

PHYSICAL SCIENCE
Motion and Stability: Forces and Interactions
Faith supporting Reason <ul style="list-style-type: none"> <li>Recognizes that there are forces that act upon them to make Christ-like decisions</li> </ul>
Catholics making contribution to the topic Johannes Kepler, Isaac Newton, and Albert Einstein
Science outcomes <ol style="list-style-type: none"> <li>Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.</li> <li>Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.</li> </ol>
Engineering - Experiments - Extension Activities <ul style="list-style-type: none"> <li>Build a ramp using building blocks or other building materials to create a tower and launch various objects of different sizes and weights down the slope.</li> <li>Connect dominions places in a row to relate to Newton's Law.</li> <li>Have different objects to see which would drop first and relate to gravity</li> <li>Laundry basket ride to determine if pushing or pulling is easier</li> </ul>
Crosscutting Concepts <ul style="list-style-type: none"> <li>Religion- Use the story of Jesus carrying the cross and how hard it was. Jesus fell three times, needed help to carry the cross. Would it be easier to pull or push the cross?</li> <li>ELA-Design a cross and explain how to get it from position A to position B using force and motion. This could be completed in collaborative groups or done individually. Begin with markers and create the basic design. Next move to transferring the design to a small-scale model by using play-doh, clay, or blocks. They will use measuring tools to make their design object come to 3-D. They will explain the whole process through keeping a journal. Brainstorm different types of vehicles. Students draw and write sentences about the vehicle and how it relates to force and motion. Introduce simple machines, incline planes, edges, screws and explain how they are used.</li> <li>Math- 3-D shapes that move, slide, and roll. Create a graph based on findings</li> <li>P.E.- bowling games with different force balls. Riding scooters (what motion is easiest)</li> <li>Social Studies- structures of buildings and force related</li> <li>Other- Roller Coasters and pushing and pulling</li> </ul>

<b>PHYSICAL SCIENCE</b>
Energy
Faith supporting Reason <ul style="list-style-type: none"> <li>• Recognize that Jesus' loving energy flows through all of us</li> </ul>
Catholics making contribution to the topic <ul style="list-style-type: none"> <li>• Pierre Duhem, Michael Faraday and Andre' Marie Ampere</li> </ul>
Science outcomes <ol style="list-style-type: none"> <li>1. Make observations to determine the effect of sunlight on Earth's surface. Observations of nature in the world. For example: leaves on trees, water in the river or pond.</li> <li>2. Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.</li> <li>3.</li> </ol>
Engineering - Experiments - Extension Activities <ul style="list-style-type: none"> <li>• Evaporating water with sunlight</li> <li>• Greenhouse effect (control group and test group) 2 cups of seeds- one in the sun and one in the shade to compare and contrast their growth.</li> <li>•</li> </ul>
Crosscutting Concepts <ul style="list-style-type: none"> <li>• Religion- God's beauty shining on things and is present in everything (weather, creates everything)</li> <li>• ELA- informational text – share what you find. Compare and contrast growing plants in two different locations in the classroom.</li> <li>• Math- measuring objects (more/less energy). How much sunlight one object gets verses another object Using shapes do activities that relate to the shape. For example – balance on three different body parts to mirror that a triangle has 3 vertices.</li> <li>• P.E.- things to do outside when hot/cold Go through the alphabet and think of activities that relate to different motions. For example: b- bouncing s- skiing h- hopping. Play a game of builders and bulldozers. One group puts up the cones and the bulldozers knock them over. This uses up energy because they are constantly putting up the cones and knocking them down.</li> <li>• Social Studies- Natural resources and geography and the sun's effect on different areas</li> <li>• Other</li> </ul>

