TX-Science 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
The Scientific Method		
	Scientific Inquiry	
		Summarize the process of scientific inquiry.
		Identify questions that can be answered through scientific investigation.
		Distinguish the three types of scientific investigations, including the benefits and limitations of each.
		Distinguish between variables and controls in a scientific investigation.
	Hypotheses, Theories, and Laws	
		Distinguish among hypotheses, theories, and laws.
		Identify examples of scientific theories and laws.
		Explain how and why theories may change.
		Explain how hypotheses lead to new experimentation.
	Lab Safety and Materials Handling	
		Identify safe practices during laboratory and field investigations as outlined in TEA-approved safety standards.
		Identify appropriate use and conservation of resources, including disposal, reuse, or recycling of materials.
		Describe the use of preventative safety equipment.
	Tools and Technology	
		Describe the use of technology in science.
		Explain the relationship between science and technology.
		Explain the function, usefulness, and limitations of models in science.
	Measurement	

TX-Science 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
		Identify basic units and prefixes used in the metric system.
		Perform metric system conversions.
		Measure length, mass, volume, and temperature.
	Analyzing Data	
		Examine charts and graphs to predict trends in data.
		Use data to draw inferences and formulate conclusions.
	Evaluating Scientific Explanations	
		Analyze and evaluate scientific explanations.
		Use evidence to critique scientific arguments.
	Science and Society	
		Examine how science and society interact.
		Examine how scientific knowledge can affect societal decisions.
	Unit Test	
Classification of Matter		
	Periodic Table	
		Examine the history of the periodic table.
		Describe the organization of the periodic table.
		Determine an element's symbol, atomic number, and mass number from the periodic table.
	Introduction to Chemical Reactions	
		Recognize that a chemical reaction is a chemical change.
		Describe the evidence that shows that a chemical reaction has occurred.
		Explain the difference between an endothermic and an exothermic reaction.

TX-Science 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
	Describing Chemical Reactions	
		Identify the parts of a chemical equation.
		Describe the law of conservation of mass.
		Explain how mass is conserved in chemical equations.
	Unit Test	
Bonding and Mixtures		
	Compounds	
		Describe the defining characteristics of a compound.
		Explain how chemical formulas represent compounds.
		Determine the number of atoms of each element in a chemical formula.
		Use models to visualize the chemical structure of a compound.
	Mixtures	
		Distinguish between substances and mixtures.
		Identify the properties of a mixture.
		Compare and contrast types of mixtures.
	Properties of Water	
		Describe how the structure of water accounts for its polarity.
		Explain why water has unique properties including high surface tension and a high boiling point.
		Describe the unique role of water in chemical and biological systems.
		Science Practice: Explain how the chemistry of water is important to biological systems.
	Properties of Acids and Bases	

TX-Science 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
		Compare the properties of acids and bases.
		Describe common uses for acids and bases.
	Acids and Bases in Solution	
		Describe what happens when acids and bases are put in water.
		Classify acids and bases based on strength.
		Explain how pH can be used to identify an acid or base.
		Summarize what happens during a neutralization reaction.
	Lab: Acids and Bases	
		Show how pH is based on the concentration of H+ and OH- in solution.
		Determine the pH of various solutions using a multi-use indicator.
	Unit Test	
Newton's Laws of Motion		
	Acceleration	
		Describe the concept of acceleration.
		Solve problems involving velocity, time, and acceleration.
		Interpret graphs of velocity versus time.
	Friction	
		Describe friction and explain what causes it to occur.
		Identify and describe the different types of friction.
		Explain how friction can be reduced or increased depending on the application.
	Newton's Laws of Motion	
		Describe Newton's first law of motion and how it relates to inertia.

TX-Science 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
		Use Newton's second law of motion to calculate force, mass, and acceleration.
		Explain Newton's third law of motion and how it relates to action and reaction forces.
		Identify applications of Newton's three laws of motion.
	Lab: Newton's Laws of Motion	
		Demonstrate Newton's first law.
		Verify Newton's second law by changing the variables F, m, or a.
	Unit Test	
Waves		
	Wave Properties	
		Describe how a wave's amplitude is related to the energy the wave carries.
		Describe the relationship between the frequency and wavelength of a wave.
		Calculate the velocity of a transverse wave.
		Explain why waves travel at different velocities.
	The Electromagnetic Spectrum	
		Describe the different parts of the electromagnetic spectrum.
		Distinguish how electromagnetic waves differ from one another.
		Identify how different types of electromagnetic waves are used.
	Properties of Light	
		Describe the wave and particle models of light.
		Explain what happens when light interacts with objects.
		Recognize what determines the color of an object.
	Unit Test	

TX-Science 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
The Universe		
	Stars	
		Identify the physical properties of stars.
		Explain how stars are classified.
		Explain how a star forms.
		Explain what happens as a star runs out of fuel.
	Star Systems and Galaxies	
		Describe star systems.
		Distinguish the major types of galaxies.
	The Expanding Universe	
		Describe the big bang theory.
		Explain how the solar system formed.
		Describe what astronomers predict about the future of the universe.
	Unit Test	
Cumulative Exam		
	Cumulative Exam Review	
	Cumulative Exam	
Earth's Atmosphere and Climate		
	Structure and Composition of the Atmosphere	
		Describe the composition of Earth’s atmosphere.
		Describe the importance of the atmosphere to living things.
		Identify properties of air, including pressure and density.

