



Teacher Learning Report Grade 8 Science

>> Properties of Atoms	Unit	CHECKPOINT		
		1	2	3
8.5 Matter and energy. The student knows that matter is composed of atoms and has chemical and physical properties.				

Process (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
8.2(A) plan and implement comparative and descriptive investigations ⑧				
8.2(B) design and implement experimental investigations ⑧				
8.4(A) collect, record, and analyze information using tools ⑧				
<i>connected 8.1(A), 8.1(B), 8.4(B)</i>				

Content	Unit	CHECKPOINT		
		1	2	3
Structure of Atoms				
8.5(A) describe the structure of atoms, including the masses, electrical charges, and locations, of protons and neutrons in the nucleus and electrons in the electron cloud				
8.5(B) identify that protons determine an element's identity and valence electrons determine its chemical properties, including reactivity				
Periodic Table				
8.5(C) interpret the arrangement of the Periodic Table, including groups and periods, to explain how properties are used to classify elements ⑧				
6.6(A)* compare metals, nonmetals, and metalloids using physical properties such as luster, conductivity, or malleability ⑧				

Process (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
8.2(E) analyze and formulate explanations, communicate conclusions, and predict trends ⑧				
8.3(B) use models to represent the natural world ⑧				
<i>connected 8.2(C), 8.2(D), 8.3(A), 8.3(C), 8.3(D)</i>				

>> TEKS clusters typically requiring additional time and focus in the curriculum



Teacher Learning Report Grade 8 Science

Chemical Formulas, Equations, and Reactions	Unit	CHECKPOINT		
		1	2	3
8.5 Matter and energy. The student knows that matter is composed of atoms and has chemical and physical properties.				

Process (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
8.2(A) plan and implement comparative and descriptive investigations ☉ 8.2(B) design and implement experimental investigations ☉ 8.4(A) collect, record, and analyze information using tools ☉ <i>connected 8.1(A), 8.1(B), 8.4(B)</i>				

Content	Unit	CHECKPOINT		
		1	2	3
Chemical Formulas				
8.5(D) recognize that chemical formulas are used to identify substances and determine the number of atoms of each element in chemical formulas containing subscripts				
Chemical Reactions				
8.5(E) investigate how evidence of chemical reactions indicates that new substances with different properties are formed and how that relates to the law of conservation of mass ☉				
7.6(A)* distinguish between physical and chemical changes in matter ☉				
Density				
6.6(B)* calculate density to identify an unknown substance				

Process (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
8.2(E) analyze and formulate explanations, communicate conclusions, and predict trends ☉ 8.3(B) use models to represent the natural world ☉ <i>connected 8.2(C), 8.2(D), 8.3(A), 8.3(C), 8.3(D)</i>				



Teacher Learning Report Grade 8 Science

>> Force, Motion, and Energy	Unit	CHECKPOINT		
		1	2	3
8.6 Force, motion, and energy. The student knows that there is a relationship between force, motion, and energy.				

Process (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
8.2(A) plan and implement comparative and descriptive investigations ⑧ 8.2(B) design and implement experimental investigations ⑧ 8.4(A) collect, record, and analyze information using tools ⑧ <i>connected 8.1(A), 8.1(B), 8.4(B)</i>				

Content	Unit	CHECKPOINT		
		1	2	3
Force				
8.6(A) demonstrate and calculate how unbalanced forces change the speed or direction of an object's motion				
Motion				
8.6(C) investigate and describe applications of Newton's three laws of motion such as in vehicle restraints, sports activities, amusement park rides, Earth's tectonic activities, and rocket launches ⑧				
8.6(B) differentiate between speed, velocity, and acceleration				
6.8(C)* calculate average speed using distance and time measurements				
6.8(D)* measure and graph changes in motion				
Energy				
6.8(A)* compare and contrast potential and kinetic energy				
6.9(C)* demonstrate energy transformations such as energy in a flashlight battery changes from chemical energy to electrical energy to light energy				

Process (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
8.2(D) construct tables and graphs to organize data and identify patterns 8.2(E) analyze and formulate explanations, communicate conclusions, and predict trends ⑧ 8.3(B) use models to represent the natural world ⑧ <i>connected 8.2(C), 8.3(A), 8.3(C), 8.3(D)</i>				



CATHOLIC SCHOOLS
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Teacher Learning Report Grade 8 Science

>> *TEKS clusters typically requiring additional time and focus in the curriculum*



Teacher Learning Report Grade 8 Science

Sun, Earth, and Moon	Unit	CHECKPOINT		
		1	2	3
8.7 Earth and space. The student knows the effects resulting from cyclical movements of the Sun, Earth, and Moon.				

