



SCHOOL ENERGY REVIEW

WATER AND WINDOWS

This assignment gives you the opportunity to learn more about the things that consume energy in your school. Your team will be reviewing your school's water use and windows by following these steps:

1. Read all the information and instructions for this assignment before beginning your review, filling out the table on page 3, and answering the presentation questions.
2. Determine the rooms your team will review.
3. Complete the review and record your findings in the provided table.
 - **Your group will use a flashlight and a flow rate bag to complete your section.**
 - If you have permission from your teacher, take photos during your review. They can be added to your presentation to help your classmates better understand your points and make your presentation more visual.
4. Complete any necessary additional research.
5. Revisit and answer the questions in the "For your presentation" section on page 2 to prepare a presentation for your class. In this presentation, you'll include recommendations to use less energy when it comes to windows and water flow rates in your school.

HELPFUL INFORMATION

WATER

When you're washing your hands or taking a shower, you're often using warm or hot water. This means a water heater, which is powered by electricity or natural gas, needs to go to work.

Low-flow faucet aerators and low-flow showerheads are devices that help reduce the amount of water used while maintaining water pressure. When you use less warm or hot water, you also use less energy.

You'll be testing the efficiency of your school's faucets and showerhead using flow rate (i.e. how much water comes out of a faucet or showerhead in a particular time period). Using the flow rate bag in your kit, you'll test one faucet in two different bathrooms and one showerhead (if available). Be sure to read the full instructions, found directly on the flow rate bag. If you have access to a kitchen or if there are sinks in some classrooms, it could be interesting to test one of those instead of a second bathroom. Or, if you have a newer addition to your school, try to test a bathroom faucet in the newer area and one in the older area. Be sure to include details on what option you tested in your presentation.





WINDOWS

High-performance windows help save energy by keeping heat inside in the winter and out during summer, while maximizing natural light. Older windows are often poorly insulated and not airtight, letting in air leaks. This makes the building less comfortable and forces the heating and cooling systems to work harder.

You're going to check for drafts around the windows in three or four rooms. You can do this by using the back of your hand to feel for any air leaks. Move your hand along the sides of the window. If you feel air on your hand, that means there's an air leak. If you don't feel air, then the window is likely airtight. You can also use a piece of thin tissue paper and observe if it's being moved by an air leak.

You'll also be checking to see how many panes of glass each window has. To do this, use the flashlight from the kit (or the flashlight on a smartphone) and shine it directly at one of the windows. You'll see either one, two, or three spots of light appear on the glass. The more panes of glass a window has, the better its insulating properties.



- If you see ONE spot of light, the window has ONE pane of glass.
- If you see TWO spots of light, the window has TWO panes of glass.
- If you see THREE spots of light, the window has THREE panes of glass.

FOR YOUR PRESENTATION

After your review, use these questions to help summarize your data and prepare your presentation:

1. How does saving hot water correlate to saving energy?
2. An energy-efficient bathroom faucet uses about 4.5 litres per minute. How do the faucets you tested compare?
3. Using a rough estimate of how many sinks are in your school, how much could you save with energy-efficient faucets?
4. An energy-efficient showerhead uses about 6.8 litres per minute. How does the showerhead you tested compare?
5. Were the windows leaky/drafty?
6. How do well-insulated windows correlate to saving energy?
7. Were any exterior windows open when the heat or air conditioning was running?
8. Did you see condensation on any parts of the windows, particularly in the corners near the frame? Why might condensation build up on windows?
9. Based on the data you collected, what changes could the school make — or what behaviours could be encouraged — to use less energy?

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Room/area	Sink one	Sink two	Showerhead			
Sink faucet flow rate (use the flow rate bag!)						
Showerhead flow rate (use the flow rate bag!)						
Were any water leaks detected?	Yes No	Yes No	Yes No			
Number of windows in the room						
Are blinds shut when daylight is available?	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No
How many panes do the windows have? (use the flashlight!)						
Are the windows drafty or leaky?	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No

If you don't have enough room in your table, add additional notes and observations below!

Date:

Team members:

