

ENERGY EFFICIENCY AT SCHOOL PRESENTATION

TEACHER'S NOTES

Slide 2 | What is energy efficiency?

Being energy efficient doesn't mean doing less things that require energy, although that is a great way to start. Energy efficiency means using less energy to do the same job. A lot of the activities we do everyday waste energy. We want to make sure energy is used to its maximum potential. When we do this, we not only save money, but we also reduce our negative impact on the planet (in the case of burning fossil fuels like natural gas).

Slide 3 | What are the downsides of not using energy efficiently?

Using more energy costs more money. Energy efficiency uses less energy for the same result, which means less money is being spent on powering our homes and schools.

We're generally using energy to mean the use of natural gas or electricity. Natural gas is used to heat homes in some parts of Manitoba. Using natural gas is an environmental problem, because it's a fossil fuel and burning fossil fuels causes greenhouse gas emissions.



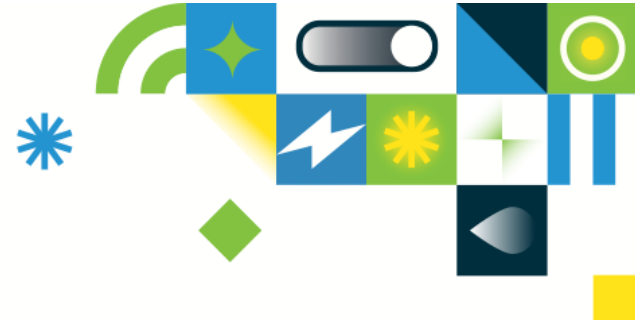
Our excessive and reckless energy consumption is the part of the reason why global warming continues, which is leading to lots of negative effects on all of us including extreme weather events like wildfires and melting ice caps.

Slide 4 | Why improve energy efficiency in schools?

Improving our energy efficiency in schools can improve the health of our environment. Fewer emissions, less harm to natural environments, and less extraction of fossil fuels from the ground are all good things for the planet.

Another great reason to improve energy efficiency in the classroom is that it will save money. And maybe you think – who cares? We don't pay for the energy bill, the government does. That's correct, but the government budgets a certain amount of money for schools each year, and a lot of that money goes towards schools' energy bills. When our winters are as cold as they are it takes a lot of energy to keep them warm! If we can reduce the amount of money they spend on energy (i.e. improve our school's energy efficiency), that money could be spent on more exciting things like art supplies, music equipment, sports equipment, teacher salaries, and so on. Less money on energy means more money available for fun and helpful stuff.

Countries around the world will suffer the consequences of climate change. It's impacting Manitoba too, with extreme weather like heat waves, flooding, and droughts becoming more and more



common. In northern Manitoba, ice is melting earlier and freezing later in the season. This has destroyed polar bears habitats and has made it harder for them to find food. We can all work together to improve the health of our planet - and energy efficiency is a great first step.

Slide 5 | Brainstorming time!

Take a few minutes to brainstorm some ideas with your class on how classrooms can save energy.

Slide 6 | How can classrooms save energy?

There are things we can do every day to be more energy efficient in the classroom. We can make sure all the ways that we use energy, like lighting, electronic devices, and the heating and cooling systems here are being used as efficiently as possible. Reducing waste, setting goals, and getting involved also have a big impact on our energy efficiency.

Some things we can do daily, others weekly, monthly, or yearly. Some are simple changes in our actions and others are more expensive long-term projects. As long as we're mindful of the energy we're using, we can make big improvements.

Slide 7 | Make smart lighting choices

Traditional lighting sources (like incandescent bulbs) use much more energy than energy-efficient lighting options like LED lamps,



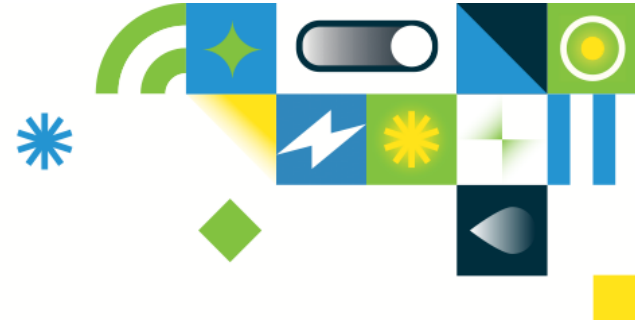
which can be up to 80% more energy efficient. LED lights are more efficient because they convert much more of the electricity into light. Older types of light produce mostly heat along with some light. The light is what we want, it's better to heat with a furnace or something like that. LEDs are more expensive initially, but they'll save schools money over time on their energy bills. They also don't need to be replaced as often since they last a long time, meaning schools will save on maintenance and replacement costs.

Please note that even the light turns into heat as it is absorbed in the room.

Of course, as a student, you don't have direct control over whether a school has LED lights or not. However, you can talk to school administrators, ask them about the efficiency of the lighting, and ask if they can make the switch.

Lighting controls, like dimmers, are another energy-saving measure. Sometimes we don't need full brightness! Dimmers help you decide how much energy you want your lights to use, or to use just what you need.

