

Alternate Energy Exhibit Project

Types of Alternate Energy Sources:

Hydroelectric power (large dams harness the power of rivers to generate electricity)

Wind energy (wind farms use wind turbine towers to generate electricity)

Geothermal energy (extreme heat found near volcanoes and geysers can be used generate electricity and to provide natural heat sources)

Earth-sheltered or Earth berm (buildings built into hillsides or partially underground; uses Earth's natural insulation to heat & cool the home)

Nuclear energy

Nuclear fission (Atoms are split in reactors to release energy that can be used to generate electricity)

Nuclear fusion (Atoms are combined and give off large amounts of energy)

Solar energy (energy from the Sun)

Active solar heating (solar heat collectors and reflectors concentrate the Sun's heat energy to produce high temperatures, used in solar hot water heaters)

Solar hot water heaters (solar heat is collect in water which is circulated for personal use)

Solar cells (solar cells convert the Sun's energy to electricity, can include photovoltaic cells)

Passive solar heating (buildings are designed to collect and circulate the Sun's heat energy)

done with *Trombe walls, water-container walls, sun spaces, solar windows, radiant cooling*

Biomass (living and dead animal and plant matter can be used to produce many different kinds of fuel; types include wood, crops, garbage, landfill gas, alcohol – focus on renewable resources)

Conservation (methods of reducing the amount of energy used)

Heat recovery ventilators (heat exchangers or HRVs which transfer heat from warm air to cool air)

Rain water collection systems (water cisterns used to store water for non-portable uses)

Water saving devices (less electricity will be used to transport, purify and heat the water)

Whole-house ventilation systems (moves air through home to heat and cool)

Please number your group's top four choices for topic from 1 to 5. Number 1 should be your first choice, number 2 your second choice, and so on. I will try to assign as many groups one of their top choices as possible.

Your name: _____ - _____°

Cut on the dotted line to cut off this lower half of the page. Complete the form and turn in to Mrs. F by the end of today.

_____ Hydroelectric power

_____ Nuclear energy

_____ Conservation

_____ Wind energy

_____ Solar

_____ Geothermal energy

_____ Biomass

I'd like to work with:

Alternate Energy Exhibit Project



The Assignment: In groups of 3-4 students, you will be creating an exhibit to display to the class about your alternate energy source. Your exhibit should show your knowledge of the subject and teach those who see it about your alternate energy source. Students will be visiting your exhibit in class and parents and teachers will also visit your exhibit during the Cultural Faire and Open House.

All exhibits will be displayed in class and graded on the quality and completeness of information, your exhibit's effectiveness in teaching your audience about your energy source, and the overall appearance and neatness of the display.

The Exhibit: Your exhibit has two main parts:

- the poster
- a model, diagram, or example of your alternate energy source

THE POSTER: Each group will have to provide a **color** poster that can stand up on a desk by itself (the tri-fold "Science Fair"-type posterboards work very well but you can recycle a box instead – have an adult help you with cutting it open). Your poster will need to display several types of information:

- The name of your alternate energy source in large letters.
- Group member names and period.
- Areas on the poster with information on the following topics:
 - ✓ Description of your alternate energy source, what kind of power it generates, and how it generates that power. *If conservation, how much power it conserves and explain how it can be used in a home or business.*
 - ✓ A section about one location in the world where the alternate energy source is being used. You must explain where the location is and how they use the alternate energy source. If possible, explain why they chose to use that particular source.
 - ✓ A section about the benefits of using this alternate energy source.
 - ✓ A section about the problems or dangers associated with that energy source.
 - ✓ A section about why (or why not) you think we should use this alternate energy resource in California.
 - ✓ A bibliography (must follow MLA style) with 4 or more resources (*one non-internet non-textbook resource required*)

Your poster must include color pictures related to your alternate energy source. Pictures may be created by group members or may be from magazines or the Internet. If you use a photo or drawing that someone else made, you must include the source of the illustration in your bibliography.

THE MODEL, DIAGRAM, OR EXAMPLE: The exhibit area on the table in front of your poster will feature a model, diagram, or example of your alternate energy source. For example, if your exhibit is about active solar energy collection, you might have a solar oven that you built on display. If your exhibit is about nuclear fission, you might have created a detailed, colored diagram of how a nuclear power plant works. Or, if you are explaining wind power, you might display a model you have built of a wind turbine.

Where can you find information on your alternate energy source?

The textbook is a good place to start. Chapter 14 is about Resources, and Lesson 2 talks about many of these alternate energy sources. The book, The Power of Nature, that Mrs. Z has in her classroom also has a brief introduction to these energy sources. The New Natural House Book is another resource, found in Mrs. Fischer's room and Sunset Magazine has published guides in the past about Solar Heating.

There are books in our school library and in the public library about many of these energy sources. You can also search for information online using the name of the alternate energy source as the keyword.

Mrs. Fischer will have links to useful websites.

For all alternate energy sources:

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

Geothermal:

<http://www.energyquest.ca.gov/story/chapter11.html>

<http://geothermal.marin.org/index.html>

http://www1.eere.energy.gov/geothermal/geothermal_basics.html

<http://www.eia.doe.gov/kids/history/timelines/geothermal.html>

<http://www.eia.doe.gov/kids/energyfacts/sources/renewable/moregeothermal.html>

Nuclear:

<http://www.nuclear.energy.gov/students/intro.html>

<http://www.tvakids.com/electricity/nuclear.htm>

http://www.eia.doe.gov/kids/energy_fungames/energyant_trips/trip_northanna.html

<http://www.eia.doe.gov/kids/history/timelines/nuclear.html>

<http://www.eia.doe.gov/kids/energyfacts/sources/non-renewable/morenuclear.html>

Solar:

<http://www.energyquest.ca.gov/story/chapter15.html>

http://www.nrel.gov/learning/re_solar.html

<http://www.solarenergy.org/resources/youngkids.html>

<http://www.solarenergy.org/resources/olderkids.html>

<http://www.eia.doe.gov/kids/energyfacts/sources/renewable/moresolar.html>

Wind:

<http://www.energyquest.ca.gov/story/chapter16.html>

http://www.windpoweringamerica.gov/wind_maps.asp

http://www.nrel.gov/learning/re_wind.html

http://www1.eere.energy.gov/windandhydro/wind_animation.html

<http://www.awea.org/faq/index.html>

<http://www.eia.doe.gov/kids/history/timelines/wind.html>

<http://www.eia.doe.gov/kids/energyfacts/sources/renewable/morewind.html>

Biomass:

<http://www.energyquest.ca.gov/story/chapter10.html>

http://www.nrel.gov/learning/re_biomass.html

<http://www.eia.doe.gov/kids/history/timelines/biomass.html>

<http://www.eia.doe.gov/kids/energyfacts/sources/renewable/morebiomass.html>

Hydroelectric:

<http://www.energyquest.ca.gov/story/chapter12.html>

<http://www.tvakids.com/electricity/hydro.htm>

<http://www.bpa.gov/Power/pl/columbia/page2.htm>

http://www.eia.doe.gov/kids/energy_fungames/energyant_trips/trip_hooverdam.html

http://www.eia.doe.gov/kids/energy_fungames/energyant_trips/trip_roanokerapids.html

http://www.eia.doe.gov/kids/energy_fungames/energyant_trips/trip_safeharbor.html

<http://www.eia.doe.gov/kids/energyfacts/sources/renewable/morewater.html>