STAAR 8th GRADE SCIENCE
Quick Reference Guide

RS	Readiness Standard
SS	Supporting Standard
Process Skills	

Reporting Category 1: Matter and Energy (14 questions)

8.5A	RS	describe the structure of atoms, including the masses, electrical charges, and locations, of protons and neutrons in the nucleus and electrons in the electron cloud
8.5B	RS	identify that protons determine an element's identity and valence electrons determine its chemical properties, including reactivity
8.5C	RS	interpret the arrangement of the Periodic Table, including groups and periods, to explain how properties are used to classify elements
8.5D	RS	recognize that chemical formulas are used to identify substances and determine the number of atoms of each element in chemical formulas containing subscripts
8.5E	RS	investigate how evidence of chemical reactions indicate that new substances with different properties are formed
8.5F	SS	recognize whether a chemical equation containing coefficients is balanced or not and how that relates to the law of conservation of mass.
7.5C	SS	diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids
7.6A	SS	identify that organic compounds contain carbon and other elements such as hydrogen, oxygen, phosphorus, nitrogen, or sulfur
7.6B	SS	distinguish between physical and chemical changes in matter in the digestive system
6.5C	SS	differentiate between elements and compounds on the most basic level
6.6A	SS	compare metals, nonmetals, and metalloids using physical properties such as luster, conductivity, or malleability
6.6B	SS	calculate density to identify an unknown substance

Reporting Category 2 Force, Motion, and Energy (12 questions)

8.6A	RS	demonstrate and calculate how unbalanced forces change the speed or direction of an object's motion
8.6B	SS	differentiate between speed, velocity, and acceleration
8.6C	RS	investigate and describe applications of Newton's law of inertia, law of force and acceleration, and law of action-reaction such as in vehicle restraints, sports activities, amusement park rides, Earth's tectonic activities, and rocket launches
7.7A	SS	contrast situations where work is done with different amounts of force to situations where no work is done such as moving a box with a ramp and without a ramp, or standing still

Reporting Category 2 (continued)

6.8A	SS	compare and contrast potential and kinetic energy
6.8C	SS	calculate average speed using distance and time measurements
6.8D	SS	measure and graph changes in motion
6.9C	SS	demonstrate energy transformations such as energy in a flashlight battery changes from chemical energy to electrical energy to light energy

Reporting Category 3 Earth and Space (14 questions)

8.7A	RS	model and illustrate how the tilted Earth rotates on its axis, causing day and night, and revolves around the Sun causing changes in seasons
8.7B	RS	demonstrate and predict the sequence of events in the lunar cycle
8.7C	SS	relate the position of the Moon and Sun to their effect on ocean tides.
8.8A	RS	describe components of the universe, including stars, nebulae, and galaxies, and use models such as the Hertzsprung-Russell diagram for classification
8.8B	SS	recognize that the Sun is a medium-sized star near the edge of a disc-shaped galaxy of stars and that the Sun is many thousands of times closer to Earth than any other star
8.8C	SS	explore how different wavelengths of the electromagnetic spectrum such as light and radio waves are used to gain information about distances and properties of components in the universe
8.8D	SS	model and describe how light years are used to measure distances and sizes in the universe
8.9A	SS	describe the historical development of evidence that supports plate tectonic theory
8.9B	RS	relate plate tectonics to the formation of crustal features
8.9C	RS	interpret topographic maps and satellite views to identify land and erosional features and predict how these features may be reshaped by weathering.
8.10A	SS	recognize that the Sun provides the energy that drives convection within the atmosphere and oceans, producing winds and ocean currents
8.10B	SS	identify how global patterns of atmospheric movement influence local weather using weather maps that show high and low pressures and fronts
8.10C	SS	identify the role of the oceans in the formation of weather systems such as hurricanes
7.8C	SS	model the effects of human activity on groundwater and surface water in a watershed
6.11B	SS	understand that gravity is the force that governs the motion of our solar system

8.11A	RS	describe producer/consumer, predator/prey, and parasite/host relationships as they occur in food webs within marine, freshwater, and terrestrial ecosystems
8.11B	RS	investigate how organisms and populations in an ecosystem depend on and may compete for biotic and abiotic factors such as quantity of light, water, range of temperatures, or soil composition
8.11C	RS	explore how short-and long-term environmental changes affect organisms and traits in subsequent populations
8.11D	SS	recognize human dependence on ocean systems and explain how human activities such as runoff, artificial reefs, or use of resources have modified these systems
7.10B	SS	describe how biodiversity contributes to the sustainability of an ecosystem
7.10C	SS	observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds.
7.11A	SS	examine organisms or their structures such as insects or leaves and use dichotomous keys for identification
7.11C	SS	identify some changes in genetic traits that have occurred over several generations through natural selection and selective breeding such as the Galapagos Medium Ground Finch (Geospiza fortis) or domestic animals
7.12B	SS	identify the main functions of the systems of the human organism, including the circulatory, respiratory, skeletal, muscular, digestive, excretory, reproductive, integumentary, nervous, and endocrine systems
7.12D	SS	differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole
7.12F	SS	recognize that according to cell theory all organisms are composed of cells and cells carry on similar functions such as extracting energy from food to sustain life
7.14B	SS	compare the results of uniform or diverse offspring from sexual reproduction or asexual reproduction
7.14C	SS	recognize that inherited traits of individuals are governed in the genetic material found in the genes within chromosomes in the nucleus
6.12D	SS	identify the basic characteristics of organisms, including prokaryotic or eukaryotic, unicellular or multicellular, autotrophic or heterotrophic, and mode of reproduction, that further classify them in the currently recognized Kingdoms

Process Skills
Embedded in at least 40% of the questions

8.1A	demonstrate safe practices during laboratory and field investigations as outlined in the Texas Safety Standards
8.1B	practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials
8.2A	plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology
8.2B	design and implement comparative and experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology
8.2C	collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers
8.2D	construct tables and graphs, using repeated trials and means, to organize data and identify patterns
8.2E	analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends
8.3A	in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student
8.3B	use models to represent aspects of the natural world such as an atom, a molecule, space, or a geologic feature
8.3C	identify advantages and limitations of models such as size, scale, properties, and materials
8.3D	relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content
8.4A	use appropriate tools to collect, record, and analyze information, including lab journals/notebooks, beakers, meter sticks, graduated cylinders, anemometers, psychrometers, hot plates, test tubes, spring scales, balances, microscopes, thermometers, calculators, computers, spectroscopes, timing devices, and other equipment as needed to teach the curriculum
8.4B	use preventative safety equipment, including chemical splash goggles, aprons, and gloves, and be prepared to use emergency safety equipment, including an eye/face wash, a fire blanket, and a fire extinguisher

	Number of Standards	Number of Questions	
Readiness Standards	15	60 − 65%	32 − 35
Supporting Standards	34	35 − 40%	19 − 22

50 Multiple Choice and 4 Griddable

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Eligible Content Standards From TEKS

- SS 70%
- RS 30%

Legend:
- Readiness Standards
- Supporting Standards

Assessment Blueprint

- SS 35%
- RS 65%

Legend:
- Readiness Standards
- Supporting Standards

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