Activity 9A
Experimental week results

Aims

- Analyse the experimental week results.
- Look at the energy team's savings.

Students need

- To visit www.originenergy.com.au/efficiency or use the Home Energy Project CD
- Access to computers
- Energy journal
- A hand-held calculator
- All your data collection devices from the experimental week
- Table 8.1 from Activity 8A, *Control week results*
- Table 8.2 from Assignment 8B, *Collate experimental week data*

For the teacher

- Plan ahead for computer access.
- Supply a sheet of paper for group results.
- Ask students to form small groups to discuss their experiences from the experimental week.

Action plan

1. In small groups discuss your experimental week experiences. Refer back to your energy journal for ideas and observations.

   Topics for discussion include the following:

   - Did you face any problems in your data collection and record keeping?
   - Did anything unusual occur that might affect your results?
   - How did your energy team respond to using the energy saving ideas?
   - Did anything amusing or controversial occur?

2. Now it's time to analyse your results. Using your findings from Assignment 8B, Table 8.2, transfer the saving ideas and appliances listed to Table 9.1 (see the next page), Column 1 and the total usage into Column 2. Now you are ready to use the energy efficiency calculator.

   Insert the usage totals for each appliance from Column 2 into the energy efficiency calculator. When you have finished entering the data go to 'My Results', then to the energy summary. Print a copy of each by selecting the 'File' menu, then 'Print'. Transfer the results from the energy summary to Column 3.

   - Total energy cost for measured appliances per year ($):

     _____

   - Total CO_2 emissions (kg) per year from the measured appliances:

     _____

   - This is the equivalent to how many cars driving on the road per year?

     _____

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Table 9.1. Experimental week

	Column 1	Column 2	Column 3	
	Saving idea / appliance	Usage totals	Energy costs per year ($)	CO_2 emissions per year (kg)
1				
2				
3				
4				
5				
	Total			

Energy team savings

You will need Table 8.1 from Activity 8A, in which you completed the control week results for each energy saving idea.

3. Calculate the money and CO_2 emissions saved by subtracting the experimental data from the control data. Complete Table 9.2 with your findings.

   If no savings have been made refer to your energy journal and write a paragraph that might explain why more energy was used than normal.

Space for calculations

Table 9.2. Energy team savings

	Energy costs per year ($)	CO_2 emissions per year (kg)
Control week totals		
Experimental week totals		
Control week minus experimental week (savings)		

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4. Now that you know the savings in energy costs per year, let's look at the specific energy saving ideas.

   Use the control week data and write up the energy saving ideas as well as the cost and CO_2 emissions per year for each idea in the control columns in Table 9.3.

   Now do the same for the experimental data as completed previously in this activity and complete the experimental columns.

   Using a hand-held calculator, calculate the following and write your findings in the savings columns.

   - Control energy costs per year minus experimental energy costs per year to calculate saved energy costs per year.
   - Control CO_2 emissions per year minus experimental CO_2 emissions per year to calculate saved CO_2 emissions per year.
   - Repeat for each energy saving idea.

5. Write your own description about the success or otherwise of the individual saving ideas.

_____

_____

_____

_____

_____

_____

What if ...

one or two of your saving ideas turns out to be unsuccessful? Try calculating the energy savings without including these ideas.

For example, during the experimental week three energy team members were at home sick. They were watching TV and had the heater blasting away. If the energy team were recording TV and room heaters their results would be affected.

Consequently, you could choose to calculate the energy savings without including the results from TV or heater use.

6. If you have time, create a chart in your energy journal that shows the contribution of each idea to the total savings.

Paste or stick these results in your energy journal, as you will need to refer to them later.

Table 9.3. Energy saving idea results

		Control		Experimental		Savings	
	Saving idea / appliance	Energy costs per year ($)	CO_2 emissions per year (kg)	Energy costs per year ($)	CO_2 emissions per year (kg)	Energy costs per year ($)	CO_2 emissions per year (kg)
1							
2							
3							
4							
5							
	Total						

Activity 9B
Pooling class results

Aims

- To pool class results to find overall savings.
- To develop strategies for communicating your results to others.

