



ENERGY LESSON PLAN 13 THE APPLIANCE EXPLOSION

BACKGROUND: The use of electrical devices and appliances in the home has increased dramatically in the last few generations, and is directly related to increased energy consumption. Engineers refer to this as the “Service Effect”. Students will explore this connection and make a plan to reduce their personal or family consumption.

TIME: 40—60 minutes over 2 to 3 classes

MATERIALS:

Home Appliance Survey

Bulletin board or poster board to display results

PROCEDURE:

1. Scan the list of appliances on the Home Appliance Survey. If you are not familiar with some of the appliances, consult your teacher or look them up in a store catalogue.
2. As a group fill out one page of the survey using an overhead of the survey.
E.G.- How many televisions are there in your homes?
3. Take the survey home. Under the student column of the survey, record the number of each kind of appliance you have in your home.
 - For example:

	Student (2010)	Parent (1980)	Grandparent (1950)
CD Player	3	0	0
Clock Radio	2	1	0

- Be sure to check for appliances in each room, in closets and even areas outside the home such as the patio or garage.
 - Add any appliances not on the list to the blank spaces that are labeled “other.” Use extra pages if required.
4. Now ask one of your parents/guardians to complete the survey. If possible, ask a grandparent or older friend, too. The adults should complete the survey by listing the appliances found in their home when they were the age you are now.
 5. Record the year the adult was your age. Total the number of appliances in each column.
 6. 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 he/she was the age you are now?
 - Why do you think the numbers differ so greatly? What kinds of changes have taken place to make this happen?
 - Which appliances did people have a generation ago that you don't have now.
 - Why do you think this is? Did people do tasks manually, or do different tasks that did not require electricity?
 - 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? Is there another list of devices that you could use less often?
- Which appliances in your homes, were not in the homes of people a generation ago? How do you think people managed without these appliances?
7. Using the information from your survey, create a bulletin board or poster. Choose a title that describes or summarizes your survey results.

GOING FURTHER

- Using the attached worksheet, My Energy Use, keep a log of the number of ways you use energy from the time you get up until the time you go to class. Can you reduce this energy use? How? Present your findings to the class.
- Create a floor plan for the home of the future and in each room list the appliances you predict people will own 25 years from now. What sort of changes do you expect?
- Invite other classes, parents, and friends to view your display and observe the types and numbers of appliances that were used in the homes of the students and adults who completed the survey.

WHAT CAN I DO ABOUT THIS?

With your family's agreement, plan ways to reduce both the number of appliances and the length of time appliances are used. Then implement the plan for one utility meter reading to the next. Was your family able to reduce the amount of energy consumed?

METHOD: Write down your meter reading at the beginning of the trial (one month might be the easiest to record) and put your plan in action. At the end of the time period, read your meter again and compare it with readings from previous time periods.

Adapted from the Appliance Explosion, found under the Alliance to Save Energy – lesson plans.
<http://www.energyquest.ca.gov>



ADDITIONAL RESOURCES:

- Lifestyle Campaign Action Plan Worksheet
<http://environmentalsociety.ca/main/docs/LifestyleCampaignActionPlanWorksheet.pdf>
- The SaskPower website has a Cost Calculator that calculates the amount of electricity specific devices and appliances use. The site also includes power saving tips.
www.saskpower.com/save_power
- The SaskEnergy website has information about how to save energy in the home.
www.saskenergy.com/saving_energy
- For information about Energy Star ratings and products.
http://www.saskenergy.com/saving_energy/energystar.asp

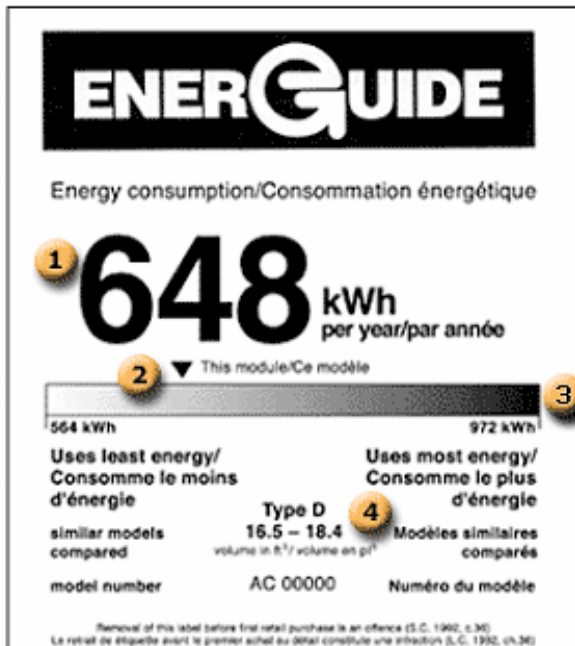
CURRICULUM CONNECTIONS

Grade 3 Social Studies: Outcome: RW3.3 Evaluate the ways in which technologies have impacted daily life.
Grade 6 Science: Outcome: EL6.1 Assess personal, societal, economic, and environmental impacts of electricity use in Saskatchewan and propose actions to reduce those impacts. Social Studies: Outcomes: 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: Outcome: IN7.2 Examine the effects of globalization on the lives of people in Canada and in circumpolar and Pacific Rim countries.
Grade 8 Science: Outcome: OP8.4 Evaluate the impact of electromagnetic radiation-based technologies on self and community.
Grade 9 Science: Outcome: CE9.3 Assess operating principles, costs, and efficiencies of devices that produce or use electrical energy. CE9.4 Critique impacts of past, current, and possible future methods of small and large scale electrical energy production and distribution in Saskatchewan.



READING AN ENERGUIDE LABEL

Another guide that can help you make an energy-wise choice when shopping for a major appliance is the EnerGuide label. 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.

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Source: Manitoba Hydro. August 2008

http://www.hydro.mb.ca/your_home/appliance_energuide_label.shtm



HOME APPLIANCE SURVEY

FAMILY ROOM (include household totals for all items)	You	Parent (year)	Grandparent (year)
TV			
TV > 30 inches			
Cable box			
DVD			
VCR			
Stereo			
Boom Box			
Cordless phone			
Timer			
Remote controls			
Lamps			
Answering machine			
Other			



KITCHEN	You	Parent (year)	Grandparent (year)
Refrigerator			
Breadmaker			
Coffee maker			
Coffee bean grinder			
Food processor			
Electric mixer			
Electric wok			
Slow cooker			
Fondue pot			
Grill / griddle			
Stove / oven			
Microwave oven			
Toaster			
Toaster oven			
Washer			
Dryer			
Iron			
Freezer			
Other			



MY ENERGY USE

For 1 hour before or after school, keep track of all the energy you use. E.g. lights, TV, computer, toaster, etc. What changes could you make to use less energy?

Time	Energy Used	How can I use less energy?