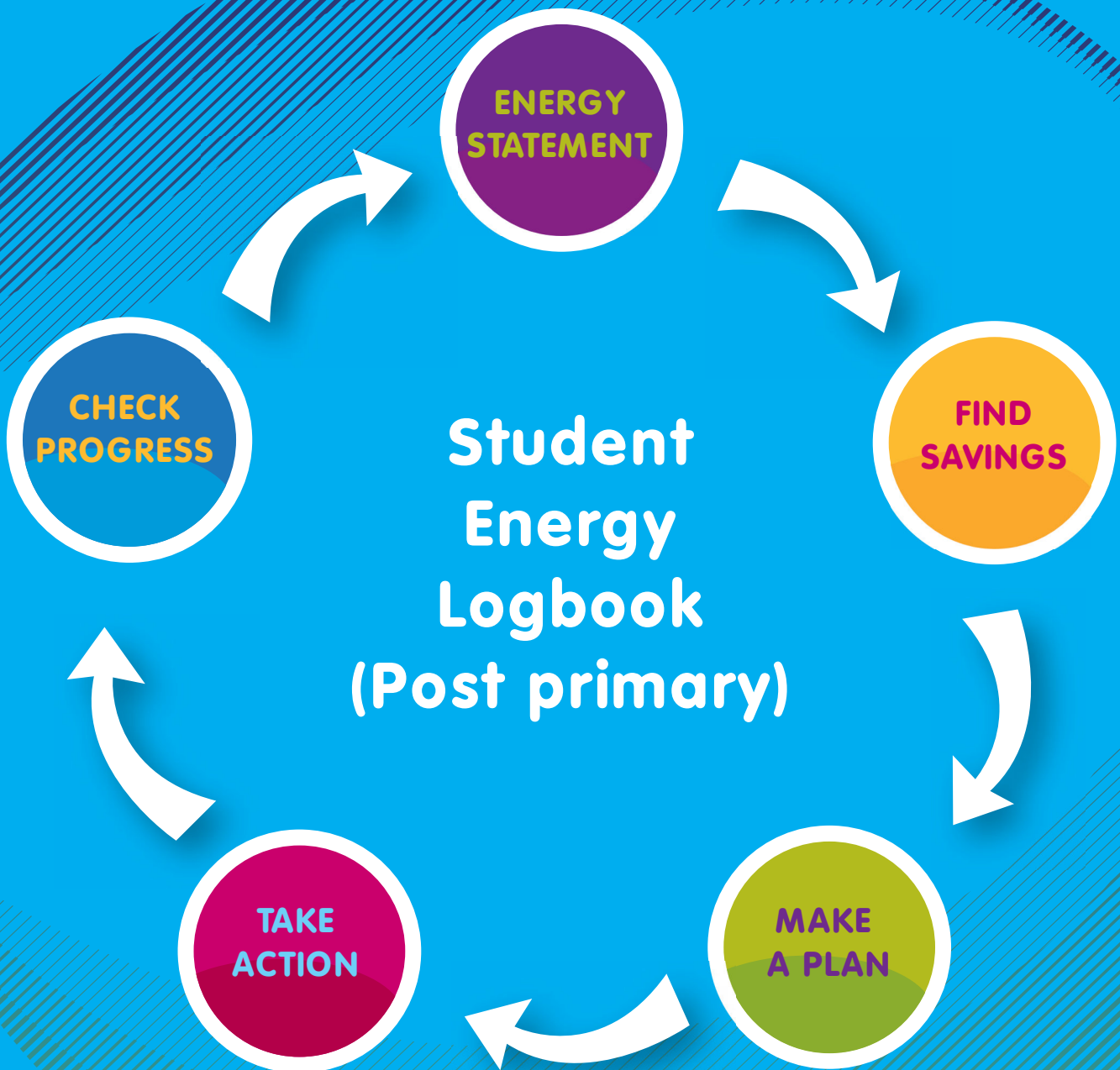




energy **in** education

energy management guide for schools



Looking at energy efficiency in your school? Why not check out the one good idea project?

