

Measuring Efficiency

Schools use a lot of electricity. St Benedicts has more electronic gadgets per square metre than you would find at your home or at your job. And although we get most of our energy from Niagara Falls, some of it comes from burning fossil fuels (coal, oil and natural gas). Fossil Fuels produce a lot of pollution that contributes to health problems and global climate change, but they are used because they're much cheaper than Nuclear and Renewable energy resources (Wind, Water and Solar)



<http://nyfalls.com/niagara/niagara-falls-vs.html>

What do you think are the 5 things that use the most energy in our school?

1. _____
2. _____
3. _____
4. _____
5. _____

“ Waterloo Region’s Catholic Schools are celebrating Earth Week 2010 (April 17-25, 2010) by announcing the 15% energy reduction achieved by installing motion-activated light sensors across the system has resulted in an annual greenhouse gas emissions reduction equivalent to removing 606 cars from highways OR saving 6,190 barrels of crude oil OR saving 1.2 million litres of gasoline annually.”

In addition to its environmental costs, the financial cost of school boards’ energy use has risen dramatically. Every dollar St Benedict wastes on the inefficient use of electricity, it could be spending on things to make your school day better.

Name 4 things you would like to see our school spend money on to make you school day better.

1. _____
2. _____
3. _____
4. _____

The *Eco-School Program* is a program that helps students, teachers, custodians, administration and the community to work together to make our school a more energy efficient and environmentally friend school. The goal of this program is to reduce impact our school has on the environment by reducing the amount of energy we consume, by reducing the amount of waste we produce and by making our school’s property more environmentally friendly.

The *Power Pledge* is a program created to help people learn about energy conservation techniques.



In this activity students will determine how much money our school could save by up-dating commonly used appliances to more energy efficient models.

Instructions

1. Each group will be in charge of measuring the power usage of **one** commonly used appliance around the school.
2. Record all of your appliance's information on the provided worksheet.
3. Obtain a power meter from your teacher. This meter will measure the amount of power (in Watts) an appliance uses when it is turned on and being used.
4. Unplug the appliance to attach the power meter. Plug it back in and then make sure it is running normally. For instance, if you are measuring the power of the microwave, turn it on for 30s so you can measure the power it uses while working.
5. Check to see if it is already an Energy Star Appliance.
6. Calculate the cost of operating the appliance on a yearly basis using the table on the worksheet. To complete the calculation you will have to approximate how many hours the appliance is used, on average, per day.
7. Calculate the cost of operating a similar Energy Star appliance for the same time period.
8. Calculate the yearly savings for your appliance if the school up-graded it to a more energy efficient one. Write your answer in the last column of the worksheet.
9. Share your results with the rest of the class once all students are finished their calculations. Each student must have completed worksheet at the end of the activity so that they can answer the questions below.



Analysis Questions

1. Which appliance would save St Benedict the most money if it was up graded to an Energy Star model? Why?

2. Which appliance would save St Benedict the least money if it was up graded to an Energy Star model? Why?

3. Why did you need to measure the power of the appliance while it was running instead of measuring it while it was just sitting there?

4. How much money would the school save on a yearly basis if it up-graded all of the appliances in this activity?
