COOL FUEL

And so it begins…. as we probe the potential of integrated interactivity with - "COOL FUEL". This is a fantastic issue to get your teeth into at the beginning o the new millennium. Conditions here on earth are getting pretty heated. According to Earth Smart http://www.energysmart.com.au/ the hottest years since recording began were:- 1990, 1995, 1997, 1998 1999. Greenhouse Gases, Global Warming and Air Quality will all determine the health, quality of life and indeed survival of future generations. There's something to think about here, something to investigate, something to write about, something to have an opinion on, and something to take action about. Net resources allow up-to-date investigations as well as access via email to the prominent and influential people. Encourage your students to be thinkers and active participants in their own future. Empower your students with the opportunity to have their say and make a difference. How exciting to start the New Year with some real issues to consider, and some real solutions to discover, on personal, national and international levels. This is a tremendous motivator. Here at Classroom we have done all the hard work in finding resources and setting activities. Just sit back and enjoy the ride, a student web version of this article with hotlinks is available at:- http://www.virtualteacher.com.au/coolfuel2.pdf

1. Brainstorm

Start with the Energy Smart quote, above. Load the Energy Smart site onto your computer screen as a discussion initiator. http://www.energysmart.com.au/
Is the world getting hotter? What is greenpower? Why use alternative fuel sources anyway? What's the big problem? What's renewable energy? Isn't global warming all just hype? What is the greenhouse effect? What causes it? What do I really think about all this stuff? What can I do about it? What's wrong with petrol? Does anyone really care?

2. Wordbank define the words below use the wonderful online dictionary/ encyclopaedia at:- http://www.xrefer.com/

renewable energy sources	Ozone layer
solar energy	turbine
biomass	fossil fuels
geothermal energy	electricity
wind energy	hydroelectricity
fossil fuels	batteries
replenish	photovoltaic cells
Greenhouse Effect	solar cells
Global Warming	generate
toxic	thermal

3. Design the Future (years 4-6)

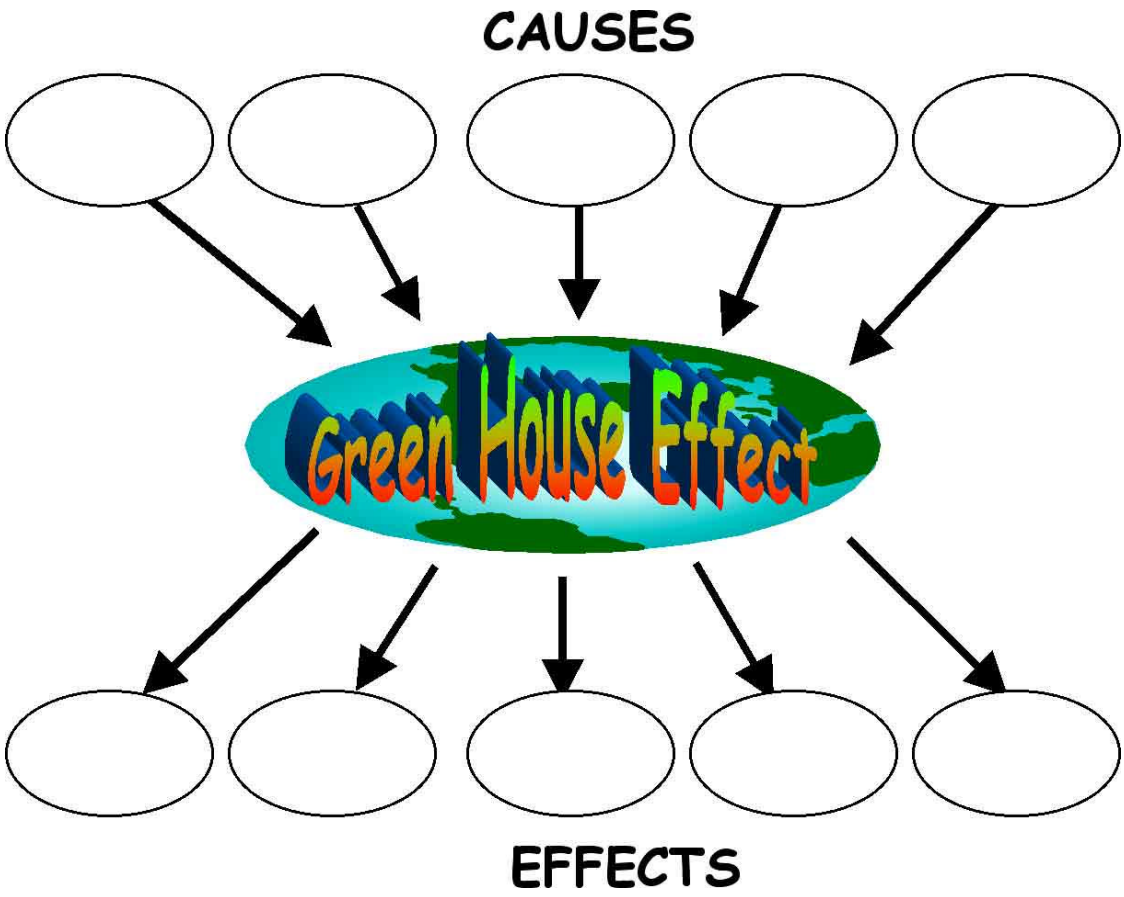
Retrieval charts are a great way for students to organise information, especially when comparisons are required. Download the .pdf of the retrieval chart
http://www.virtualteacher.com.au/coolfuel2.pdf
as well as teacher's answers, http://www.virtualteacher.com.au/energyans.pdf
or photocopy the retrieval chart blank opposite. You'll love The Energy Story, it's a fantastic resource, the information is simply presented with excellent summaries. You may wish to explore this site further. The information at this site can easily be printed out if computer/student ratios are high.

