology:<br>Unit and<br>Activity<br>Number | Disciplinary<br>Core Ideas                 | Science and<br>Engineering<br>Practices   | Crosscutting<br>Concepts  | Common Core<br>ELA/Math  |
|---|--|--|---|---|--|
| <b>HS. Structure and Function</b>   |  |  |   |   |  |
|   |  |  | Communicating<br>Information<br><br>Using<br>Mathematics and<br>Computational<br>Thinking   |   |  |
| HS-LS4-5: Evaluate the evidence supporting claims that changes in environmental conditions may result in (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species. | <i>Evolution: 6, 7, 8*, 9, 10</i>              | LS2.C<br>LS4.A<br>LS4.B<br>LS4.C<br>LS4.D  | Analyzing and<br>Interpreting Data<br><br>Constructing<br>Explanations and<br>Designing<br>Solutions<br><br>Engaging in<br>Argument from<br>Evidence<br><br>Obtaining,<br>Evaluating, and<br>Communicating<br>Information | Cause and<br>Effect<br><br>Patterns<br><br>Connections to<br>Nature of<br>Science:<br>Scientific<br>Knowledge<br>Assumes an<br>Order and<br>Consistency in<br>Natural Systems<br><br>Scale,<br>Proportion, and<br>Quantity<br><br>Stability and<br>Change | ELA/Literacy:<br>RST.11-12.1<br>RST.11-12.7<br>RST.11-12.8<br>SL.11-12.4<br>WHST.9-12.2<br>WHST.9-12.9<br><br>Mathematics:<br>MP.2 |
| HS-LS4-6: Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.   | <i>Evolution: 12, 13, 14*</i>                  | ETS1.B<br>LS2.C<br>LS4.B<br>LS4.C<br>LS4.D | Constructing<br>Explanations and<br>Designing<br>Solutions<br><br>Obtaining,<br>Evaluating, and<br>Communicating<br>Information<br><br>Using<br>Mathematics and   | Cause and<br>Effect<br><br>Connections to<br>Engineering,<br>Technology, and<br>Applications of<br>Science:<br>Influence of<br>Science,<br>Engineering,<br>and Technology<br>on Society and   | ELA/Literacy:<br>RST.11-12.7<br>RST.11-12.8<br>WHST.9-12.7<br><br>Mathematics:<br>HSN.QA.1<br>MP.2<br>MP.4                         |



| Performance Expectation  | SGI Biology:<br>Unit and<br>Activity<br>Number | Disciplinary<br>Core Ideas                                 | Science and<br>Engineering<br>Practices   | Crosscutting<br>Concepts   | Common Core<br>ELA/Math   |
|--|--|--|---|--|---|
| <b>HS. Structure and Function</b>  |  |  |   |  |   |
|  |  |  | Computational<br>Thinking   | the Natural<br>World<br><br>Patterns<br><br>Stability and<br>Change<br><br>Systems and<br>System Models  |   |
| <b>HS-ETS1-3:</b> Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts. | <i>Evolution: 13, 14*</i>                      | ETS1.B<br><br>LS2.C<br><br>LS4.B<br><br>LS4.C<br><br>LS4.D | Constructing Explanations and Designing Solutions<br><br>Using Mathematics and Computational Thinking | Cause and Effect<br><br>Connections to Engineering, Technology, and Applications of Science: Influence of Science, Engineering, and Technology on Society and the Natural World<br><br>Stability and Change<br><br>Systems and System Models | ELA/Literacy:<br>RST.11-12.8<br>WHST.9-12.7<br><br>Mathematics:<br>HSN.QA.1<br>MP.2<br>MP.4 |
| <b>HS-ETS1-4:</b> Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.   | <i>Evolution: 13, 14*</i>                      | ETS1.B<br><br>LS2.C<br><br>LS4.B<br><br>LS4.C<br><br>LS4.D | Constructing Explanations and Designing Solutions<br><br>Using Mathematics and Computational Thinking | Cause and Effect<br><br>Connections to Engineering, Technology, and Applications of Science: Influence of Science,   | ELA/Literacy:<br>RST.11-12.8<br>WHST.9-12.7<br><br>Mathematics:<br>HSN.QA.1<br>MP.2<br>MP.4 |

| Performance Expectation           | SGI Biology:<br>Unit and<br>Activity<br>Number | Disciplinary<br>Core Ideas | Science and<br>Engineering<br>Practices | Crosscutting<br>Concepts  | Common Core<br>ELA/Math |
|-----------------------------------|--|----------------------------|---|---|-------------------------|
| <b>HS. Structure and Function</b> |  |                            |   |   |                         |
|                                   |  |                            |   | Engineering,<br>and Technology<br>on Society and<br>the Natural<br>World<br><br>Stability and<br>Change<br><br>Systems and<br>System Models |                         |