

PHYSICAL SCIENCE

Waves and their Applications in Technologies for Information Transfer

First Grade

SCRIPTURE

*The eye is the lamp of the body. If your eyes are healthy, your whole body will be full of light. But if your eyes are unhealthy, your whole body will be full of darkness. If then the light within you is darkness, how great is that darkness!* Matthew 6:22-23

STANDARD

- S. 1. Make observations using our God given senses to provide evidence that vibrating materials can make sound and objects can be seen only when illuminated and .
- S. 2. Plan and conduct an investigation using our God given senses to determine the effect of placing objects made with different materials in the path of a beam of light.
- S. 3. Using tools and materials from our natural universe evident in God’s creation, design and build a device that uses light or sound to solve the problem of communicating over a distance.

EXAMPLES

Parables

The Parables of Jesus: The Body’s Lamp

-Matthew 6:22-23, Luke 11:34-36

The Parables of Jesus: The Lamp on a stand

-Matthew 5:14-15, Luke 8:16, 11:33

Literature:

*Sound: Loud, soft, high, and low* by Natalie Rosinsky: Non-fiction book that breaks down the concepts of sound and how sound travels for young learners. The author also addresses pitch, sound waves, and other facts.

*Oscar and the moth: A book about light and dark* by Geoff Waring: As Oscar the kitten watches the sun set one evening, he has lots of questions about light and dark. Who better than Moth to help out? Moth shows how sources of light are as different as the sun, stars, fireflies, streetlights, and airplanes, and also explains how shadows are made and why darkness comes at night. Includes lesson summaries!

*Sounds All Around (Let’s-Read-and-Find-Out Science 1)* by Wendy Pfeffer

Saints:

Albertus Magnus- Patron Saint of Natural Sciences

ESSENTIAL QUESTIONS

How does science and technology impact God’s people?

We are each called to let our light shine for all to see. What kinds of things block the Light of God from shining on us?

VOCABULARY TERMS

Sound, volume, vibrate, pitch, speed, sound wave, frequency, light, opaque, transparent, translucent, reflect, refract

#### ACTIVITIES

##### The Science of the String Phone-

Students will work in teams as they build a set of telephones and then figure out how they work. Start the lesson by demonstrating how to build a set of phones. Speaking into the cup creates sound waves which are converted into vibrations at the bottom of the cup. The vibrations travel along the string and are converted back into sound waves at the other end so your friend can hear what you said. Sound travels through the air but it travels even better through solids such as your cup and string, allowing you to hear sounds that might be too far away when traveling through the air.

Materials: Each team of kids will need two paper cups, a pencil, and 40 inches of cotton string.

#### LIFE SCIENCE

From Molecules to Organisms: Structures and Processes

First Grade

#### SCRIPTURE

"How varied are your works, Lord! In wisdom you have made them all; the earth is full of your creatures. There is the sea, great and wide! It teems with countless beings, living things both large and small."  
(Psalm 104: 24-25)

#### STANDARD

- S. 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.
- S. 2. Read texts and use media to determine patterns in behavior of parent and offspring that help offspring survive.

#### EXAMPLES

##### Parables:

The Parable of the Sower and four types of soil

-Matthew 13:3-8, 18-23, Mark 4:3-8, 14-20, Luke 8:5-8,11-15

The Parable of the Mustard Seed

-Mark 4:30-32, Matthew 13:31-32, Luke 13:18-19

##### Literature:

*Stellaluna* by Janell Cannon: A fruit bat is separated from her mother and has to survive with a family of birds, mimicking the behavior of this different species.

*Mothers are like that* by Carol Carrick: Describes mothers of all species, from a chicken guarding an egg-filled nest to a woman tucking her baby into bed at night. The text is tender without being sappy, its comforting descriptions anchored by the title refrain: "Mother keeps her babies clean,/ and close,/ and safe from harm./ She can find them in a crowd./ Mothers are like that."