Process (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
8.2(A) plan and implement comparative and descriptive investigations ⓘ 8.2(B) design and implement experimental investigations ⓘ 8.4(A) collect, record, and analyze information using tools ⓘ <i>connected 8.1(A), 8.1(B), 8.4(B)</i>				

Content	Unit	CHECKPOINT		
		1	2	3
Earth's Movement				
8.7(A) model and illustrate how the tilted Earth rotates on its axis, causing day and night, and revolves around the Sun causing changes in seasons ⓘ				
Lunar Cycle				
8.7(B) demonstrate and predict the sequence of events in the lunar cycle				
Tides				
8.7(C) relate the positions of the Moon and Sun to their effect on ocean tides				

Process (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
8.2(E) analyze and formulate explanations, communicate conclusions, and predict trends ⓘ 8.3(B) use models to represent the natural world ⓘ <i>connected 8.2(C), 8.2(D), 8.3(A), 8.3(C), 8.3(D)</i>				



Teacher Learning Report Grade 8 Science

Characteristics of the Universe	Unit	CHECKPOINT		
		1	2	3
8.8 Earth and space. The student knows characteristics of the universe.				

Process (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
8.2(A) plan and implement comparative and descriptive investigations ⑧ 8.2(B) design and implement experimental investigations ⑧ 8.4(A) collect, record, and analyze information using tools ⑧ <i>connected 8.1(A), 8.1(B), 8.4(B)</i>				

Content	Unit	CHECKPOINT		
		1	2	3
Characteristics of the Universe				
8.8(A) describe components of the universe, including stars, nebulae, and galaxies, and use models such as the Hertzsprung-Russell diagram for classification				
8.8(B) recognize that the Sun is a medium-sized star located in a spiral arm of the Milky Way galaxy and that the Sun is many thousands of times closer to Earth than any other star				
8.8(C) identify how different wavelengths of the electromagnetic spectrum such as visible light and radio waves are used to gain information about components in the universe				
6.11(B)* understand that gravity is the force that governs the motion of our solar system				

Theories of Origins of the Universe				
8.8(D) research how scientific data are used as evidence to develop scientific theories to describe the origin of the universe				

Process (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
8.2(E) analyze and formulate explanations, communicate conclusions, and predict trends ⑧ 8.3(A) analyze, evaluate, and critique scientific explanations 8.3(B) use models to represent the natural world ⑧ <i>connected 8.2(C), 8.2(D), 8.3(C), 8.3(D)</i>				



Teacher Learning Report Grade 8 Science

Impact of Natural Events	Unit	CHECKPOINT		
		1	2	3
8.9 Earth and space. The student knows that natural events can impact Earth systems.				

Process (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
8.2(A) plan and implement comparative and descriptive investigations ⑧ 8.2(B) design and implement experimental investigations ⑧ 8.4(A) collect, record, and analyze information using tools ⑧ <i>connected 8.1(A), 8.1(B), 8.4(B)</i>				

Content	Unit	CHECKPOINT		
		1	2	3
Plate Tectonics				
8.9(B) relate plate tectonics to the formation of crustal features ⑧				
8.9(A) describe the historical development of evidence that supports plate tectonic theory				

Topographic Maps	Unit	CHECKPOINT		
		1	2	3
8.9(C) interpret topographic maps and satellite views to identify land and erosional features and predict how these features may be reshaped by weathering				
7.8(C)* model the effects of human activity on groundwater and surface water in a watershed				

Process (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
8.2(E) analyze and formulate explanations, communicate conclusions, and predict trends ⑧ 8.3(A) analyze, evaluate, and critique scientific explanations 8.3(B) use models to represent the natural world ⑧ <i>connected 8.2(C), 8.2(D), 8.3(C), 8.3(D)</i>				



Teacher Learning Report Grade 8 Science

Climatic Interactions	Unit	CHECKPOINT		
		1	2	3
8.10 Earth and space. The student knows that climatic interactions exist among Earth, ocean, and weather systems.				

Process (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
8.2(A) plan and implement comparative and descriptive investigations ⓘ 8.2(B) design and implement experimental investigations ⓘ 8.4(A) collect, record, and analyze information using tools ⓘ <i>connected 8.1(A), 8.1(B), 8.4(B)</i>				

Content	Unit	CHECKPOINT		
		1	2	3
Atmospheric Movement and Weather				
8.10(A) recognize that the Sun provides the energy that drives convection within the atmosphere and oceans, producing winds				
8.10(B) identify how global patterns of atmospheric movement influence local weather using weather maps that show high and low pressures and fronts				
Role of Oceans in Weather				
8.10(C) identify the role of the oceans in the formation of weather systems such as hurricanes				

Process (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
8.2(E) analyze and formulate explanations, communicate conclusions, and predict trends ⓘ 8.3(B) use models to represent the natural world ⓘ <i>connected 8.2(C), 8.2(D), 8.3(A), 8.3(C), 8.3(D)</i>				