The less time your lights are on, the less electricity you use. As a student, you have the power to help control the energy consumption of the lights around you by ensuring lights are turned off when they're not being used. Whole class out for lunch including the teacher? Turn off the lights! While it's a small action,



multiple smaller actions make big changes and form a routine to save energy in other areas of your life beyond school.

Slide 8 | Use natural sunlight

Take advantage of the sun's natural power. It gives us light, heat, vitamins, mental health boosts, and it's all for free!

Make sure the classroom is set up to take advantage of this wonderful offer. Remove obstacles blocking the windows, and make sure the windows are cleaned weekly so that maximum sunlight can get through.

When the sun is strong, dim the lights to only give you as much light as you need instead of full power if possible. As well, lower the thermostat if the sun is providing some heat to the classroom. However, be sure the sun isn't blinding any students or making them uncomfortable. By design, the newest schools often use daylight quite effectively without glare and overheating.

Slide 9 | Use electronics efficiently

It's no secret that electronics use a lot of electricity! By taking some simple steps, you can reduce the amount of energy they use.



An obvious, simple, yet often overlooked energy-saving technique is to make sure to power off all electronics when going home for the day and unplug anything that doesn't need to stay connected. That said, even powered off electronics can still have an internal clock running that draws electricity. If devices are plugged into a power strip, you can simply turn the power bar off at the end of the day. Ask your teacher first if you can turn off the power bar to ensure all electronics power down safely.

When electronics aren't in use, putting them on Sleep Mode will decrease the amount of electricity they're using.

You can also ask about smart power strips. They automatically power down connected devices (e.g. printers, monitors) when the main device and primary energy consumer (e.g. PC) has gone into energy-saving mode.

Slide 10 | Optimize heating & cooling

Heating and cooling indoor spaces uses a lot of energy! Just like your home has a heating system (whether it's a furnace, baseboard heat, or a boiler) and potentially air conditioning, your school and classroom has systems in place to keep you comfortable, no matter the season. We want to make sure we're using heat efficiently in the winter and cool air wisely in the early fall and late spring.

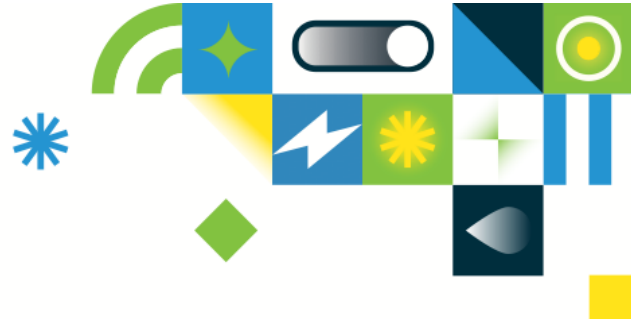


One way to do this is to adjust the classroom temperature settings seasonally on the thermostat for general comfort. It's important to make the room only as warm or cool as needed to be comfortable; no need to blast the heat or AC! In the summer, adjust the room temperature setting to 23.5°C or warmer, depending on the level of activity taking place in the room. For example, the gym should be kept cooler because you're running around and keeping yourself warm through physical activity. However, when you're sitting at your desk in the classroom, the temperature setting can be a bit warmer. In the winter, adjust the room temperature setting to 22.5C or cooler (again, depending on the level of activity).

Small changes in behaviour can help the school's heating and cooling system run more efficiently and not waste energy. For example, windows and doors shouldn't be left open when the heating and cooling systems are being used. The warm or cool air will escape, meaning the system has to work harder and use more energy. Also, avoid using space heaters when the AC is being used. Using heating and cooling systems at the same time can be a big energy waster.

Slide 11 | Reduce waste

Reducing waste is important from an environmental standpoint, but also for other reasons. Producing a product takes materials and energy, and no matter what they are (electronics, paper, water, food, or packaging), there is an abundance of trash ending up in our streets, parks, rivers, and oceans. Finding a way to



reduce waste in the classroom will help clean up the natural environment and save on energy.

Making sure there are no leaky water fountains or water taps in the classroom or in the hallways will save water. Those drops add up! When washing your hands, you use warm water for proper hygiene; make sure the taps are fully off when you're finished. Hot running water is produced by a water heating system which is powered by energy. Think of all the washrooms in your school. Now think of all the taps leaking hot water. This energy use adds up to being a large waste of energy. Remember: saving warm/hot water also saves energy.

Paper is a big one for schools. It takes both trees and energy to create that piece of paper. By saving paper you can save energy and the environment. Refraining from printing anything that isn't necessary and using both sides of a page is a great way to reduce paper waste.

Instead of throwing out supplies that stop working, see if you can fix them first. If they're indeed finished, see if you can repurpose the item or recycle any of its parts. Try to avoid waste. Get creative!



Slide 12 | Working together to save energy

Saving energy shouldn't feel like work. We want you to be happy knowing you are doing something positive for the environment and for the people who are most likely to be affected by energy generation, whether that's flooded lands near a dam, or the effects of global warming from fossil fuel use.

Set goals that you can achieve with your energy savings, find rewards for reaching those goals, and have fun making the world a better place.