



## LAB-AIDS Correlations to Texas Essential Knowledge and Skills

### High School Biology<sup>1</sup>

*Science and Global Issues: Biology* (SGI Biology) is written by the SEPUP group, at the Lawrence Hall of Science, University of California Berkeley, under the direction of Dr. Barbara Nagle, SEPUP Director. Development of *SGI Biology* is supported by grants from the National Science Foundation.

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<sup>1</sup> §112.34. Biology, Beginning with School Year 2010-2011 (One Credit). *Effective August 4, 2009, 34 TexReg 5063.*



| Science in Global Issues<br>Biology Unit Title | Student Book Pages | Issue Focus                                                                                                                                                                                                |
|------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sustainability                                 | 1-46               | Aspects of sustainability from a personal, community and global perspective                                                                                                                                |
| Ecology: Living on Earth                       | 43-154             | Sustainability from an ecosystems perspective, with a focus on humans' impacts on ecosystems<br><br>Making decisions regarding fisheries management                                                        |
| Cell Biology: World Health                     | 155-258            | Disparities between developing and developed countries in terms of diseases' impacts on life<br><br>Making decisions about priorities for diseases that limit social, economic, and environmental progress |
| Genetics: Feeding the World                    | 259-412            | Comparison of selective breeding and genetic modification<br><br>Use of genetically modified organisms, particularly in the production of agricultural crops                                               |
| Evolution: Maintaining Diversity               | 413-512            | Conserving genetic, species and ecosystem diversity<br><br>Ecosystems services and intrinsic value models for conservation                                                                                 |

## Key to SEPUP Assessment System:

SEPUP materials include research-based assessment system developed by SEPUP and the Berkeley Evaluation and Assessment Research Group (BEAR) in the University of California Graduate School of Education. Forming the core of the SEPUP Assessment System are the **assessment variables** (content and process skills to be assessed), **assessment questions or tasks** used to gather evidence and **scoring guides** for interpreting students' responses (correspond to assessment variables).

The seven assessment variables are:

Designing Investigations (DI)

Organizing Data (OD)

Analyzing Data (AD)

Understanding Concepts (UC)

Evidence and Trade-offs (ET)

Communication Skills (CS)

Group Interaction (GI)

### *Types of assessment:*

Quick Checks (✓) present opportunities for informal formative assessment and may be used prior to instruction to find out what students know or think. They may also be used to help teachers track students' knowledge of key information or progress in understanding a concept.

Some embedded questions and tasks and all item bank questions are all suitable for summative assessment. Analysis questions are included at the end of each activity.

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

**5 AQ 1-4** means that the standard or benchmark may be assessed using Analysis Questions 1-4 for Activity 5.

**5: AQ 1-4, 5 UC** means that in addition to AQ1-4, AQ 5 uses the Understanding Concepts scoring guide for Activity 5.

**16 Proc UC** means that the procedure (Proc) of Activity 16 contains an embedded task and uses the Understanding Concepts scoring guide.

For more information on program assessment and using SEPUP rubrics, consult the Teacher's Guide, TR part IV.

