

SCHOOL ENERGY REVIEW

GENERATION  **E**



OVERVIEW

What is Generation E?

What is energy efficiency? Why is it important?

How can schools be more energy efficient?

Activity: School Energy Review



WHAT'S GENERATION E?

- ☀️ An initiative by Efficiency Manitoba to empower the next generation of energy savers
- ☀️ The goal is to teach young people the importance of energy efficiency and protecting the environment



GEN **E**



WHAT DO YOU KNOW ABOUT SAVING ENERGY AND ENERGY EFFICIENCY?

GEN E



WHAT'S ENERGY EFFICIENCY?

GEN  E



WHAT'S ENERGY EFFICIENCY?





- ✱ Using less energy to do the same job
- ✱ Using energy to its maximum potential



WHAT DO WE NEED ENERGY FOR AT SCHOOL?



WHAT DO WE NEED ENERGY FOR AT SCHOOL?

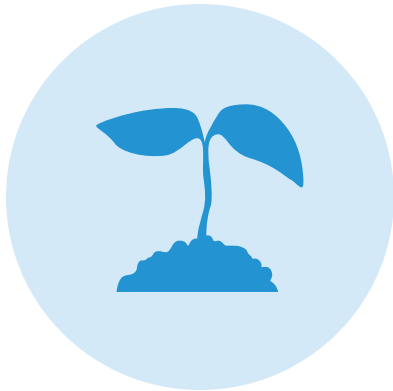
-  Heating and cooling
-  Lighting
-  Powering appliances and electronics
-  Water heating



WHY IMPROVE ENERGY EFFICIENCY IN SCHOOLS?



WHY IMPROVE ENERGY EFFICIENCY IN SCHOOLS?



Reduce
environmental impact



Spend money
on other things



Show the world
how it's done



HOW CAN YOU SAVE ENERGY AT SCHOOL?

Let's brainstorm!



EASY ENERGY- SAVING TIPS

- ☀ Use natural sunlight for additional heat and light
- ☀ Unplug (and watch for phantom power)
- ☀ Turn off lights
- ☀ Let a custodian know if a tap is dripping so it can get fixed



WHAT CAN MAKE A SCHOOL MORE ENERGY EFFICIENT?

GEN  E



WHAT CAN MAKE A SCHOOL MORE ENERGY EFFICIENT?

Adding insulation

Using high-efficiency heating systems

Installing LED lighting

Using ENERGY STAR® certified appliances and electronics

And so much more!



ACTIVITY: SCHOOL ENERGY REVIEW

The goal is to learn how our school consumes energy, what changes our school could make to save energy, and what behaviours could be encouraged to use less energy.

- ✱ Electronics and appliances
- ✱ Lighting
- ✱ Heating and cooling
- ✱ Water and windows



MEASURING DEVICES

| Group | Tool | What's being measured | Measurement |
|---------------------|---------------------------------------|-----------------------|----------------------|
| Heating and cooling | Thermometer | Temperature | Degrees Celsius (°C) |
| Lighting | Light meter | Lighting levels | Lux or fc |
| Electronics | Electricity usage meter (Kill-A-Watt) | Wattage | Watts (W) |
| Water | <u>Flow rate bag</u> | Flow rate | Litres/minute |
| Windows | Flashlight | Number of panes | Number of spots |



SCHOOL HEATING SYSTEMS

Determining school heating system types and energy sources can be difficult.

- ✦ Most schools in Manitoba have boilers as their heating system
- ✦ Many schools in southern Manitoba use natural gas to heat their boilers



