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Grade: Middle School Subject: Earth Science

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SEPT.	S2.1a, S2.2b S2.1b, S2.2b ESS1B	Lab Safety -What procedures must I follow for good Lab Safety? Scientific Method - How would I develop an experiment using the Scientific Method? Daily, Monthly, and Seasonal Changes on Earth -How do objects move in space? -What causes the seasons on Earth? -What causes the phases of the moon? -How does the moon affect tides? -What role does the moon play in lunar and solar eclipses?	-State and follow safety procedures in the classroom and Lab. -Identify the steps in the scientific method. -Explain the role gravity and inertia play in keeping planets in their orbits. -Explain how rotation and revolution cause one day and one year on earth. -Observe evidence of Earth's rotation and revolution. -Explain the causes of the seasons on Earth. -Observe, track, and record the phases of the moon. -Explain the impact the moon has on Earth's tides.	-Use science equipment correctly. -Use the scientific method to test a hypothesis. Define: Rotation Revolution Gravity Inertia Seasons Phases of the Moon Tides Lunar and solar eclipses	-Quizzes -Experiments -Teacher observations -Demonstrate rotation. revolution, and the seasons. -Make models of lunar and solar eclipses. -Keep a journal of the phases of the moon for one month. -Quizzes	-Safety Handbook from the textbook. -Textbook info and websites on the scientific method -Globes -Textbook -Videos -NASA websites	National Directory for Catechesis -Care for self and others -Roger Bacon(c. 1214–1294) – Franciscan friar who is described as the forerunner to the modern scientific method God's Creation -Gn 1 United States Catholic Catechism for Adults How does a modern view of

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							earth from space give us a new respect for creation? -Laws of Nature
OCT.	ESS1A ESS1B	The Universe -What is the Big Bang Theory? -How is Space explored? The Solar System -What objects make up the solar system? -What are the characteristics of comets, asteroids, meteors?	-Investigate theories of how the universe formed. -Describe how a rocket works. -Describe some uses of satellites, probes, and the space station. -Explain how the conditions in space are different from those on Earth. -Explain the heliocentric system. -Identify the main characteristics that distinguish each of the inner and outer planets. -Describe the characteristics of comets, asteroids, and	-Make a rocket and explain how it works. -Observe the planets with a telescope. -Observe a meteor shower. Define: Big Bang Theory Mercury Venus Earth Mars Jupiter Uranus Neptune Pluto Comet Asteroid Meteor Meteorite	-Make a model of the Solar System. -Make a travel brochure for a planet. -Make a model of a comet. -Reports -Quizzes/Tests.	-Videos -Internet -NASA websites -Star Maps -Textbook -Field trip to the planetarium -Field trip to The Challenger Learning Center, Lockport, NY	God's Creation - Gn 1 - Apostles' Creed -St. Dominic Patron saint Astronomers Aug. 4 Would God create life elsewhere in the universe?

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			meteors.				
NOV.	ESS1A ESS1B	The Sun -What are the layers of the Sun's interior and atmosphere? -What features form on or above the Sun's surface? Stars -How does a star form? -How are stars classified? -How do astronomers measure distance to stars? -What is the H-R Diagram, and how is it used? Galaxies -What are the major types of galaxies?	-Describe the layers of the Sun's interior and atmosphere. - Describe the features on or above the Sun's surface. -Explain how stars are classified. -Identify and describe the characteristics of stars(temperature, color, size, life cycle). -Describe a light year. -Describe why and how parallax is used. -Describe the different types of galaxies within our Universe (elliptical, irregular, and spiral). - Identify the type of galaxy that contains our solar system, and tell it's name.	Define: Core Radiation Zone Convection Zone Photosphere Chromosphere Corona Sunspot Prominence Solar Flare Solar Wind Nebula White Dwarf Main Sequence Medium Size Large Giants Super Giant Super Nova Neutron Star Black Hole Elliptical Galaxy Irregular Galaxy Spiral Galaxy - Interpret the H-R Diagram	-Make a model of the Sun. -Label a diagram of the Sun. -Quizzes -Answer questions about the H-R Diagram -Make a model of our Milky Way Galaxy using pipe cleaners.	-Videos and DVDs -Internet -NASA websites - Textbook - H-R Diagram (Hertzsprung-Russell) -Field trip to the planetarium	God's Creation -Gn 1 Light Is 10:17 - God is the true light and source of all light. Jn 7:37-39 -Jesus is the light of the world. God gives us natural laws.