| <b><i>TEKS Descriptor</i></b>                                                                                                                                                                                                                                                                                                             | <b><i>Location in SGI</i></b>                                      | <b><i>Where assessed</i></b>                                                                                                                                                                |
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| §112.34 (c) Knowledge and skills.                                                                                                                                                                                                                                                                                                         |                                                                    |                                                                                                                                                                                             |
| (1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:                                                                                                                   |                                                                    |                                                                                                                                                                                             |
| (A) demonstrate safe practices during laboratory and field investigations; and                                                                                                                                                                                                                                                            | All SGI labs feature explicit safety notes                         | TR I: 16-17                                                                                                                                                                                 |
| (B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials.                                                                                                                                                                                                              | Eco 5                                                              | 5 AQ 9-11; AQ 11 ET                                                                                                                                                                         |
| (2) Scientific processes. The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:                                                                                                                                                                                       |                                                                    |                                                                                                                                                                                             |
| (A) know the definition of science and understand that it has limitations, as specified in subsection (b)(2) of this section;                                                                                                                                                                                                             | Throughout, e.g., App I: What is science?; see below for detail    |                                                                                                                                                                                             |
| (B) know that hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories;                                                       | Throughout, e.g. Cell 11, 13, 18<br>Gen 8, 12, 16, 18<br>Evo 4, 14 | 11: AQ 3-5; Proc DI, AQ 4 AD<br>13: AQ 3-4, Proc GI<br>18: AQ 1-2, AQ 2 ET<br>8: AQ 2, 4, 6<br>12: AQ 2, AQ I UC<br>16: AQ 4, Proc UC<br>18: AQ 2-3, AQ 2 CS<br>4: AQ 2<br>14: AQ 1 UC & CS |
| (C) know scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science and new technologies are developed; | Evo 4, 14                                                          | 4: AQ 2<br>14: AQ 1 UC & CS                                                                                                                                                                 |
| (D) distinguish between scientific hypotheses and scientific theories;                                                                                                                                                                                                                                                                    | Throughout, e.g., Appendix                                         | 11: AQ 3-5                                                                                                                                                                                  |

| <b><i>TEKS Descriptor</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b><i>Location in SGI</i></b>                             | <b><i>Where assessed</i></b>                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | I<br>Cell 11<br>Gen 8<br>Evo 4                            | 8: AQ 2, 4, 6<br>4: AQ 2                                                                                                                           |
| (E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology;                                                                                                                                                                                                                                                                                                                                                                                                                                      | Throughout,<br>e.g., Eco 10-11<br>Cell 11<br>Gen 8        | 10: AQ 1-4, Proc DI, AQ 4 AD, AQ 6 UC<br>11: AQ 2, 4, 5, 6, 8, AQ 5, 6, 8 UC<br>11: AQ 3-5, AQ 4 AD<br>8: AQ 2, 4, 6                               |
| (F) collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools such as calculators, spreadsheet software, data-collecting probes, computers, standard laboratory glassware, microscopes, various prepared slides, stereoscopes, metric rulers, electronic balances, gel electrophoresis apparatuses, micropipettors, hand lenses, Celsius thermometers, hot plates, lab notebooks or journals, timing devices, cameras, Petri dishes, lab incubators, dissection equipment, meter sticks, and models, diagrams, or samples of biological specimens or structures; | Throughout,<br>e.g., Sus 3<br>Eco 5, 6,10<br>Cell 2, 3, 8 | 3: AQ 1-3<br>5: AQ 2-5, AQ 6 ET<br>6: 1-3<br>10: 1-4, AQ 4 AD, AQ 6 UC<br>2: AQ 1, 2, 4, AQ 4 UC<br>3: AQ 1-3, AQ 5 UC<br>8: AQ 2, 4, 6, aq 1&2 AD |
| (G) analyze, evaluate, make inferences, and predict trends from data; and                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Throughout,<br>e.g.,<br>Sus 1, 2<br>Cell 1, 13<br>Evo 9   | 1: AQ 1-4<br>2: AQ 1-6, Proc GI<br>1: AQ 1-3, Proc GI<br>13: AQ 1-5, Proc GI<br>9: AQ 2, AQ 1 ET                                                   |
| (H) communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.                                                                                                                                                                                                                                                                                                                                                                                                                         | Eco 4<br>Gen 12<br>Evo 8, 10, 14                          | 4: AQ 3-5, AQ 4 ET<br>12: AQ 3, AQ 1 UC<br>8: AQ 2, 4, 6; AQ 1 UC<br>10: Proc 11-12, AQ 2, 3 UC<br>14: Proc 2-4, AQ 1 UC & CS                      |

