

**2023 STAAR Released Blueprint
Biology
Spring, 2023–2024**

Test Code	Year	Form
3091	23	3
Last Revision Date: 10/16/2023		

SE Descriptions	Reporting Category	TEKS/SE	R or S	No. of Items	% of Test
1. 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 compare and contrast prokaryotic and eukaryotic cells, including their complexity, and compare and contrast scientific explanations for cellular complexity.	1	B.4A	S	1	2%
2. 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 investigate and explain cellular processes, including homeostasis and transport of molecules.	1	B.4B	R	2	4%
3. 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 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.	1	B.4C	R	2	4%
4. Science concepts. The student knows how an organism grows and the importance of cell differentiation. The student is expected to 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.	1	B.5A	R	2	4%
5. Science concepts. The student knows how an organism grows and the importance of cell differentiation. The student is expected to describe the roles of DNA, ribonucleic acid (RNA), and environmental factors in cell differentiation.	1	B.5B	S	1	2%
6. Science concepts. The student knows how an organism grows and the importance of cell differentiation. The student is expected to recognize that disruptions of the cell cycle lead to diseases such as cancer.	1	B.5C	S	1	2%
7. Science concepts. The student knows the mechanisms of genetics such as the role of nucleic acids and the principles of Mendelian and non-Mendelian genetics. The student is expected to identify components of DNA, identify how information for specifying the traits of an organism is carried in the DNA, and examine scientific explanations for the origin of DNA.	2	B.6A	R	2	4%
8. Science concepts. The student knows the mechanisms of genetics such as the role of nucleic acids and the principles of Mendelian and non-Mendelian genetics. The student is expected to recognize that components that make up the genetic code are common to all organisms.	2	B.6B	S	1	2%

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9. Science concepts. The student knows the mechanisms of genetics such as the role of nucleic acids and the principles of Mendelian and non-Mendelian genetics. The student is expected to explain the purpose and process of transcription and translation using models of DNA and RNA.	2	B.6C	S	1	2%
10. Science concepts. The student knows the mechanisms of genetics such as the role of nucleic acids and the principles of Mendelian and non-Mendelian genetics. The student is expected to recognize that gene expression is a regulated process.	2	B.6D	S	1	2%
11. Science concepts. The student knows the mechanisms of genetics such as the role of nucleic acids and the principles of Mendelian and non-Mendelian genetics. The student is expected to identify and illustrate changes in DNA and evaluate the significance of these changes.	2	B.6E	R	1	2%
12. Science concepts. The student knows the mechanisms of genetics such as the role of nucleic acids and the principles of Mendelian and non-Mendelian genetics. The student is expected to predict possible outcomes of various genetic combinations such as monohybrid crosses, dihybrid crosses, and non-Mendelian inheritance.	2	B.6F	R	1	2%
13. Science concepts. The student knows the mechanisms of genetics such as the role of nucleic acids and the principles of Mendelian and non-Mendelian genetics. The student is expected to recognize the significance of meiosis to sexual reproduction.	2	B.6G	S	1	2%
14. Science concepts. The student knows evolutionary theory is a scientific explanation for the unity and diversity of life. The student is expected to analyze and evaluate how evidence of common ancestry among groups is provided by the fossil record, biogeography, and homologies, including anatomical, molecular, and developmental.	3	B.7A	R	1	2%
15. Science concepts. The student knows evolutionary theory is a scientific explanation for the unity and diversity of life. The student is expected to examine scientific explanations of abrupt appearance and stasis in the fossil record.	3	B.7B	S	1	2%
16. Science concepts. The student knows evolutionary theory is a scientific explanation for the unity and diversity of life. The student is expected to 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.	3	B.7D	S	1	2%
17. Science concepts. The student knows evolutionary theory is a scientific explanation for the unity and diversity of life. The student is expected to analyze and evaluate the relationship of natural selection to adaptation and to the development of diversity in and among species.	3	B.7E	R	1	2%
18. Science concepts. The student knows evolutionary theory is a scientific explanation for the unity and diversity of life. The student is expected to analyze other evolutionary mechanisms, including genetic drift, gene flow, mutation, and recombination.	3	B.7F	S	1	2%