TX-Science 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
		Explain how altitude affects air pressure and density.
		Distinguish the four main layers of the atmosphere.
	Energy in the Atmosphere	
		Identify the types of energy that travel from the Sun to Earth.
		Explain what happens when the Sun’s energy reaches Earth.
		Distinguish the three ways in which heat is transferred.
	Lab: Energy Transfer	
		Differentiate between the processes of conduction, convection, and radiation.
		Explain the role of heat transfer processes in the distribution of energy on Earth.
	Air Masses and Fronts	
		Identify the major types of air masses.
		Explain how air masses move.
		Differentiate the four main types of fronts.
	Storms	
		Explain how various storms form.
		Describe the effects of various storms on humans and the environment.
		Identify measures that can be taken to stay safe in a storm.
	Earth's Climate History	
		Explain how scientists study ancient climates.
		Identify factors that can cause long-term climate change.
	Climate Change	
		Identify events that can cause short-term and global climate change.

TX-Science 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
		Explain how human, biologic, and geologic activities can influence climate.
	Unit Test	
Environmental Changes		
	Succession	
		Compare primary and secondary succession.
		Contrast pioneer species and climax community.
	Lab: Ecological Succession	
		Explore the process of ecological succession in a microhabitat.
		Conduct a controlled experiment to test a hypothesis.
		Recognize sampling methods commonly used in ecology.
	Natural Environmental Change	
		Identify examples of natural short-term environmental changes.
		Identify examples of natural long-term environmental changes.
		Assess the impact of natural environmental changes on organisms, populations, and species.
	Human Impact on the Environment	
		Identify examples of short-term human-induced environmental changes.
		Identify examples of long-term human-induced environmental changes.
		Assess the impact of human-induced environmental changes on organisms, populations, and species.
	Biodiversity	
		Identify how biodiversity contributes to the sustainability of an ecosystem.
		Identify the factors that affect biodiversity.
		Identify some factors that can threaten biodiversity.

TX-Science 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
		Examine ways to protect biodiversity.
	Energy Flow in Ecosystems	
		Explain the roles of producers, consumers, and decomposers in an ecosystem.
		Identify producers, consumers, and decomposers in food chains and food webs.
		Examine the movement of energy through an ecosystem in food chains and food webs.
		Analyze the transfer of energy through the trophic levels in an energy pyramid.
	Cycles of Matter	
		Examine how carbon cycles through an ecosystem.
		Analyze the importance of the nitrogen cycle.
		Identify the processes involved in the water cycle.
	Unit Test	
Cell Biology		
	Cell Theory	
		Analyze the contributions of different scientists to the development of the cell theory.
		Identify the three components of the cell theory.
	Cell Structure	
		Identify the organelles of a cell.
		Examine the functions of cell organelles.
	Lab: Exploring Cells	
		Identify prokaryotic cells and eukaryotic cells.
		Distinguish between unicellular and multicellular organisms.
		Compare and contrast the structures of plant and animal cells.

TX-Science 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
	Photosynthesis	
		Explain the steps in the process of photosynthesis.
		Identify the products and reactants of photosynthesis.
	Unit Test	
Genetics		
	Genetic Code	
		Analyze the contributions of different scientists to the discovery of the genetic code.
		Identify the components and structure of DNA.
		Relate DNA, genes, and chromosomes.
		Examine how cells make proteins.
	Predicting Heredity	
		Define probability and use it to explain the results of a genetic cross.
		Determine the probability of genotype combinations using a Punnett square.
		Identify the phenotype of an organism based on its genotype.
	Inheritance Patterns	
		Differentiate between codominance and incomplete dominance.
		Examine multiple alleles and polygenic inheritance, and give examples of each.
	Human Inheritance	
		Analyze the patterns of human inheritance.
		Examine how sex-linked traits are passed from parent to offspring.
		Use a pedigree to analyze the inheritance of traits.
		Identify causes of common genetic disorders.

TX-Science 8		Scope and Sequence
Unit	**Lesson**	**Objectives**
	Unit Test	
Evolution and Natural Selection		
	The Theory of Evolution	
		Analyze the historical development of the theory of evolution.
		Examine the evidence Darwin used to support his theory of evolution.
		Summarize Darwin's theory of evolution.
	Natural Selection	
		Examine how natural selection leads to evolution.
		Identify the conditions required for natural selection.
		Identify ways in which genetic variation and environmental factors contribute to natural selection.
		Describe factors that contribute to the extinction of a species.
	Lab: Natural Selection	
		Examine natural selection within a population.
		Analyze data to determine phenotype changes through generations.
	Unit Test	
Cumulative Exam		
	Cumulative Exam Review	
	Cumulative Exam	