



"Fieldtrip Gals! LLC" Back to School Article Fall 2008

Hello all homeschoolers! Ready for another great opportunity to take a field trip & learn some cool things? Let's get started.

Our lesson focus this time is on energy. Energy is a constant in our lives & world. In one form or another, energy exists. We use food to create energy for our bodies; we use Earth's resources to create energy to move vehicles, work machines & equipment, to give us light and so much more. North Carolina is a big state & we use lots of different kinds of energy to keep us moving along. Did you know that the number one use of energy in North Carolina is motor vehicle fuel? That's right, we use unleaded gas or diesel to power our cars. However, there are newer kinds of cars capable of running on other types of fuels. Ethanol & biodiesel are 2 kinds. The use of electricity comes next as a most used source of energy. Did you know that without electricity, there would be no unleaded gas or diesel fuels? That's right, it takes electricity to generate our vehicles' power.

Currently, fossil fuel (coal, gas & oil) make up just over 60% of our overall power supplies. North Carolina must purchase these from other states because we don't have indigenous fossil fuel resources of our own. Kentucky & West Virginia are the 2 main states we receive help from. Nuclear power gives North Carolina just over 30% of its overall power. The balance of our power supply comes from renewable resources, like hydroelectric power (power generated from water sources) and petroleum resources. Renewable energy resources are better for the environment & are in constant supply. Fossil fuel is limited & can produce pollution (mainly air pollution, which can impact the ability to breathe & see properly). As a collective body, we spend over \$1 billion a year to receive fossil fuel from KY & WV.

According to the website www.ncgreenpower.com, 'green power' is any electricity generated from the sun, wind, water or organic matter (landfill gases). For example, wind power is electricity generated & produced by the wind. This type of electricity is very friendly to the Earth & is in abundant supply. Also stated on the website is the fact that 33 other states have a 'green energy program'. North Carolina's is

unique in that it is a state-wide program. The purpose of the program is to add renewable energy resources to NC's current power supply. The folks who run NC Green Power have events that are free (or nearly free) to promote awareness of more responsible power. These would be great opportunities to take a field trip.

Here's what is currently available:

July 25, 2008 in Hillsborough, NC at the Burwell School Historic Site (Energy Fair; 5:30pm)

July 25 & August 9, 2008 at the Durham Bulls Athletic Park. Look for the information table, 7pm.

August 7, 2008 at the Apex Women Church Group Meeting (Church of Jesus Christ Latter Day Saints)

August 12, 2008 in the Village Green of Walnut Creek Ampitheatre during the Jack Johnson Concert in Raleigh, NC.

August 23, 2008 in Boone, NC at the Music on the Mountain Festival (will need to purchase tickets)

*Can't make these dates? No problem, the folks of NC Green can come to your group of 10 or more & speak for free. To arrange a visit for your church group, homeschool support group or other, call 1-866-533-NCGP.

Want more field trip ideas? Visit the 'landfill methane' page to find the 6 steps it takes to generate power from garbage. (www.ncgreenpower.com/types/landfill_methane.html)

For High School aged students: have them research their local landfill & discover if they participate in a methane program.

For Middle School aged students, have them re-create the graphic of the 6 steps. For the Elementary School ages students, have them check out a library book or DVD on landfills/methane.

After researching the 6 steps, head out to your local landfill and explore. The EPA (Environmental Protection Agency, www.epa.gov) currently has 14 methane producing landfills & 35 almost ready to begin methane power production, so you should be able to find one near you.

Still another field trip idea: one of the 3 NC Nuclear Plants. Check with one of the following NC Energy Companies for more educational resources: Duke Energy (NC's largest investor owned energy company); Progress Energy (serves the Eastern half of NC & Asheville); Dominion Power (serves the Northeast portion of NC).

For more information about landfills & methane management in NC, visit one of the following websites:

www.energy.appstate.edu (Appalachian St. University's Energy Center)

www.enr.state.nc.us (NC Dept. of Environment & Natural Resources)

www.ncsc.ncsu.state (NC Solar Center; part of NC State University)

Each of these sites has educator resources for you to select from. Find what's helpful for your student & enjoy. What's cool about each of these projects is the U.S. Government has recognized them as partners in helping find more energy resources.

More research questions for your students to discover during their field trip(s), before or after:

- 1) What's the difference between investor-owned, co-operative power companies & municipal owned power companies?
- 2) What are emissions?
- 3) What's the difference between propane & natural gas?
- 4) What is ethanol? How is it produced? Is it budget-friendly? What is the main food crop used in America to produce ethanol? What other food sources are being researched, tested & further developed for use in producing ethanol? What is South America currently using to produce their ethanol?
- 5) Is 'biodiesel' the same as regular diesel?

Here's an activity your students should enjoy:

- 1) Visit the U.S. Government website: www.fueleconomy.gov
- 2) Allow them to rate your current vehicle's emissions/efficiency
- 3) Have them click on the 'Flex Fuel' icon. Have your youngest students draw & color pictures of cars; have the middle students write a short paragraph about 'flex fuel cars'; have your older students compare 'flex fuel cars' to yours.

For a family project, try this:

Create a chart that compares HYBRID cars to TRADITIONAL cars.

For example, some hybrids include:

Honda Civic Hybrid, Toyota Prius, Ford Escape, Mazda Tribute

For example, some traditional cars include:

Volkswagen Rabbit, Nissan Versa, Honda Accord, Saturn Vue

*After creating your chart, visit a car dealership (another field trip) & compare your findings to their statistics.

Finally, here are some ways you can go 'green' around your home:

- 1) No lights on when not needed
- 2) Remove unneeded or seldom used bulbs/lights

- 3) Replace traditional bulbs with lower wattage/high output ones
- 4) Lower heat settings/Raise air conditioning settings
- 5) Reduce heat and air conditioning settings when not in use
- 6) Turn off the heat or air conditioning before bedtime
- 7) Get an energy check up (contact your power provider; these are usually free. Also, your county's extension agent has lots of free energy resources, too)
- 8) Make adjustments based on the results of your energy check-up
- 9) Turn off or unplug machines/appliances when not in use
- 10) Walk more; carpool; consolidate your errands

Be sure to check back in the future for another unique lesson plan full of field trip opportunities. Need more ideas? Check out past lesson plan articles we've written.

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