

GETTING STARTED WITH ENERGY - SUPPORT PACKAGE

Energy Monster Initiative



Refrigerators and freezers are some of the most energy-hungry appliances at home or at school. They're always working hard to keep cold. Old fridges need maintenance and have parts that can wear out, such as door seals. New models are designed and manufactured according to government guidelines for energy efficiency. Fridges can waste less energy when equipped with efficient compressors, improved cooling coils, and better insulation¹. You can learn to identify these Energy Monsters and help the Earth by wasting less energy. Did you know Efficiency Nova Scotia can visit homes or schools to pick up an old appliance, and also pays the owner 30 dollars! The [Appliance Retirement Program](#) will properly recycle fridges and freezers that are at least ten years old, and that's good for the Earth, too! For more information check out our Appliance Retirement Fact Sheet.

When you retire an old fridge it means you are wasting less energy and helping the Earth. You can save a school up to \$180/year by getting rid of a single old, barely-used refrigerator. Read on for many different ways to take action on Energy Monsters. Let's get started with a search for the Energy Monsters in your school!

Action Plan

Step 1- Educate. Learn about why and how to save energy! Invite your Green Schools Nova Scotia Engagement Officer for an in-person or virtual visit. They can help you get started on the hunt for Energy Monsters. You could also use one of the age-appropriate energy slideshows from the [Green Schools NS resource website](#). Check out Efficiency Nova Scotia's [Top 10 Tips for Running an Efficient Fridge](#) to learn about these hungry Energy Monsters. To learn more about how to retire a fridge, watch this video from Manitoba Hydro on [How to Your Fridge is Recycled](#). Inform everyone in the school that Energy Monster Detectives will be scanning the entire school for Monster Appliances. A personalized school announcement might be a good approach:

Example Announcement: "(Your school name) is going to waste less energy! We will be searching the entire school for Energy Monsters. These could be fridges that are using too much energy that we don't need anymore. Did you know that old refrigerators use way more energy than new fridges? We are on the lookout for a hungry Energy Monster that is guzzling energy in our school. Let's start wasting less energy now!"



<https://www.energycns.ca/guide/guide-retiring-appliances/>

¹ <http://www.greenbuildingadvisor.com/blogs/dept/musings/choosing-energy-efficient-refrigerator>



Step 2- Monster Appliance Hunt. Peek in every room in the school for refrigerators and freezers. Look for other appliances while on the hunt, such as air conditioners and mini fridges. Ask the school custodian for help because they often know more about the school than anyone else. Those hungry Energy Monsters could be hiding!

Step 3- Appliance Assessment Worksheet (Grade 6-12) or Energy Monster Cartoon Activity (Grade P-5). So you think you found an Energy Monster! To find out if an appliance is working efficiently you can investigate further using one these activities. Remember that staff, or anyone who uses this appliance, can tell you more about how it's used, so be sure to ask. You can also learn more about the appliance by searching the internet using its brand name and model number. This information can be found on the inside wall of the appliance.

Step 4- Label the Energy Monster. Add the Energy Monster decal to the front of appliance along with all information you collected on the Appliance Assessment Worksheet. You may be inspired to name the Monster!

Step 5- Calculate Energy Consumption (Grades 9-12). Head back to the classroom and pull up the Green Schools NS Plug Load Worksheet. Calculate how much energy is used by an appliance (the plug load) for the whole year. How much will that cost? Use the [Energy Star Product Finder](#) to determine the plug load for a fridge or freezer. Search the online database using the appliance brand name and model number. Alternatively, you can measure how many watts (W) are consumed by the appliance using an energy meter. When using an energy meter, it is important to ask an adult if you need help. The energy meter can be set to measure energy use over time, calculated in watts. Once the energy consumption has been measured for one hour, the kilowatt-hours used for a year can be calculated. You can then work out how many hours per year the appliance consumes electricity. Finally, you can find out the total annual cost of operating the appliance. Use the electricity rate in Nova Scotia: \$0.15063/kWh. The Plug Load Worksheet will guide you through this process to find out how much money can be saved by unplugging this fridge.

Step 6- Develop a School-wide Action Plan. List all the problems that were found from the Energy Monster hunt. List several solutions for each issue. For each possible solution think about the barriers, cost and benefits to find the best solution. Give it a try! Remember to be positive, work as a team, and invite others to be a part of the initiative. This will empower everyone to make changes for the better.

Problem	Solution
Fridge coils are dirty.	Ask who is responsible to keep these clean and make a long-term maintenance plan.
Fridge has a leaky door seal.	Ask administration to put in a work order.
Fridge is in the sun or next to oven.	Determine if there is a better location away from heat.
Fridge is plugged in and empty.	Find out why, and if it can be unplugged.
Two fridges are plugged in.	Can one energy efficient fridge be used instead? Can one be unplugged?
Fridge or freezer is set too cold.	Ask for assistance to change the settings to the recommended temperatures for an energy efficient fridge.



Fridge or freezer is encased in frost.	Ask for assistance to defrost the freezer.
Fridge is very old and running constantly.	Calculate the payback period if it were replaced.
Fridges are left plugged in all summer.	Post reminders, make an announcement, ask about Green Schools NS Power Down Initiative.

Step 6- Payback Period (Grades 6-12). Learn about the payback period which is the time it would take for an investment in a new fridge to pay for itself through the energy it saves. Use an example from your own Monster Appliance hunt.

Example:

- Large old fridge uses 1500 kWh per year and space is never full.
- Purchase a smaller fridge for \$500 that uses only 400 kWh/yr.
- Annual energy savings equation: $1500 \text{ kWh/yr} - 400 \text{ kWh/yr} = 1100 \text{ kWh/yr saved}$.
- Annual cost savings equation: $1100 \text{ kWh/yr} \times \$0.148/\text{kWh} = \$162.80 \text{ saved}$.
- Payback period equation: $\text{Purchase price } \$500 / \$162.80 \text{ annual savings} = 3.07 \text{ years}$
- It will take 3.07 years to recover the cost of the new fridge.
- The school will save \$162.80/year on energy costs.

Step 7- Celebrate Your Achievements! Add your refrigerator clip art to the Green School NS Growth Chart if you have one. If you don't have a Growth Chart, you can make your own poster to track your Earth-friendly achievements, habits, and activities for the whole year!



http://www.clipartpanda.com/clipart_images/fridge-outline-clip-art-13279431



<https://www.energystar.gov/>

Resources

[Green Schools NS Kettle Efficiency Activity 6-8](#)
[Green Schools NS Energy Navigator Activity 3-6](#)
[Green Schools NS Pinterest - Energy Efficiency](#)

[Energy Meter Instruction Manual](#)
[Efficiency Nova Scotia Instant Rebate for Select Energy Efficient Fridges](#)
[Efficiency Nova Scotia Residential Services](#)
[EnerAction Program - GreenLearning Canada](#)
[Education Resources on Energy - Resources for Rethinking](#)

Videos

[Energy, Let's Save It! - European Commission](#)
[Refrigerator Energy Saving Tips - Touchstone Energy Cooperative](#)
[How Your Fridge is Recycled - Manitoba Hydro](#)