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				(Hertzsprung-Russell) -Learn scientific notation to express a light year.			
DEC.	ESS2A ESS2B	Plate Tectonics -What are the three main layers of the Earth's interior? -How do Earth's characteristics vary with depth? -Why do tectonic plates move? -What is the Theory of Continental Drift? -How have the positions of the continents changed as a result of plate movement? -What is Sea-Floor spreading?	-Describe the properties of the Earth's interior. -Investigate the Theory of Continental Drift. -Explain the movement of Earth's Plates. -Explain the Theory of Plate Tectonics. -Describe the three types of plate boundaries, and identify the landforms associated with each. -Describe convection currents in Earth's mantle. -Explain the process of sea-floor spreading. -Describe the process of subduction.	-Demonstrate how heat is transferred. -Conduct an activity showing continental drift. -Make a model of sea-floor spreading. Define: Crust Mantle Core Lithosphere Asthenosphere Conduction Convection Radiation Density Pangaea Fossil Mid-ocean Ridge	-Model of sea-floor spreading -Lab investigations -Quizzes/Test -Project -Chapter questions	-Model of Earth's interior -World map or globe -Map of Earth's lithospheric plates -Video of continental drift -Internet -Textbook	God's Creation -Gn 1 Mountains Dt 33:2 Mt. Sinai Ps 68:17 Zion is the mountain God has chosen Historic ideas about the location of Heaven

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				Deep ocean trench Subduction Divergent boundary Convergent boundary Transform boundary			and hell.
JAN.	ESS2A ESS3B	Earthquakes and Volcanoes Earthquakes - How does stress in the crust change Earth's surface? -How does the energy of an earthquake travel through Earth? -How does a seismograph work? -What can be done to increase earthquake safety and reduce earthquake damage?	-Explain how stress in the crust changes Earth's surface. -Describe where faults are usually found and why they form. -Describe how the energy of an earthquake travels through Earth. -Explain how a seismograph works. -Explain how seismographic data are used. -Identify the kinds of damage an earthquake can cause. -Provide suggestions to increase earthquake safety and reduce earthquake damage.	-Design and build a simple seismograph. -Design a seismic-safe building. -Model the different forms of stress in the Earth. Define: Stress Tension Compression Shearing Anticline Syncline Earthquake Normal fault Reverse fault Seismic wave P wave S wave Surface wave Focus	-Make a model of a simple seismograph and demonstrate how it works. -Design of a seismic-safe building and give a presentation -Textbook questions -Quizzes/Tests	-A map of earthquake risk zones -World map -Internet - websites -Videos -Textbook	National Directory for Catechesis Catholic Social Teaching -To provide aid to people in areas affected by natural disasters. 1 Kings 19:11-13 -Biblical comfort from

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JAN	ESS2A ESS2B	Volcanoes -Where are most of Earth's volcanoes found? -What factors determine the viscosity of magma? -What happens when a volcano erupts?	-Identify where Earth's volcanic regions are located and explain why they are found in these areas. -Explain what factors determine the viscosity of magma. -Explain what happens when a volcano erupts. -Describe the two types of volcanic eruptions. -Identify a volcano's stages of activity.	Epicenter Aftershock Tsunami Seismograph Seismogram Richter Scale -Observe the viscosity of a liquid. -Make a model of an erupting volcano. Define: Shield volcano Cinder cone Composite volcano Magma Lava Ring of Fire Viscosity Silica Magma chamber Pipe Vent Crater Lava flow Pyroclastic flow Dormant	- Model of an erupting volcano. -Plot the locations of recent earthquake and volcanic activity on a map and identify patterns of their distribution.	-World map to show Ring of Fire -Videos -DVDs -Internet -Textbook	earthquakes and other natural disasters Natural disasters are part of God's plan National Directory for Catechesis Catholic Social Teaching -To provide aid to people in areas affected by natural disasters.

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				Extinct			
FEB	ESS2A ESS2B ESS3A	Rocks and Minerals -What is a mineral? -How are minerals identified? -How are minerals used? -How are rocks classified? -What is the Rock Cycle?	-Define a mineral and tell how it is can be formed. -Describe how minerals are used. -List the characteristics used to identify a rock. -Identify and describe the three major groups of rocks. -Describe how the three major groups of rocks are used. -Describe the rock cycle.	-Use identification tests to identify mineral samples. -Find the density of a mineral. -Use a diagram of the rock cycle to determine the processes that led to the formation of different rocks. -Observe the properties of each rock sample and classify each rock into one of the three major groups of rocks. Define: Mineral Inorganic Crystal Streak Luster Cleavage Fracture Mohs Hardness Scale	-Identification tests to identify mineral and rock samples. -Using the rock cycle to identify how a rock formed. -Quizzes/Tests -Textbook questions	-Field guides of rocks and minerals -Diagram of the rock cycle -Mineral and Rock samples -Testing materials -Videos -DVDs -Internet	National Directory for Catechesis Catholic Social Teaching -Share mineral resources with poor countries How are poor countries' resources stolen? United States