If your school is looking at ways to save energy you can get involved by:

- using the resources in this logbook to measure energy use
- running a campaign to encourage everyone to use less energy and be more efficient

Why not research and run a campaign to raise awareness of things that everybody can do to use energy more efficiently in their homes, schools and communities. For more information go to www.seai.ie/onegoodidea



Name of school:

School address:

Year:

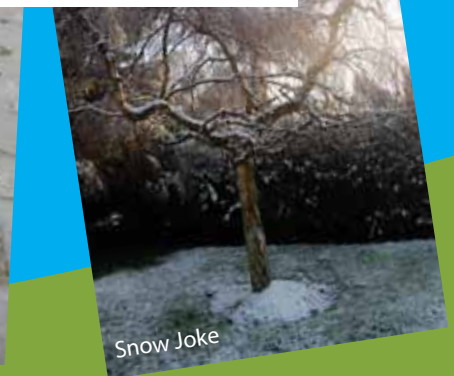
Teacher's name:

Start date:

Finish date:

Number of teachers in school:

Number of pupils in school:

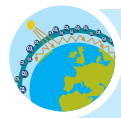


Why save energy?

We all need to use energy every day – but could we be more energy efficient by using less energy to do the same job? For example:

- if the heat is on in a classroom but the window is open it will take more energy to keep the room warm
- a light left on in an empty room is still using energy but is not needed

By saving energy we can:



protect the environment and combat climate change



have a 'Display Energy Certificate'



save money on energy bills



earn a Green Flag

Go to www.seai.ie/schools and www.epa.ie/education to research energy efficiency and climate change. Discuss the reasons why your school wants to save energy in class, write them here and vote on the order of importance:

Why save energy?

Why keep an energy logbook?

By measuring and recording the energy you use in school you can tell exactly how much energy you are using and how much it costs. When you know this you will be able to:

- set a target for how much energy your school could save
- measure how much energy you save with simple actions
- demonstrate your success!

What type of energy is used in the school?

Start by researching what types of energy the school uses. Why not interview the Principal, caretaker or Green-Schools co-ordinator to see if they can help? The school may use a variety of types of energy for heating, light and equipment. Water is also a valuable resource and energy is used to clean water and pump it to the school, so saving water saves energy. To find out more you could ask your teacher if they have recorded information on water use in the Energy Co-ordinator's Workbook, ask to read water bills or ask your Green-Schools committee for help.

Tick the types of energy used in the school

Electricity Gas Oil LPG (liquid petroleum gas) Biomass (wood pellets) Other

How is energy measured?

- Electricity is measured in kilowatt hours (kWh)
- Natural Gas is measured in cubic metres (m³)
- Oil is measured in litres (l)

Some energy bills convert this figure to kWh, if not you can do it yourself using the following conversion factors:

- 1 litre of oil = 10.78 kWh

Example: A school used 2570 litres of oil in a year.

$2570 \times 10.78 = 27704.6 \text{ kWh}$.

The oil used by the school = 27704.6 kilowatt hours

- 1 m³ of Natural Gas = 11.06 kWh
- 1 litre of LPG = 6.6 kWh

For more information on conversion factors go to www.energyineducation.ie/Measure_Energy_Use

How much energy do you use?

You can find out how much energy you use by looking at energy bills and reading the electricity meter. You may also have a gas meter if you use gas for heating the school.

Understanding your energy bills

Ask the Principal for the school's energy bills (for the past year if possible) and fill out the tables provided.

Electricity is measured in kWh and you will see this on your bill. Some other details on your bill are described here.

Multiplier	Some schools use a large amount of electricity and require large supply cables. A percentage of electricity is passed through the meter and the rest is calculated from that. You need to multiply the readings by the multiplier to get the actual usage.
Billing Period	The number of days of electricity usage that is calculated for the bill. You will need to work out the number of billing days in a period by looking at the dates given on the bill (work out the number of days between 12th Dec 07 and 9th Feb 08 as shown at the bottom of the bill in the example).
Day and Night Units	Some bills show the electricity used during the day and night separately. Electricity costs less to use during the night in those cases.

