

## Community Publishing Project

### Clearing: The Online Journal of Community Based Environmental Education

#### Alternative Energy Sources



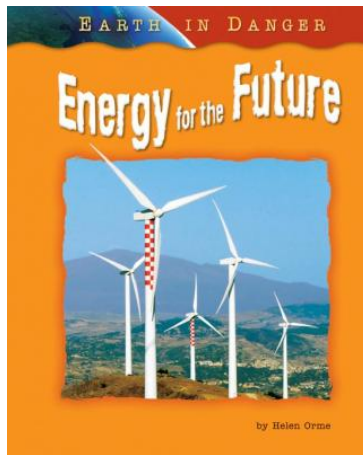
#### **Key Information:**

The majority of our energy is gathered through the burning of fossil fuels. These types of fuels are generally coal, oil and natural gas. There is a finite amount of these types of fuels so it is important to look at alternative forms of energy. Many of these forms are more environmentally friendly, and should be considered as a valuable replacement for fossil fuels.

#### **Project By:**

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## ***Energy for the Future* by Helen Orme**



### **Basic Information**

Publisher: Bearport Publishing  
Published in 2009  
Taken from The Earth in Danger Series  
Recommended for Grades 3-6

### **Description of the Resource**

This book is a very basic introduction into why people require energy to survive and alternative ways of accessing energy. Orme discusses different types of energy sources, specifically, nonrenewable energy, renewable energy, and clean energy. The book poses many thought provoking questions to its audience such as, "How can people use clean energy more often?" (Orme, Pg 10). The book does a fantastic job at answering this question by describing renewable resources that are environmentally friendly. Examples of these include wind, wave, and solar power. Another topic discussed is the use of electric cars. This topic is extremely relevant to today's society and I think students reading this book could really relate to this aspect of the book. In the back of the book, Orme includes ways that the reader can help become an energy saver and a clear glossary.

### **Uses in the Classroom**

I could see this book being used in the classroom along with a unit on energy or environmental science. This book does an excellent job of making the topic of alternative energy sources interesting to students, and simplifying the topic so it is easy to understand. Since this book is just 32 pages, it would be an easy in-class read for older students or a great read-aloud for younger students. Orme does a really great job at suggesting ways that children can conserve power and I think it would be beneficial to implement some of these ideas in the classroom setting. An example of this is shutting off all the lights before leaving a room (Orme, Pg 24).

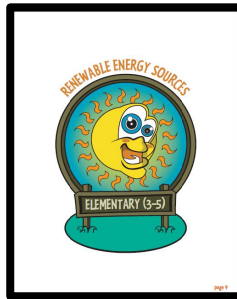
### **Strengths/Weaknesses**

An obvious strength of this book is the pictures that are included. Each page is brightly colored and contains a picture that shows the reader what that particular type of energy looks like. Pictures are also clearly labeled and would help clear up confusion for students who are having a difficult time with vocabulary. Another strength is that Orme lists other books and sources that students can read if they want to know more about alternative forms of energy. I can really see myself using this book in my own classroom because I am extremely enthusiastic about being environmentally knowledgeable and friendly.

### **Access to the Book**

This book can be purchased online through Amazon.com or rented through the local library in Pullman, Washington or through the website Chegg.com/

## TVA Kids Renewable Energy Curriculum



Website: [http://www.tvakids.com/teachers/pdf/renewable\\_elem.pdf](http://www.tvakids.com/teachers/pdf/renewable_elem.pdf)

The Tennessee Valley Authority (TVA) has created a full unit curriculum for teachers to use in their elementary (3<sup>rd</sup>-5<sup>th</sup> grade) classrooms. The online packet contains complete lesson plans with background information, objectives, detailed procedures, activities, follow-ups, extensions and resources. In addition, there are supplemental materials to help students understand and cement the material including crossword puzzles, word searches, charts and worksheets. Vocabulary having to do with renewable energy is placed throughout the curriculum, allowing teachers to build in weekly spelling lists or other English-related content.

The Renewable Energy Curriculum discusses the major fuel eras of history and allows students to compare and contrast them with the energy that is used today. Through the exploration of renewable and non-renewable energy resources, students discover past and present inventions and how they are used to utilize energy. Activities with energy resources include building windmills and measuring with the Beaufort Wind Scale, building solar air heaters and using the sun's energy to heat food, and building a solar water heater. Students will get to investigate each form of energy that they learn about through the curriculum, allowing them to apply their knowledge to real-life situations.