SCHOOL COOLING SYSTEMS

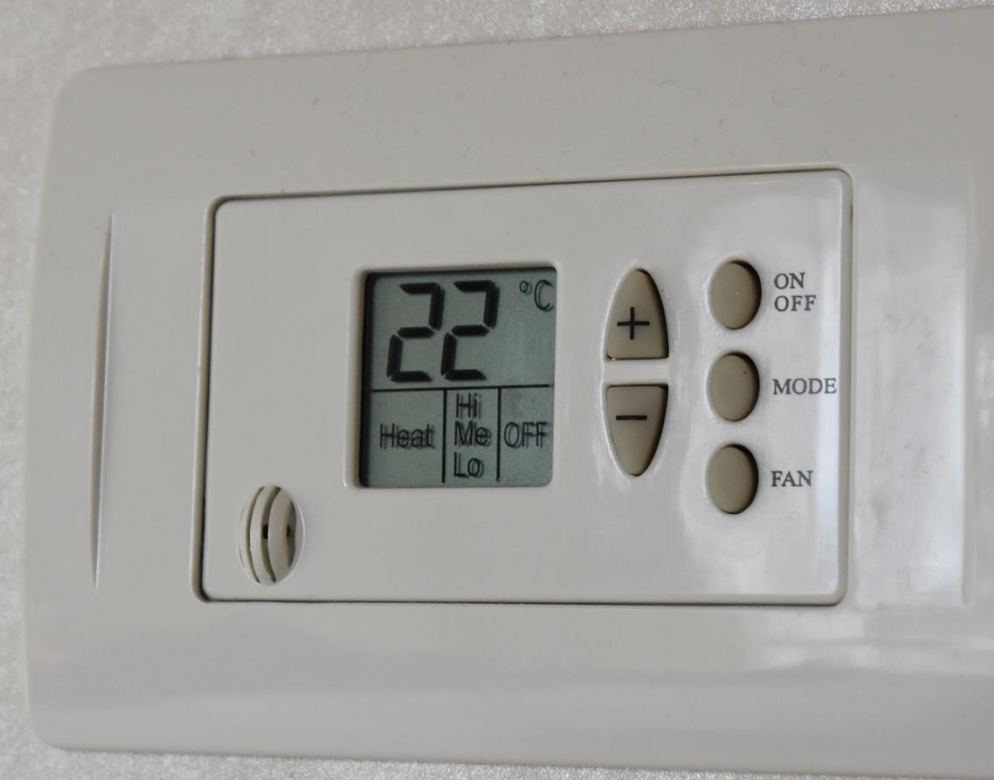
- ✦ Older schools don't usually have cooling systems
- ✦ Some schools may have added cooling units in windows
- ✦ Newer schools typically have a large air conditioning unit (or chiller), usually on the school's roof



HEATING AND COOLING CONTROLS

Advantages of centralized digital controls:

- ✦ Can schedule temperature to be lowered in the evenings on winter days and the opposite for summer
- ✦ Can save energy because you're not heating or cooling a space more than needed



ELECTRONICS AND APPLIANCES



- ✦ Check for the **ENERGY STAR**® logo
- ✦ Older appliances typically use more energy than new ones
- ✦ To find out how much energy is used, we can look at the wattage
- ✦ Look for the wattage on a label at the back or bottom of the device or appliance



LIGHTING TYPES

Some lights use less electricity and are more efficient than others.

Incandescent



HID



CFL



LED



LEAST EFFICIENT

MOST EFFICIENT



LIGHTING CONTROLS

Dimmers



Occupancy sensors



Daylight sensors



Lighting zones



- ✦ Using lighting controls is a great way to save energy
- ✦ Correct lighting levels can save energy and are good for comfort and safety

- ✦ Use natural sunlight when possible

HOT WATER

- ✱ Energy is used to heat water
- ✱ Save energy by minimizing hot water use
- ✱ Low-flow faucet aerators and low-flow showerheads help reduce the amount of water used while maintaining water pressure
 - ✱ An energy-efficient showerhead uses about 6.8 litres per minute
 - ✱ An energy-efficient bathroom faucet uses about 4.5 litres per minute



WINDOWS

- ✱ Energy-efficient windows help save energy by keeping heat inside in the winter and cool inside during summer
- ✱ Windows can be single pane, dual pane, or triple pane
 - ✱ Triple pane is the most energy-efficient window type
- ✱ Use the back of your hand to feel for drafts around window frames



QUESTIONS OR COMMENTS?

GEN  E



LET'S GET STARTED!

- ✦ Split into groups and choose your topic
- ✦ Grab your worksheets, table, and the measuring device from the kit
- ✦ Decide which classroom or other rooms will be part of the review
- ✦ Read all instructions prior to getting started
- ✦ Start collecting your data and have fun!