| <b><i>TEKS Descriptor</i></b>                                                                                                                                                                                                                                                                                                 | <b><i>Location in SGI</i></b>                                                           | <b><i>Where assessed</i></b>                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:                                                                                                                              |                                                                                         |                                                                                                                                                                                                                    |
| (A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student; | Sus 2, 3<br>Eco 1, 3, 4...<br>Cell 6, 9, 12...<br>Gen 5, 11,<br>14...<br>Evo 4, 6, 8... | 2: AQ 1-7, AQ 4 UC<br>3: AQ 1-3, AQ 5 UC<br>1: AQ 1-4, Proc GI<br>3: AQ 1-8, AQ 5&6 UC<br>4: AQ 1-4, AQ 4 ET<br>6: AQ 1-4<br>9: AQ 1-6<br>12: AQ1-8<br>14: AQ 1 UC<br>4: AQ 1-4<br>6: AQ 1-3<br>8: AQ 1-6, AQ 1 UC |
| (B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;                                                                                                                                                    | App H, 'Media Literacy'                                                                 |                                                                                                                                                                                                                    |
| (C) draw inferences based on data related to promotional materials for products and services;                                                                                                                                                                                                                                 | App I 'What is science?'                                                                |                                                                                                                                                                                                                    |
| (D) evaluate the impact of scientific research on society and the environment;                                                                                                                                                                                                                                                | Eco 16, 18<br>Cell 18<br>Gen 20<br>Evo 15                                               | 16: AQ 5, AQ 5 Proc, AQ 1 UC<br>18: AQ 1-2<br>18: AQ 3-4, AQ 2 ET<br>20: AQ 1-4, Proc AD, ET<br>15: AQ 2-4, AQ 1 ET & CS                                                                                           |
| (E) evaluate models according to their limitations in representing biological objects or events; and                                                                                                                                                                                                                          | Eco 5<br>Cell 7<br>Gen 3<br>Evo 3                                                       | 5: AQ 6-7, AQ 6 ET, Proc GI<br>7: AQ 1, 2b-c<br>3: AQ 3-4, Proc UC<br>3: AQ 1-4, AQ 1 UC & CS                                                                                                                      |
| (F) research and describe the history of biology and contributions of scientists.                                                                                                                                                                                                                                             | Gen 5                                                                                   | 5: STT 2                                                                                                                                                                                                           |

| <b><i>TEKS Descriptor</i></b>                                                                                                                                                                                                  | <b><i>Location in SGI</i></b> | <b><i>Where assessed</i></b>                                                                       |
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|                                                                                                                                                                                                                                | Evo 4                         | 4: AQ1-2                                                                                           |
| (4) Science concepts. The student knows that cells are the basic structures of all living things with specialized parts that perform specific functions and that viruses are different from cells. The student is expected to: |                               |                                                                                                    |
| (A) compare and contrast prokaryotic and eukaryotic cells;                                                                                                                                                                     | Cell 6                        | 6: AQ 2, AQ 4 UC                                                                                   |
| (B) investigate and explain cellular processes, including homeostasis, energy conversions, transport of molecules, and synthesis of new molecules; and                                                                         | Cell 4, 5, 6                  | 4: AQ 2 UC<br>5: 1a-c, AQ 1 UC<br>6: AQ 4 UC                                                       |
| (C) compare the structures of viruses to cells, describe viral reproduction, and describe the role of viruses in causing diseases such as human immunodeficiency virus (HIV) and influenza.                                    | Cell 2, 8                     | 2: AQ 2, 4 UC<br>8: AQ 4-6, AQ 1&2 UC                                                              |
| (5) Science concepts. The student knows how an organism grows and the importance of cell differentiation. The student is expected to:                                                                                          |                               |                                                                                                    |
| (A) describe the stages of the cell cycle, including deoxyribonucleic acid (DNA) replication and mitosis, and the importance of the cell cycle to the growth of organisms;                                                     | Cell 13                       | 13: AQ 2-6, Pro GI                                                                                 |
| (B) examine specialized cells, including roots, stems, and leaves of plants; and animal cells such as blood, muscle, and epithelium;                                                                                           | Cell 2, 3, 4, 5, 6            | 2: AQ 1-2, AQ 2 UC<br>3: AQ 1-3, AQ 45 UC<br>4: AQ 2 UC<br>5: AQ 1a-c, AQ 1 UC<br>6: AQ 1, 2, 4 UC |
| (C) describe the roles of DNA, ribonucleic acid (RNA), and environmental factors in cell differentiation; and                                                                                                                  | Gen 12, 14                    | 12: AQ 1, 3, AQ 1 UC<br>14: AQ1                                                                    |
| (D) recognize that disruptions of the cell cycle lead to diseases such as cancer.                                                                                                                                              | Cell 13                       | 13: AQ 4, 5, 6, Proc GI                                                                            |
| (6) Science concepts. The student knows the mechanisms of genetics, including the role of nucleic acids and the principles of Mendelian Genetics. The student is expected to:                                                  |                               |                                                                                                    |
| (A) identify components of DNA, and describe how information for specifying the traits of an organism is carried in the DNA;                                                                                                   | Gen 10                        | 10: AQ 1-4                                                                                         |