a) The future is in your hands, your team (2-3 students) have been given the job of designing future energy technologies.
First you will need to research your topic and prepare a **Retrieval chart.**
The Energy Story - is a great site for information for the retrieval chart
http://www.energy.ca.gov/education/story/story-html/story.html
Scroll down the page to the table of contents.
Select each of the following chapters in turn and fill out the retrieval chart.:-
Hydro Power, Ocean Power, Solar Energy, Biomass Energy and Fossil Fuels.
Then
b) Design your own future energy solutions, consider the various types of energy you have researched in your retrieval chart when designing your solutions. Describe your invention.
Check out some of the Energy solutions for the future, designed by children in California.
http://www.energy.ca.gov/education/artcontest/2000contest/index.html
Scan your picture and description into a computer(save as jpeg at 72dpi) and send it to me. Don't forget to include your name, and school information.
cathy@virtualteacher.com.au
The best designs will be published on the Classroom Website.
Now relax and
c) Play the 'What's That Jnr?' Game and see how much money you Earn $$$$. Are you game to try the **'tough one…'** question.
http://www.energy.ca.gov/education/wattsthatjunior/power/index.html

4. What is the Greenhouse Effect? (Years 5-6)

a) Write an **Explanation** of 'The Greenhouse Effect'.

b) Draw a cause and effect diagram to support your explanation. Or download the template from http://www.virtualteacher.com.au/coolfuel2.pdf



c) Illustrate your explanation.

d) Present your Explanation to the class.

The Greenhouse Effect Fact Sheet
http://www.greenhouse.gov.au/pubs/factsheets/fs_effect.html
Bureau of Meteorology - What is Greenhouse Gas?
http://www.bom.gov.au/lam/climate/levelthree/climch/clichgr1.htm
Demonstrate the Greenhouse Effect using this simple Experiment.
http://www.energy.ca.gov/education/projects/projects-html/greenhouse.html

5. Make a Graph of Air Quality

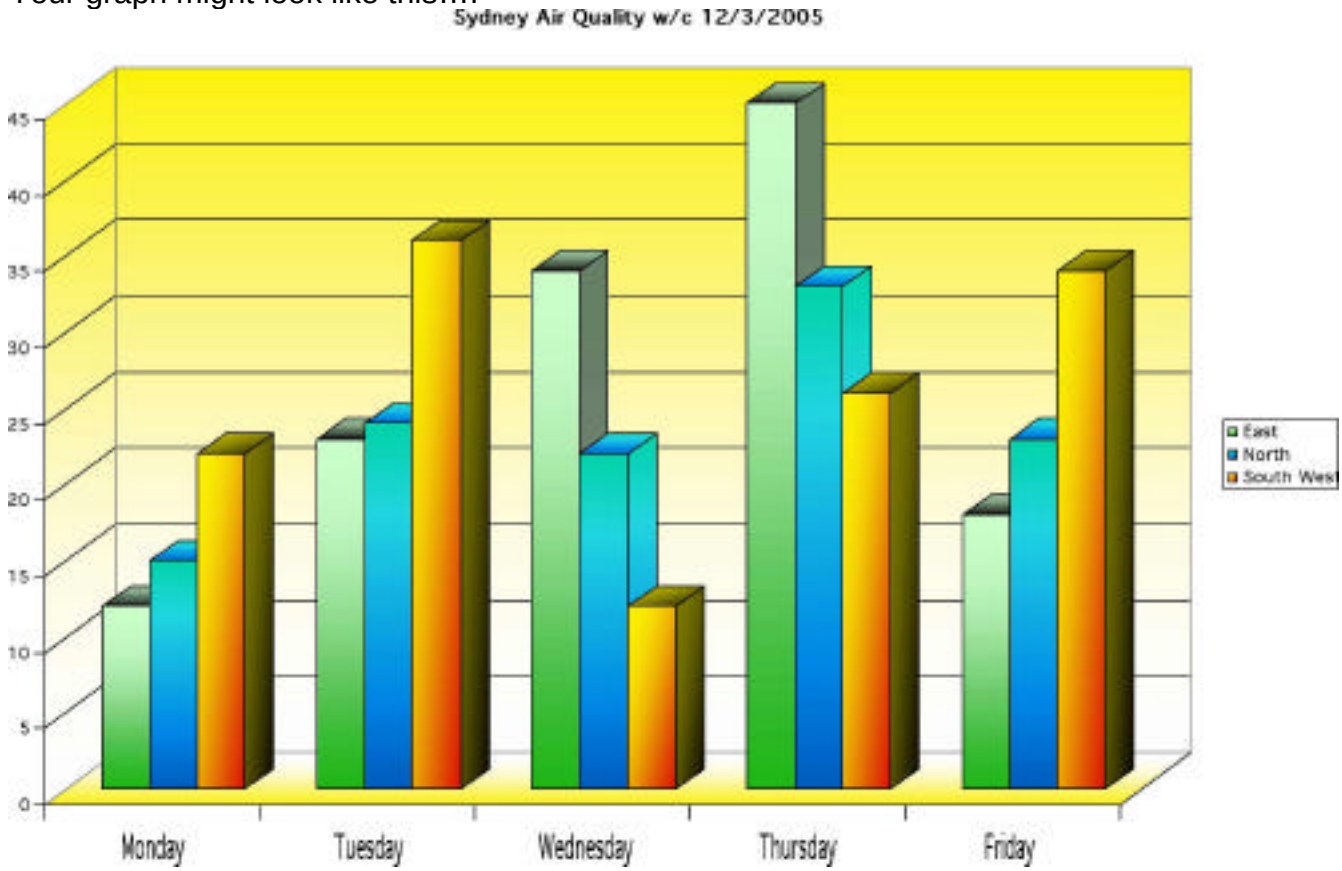
It is fantastic to have access to online resources of this calibre. The NSW EPA(Environmental Protection Authority) site offers a great many other resources as well and is worth investigating further, abler students may like to investigate the links at the bottom of the page for more detailed information. Choose either the activity at the NSW EPA site or the more complex activity at the Victorian EPA site.

