



Creation Lens

Exploring the World, Discovering God

Grade Level: Grade 8

Title:

Fossil Fuels and Alternative Energy & Being Wise Stewards of Energy

Denomination: Catholic

Lesson ID: ES-G8-02-CA

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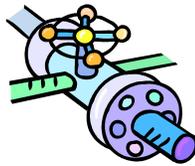
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Note: Web sites referenced in this lesson were valid at time of publication.

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EARTH SCIENCE – GRADE 8 - CATHOLIC
LESSON TITLE: Fossil Fuels and Alternative Energy & Being Wise Stewards of Energy

GENERAL CONCEPT: Wise use of energy.

SCIENCE LESSON CONCEPT

- Fossil fuels and alternative energy

GOAL OF SCIENCE LESSON

- Students will learn about fossil fuels and alternative energy sources through research.
- Students will prepare a pros and cons debate on energy types and uses.

OUTCOME EXPECTED

- Students will develop a deeper understanding of fossil fuels and alternative energy.
- Students will develop an appreciation for the complexity of issues.

RELIGION LESSON CONCEPT

- Wise stewardship of energy use

GOAL OF RELIGION LESSON

- Students will learn that we have a duty to learn more about the science underlying issues like fossil fuels in order to become informed voters as adults.

OUTCOME EXPECTED

- Students will become more aware of their obligation to follow Church teachings on the wise use of energy.

MATERIALS NEEDED

- Science Journal page: Fossil Fuels vs. Alternative Energy
- Pen or pencil
- Access to internet
- Web or graphic designer form for research
- Science textbook
- Recent encyclopedia or energy magazines

SCIENCE METHODOLOGY

- **SAY:** We are going to study fossil fuels and alternative energies by doing some research.
- **ASSIGN** relevant pages in Science textbook.
- **SET** time limit for Science textbook reading to be accomplished.
- **ALLOW** students to choose one fossil fuel and one alternative energy to research.
- **ALLOW** each student access to computers and the internet, especially using www.procon.org. This can be done at home, in class or both.
- **GIVE** each student copies of the graphic organizer upon

MATERIALS NEEDED

- Religion Notebook
- Pen or pencil
- Copies of statements of Bishops and Popes on the wise use of energy: USCCB: Nov. 14, 1991
- Highlighting pen

RELIGION METHODOLOGY

- **SAY:** The leaders of the Church have always had to speak out on moral issues throughout history. Today, one of the issues is correct stewardship of our use of fuels and energy.
- **GIVE** each student a copy of the summary of the Encyclical, "Caritas in Veritate". (see Religion Links section)
- **ASK:** What is an encyclical?
- **HAVE** a student look up the definition in either the Religion book or in a dictionary.
- **READ** the parts of the summary relevant to energy and energy consumption and have the students

which to record research.

- **AFTER** sufficient research has been done (teacher's discretion), students who have chosen the same fossil fuel will form groups of 4 to work together.
- **STUDENTS** will prepare either the pro or con side of their fossil fuel for the debate. Teacher assigns the pro or con choice.
- **REPEAT** groupings with alternative energy choices.
- **STUDENTS** will prepare either a pro or con side of the alternative energy fuel for the debate.
- **ALLOT** time for groups to prepare.
- **FINALLY**, each pro group will debate the related con group.
- **SEE THE FOLLOWING FOR DEBATE GUIDELINES:**

If you have access to a microphone, it's a huge advantage. Otherwise, use a talking stick to designate who can speak. This prevents everyone from talking over each other.

Each group makes an opening statement. (set time limit) After both sides have given the opening statement, one group begins.

Only one argument for their side can be stated at a time.

highlight those parts.

- **ASK:** What has the Pope said about wise use of energy?
- **SAY:** In our science class debate, we heard arguments for and against the use of fossil fuels and alternative energy sources.
- **ASK:** What did we learn in our science class that would help us make wise stewardship decisions? Review science lesson debate arguments.
- **SAY:** As a future voter, you have a duty to be informed so that you can make wise and moral decisions which will affect not only yourselves but generations to come after you.
- **ASK:** If you could vote today on how we should be good stewards of energy, what would your position be? Why?
- **HAVE** students write a paragraph on their position.
- **HAVE** students read their position papers.
- **POSIT:** Wise stewardship requires knowledge of morality and knowledge of science.

Other team members can add to that explanation but must stay on topic.

The opposing team counters with either the other side of the issue or a question, or if they can't do either, they can make a statement that supports their side.

Teams may present facts only; no opinions. No "I think" or "I believe" statements.

At the end, each team will make a closing statement.

OPTION # 1: After closing statements, class may ask teams any relevant questions.

OPTION # 2: With classes that can handle it, the class can vote on which team made the most persuasive argument.

LAB AND/OR ADDITIONAL ACTIVITY: see Science Links section.

- **POSIT:** The choice of using fossil fuels or alternative energy sources is a complex issue which requires much study to make informed decisions.

