

Pacing Guide (Sept. 2017 – June 2018)

Grade: 4

Subject: Science

Pacing (Month)	Essential Standards	Unit Topic(s) and Essential Questions	Student Target Outcomes and Goals <i>SWBAT</i>	Focus Topics/Skills	Assessment	Resources	Catholic Identity
September/October	4-PS4-2 4-LS1-1 4-LS1-2 3-5-ETS1-1	How do organisms receive and process information?	<p>SWBAT identify internal and external plant structures and their functions.</p> <p>SWBAT explain each step of a plant's life cycle.</p> <p>SWBAT identify the correlation of plant and animal survival with adaptations, inherited traits and characteristics, and learned behaviors.</p> <p>SWBAT recognize how vision affects an animal's survival methods.</p> <p>SWBAT conduct an experiment to identify what is necessary for plant and animal survival.</p>	<p>Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen</p> <p>Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction</p> <p>Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways</p> <p>Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.</p>	<p>Create a fictional animal and describe its environment, inherited traits, learned behaviors, and adaptations. Include how the animal's vision assists in its survival methods.</p> <p>Create a poster to illustrate each step of the life cycle of a plant.</p> <p>Design and carry out an experiment based on one, or several, criteria for survival.</p>	<p>textbooks, trade books, online videos, websites</p> <p>http://ngss.nsta.org/DisplayStandard.aspx?view=pe&id=70</p> <p>http://ngss.nsta.org/DisplayStandard.aspx?view=pe&id=71</p>	<p>Why are animals born with God-given instincts? What would happen if animals were without instincts, abilities, and adaptations?</p> <p>Discuss Michelangelo Sistine Chapel: Communication between God and Adam (touching): How does God speak to us?</p> <p>Exodus; How does God speak to Moses? How does God speak to us today?</p> <p>Using your senses; What is beautiful? Senses draw us to</p>

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							beauty; The ultimate beauty is God. What connects our heart to our senses? Church teaches us that life is gift from God; we do not take a life unless ours is in danger
November December January	4-PS3-2 4-PS3-4 4-PS4-3	How do we move energy and information from place to place?	<p>SWBAT define each form of energy; sound, light, heat, and electrical.</p> <p>SWBAT describe how energy converts from one form to another.</p> <p>SWBAT create an electrical circuit with a switch that demonstrates how electrical energy converts into light energy.</p> <p>SWBAT create and compare sound/written patterns that transfer into text information.</p>	<ul style="list-style-type: none"> ● Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. ● Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. ● Generate and compare multiple solutions that use patterns to transfer information. 	<p>Develop scenarios and describe how energy converts from one form to another.</p> <p>Assemble a system connected in a parallel/series circuit.</p> <p>Test objects to discover conductor or insulator qualities.</p> <p>Design a code that transfers a text</p>	<p>sound wave generator app (Sound Biz, Google Chrome Music Lab)</p> <p>http://ngss.nsta.org/DisplayStandard.aspx?view=pe&id=77</p> <p>http://ngss.nsta.org/DisplayStandard.aspx?view=pe&id=79</p>	<p>What do you think is God’s most important energy creation and why? ***the sun because it fuels photosynthesis, which feeds everything on the planet</p> <p>Laudato Si create energy good food we eat; only wholesome and safe</p> <p>Genesis: God</p>

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					message through sound waves, light, Morse Code, etc.	http://ngss.nsta.org/DisplayStandard.aspx?view=dcid&id=35	creating the Earth and providing food (garden) biblegateway.com Sound- sacred music- Cecilia; patron saint of music How does sound enhance our lives?
January / February	4-PS3-1 4-PS3-3 3-5-ETS1-3	What happens when objects collide?	SWBAT describe how the speed of an object affects the energy it possesses. SWBAT define potential and kinetic energy. SWBAT predict reasonable outcomes based on patterns such as cause and effect relationships. SWBAT conduct a series of tests that demonstrate knowledge of energy transfer in a collision.	Use evidence to construct an explanation relating the speed of an object to the energy of that object. Ask questions and predict outcomes about the changes in energy that occur when objects collide. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	Create a poster that identifies where potential and kinetic energy are located on a moving object. Develop predictions according to given scenarios to demonstrate understanding of transfer of energy. (example: What will happen when	https://www.learningfarm.com/web/practicePassThrough.cf.m?TopicID=2940 http://ngss.nsta.org/DisplayStandard.aspx?view=topic&id=15 http://ngss.n	Newton’s Law: What happens when issues collide? Conflict resolution; Matthew 5:38-42 St. Maximilian Kolbe: conflicts. What’s going to give me life, help my life, others life? Jesus died for us. Students can

