

Conservation and Efficiency Start With You!

very day we read or hear news related to energy use —fuel prices, renewable energy sources like solar and wind, greenhouse gas emissions and climate change. You probably think, "What can I possibly do to help? I'm just one person, and these issues are huge." You can do a lot — simply by starting at home! Not only will you help the environment, you will help your family save money - a win-win situation!

ENERGY SENSE! was written to help you understand both at-home energy conservation and energy efficiency. Simple examples of each are: turning off a light when you leave a room (conservation) and using an LED (light-emitting diode) light bulb versus an incandescent bulb (efficiency). This booklet was developed to help you and your family learn where energy comes from, how it gets to you, the big energy users ("hogs"), and the energy drainers ("vampires") in your home.

Some of the activities included in ENERGY SENSE! are intended for your classroom and some you can do at home. Working together with Broward County, FPL, your school and at home, you can make a difference.

ENERGY SENSE TIP #1:

I will start my energy-saving journey by remembering these words:

"I can do at least ONE thing every day to save money and the environment."

DID YOU KNOW?

Compact fluorescent (CFL) bulbs use up to 75% less electricity and last about 10 times longer than regular light bulbs.





Ms. Kanika Frazier, Arthur Ashe Middle School

The world of energy conservation and efficiency is a science Like any science it has its own vocabulary.

Below is a short list of some terms you should know:

VOCABULARY

Conservation Kilowatt

Efficiency Non-Renewable Energy

Electricity Peak Demand

Emissions Power Leakage

Energy Hogs Renewable

Energy Star StandbyPower

Fossil Fuels Sustainability
Going Green Thermostat

Insulation Vampire Power

Next Generation Sunshine State Standards: Language Arts: LA.L.6.4, LA.L.7.4, LA.L.8.4

CREDITS

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WHAT IS ELECTRICITY?

he definition of electricity can be confusing to sort out because the term has come to mean several different things. For the purposes of this booklet, we are going to say that electricity is the power source that flows into your home to allow you to turn on the TV, wash your clothes, heat your water, power your air conditioner, etc.

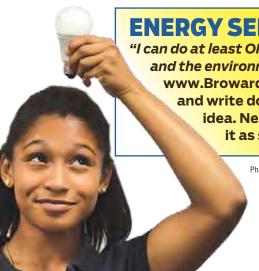


WHERE DOES YOUR ELECTRICITY COME FROM?

simple description of how energy gets to your house is as follows: the electricity that powers up your home comes in the form of an energy current that is generated by power plants located throughout the country. Some power plants are located near their source of fuel, including water, natural gas, coal, uranium, sun, wind and biofuels.

Machines called turbines are housed at these power plants. The turbines use the energy created from various physical and chemical reactions (depending on the kind of fuel) to generate electricity. The electricity then travels through transmission substations (called grids) to smaller power plants known as distribution substations. From there, it moves on to smaller distribution lines, either above or sometimes below ground, into your neighborhood.

Your home is hooked into a transformer, and the current runs through the lines to a meter that keeps track of how much electricity you are using. It continues from the meter into a service panel, also called a circuit breaker, usually found in your garage or basement if you have them, or elsewhere in your home. From there, it runs through wires in the walls of your house to all the outlets and switches.



ENERGY SENSE TIP #2:

"I can do at least ONE thing every day to save money and the environment." "I will check out www.Broward.org/gogreen/energysense and write down one quick energy-saving idea. Next, I will make sure to do it as soon as I get home".

> Photo: Debbie Rahamim. Sun Sentinel NIE

A leaky toilet can waste 200 gallons of water per day.

DID

YOU KNOW?

WHERE'S THE POWER?

sing online sources, locate at least 3 examples of places in Florida and other states that use each kind of power source. For instance, locate a state that has a dam that generates electricity from the flow of water, a city that houses a nuclear plant, etc. Find out where each is found, when it was constructed, and how much power it generates. Share your findings with your class.

