

TAKS–Alt Operational Test Spring 2009 Grade 8 Science Essence Statements

NOTE: The yellow highlight indicates the four state-required essence statements that comprise the TAKS–Alt assessment for Grade 8 Science.

| TAKS Objective | TEKS Knowledge and Skills Statement | Essence Statement |
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| 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. | Demonstrates proper safety procedures during field and laboratory investigations. |
| Objective 1: The student will demonstrate an understanding of the nature of science. | (6.2, 7.2, 8.2) Scientific processes. The student uses scientific inquiry methods during field and laboratory investigations. | Uses scientific inquiry methods. |
| Objective 1: The student will demonstrate an understanding of the nature of science. | (6.3, 7.3, 8.3) Scientific processes. The student uses critical thinking and scientific problem solving to make informed decisions. | Uses scientific problem solving to make informed decisions. |
| Objective 1: The student will demonstrate an understanding of the nature of science. | (6.4, 7.4, 8.4) Scientific processes. The student knows how to use a variety of tools and methods to conduct science inquiry. | Uses a variety of tools to collect information and make predictions. |
| 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. | Understands that parts of a system are different from the whole system. |
| Objective 2: The student will demonstrate an understanding of living systems and the environment. | (6.10, 7.9) Science concepts. The student knows the relationship between structure and function in living systems. | Understands that living systems have different levels of structural organization that function to sustain life. |
| Objective 2: The student will demonstrate an understanding of living systems and the environment. | (6.8, 7.8, 8.10) Science concepts. The student knows that complex interactions occur between matter and energy. | Knows that radiant energy can be transformed into chemical energy through photosynthesis. |
| Objective 2: The student will demonstrate an understanding of living systems and the environment. | (7.12) Science concepts. The student knows that there is a relationship between organisms and the environment. | Understands the relationship between organisms and their environment. |
| Objective 2: The student will demonstrate an understanding of living systems and the environment. | (8.6) Science concepts. The student knows that interdependence occurs among living systems. | Understands that living systems interact to maintain equilibrium. |
| Objective 2: The student will demonstrate an understanding of living systems and the environment. | (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. | Understands that the genetic material of an organism determines the expression of inherited traits. |

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| Objective 3: The student will demonstrate an understanding of the structures and properties of matter. | (6.7, 7.7, 8.9) Science concepts. The student knows that substances have physical and chemical properties. | Understands the physical properties of matter and how matter will react chemically. |
| Objective 3: The student will demonstrate an understanding of the structures and properties of matter. | (8.8) Science concepts. The student knows that matter is composed of atoms. | Recognizes the parts and properties of an atom. |
| Objective 3: The student will demonstrate an understanding of the structures and properties of matter. | (6.8, 7.8, 8.10) Science concepts. The student knows that complex interactions occur between matter and energy. | Understands interactions between matter and energy. |
| 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. | Understands that changes in forms of energy affect the environment. |
| Objective 4: The student will demonstrate an understanding of motion, forces, and energy. | (6.8, 7.8, 8.10) Science concepts. The student knows that complex interactions occur between matter and energy. | Understands potential and kinetic energy. |
| Objective 4: The student will demonstrate an understanding of motion, forces, and energy. | (6.6, 7.6, 8.7) Science concepts. The student knows that there is a relationship between force and motion. | Recognizes that forces can cause changes in the motion of an object. |
| 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. | Understands the relationship between groundwater and surface water in watersheds. |
| Objective 5: The student will demonstrate an understanding of earth and space systems. | (6.13, 7.13) Science concepts. The student knows components of our solar system. | Understands that the phases of the moon and the seasons on Earth are the result of cyclical interactions among Earth, the moon, and the sun. |
| Objective 5: The student will demonstrate an understanding of earth and space systems. | (6.8, 7.8, 8.10) Science concepts. The student knows that complex interactions occur between matter and energy. | Understands the interactions between matter and energy in earth and space systems. |
| Objective 5: The student will demonstrate an understanding of earth and space systems. | (8.12) Science concepts. The student knows that cycles exist in Earth systems. | Understands that Earth's systems are composed of cycles. |
| Objective 5: The student will demonstrate an understanding of earth and space systems. | (8.13) Science concepts. The student knows characteristics of the universe. | Recognizes characteristics of the universe and its parts. |
| Objective 5: The student will demonstrate an understanding of earth and space systems. | (7.14, 8.14) Science concepts. The student knows that natural events and human activity can alter Earth systems. | Understands that Earth's systems can be modified by human and natural events. |