

Quarter					<i>Concepts and Skills</i>	Instructional Shifts						
1	2	3	4	SR		Lab inves- tigations	Close Read Strategy	Tier II Vocab	Text Dependent Questions	Evidence Based	Writing Element	Speaking Element
					SR							
					SR.A	40% of instructional time will be conducting laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices.						
					1	Demonstrate safe practices during laboratory and field investigations as outlined in the Texas Safety Standards.						
					2	Practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials.						
					SR.B	Students use scientific inquiry methods during laboratory and field investigations						
					1	Plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.(MS-ETS1-1).						

					<i>Concepts and Skills</i>	Lab inves- tigations	Close Read Strategy	Tier II Vocab	Text Dependent Questions	Evidence Based	Writing Element	Speaking Element
1	2	3	4									
				2	Design and implement experimental investigations by making observations asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes (MS-PS1-6).							
				3	Collect and record data using the International System of Units and qualitative means such as labeled drawing, writing, and graphic organizers.							
				4	Construct tables and graphs, using repeated trials and means to organize data and identify patterns.							
				5	Analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constrains of the problem. (MS-EST1-2). Analyze data from tests to determine similarities an differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. (MS-ETS1-3).							
					<i>Students use critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists.</i>							

1	2	3	4		<i>Concepts and Skills</i>	Lab investigations	Close Read Strategy	Tier II Vocab	Text Dependent Questions	Evidence Based	Writing Element	Speaking Element
				1	Analyze, evaluate, and critique scientific explanation by using empirical evidence, logical reasons, and experimental and observation testing. Includes examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.(MS-ETS1-4).							
				2	Use model to represent aspects of the natural world such as an atom, a molecule, space, or a geologic feature.							
				3	Identify advantages and limitations of models such as size, scale, properties, and materials.							
				4	Relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content.							
				SR.C	<i>Students know how to use a variety of tools and methods to conduct science inquiry.</i>							
				1	Collect record and analyze information using							
					lab journals/notebooks							
					beakers							
					meter sticks							
					graduated cylinders							
					anemometers							
					psychrometers							
					hot plates							

1	2	3	4		<i>Concepts and Skills</i>	Lab inves- tigations	Close Read Strategy	Tier II Vocab	Text Dependent Questions	Evidence Based	Writing Element	Speaking Element
					test tubes							
					spring scales							
					balances							
					microscopes							
					thermometers							
					calculators							
					computers							
					spectroscopes							
					timing devices							
					and other equipment as needed							
				2	Use preventive 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.							
				ME	<i>Matter & Energy</i>							
					<i>Students know that matter is composed of atoms and has chemical and physical properties.</i>							
				1	Describe the structure of atoms, including the masses, electrical charges, locations, of protons and neutrons in the nucleus and electrons in the electron cloud.							

				<i>Concepts and Skills</i>	Lab inves-	Close	Tier II	Text	Evidence	Writing	Speaking
1	2	3	4		tigations	Read	Vocab	Dependent	Based	Element	Element
						Strategy		Questions			
				2	Identify that protons determine an element's identity and valence electrons determine its chemical properties, including reactivity Develop models to describe the atomic composition of "simple" molecules and extended structures.(MS-PS1-1) Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed. (MS-PS1-4).						
				3	Interpret the arrangement of the Periodic Table, including groups and periods, to explain how properties are used to classify elements.						
				4	Recognize that chemical formulas are used to identify substances and determine the number of atoms of each element in chemical formulas containing subscripts.						
				5	Investigate how evidence of chemical reactions indicate that new substances with different properties are formed Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. (MS-PS1-2).						
				6	Recognize whether a chemical equation containing coefficients is balanced or not and how that relates to the law of conservation of mass Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved. (MS-PS1-5).						