Students need

- Energy journal
- A hand-held calculator
- A sheet of paper
- Table 9.3 from Activity 9A, *Experimental week results*

For the teacher

- Take note of the energy team's savings and group savings for the certificates of achievement, see the Conserve page on the Home Energy Project CD.
- Ask students to form small groups to calculate their savings.

Action plan

Now it's time to calculate the overall class savings in money and CO_2 emissions.

1. In small groups use each individual's completed Table 9.3 from Activity 9A and add up everyone's totals for the savings columns.

   Group results: Energy saved per year ($) total:

   _____

   Group results: CO_2 (kg) emissions saved per year total:

   _____

2. A member from each group then transfers these data onto the sheet of paper supplied by the teacher.
3. Nominate a person who will add all the data. Make a note of the final results.

   Combined class results: Energy saved per year ($) total:

   _____

   Combined class results: CO_2 emissions (kg) saved per year total:

   _____

4. As a class discuss your combined results. Are they significant? Are they what you expected?
5. Write a short report in your energy journal that explains your findings.

   For example:

   My energy team showed that $ _____ and _____ CO_2 emissions (kg) could be saved each year. Our biggest saving was from _____, which saved $ _____ and _____ CO_2 emissions (kg). The second biggest saving was from _____, which saved $ _____ and _____ CO_2 emissions (kg), and so on.

   Overall, our class members could save $ _____ and _____ CO_2 emissions (kg) each year by following simple energy saving ideas.

6. In small groups discuss how you could communicate the results. When you have finished the discussion, nominate a person to report back to the class.

   Topics to discuss could include:

   - Who would be interested in knowing how to save energy, reduce greenhouse gases and cut energy bills?
   - What would you say about the energy saving ideas?
   - Where and how could you tell people about saving energy?
   - How would you make it easy for them to follow?
   - How would you make the story interesting and exciting?

Communicate will provide an opportunity to communicate your energy saving findings, experiences and data to others in a creative and fun way.

Assignment 9B
Discussions about class finding

Aim

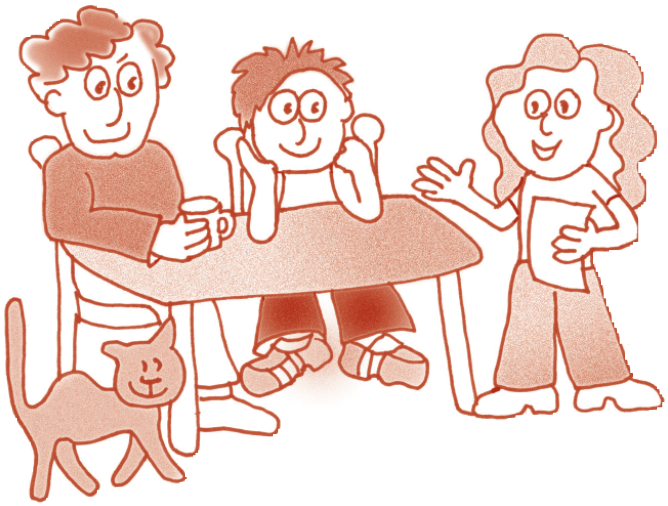
- To report the individual and class savings back to your energy team.

Students need

- Results from Activity 9B, *Pooling class results*
- Energy journal

For the teacher

- Remind students how important it is to provide feedback to their energy team.



Action plan

1. Explain to your energy team the process you undertook with the data. Include information such as how you calculated and analysed the data, etc.
2. Show and explain the findings to your energy team, including the savings for money and CO_2 emission for the year.
3. Show and explain the class's combined findings, including the savings for money and CO_2 emission for the year.
4. Share with your energy team other students' experiences of the experiment as discussed in class, that is, how others coped, what some of the other energy saving ideas used were, etc.
5. Ask for ideas about who these findings should be communicated to. Are there particular people you would recommend? Do they have any ideas as to how your findings should be presented? What would be the best ways of communicating them? Include the information in your energy journal.
6. Explain that this is the end of the Conserve section and tell your energy team what you have learnt.

Don't forget to thank your energy team for participating.