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					<p>you throw a tennis ball at a wall?)</p> <p>Create a crash-test lab where students create their own objects and test them against other students' objects while measuring the safety and stability of each object after the crash. Redesign as necessary after identifying weak points.</p>	<p>sta.org/DisplayStandard.aspx?view=pe&id=162</p>	<p>research saints and how they helped to resolve a conflict.</p> <p>How can we use forces for good causes?</p>
March/ April	4-PS4-1 4-ESS1-1 4-ESS2-1 3-5-ETS1-2	What effect can water have on land?	<p>SWBAT identify the cause and effect of waves in the ocean.</p> <p>SWBAT differentiate between amplitude and wavelength.</p> <p>SWBAT identify how rocks change over time,</p>	<p>Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.</p> <p>Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over</p>	<p>Write an essay which explains, in detail, the effects of weathering, and the rate of erosion by water, ice, wind, or vegetation.</p> <p>PBL: Design,</p>	<p>http://sciencing.com/fourthgrade-weathering-erosion-activities-8368482.html</p> <p>http://www.</p>	<p>God created Earth to constantly be changing by things like weathering and erosion. Why is that necessary? How would Earth be different without those things?</p>

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			<p>indicate the order in which rock layers were formed, and explain how changing rock affects landscape over time due to earth forces.</p> <p>SWBAT define weathering and erosion and the cause and effects of each.</p> <p>SWBAT simulate the effects of weathering and/or erosion and make changes to affect the outcome.</p>	<p>time.</p> <p>Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.</p> <p>Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.</p>	<p>construct, and evaluate a model using research to prevent river bank erosion.</p>	<p>uen.org/Lessonplan/preview?LPid=9860</p> <p>http://www.uen.org/Lessonplan/preview?LPid=9862</p>	<p>Importance of Water in the Bible:</p> <p>Noah’s Ark/The Great Flood</p> <p>Creation Genesis 9:11</p> <p>The Parting of the Red Sea; Moses</p> <p>Turning water into wine; Eucharist</p> <div style="border: 1px solid black; padding: 5px;"> <p>Read these stories of Jesus and water:</p> <p>Matthew 3:13–17</p> <p>Mark 4:35–41</p> <p>Matthew 10:40–42</p> <p>Matthew 14:22–33</p> <p>John 2:1–11</p> </div>

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							<p>Think about the different ways Jesus interacts with water. How does water function in these stories? How do his interactions help us understand Jesus’ humanity and his divinity?</p> <p>http://bibleresources.americanbible.org/resource/jesus-and-water</p>
<p>April May June</p>	<p>4-ESS2-2 4-ESS3-1 4-ESS3-2 3-5-ETS1-2</p>	<p>How can we reduce negative impacts of natural hazards and of</p>	<p>SWBAT identify patterns in the location of earth features, including mountain ranges, deep ocean trenches, ocean floor structures, earthquakes and volcanoes.</p>	<p>Analyze and interpret data from maps to describe patterns of Earth’s features. Obtain and combine information to describe that energy and fuels are derived from natural resources and</p>	<p>Use scientific information about an Earth process (such as an earthquake, volcano, flood, or landslide) to</p>	<p>https://www.exploringnature.org/db/view/1959 http://ngss.nsta.org/Disp</p>	<p>Discuss thoughts on why God created some resources to be renewable and some to be nonrenewable.</p>

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		resource use?	<p>SWBAT explain how energy resources and fuels are derived from natural sources and their use affects the environment in multiple ways. Some resources are renewable over time, others are not.</p> <p>SWBAT identify solutions that will reduce the negative impact of natural processes, such as earthquakes, tsunamis, volcanic eruptions, etc.</p>	<p>their uses affect the environment.</p> <p>Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.</p> <p>Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.</p>	design a solution that reduces its effect on humans.	layStandard.aspx?view=dcid&id=38	<p>What would happen if all resources were renewable?</p> <p>Discuss thoughts on why God created natural disasters and any good that comes from them.</p> <p>Bulletin: http://www.usccb.org/issues-and-action/human-life-and-dignity/environment/upload/WDPCC-Bulletin-Insert.pdf</p> <p>St. Francis pledge to care for creation</p> <p>Responsibility of using and maintaining resources:</p>

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							consequences of defiling the land: Psalm 107:33-34 Isaiah 5:8-10 Isaiah 24:4-6 Jeremiah 3:2-3 Jeremiah 12:11