Texas Assessment of Knowledge and Skills - Modified
Answer Key

Grade: 08
Subject: Science
Administration: April 2009

Item Number	Correct Answer	Objective Measured	Student Expectations
01	B	01	8.2 (B)
02	H	02	7.12 (B)
03	C	01	8.1 (A)
04	F	05	6.8 (B)
05	A	04	7.6 (A)
06	G	01	8.2 (C)
07	B	02	8.6 (C)
08	H	05	7.13 (A)
09	A	02	8.6 (A)
10	H	03	6.7 (B)
11	A	01	8.3 (A)
12	G	05	8.10 (B)
13	B	02	7.12 (B)
14	H	03	8.9 (B)
15	B	04	8.7 (A)
16	H	05	8.14 (A)
17	A	02	6.10 (B)
18	G	01	8.3 (C)
19	A	05	8.14 (C)
20	H	02	8.11 (C)
21	A	04	7.6 (C)
22	G	01	8.4 (B)
23	B	05	8.14 (B)
24	F	04	8.7 (B)
25	C	03	8.9 (C)
26	F	02	6.10 (C)
27	C	01	8.2 (E)
28	G	05	7.14 (B)
29	A	01	8.2 (D)
30	H	02	8.11 (B)
31	A	05	8.12 (A)
32	G	03	8.10 (A)
33	A	01	8.2 (A)
34	F	04	6.6 (B)
35	C	02	8.11 (A)
36	F	05	6.14 (B)
37	A	01	8.3 (B)
38	G	02	8.6 (B)
39	C	03	8.8 (B)
40	G	01	8.4 (A)

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Grade 8 Science

For a more complete description of the objectives measured, please refer to the Revised TAKS Information Booklet for Grade 8 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.

(6.1, 7.1, 8.1) **Scientific processes.** The student 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.

(6.2, 7.2, 8.2) **Scientific processes.** The student uses scientific inquiry 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 and using equipment and technology;

(B) collect data by observing and measuring;

(C) organize, analyze, evaluate, make inferences, and predict trends from direct and indirect evidence (7.2, 8.2);

(D) communicate valid conclusions; and

(E) construct graphs, tables, maps, and charts using tools [including computers] to organize, examine, and evaluate data.

(6.3, 7.3, 8.3) **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;

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

(C) represent the natural world using models and identify their limitations.

(6.4, 7.4, 8.4) **Scientific processes.** The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to

(A) collect, record, and analyze information using tools including beakers, petri dishes, meter sticks, graduated cylinders, weather instruments, hot plates, dissecting equipment, test tubes, safety goggles, spring scales, balances, microscopes, telescopes, thermometers, calculators, field equipment, computers, computer probes, water test kits, and timing devices (8.4); and

(B) extrapolate from collected information to make predictions (8.4).

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

(6.5) **Science concepts.** The student knows that systems may combine with other systems to form a larger system. The student is expected to

(B) describe how the properties of a system are different from the properties of its parts.

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(6.10, 7.9) **Science concepts.** The student knows the relationship between structure and function in living systems. The student is expected to

(B) determine that all organisms are composed of cells that carry on functions to sustain life (6.10); and

(C) identify how structure complements function at different levels of organization including organs, organ systems, organisms, and populations (6.10).

(6.8, 7.8, 8.10) **Science concepts.** The student knows that complex interactions occur between matter and energy. The student is expected to

(B) identify that radiant energy from the Sun is transferred into chemical energy through the process of photosynthesis (7.8).

(7.12) **Science concepts.** The student knows that there is a relationship between organisms and the environment. The student is expected to

(B) observe and describe how organisms including producers, consumers, and decomposers live together in an environment and use existing resources;

(C) describe how different environments support different varieties of organisms; and

(D) observe and describe the role of ecological succession in ecosystems.

(8.6) **Science concepts.** The student knows that interdependence occurs among living systems. The student is expected to

(A) describe interactions among systems in the human organism;

(B) identify feedback mechanisms that maintain equilibrium of systems such as body temperature, turgor pressure, and chemical reactions; and

(C) describe interactions within ecosystems.

(6.11, 7.10, 8.11) **Science concepts.** The student knows that traits of species can change through generations and that the instructions for traits are contained in the genetic material of the organisms. The student is expected to

(A) identify that change in environmental conditions can affect the survival of individuals and of species (8.11);

(B) distinguish between inherited traits and other characteristics that result from interactions with the environment (8.11); and

(C) make predictions about possible outcomes of various genetic combinations of inherited characteristics (8.11).

