

# Energy Theme: Learn about Heating Actions and Heating Audit

*Suitable for  
Post Primary*



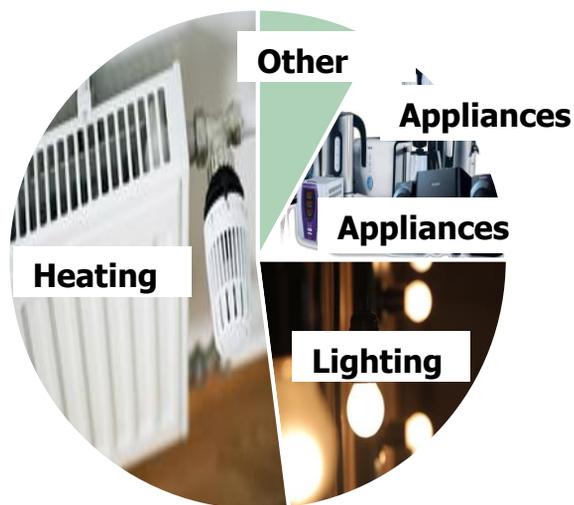
Energy efficiency measures undertaken on schools are unique, primarily due to the occupancy hours and nature of use. Typically, 60-70% of energy consumption in a school is expended on heating demand, with 30-40% on electrical demand (lighting and services).

The good news is, there are simple steps to save money whilst reducing heating energy use and maintaining comfort at school. Many of which are simple low and no-cost actions that can be carried out to increase efficient use of energy and help save you money. Between 60-70% of the energy use in schools is for heating. Heating is usually from a central boiler house which provides heat to radiators. In temporary prefabs, electric storage heaters or electric convectors may also be used.

## No cost measures

- Ask your principle and board if they have an energy management plan for the school. An energy management plan will allow you to set targets for energy consumption against previous consumption figures. Students can get involved by promoting energy awareness, and monitoring Heating.
- Keep close track of fuel use. If you use natural gas, read the meter monthly.
- Track your fuel use on a spreadsheet available.
- Close doors and windows. Ensure all windows are closed and blinds drawn at the end of each day to retain heat for the following day. This is especially important during weekends and holidays. Make sure someone is responsible for closing windows in each room. You can have student energy reps for each class.
- Check all windows and doors to see where draughts are coming in. If you identify draughts get your parents or teachers to seal them up or get the students to make a draught excluder using old clothes!
- Investigate are thermostats fitted? Do they work? They should be set to 18 degrees.

## Schools Energy Use



# Energy Theme: Learn about Heating

- If you have thermostatic radiator valves (TRV), don't use them as on/off switches. Adjust them to a mid-position and if you are too hot or cold, only adjust them a small amount. Do not turn the TRV off, because the following morning the room will not be able to heat up. It is not practical for caretakers to go around a school daily checking TRVs in offices.
- Radiators which always remain cold at the top are probably air locked, and can easily have the air bled off. The students under supervision of the caretaker should be able to do this themselves. A plumbing wholesaler will be able to supply a suitable bleed valve key. The bleed valve is at the top of the radiator.
- Turn down the radiators in the corridors and toilets to a low setting or set associated thermostats to a lower level than classrooms. These are areas of intermittent occupancy so temperatures can often be reduced without causing discomfort. Monitor fuel bills to see reductions.
- Turn Down the Heat! Turning the thermostat down by 1°C can reduce your heating bills by 10%. The Department of education recommends 18 degrees, and the temperature should not fall under 16 degrees .

Why not map the heat in your school, you can learn about heat loss, and where the hottest and coolest places are. See the attached worksheets on how this could be mapped and display your results on the Green Schools notice board. You could even compare each class to each other and see who's most heat efficient.

Some secondary schools have a thermal leak detector in their lab equipment. You can use a Thermal Leak Detector, measure temperature at different points around the room. Or use a digital Indoor Thermometer to track of room temperatures – you can even get free digital Indoor Thermometer apps.



# Energy Theme: Heating Survey/

*Suitable for All  
Students*



**Aim:** To discover how more about lighting in your school, what type of lights , how they operate and are lights being left turned when not in use.

**Lighting a school** can be responsible for up to 30% - 40% of energy costs. Before your school takes any actions related to lighting, you should review the lighting situation in the school. There are easy actions to reduce the cost such as switch off campaigns.



Lighting surveys are a great way of discovering how much of the school's lights are outdated, on sensors or even left on when no one needs them, therefore increasing your energy consumption. **Making it a part of step 2 environmental review.**

The results of the lighting surveys will allow you to identify where you can save energy in the school by turning off lights when not needed or even upgrading old fittings. **Making it a part of step 3 your action plan.**

**This action also links with your Curriculum work step 5 – with the use of Maths, Art, Stem , Geography, and IT to create graphs and diagrams that show the results of the audit.**

Use the activity sheet attached to search the school for all lighting present. Don't forget the rooms that students don't normally have access to like the staff room, but students you need to ask permission 1<sup>st</sup>.

Some of the newer lighting systems will have energy saving sensors and more efficient bulbs – these can also last significantly longer. To take it a step further why not learn about wattages and light bulb rating online. In Ireland, light bulb selection involves understanding wattage (energy consumption), lumens (brightness), and the EU energy label (efficiency).

