



Biology Assessment

Eligible Texas Essential Knowledge and Skills

This document outlines the assessed curriculum for the Student Success Tool (SST), which will be implemented in Fall 2027. The SST assessed curriculum remains unchanged from the STAAR assessed curriculum.

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SST Biology Assessment

Strand 1: Biological Structures, Functions, and Processes

- B.5 The student knows that biological structures at multiple levels of organization perform specific functions and processes that affect life. The student is expected to:
- (A) relate the functions of different types of biomolecules, including carbohydrates, lipids, proteins, and nucleic acids, to the structure and function of a cell **Supporting Standard**
 - (B) compare and contrast prokaryotic and eukaryotic cells, including their complexity, and compare and contrast scientific explanations for cellular complexity **Readiness Standard**
 - (D) compare the structures of viruses to cells and explain how viruses spread and cause disease **Supporting Standard**
- B.6 The student knows how an organism grows and the importance of cell differentiation. The student is expected to:
- (A) explain the importance of the cell cycle to the growth of organisms, including an overview of the stages of the cell cycle and deoxyribonucleic acid (DNA) replication models **Supporting Standard**
 - (B) explain the process of cell specialization through cell differentiation, including the role of environmental factors **Supporting Standard**
 - (C) relate disruptions of the cell cycle to how they lead to the development of diseases such as cancer **Readiness Standard**
- B.11 The student knows the significance of matter cycling, energy flow, and enzymes in living organisms. The student is expected to:
- (A) explain how matter is conserved, and energy is transferred during photosynthesis and cellular respiration using models, including the chemical equations for these processes **Supporting Standard**
 - (B) investigate and explain the role of enzymes in facilitating cellular processes **Readiness Standard**

- B.12 The student knows that multicellular organisms are composed of multiple systems that interact to perform complex functions. The student is expected to:
- (A) analyze the interactions that occur among systems that perform the functions of regulation, nutrient absorption, reproduction, and defense from injury or illness in animals ***Supporting Standard***
 - (B) explain how the interactions that occur among systems that perform functions of transport, reproduction, and response in plants are facilitated by their structures ***Readiness Standard***

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Strand 2: Mechanisms of Genetics

- B.7 The student knows the role of nucleic acids in gene expression. The student is expected to:
- (A) identify components of DNA, explain how the nucleotide sequence specifies some traits of an organism, and examine scientific explanations for the origin of DNA **Supporting Standard**
 - (B) describe the significance of gene expression and explain the process of protein synthesis using models of DNA and ribonucleic acid (RNA) **Supporting Standard**
 - (C) identify and illustrate changes in DNA and evaluate the significance of these changes **Readiness Standard**
- B.8 The student knows the role of nucleic acids and the principles of inheritance and variation of traits in Mendelian and non-Mendelian genetics. The student is expected to:
- (A) analyze the significance of chromosome reduction, independent assortment, and crossing-over during meiosis in increasing diversity in populations of organisms that reproduce sexually **Supporting Standard**
 - (B) predict possible outcomes of various genetic combinations using monohybrid and dihybrid crosses, including non-Mendelian traits of incomplete dominance, codominance, sex-linked traits, and multiple alleles **Readiness Standard**

Strand 3: Biological Evolution

- B.9 The student knows evolutionary theory is a scientific explanation for the unity and diversity of life that has multiple lines of evidence. 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 **Supporting Standard**
 - (B) examine scientific explanations for varying rates of change such as gradualism, abrupt appearance, and stasis in the fossil record **Readiness Standard**
- B.10 The student knows evolutionary theory is a scientific explanation for the unity and diversity of life that has multiple mechanisms. The student is expected to:
- (A) analyze and evaluate how natural selection produces change in populations and not in individuals **Supporting Standard**
 - (B) 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 **Readiness Standard**
 - (C) analyze and evaluate how natural selection may lead to speciation **Readiness Standard**
 - (D) analyze evolutionary mechanisms other than natural selection, including genetic drift, gene flow, mutation, and genetic recombination, and their effect on the gene pool of a population **Supporting Standard**

Strand 4: Interdependence within Environmental Systems

- B.13 The student knows that interactions at various levels of organization occur within an ecosystem to maintain stability. The student is expected to:
- (A) investigate and evaluate how ecological relationships, including predation, parasitism, commensalism, mutualism, and competition, influence ecosystem stability **Supporting Standard**
 - (B) analyze how ecosystem stability is affected by disruptions to the cycling of matter and flow of energy through trophic levels using models **Supporting Standard**
 - (C) explain the significance of the carbon and nitrogen cycles to ecosystem stability and analyze the consequences of disrupting these cycles **Supporting Standard**
 - (D) explain how environmental change, including change due to human activity, affects biodiversity and analyze how changes in biodiversity impact ecosystem stability **Readiness Standard**