Objective 3: The student will demonstrate an understanding of the structures and properties of matter.

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(6.7, 7.7, 8.9) **Science concepts.** The student knows that substances have physical and chemical properties. The student is expected to

(B) classify substances by their physical and chemical properties (6.7);

(C) recognize that compounds are composed of elements (7.7);

(A) demonstrate that substances may react chemically to form new substances (8.9);

(B) interpret information on the periodic table to understand that [physical] properties are used to group elements (8.9); and

(C) recognize the importance of formulas and equations to express what happens in a chemical reaction (8.9).

(8.8) **Science concepts.** The student knows that matter is composed of atoms. The student is expected to

(A) describe the structure and parts of an atom; and

(B) identify the properties of an atom including mass and electrical charge.

(6.8, 7.8, 8.10) **Science concepts.** The student knows that complex interactions occur between matter and energy. The student is expected to

(A) illustrate interactions between matter and energy including specific heat (8.10).

Objective 4: The student will demonstrate an understanding of motion, forces, and energy.

(6.9) **Science concepts.** The student knows that obtaining, transforming, and distributing energy affects the environment. The student is expected to

(A) identify energy transformations occurring during the production of energy for human use such as electrical energy to heat energy or heat energy to electrical energy.

(6.8, 7.8, 8.10) **Science concepts.** The student knows that complex interactions occur between matter and energy. The student is expected to

(A) illustrate examples of potential and kinetic energy in everyday life such as objects at rest, movement of geologic faults, and falling water (7.8).

(6.6, 7.6, 8.7) **Science concepts.** The student knows that there is a relationship between force and motion. The student is expected to

(B) demonstrate that changes in motion can be measured and graphically represented (6.6);

(A) demonstrate basic relationships between force and motion using simple machines including pulleys and levers (7.6);

(C) relate forces to basic processes in living organisms including the flow of blood and the emergence of seedlings (7.6);

(A) demonstrate how unbalanced forces cause changes in the speed or direction of an object's motion (8.7); and

(B) recognize that waves are generated and can travel through different media (8.7).

Objective 5: The student will demonstrate an understanding of earth and space systems.

(6.14) **Science concepts.** The student knows the structures and functions of Earth systems. The student is expected to

(B) identify relationships between groundwater and surface water in a watershed.

(6.13, 7.13) **Science concepts.** The student knows components of our solar system. The student is expected to

(A) identify and illustrate how the tilt of the Earth on its axis as it rotates and revolves around the Sun causes changes in seasons and the length of a day (7.13); and

(B) relate the Earth's movement and the moon's orbit to the observed cyclical phases of the moon (7.13).

(6.8, 7.8, 8.10) **Science concepts.** The student knows that complex interactions occur between matter and energy. The student is expected to

(B) explain and illustrate the interactions between matter and energy in the water cycle and in the decay of biomass such as in a compost bin (6.8); and

(B) describe interactions among solar, weather, and ocean systems (8.10).

(8.12) **Science concepts.** The student knows that cycles exist in Earth systems. The student is expected to

(A) analyze and predict the sequence of events in the lunar and rock cycles; and

(C) predict the results of modifying the Earth's nitrogen, water, and carbon cycles.

(8.13) **Science concepts.** The student knows characteristics of the universe. The student is expected to

(A) describe characteristics of the universe such as stars and galaxies.

(7.14, 8.14) **Science concepts.** The student knows that natural events and human activity can alter Earth systems. The student is expected to

(A) describe and predict the impact of different catastrophic events on the Earth (7.14);

(B) analyze effects of regional erosional deposition and weathering (7.14);

(C) make inferences and draw conclusions about effects of human activity on Earth's renewable, non-renewable, and inexhaustible resources (7.14);

(A) predict land features resulting from gradual changes such as mountain building, beach erosion, land subsidence, [and continental drift] (8.14);*

*TAKS will assess students' understanding of plate tectonics. The theory of plate tectonics is the most current and accepted theory of plate movement.

(B) analyze how natural or human events may have contributed to the extinction of some species (8.14); and

(C) describe how human activities have modified soil, water, and air quality (8.14).