Learn more about the EU energy label , with the SEAI [www.seai.ie/blog/label-help-shopping](http://www.seai.ie/blog/label-help-shopping).

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## Thermal Leak Detector

Heating accounts for an estimated , 60-70% of energy consumption in a school. Finding and sealing draughts and can be a very cost effective way of stopping heat from escaping and boosting the comfort and efficiency of your school.

Cold spots are often found around windows, where pipes come out from floors or walls, under skirting boards or around doors. If you find a cold spot, there are lots of ways you can seal it up to stop cold air coming in, and heat getting out.

Similarly, by finding hot spots such as uninsulated hot water pipes, you can add insulation to those too and prevent that heat from escaping.

## How to use the Thermal Leak Detector

The thermal leak detector helps you find air leaks or draughts by shining a light that changes colour when it finds colder and hotter surfaces. Draughts are a sign that cold air is getting in, and your heating has to work harder to warm it back up again. This can make your bills more expensive than they need to be.

There are Home Energy Kits available in Local library's, that include Thermal Leak Detectors – check here:  
[thinkenergy.ie/energy-saving-kit/find-a-kit/](http://thinkenergy.ie/energy-saving-kit/find-a-kit/)

And you can find out more here: [@ thinkenergy.ie/energy-saving-kit/whats-in-the-kit/thermal-leak-detector/](http://thinkenergy.ie/energy-saving-kit/whats-in-the-kit/thermal-leak-detector/)



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## Temperature and Humidity Meter

Heating accounts for an estimated , 60-70% of energy consumption in a school. The comfort level of your in your school depends a lot on whether it's warm and dry or cold and damp. By checking each room's temperature and humidity (the amount of water vapour in the air), you'll know if you need to adjust your heating or ventilation — or both.

Use the temperature and humidity meter in different parts of each room, at different times, to check if they're too hot or cold, or too dry or damp. Fresh air is essential for a healthy school environment , so the key is to ensure you have enough ventilation to let damp, stale air out, while still keeping as much heat in as possible.

## How to use the temperature and humidity meter

To check the levels in your classroom, simply turn the temperature and humidity meter on and place it on any stable surface, as long as it's not heated. Tables, windowsills and bookshelves would all be good places to test. For classrooms the ideal temperature range is between 18 degrees and 20 degrees, no less than 16 degrees. The ideal levels for humidity are between 40% and 60%.

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[thinkenergy.ie/energy-saving-kit/find-a-kit/](http://thinkenergy.ie/energy-saving-kit/find-a-kit/)

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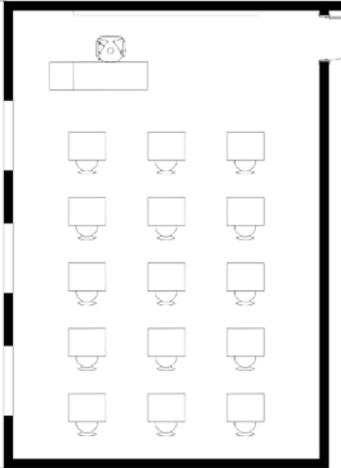


# Energy Theme: Learning About Heating:

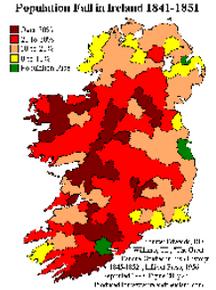
## Sample Classroom Map



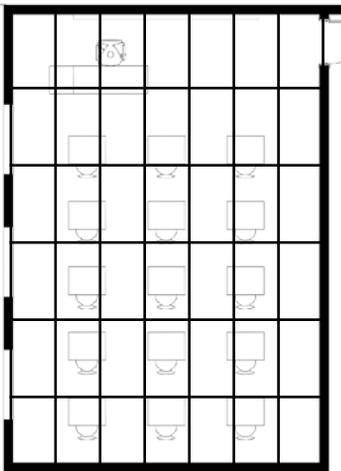
Map out the warmest and coolest spots in the room.



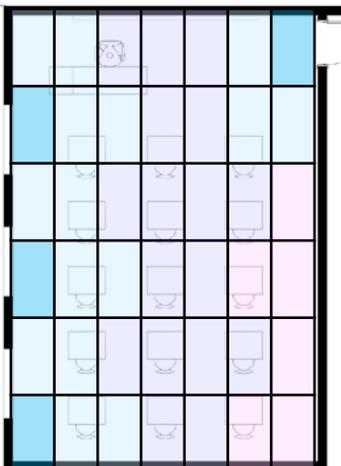
A choropleth map is used to show regions which share a common characteristic such as a range of a particular values. They are often used to show variations such as population density in distinct geographical regions like countries or even counties but can be used in an situation where you want to divide a space into different zones based on a set of values.



A choropleth map is a map which shows regions or areas which have the same characteristics.



- Mark a grid on a sheet of on your map of your chosen room.
- Draw in any distinguishing points from the room to help you identify areas more clearly.
- Mark in the data/information you are looking for into the grid. In this case temperature readings.
- Decide on at least 3 different ranges. Each range gets a different colour.
- Map out your room and display your findings on your green schools notice board.



You can use a Thermal Leak Detector, measure temperature at different points around the room.



# Energy Theme: Learning About Heating:

## Sample Classroom Map



Green-Schools

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Map out the warmest and coolest spots in the room.

