

Energy Learning Objectives and Resources

1. Energy is an essential human need we obtain from our natural resources. What is energy? What are our needs for energy? Understand the different sources of energy - sun, coal, oil, gas, hydro, geothermal, nuclear - and look at how supply and demand are related to our choices of energy resources.
 - ◆ National Energy Education Development Project: NEED Energy Infobooks: Comprehensive Secondary:
<http://www.need.org/files/curriculum/guides/Secondary%20Energy%20Infobook.pdf>
 - ◆ National Energy Education Development Project: NEED Main Page: Find links by energy source, etc.
<http://www.need.org/energysources>
 - ◆ National Energy Education Development Project: NEED Main Page: Find links by energy source, etc.
<http://www.need.org/secondary>
 - ◆ Project Learning Tree (PLT) Green Schools investigation activities and Secondary curriculum
<https://www.plt.org/project-learning-tree-greenschools-investigations>
 - ◆ *Oil and Natural Gas*
<http://www.adventuresinenergy.org/index.html>
2. Understand that energy conservation is a consequence of our choices. Become familiar with some ways to practice energy conservation - insulation, efficient products, decisions and choices.
 - ◆ *Learning About Saving Energy* – National Renewable Energy Laboratory
<http://www.nrel.gov/docs/legosti/old/16215.pdf>
 - ◆ *How Trees Can Save Energy* – Tree City USA
<http://macd.org/ME/Resource%20Material/Energy/How%20Trees%20Can%20Save%20Energy.pdf>
3. Become familiar with different energy measurement terminology and basic terms when talking about energy. (*The following links also apply to learning objectives #1 and 2.*)
 - ◆ NEED's introduction to energy
<http://www.need.org/Files/curriculum/infobook/IntroS.pdf>
 - ◆ Classroom Energy.org
http://www.classroom-energy.org/energy_09/1.html
4. Learn about “alternative energy” - solar, biomass, geothermal, wind, etc.
 - ◆ *Renewable Energy: An Overview* – U.S. Department of Energy
<http://www.nrel.gov/docs/fy01osti/27955.pdf>
 - ◆ *Learning about Renewable Energy* – U.S. Department of Energy
<http://www.nrel.gov/learning/>
 - ◆ Energy Infobooks – NEED
<http://www.need.org/content.asp?contentid=197>

- ◆ *Bioenergy: Power for Agriculture & Conservation* – NACD
<http://209.239.35.63/resources/reports/bioenergy.phtml>
 - ◆ *Energy Conservation Opportunities in Agriculture* - NACD
http://209.239.35.63/resources/reports/energy_conservation_opportunities_agriculture.pdf
5. Understand the different energy requirements for different types of transportation - cars, trucks, buses, airplanes, trains, boats, etc.
- ◆ *Center for Climate and Energy Solutions – Transportation Overview*
<http://www.c2es.org/energy/use/transportation>
 - ◆ *NEED's Consumption Energy Info Book – (page 5, transportation section)*
<http://www.need.org/Files/curriculum/infobook/ConsS.pdf>
6. Identify and study current issues concerning energy production, uses, impacts etc.
- ◆ *Global Climate Change*
<http://www.need.org/Files/curriculum/infobook/GlobalS.pdf>
 - ◆ *U.S Department of Energy*
<http://energy.gov/>

Additional Internet Resources for Energy

U.S Department of Energy
<http://energy.gov/>

The National Center for Appropriate Technology – ATTRA Program: Comprehensive list of Energy Related Topics and Factsheets
https://attra.ncat.org/attra-pub/farm_energy/

Climate Change Resource Center – USDA, USFS
<http://www.fs.usda.gov/ccrc/sites/default/files/carboncourse/index.html>

U.S Energy Information Administration
<http://www.eia.doe.gov>

Office of Energy Efficiency & Renewable Energy
<http://www.eere.energy.gov>

National Renewable Energy Laboratory - Resource Data Center
<http://www.nrel.gov/rredc/>

USDA AgroForestry – Working Trees for Energy
<http://nac.unl.edu/documents/workingtrees/brochures/wt4energy.pdf>

DTE Energy – Various links and information on energy efficiency, lighting, etc.
<http://www.dteenergy.com/saveenergy>