The TVA allows teachers to access the complete curriculum online at no cost. Teachers can print out the entire packet or just sections of the packet that they want to use. The packet covers many content areas, so the activities could be used to come up with ideas for science experiments, history lessons (energy eras of the past), or math investigations (measuring wind or solar power). The activities and lesson plans can be done with students in groups, allowing them to collaborate with one another, or individually, allowing the teacher to assess separate students. The TVA Renewable Energy Curriculum is a great way to show students that energy is both mandatory and valuable, while allowing them to ask and answer their own inquiries about the subject.

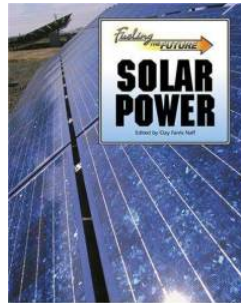
### **Strengths/Weaknesses:**

While the curriculum is well put together, includes additional resources for various content areas, and provides teachers with activities to keep students thoroughly engaged, there are a few disadvantages to using it. For one, the activities, science projects, and worksheets stem directly from the lesson plans, so it is difficult to implement the curriculum into other content areas without the background knowledge of the lesson. Also, the curriculum goes in a particular order from history to present day, so in order for students to understand all of the concepts and ideas, all of the lesson plans would have to be included throughout the year. Overall, the TVA Renewable Energy Curriculum is a great resource for elementary teachers.

### **Access to the Resource:**

The TVA Renewable Energy Curriculum can be accessed through the website URL located underneath the image above. The curriculum is free to access for anyone who has internet access and the various pages can be printed as an entire packet or separate pages depending on what content area teachers want to supplement.

## ***Fueling the Future: Solar Power***



### **Basic Information**

Publisher: Thomson Gale

Published in 2007

Taken from the Fueling The Future Series

Recommended for Grades 3-5

### **Description of the Resource**

This book is a wonderful resource for upper grade elementary students who are writing research papers or creating presentations on solar power. This book is laid out in a very organized, easy to understand format. It covers the history of solar power starting with Greece in fourth century BC and working its way all the way to the United States in 2006. There are diagrams and visual aids to help students understand some of the more complex aspects of solar power such as photovoltaic cells, parabolic trough, solar water still purifier, and the cost of solar power compared to other methods of alternative energy. The book has wonderful illustrations showing how solar panels are used around the world. There are also little side note boxes throughout the text called "Another Opinion". These boxes share the opinions of other experts on solar power besides those voiced by the author. This gives the book a more well rounded and balanced view on this topic. There is a glossary of terms, a chronological timeline, a list of further readings, and a list websites located in the back of the book. I think these additional resources are wonderful tools to help the students deepen their learning and a guide on where they can learn more about this topic.

### **Uses in the Classroom**

I think this is a wonderful book that should be included in the classroom library for students to read independently or to use as a resource for class assignments. The *Fueling for the Future* series also includes the topics of wind power, natural gas, geothermal power, and nuclear power. Students could each be assigned one of the books in the series and then create a presentation on their assigned form of alternative power to the class. Or the teacher could use some of the diagrams or graphs as a visual aid when teaching about alternative energy.

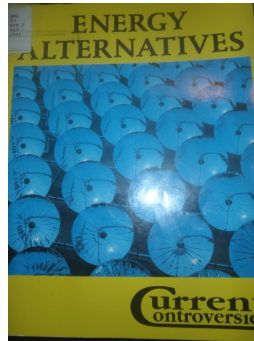
### **Strengths/Weaknesses**

The strong points of this book are its organized layout and visual aids. Students can easily navigate and understand the material covered in this book independently. One down side to this book is that it only covers one form of alternative energy. A student would have to purchase and read each book in the series to fully understand all forms of alternative energies. This could be expensive and cumbersome to store in a classroom.

### **Access to the Book**

This book can be purchased online through Amazon.com or borrowed through the local library in Moscow, Washington.

## ***Alternative Energy Sources (Novel)***



### **Description of Resource**

The book *Energy Alternatives* is a novel available at Holland Terrell Library and could be very useful in an upper elementary school classroom to teach students about alternative energy. The book is from a company called Current Controversies. This book is part of a series that deals with different controversial topics, walking the reader through them and explaining different ways we could solve problems. Although the topic of alternative energy is fairly complex, the book breaks it down pretty well so I would say you could definitely use it to help you teach the subject in 5<sup>th</sup> or 6<sup>th</sup> grade.

I really like the way that this book is set up. It starts out with a chapter called "Should the U.S. Decrease Its Use of Fossil Fuels?" It then breaks this chapter down into smaller subtitles with things like "Fossil-Fuel Use Should Be Cut to Reduce the Greenhouse Effect" and then gives facts and statistics about this topic. The book moves on to other chapters such as "Is Nuclear Power a Viable Energy Alternative?" and "Should the U.S. Expand Its National Energy Strategy?" The final chapter talks about alternatives to Gasoline with sub chapters on Ethanol Fuel, Hydrogen Fuel, Methanol Fuel, Electric Cars, and Bicycles. I think that by the end of this book the reader would have a clear understanding on why we need to start thinking of alternatives to Gasoline and what these alternatives could be.

