5th Grade NYSSLS/NGSS Aligned Curriculum 2019-2020

5. Structure and Properties of Matter					
Standard	**Performance Expectations**	**Clarification**	**Disciplinary Core Idea**	**Mystery Science And other resources**	**Catholic Identity**
5-PS1-1.	Develop a model to describe that matter is made of particles too small to be seen.	Examples of evidence supporting a model could include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, and evaporating salt water.	PS1.A: Structure and Properties of Matter - Matter of any type can be subdivided into particles that are too small to see, but even then, the matter still exists and can be detected by other means. A model showing that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon and the effects of air on larger particles or objects. (5-PS1-1) - (NYSED) The total amount of matter is conserved when it changes form, even in transitions in which it seems to vanish. (5-PS1-2) - Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.) (5-PS1-3)	MS: Chemical Magic (5-10 weeks) This unit helps students develop the concepts of "substances" and "chemical reactions." Students see that chemical reactions enable us to make new materials by transforming the ones we have. The results of these reactions are interesting and sometimes profoundly useful.	God created everything, and everything is made of matter. Refer to Genesis- story of creation: God created the Heavens and Earth
5-PS1-2.	Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances the total amount of matter is conserved.	Examples of reactions or changes could include phase changes, dissolving, and mixing that form new substances. Assume that reactions with any gas production are conducted in a closed system. Assessment Boundary: Assessment does not include distinguishing between mass and weight.			
5-PS1-3.	Make observations and measurements to identify materials based on their properties.	Examples of materials to be identified could include baking soda and other powders, metals, minerals, and liquids. Examples of properties could include color, hardness,			

		reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility; density is not intended as an identifiable property.	PS1.B: Chemical Reactions - When two or more different substances are mixed, a new substance with different properties may be formed. (5-PS1-4) - No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.) (5-PS1-2)		
5-PS1-4.	Conduct an investigation to determine whether the mixing of two or more substances results in new substances.	Examples could include mixing baking soda and water compared to mixing baking soda and vinegar.			

5. Matter and Energy in Organisms and Ecosystems					
Standard	**Performance Expectations**	**Clarification**	**Disciplinary Core Idea**	**Mystery Science And other resources**	**Catholic Identity**
5-PS3-1.	Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the Sun.	Emphasis should be on plants converting light energy by photosynthesis into usable energy. Examples of models could include diagrams and flow charts.	PS3.D: Energy in Chemical Processes and Everyday Life - The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1) LS1.C: Organization for Matter and Energy Flow in Organisms - Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion. (secondary to 5-PS3-1) - Plants acquire their material for growth chiefly from air and water. (5-LS1-1) LS2.A: Interdependent Relationships in Ecosystems - The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some	MS: Web of Life (6-12 weeks) The food materials and energy that our bodies use for growth ultimately come from plants. Plants in turn derive their materials from air, water, and soil and their energy from the sun. Thus in a very real way, our bodies come from the earth and the sun. And when we die, decomposers return our materials and energy to the earth, to be used again by future organisms. The whole of nature forms a great system--the ecosystem.	Sense of wonder and awe at God's creation. We are called to be good stewards of God's creation Describe God's creation as good God calls us to respect His creations
5-LS1-1.	Support an argument that plants get the materials they need for growth chiefly from air and water.	Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.			
5-LS2-1.	Develop a model to describe the movement of matter among plants (producers), animals (consumers), decomposers, and the environment.	Emphasis is on the flow of energy and cycling of matter in systems such as organisms, ecosystems, and/or Earth. Assessment Boundary: Assessment does not include molecular explanations.			

			organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1) LS2.B: Cycles of Matter and Energy Transfer in Ecosystems - Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1)		

5. Earth's Systems					
Standard	**Performance Expectations**	**Clarification**	**Disciplinary Core Idea**	**Mystery Science And other resources**	**Catholic Identity**
5-ESS2-1.	Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.	Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system. Assessment Boundary: Assessment is limited to the interactions of two systems at a time.	ESS2.A: Earth Materials and Systems - Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (5-ESS2-1)	MS: Watery Planet (4-8 weeks) This unit helps students develop the idea that water is a profoundly important natural resource, but one which requires surprising ingenuity to find and maintain.	Sense of wonder and awe at God's creation. To be good stewards of God's creation God calls us to respect His creations Refer to Pope Francis' Laudato Si reg. environment and climate change
5-ESS2-2.	Describe and graph the amounts of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.	Assessment Boundary: Assessment is limited to oceans, lakes, rivers, glaciers, ground water, and polar ice caps, and does not include the atmosphere.	ESS2.C: The Roles of Water in Earth's Surface Processes - Nearly all of Earth's available water is in the ocean. Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5-ESS2-2)		
5-ESS3-1.	Obtain and combine information about	Emphasis should be on how communities use	ESS3.C: Human Impacts on Earth Systems		

	ways individual communities use science ideas to protect Earth's resources and environment.	information to sustain resources and the environment locally, regionally, nationally, and/or internationally.	- Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments. (5-ESS3-1)		

5. Space Systems: Stars and the Solar System					
Standard	**Performance Expectations**	**Clarification**	**Disciplinary Core Idea**	**Mystery Science And other resources**	**Catholic Identity**
5-PS2-1.	Support an argument that the gravitational force exerted by Earth on objects is directed down.	"Down" is a local description of the direction that points toward the center of the spherical Earth. Assessment Boundary: Assessment does not include mathematical representation of gravitational force.	PS2.B: Types of Interactions - The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (5-PS2-1) ESS1.A: The Universe and its Stars - The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from Earth. (5-ESS1-1) ESS1.B: Earth and the Solar System - The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year. (5-ESS1-2)	MS: Spaceship Earth (8-16 weeks) This astronomy unit helps students develop a new perspective on the world they're standing on. They will be given evidence that the Earth beneath our feet is actually moving through space, both spinning on its axis, and traveling in a great orbit around the Sun. They will see how these movements account for the patterns we see in our sky (the paths of our Sun across the sky, the changing seasons, and the changing constellations). Accompanying us on this journey are the Moon and planets, which the students will observe have their own patterns of movement in the sky.	Sense of wonder and awe at God's creation. Refer to Genesis Balance of Nature Understanding from the perspective that God created a well-ordered universe.
5-ESS1-1.	Support an argument that differences in the apparent brightness of the Sun compared to other stars is due to their relative distances from Earth.	Assessment Boundary: Assessment is limited to relative distances, not sizes, of stars. Assessment does not include other factors that affect apparent brightness (such as stellar masses, age, stage).			
5-ESS1-2.	Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.	Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.			