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MARCH	ESS2C ESS1C	Weathering and Erosion -How do weathering and erosion affect Earth's surface? Geologic Time Scale and Eras in Earth's History -What are the different units of the geologic time scale? -What are the major events in the Paleozoic, Mesozoic, and Cenozoic Eras? -How do geologists determine the relative age of rocks?	-Explain how weathering and erosion affect Earth's surface. -Identify what causes mechanical and chemical weathering. -Explain how water, wind, waves, and glaciers cause erosion and deposition. -Describe the different units of the geologic time scale. -Describe the major events in the Paleozoic, Mesozoic, and Cenozoic Eras. -Describe what fossils tell about organisms and environments of the past. -Describe how geologist determine the relative	Color Grains Texture Igneous rock Sedimentary rock Metamorphic rock -Conduct tests on samples of limestone to show mechanical and chemical weathering. -Find the relationship between the height and width of a sand hill. -Make a model of a stream and observe erosion. Define: Mechanical Weathering Chemical Weathering Erosion Deposition -Make a model of the geologic time scale. -Do an index fossil activity. Define: Fossil Index fossil Relative age	-Lab investigations -Textbook questions -quizzes/Tests	-Internet -Videos -Stream Table -Textbook Charts - Geologic Time Scale - Eras in Earth's History	Catholic Catechism for Adults -Peter is the rock on which Jesus would build his church. -Caring for the Earth God created Earth, Appreciate Earth's past.

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APRIL	ESS2C ESS2D ESS3B ETS2A ETS2B	Weather -What is weather? -How is the atmosphere important to living things? -What are the major causes of air pollution? -What are the main types of air masses and fronts? -How do meteorologists predict the weather? - What are the major kinds of storms, and how do they form? -What is the water cycle?	age of rocks. -Explain how index fossils are used. -Describe radioactive decay and what can be learned from it. -Define weather. -List the factors that affect weather. -State how the atmosphere is important to living things. -Identify major sources of air pollution. -Describe what can be done to improve air quality. -Identify technologies used by meteorologists to predict weather patterns. -Explain the effects of air masses on weather conditions of a certain location. -Explain the effects of different fronts on precipitation. -Identify and determine	Evolution Extinct Mass Extinction Law of Superposition Radioactive decay Half-life -Use instruments to measure weather conditions. -Interpret weather maps. -Use data and a map to predict when and where a hurricane will come ashore. -Illustrate the water cycle. Define: Weather Atmosphere Air mass Ozone Maritime Air pressure Tropical Altitude Front Barometer Thunderstorm Troposphere Lightning Stratosphere Tornado Mesosphere Hurricane Thermosphere Bizzard Ionosphere Meteorologist Exosphere Doppler radar Photochemical smog Acid rain anemometer	-Use weather instruments to measure weather variables. -Interpret weather maps. -Make a class emergency kit. -Quizzes/Tests -Textbook questions	-Local and national weather information -Weather instruments -Weather maps -Videos -Local meteorologist as a class speaker -Internet -Websites -Textbook	National Directory for Catechesis -Care for the Earth -Clean air and water for all people -Water of Baptism (the Foundation of Christian

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MAY	ESS2D ESS3D ETS2A ETS2B	Climate and Climate Change -What is climate? -What causes seasons? -What are the six main climate regions? -What factors can cause climate change? -How might human activities be affecting climate change?	the causes of hazardous weather conditions. -Describe the measures that can be taken to ensure safety in a storm. -Identify factors that influence temperature and precipitation. -Explain what causes seasons. -Identify factors used to define climate -Describe the six climate regions. -Identify factors that can cause climate change. -Describe the changes that occur on Earth's surface during an ice age. -Describe how human activities might be affecting the temperature of Earth's Atmosphere. -Explain how human activities have affected	Jet stream Evaporation Condensation Humidity Psychrometer Precipitation -Graph climate data from the last fifty years. -Make a model of the Greenhouse Effect. Define: Climate Polar zone Temperate zone Tropical zone Marine climate Continental climate Monsoon Windward Leeward Rain forest Savanna Desert Steppe Humid Tropical Subarctic	-Graphing activity -Model of the Greenhouse Effect -A report on a Climate Region -Textbook questions -Quizzes/Tests	-Laudato Si Encyclical Letter of Pope Francis -Internet -World map of climate regions -Textbook -Magazines (National Geographic) -Laudato Si Encyclical Letter of Pope Francis	Life Discuss the balance of nature. National Directory for Catechesis Care for God's creation -Reduce human activities that may cause climate change (ozone depletion and global warming). How have humans adapted?

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			the ozone layer.	Tundra Permafrost Global warming Greenhouse gases Chlorofluorocarbon			