ENERGY DASHBOARD

id you know that your family has a new tool that can help save energy? It's called the FPL Energy Dashboard, and it shows you how much energy you're using by the hour, day, and month. To get started with the Energy Dashboard, visit www.FPL.com and enter your User ID and password in the "Account LogIn" box. If you're not registered

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Photo: Florida Power &

AMI/SSN

vet, click on "Register for Online Access." Registration is simple. You will need your FPL account number, an e-mail address and the last six digits of the Social Security Number associated with the account. If you don't have a computer, you can get the information by calling 1-800-226 3545.

For information on the Energy Dashboard, go to:

www.fpl.com/ami/pdf/how_to_use_the_portal.pdf. For more information on smart meters, visit www.FPL.com/energysmart.

For one week, check your Energy Dashboard every day. Write down how many kilowatt hours of electricity your home has used up for the week.

Day 1	Day 2
Day 3	Day 4
Day 5	Day 6
Day 7	Total kWh
Divide the total by 7	

to get a daily average:

Next Generation Sunshine State Standards Language Arts: LA.RI.6.7, LA.W.6.2, LA.W.6.7, LA.W.6.8, LA.W.7.2, LA.W.7.7, LA.W.7.8, LA.W.8.2, LA.W.8.7, LA.W.8.8, LA.SL.6.1, LA.SL.6.4 LA.SL.7.1, LA.SL.7.4 Math: MA.6.NS.2, MA.6.NS.3, MA.6.EE.1



HOW A HOUSE EATS UP ENERGY

ook at the picture of the home. It carefully illustrates where electricity is used up. It also shows which items use the most energy and how much each costs monthly. Are you surprised by how many ways energy is used? Would you have thought of fans or your microwave as energy eaters?

ASSESSING YOUR HOME

- On a separate piece of paper, list all of the energy-using items shown in the picture.
- that item in your own home. Next to the items you have checked, mark

Next to each, put a check mark if you have

- how many you have of each.
- Write down the cost for each. If more than 1 of an item, calculate total cost for all.

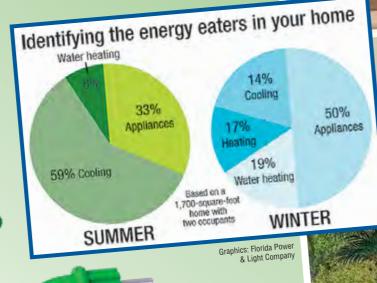
How Many Cost for 1 Total per month

Add up the monthly costs for all the energy eaters in your home. What is the total?

MAKE IT A FAMILY PROJECT

After you have completed the assessment, have a discussion with the adults in your home about energy usage. Show them the picture of home energy costs and explain how you calculated the monthly costs for each item. Discuss together ways you can cut back on home energy usage. Make a list of any devices you have in your home that are not in the picture. Find out what each costs as well.

They all add up!



BATHROOM

Bathing/Water Heating \$18

YOU KNOW? If your next TV has the Energy Star 5.1 label, you can watch a big screen TV for five hours a day for less than \$20 a year.

ENERGY SENSETIP #3: "I can do at least ONE thing every day to save money and the

I will make a list of energy-saving devices and save up to purchase one item for my home. (Hint: Use a power strip for plugging in all the components of your computer and home entertainment center. That way you only have to flip one switch to shut off all the devices).

Central Heating \$1.10/hour

..\$103-\$113

FIND OUT MORE

There are plenty of ideas to save energy at home, most of them are fairly simple. Research to find as many ways to save as possible. Use the Sun Sentinel, magazines, and visit energy websites like www.FPL.com. Keep a list of your findings and share them with your family.

ENERGY STAR LOGO

Research to find out what an ENERGY STAR logo means. Write down a few sentences about what you have found. Then, check on appliances in your home to look for the ENERGY STAR logo. If not, talk with your family

about replacing them (when you need to) with **ENERGY STAR** appliances.

DID YOU KNOW ...



