



Creation Lens

Exploring the World, Discovering God

Grade Level: Grade 4

Title:

How Plants Get and Store Energy & How We Get Spiritual Energy

Denomination: Catholic

Lesson ID: LS-G4-10-CA

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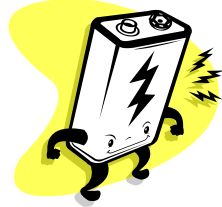
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Note: Web sites referenced in this lesson were valid at time of publication.

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LIFE SCIENCE – GRADE 4 - CATHOLIC
LESSON TITLE: How Plants Get and Store Energy & How We Get Spiritual Energy

SCIENCE LESSON CONCEPT

- How plants get and store energy

GOAL OF SCIENCE LESSON

- To show the strength of plants when they are growing if they have the right aids.
- To show that some plants grow well with other types of plants.
- To show the diversity of plants all over the world.
- To show that plants have the same basic needs.

RELIGION LESSON CONCEPT

- How we get energy to grow in faith in God

GOAL OF RELIGION LESSON

- To show that people can grow strong in faith with the right aids.
- To show that different groups of religious people around the world share some of the same beliefs.
- To show the diversity of beliefs of people.

OUTCOME EXPECTED

- Students will know how to grow plants.
- Students will know what plants need to grow.
- Students will know types of plants and their needs.
- Students will know types of fruits and vegetables.

MATERIALS NEEDED

- Day 1: Science Journal Page: Plant Energy
- Day 1: 2 or 3 Pinto beans per student
- Day 1: 1 personalized Styrofoam cup per students
- Day 1: Potting soil – enough for all of the cups
- Day 2: Sheet of paper with diagram – 1 per student
- Day 3: Nutrients (fertilizer) – enough for each student
- Pen or pencil
- Water
- Water can or pitcher
- Chalkboard or chart paper

OUTCOME EXPECTED

- Students will know that through God's message of love we need God's grace to grow in faith.
- Students will know that God loves all the people on earth.
- Students will know the four Mark of the Catholic Church.

MATERIALS NEEDED

- Religion Textbook: Getting to Know God info
- Bible
- Religion notebook
- Pen or pencil
- Chalkboard or chart paper
- Markers or crayons
- World Map or a globe
- Sheet of paper with diagram – 1 per student or use the same one from Science class

- Markers and crayons
- Measuring cup with 1/8 of a cup clearly marked
- Large spoon or ladle for soil
- Ruler

SCIENCE METHODOLOGY

- **ASK:** Do you have plants in your home or in a garden in your yard? (accept and record students' answers)
- **ASK:** Do your grandparents have plants or a garden? (to see if there is a love of plants in the home environment)
- **SAY:** Today we are going to begin a two week experiment involving growing plants from seeds. Just as God created the world, so we are going to share in His creative life by helping to grow new plants from seeds. You are going to be responsible for caring for your seeds each day for the two week period. After the two weeks we will see what you have helped to grow.
- **GIVE** each student a Styrofoam cup and have them personalize it with their name and decorations.
- **GIVE** each student some potting soil and have them fill the cup nearly full.
- **GIVE** each student 2 or 3 pinto beans.

RELIGION METHODOLOGY

- **READ** the sections in the Religion Textbook which tell about getting to know God.
- **ASK** the students "Who is God?" (record their answers)
- **ASK:** How do you know that? (religion lessons, church, bible – God's revelation about Himself)
- **READ** the Gospel stories that relate to having faith and growing in faith. (Parable of the Sower – Matthew 13: 1-9 or Luke 8: 4-8 and 11-15, Parable of the Mustard Seed - Matthew 14: 31-32 or Luke 13: 18-19, Parable of the Tree and Its Fruit – Matthew 12: 33-37 or Luke 6: 43-45, Parable of the Barren Fig Tree – Luke 13: 6-9)
- **ASK:** Why did Jesus tell so many stories about plants and growing? (so we learn how to grow in faith)
- **ASK:** What are some things that Jesus said about the plants and growing?
- **HAVE** the students illustrate one of these parables in

- **SAY:** When the plant that produced these beans was living, it stored up energy in each bean. When we plant these beans and provide the right help, the bean will use the stored energy to begin the new cycle of life.
- **HAVE** the students poke two or three holes about 1 inch deep with their finger.
- **SAY:** For the beans to release the stored energy, they must be put in the soil.
- **HAVE** the student put the beans in the holes.
- **SAY:** For the beans to begin the process of new life, they must be covered up with the soil and start to decay. From the dying process, the energy of the bean will be released and it will start to grow again.
- **HAVE** the students draw the process of planting on their Science Journal Page: Plant Energy.
- **SAY:** We won't be able to see it, but the outer part of the bean will begin to break apart. If we provide a warm environment and some water, the bean will then sprout. That is, a green shoot will grow out of the bean using the energy that the bean has stored. It will put out roots and the shoot will push its way through the soil to the top.
- **HAVE** the students draw that process on their Science Journal Page. Show them by your drawing on the chalkboard.
- **SAY:** When the new life cycle of the bean has begun, we

their Religion Notebook.

