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| **Course #** | 2000010, 2000020 |
| **Question Type:** | Multiple Choice |
| **Cognitive Complexity:** | 1 Low, 1 Moderate, 1 High, and 1 Moderate or High  |
| **Specification 1** |  |
| **Standard #:** | SC.7.N.1.1 |
| **Standard Text:** | Define a problem from the seventh grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions. |
| **Benchmark #** |  |
| **Benchmark Text:** |  |
| **Learning Goal:** | The student will understand and apply appropriate methods of scientific investigation, experimentation, and research. |
| **Clarification (Additional Info):** | Students will design and carry out a scientific investigation.  |
| **Content Limits:** | Focus upon Hypothesis, Independent Variable, Outcome/Dependent Variable, Control, Predict, Analyze, Manage Data, Conclusion. |
| **Specification 2** |  |
| **Standard #:** | SC.6.L.15.1 |
| **Standard Text:** | Analyze and describe how and why organisms are classified according to shared characteristics with emphasis on the Linnaean system combined with the concept of domains. |
| **Benchmark #** |  |
| **Benchmark Text:** |  |
| **Learning Goal:** | Students will be able to apply their knowledge of classification to determine the correct classification of an organism. |
| **Clarification (Additional Info):** | \*Describe the general characteristics of each of the Kingdoms of organisms (L.15.1)\*Describe the general characteristics of each of the Domains of organisms (L.15.1)\*Explain the hierarchy of classification starting with Domains and ending with Species (L.15.1) |
| **Content Limits:** | Focus on characteristics of Domains, Kingdoms, Binomial Nomenclature only |

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| **Question Type:** | Multiple Choice |
| **Cognitive Complexity:** | 1 Low, 1 Moderate, 1 High, and 1 Moderate or High  |
| **Specification 3** |  |
| **Standard #:** | SC.6.L.14.2 |
| **Standard Text:** | Investigate and explain the components of the scientific theory of cells (cell theory): all organisms are composed of cells (single-celled or multi-cellular), all cells come from pre-existing cells, and cells are the basic unit of life.  |
| **Benchmark #** |  |
| **Benchmark Text:** |  |
| **Learning Goal:** | Students will be able to investigate and explain the components of the scientific theory of cells (cell theory): all organisms are composed of cells (single-celled or multi-cellular), all cells come from preexisting cells, and cells are the basic unit of life.  |
| **Clarification (Additional Info):** |  |
| **Content Limits:** | Focus on the 3 basic parts of the cell theory. |
| **Specification 4** |  |
| **Standard #:** | SC.6.L.14.4 |
| **Standard Text:** | Compare and contrast the structure and function of major organelles of plant and animal cells, including cell wall, cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria, and vacuoles.  |
| **Benchmark #** |  |
| **Benchmark Text:** |  |
| **Learning Goal:** | Students will be able to compare and contrast the structure and function of major organelles of plant and animal cells, including cell wall, cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria, and vacuoles.  |
| **Clarification (Additional Info):** | Distinguish between plant and animal cells.  |
| **Content Limits:** | Focus only on the vocabulary in the learning goal. |

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| **Course #** | 2000010, 2000020 |
| **Question Type:** | Multiple Choice |
| **Cognitive Complexity:** | 1 Low, 1 Moderate, 1 High, and 1 Moderate or High  |
| **Specification 5** |  |
| **Standard #:** | SC.8.L.18.1 |
| **Standard Text:** | Describe and investigate the process of photosynthesis, such as the roles of light, carbon dioxide, water and chlorophyll; production of food; release of oxygen.  |
| **Benchmark #** |  |
| **Benchmark Text:** |  |
| **Learning Goal:** | Students will be able to describe and investigate the process of photosynthesis, such as the roles of light, carbon dioxide, water and chlorophyll; production of food; release of oxygen.  |
| **Clarification (Additional Info):** | Understand that there is a cycle between photosynthesis and respiration. |
| **Content Limits:** | Need to know the products and reactants in word form ( no chemical formula). |
| **Specification 6** |  |
| **Standard #:** | SC.8.L.18.2 |
| **Standard Text:** | Describe and investigate how cellular respiration breaks down food to provide energy and releases carbon dioxide.  |
| **Benchmark #** |  |
| **Benchmark Text:** |  |
| **Learning Goal:** | Students will be able to describe and investigate how cellular respiration breaks down food to provide energy and releases carbon dioxide.  |
| **Clarification (Additional Info):** | Understand that there is a cycle between photosynthesis and respiration. |
| **Content Limits:** | Do not focus on ATP just Energy as a product of cell respiration. |