| <b><i>TEKS Descriptor</i></b>                                                                                                                                                             | <b><i>Location in SGI</i></b> | <b><i>Where assessed</i></b>                                        |
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| (B) recognize that components that make up the genetic code are common to all organisms;                                                                                                  | Gen 10                        | 10: AQ 1-4                                                          |
| (C) explain the purpose and process of transcription and translation using models of DNA and RNA;                                                                                         | Gen 16                        | 16: AQ 1-5, Proc UC                                                 |
| (D) recognize that gene expression is a regulated process;                                                                                                                                | Gen 17                        | 17: AQ 1-5                                                          |
| (E) identify and illustrate changes in DNA and evaluate the significance of these changes;                                                                                                | Gen 10, 12                    | 10: AQ 1-4<br>12: AQ 1-3, AQ 1 UC                                   |
| (F) predict possible outcomes of various genetic combinations such as monohybrid crosses, dihybrid crosses and non-Mendelian inheritance;                                                 | Gen 4-6, 8                    | 4: AQ 1-3, AQ 4 UC<br>5: AQ 1-2<br>6: AQ 1-2, Proc GI<br>8: AQ 2, 4 |
| (G) recognize the significance of meiosis to sexual reproduction; and                                                                                                                     | Gen 13                        | 13: AQ 1-4                                                          |
| (H) describe how techniques such as DNA fingerprinting, genetic modifications, and chromosomal analysis are used to study the genomes of organisms.                                       | Gen 9, 11                     | 9: AQ 4-5, Proc GI<br>11: AQ 1-5                                    |
| (7) Science concepts. The student knows evolutionary theory is a scientific explanation for the unity and diversity of life. The student is expected to:                                  |                               |                                                                     |
| (A) analyze and evaluate how evidence of common ancestry among groups is provided by the fossil record, biogeography, and homologies, including anatomical, molecular, and developmental; | Evo 5-8                       | 5: AQ 1, 3, 4-5<br>6: AQ 1-3<br>7: AQ 1-4<br>8: AQ 1-3 AQ 1 UC      |
| (B) analyze and evaluate scientific explanations concerning any data of sudden appearance, stasis, and sequential nature of groups in the fossil record;                                  | Evo 5-8                       | 5: AQ 1, 3, 4-5<br>6: AQ 1-3<br>7: AQ 1-4<br>8: AQ 1-3, AQ 1 UC     |
| (C) analyze and evaluate how natural selection produces change in populations, not individuals;                                                                                           | Evo 11                        | 11: AQ 1-4                                                          |
| (D) analyze and evaluate how the elements of natural selection, including inherited variation, the potential of a population to produce more offspring than can survive,                  | Evo 4, 11, 12                 | 4: AQ 3a-b<br>11: AQ 1-4<br>12: AQ 1-4                              |