1	2	3	4		<i>Concepts and Skills</i>	Lab inves- tigations	Close Read Strategy	Tier II Vocab	Text Dependent Questions	Evidence Based	Writing Element	Speaking Element
					FME	Force, Motion & Energy						
						<i>Students know that there is a relationship between force, motion, and energy.</i>						
				1		Demonstrate and calculate how unbalanced forces change the speed or direction of an object's motion.						
				2		Differentiate between and calculate speed, velocity, and acceleration of moving objects.						
				3		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 Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact. (MS-PS2-5) Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects. (MS-PS2-4).						
					ES	Earth and Space						
					ES.A	<i>Students know the effects resulting from cyclical movements of the Sun, Earth, and Moon.</i>						
				1		Model and illustrate how the titled Earth rotates on its axis, causing day and night and revolves around the Sun causing changes in seasons						

1	2	3	4		<i>Concepts and Skills</i>	Lab investigations	Close Read Strategy	Tier II Vocab	Text Dependent Questions	Evidence Based	Writing Element	Speaking Element
				2	Demonstrate and predict the sequence of events in the lunar cycle							
				3	Relate the position of the Moon and Sun to their effect on ocean tides Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. (MS-ESS1-2)							
				ES.B	<i>Students know characteristics of the universe.</i>							
				1	Describe components of the universe, including stars, nebulae, and galaxies, and use models such as the Hertzsprung-Russell diagram for classification Analyze and interpret data to determine scale properties of objects in the solar system (MS-ESS1-3)							
				2	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							
				3	Explore how different wavelengths of the electromagnetic spectrum such as light radio waves are used to gain information about distances and properties of components in the universe Ask questions about data to determine the factors that affect the strength of electric and magnetic forces (MS-PS2-3) Integrate qualitative scientific and technical information to support the claim that digitized signals are more a more reliable way to encode and transmit information than analog signals. (MS-PS4-3)							

				<i>Concepts and Skills</i>		Lab inves-	Close	Tier II	Text	Evidence	Writing	Speaking
1	2	3	4			tigations	Read Strategy	Vocab	Dependent Questions	Based	Element	Element
				4	Model and describe how light years are used to measure distances and sizes in the universe							
				5	Research how scientific data are used as evidence to develop scientific theories to describe the origin of the universe							
					ES.C <i>Students know that natural events can impact Earth systems.</i>							
				1	Describe the historical development of evidence that support plate tectonic theory							
				2	Relate plate tectonics to the formation of crustal features							
				3	Interpret topographic maps and satellite views to identify land and erosional features and predict how these features may be reshaped by weathering Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. (MS-ESS3-2)							
					ES.D <i>Students know that climatic interactions exist among Earth, ocean, and weather systems.</i>							
				1	Recognize that the sun provides the energy that drives convection within the atmosphere and oceans, producing winds, and ocean currents.							

1	2	3	4		<i>Concepts and Skills</i>	Lab investigations	Close Read Strategy	Tier II Vocab	Text Dependent Questions	Evidence Based	Writing Element	Speaking Element
				2	Identify how global patterns of atmospheric movement influence local weather using weather maps that show high and low pressures and fronts. Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century. (MS-ESS3-5)							
				3	Identify the role of the oceans in the formation of weather systems such as hurricanes							
				OE	Organisms & Environments							
					<i>Students know that interdependence occurs among living systems and the environment and that human activities can affect these systems.</i>							
				1	Describe producer/consumer, predator/prey, and parasite/host relationships as they occur in food webs within marine, freshwater, and terrestrial ecosystems.							
				2	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. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. (MS-ESS3-4).							

				<i>Concepts and Skills</i>		Lab investigations	Close Read Strategy	Tier II Vocab	Text Dependent Questions	Evidence Based	Writing Element	Speaking Element
1	2	3	4									
				3	<p>Explore how short-and-long term environmental changes affect organisms and traits in subsequent populations</p> <p>Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. (MS-ESS3-3).</p>							
				4	<p>Recognize human dependence on ocean systems and explain how human activities such as runoff, artificial reef, or use of resources have modified these systems.</p> <p>Gather and make sense of information to describe that synthetic materials come from natural resources and impact society. (MS-PS1-3)</p> <p>Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's system. (MS-ESS3-4.</p>							















































