

Catholic Identity: Integration of Our Faith		
4.0 Catholic Identity Standards. The student understands and integrates the content of what is learned into their faith and daily life.		
Ways to Grow	4.0(VL) S.K5 GS1(CNS)	exhibit care and concern at all stages of life for each human person as an image and likeness of God
	4.0(VL) S.K6 GS2(CNS)	describe the unity of faith and reason with confidence that there exists no contradiction between the God of nature and the God of faith
	4.0(VL) S.K6 IS2(CNS)	describe the relationships, elements, underlying order, harmony, and meaning in God's creation
	4.0(VL) S.K6 IS7(CNS)	describe how science and technology should always be at the service of humanity and, ultimately, to God, in harmony with His purposes.
	4.0(VL) S.K6 DSI(CNS)	display a deep sense of wonder and delight about the natural universe
	4.0(VL) S.K6 DS2(CNS)	share concern and care for the environment as part of God's creation

Process Standards: Scientific and Engineering Practices/Recurring Themes and Concepts	
4.1 Scientific and Engineering Practices.	The student asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models.
4.2 Scientific and Engineering Practices.	The student analyzes and interprets data to derive meaning, identify features and patterns, and discover relationships or correlations to develop evidence-based arguments or evaluate designs.
4.5 Recurring Themes and Concepts.	The student uses recurring themes and concepts to make connections across disciplines.
Tools to Know	
plan and conduct investigations and design solutions	4.1A ask questions and define problems based on observations or information from text, phenomena, models, or investigations
	4.1B use scientific practices to plan and conduct descriptive and simple experimental investigations and use engineering practices to design solutions to problems
	4.1C demonstrate safe practices and the use of safety equipment during classroom and field investigations as outlined in Texas Education Agency-approved safety standards
	4.2D evaluate experimental and engineering designs 5.5(A) identify and use patterns to explain scientific phenomena or to design solutions
use appropriate tools and equipment	4.1D use tools, including calculators, microscopes, hand lenses, metric rulers, Celsius thermometers, prisms, concave and convex lenses, laser pointers, mirrors, digital scales, balances, spring scales, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, notebooks, timing devices, materials for building circuits, materials to support observations of habitats or organisms such as terrariums and aquariums, and materials to support digital data collection such as computers, tablets, and cameras to observe, measure, test, and analyze information
	4.1E collect observations and measurements as evidence
collect and record information	4.1F construct appropriate graphic organizers used to collect data, including tables, bar graphs, line graphs, tree maps, concept maps, Venn diagrams, flow charts or sequence maps, and input-output tables that show cause and effect

Properties of Matter		
4.6 Mater and Energy. The student knows that matter has measurable physical properties that determine how matter is identified, classified, changed, and used.		
Applied Standards		Supporting Standards
4.6A	classify and describe matter using observable physical properties, including temperature, mass, magnetism, relative density (the ability to sink or float in water), and physical state (solid, liquid, gas)	4.6A.1 investigate and compare a variety of mixtures, including solutions that are composed of liquids in liquids and solids in liquids 4.6A.2 demonstrate that matter is conserved when mixtures such as soil and water or oil and water are formed

Force and Motion	
4.7 Force, Motion, and Energy. The student knows the nature of forces and the patterns of their interactions.	
4.7A	plan and conduct descriptive investigations to explore the patterns of forces such as gravity, friction, or magnetism in contact or at a distance on an object

Energy	
4.8 Force, Motion, and Energy. The student knows that energy is everywhere and can be observed in cycles, patterns, and systems	
4.8A	investigate and identify the transfer of energy by objects in motion, waves in water, and sound
	4.8A.1 identify conductors and insulators of thermal and electrical energy 4.8A.2 demonstrate and describe how electrical energy travels in a closed path that can produce light and thermal energy

Space	
4.9	Earth and Space. The student recognizes patterns among the Sun, Earth, and Moon system and their effects.
4.9A	collect and analyze data to identify sequences and predict patterns of change in seasons such as change in temperature and length of daylight
4.9B	collect and analyze data to identify sequences and predict patterns of change in the observable appearance of the Moon from Earth

Earth's Climate and Processes	
4.10	Earth and Space. The student knows that there are processes on Earth that create patterns of change.
4.10A	describe and illustrate the continuous movement of water above and on the surface of Earth through the water cycle and explain the role of the Sun as a major source of energy in this process
4.10B	model and describe slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice
4.10C	differentiate between weather and climate

Earth's Resources	
4.11	Earth and Space. The student understands how natural resources are important and can be managed.
4.11A	identify and explain advantages and disadvantages of using Earth's renewable and nonrenewable natural resources such as wind, water, sunlight, plants, animals, coal, oil, and natural gas
	4.11A.1 explain the critical role of energy resources to modern life and how conservation, disposal, and recycling of natural resources impact the environment
	4.11A.2 determine the physical properties of rocks that allow Earth's natural resources to be stored there

Organisms and Environments	
4.12	Organisms and Environments. The student describes patterns, cycles, systems, and relationships within environments.
4.12A	describe the cycling of matter and flow of energy through food webs, including the roles of the Sun, producers, consumers, and decomposers
	4.12A.1 investigate and explain how most producers can make their own food using sunlight, water, and carbon dioxide through the cycling of matter
4.12B	identify and describe past environments based on fossil evidence, including common Texas fossils

Adaptations and Traits	
4.13	Organisms and Environments. The student knows that organisms undergo similar life processes and have structures that function to help them survive within their environments.
4.13A	explore and explain how structures and functions of plants such as waxy leaves and deep roots enable them to survive in their environment
	4.13A.1 differentiate between inherited and acquired physical traits of organisms

Process Standards: Scientific and Engineering Practices/Recurring Themes and Concepts	
4.1	Scientific and Engineering Practices. The student asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models.
4.2	Scientific and Engineering Practices. The student analyzes and interprets data to derive meaning, identify features and patterns, and discover relationships or correlations to develop evidence-based arguments or evaluate designs.
4.3	Scientific and Engineering Practices. The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions.
4.4	Scientific and Engineering Practices. The student knows the contributions of scientists and recognizes the importance of scientific research and innovation for society.
4.5	Recurring Themes and Concepts. The student uses recurring themes and concepts to make connections across disciplines.

Ways to Show

develop and use models/ information	4.1G develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem 4.2A identify advantages and limitations of models such as their size, scale, properties, and materials 4.5C use scale, proportion, and quantity to describe, compare, or model different systems
analyze and interpret data	4.2B analyze data by identifying any significant features, patterns, or sources of error 4.2C use mathematical calculations to compare patterns and relationships
develop and communicate explanations/solutions	4.3A develop explanations and propose solutions supported by data and models 4.3B communicate explanations and solutions individually and collaboratively in a variety of settings and formats 4.3C listen actively to others' explanations to identify relevant evidence and engage respectfully in scientific discussion 4.5A identify and use patterns to explain scientific phenomena or to design solutions 4.5B identify and investigate cause-and-effect relationships to explain scientific phenomena or analyze problems
explain interdependence	4.5D examine and model the parts of a system and their interdependence in the function of the system 4.5E investigate how energy flows and matter cycles through systems and how matter is conserved 4.5F explain the relationship between the structure and function of objects, organisms, and systems 4.5G explain how factors or conditions impact stability and change in objects, organisms, and systems
connect science with the real world	4.4A explain how scientific discoveries and innovative solutions to problems impact science and society 4.4B research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field to investigate STEM careers