Teacher Learning Report Grade 8 Science

>> Interdependence of Living Systems		Unit	CHECKPOINT		
			1	2	3
8.11 Organisms and environments. The student knows that interdependence occurs among living systems and the environment and that human activities can affect these systems.					
Process (Tools to Know)		Unit	CHECKPOINT		
			1	2	3
8.2(A)	plan and implement comparative and descriptive investigations ⑧				
8.2(B)	design and implement experimental investigations ⑧				
8.4(A)	collect, record, and analyze information using tools ⑧ <i>connected 8.1(A), 8.1(B), 8.4(B)</i>				
Content		Unit	CHECKPOINT		
			1	2	3
Interdependence					
8.11(A)	investigate how organisms and populations in an ecosystem depend on and may compete for biotic factors such as food and abiotic factors such as quantity of light, water, range of temperatures, or soil composition ⑧				
7.5(B)*	diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids				
7.10(B)*	describe how biodiversity contributes to the sustainability of an ecosystem				
Environmental Changes					
8.11(B)	explore how short- and long-term environmental changes affect organisms and traits in subsequent populations ⑧				
7.10(C)*	observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds				
Dependence on Ocean Systems					
8.11(C)	recognize human dependence on ocean systems and explain how human activities such as runoff, artificial reefs, or use of resources have modified these systems				
Genetics and Heredity					
7.11(A)*	examine organisms or their structures such as insects or leaves and use dichotomous keys for identification				
7.11(C)*	identify some changes in genetic traits that have occurred over several generations through natural selection and selective breeding such as the Galapagos Medium Ground Finch (<i>Geospiza fortis</i>) or domestic animals and hybrid plants				
7.14(B)*	compare the results of uniform or diverse offspring from asexual or sexual reproduction				
7.14(C)*	recognize that inherited traits of individuals are governed in the genetic material found in the genes within chromosomes in the nucleus				
Structure and Function					
7.12(B)*	identify the main functions of the systems of the human organism, including the circulatory, respiratory, skeletal, muscular, digestive, excretory, reproductive, integumentary, nervous, and endocrine systems				
7.12(D)*	differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole ⑧				
7.12(F)*	recognize the components of cell theory ⑧				
6.12(D)*	identify the basic characteristics of organisms, including prokaryotic or eukaryotic, unicellular or				



Teacher Learning Report Grade 8 Science

multicellular, autotrophic or heterotrophic, and mode of reproduction, that further classify them in the currently recognized kingdoms					
Process (Ways to Show)		Unit	CHECKPOINT		
			1	2	3
8.2(E)	analyze and formulate explanations, communicate conclusions, and predict trends ⑧				
8.3(B)	use models to represent the natural world ⑧ <i>connected 8.2(C), 8.2(D), 8.3(A), 8.3(C), 8.3(D)</i>				

>> TEKS clusters typically requiring additional time and focus in the curriculum



Teacher Learning Report Grade 8 Science

PROCESS STANDARDS: SCIENTIFIC INVESTIGATION AND REASONING		Unit	CHECKPOINT		
			1	2	3
8.1	The student, for at least 40% of instructional time, conducts laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices.	Tools to Know			
8.2	The student uses scientific practices during laboratory and field investigations.				
8.3	The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists.	Ways to Show			
8.4	The student knows how to use a variety of tools and safety equipment to conduct science inquiry.				

TOOLS TO KNOW		Unit	CHECKPOINT		
			1	2	3
8.1(A)	demonstrate safe practices during laboratory and field investigations as outlined in Texas Education Agency-approved safety standards				
8.1(B)	practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials				
8.2(A)	plan and implement comparative and descriptive investigations by making observations, asking well defined questions, and using appropriate equipment and technology ⑧				
8.2(B)	design and implement experimental investigations by making observations, asking well defined questions, formulating testable hypotheses, and using appropriate equipment and technology ⑧				
8.4(A)	use appropriate tools, including lab journals/notebooks, beakers, meter sticks, graduated cylinders, anemometers, psychrometers, hot plates, test tubes, spring scales, balances, microscopes, thermometers, calculators, computers, spectrosopes, timing devices, and other necessary equipment to collect, record, and analyze information ⑧				
8.4(B)	use preventative 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				

WAYS TO SHOW		Unit	CHECKPOINT		
			1	2	3
8.2(C)	collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers				
8.2(D)	construct tables and graphs, using repeated trials and means, to organize data and identify patterns				
8.2(E)	analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends ⑧				
8.3(A)	analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, so as to encourage critical thinking by the student				



Teacher Learning Report Grade 8 Science

8.3(B)	use models to represent aspects of the natural world such as an atom, a molecule, space, or a geologic feature [Ⓢ]				
8.3(C)	identify advantages and limitations of models such as size, scale, properties, and materials				
8.3(D)	relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content				