<b>LIFE SCIENCE</b>
From Molecules to Organisms: Structures and Processes
Faith supporting Reason <ul style="list-style-type: none"> <li>• Listen to Bible stories about creation: mustard seed, Jonah and the Whale, good land/verses bad land</li> </ul>
Catholics making contribution to the topic <ul style="list-style-type: none"> <li>• Gregor Mendel</li> </ul>
Science outcomes <ol style="list-style-type: none"> <li>1. Use observations to describe patterns of what plants and animals (including humans) need to survive</li> </ol>
Engineering - Experiments - Extension Activities <ul style="list-style-type: none"> <li>• Pond Unit – study the plants and animals that live in and around a pond. Research the life cycle of a frog. Make a poster of the lifecycle. Bring in some tadpoles and observe them. Make a whole class/wall display of the animals of the pond.</li> <li>• Plant and Life cycles</li> <li>• Food chains – make a chain – each link has a part of the food chain.</li> <li>• All energy comes from the sun.</li> </ul>
Crosscutting Concepts <ul style="list-style-type: none"> <li>• Religion- Jesus came into the world as a human being</li> <li>• ELA- stories on pets, how animals are alike and different, animal reports</li> <li>• Math- Animal crackers counting (Noah and Arc)</li> <li>• P.E.- Animal games, relay races (act like a certain animal)</li> <li>• Social Studies- study of people (life cycles). Needs/wants and goods/services</li> <li>• Other</li> </ul>

<b>EARTH AND SPACE SCIENCE</b>
Earth's Systems
Faith supporting Reason <ul style="list-style-type: none"> <li>• Take care of God's Earth (natural ways to renew land)</li> </ul>
Catholics making contribution to the topic <ul style="list-style-type: none"> <li>• Leonardo da Vinci, Nicholas Copernicus and Johannes Kepler</li> </ul>
Science outcomes <ol style="list-style-type: none"> <li>1. Use and share observations of local weather conditions to describe patterns over time.</li> <li>2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.</li> </ol>
Engineering - Experiments - Extension Activities <ul style="list-style-type: none"> <li>• Habitats – make a diorama of a habitat after gathering information about the habitat</li> <li>• Graph the weather over time</li> <li>• Care for the environment</li> </ul>
Crosscutting Concepts <ul style="list-style-type: none"> <li>• Religion- God gives us what we can handle (not going to get super hot/cold)</li> <li>• ELA- Give a speech describing your habitat, write simple sentences about habitats you observed</li> <li>• Math- calendar of observing weather, temperature, graphing weather (change in season), sorting</li> <li>• P.E.-jump the river</li> <li>• Social Studies- Rainforest and clearing the land</li> <li>• Other</li> </ul>

<b>EARTH AND SPACE SCIENCE</b>
Earth and Human Activity
Faith supporting Reason <ul style="list-style-type: none"> <li>• God created humans in His own likeness</li> <li>• Water as a symbol of God's love</li> </ul>
Catholics making contribution to the topic <ul style="list-style-type: none"> <li>• Leonardo da Vinci, Nicholas Copernicus and Johannes Kepler</li> </ul>
Science outcomes <ol style="list-style-type: none"> <li>1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.</li> <li>2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.</li> <li>3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.</li> <li>4. Water cycle-Make the water cycle using the correct terms- evaporation, precipitation, condensation.</li> </ol>
Engineering - Experiments - Extension Activities <ul style="list-style-type: none"> <li>• Earth Day Activities</li> <li>• Recycle paper</li> <li>• Can recycling</li> </ul>
Crosscutting Concepts <ul style="list-style-type: none"> <li>• Religion- baptism</li> <li>• ELA- study of wild animals verses pets, habitats</li> <li>• Math- animal story problems</li> <li>• P.E.- running games related to the orbits of the planets</li> <li>• Social Studies- landforms (trash), water cycle</li> <li>• Other- preparing for severe weather</li> </ul>

**ENGINEERING**

## Engineering Design

## Faith supporting Reason

- Everything came from God's design for us

## Catholics making contribution to the topic

- Andre-Marie Ampere and Michael Faraday

## Science outcomes

1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

## Engineering - Experiments - Extension Activities

- Make something out of recycled items

## Crosscutting Concepts

- Religion- How we were created. God's nature box (something unusual to put inside)
- ELA- explain the process of design
- Math- patterns
- P.E.- use different objects and see how they work. Can you change it or game to make it better. Make a new game by changing the use of equipment.
- Social Studies- diagrams of the Earth, map skills
- Other- technology ,design something to transport something from one place to another