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19. 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 define taxonomy and recognize the importance of a standardized taxonomic system to the scientific community.	3	B.8A	S	1	2%
20. 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 categorize organisms using a hierarchical classification system based on similarities and differences shared among groups.	3	B.8B	R	2	4%
21. 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 compare characteristics of taxonomic groups, including archaea, bacteria, protists, fungi, plants, and animals.	3	B.8C	S	1	2%
22. Science concepts. The student knows that biological systems are composed of multiple levels. The student is expected to describe the interactions that occur among systems that perform the functions of regulation, nutrient absorption, reproduction, and defense from injury or illness in animals.	4	B.10A	R	2	4%
23. Science concepts. The student knows that biological systems are composed of multiple levels. The student is expected to describe the interactions that occur among systems that perform the functions of transport, reproduction, and response in plants.	4	B.10B	R	2	4%
24. Science concepts. The student knows that biological systems are composed of multiple levels. The student is expected to analyze the levels of organization in biological systems and relate the levels to each other and to the whole system.	4	B.10C	S	1	2%
25. 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 compare the functions of different types of biomolecules, including carbohydrates, lipids, proteins, and nucleic acids.	4	B.9A	R	2	4%
26. 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 compare the reactants and products of photosynthesis and cellular respiration in terms of energy, energy conversions, and matter.	4	B.9B	S	1	2%
27. 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 identify and investigate the role of enzymes.	4	B.9C	S	1	2%
28. Science concepts. The student knows that biological systems work to achieve and maintain balance. The student is expected to summarize the role of microorganisms in both maintaining and disrupting the health of both organisms and ecosystems.	5	B.11A	S	1	2%
29. Science concepts. The student knows that biological systems work to achieve and maintain balance. The student is expected to describe how events and processes that occur during ecological succession can change populations and species diversity.	5	B.11B	R	2	4%

SE Descriptions		Reporting Category	TEKS/SE	R or S	No. of Items	% of Test
30. Science concepts. The student knows that interdependence and interactions occur within an environmental system. The student is expected to interpret relationships, including predation, parasitism, commensalism, mutualism, and competition, among organisms.		5	B.12A	R	1	2%
31. Science concepts. The student knows that interdependence and interactions occur within an environmental system. The student is expected to compare variations and adaptations of organisms in different ecosystems.		5	B.12B	S	2	4%
32. Science concepts. The student knows that interdependence and interactions occur within an environmental system. The student is expected to analyze the flow of matter and energy through trophic levels using various models, including food chains, food webs, and ecological pyramids.		5	B.12C	R	2	4%
33. Science concepts. The student knows that interdependence and interactions occur within an environmental system. The student is expected to describe the flow of matter through the carbon and nitrogen cycles and explain the consequences of disrupting these cycles.		5	B.12D	S	1	2%
34. Science concepts. The student knows that interdependence and interactions occur within an environmental system. The student is expected to describe how environmental change can impact ecosystem stability.		5	B.12E	R	1	2%
Item Types by Point	1-point questions (MC & TE Items)	Total		R	26	58%
	2-point questions (TE Items)			S	19	42%
	Total			All	45	100%

Note: *R* = Readiness Standard, *S* = Supporting Standard. Percentages are rounded to the nearest whole number.

- Reporting Categories:**
1. Cell Structure and Function
 2. Mechanisms of Genetics
 3. Biological Evolution and Classification
 4. Biological Processes and Systems
 5. Interdependence within Environmental Systems

Scientific Investigation and Reasoning Skills Eligible for Assessment

SE Descriptions	SE
1. Demonstrate safe practices during laboratory and field investigations.	B.1A
2. Demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials.	B.1B
3. Know the definition of science and understand that it has limitations, as specified in subsection (b)(2) of this section.	B.2A
4. 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 that have been tested over a wide variety of conditions are incorporated into theories.	B.2B
5. 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.2C
6. Distinguish between scientific hypotheses and scientific theories.	B.2D
7. Plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology.	B.2E
8. 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.2F
9. Analyze, evaluate, make inferences, and predict trends from data.	B.2G
10. 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.2H
11. 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.3A
12. Communicate and apply scientific information extracted from various sources such as current events, published journal articles, and marketing materials.	B.3B
13. Draw inferences based on data related to promotional materials for products and services.	B.3C
14. Evaluate the impact of scientific research on society and the environment.	B.3D
15. Evaluate models according to their limitations in representing biological objects or events.	B.3E
16. Research and describe the history of biology and contributions of scientists.	B.3F

DAN/STAAR Tech-Enhanced (TE) Items Comparison

DAN TE Item Type	Definition	STAAR TE Item Type
Multiple Choice (MC)	Requires students to select one correct answer from several answer choices.	Multiple Choice
Multipart (MP)	Requires students to answer a two-part question in which Part B provides text evidence for the answer in Part A. Part A and B can be a combination of Multiple Choice and Multiple Response items.	Multipart
Multiple Response (MR)	Requires students to select two or more correct answers from several answer choices.	Multiselect
Hot Spot (HS)	Requires students to select the correct answer(s) by clicking on one or more “hot spots” or images.	Hot Spot
Graphic Gap Match (GGM)	Requires students to drag and drop images into or next to the correct answer box(es).	Drag and Drop
Gap Match (GM)	Requires students to drag and drop words, phrases, or numbers into or next to the correct answer box(es).	Drag and Drop
Explicit Constructed Response (XCR)	Requires students to type an exact response which is then scored by the system. Answers must match the provided response exactly to be counted as correct.	Text Entry
Constructed Response (CR)	Student gives a brief explanation in their own words to demonstrate their understanding of content.	Short Constructed Response