



Creation Lens

Exploring the World, Discovering God

Grade Level: Grade 4

Title:

Kinds and Uses of Energy & Holy Spirit – Our Energizer

Denomination: Catholic

Lesson ID: PS-G4-03-CA

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Note: Web sites referenced in this lesson were valid at time of publication.

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PHYSICAL SCIENCE MODULE – GRADE FOUR - CATHOLIC LESSON 3: Uses of Energy and the Energy of the Holy Spirit

GENERAL CONCEPT: Uses of Energy and the Energy of the Holy Spirit

SCIENCE LESSON CONCEPT

There are many kinds of energy and there are many uses of energy.

GOAL OF SCIENCE LESSON

- Student will be able to state the different kinds of energy.
- Student will be able to describe how we use energy today.

OUTCOME EXPECTED

Student will be able to construct a graphic organizer to illustrate the uses of energy.

MATERIALS NEEDED

RELIGION LESSON CONCEPT

Jesus wanted us to have a lot of energy so we can share our Faith with other people. He gave us the Holy Spirit who gives us His gifts to energize us.

GOAL OF RELIGION LESSON

Student will be able to select one idea from the talk by the parish priest and write a reflection paper about how it fits in their own life.

OUTCOME EXPECTED

Student will be more aware of the Holy Spirit and His Gifts.

MATERIALS NEEDED

- Graphics Organizer handout – See Links
- Science Journal Page: KINDS OF ENERGY/USES OF ENERGY
- Pen/pencil and Marker
- Construction paper
- Outline of Kinds and Uses of Energy – See Links

SCIENCE METHODOLOGY

- **ASK:** What kinds of energy do you see in this classroom? (electricity, lights, AC or heat, battery operated clock)
- **SAY:** We see how energy is used by how it manifests itself (solar energy – sunlight, warmth) (mechanical energy – fan turning).
- **GIVE OUT** the Outline of Kinds and Uses of Energy. Read together and discuss the hand-out.
- **HAVE** the student gather data (make a list) of the kinds of energy and how it is used in the classroom. Record on the Science Journal Page.
- **ALLOW** time for this activity. Students will need to be up and moving and exploring the classroom.
- **EXPLAIN** the idea of a graphic organizer.

- The Pentecost Story from the Bible
- Religion Notebook
- Visit by parish priest
- List of the Gifts of the Holy Spirit and definitions
- Pen
- paper

RELIGION METHODOLOGY

- **READ** The Pentecost Story from the Bible.
- **DISCUSS** the story and how the coming of the Holy Spirit re-energized the Apostles.
- **SAY:** The Holy Spirit came to you in Baptism. He comes to you in every sacrament you receive. He will give you gifts if you ask for them.
- **GIVE** the student the list of the SEVEN GIFTS OF THE HOLY SPIRIT.
- **READ** the list and the definitions. Discuss examples of using each gift in their lives.
- **ARRANGE** for the parish priest to visit the classroom to talk to the students about his personal experiences of how the Holy Spirit has helped him.

- **HAVE** the student prepare a graphic organizer.
- **ATTACH** the graphic organizer to a piece of construction paper and display it.
- **ALLOW** the students to walk around the classroom and look at all the graphic organizers.
- **DISCUSS** how the graphic organizer has helped them learn about energy and its uses.
- **HAVE** the student write a list of the types and uses of energy in their homes on the Science Journal Page.
- **POSIT:** There are many kinds of energy and there are many uses of energy all around us.

- **ENCOURAGE** questions from the students.
- **AFTER THE VISIT**, have the student write a reflection page about one thing Father told them that they can see a similar experience in their life.
- **GIVE TIME** for this reflection to be shared in small or large groups.
- **POSIT:** The Holy Spirit will give us energy to follow Jesus if we ask Him to live within us.

RESOURCES, LINKS AND COMPUTER LESSONS

Science Links

(Teacher) Graphic Organizers for free use.

<http://www.eduplace.com/graphicorganizer/>

(Teacher) Good outline on kinds and uses of energy

<http://www.eia.doe.gov/kids/energyfacts/science/formsofenergy.html>

(Parent and Student) On-line energy use check – free but must register; Type in Energy use for kids in search box; many choices listed.