BED/LIVING ROOM

Fans (each) Up to \$7

Television \$4-\$5

Lamps (each) \$1-\$2

\$4-\$5

\$9-\$18

TAXINGTHESTEPSTO CONSERVATION AND EFFICIENCY

What your energy dollars are buying you each month:

OUTDOOR AREA

Pool Pump \$27-\$30

Outdoor Lights......\$5-\$6

Computer \$8-\$15

Washing Machine,

(warm water). . . . \$12-\$14

ow you have a good sense of how electricity is being used in your home. The next logical step is to determine ways you can cut back. Here are just a few of many simple steps you can take:

- Raise the temperature on your thermostat to save on cooling costs. For every 1º increase in temperature, you can save about 5% on your monthly cooling costs.
- Stop 1 ceiling fan from running all the time to save about \$7 a month. Remember, fans do not actually cool your home. They improve the circulation of air, making you feel cooler.
- Reduce your shower time since it represents almost 1/3 of your household water usage. Reducing your shower time could save you as much as \$5 a month.
- Unplug electronics and appliances that aren't in use. If not, you'll pay for "phantom" electricity.
- Replace old bulbs with Compact Fluorescent Light (CFL) bulbs. Each CFL bulb will save you about \$50 in energy costs over the life of the bulb.
- When possible, use cold water in your washing machine. Using cold water instead of hot or warm water can save more than \$3 a month.
- Clean the lint filter in the dryer after every load to improve air circulation. A clothes dryer makes up about 5% of an electric bill. Keeping the lint trap clean will make the clothes dry faster, which can save on energy costs.

Test Your Energy Efficiency and Conservation IQ

Energy Efficiency

Conservation



4) Why is a digital, programmable

hermostat a good idea?



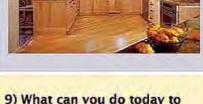
5) Why should you wash clothes in cold water?





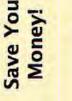


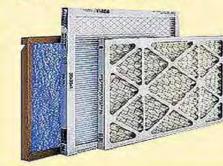






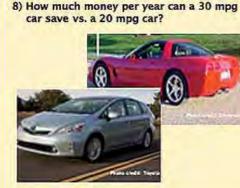
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7) How often should you change

your air conditioning filter?









Poster: Broward County , Florida

www.broward.org

learn more about Broward's climate change initiatives at: www.broward.org/climatec

or contact us at the Energy and Sustainability Program, Natural Resources Planning and Management or contact us at the Energy and Sustainability Program, and Growth Management Department at 054) 519-128

he answer is simple. We are using up our energy resources faster that we can replace them. The various fuels we use can and do cause pollution as a

by-product. Many of our resources are wasted by consuming when we don't need to. Here are examples:

- Leaving the lights on when you leave a room.
- Leaving the fans on when you vacate a room.
- One of the really bad ones: "Vampire Power!" This sneaky creature sucks up energy while your devices are fully charged or in sleep mode! You can stop it by being vigilant and doing the following:

Unplug:

- Your charger: cell phone, battery, iPad, and laptop once you are finished re-charging them. They steal electricity even when a device is fully charged!
- Your flat-screen TV, computer monitor, remote control, microwave, DVD player, and stereo system when not in use.

Next Generation Sunshine State Standards Language Arts: LA.SL.6.1, LA.SL.6.1, LA.W.6.2, LA.W.6.7, LA.W.6.8, LA.W.7.2, LA.W.7.2, LA.W.7.8, LA.W.8.2, LA.W.8.7, LA.W.8.8 Math: MA.6.EE.1, MA.6.NS.2