Energy Bill

Account Details:
 Account Number: 0000000000XX Date of Issue: 00/00/00
 Invoice Number: 0000000000XX Other details: 000x000x00

Name of Bill Payer
 Address here
 This Road
 This county

your electricity bill

your MPRN number
 12 345 678
 DG MC PROFILE
 GD12 MCC12 5

METER READINGS	QTY	PRICE	DESCRIPTION OF CHARGES	AMOUNT
PRESENT	PREVIOUS			
TARIFF : GENERAL PURPOSE				
54634	54463	10260	MULTIPLIER OF 60 APPLIES	
		7598 X	E0.1610 GENERAL UNITS	1223.27
		2662 X	E0.1450 GENERAL UNITS	385.99
70964	70823	8460	MULTIPLIER OF 60 APPLIES	
		3420 X	E0.0000 WATTLESS	00.00
		5040 X	E0.00780 EXCESS W/LESS	39.31
58 DAYS @ E0.4100 / DAY STANDING CHARGE				23.78
44 EVA FOR 2 MONTHS @ E0.00 KWA/MONTH				0.00
VAT @ 13.5% 1672.35				225.76

Billing Period: dd Payment due: 00/00/00 Net cost: xxxxxx
 VAT@xx: xxxxxx
 Total cost: xxxxxx

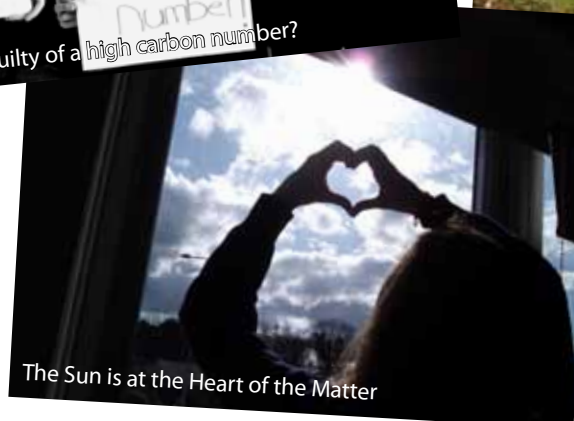
Account Number
 MPRN Number
 Tariff
 Multiplier
 Meter Readings
 Units used
 Wattless Units

Read your meter

The electricity meter in your school can tell you how much electricity you are using each day. You may also have a meter for gas. First you will need to ask permission to read the meter and then you will need to find out where it is.

What can a meter tell us?

- ➔ You can take readings every day, week or month to see how much electricity you are using.
- ➔ You can try different ideas for saving electricity, like turning off lights or other equipment when a room is empty. You can do this by:
 - Reading your meter and recording the amount of electricity used over a full school week **before** you try out your energy saving idea.
 - Try your idea for a full school week, read your meter again and record the amount of electricity used. Is your new approach saving energy?
- ➔ You can measure the outside temperature at your school or go the Met Eireann website **www.met.ie** and find the temperature for your county each day or work out a weekly average. Draw a graph of temperature and electricity use each day. Do you see a pattern?
- ➔ You may also have a meter for gas.
- ➔ **LPG and Oil tanks in schools often do not have a meter fitted.**



School energy user's survey

Where is energy being used?

You can survey your school to see where energy is being used and wasted. Make a list of all the rooms and corridors in the school and record where energy is being used and how. List your energy saving ideas.

Here is an example:

Room/area	Type of energy use/ appliance	How many?	Hours of use per day	Energy saving idea	Who can help?
Classroom 1	Lights	6	10	Turn off lights when room empty	First years - have a rota
	PC	1	24	Turn off when not in use	First years - have a rota
	Interactive whiteboard	1	12	Turn off when not in use	Teachers
	Heaters	4	8	Room too warm and windows open - turn down heat, get thermostat	Principal/ caretaker
Corridor	Lights	6	12	Turn off lights when empty and at end of day.	Fourth years in classroom on that corridor
	Heaters	4	8	Door is open, heat is escaping. Fit closing device	Principal/ caretaker
Staff room	Dishwasher	1	2	Do not turn on until full	Staff
	Lights	4	10	Turn off when room empty	Staff

Run a campaign for change

Now that you know how much energy you are using and where, plan an energy awareness campaign to tell staff and students about simple ways to save energy. By monitoring energy use before and after your campaign you can measure your success and show your school how to be Energy Smart. Log onto www.seai.ie/onegoodidea for information on **one good idea**, a project on running energy awareness campaigns for post primary schools.



Above: Photos of **one good idea** finalists at 2010 National Final.



An Roinn Oideachais
Department of Education

Sustainable Energy Authority of Ireland
Three Park Place, Hatch Street Upper Dublin 2, Ireland.

t +353 1 808 2100 | e info@seai.ie
w www.seai.ie