Unit Map – Earth/Space Science

Catholic Schools
DIOCESE of DALLAS

Structure of the Earth		Unit	CHECKPOINT 1	CHECKPOINT 2	CHECKPOINT 3
ES.5	**Earth and space.** The student understands the structure of the Earth and the rock cycle. 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.*				

Catholic Identity Standards (Ways to Grow)

ES.1A	recognize that every human life is sacred because each person is created and loved by God*
ES.1B	describe ways to take part in/be responsible to the community by discerning and using our God-given gifts*
ES.1C	recognize and oppose unjust social structures and work toward justice for all*
ES.1D	see God at work in all things and as expressed in the sacraments*
ES.1E	connect scripture, tradition, and the models of Mary and the saints to guide, grow, and deepen faith*

Learning Process Standards (Tools to Know)		Unit	CHECKPOINT 1	CHECKPOINT 2	CHECKPOINT 3
ES.2A	plan and conduct investigations				
ES.2B	collect information using appropriate scientific tools				

Content		Unit	CHECKPOINT 1	CHECKPOINT 2	CHECKPOINT 3
Classifying Rocks					
ES.5A	classify rocks as metamorphic, igneous, or sedimentary by the processes of their formation				
ES.5A.1	develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process				
Geologic Time Scale					
ES.5B	construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's history				
Layers of the Earth					
ES.5C	build a model to illustrate the compositional and mechanical layers of Earth, including the inner core, outer core, mantle, crust, asthenosphere, and lithosphere				

Learning Process Standards (Ways to Show)		Unit	CHECKPOINT 1	CHECKPOINT 2	CHECKPOINT 3
ES.2C	record and organize data and observations				
ES.2D	communicate observations about investigations				
ES.2E	represent the natural world using models				

Unit Map – Earth/Space Science

Plate Tectonics	Unit	CHECKPOINT 1	2	3
ES.5 **Earth and space.** The student understands plate tectonics.				

Catholic Identity Standards (Ways to Grow)	
ES.1A	recognize that every human life is sacred because each person is created and loved by God*
ES.1B	describe ways to take part in/be responsible to the community by discerning and using our God-given gifts*
ES.1C	recognize and oppose unjust social structures and work toward justice for all*
ES.1D	see God at work in all things and as expressed in the sacraments*
ES.1E	connect scripture, tradition, and the models of Mary and the saints to guide, grow, and deepen faith*

Learning Process Standards (Tools to Know)		Unit	CHECKPOINT 1	2	3
ES.2A	plan and conduct investigations				
ES.2B	collect information using appropriate scientific tools				

Content		Unit	CHECKPOINT 1	2	3
Plate Tectonics					
ES.5D	analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of past plate motions				
ES.5D.1	describe how plate tectonics causes major geological events such as ocean basin formation, earthquakes, volcanic eruptions, and mountain building				
ES.5D.2	describe the historical development of evidence that supports plate tectonic theory				
ES.5D.3	identify the major tectonic plates				
Weathering					
ES.5E	interpret topographic maps and satellite views to identify land and erosional features and predict how these features may be reshaped by weathering				

Learning Process Standards (Ways to Show)		Unit	CHECKPOINT 1	2	3
ES.2C	record and organize data and observations				
ES.2D	communicate observations about investigations				
ES.2E	represent the natural world using models				

Unit Map – Earth/Space Science

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Human Impacts on Earth Systems		Unit	CHECKPOINT 1	CHECKPOINT 2	CHECKPOINT 3
ES.5	**Earth and space.** The student knows that 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.*				

Catholic Identity Standards (Ways to Grow)	
ES.1A	recognize that every human life is sacred because each person is created and loved by God*
ES.1B	describe ways to take part in/be responsible to the community by discerning and using our God-given gifts*
ES.1C	recognize and oppose unjust social structures and work toward justice for all*
ES.1D	see God at work in all things and as expressed in the sacraments*
ES.1E	connect scripture, tradition, and the models of Mary and the saints to guide, grow, and deepen faith*

Learning Process Standards (Tools to Know)		Unit	CHECKPOINT 1	CHECKPOINT 2	CHECKPOINT 3
ES.2A	plan and conduct investigations				
ES.2B	collect information using appropriate scientific tools				

Content		Unit	CHECKPOINT 1	CHECKPOINT 2	CHECKPOINT 3
Impact of Human Activity					
ES.5F	construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth systems				
ES.5F.1	research and discuss the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources				
ES.5F.2	model the effects of human activity on groundwater and surface water in a watershed				
ES.5F.3	apply scientific principles to design a method for monitoring and minimizing human impact on the environment				
ES.5F.4	explain the processes of conservation, preservation, overconsumption, and stewardship in relation to caring for that which God has given us*				

Learning Process Standards (Ways to Show)		Unit	CHECKPOINT 1	CHECKPOINT 2	CHECKPOINT 3
ES.2C	record and organize data and observations				
ES.2D	communicate observations about investigations				
ES.2E	represent the natural world using models				

Unit Map – Earth/Space Science

Weather and Climate	Unit	CHECKPOINT		
		1	2	3
ES.5 **Earth and space.** The student knows that climatic interactions exist among Earth, ocean, and weather systems.				

