

Science - 8th Grade (TEKS - Aligned Course Objectives)

<u>Scientific Processes</u>			
OBJ	8	1	The student conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices
SE	8	1A	Demonstrate safe practices during field and laboratory investigations
SE	8	1B	Make wise choices in the use and conservation of resources and the disposal or recycling of materials
OBJ	8	2	The student uses scientific inquiry methods during field and laboratory investigations
SE	8	2A	Plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting and using equipment and technology
SE	8	2B	Collect data by observing and measuring
SE	8	2C	Organize, analyze, evaluate, make inferences, and predict trends from direct and indirect evidence
SE	8	2D	Communicate valid conclusions
SE	8	2E	Construct graphs, tables, maps, and charts using tools including computers to organize, examine, and evaluate data
OBJ	8	3	The student uses critical thinking and scientific problem solving to make informed decisions
SE	8	3A	Analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information
SE	8	3B	Draw inferences based on data related to promotional materials for products and services
SE	8	3C	Represent the natural world using models and identify their limitations
SE	8	3D	Evaluate the impact of research on scientific thought, society, and the environment
SE	8	3E	Connect Grade 8 science concepts with the history of science and contributions of scientists
OBJ	8	4	The student knows how to use a variety of tools and methods to conduct science inquiry
SE	8	4A	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
SE	8	4B	Extrapolate from collected information to make predictions
OBJ	8	5	The student knows that relationships exist between science and technology
SE	8	5A	Identify a design problem and propose a solution
SE	8	5B	Design and test a model to solve the problem
SE	8	5C	Evaluate the model and make recommendations for improving the model
<u>Science Concepts</u>			
OBJ	8	6	The student knows that interdependence occurs among living systems
SE	8	6A	Describe interactions among systems in the human organism
SE	8	6B	Identify feedback mechanisms that maintain equilibrium of systems such as body temperature, turgor pressure, and chemical reactions
SE	8	6C	Describe interactions within ecosystems
OBJ	8	7	The student knows that there is a relationship between force and motion

SE	8	7A	Demonstrate how unbalanced forces cause changes in the speed or direction of an object's motion
SE	8	7B	Recognize that waves are generated and can travel through different media
OBJ	8	8	The student knows that matter is composed of atoms
SE	8	8A	Describe the structure and parts of an atom
SE	8	8B	Identify the properties of an atom including mass and electrical charge
OBJ	8	9	The student knows that substances have chemical and physical properties
SE	8	9A	Demonstrate that substances may react chemically to form new substances
SE	8	9B	Interpret information on the periodic table to understand that physical properties are used to group elements
SE	8	9C	Recognize the importance of formulas and equations to express what happens in a chemical reaction
SE	8	9D	Identify that physical and chemical properties influence the development and application of everyday materials such as cooking surfaces, insulation, adhesives, and plastics
OBJ	8	10	The student knows that complex interactions occur between matter and energy
SE	8	10A	Illustrate interactions between matter and energy including specific heat
SE	8	10B	Describe interactions among solar, weather, and ocean systems
SE	8	10C	Identify and demonstrate that loss or gain of heat energy occurs during exothermic and endothermic chemical reactions
OBJ	8	11	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
SE	8	11A	Identify that change in environmental conditions can affect the survival of individuals and of species
SE	8	11B	Distinguish between inherited traits and other characteristics that result from interactions with the environment
SE	8	11C	Make predictions about possible outcomes of various genetic combinations of inherited characteristics
OBJ	8	12	The student knows that cycles exist in Earth systems
SE	8	12A	Analyze and predict the sequence of events in the lunar and rock cycles
SE	8	12B	Relate the role of oceans to climatic changes
SE	8	12C	Predict the results of modifying the Earth's nitrogen, water, and carbon cycles
OBJ	8	13	The student knows characteristics of the universe
SE	8	13A	Describe characteristics of the universe such as stars and galaxies
SE	8	13B	Explain the use of light years to describe distances in the universe
SE	8	13C	Research and describe historical scientific theories of the origin of the universe
OBJ	8	14	The student knows that natural events and human activities can alter Earth systems
SE	8	14A	Predict land features resulting from gradual changes such as mountain building, beach erosion, land subsidence, and continental drift
SE	8	14B	Analyze how natural or human events may have contributed to the extinction of some species
SE	8	14C	Describe how human activities have modified soil, water, and air quality