Snapshot
Grade 7 Science

We Transform the World! CATHOLIC SCHOOLS

Catholic Identity Standards		
7.1	**Catholic identity standards.** The student understands and integrates the content of what is learned into their faith and daily life.*	
Ways to Grow	7.1(VL) S.K6 DSI(CNS)	display a deep sense of wonder and delight about the natural universe *
	7.1(VL) S.K6 GS2(CNS)	describe the unity of faith and reason *
	7.1(VL) S.K6 IS2(CNS)	describe relationships, elements, underlying order, harmony, and meaning *
	7.1(VL) S.K6 DS2(CNS)	share concern and care for the environment as part of God's creation *

Learning Process Standards			
7.2	**Learning process standards.** The student uses scientific practices during laboratory and scientific investigations and uses critical thinking and scientific problem solving to make informed decisions. The student will explain how science limits its focus to "how" things physically exist and is not designed to answer issues of meaning, the value of things, or the mysteries of the human person. * The student will list the basic contributions of significant Catholics to science. *		
	Tools to Know		**Ways to Show**
7.2A	plan and conduct investigations	7.2C	record and organize data and observations
7.2B	collect information using appropriate scientific tools	7.2D	communicate observations about investigations
		7.2E	represent the natural world using models

Interactions of Matter and Energy		
7.3i	**Matter and energy.** The student knows that interactions occur between matter and energy.	
	Applied Standards	**Supporting Standards**
7.3A	recognize that radiant energy from the Sun is transformed into chemical energy through the process of photosynthesis	
7.3B	diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids	

Physical and Chemical Changes		
7.3ii	**Matter and energy.** The student knows that matter has physical and chemical properties and can undergo physical and chemical changes.	
7.3C	distinguish between physical and chemical changes in matter	

Force, Motion, and Energy Relationships		
7.4	**Force, motion, and energy.** The student knows that there is a relationship among force, motion, and energy.	
7.4A	illustrate the transformation of energy within an organism such as the transfer from chemical energy to thermal energy	
7.4B	demonstrate and illustrate forces that affect motion in organisms such as emergence of seedlings, turgor pressure, geotropism, and circulation of blood	

Impacts on Earth's Systems			
7.5i	**Earth and space.** The student knows that natural events and human activity can impact Earth systems. The student will accept the premise that nature should not be manipulated simply at man's will or only viewed as a thing to be used, but that man must cooperate with God's plan for himself and for nature. *		
7.5A	predict and describe how catastrophic events such as floods, hurricanes, or tornadoes impact ecosystems	7.5A.1	analyze the effects of weathering, erosion, and deposition on the environment in ecoregions of Texas

7.5B	model the effects of human activity on groundwater and surface water in a watershed	7.5B.1	explain the processes of conservation, preservation, overconsumption, and stewardship in relation to caring for that which God has given us*

Components of the Solar System			
7.5ii	**Earth and space.** The student knows components of our solar system.		
7.5C	analyze the characteristics of objects in our solar system that allow life to exist such as the proximity of the Sun, presence of water, and composition of the atmosphere		
7.5D	identify the accommodations, considering the characteristics of our solar system, that enabled manned space exploration		

Relationships of Organisms and Environments			
7.6i	**Organisms and environments.** The student knows that there is a relationship between organisms and the environment.		
7.6A	observe and describe how different environments, including microhabitats in schoolyards and biomes, support different varieties of organisms	7.6A.1 7.6A.2	describe how biodiversity contributes to the sustainability of an ecosystem observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds

Variations and Traits in Populations and Species			
7.6ii	**Organisms and environments.** The student knows that populations and species demonstrate variation and inherit many of their unique traits through gradual processes over many generations. The student will accept the premise that nature should not be manipulated simply at man's will or only viewed as a thing to be used, but that man must cooperate with God's plan for himself and for nature. *		
7.6B	explain variation within a population or species by comparing external features, behaviors, or physiology of organisms that enhance their survival such as migration, hibernation, or storage of food in a bulb	7.6B.1 7.6B.2	examine organisms or their structures such as insects or leaves and use dichotomous keys for identification 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 (*Geospiza fortis*) or domestic animals and hybrid plants

Structure and Function Within Living Systems			
7.6iii	**Organisms and environments.** The student knows that living systems at all levels of organization demonstrate the complementary nature of structure and function. The student will explain what it means to say that God created the world, and all matter out of nothing at a certain point in time; how it manifests His wisdom, glory, and purpose; and how He holds everything in existence according to His plan. *		
7.6C	investigate and explain how internal structures of organisms have adaptations that allow specific functions such as gills in fish, hollow bones in birds, or xylem in plants		
7.6D	differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole	7.6D.1 7.6D.2 7.6D.3	recognize levels of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms compare the functions of cell organelles to the functions of an organ system recognize the components of cell theory
7.6E	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		

Organism Response to Stimuli			
7.6iv	**Organisms and environments.** The student knows that a living organism must be able to maintain balance in stable internal conditions in response to external and internal stimuli.		
7.6F	describe and relate responses in organisms that may result from internal stimuli such as wilting in plants and fever or vomiting in animals that allow them to maintain balance	7.6F.1	investigate how organisms respond to external stimuli found in the environment such as phototropism and fight or flight

Reproduction of Living Organisms			
7.6v	**Organisms and environments.** The student knows that reproduction is a characteristic of living organisms and that the instructions for traits are governed in the genetic material. The student will value the human body as the temple of the Holy Spirit. *		
7.6G	compare the results of uniform or diverse offspring from asexual or sexual reproduction	7.6G.1 7.6G.2 7.6G.3	define heredity as the passage of genetic instructions from one generation to the next generation recognize that inherited traits of individuals are governed in the genetic material found in the genes within chromosomes in the nucleus exhibit care and concern at all stages of life for each human person as an image and likeness of God *