| <b><i>TEKS Descriptor</i></b>                                                                                                                                                                                | <b><i>Location in SGI</i></b>    | <b><i>Where assessed</i></b>                                                                                                                       |
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| and a finite supply of environmental resources, result in differential reproductive success;                                                                                                                 |                                  |                                                                                                                                                    |
| (E) analyze and evaluate the relationship of natural selection to adaptation and to the development of diversity in and among species;                                                                       | Evo 11-12                        | 11: AQ 1-4<br>12: AQ 1-4                                                                                                                           |
| (F) analyze and evaluate the effects of other evolutionary mechanisms, including genetic drift, gene flow, mutation, and recombination; and                                                                  | Evo 13-14                        | 13: AQ 1-5<br>14: AQ 1, AQ 1 UC & CS                                                                                                               |
| (G) analyze and evaluate scientific explanations concerning the complexity of the cell.                                                                                                                      | Not covered                      |                                                                                                                                                    |
| (8) Science concepts. The student knows that taxonomy is a branching classification based on the shared characteristics of organisms and can change as new discoveries are made. The student is expected to: |                                  |                                                                                                                                                    |
| (A) define taxonomy and recognize the importance of a standardized taxonomic system to the scientific community;                                                                                             | Evo 6-7                          | 6: AQ 2-3<br>7: AQ 1-4                                                                                                                             |
| (B) categorize organisms using a hierarchical classification system based on similarities and differences shared among groups; and                                                                           | Evo 5-8                          | 5: AQ 1, 3, 4-5<br>6: AQ 1-3<br>7: AQ 1-4<br>8: AQ 1-3, AQ 1 UC                                                                                    |
| (C) compare characteristics of taxonomic groups, including archaea, bacteria, protists, fungi, plants, and animals.                                                                                          | Evo 7-8<br>Appendix G            | 7: AQ 1-4<br>8: AQ 1-3, AQ 1 UC                                                                                                                    |
| (9) Science concepts. The student knows the significance of various molecules involved in metabolic processes and energy conversions that occur in living organisms. The student is expected to:             |                                  |                                                                                                                                                    |
| (A) compare the structures and functions of different types of biomolecules, including carbohydrates, lipids, proteins, and nucleic acids;                                                                   | Eco 9, 11<br>Cells 10, 11,<br>12 | 9: AQ 6, 7; AQ 3 & 6<br>ET<br>11: AQ 7-9; AQ 5, 6, 8<br>UC; Proc DI<br>10: AQ 1-3; AQ 3 UC,<br>Proc CS<br>11: AQ 1-6; Proc DI,<br>AQ 4 AD, Proc GI |

| <b><i>TEKS Descriptor</i></b>                                                                                                                                                                                   | <b><i>Location in SGI</i></b> | <b><i>Where assessed</i></b>                                                                          |
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|                                                                                                                                                                                                                 |                               | 12: AQ 1-4; AQ 8 UC                                                                                   |
| (B) compare the reactants and products of photosynthesis and cellular respiration in terms of energy and matter;                                                                                                | Eco 9-10<br>Cell 12           | 9: AQ 1, 2, 4, 5-6<br>10: AQ 5<br>12: AQ 1, 3, 4-5, AQ 8 UC                                           |
| (C) identify and investigate the role of enzymes; and                                                                                                                                                           | Cell 11                       | 11: AQ 1-6; Proc DI, AQ 4 AD, Proc GI                                                                 |
| (D) analyze and evaluate the evidence regarding formation of simple organic molecules and their organization into long complex molecules having information such as the DNA molecule for self-replicating life. | Gen 10, 12, 16                | 12: AQ 1 UC<br>16: Proc UC                                                                            |
| (10) Science concepts. The student knows that biological systems are composed of multiple levels. The student is expected to:                                                                                   |                               |                                                                                                       |
| (A) describe the interactions that occur among systems that perform the functions of regulation, nutrient absorption, reproduction, and defense from injury or illness in animals;                              | Not covered                   |                                                                                                       |
| (B) describe the interactions that occur among systems that perform the functions of transport, reproduction, and response in plants; and                                                                       | Eco 9, 10, 11<br>Cell 12      | 9: AQ 1, 4, 7, AQ 3 & 6, UC<br>10: AQ 6 UC, AQ 4 AD, Proc DI<br>11: AQ 5, 6, 9<br>12: AQ 1-8, AQ 8 UC |
| (C) analyze the levels of organization in biological systems and relate the levels to each other and to the whole system.                                                                                       | Eco 9<br>Cell 3               | 9: AQ 1, 4, 7, AQ 3 & 6, UC<br><br>3: AQ 4-5, AQ 5 UC                                                 |
| (11) Science concepts. The student knows that biological systems work to achieve and maintain balance. The student is expected to:                                                                              |                               |                                                                                                       |
| (A) describe the role of internal feedback mechanisms in the maintenance of homeostasis;                                                                                                                        | Eco 1, 4, 16-17               | 1: AQ 2-3, Proc GI<br>4: AQ 2-4, AQ 4 ET<br>16: AQ 1-5, AQ 5 Proc, AQ 1 UC<br>17: AQ 1-4, AQ 1&2 UC   |
| (B) investigate and analyze how organisms,                                                                                                                                                                      | Eco 1-4                       | 1: AQ 1-4, Proc GI                                                                                    |