Catholic Identity Standards (Ways to Grow)	
ES.1A	recognize that every human life is sacred because each person is created and loved by God*
ES.1B	describe ways to take part in/be responsible to the community by discerning and using our God-given gifts*
ES.1C	recognize and oppose unjust social structures and work toward justice for all*
ES.1D	see God at work in all things and as expressed in the sacraments*
ES.1E	connect scripture, tradition, and the models of Mary and the saints to guide, grow, and deepen faith*

Learning Process Standards (Tools to Know)		Unit	CHECKPOINT		
			1	2	3
ES.2A	plan and conduct investigations				
ES.2B	collect information using appropriate scientific tools				

Content		Unit	CHECKPOINT		
			1	2	3
Atmospheric Movement and Weather					
ES.5G	develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates				
ES.5G.1	recognize that the Sun provides the energy that drives convection within the atmosphere and oceans, producing winds				
ES.5G.2	identify the role of the oceans in the formation of weather systems such as hurricanes				
ES.5G.3	collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions				
Climate Change					
ES.5H	ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century				

Learning Process Standards (Ways to Show)		Unit	CHECKPOINT		
			1	2	3
ES.2C	record and organize data and observations				
ES.2D	communicate observations about investigations				
ES.2E	represent the natural world using models				

Natural Hazards	Unit	CHECKPOINT 1	2	3
ES.5 **Earth and space.** The student knows that natural events can impact Earth systems. The student describes God's relationship with man and nature.*				

Catholic Identity Standards (Ways to Grow)	
ES.1A	recognize that every human life is sacred because each person is created and loved by God*
ES.1B	describe ways to take part in/be responsible to the community by discerning and using our God-given gifts*
ES.1C	recognize and oppose unjust social structures and work toward justice for all*
ES.1D	see God at work in all things and as expressed in the sacraments*
ES.1E	connect scripture, tradition, and the models of Mary and the saints to guide, grow, and deepen faith*

Learning Process Standards (Tools to Know)		Unit	CHECKPOINT 1	2	3
ES.2A	plan and conduct investigations				
ES.2B	collect information using appropriate scientific tools				

Content		Unit	CHECKPOINT 1	2	3
Impact of Natural Events on Ecosystems					
ES.5I	analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects				
ES.5I.1	analyze the effects of weathering, erosion, and deposition on the environment in ecoregions of Texas				
ES.5I.2	predict and describe how catastrophic events such as floods, hurricanes, or tornadoes impact ecosystems				

Learning Process Standards (Ways to Show)		Unit	CHECKPOINT 1	2	3
ES.2C	record and organize data and observations				
ES.2D	communicate observations about investigations				
ES.2E	represent the natural world using models				

Sun, Earth, and Moon	Unit	CHECKPOINT		
		1	2	3
ES.5 **Earth and space.** The student knows the effects resulting from cyclical movements of the Sun, Earth, and Moon.				

Catholic Identity Standards (Ways to Grow)	
ES.1A	recognize that every human life is sacred because each person is created and loved by God*
ES.1B	describe ways to take part in/be responsible to the community by discerning and using our God-given gifts*
ES.1C	recognize and oppose unjust social structures and work toward justice for all*
ES.1D	see God at work in all things and as expressed in the sacraments*
ES.1E	connect scripture, tradition, and the models of Mary and the saints to guide, grow, and deepen faith*

Learning Process Standards (Tools to Know)		Unit	CHECKPOINT		
			1	2	3
ES.2A	plan and conduct investigations				
ES.2B	collect information using appropriate scientific tools				

Content		Unit	CHECKPOINT		
			1	2	3
Earth's Movement, Lunar Cycle, and Tides					
ES.5J	develop and use a model of the Earth-Sun-Moon system to describe the cyclic patterns of lunar phases, eclipses of the Sun and Moon, and seasons				
ES.5J.1	relate the positions of the Moon and Sun to their effect on ocean tides				

Learning Process Standards (Ways to Show)		Unit	CHECKPOINT		
			1	2	3
ES.2C	record and organize data and observations				
ES.2D	communicate observations about investigations				
ES.2E	represent the natural world using models				

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The Solar System		Unit	CHECKPOINT 1	CHECKPOINT 2	CHECKPOINT 3
ES.5	**Earth and space.** The student understands the organization of our solar system and the relationships among the various bodies that comprise it. The student displays a sense of wonder and delight about the natural universe and its beauty.*				

Catholic Identity Standards (Ways to Grow)	
ES.1A	recognize that every human life is sacred because each person is created and loved by God*
ES.1B	describe ways to take part in/be responsible to the community by discerning and using our God-given gifts*
ES.1C	recognize and oppose unjust social structures and work toward justice for all*
ES.1D	see God at work in all things and as expressed in the sacraments*
ES.1E	connect scripture, tradition, and the models of Mary and the saints to guide, grow, and deepen faith*

Learning Process Standards (Tools to Know)		Unit	CHECKPOINT 1	CHECKPOINT 2	CHECKPOINT 3
ES.2A	plan and conduct investigations				
ES.2B	collect information using appropriate scientific tools				

Content		Unit	CHECKPOINT 1	CHECKPOINT 2	CHECKPOINT 3
The Solar System					
ES.5K	analyze and interpret data to determine scale properties of objects in the solar system				
ES.5K.1	develop and use a model to describe the role of gravity in the motions within galaxies and the solar system				
ES.5K.2	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				
Characteristics of the Universe					
ES.5L	describe components of the universe, including stars, nebulae, and galaxies, and use models such as the Hertzsprung-Russell diagram for classification				
ES.5L.1	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				
ES.5L.2	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				

Learning Process Standards (Ways to Show)		Unit	CHECKPOINT 1	CHECKPOINT 2	CHECKPOINT 3
ES.2C	record and organize data and observations				
ES.2D	communicate observations about investigations				
ES.2E	represent the natural world using models				