

PHYSICAL SCIENCE**Waves and their Applications in Technologies for Information Transfer**

Faith supporting Reason

1 Samuel 3 Samuel's Calling and Prophetic Activity – When Samuel answered God, Samuel gave messages to God's people and was a special prophet of God.

Catholics making contribution to the topic

- Augustin Jean Fresnel and Hippolyte Frizeau

Science outcomes

1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.
2. Make observations to construct an evidence-based account that objects can be seen only when illuminated.
3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.
4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.

Engineering - Experiments - Extension Activities

- Experiment different ways you can communicate. These include, but are not limited to, the game Telephone, string phones, drum beats, sign language, music, phonics phone, stories, and writing. Have a tub of water and at one at a time drop different weight objects. Measure the ripple effect times speed. For example, the difference between a dollar bill and a rock (a dollar bill will not have much effect versus a rock will be faster and have more waves)

Crosscutting Concepts

- Religion- We can relate sound in our prayer time. This can be done through song, quiet time, or attending mass. This is how God hears us. The light waves can also be connected to Noah's Arc via the rainbow and God's promise. Observe in Church the sounds of prayer and music.
- ELA- Use informational texts and how-to books on a given topic and have students sequence instructions.
- Math- Measure the length of a wave
- P.E.- Use a parachute with different size balls.
- Social Studies- The history and facts of large waves in the world including hurricanes, flooding, and tsunamis
- Other- Tuning fork in music to experience different vibrations 5 senses, animals that use vibrations, experiment ways to make sound and the causes

LIFE SCIENCE

From Molecules to Organisms: Structures and Processes

Faith supporting Reason

- Above all else, trust in God. His shield will protect us.

Catholics making contribution to the topic

- Gregor Mendel

Science outcomes

1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.
2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.

Engineering - Experiments - Extension Activities

- Designing a solution to a human problem for example, shin guards for soccer, a helmet for biking, wrist guards... Using recyclable materials design something that protects you.

Crosscutting Concepts

- Religion- Relate to the beatitudes- God will feed, clothe...
- ELA-Do a literature study using fiction and non fiction books about animals caring for their offspring. Compare and contrast how make believe characters like Franklin are like your parents.
- Math-Chart the amount of time that parents care for their offspring. From not staying with their offspring to caring for them until they are an adult.
- P.E.-move like an animal , animal actions
- Social Studies-Animals in different areas of the world have different external protection.
- Other

LIFE SCIENCE
Heredity: Inheritance and Variation of Traits
Faith supporting Reason <ul style="list-style-type: none"> • People are made unique and in God's image and likeness.
Catholics making contribution to the topic <ul style="list-style-type: none"> • Gregor Mendel
Science outcomes <ol style="list-style-type: none"> 1. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents
Engineering - Experiments - Extension Activities <ul style="list-style-type: none"> • Listening to different sounds of animals and people. Compare and contrast the sounds and relate that to a lion. A lion is a lion its whole life, but his sound changes as he grows older, much like a person or a plant.
Crosscutting Concepts <ul style="list-style-type: none"> • Religion- We are all descendants of Abraham. Introduction to genealogy. • ELA- Family tree and history writing project. Use all parts of speech. • Math- Patterns of eye color, hair color, gender. Make a class and family graph and compare and contrast. • P.E.- Grouping games, I'm Thinking games • Social Studies- Where in the World are You From? Pinpoint on a map in class where your family is from. Bring in something representing your family or culture. Design a family flag representing your family. • Other- Listen to different music from around the world. Listen for different instruments and traditions. Listen to different national anthems.

EARTH AND SPACE SCIENCE
Earth's Place in the Universe
Faith supporting Reason <ul style="list-style-type: none"> • The first book in Genesis – The Seven Days of Creation
Catholics making contribution to the topic <ul style="list-style-type: none"> • Leonardo di Vinci, Nicholas Copernicus, and Galileo Galilci
Science outcomes <ol style="list-style-type: none"> 1. Use observations of the sun, moon, and stars to describe patterns that can be predicted. 2. Make observations at different times of year to relate the amount of daylight to the time of year.
Engineering - Experiments - Extension Activities <ul style="list-style-type: none"> • Moon Dough – use eight cups of flour and one cup of baby oil to show the consistency of what moon dough might look like. Journal about the moon dough using adjectives after the dough is made. Write a story about their life on the moon.
Crosscutting Concepts <ul style="list-style-type: none"> • Religion- Draw, act, and show each day of creation. Show how God created the sky, the stars... • ELA-Read informational texts on the planets and make a diorama • Math- Count, order and placement of planets. Adding and subtracting word problems • P.E.- Role play the moon rotation around the earth which rotates around the sun. • Social Studies- The difference in a seasons and sunlight around the world verses other places. Cardinal directions with the sunrise and sunset • Other

ENGINEERING

Engineering Design

Faith supporting Reason

- God told Noah to build an arc to save his family and the animals from the flood.

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

- What things sink or float – use a variety of household items and use the scientific method to see what the outcomes are. The Egg Project – design a carrier for the egg and try not to let the egg break.

Crosscutting Concepts

- Religion- Read Noah’s Arc and act out the bible story. Design an arc to weather a heavy storm and be able to carry all the animals.
- ELA- Read Who Sank the Boat by Pamela Allen. Water balloon activity – fill balloons and label with sight words, spelling words, or vocabulary words and then find the matching target and aim. Use prediction skills across the curriculum.
- Math- Measurement – weight and capacity. Use the classroom scale and find items in the classroom to weigh. Design a paper airplane and measure the distance and graph the class results.
- P.E.- Play a variety of sports using different weighted balls and then compare and contrast why certain games are played with specific balls. Play basketball, soccer, kickball, bowling, volleyball, tennis, football, etc.
- Social Studies- Goods and services
- Other