

# TAKS–Alt Operational Test Spring 2009

## Grade 10 Science

### Essence Statements

**NOTE:** The yellow highlight indicates the four state-required essence statements that comprise the TAKS–Alt assessment for Grade 10 Science.

TAKS Objective	TEKS Knowledge and Skills Statement	Essence Statement
<b>Objective 1:</b> The student will demonstrate an understanding of the nature of science.	<b>Biology (1) and Integrated Physics and Chemistry (1) Scientific processes.</b> The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices.	Demonstrates proper safety procedures during field and laboratory investigations.
<b>Objective 1:</b> The student will demonstrate an understanding of the nature of science.	<b>Biology (2) and Integrated Physics and Chemistry (2) Scientific processes.</b> The student uses scientific methods during field and laboratory investigations.	Uses scientific inquiry methods.
<b>Objective 1:</b> The student will demonstrate an understanding of the nature of science.	<b>Integrated Physics and Chemistry (3) Scientific processes.</b> The student uses critical thinking and scientific problem solving to make informed decisions.	Uses scientific problem solving to make informed decisions.
<b>Objective 2:</b> The student will demonstrate an understanding of the organization of living systems.	<b>Biology (4) Science concepts.</b> 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.	Knows that all living things are composed of cells that perform life processes.
<b>Objective 2:</b> The student will demonstrate an understanding of the organization of living systems.	<b>Biology (6) Science concepts.</b> The student knows the structures and functions of nucleic acids in the mechanisms of genetics.	Recognizes that the structure of DNA determines the inherited traits in organisms.
<b>Objective 2:</b> The student will demonstrate an understanding of the organization of living systems.	<b>Biology (8) Science concepts.</b> The student knows applications of taxonomy and can identify its limitations.	Knows that taxonomy is used to group organisms based on their similarities and differences.
<b>Objective 2:</b> The student will demonstrate an understanding of the organization of living systems.	<b>Biology (10) Science concepts.</b> The student knows that, at all levels of nature, living systems are found within other living systems, each with its own boundary and limits.	Recognizes that each system in a living organism performs a specific function.
<b>Objective 3:</b> The student will demonstrate an understanding of the interdependence of organisms and the environment.	<b>Biology (4) Science concepts.</b> 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.	Knows that viruses and bacteria can affect the health of organisms.

<b>Objective 3:</b> The student will demonstrate an understanding of the interdependence of organisms and the environment.	<b>Biology (7) Science concepts.</b> The student knows the theory of biological evolution.	Understands that environmental conditions may force species to change or to become extinct.
<b>Objective 3:</b> The student will demonstrate an understanding of the interdependence of organisms and the environment.	<b>Biology (12) Science concepts.</b> The student knows that interdependence and interactions occur within an ecosystem.	Understands that organisms in an ecosystem interact.
<b>Objective 3:</b> The student will demonstrate an understanding of the interdependence of organisms and the environment.	<b>Biology (13) Science concepts.</b> The student knows the significance of plants in the environment.	Knows that plants have adaptations that enable them to live in different environments.
<b>Objective 4:</b> The student will demonstrate an understanding of the structures and properties of matter.	<b>Integrated Physics and Chemistry (7) Science concepts.</b> The student knows relationships exist between properties of matter and its components.	Uses properties to classify matter and explain how matter behaves.
<b>Objective 4:</b> The student will demonstrate an understanding of the structures and properties of matter.	<b>Integrated Physics and Chemistry (8) Science concepts.</b> The student knows that changes in matter affect everyday life.	Understands that matter can be neither created nor destroyed but can be chemically or physically changed.
<b>Objective 4:</b> The student will demonstrate an understanding of the structures and properties of matter.	<b>Integrated Physics and Chemistry (9) Science concepts.</b> The student knows how solution chemistry is a part of everyday life.	Knows that the solubility of a substance is dependent on several factors.
<b>Objective 5:</b> The student will demonstrate an understanding of motion, forces, and energy.	<b>Integrated Physics and Chemistry (4) Science concepts.</b> The student knows concepts of force and motion evident in everyday life.	Recognizes that relationships between force and motion can be applied to everyday experiences.
<b>Objective 5:</b> The student will demonstrate an understanding of motion, forces, and energy.	<b>Integrated Physics and Chemistry (5) Science concepts.</b> The student knows the effects of waves on everyday life.	Knows that wave types can be determined by their characteristics.
<b>Objective 5:</b> The student will demonstrate an understanding of motion, forces, and energy.	<b>Integrated Physics and Chemistry (6) Science concepts.</b> The student knows the impact of energy transformations in everyday life.	Uses the law of conservation of energy as it applies to everyday energy transformations.