



Energy Lesson Plan

Stuff that plugs in – past and present

Background and concepts

The use of electrical devices and appliances in our homes has increased dramatically in the last few generations and is directly related to an increase in energy consumption. This is sometimes called “Energy Creep”, and because of the way electricity is generated in Saskatchewan, it contributes to an increase in greenhouse gas emissions. Have a look at how this applies to you and your classmates, and make a plan to reduce personal or family consumption.

- Electricity use, past and present
- Understanding ENERGY STAR® and EnerGuide® labels
- Auditing or surveying appliance/electrical device use at home

Procedure

1. In class, generate a list of all the stuff people might have in our homes that plugs in. I.e. appliances and electrical devices, including items with chargers. Use the chart (page 4) or create one of your own. Add extra pages as needed.
 - At home, go room by room and write down any item that plugs in. Record the total number of similar items.
 - For example, if there are 3 phone chargers in the kitchen, write down: *phone charger: 3*
 - Check for devices in each room, in closets and even areas outside the home such as the patio or garage.
2. Now show the list to a parent/guardian. In the “parent” column, write down how many of these items were in their home when they were a similar age as you are now. Can they think of items they had that you don’t have in your home? Record the year the adult was your age.
3. If possible, show the list to a grandparent or older person, too. In the “grandparent” column, write down how many of these items were in their home when they were about the age you are now. Can they think of items they had that you don’t have in your home? Record the year the adult was your age.
4. Go back one more generation if you can. If you have a great-grandparent, show them the list, or ask your parent or grandparent what they remember about the electrical devices in your great-grandparent’s home.
5. Total the number of electrical devices you have in your home. Total the number of devices in your parent’s and grandparent’s, and great-grandparent’s homes.

SMART devices

SMART technologies use some power all of the time because they are Wi-Fi connected.

- A Wi-Fi connected programmable thermostat will use some power all of the time.
- A generation ago, a programmable thermostat would have only used enough power to run the program, and connect to the furnace in your home.
- An old thermostat with a slider wouldn’t have used any electricity to run.



Discussion

- Were you surprised by how many devices and appliances you have at home?
- How does the total number of appliances you use today differ from the number of appliances used by an adult when they were the age you are now?
- Which appliances in your homes, were not in the homes of people a generation ago?
- How do you think people managed without these appliances? What did they do differently without these things?
- What kinds of changes have taken place in our society to make all of these things available to us?
- Make a list of appliances that you simply could not live without and another list of the ones that you feel you could eliminate from your home. Why did you decide the way you did?

Take action – my energy use

Use the *Take action – my energy use* worksheet (page 6) or make one of your own.

- Choose one hour of one day. Write down each electrical device you use at home during that hour, including how long you use each device.
- Make a plan to use less energy.
- To be consistent, choose the same hour for your “**reduce energy day**” write down each electrical device you use at home, including how long you use each device.
- Were you able to make a difference? Did you reduce the number of devices, and the amount of time that you used the devices?
- What can you do on a regular basis to continue to reduce the number of electrical devices, and the amount of time you use them?

What is ENERGY STAR®?

[ENERGY STAR®](#) certified appliances and electrical devices meet strict energy performance standards.

- The ENERGY STAR symbol identifies products that have met or exceeded technical specifications for high efficiency.
- Because of how electricity is made in Saskatchewan, devices that use less electricity, reduce greenhouse gas emissions.