### **Uses in the Classroom**

I would use this book in the classroom as a discussion piece. Since the last chapter is about various alternatives to gasoline I would assign sub chapters to different groups of students so that there would be a group for Ethanol Fuel, Hydrogen Fuel, Methanol Fuel, Electric Cars, and Bicycles. I would then have this group read their chapter and present to the class what their alternative is and why it works. By the end of the presentations, the students would all have a clearer understanding of the various alternatives to Gasoline.

### **Strengths/Weaknesses**

The only problem that I found with this book is that it was printed in 1991 so it might be outdated. I think that you could still use this book to get a good understanding of the topic and to get some information on alternatives to Gasoline but you would need to look at some more recent text in addition to this one in order to get the full picture. More recent texts might have information that wasn't available at the time that this book was originally printed.

### **Access**

This book is available for rent at Holland Terrell Library in Pullman, Washington or it is possible to purchase this book through Amazon.com

**Source:** Controversies, C. (1991). *Energy Alternatives*. San Diego, CA: Greenhaven Press.



**Alternative Energy: [altenergy.org](http://altenergy.org)  
Recommend for Grades 4-8**

**Description of Resource:**

This site discusses alternative energy in a broad, easy to understand fashion. On the first page it describes what alternative energy is and why the authors believe our world needs to switch to using alternative energy methods to power our growing society. On the home page it has different tabs. Each tab goes into more detail about different topics, including New Energy, Nonrenewable Energy, Renewable Energy, Transition Energy, and Solar Energy. Also, the site provides information on lighting, pumping, cooling, and audiovisual needs for energy the world has.

**Uses in the Classroom:**

This site could be used by teacher or student; depending on the task associate with the site and the grade level of the children. While working on a unit on the environment students could use this site as a resource for investigating how our world can be more eco-friendly and use alternative methods to make electricity. Because the site is easy to navigate and read, students can simply find information they are looking for (students should have an idea of what to look for).

**Strengths/Weaknesses:**

Some strengths of this site is that it is easy to read and navigate, provides a glossary filled with words the authors use throughout the site, and offers an abundant amount of information on each piece of alternative energy using an unbiased opinion.

Some weaknesses of the site is that it lacks pictures, the white font used could pose a problem for some students, and the site has quite a few ads on each page. (If students use this site they will have to use this under teacher/parent.)

**Access:**

Anyone who has access to a computer and the Internet can use this site. They just have to type in the address [altenergy.org](http://altenergy.org).

**Energy Kids by U.S Energy Information Administration**



**Basic Information:**

<http://205.254.135.24/kids/index.cfm>  
U.S. Energy Information Administration

**Description of Resource:**

This website has tons of valuable information about alternative energy sources. Starting at the home page you can choose different links all focused around energy. From the home page you can learn what is energy, energy resources, how to use and save energy, the history of energy, and learn about different games and activities that could be utilized to learn about energy. For learning specifically what are alternative energy sources you can click on the *energy sources* link and it will pull up a page with all the different types of alternative energy such as hydropower, coal, solar, wind, oil, gas, and so on. Once you are on this page you can click on any of the alternative energy sources and it leads you to another page with a full description and example of that particular source.

**Uses in the Classroom:**

In the classroom this website would be an excellent resource for a teacher to introduce a science unit on alternative energy resources. Because this website gives such good definitions of different alternative energy sources students could use this to build a foundation before going further into the topic with projects and presentations. This website allows students to gain an understanding of what energy is, what forms it comes in, what type of energy there is, and what produces energy which would all be very helpful when entering a science unit pertaining to these vocabulary terms. An example of an activity a teacher could use this website for would be to allow students to work with partners and allow them to navigate through the website and fill out a worksheet with different vocabulary terms about alternative energy sources.

**Strengths/Weaknesses:**

The strengths of this website are that it is easily accessible as well as easy to navigate around making it a well-suited website for younger audiences to use. The site is also a credible resource that will allow younger students to navigate through the pages without being disrupted by unwanted advertisements. Once on the site the information provided is easy to read and concise allowing students to be independent while using the site. A weakness of this resource is that you must have Internet access to get onto the site so those without access would be at an unfair disadvantage if this were to be used outside the classroom as homework or as other study material.

**Access to Website:**

This website can be found by going to <http://205.254.135.24/kids/index.cfm> online using any computer with Internet access.