



Reading an Electricity or Gas Account?

Most electricity and gas providers have samples of accounts for client education purposes. They can be viewed on the providers websites.

Learning Intention

We are learning to read an electricity or gas account to help us understand the cost of these forms of energy to the school.

You need: Electricity and/or Gas bill

1. How much electricity or gas has this school used in a month?
 - *Electricity is measured in kilo Watt hours (kWh).*
 - *Gas is measured in kilo Watt hours (kWh) or cubic metres (m³).*
2. What was the total delivery cost per day?
 - *Each consumer pays a 'fixed daily network charge', a 'fixed daily transmission charge' a 'fixed daily charge'.*
3. What was the total cost of this form of energy to the school for each month?
4. What time of day is this form of energy the cheapest to use, how was it generated at that time and how much did it cost in cents per kWh?
 - *The price of any electricity or gas used may depend on the time of day it is used. At peak use times, the electricity is more likely to come from fossil fuels (burning coal or gas) while at off-peak times, it is more likely to be renewable hydro-electricity.*
 - *The time-of-day break down is in four hour groupings across 24 hours.*
 - *The times-of-day prices are different for weekdays and weekends.*
5. What time of day is this form of energy the most expensive to use, and how much did it cost in cents per kWh?
6. Why do you think there is a difference in cost?
7. What are some of the ways this form of energy is used in a school? Brainstorm as many things as you can.
8. Think about your school. How could you find out if there are some things that use this form of energy in your school at a time when it costs a lot that could be done at a different time?

Question	Item	
1	kWh used	
2	Total Delivery cost /day	
3	Total cost of this form of energy	
4	Cheapest time of day and cost	
5	Most expensive time of day and cost	
6	Difference in cost?	
8	Things that could happen at a different time	

Source: North Shore City Council



Electricity and Gas Use Profile?

Reading the electricity and gas meters gives information on how much of these forms of energy is used and when. Using this data, use can be tracked and actions decided on to improve efficiency.

Activity

1. Obtain the electricity and gas accounts from the school administration office.
2. Go through each account and transfer the information onto the Electricity and Gas Data Collection Sheets.
3. You may like to first record all of the information onto the Summary Sheets below.

Electricity Summary Sheet

Account period. eg. 12Feb–9Mar 07	Number days	Previous reading (kWh)	Current reading (kWh)	Electricity Units used this month (kWh)	Total Electricity Cost for month (\$)
<i>Transfer to Data Collection Sheet</i>			TOTAL per year		

Gas Summary Sheet

Account period. eg. 12Feb–9Mar 07	Number days	Previous reading (cm ³)	Current reading (cm ³)	Gas Units used this month (kWh or m ³)	Total Gas Cost for month (\$)
<i>Transfer to Data Collection Sheet</i>			TOTAL per year		

Reflection

1. Compare the amount of electricity and gas used between months. Discuss the effect of seasons on the use of these forms of energy.



Energy Walk-Through Audit?

Why should we use a walk-through audit?

Looking at how efficiently we use different forms of energy is an essential part of creating more sustainable schools and communities. The audit results give data that can be used to help make informed decisions on actions that will lead to more sustainable practice.

It is not necessary to audit the entire school to become more energy conscious. Focus on a few aspects of school energy use and examine closely. Use the walk-through audit as a guide.

Learning Intention

We are using the Walk-Through Energy Audit to give us data to identify possible efficiency actions that could be taken by the school.

What you need

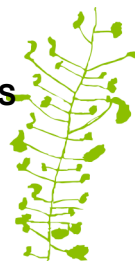
- Audit form
- Clipboard
- Pencil
- Identify who to consult with on some aspects of the audit

Activity

1. Divide school into manageable areas.
2. Prior to the Walk-Through Audit clarify any questions on the audit so that everyone understands what is to be done.
3. Conduct the Walk-Through Audit.
4. Collate data from all groups. Write up results.
5. Using the results of the audit, brainstorm possible actions to reduce the amount of different forms of energy used by the school.
6. Decide on actions that are achievable and produce a plan to share with interested stakeholders.

Reflection:

1. How will we measure the effectiveness of our recommendations?
2. Often significant efficiencies can be achieved easily through awareness education. What can be done to increase awareness of energy, and efficiency actions in our school?



Energy Walk-Through Audit

Type of energy use	How are most of the rooms in the school heated?		
Heating	Passive heating		
	Coal or wood fires		
	Oil or gas heaters		
	Central heating with hot water from a fuel burning boiler		
	Central heating with hot water from an electrical power boiler		
	Electric heater or air conditioners		
	Heat pumps		
Cooling	How are most rooms cooled in the summer?		
	Natural ventilation		
	Electric fans		
	Individual air conditioner units		
	Central air conditioning units		
	Heat pump		
Lighting	What kind of lighting is used in the large rooms of the school? <i>Investigate the age and efficiency of the lighting</i>		
	Natural lighting		
	Incandescent		
	Halogen		
	'Energy saving' -Fluorescent long tubes		
	'Energy saving' - Fluorescent compact tubes		
	What kind of lighting is used in outdoor areas of the school?		
	Sunlight only	Yes/No	
	Lights on at entrances and pathways (sensor)	Yes/No	
	Lights on at entrances and pathways at night	Yes/No	
	Lights on around most outdoor areas all night	Yes/No	
	Data	How many data appliances are in the school?	
		Are they switched off at the power point when not in use?	
Televisions		Yes/No	
Over head projectors		Yes/No	
Video players		Yes/No	
Video cameras		Yes/No	
Stereos		Yes/No	
DVD's		Yes/No	
Video conferencing		Yes/No	
Data projectors		Yes/No	
Smartboards		Yes/No	
Intercom systems		Yes/No	
Computers	Yes/No		
Do the computers have Energy Star options?		Yes/No	



	Are the computers switched off overnight?	Yes/No
Other	Do the photocopiers have 'energy saving' mode?	Yes/No
	Do the printers have 'energy saving' mode?	Yes/No
	Do the fax machines have 'energy saving' mode?	Yes/No
	Is the school used at night? If so please elaborate.	
	Is the school used during the weekend? If so please elaborate.	
	Are all non-necessary appliances switched off over the holidays?	Yes/No
Swimming Pool	Is the pool heated?	Yes/No
	What is the power supply on the pump?	
	What is the energy rating on the pump?	
	How many hours does the pump run in use?	
	How many hours does the pump run when not in use?	
	If heated, is there a renewable heat supply? Please elaborate.	

Resources

If investigating lighting, an electrician would be able to explain the efficiency of fluorescents and how to identify the age of the lamp.

For more information visit: <http://home.howstuffworks.com/fluorescent-lamp.htm>