<http://www.progress-energy.com>

Religious Links

(Student) On-line fill in the word Pentecost worksheet

<http://www.sschoo.com/kids/DD/Pentecost.htm>

(Teacher) Happy Birthday to the Church! Activities and symbols of Pentecost; kite flying activity

<http://www.americancatholic.org/Messenger/Jun2003/Family.asp>

(Student) Interactive on-line discovery of the Seven Gifts of the Holy Spirit; Word Search – Kids Only/Activities; g 04 ch 19.html

<http://www.faithfirst.com>

(Teacher) A Gifts of the Holy Spirit Word Find Puzzle to download, print, and copy for students; click on “Kids Only club” then Faith First Activities; then Grade 4 Chapter 19

<http://faithfirst.com>

Energy Hand-out:

WHAT IS ENERGY? WHAT ARE THE KINDS OF ENERGY?

Scientific Forms of Energy

Materials developed by the National Energy Education Development Project (NEED)

What is energy?

Energy makes change; it does things for us. It moves cars along the road and boats over the water. It bakes a cake in the oven and keeps ice frozen in the freezer. It plays our favorite songs on the radio and lights our homes. Energy makes our bodies grow and allows our minds to think. Scientists define energy as the ability to do work. People have learned how to change energy from one form to another so that we can do work more easily and live more comfortably.

Forms of Energy

Energy is found in different forms, such as light, heat, sound and motion. There are many forms of energy, but they can all be put into two categories: kinetic and potential.

KINETIC ENERGY	POTENTIAL ENERGY
<p>Kinetic energy is motion—of waves, electrons, atoms, molecules, substances, and objects.</p>	<p>Potential energy is stored energy and the energy of position—gravitational energy. There are several forms of potential energy.</p>
<p>Electrical Energy is the movement of electrical charges. Everything is made of tiny particles called atoms. Atoms are made of even smaller particles called electrons, protons, and neutrons. Applying a force can make some of the electrons move. Electrical charges moving through a wire is called electricity. Lightning is another example of electrical energy.</p> <p>Radiant Energy is electromagnetic energy that travels in transverse waves. Radiant energy</p>	<p>Chemical Energy is energy stored in the bonds of atoms and molecules. It is the energy that holds these particles together. Biomass, petroleum, natural gas, and propane are examples of stored chemical energy.</p> <p>Stored Mechanical Energy is energy stored in objects by the application of a force. Compressed springs and stretched rubber bands are examples of stored mechanical energy.</p>

includes visible light, x-rays, gamma rays and radio waves. Light is one type of radiant energy. Solar energy is an example of radiant energy.

Thermal Energy, or heat, is the internal energy in substances—the vibration and movement of the atoms and molecules within substances. Geothermal energy is an example of thermal energy.

Motion Energy is the movement of objects and substances from one place to another. Objects and substances move when a force is applied according to Newton's Laws of Motion. Wind is an example of motion energy.

Sound is the movement of energy through substances in longitudinal (compression/rarefaction) waves. Sound is produced when a force causes an object or substance to vibrate—the energy is transferred through the substance in a wave.

Nuclear Energy is energy stored in the nucleus of an atom—the energy that holds the nucleus together. The energy can be released when the nuclei are combined or split apart. Nuclear power plants split the nuclei of uranium atoms in a process called **fission**. The sun combines the nuclei of hydrogen atoms in a process called **fusion**. Scientists are working on creating fusion energy on earth, so that someday there might be fusion power plants.

Gravitational Energy is the energy of position or place. A rock resting at the top of a hill contains gravitational potential energy. Hydropower, such as water in a reservoir behind a dam, is an example of gravitational potential energy.



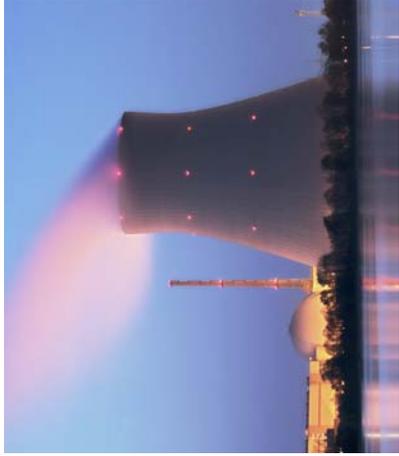
KEY WORDS
PHYSICAL SCIENCE – GRADE FOUR - LESSON 3 - CA



ENERGY
KINDS OF ENERGY
USES OF ENERGY
GRAPHIC ORGANIZER
SOLAR ENERGY
MECHANICAL ENERGY
ATOMIC ENERGY

HOLY SPIRIT
HOLY SPIRIT'S WORK
REFLECTION PAPER
PENTECOST STORY
GIFTS OF THE SPIRIT
BAPTISM
SACRAMENT

KEY WORDS
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