##### Saints:

Saint Peter

Mary, Mother of God

Saint Michael

Saint Gabriel

#### ESSENTIAL QUESTIONS

1. Describe the relationships, elements, underlying order, harmony, and meaning in God's creation.
2. What patterns can we develop in our lives to help plants, animals and others, especially the poor, to survive?

## VOCABULARY TERMS

Plants, animals, survive, grow, habitat, life, offspring, parent

## ACTIVITIES

### Penguin's Egg Activity:

Before you begin your activity, take a moment to read *A Mother's Journey* by Sandra Markle.

1. Discuss the story with the students: What was hard about being a penguin parent? (*cold, snow, predators, having to transfer the egg are just a few ideas*)
2. What helps the penguin parents? (*working together*)
3. Start by turning your students into emperor penguins:
  - Each participant will put on flippers/slippers to make them waddle like a penguin. Teacher tip: Large pieces of cardboard rubber banded to shoes make quick, cheap flippers!
  - Have all participants place a standard size pillow in front of their bodies and wrap rope to tie the pillow around them. These will be their penguin bellies.
4. Arrange students into pairs. Distribute one soft ball or toy to be used as the egg per pair.
5. Have one student from each pair go to the beginning line of the activity space, and the other partner to the end line of the activity space so that each partner pair is facing each other in two parallel lines. Teacher tip: If your class is too large to all line up at once, or if you don't have enough costume supplies to go around, split your class into two groups. One group will do the penguin activity while the other cheers them on, and then switch.
6. Have each student balance the "egg" on top of their feet. Once their egg is placed, their arms will remain by their sides.
7. If desired, you can use an electric fan or assign a student to fan a large piece of posterboard at the "penguins" to create the harsh wind penguins must face. Teacher tip: This can be a good way for a physically disabled or injured student to participate.
8. At your signal, students waddle towards each other while keeping the egg precariously perched on their feet.
9. Now, here is the tricky part! Once the partners meet in the middle, they will pass the egg to their partner's feet, without using your hands or letting the egg touch the ground. If the egg touches the ground and stays there, it will freeze and won't survive.
10. Once the egg is transferred, partners part ways and walk back to their respective ends.
11. This is not easy! Let students practice and keep trying for as long as is reasonable. Be sure to leave other waiting penguins enough time to also play.

**Materials:** soft ball or toy to resemble a penguin egg standard size pillows (1 per student if possible), rope or string flippers or slippers (1 set per student if possible) painter's tape or masking tape, thick blankets or pieces of egg crate foam, book: *A Mother's Journey* by Sandra Markle

LIFE SCIENCE	
Heredity: Inheritance and Variation of Traits	First Grade
SCRIPTURE	
Then God said, "Let Us make man in Our image, according to Our likeness; and let them rule over the fish of the sea and over the birds of the sky and over the cattle and over all the earth, and over every creeping thing that creeps on the earth." (Genesis 1:26)	
STANDARD	
S. 1. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.	
EXAMPLES	
<p><u>Parables:</u>  The Prodigal Son  -Luke 15:11-32</p> <p>The Mustard Seed  -Matthew 13:31-32, Mark 4:30-32, Luke 13:18-19</p> <p><u>Literature:</u>  <i>Mama cat has three kittens</i> by Denise Fleming: Using her own cats as models, Denise Fleming has captured the moods, expressions, and the antics of a mother cat and her kittens. But there is a rebel in every crowd, and Boris is sure to charm readers who will recognize themselves in his contrary ways.</p> <p><i>Edward the emu</i> by Sheena Knowles: Tired of his life as an emu, Edward decides to try being something else for a change. He tries swimming with the seals. He spends a day lounging with the lions. He even does a stint slithering with the snakes. But Edward soon discovers that being an emu may be the best thing after all. And so he returns to his pen, only to find a big surprise awaiting him.</p> <p><u>Saints:</u>  Saint Francis of Assisi- Patron Saint of Animals and Ecology</p>	
ESSENTIAL QUESTIONS	

Explain how creation is an outward sign of God's love and goodness and, therefore, is "sacramental" in nature.