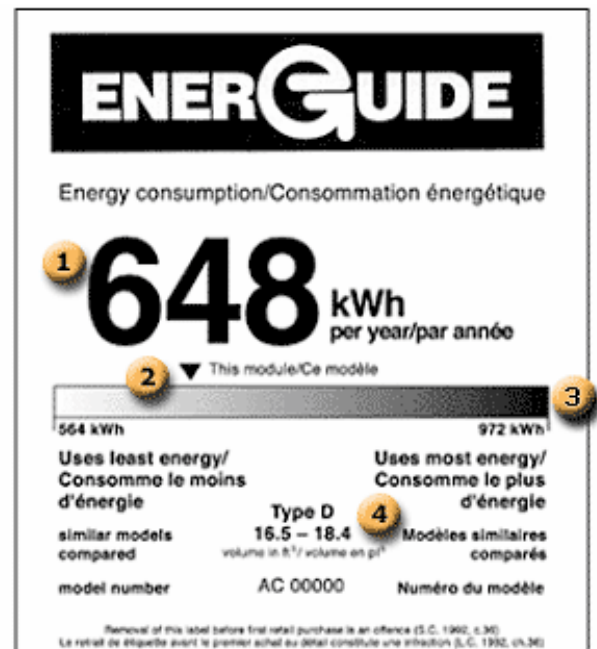




Reading an EnerGuide® label

When shopping for a major appliance the [EnerGuide® label](#) can help you make an energy-wise choice. While the EnerGuide® label does not mean that an appliance is actually energy efficient, it does show how much energy an appliance can use in a year of service. It also makes it easy to compare the energy efficiency of each model to others of the same size and class.

1. The annual energy consumption of the appliance in kilowatt hours (kWh). The lower the number, the better.
2. The energy consumption indicator shows you how this model compares to others in its class. The bar below the indicator gives the energy efficiency range for this class of appliance. The further the indicator is to the left end of the scale, the better.
3. This bar shows you the energy consumption of the most and least efficient appliances in this class. In this case, the most efficient comparable model consumes 564 kWh per year while the least efficient uses 972 kWh per year.
4. This tells you the type and capacity range of similar models compared.



Source: Manitoba Hydro. August 2008 © The EnerGuide label and text produced with permission of the Minister of Natural Resources Canada, 2003.



Stuff that Plugs in

Room	Number of Items				
	Year ⇒	You	Parent	Grandparent	Great-grandparent
	Item				
E.g. Kitchen	Phone charger	3	1	0	0
	Total				



Take action – my energy use

Day 1: Follow your usual routine for this hour.

- For 1 hour before or after school, keep track of all the devices you use. E.g. lights, TV, computer, toaster, etc.
- How many devices did you use in one hour?
- How long did you use them for?
- Add up the amount of time all devices were on.

Day 2: Try to do the things you need to do but use less energy.

- At the same time as day 1, for one hour, keep track of all the devices you use. E.g. lights, TV, computer, toaster, etc.
- How many devices did you use in one hour?
- How long did you use them for?
- Add up the amount of time all devices were on.

Compare

- Did you succeed in using fewer devices in your second hour?
- Did you use the devices for a shorter amount of time?

This lesson was adapted from the Appliance Explosion, created by the Alliance to Save Energy.



My energy use

Name:

Name:				
Day 1 time	Device	Time on	Time off	Total time
Total				
Day 2 time	Device	Time on	Time off	Total time
Total				



Curriculum Connections

Grade 4 Social Studies RW4.3 Assess the impact of Saskatchewan resources and technological innovations on the provincial, national, and global communities.

Grade 5 Science MC5.3 Assess how the production, use, and disposal of raw materials and manufactured products affects self, society, and the environment.

Social Studies RW5.1 Explain the importance of sustainable management of the environment to Canada's future.

Grade 6 Science EL6.1 Assess personal, societal, economic, and environmental impacts of electricity use in Saskatchewan and propose actions to reduce those impacts.

Social Studies RW6.1 Examine and analyze factors that contribute to quality of life, including material and non-material factors. **RW6.2** Contribute to initiating and guiding change in local and global communities regarding environmental, social, and economic sustainability.

Grade 7 Social Studies RW7.3 Assess the ecological stewardship of economies of Canada and the circumpolar and Pacific Rim countries.

Grade 8 Health Education USC8.6 Examine and assess the concept of sustainability from many perspectives, and develop an understanding of its implications for the well-being of self, others, and the environment.

Social Studies RW8.1 Analyze the social and environmental consequences of living in the Canadian mixed market economy based on consumerism. **RW8.2** Assess the implications of personal consumer choices. **RW8.3** Critique the approaches of Canada and Canadians to environmental stewardship and sustainability.