SCIENCE LINKS

www.procon.org

A great resource as it rates the reliability of the sources it references.

www.sciencedaily.com/videos/matter_energy/alternative_fuels

[ScienceDaily: Alternative Fuel Videos](#)

Alternative fuel sources. From hydrogen cars and microbial fuel cells to break-throughs in bioconversion, browse the latest research in alternative fuels. Good, but short video.

www.sciencenetlinks.com/lessons.php?BenchmarkID=8&DocID=13

[Science NetLinks: Energy Sources and Use](#) What are the advantages and disadvantages of using fossil fuels? ... Energy Quest's Science Projects for Kids offers hands-on projects related to Hydropower, ...

www.science.org.au/nova/122/122act.htm

[Low emission energy - Activities](#) They then prepare group presentations on a low emission source of energy. ... Activity sheets – links to a large number of activities on sustainable energy including: ...

RELIGION LINKS

www.zenit.rg/article-26387?l=english

Vatican Summary of “Caritas in Veritate” [July 7, 2009] Helpful for social cohesion. See parts of the summary below.

VATICAN SUMMARY OF ‘CARITAS IN VERITATE’

‘Charity is at the Heart of the Church’

VATICAN CITY, JULY 7, 2009(Zenit.org_- Here is the synthesis the Vatican press office compiled of Benedict XVI’s third encyclical title “Caritas in Veritate”(Charity in Truth), which was published today. The synthesis highlights the main themes of the encyclical.

.....
“Charity in truth, to which Jesus Christ bore witness” is “the principal driving force behind the authentic development of every person and of all humanity”: thus begins “Caritas in Veritate”, the Encyclical addressed to the Catholic world and “to all people of goodwill”.

In the introduction, the Pope reminds us that “charity is at the heart of the Church’s social doctrine”. On the other hand, given “the risk of being misinterpreted, detached from ethical living”, it is linked with truth. And cautions us: “A Christianity of charity without truth would be more or less interchangeable with a pool of good sentiments, helpful for social cohesion, but of little relevance” (Pp 1-4)

Truth is necessary for development. Without it says the Pope, "the social action ends up serving private interests and the logic of power, resulting social fragmentation" (Pp 5) Benedict XVI dwells upon two "criteria that govern moral action" that come from the "charity in truth" principle: Justice and the common good. Every Christian is called to love through an "institutional path" which has an incidence on the life of the polis, or life in society (Pp 6-7). The Church, he insists, "does not have technical solutions to offer"; however, she has "a mission of truth to accomplish" for a society that is attuned to man to his dignity, to his vocation" (Pp 8-9)

In the 4th chapter, the Encyclical deals with the Development of people, rights and duties, the environment. One can notice the "claims to a 'right to excess'" in the affluent societies while food and water are lacking in certain underdeveloped regions. "Individual rights when detached from a framework of duties can run wild". Rights and duties are in connection to an ethical context. If, on the other hand, their basis is only "to be found in the deliberations of an assembly of citizens", they are liable to be "changed at any time". Governments and international bodies must not forget "the objectivity and 'inviolability' of rights"(Pp43). On this matter, one can dwell upon the "problems associated with population growth". It is a "mistake" to "consider population increase as the primary cause of underdevelopment". The Pope reaffirms that sexuality cannot be reduced merely to pleasure or entertainment" One cannot regulate sexuality through :strategies of mandatory birth control". He then goes on to underline that "morally responsible openness to life represents a rich social and economic resource"/ "States are called to enact policies promoting the centrality and integrity of the family. (Pp 44)

“The economy, he adds, needs ethics in order to function correctly – not any ethics whatsoever, but an ethics which is people-centered”. The same centrality of the human person must be the guiding principle ” in development programmes of international cooperation, in which the beneficiaries should always be involved. “International organizations might question the actual effectiveness of their bureaucratic machinery”, “often excessively costly”. The Pope notices that too often the poor serve to perpetuate expensive bureaucracies”. Hence his call for a “complete transparency” concerning funds received (Pp 45-47)

The last paragraphs of the chapter are devoted to the environment. For the believer, nature is a gift of God, to be used in a responsible way. In this context, our attention is brought to consider the energy problem. The fact that some States and power groups hoard non-renewable energy resources” constitutes “a grave obstacle to development in poor countries”.

Therefore, the international community should “find institution means of regulating the exploitation of non-renewable resources”. “The technologically advanced societies can and must lower their domestic energy consumption”, while at the same time “encourage research into alternative forms of energy”.

KEY WORDS

- FOSSIL FUELS
- SOLAR ENERGY
- NUCLEAR ENERGY
- WIND ENERGY
- ALTERNATIVE ENERGY
- PRO
- CON
- DEBATE

KEY WORDS

- UNITED STATES CONFERENCE OF CATHOLIC BISHOPS (USCCB)
- MORALITY
- CITIZENSHIP
- STEWARDSHIP
- ENERGY
- ENCYCLICAL