VOCABULARY TERMS	
Life cycle, hereditary, traits, genes, adapt, genetics, community	
ACTIVITIES	

Students will create life cycles of a local plant and animal and understand the cyclical process of nature.

1. Using the plant and animal worksheets, either provided or created, have students match vocab words with the images they believe they represent.

2. In small groups have students share out. What are some differences? What are some similarities?

3. As a large group go through each species. Make students end with the right order and right vocab pairing. Highlight the differences of plant versus animal's life cycles. Ask students to articulate this.
4. Go outside and have each child find a plant or animal. Have them draw or describe it. What stage of life is it at? How can you tell?
5. Go back inside and ask students to fill in the blanks with the species they found. Draw or write the rest of its lifecycle. They can ask for help, work in small groups or use other resources.

Materials: • One plant and one animal life cycle vocab and image.

EARTH AND SPACE SCIENCE	
Earth's Place in the Universe	First Grade
SCRIPTURE	
He took him outside and said, "Look up at the sky and count the stars—if indeed you can count them." Then he said to him, "So shall your offspring be."( Genesis 15: 5)	
STANDARD	
<p>S. 1. Establish an understanding of God's place and love for his creations of our planet. Use observations of the sun, moon, and stars to describe patterns that can be predicted.</p> <p>S. 2. Observing God's creations at different times of the year to relate the amount of daylight to the time of year.</p>	
EXAMPLES	
<p><u>Parables:</u>  Parable of the Workers in the Vineyard  -Matthew 20:1-16</p> <p>Parable of the Watchful Servants  -Luke 12:35-40</p> <p><u>Scripture:</u>  Story of Creation  -Genesis 1:1-2,4  -Genesis 2:6-25</p> <p>Return of the Son of Man  -Matthew 24:29</p> <p><u>Literature:</u>  <i>Kitten's first full moon.</i> By Kevin Henkes: Tells the story of a kitten who thinks the moon is a bowl of milk.</p> <p><i>Sun bread.</i> By Elisa Kleven: Winter's gray chill has set in and everyone misses the sun-especially the baker. So she decides to bring some warmth to the town by making sun bread. And as the bread bakes, rising hot and delicious, everyone comes out to share in its goodness. Everyone, including the sun itself.</p> <p><u>Saints:</u></p>	

Saint Francis of Assisi- Patron Saint of Animals and Ecology  
Saint Dominic- Patron Saint of Astronomers

#### ESSENTIAL QUESTIONS

What is our role as caretakers of all God's creations and of our planet Earth, and how can we identify and describe ways to treat it with respect?

#### VOCABULARY TERMS

Sun, moon, stars, earth, day, night, phases, planet

#### ACTIVITIES

Oreo Cookie Moon Phases: /Downloads/Oreo-Cookie-Moon-Phases.pdf

Students will recreate the lunar phases using the frosting from Oreo® cookies. (Round cream cheese crackers can also be used if cookies are not an option.)

1. Invite the students to describe what the Moon looks like, and how it changes shapes.
2. Explain to the students that they will be using Oreo® cookies to draw the phases and to put them into order. Demonstrate how to twist and open a cookie so that the frosting is all on one side. Which side looks like the Full Moon? Which side looks like the New Moon?
3. Pass out 6 cookies, a paper towel, a plastic spoon or knife, and a copy of the student handout to each student.. Each cookie should be able to make two Moon phases, but some will break, and some of the frosting will go "missing."
4. Invite the students to twist their cookies open and scrape the Oreo® cookies to illustrate Moon phases, and ask them to arrange cookies on the poster in order.
5. Check on the students' progress and invite them to clean up by eating their work!

Materials: Oreo Cookies, Paper Towel, Plastic spoon or knife