| <b><i>TEKS Descriptor</i></b>                                                                                                                     | <b><i>Location in SGI</i></b>               | <b><i>Where assessed</i></b>                                                       |
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| populations, and communities respond to external factors;                                                                                         |                                             | 2: AQ 1-7, AQ 1 AD<br>3: AQ 5-6, AQ 5-6 UC<br>4: AQ 1-4, AQ 4 ET                   |
| (C) summarize the role of microorganisms in both maintaining and disrupting the health of both organisms and ecosystems; and                      | Cell 2 (Malaria case study)<br><br>Eco 1, 6 | 2: AQ 2, 5, 6, AQ 4 UC<br><br>1: Case study 1, Proc GI<br>6: AQ 1-6                |
| (D) describe how events and processes that occur during ecological succession can change populations and species diversity.                       | Eco 1, 4, 16-17                             | 1: AQ 2-3<br>4: AQ 2-4<br>16: AQ 1-5, AQ 5 Proc, AQ 1 UC<br>17: AQ 1-4, AQ 1-2, UC |
| (12) Science concepts. The student knows that interdependence and interactions occur within an environmental system. The student is expected to:  |                                             |                                                                                    |
| (A) interpret relationships, including predation, parasitism, commensalism, mutualism, and competition among organisms;                           | Eco 13                                      | 13: AQ 1-4, AQ 3 UC                                                                |
| (B) compare variations and adaptations of organisms in different ecosystems;                                                                      | Eco 3-4                                     | 3: AQ 4-6, AQ 3 UC<br>4: AQ 1-4, AQ 4 ET                                           |
| (C) analyze the flow of matter and energy through trophic levels using various models, including food chains, food webs, and ecological pyramids; | Eco 7-9                                     | 7: AQ 1-7, AQ 2-4 UC<br>8: AQ 1-5, AQ 3 UC<br>9: AQ 7, AQ 3, 6 UC                  |
| (D) recognize that long-term survival of species is dependent on changing resource bases that are limited;                                        | Eco 1, 16, 17                               | 1: AQ 2-3, Proc GI<br>16: AQ 1-5, AQ 1 UC<br>17: AQ 1-4, AQ 1-2 UC                 |
| (E) describe the flow of matter through the carbon and nitrogen cycles and explain the consequences of disrupting these cycles; and               | Eco 8                                       | 8: AQ 1-5, AQ 3 UC                                                                 |
| (F) describe how environmental change can impact ecosystem stability.                                                                             | Eco 1, 16, 17                               | 1: AQ 2-3, Proc GI<br>16: AQ 1-5AQ 1 UC<br>17: AQ 1-4, AQ 1-2 UC                   |