Debbie Rahamim,

ENERGY SENSE

TOP 10 TIPS TO SAVE YOU MONEY

- Cool your home at 78° or warmer with the thermostat fan switched to auto. For additional savings, raise your thermostat to 82° or warmer when you're away.
- Heat your home at 68° or cooler with the thermostat fan switched to auto. To save even more, lower your thermostat to 65° or cooler at night or when you're
- Reduce your water heater temperature from 140° to 120°, which is the recommended temperature setting according to the U.S Department of Energy, to save about \$7 a month.
- Clean or replace the A/C filter regularly to help your unit run more efficiently and trim cooling costs.
- 5. Turn off your ceiling fan when you leave the room. A fan that runs all the time costs up to \$7 a month.
- Use your dishwasher to conserve energy. Avoid pre-rinsing dishes to save up to \$70 a year.
- Limit the time you run your pool pump:
- Summer 6 hours a day
 Winter 4 hours a day
- Adjust the water level on your washing machine to match the load size, especially when using hot water. Always use a cold rinse.
- Clean the lint filter in your dryer before every load to dry your clothes faster. 10. Use the auto sensor function on your dryer to conserve energy by not
- over-drying your clothes.

here are many resources available to aid you in your search to conserve and be efficient. Below are just a few. Check your local library, media center, or booksellers' websites for availability.

BOOKS

Energy: Use Less-Save More: 100 Energy - Saving Tips for the Home

The Kids' Solar Energy Book: Even Grown-Ups Can Understand

Earth Book for Kids: Activities to Help Heal the Environment

The New 50 Simple Things Kids Can Do to Save the Earth

365 Ways to Live Green for Kids: Saving the Environment at Home, School, or at Play - Every Day!

Electricity Book: The Junior Technician's Guide to **How Electricity Works**

Energy Efficient Homes For Dummies

WEBSITES

www.electronics.howstuffworks.com

www.epa.gov/students/index.html

www.broward.org/environment

www.vampirepowersucks.com

www.broward.org/gogreen

www.eere.energy.gov/kids

www.energyquest.ca.gov www.eia.doe.gov/kids

www.energystar.gov

www.energyhog.org

www.tvakids.com

www.fpl.com

YOU KNOW?

Power companies often offer rebates for replacing things like windows, caulking leaks, updating air conditioners, etc. Write a letter to Florida Power and Light Company asking what is

share this idea with your family.

Debbie Rahamim. Sun Sentinel NIE

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Create one of the following, either at home or as an in-class project:

 comic strip poster collage

video - song

Use the theme:

"I can do at least ONE thing every day to save money and the environment."

Next Generation Sunshine State Standards Language Arts: LA.W.6.3, LA.W.6.4, LA.W.7.3, LA.W.7.4, LA.W.8.3, LA.W.8.4 LA.SL.6.4, LA.SL.6.1, LA.SL.7.4, LA.SL.7.1, LA.SL.8.4, LA.SL.8.1 Music: MU.68.S.1.2 Visual Arts: VA.68.O.1.3, VA.68.O.1.4, VA.68.F.1.1 Theater Arts: TH.68.C.1.1

I can do at least ONE thing every day to save money and the environment.









I save money every month now that Twe eplaced my standard ight bulbs with new LED ght bults. They use a traction of the energy. stay cool and they'll list for decodest

PEMERONE PINES

Visit broward.org/gogreen for more tips on saving money. energy and the environment

ENERGY SENSE

Real people, real tips, real savings.

rvice of the Broward County Board of County Commission

ENERGY SENSE TIP #4:

"I can do at least ONE thing every day to save money and the environment." I will read at least one book or visit a website or read the Sun Sentinel to discover new developments and ideas for saving energy at home.

available. Also check state and federal energy offices. Go to their

websites for further information. Most importantly,

Photo: Debbie Rahamim, Sun Sentinel NIE

ith this booklet and other recommended resources, you should be well on your way to saving energy at home. Beyond that, there is much more to consider. Make it a goal to better understand what the big energy picture is, here in Broward County, across the state, and in the U.S. and around the world. Learn as much as you can about resources, conservation, new technologies and even the energy and environmental jobs of the future.

Remember: You can make a difference! ENERGY SENSE. Real People, Real Tips, Real Savings.

oster: ENERGY SENSE, Broward County