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| **Course Name:** | M/J Life Science and MJ Life Science Advanced |
| **Course #** | 2000010, 2000020 |
| **Question Type:** | Multiple Choice |
| **Cognitive Complexity:** | 1 Low, 1 Moderate, 1 High, and 1 Moderate or High  |
| **Specification 7** |  |
| **Standard #:** | SC.6.L.14.5 |
| **Standard Text:** | Identify and investigate the general functions of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, and musculoskeletal) and describe ways these systems interact with each other to maintain homeostasis. |
| **Benchmark #** |  |
| **Benchmark Text:** |  |
| **Learning Goal:** | The student will identify and investigate the functions of organs in the major systems of the human body and describe ways these systems interact with each other to maintain homeostasis.  |
| **Clarification (Additional Info):** | Explain how each system interacts with other systems, explain how each system contributes to homeostasis and how the systems together maintain homeostasis. |
| **Content Limits:** | No specific body systems, only focus on body systems maintaining homeostasis. |

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| **Course Name:** | M/J Life Science and MJ Life Science Advanced |
| **Course #** | 2000010, 2000020 |
| **Question Type:** | Multiple Choice |
| **Cognitive Complexity:** | 1 Low, 1 Moderate, 1 High, and 1 Moderate or High  |
| **Specification 8** |  |
| **Standard #:** | SC.7.L.16.1 |
| **Standard Text:** | Understand and explain that every organism requires a set of instructions that specifies its traits, that this hereditary information (DNA) contains genes located in the chromosomes of each cell, and that heredity is the passage of these instructions from one generation to another. |
| **Benchmark #** |  |
| **Benchmark Text:** |  |
| **Learning Goal:** | Students will be able to investigate the concept of heredity and species diversity in terms of cellular reproduction, DNA, and traits. |
| **Clarification (Additional Info):** | Understand and explain relevant information related to DNA including: \*Every organism requires a set of instructions that specifies its traits. \*Hereditary information (DNA) contains genes located in the chromosomes of each cell.\*Heredity is the passage of these instructions from one generation to another.\*Our understanding of DNA and the structure of the DNA molecule has changed over time as new evidence has been discovered. |
| **Content Limits:** | Focus on sexual vs. asexual reproduction rather than mitosis and meiosis |
| **Specification 9** |  |
| **Standard #:** | SC.7.L.16.2 |
| **Standard Text:** | Determine the probabilities for genotype and phenotype combinations using Punnett Squares and pedigrees.  |
| **Benchmark #** |  |
| **Benchmark Text:** |  |
| **Learning Goal:** | Students will be able to determine the probabilities for genotype and phenotype combinations using Punnett Squares. |
| **Clarification (Additional Info):** |  |
| **Content Limits:** | Do not include pedigrees or multiple alleles |

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| **Course Name:** | M/J Life Science and MJ Life Science Advanced |
| **Course #** | 2000010, 2000020 |
| **Question Type:** | Multiple Choice |
| **Cognitive Complexity:** | 1 Low, 1 Moderate, 1 High, and 1 Moderate or High  |
| **Specification 10** |  |
| **Standard #:** | SC.7.L.15.2 |
| **Standard Text:** | Explore the scientific theory of evolution by recognizing and explaining ways in which genetic variation and environmental factors contribute to evolution by natural selection and diversity of organisms. |
| **Benchmark #** |  |
| **Benchmark Text:** |  |
| **Learning Goal:** | Students will be able to explore the scientific theory of evolution by recognizing and explaining ways in which genetic variation and environmental factors contribute to evolution by natural selection and diversity of organisms. |
| **Clarification (Additional Info):** | Recognize and explain ways in which genetic variation and environmental factors contribute to evolution by natural selection and diversity of organisms. |
| **Content Limits:** | Human evolution will not be covered. |
| **Specification 11** |  |
| **Standard #:** | SC.7.L.17.1 |
| **Standard Text:** | Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.  |
| **Benchmark #** |  |
| **Benchmark Text:** |  |
| **Learning Goal:** | Students will be able to explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.  |
| **Clarification (Additional Info):** | Explain and illustrate the roles of and relationships among producers, consumers, and decomposers . Explain how energy is transferred in a food web.  |
| **Content Limits:** |  |