- **HAVE** the students discuss their drawings by asking them to tell the class how they would explain to someone who denies it, that this parable of Jesus proves God does help us.
- **SAY:** People who believe in Jesus Christ are called Christians. There are many paths to God, but being Catholic is the truest, clearest and straightest path. Catholics believe in Jesus Christ too.
- **ASK:** Do you know the names of any other Christian religions? (Baptist, United Church of Christ, Lutheran, Anglican, Episcopal, etc.)
- **SAY:** Each one of these groups believes different things. It is important to know what we as Catholic Christians believe.
- **ASK:** Where can you find what we believe? (Creed, catechism, Bible, church documents, etc.)
- **SAY:** The Catholic Church is one, holy, catholic and apostolic. When we say we are one that means that we all believe the same things. So no matter where in the world you would go, you would find Catholics who believe the same as you do.
- **POINT** out five or ten places on the map where Catholics live and believe the same things as we do.
- **SAY:** Isn't it a great gift that you share the same faith as

will be able to know it because we will see the green shoot appear above the soil. It is your responsibility to do three things. Write them on your Science Journal Page. 1) You will need to put your plant cup on a sunny window ledge or on a table near the sun. 2) Each day you need to turn your cup $\frac{1}{2}$ turn so that all the soil stays warm. 3) You will need to water your plant every 3 days by adding $\frac{1}{8}$ of a cup of water. You will record on your Science Journal Page each day's activity and the time that you did it. For example you would write:

Monday – planted seeds, watered with $\frac{1}{8}$ cup of water, placed cup in a sunny spot.

Tuesday – Turned plant cup $\frac{1}{2}$ turn.

Each day you should have something to write. I am not going to tell you what to do after today. Your plant will live or die because of your care or lack of care.

Be sure to write down the day that you first see the shoot coming out of the soil.

Measure the plant each day to see how much it has grown.

- **SHOW** the students the measuring cup with the $\frac{1}{8}$ line clearly marked. You should use this cup to water your plant. Do not water it more than that. Too much water will kill the food supply stored in the bean.
- **REVIEW** the scientific method previously learned.

the Catholic people of Australia, India, Japan, Korea, South Africa, Germany, France, Finland, Canada, Mexico, Brazil, Peru, Bolivia, etc.

- **GIVE** each student a copy of the plant and people chart that they used in Science Class.
- **DISCUSS** the God and People sides of the chart. We receive nurturing from others of our Faith. How does the example of people living the Catholic Faith help you grow?
- **SAY:** We feed or nurture others when we practice our Faith.
- **ASK:** How do you practice your Faith? (pray, go to church, treat others fairly, etc.)
- **POSIT:** People need to be planted in good soil (Jesus Christ and His Church), watered and fed properly with the Sacraments and knowledge about the Faith if they are to grow to be strong in religious beliefs and practices.

- **ON DAY 2, GIVE** each student a copy of the diagram which can be found in the Science Resources section following the lesson.
- **EXPLAIN** the diagram which has three sections: Plants, Source of Life (Sun and God), and People.
- **SHOW** how the plant and the people sections are similar.
- **DAY 3: DISCUSS** how we know the what, where, and when of plant life? (scientists have studied, experimented, and shared their conclusions with us)
- **DISCUSS** the types of plants: trees, bushes and shrubs, grasses, flowers, vegetables. Have the students put the types of plants into categories. Let them suggest the categories: sizes, annuals, perennials, uses, etc.
- **DAY 4: EXPLAIN** and diagram the parts of a plant.
- **HAVE** the students draw and label the parts of a plant on their Science Journal Page.
- **DAY 5: ASSESSMENT** – Have the students either complete a written test or a written essay.
- **TWO WEEKS LATER:** Revisit the plants and have students show how much their plant has grown.
- **HAVE** the students prepare a display of their Science Journal Pages and their plants. Invite other classes to visit the display.

- **POSIT:** Plants get energy from the sun and the soil and water and store it in their seeds so that they can reproduce.

SCIENCE LINKS

[Grade 4 Science: Plants and Animals](#) **Grade 4**

www.iq.poquoson.org/4sci/4plantsandanimals02t1m.htm

Science: Plants and Animals Multiple-Choice Exercise Content
© 2002 Linda ... What is the name of the material in **plants** that traps light **energy**? ? Good interactive quiz

www.biology4kids.com/files/plants_main.html

[Biology4Kids.com: Plants](#) **Plants** are actually able to **store energy** in some chemical bonds that can be used later. ...
Rader's Network of **Science** and Math ...

RELIGIOUS LINKS

www.loyolapress.com/marks-of-the-church-illustration**Marks of the Church** [Illustration Activity - Loyola Press](#) Use illustrations to teach the **four Marks of the Church** to children. Find this **activity** and other **activities** for children at Loyola Press.



KEY WORDS

- POTTING SOIL
- CYCLE
- ENERGY
- SUNLIGHT
- WATER



KEY WORDS

- CHRISTIAN
- CATHOLIC
- ONE
- HOLY
- CATHOLIC
- APOSTOLIC
- FOUR MARKS OF THE CHURCH

KEY WORDS



POTTING SOIL

CHRISTIAN

CYCLE

CATHOLIC CHURCH

ENERGY

ONE

SUNLIGHT

HOLY

WATER

CATHOLIC

APOSTOLIC

FOUR MARKS OF THE CHURCH