

<b>RS</b>	<b>Readiness Standard</b>
<b>SS</b>	<b>Supporting Standard</b>
<b>Process Skills</b>	

<b>Reporting Category 1: Cell Structure and Function (10 questions)</b>		
B.4A	SS	Compare and contrast prokaryotic and eukaryotic cells including their complexity and compare and contract scientific explanations for cellular complexity.
B.4B	RS	Investigate and explain cellular processes, including homeostasis, transport of molecules.
B.4C	RS	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.
B.5A	RS	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.
B.5B	SS	Describe the roles of DNA, ribonucleic acid (RNA), and environmental factors in cell differentiation.
B.5C	SS	Recognize that disruptions of the cell cycle lead to diseases such as cancer.
<b>Reporting Category 2 Mechanisms of Genetics (10 questions)</b>		
B.6A	RS	Identify components of DNA, and identify how information for specifying the traits of an organism is carried in the DNA and examine scientific explanations for the origins of DNA.
B.6B	SS	Recognize that components that make up the genetic code are common to all organisms.
B.6C	SS	Explain the purpose and process of transcription and translation using models of DNA and RNA.
B.6D	SS	Recognize that gene expression is a regulated process.
B.6E	RS	Identify and illustrate changes in DNA and evaluate the significance of these changes.
B.6F	RS	Predict possible outcomes of various genetic combinations such as monohybrid crosses, dihybrid crosses and non-Mendelian inheritance.
B.6G	SS	Recognize the significance of meiosis to sexual reproduction.

<b>Reporting Category 3 Biological Evolution and Classification (10 questions)</b>		
B.7A	RS	Analyze and evaluate how evidence of common ancestry among groups is provided by the fossil record, biogeography, and homologies, including anatomical, molecular, and developmental.
B.7B	SS	Examine scientific explanations of abrupt appearance and stasis in the fossil record.
B.7C	SS	Analyze and evaluate how natural selection produces change in populations, not individuals.
B.7D	SS	Analyze and evaluate how the elements of natural selection, including inherited variation, the potential of a population to produce more offspring than can survive, and a finite supply of environmental resources, result in differential reproductive success.
B.7E	RS	Analyze and evaluate the relationship of natural selection to adaptation and to the development of diversity in and among species.
B.7F	SS	Analyze and of other evolutionary mechanisms, including genetic drift, gene flow, mutation, and recombination.
B.8A	SS	Define taxonomy and recognize the importance of a standardized taxonomic system to the scientific community.
B.8B	RS	Categorize organisms using a hierarchical classification system based on similarities and differences shared among groups.
B.8C	SS	Compare characteristics of taxonomic groups, including archaea, bacteria, protists, fungi, plants, and animals.
<b>Reporting Category 4 Biological Processes and Systems (10 questions)</b>		
B.9A	RS	Compare the functions of different types of biomolecules, including carbohydrates, lipids, proteins, and nucleic acids.
B.9B	SS	Compare the reactants and products of photosynthesis and cellular respiration in terms of energy, energy conversions and matter.
B.9C	SS	Identify and investigate the role of enzymes.
B.10A	RS	Describe the interactions that occur among systems that perform the functions of regulation, nutrient absorption, reproduction, and defense from injury or illness in animals.
B.10B	RS	Describe the interactions that occur among systems that perform the functions of transport, reproduction, and response in plants.
B.10C	SS	Analyze the levels of organization in biological systems and relate the levels to each other and to the whole system.

**Reporting Category 5  
Interdependence within Environmental Systems  
(10 questions)**

B.11A	SS	Summarize the role of microorganisms in both maintaining and disrupting the health of both organisms and ecosystems.
B.11B	RS	Describe how events and processes that occur during ecological succession can change populations and species diversity.
B.12A	RS	Interpret relationships, including predation, parasitism, commensalism, mutualism, and competition, among organisms.
B.12B	SS	Compare variations and adaptations of organisms in different ecosystems.
B.12C	RS	Analyze the flow of matter and energy through trophic levels using various models, including food chains, food webs, and ecological pyramids.
B.12D	SS	Describe the flow of matter through the carbon and nitrogen cycles and explain the consequences of disrupting these cycles.
B.12E	RS	Describe how environmental change can impact ecosystem stability.

**Process Skills  
Embedded in at least 40% of the questions**

B.1A	Demonstrate safe practices during laboratory and field investigations.
B.1B	Demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials.
B.2A	Know the definition of science and understand that it has limitations, as specified in subsection (b)(2) of this section.
B.2B	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.
B.2C	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.

B.2D	Distinguish between scientific hypotheses and scientific theories.
B.2E	Plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology.
B.2F	Collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools such as data-collecting probes, standard laboratory glassware, microscopes, various prepared slides, stereoscopes, metric rulers, balances, gel electrophoresis apparatuses, micropipettes, hand lenses, Celsius thermometers, hot plates, lab notebooks or journals, timing devices, Petri dishes, lab incubators, dissection equipment, meter sticks, and models, diagrams, or samples of biological specimens or structures.
B.2G	Analyze, evaluate, make inferences, and predict trends from data.
B.2H	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.
B.3A	Analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, so as to encourage critical thinking by the student.
B.3B	Communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials.
B.3C	Draw inferences based on data related to promotional materials for products and services.
B.3D	Evaluate the impact of scientific research on society and the environment.
B.3E	Evaluate models according to their limitations in representing biological objects or events.
B.3F	Research and describe the history of biology and contributions of scientists.

Reporting Categories	Number of Standards		Number of Questions	
Readiness Standards	Total Number of Standards	16	60% –65%	30-32
Supporting Standards	Total Number of Standards	19	35%–40%	18-20