Texas Assessment of Knowledge and Skills - Modified
Answer Key

Grade: 10
Subject: Science
Administration: April 2009

The letter B indicates that the student expectation listed is from the Biology I TEKS.

The letter I indicates that the student expectation listed is from the Integrated Physics and Chemistry TEKS.

Item Number	Correct Answer	Objective Measured	Student Expectations
01	A	01	B.2 (A)
02	H	02	B.6 (D)
03	C	03	B.12 (E)
04	G	01	I.3 (A)
05	C	05	I.4 (A)
06	F	02	B.6 (C)
07	C	01	B.2 (C)
08	H	04	I.9 (D)
09	A	03	B.12 (B)
10	G	05	I.4 (A)
11	C	02	B.6 (A)
12	G	01	B.2 (D)
13	A	03	B.7 (B)
14	H	05	I.5 (A)
15	C	04	I.8 (C)
16	G	02	B.10 (A)
17	C	01	B.2 (B)
18	F	05	I.4 (B)
19	C	02	B.6 (A)
20	H	03	B.4 (D)
21	A	02	B.10 (A)
22	G	01	I.3 (B)
23	B	04	I.9 (A)
24	F	03	B.4 (C)
25	C	01	B.2 (B)
26	H	04	I.8 (A)
27	A	05	I.6 (F)
28	H	03	B.13 (A)
29	B	01	B.2 (B)
30	H	02	B.6 (D)
31	B	04	I.8 (C)
32	F	02	B.4 (B)
33	C	01	B.2 (B)
34	F	03	B.4 (D)
35	C	01	B.2 (D)
36	F	02	B.4 (B)
37	A	05	I.6 (A)
38	H	01	B.2 (C)
39	A	01	B.2 (A)
40	H	04	I.7 (E)
41	B	01	I.3 (B)
42	G	03	B.12 (E)
43	A	01	B.1 (A)
44	F	03	B.7 (B)

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Grade 10 Science

For a more complete description of the objectives measured, please refer to the Revised TAKS Information Booklet for Grade 10 Science at http://www.tea.state.tx.us/student.assessment/taks/booklets/index.html.

Objective 1: The student will demonstrate an understanding of the nature of science.

Biology (1) and Integrated Physics and Chemistry (1) Scientific Processes. The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to

(A) demonstrate safe practices during field and laboratory investigations.

Biology (2) and Integrated Physics and Chemistry (2) Scientific Processes. The student uses scientific methods during field and laboratory investigations. The student is expected to

(A) plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;

(B) collect data and make measurements with precision;

(C) organize, analyze, evaluate, make inferences, and predict trends from data; and

(D) communicate valid conclusions.

Integrated Physics and Chemistry (3) Scientific Processes. The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to

(A) analyze, review, [and critique] scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information; and

(B) draw inferences based on data related to [promotional materials for] products and services.

Objective 2: The student will demonstrate an understanding of the organization of living systems.

Biology (4) Science Concepts. The student knows that cells are the basic structures of all living things and have specialized parts that perform specific functions, and that viruses are different from cells and have different properties and functions. The student is expected to

(B) investigate and identify cellular processes including homeostasis, permeability, energy production, transportation of molecules, disposal of wastes, function of cellular parts, and synthesis of new molecules.

Biology (6) Science Concepts. The student knows the structures and functions of nucleic acids in the mechanisms of genetics. The student is expected to

(A) describe components of deoxyribonucleic acid (DNA), and illustrate how information for specifying the traits of an organism is carried in the DNA;

(C) identify and illustrate how changes in DNA cause mutations [and evaluate the significance of these changes]; and

(D) compare genetic variations observed in plants and animals.

Biology (8) Science Concepts. The student knows applications of taxonomy and can identify its limitations. The student is expected to

(C) identify characteristics of kingdoms including monerans, protists, fungi, plants, and animals. **

**The TAKS will use the most current classification system.

Biology (10) Science Concepts. The student knows that, at all levels of nature, living systems are found within other living systems, each with its own boundary and limits. The student is expected to

(A) interpret the functions of systems in organisms including circulatory, digestive, nervous, endocrine, reproductive, integumentary, skeletal, respiratory, muscular, excretory, and immune.

Objective 3: The student will demonstrate an understanding of the interdependence of organisms and the environment.

Biology (4) Science Concepts. The student knows that cells are the basic structures of all living things and have specialized parts that perform specific functions, and that viruses are different from cells and have different properties and functions. The student is expected to

(C) compare the structures and functions of viruses to cells and describe the role of viruses in causing diseases and conditions such as acquired immune deficiency syndrome, common colds, smallpox, influenza, and warts; and

(D) identify and describe the role of bacteria in maintaining health such as in digestion and in causing diseases such as in streptococcus infections and diphtheria.

Biology (7) Science Concepts. The student knows the theory of biological evolution. The student is expected to

(B) illustrate the results of natural selection in speciation, diversity, phylogeny, adaptation, behavior, and extinction.

Biology (12) Science Concepts. The student knows that interdependence and interactions occur within an ecosystem. The student is expected to

(B) interpret interactions among organisms exhibiting predation, parasitism, commensalism, and mutualism; and

(E) investigate and explain the interactions in an ecosystem including food chains, food webs, and food pyramids.

Biology (13) Science Concepts. The student knows the significance of plants in the environment. The student is expected to

(A) evaluate the significance of structural and physiological adaptations of plants to their environments.

Grade 10 Science (continued)

Objective 4: The student will demonstrate an understanding of the structures and properties of matter.

Integrated Physics and Chemistry (7) Science Concepts. The student knows relationships exist between properties of matter and its components. The student is expected to

(A) investigate and identify properties of fluids including density, viscosity, and buoyancy; and

(E) classify samples of matter from everyday life as being elements, compounds, or mixtures.

Integrated Physics and Chemistry (8) Science Concepts. The student knows that changes in matter affect everyday life. The student is expected to

(A) distinguish between physical and chemical changes in matter such as oxidation, digestion, changes in states, and stages in the rock cycle; and

(C) investigate and identify the law of conservation of mass.

Integrated Physics and Chemistry (9) Science Concepts. The student knows how solution chemistry is a part of everyday life. The student is expected to

(A) relate the structure of water to its function [as the universal solvent]; and

(D) demonstrate how various factors influence solubility including temperature, pressure, and nature of the solute and solvent.

Objective 5: The student will demonstrate an understanding of motion, forces, and energy.

Integrated Physics and Chemistry (4) Science Concepts. The student knows concepts of force and motion evident in everyday life. The student is expected to

(A) calculate speed, momentum, acceleration, work, and power in systems such as in the human body, moving toys, and machines; and

(B) investigate and describe [applications of] Newton's laws such as in vehicle restraints, sports activities, geological processes, and satellite orbits.

Integrated Physics and Chemistry (5) Science Concepts. The student knows the effects of waves on everyday life. The student is expected to

(A) demonstrate wave types and their characteristics through a variety of activities such as modeling with ropes and coils, activating tuning forks, and interpreting data on seismic waves.

Integrated Physics and Chemistry (6) Science Concepts. The student knows the impact of energy transformations in everyday life. The student is expected to

(A) describe the law of conservation of energy;

(B) investigate and demonstrate the movement of heat through solids, liquids, and gases by convection, conduction, and radiation; and

(F) investigate and compare series and parallel circuits.