

Become An Energy Star !

Teacher Guide

Ideas for Student Research and Classroom Discussion

Energy Comes in Many Forms

- Light
- Heat
- Electricity
- Sound
- Motion
- Plants can change sunlight into energy which makes them grow.

We Use Energy Every Day

Our bodies change food into energy that helps us grow.

Each day different forms of energy are used to make our lives better. For example, our local electric utility companies provide us electricity to heat and cool our homes and schools. The lights in our home or apartment and the bright lights on a street corner all need electricity to function. For a TV, refrigerator, hair dryer, electronic games, cell phone charger and for many other appliances to work, they all must have energy from electricity.

Will We Always Have All of the Energy That We Need?

With each new electronic game, computer, cell phone or home appliance that we buy, we need more and more energy to make these things work. And its not just those of us who live in the United States who need greater amounts of energy. People who live in other countries want these same things so that their lives can also be better. And so, each year there are more people on planet Earth who are using ever increasing amounts of energy.

The companies that produce energy are doing their best to provide all of the energy that we need. But to do their work they ask for our help in conserving energy. Energy is expensive. It costs lots of money to produce useable forms of energy. Also, when we burn fossil fuels emissions are released that can cause harm to us and to our world.

Conserving Energy Is Everyone's Job

What can we do about all of this? The answer is that we can do our part to not waste energy; to wisely and carefully use the energy that is produced for our homes and schools and for our electronic games, lighting and appliances. What each of us can do is to become An Energy Star!

If you want to do your part in conserving energy, take a look at these websites. They have many great ideas for becoming An Energy Star!

Sources of Additional Information:

www.energystar.gov/index.cfm?c=kids.kids_text

www.eia.doe.gov/kids

www.oge.com/community/Pages/KidsKorner.aspx

www.okgreenschools.org/resources/energy

Sustainability: Going Green at School and at Home

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What is Sustainability?

There are many definitions of the word sustainability. Here are two definitions that we can talk about:

Sustainability means to keep something going forever. Sustainability helps ensure that planet Earth and all of its resources can continue to provide a home for humans and all other species (plants and animals) forever.

Sustainability means to live responsibly. To live with a minimal impact – to live in such a way as to use fewer natural resources, reducing waste, and to consider the quality of life that future generations will experience when we make our own lifestyle decisions.

What Can I Do To Live In A Sustainable Way?

Here are some of the ways that we can live in a sustainable way:

1. We can conserve energy. We can save electricity by turning off lights when we leave a room.
2. We can use less water by turning off the water faucet when we brush our teeth. We can mulch the plants in our flower garden so they don't need as much water to survive.
3. We can recycle plastic, aluminum, glass, newspaper and cardboard so that we reduce the amount of trash that we place in landfills.
4. We can think about where we get our food. When possible we can purchase food that is grown or raised locally in Oklahoma.

Do you have some suggestions on other things that we can do to live in a sustainable way?

Sources of Additional Information:

www.deq.state.ok.us publications and forms; customer services publications

Sustainable OKC www.sustainableokc.org/get-involved/live-responsibly

Sustainable Tulsa www.sustainableTulsa.org

Oklahoma Sustainability Network www.oksustainability.org

Sustainable Oregon Schools www.sustainable-schools.org

<http://www.care2.com/greenliving/make-your-own-non-toxic-cleaning-kit.html>

<http://livegreentwincities.com/newsitem.aspx?newsid=1053&newsitemid>

<http://www.teachingtips.com/blog/2008/06/23/50-ways-to-go-green-in-the-classroom/>

www.okgreenschools.org

Landfills: Oklahoma's New Mountains

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Oklahoma's True Mountains

Can you name the three major mountain ranges in Oklahoma?

(Wichita, Arbuckle and Ouachita)

Where in Oklahoma are each of these mountain ranges located?

the Wichita Mtns. in southwest Okla.;
the Arbuckle Mtns. in southern Okla.;
the Ouachita Mtns. in southeast Okla.

Oklahoma's Mountain Ranges Are Very Old

Scientists believe that Oklahoma's mountain ranges were formed hundreds of millions of years ago.

What Are Landfills?

Landfills are those places where our trash and other waste are buried.

Why Are Landfills Oklahoma's New Mountains?

As we throw away things that we no longer want, placing them in a trash dumpster, they end up in landfills. As more and more trash is placed in these landfills, they get larger and higher until they begin to look like hills or mountains.

Why Is It A Problem?

While it is far better to place our waste in landfills than to throw trash alongside a road, these landfills are covering more and more of our state's beautiful land. Land that is covered by a landfill is no longer able to serve as habitat for native plants and animals. No crops can be grown on landfills.

What Can We Do?

We can all do our part to reduce the amount of waste that we produce. We can recycle and reuse those things that we purchase.

Sources of Information About Waste Management:

Oklahoma Recycles www.recycleok.org

Oklahoma Cooperative Extension Service, Waste Mgt. Program:

<http://agecon.okstate.edu/wastenew/library.asp?category=media>

www.okgreenschools.org/resources/waste-recycling

Compressed Natural Gas: A Fuel for Our Future

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What Are Alternative Vehicles?

Vehicles that use a fuel that isn't the traditional gas or diesel fuel.

What Fuels Do Alternative Vehicles Use?

Some vehicles use electricity that is obtained from an electrical outlet; others use ethanol, biodiesel and compressed natural gas. Many of these vehicles are hybrids, meaning that they can use both gasoline and the alternative fuel.

Why Can Compressed Natural Gas be a Fuel for Our Future?

Compressed natural gas (CNG) is a substitute for such traditional vehicle fuels as gasoline and diesel. Like gasoline and diesel, CNG is used in an internal combustion engine, but it burns much cleaner than traditional fuels. CNG produces much less greenhouse gas (ozone-forming emissions) than gasoline.

Why Is CNG Important to Oklahoma?

Natural gas is an abundant resource in Oklahoma. Greater use of CNG as a vehicle fuel vehicles has several benefits to Oklahoma:

- 1) it will benefit our environment through a reduction in greenhouse gas emission;
- 2) greater use of compressed natural gas will create jobs, thus benefitting the economy of our state.

Challenges to the Use of CNG as a Fuel

There are several challenges to the greater use of CNG for vehicles. Currently there aren't many places where CNG can be purchased. To safely store CNG, fuel stations must invest in special storage tanks that have thick-walls of steel or aluminum.

Although more and more CNG vehicles are being produced, or converted to bi-fuel vehicles (can use both gasoline and CNG), natural gas vehicles are not currently being produced in large numbers. CNG vehicles must have a larger storage tank than is required for cars that use gasoline. However, some believe that CNG-powered vehicles are safer than cars that have gas tanks.

Sources of Additional Information:

www.fueleconomy.gov/feg/bifueltech.shtml

www.cngnow.com?pages/information.aspx

www.consumerenergycenter.org/transpoertation/afvs/cng.html

www.OERB.com Core Energy Curriculum