EPA Air Quality Update for NSW - (Years 4-6)

a) Graph the Air Quality over a period of a week for each of the 3 major regions in Sydney, East, Southwest and Northwest. Use the daily update figures from the EPA site for Sydney. You will need to log onto the site each day for regular updates Pollution is reported as LOW, MEDIUM or HIGH

LOW: pollution index from 0 to 24
MEDIUM: pollution index from 25 to 49
HIGH: pollution index 50 or higher

NSW EPA Site
http://www.epa.nsw.gov.au/air/aqupd.htm
For really fantastic results make your graph using Microsoft Excel, To find out how goto:-
http://www.virtualteacher.com.au/graphing.pdf
Your graph might look like this….



The EPA Victoria site is wonderfully user friendly.
You may like to look at the Flash Movie at
http://www.epa.vic.gov.au/aircare/tune/tune.htm
Or investigate other articles on air quality throughout this site.

EPA Site for Victoria - (Years 5-6)
http://www.epa.vic.gov.au/aq/bulletin_t.asp

b) Choose 3 locations from the table on this site. Graph the daily change in air quality over the course of one week(Use the Air Quality Summary index), for each location. Double click on each of the 4 environmental pollutants listed at the top of each column. What is your

opinion of the Air Quality in the Victorian locations you have graphed? What recommendations would you make based on your findings?

c) Email the Prime Minister regarding your concerns and findings.
http://www.pm.gov.au/your_feedback/feedback.htm
Global Response letters really work - make a difference Use this letter Writing tips site, to help you.
http://www.globalresponse.org/letters.html

6. What are the major sources of Air pollution?

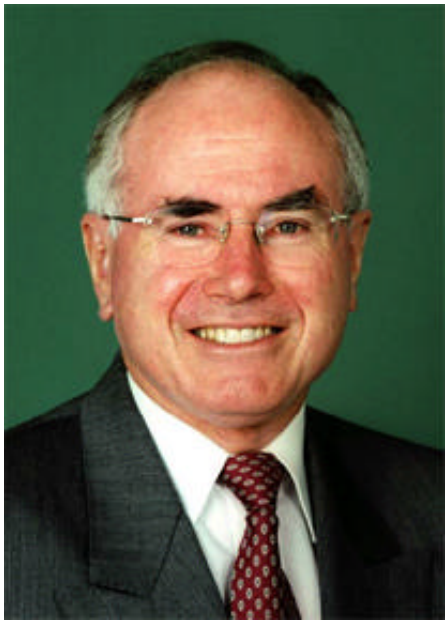
Extension (years 5-6)
You have been appointed to a parliamentary select committee to investigate **Air Pollution**. Your task is to report your findings to **Senator Minchin** and the **Prime Minister of Australia**. Form a committee of 4-6 students.

a) Write a report outlining the major air pollutants, their sources and the health implications.

b) Make a list of recommendations based on your report regarding Air Pollution in Australia. The sites below will help you research your topics.

The Edugreen Site at
http://edugreen.teri.res.in/explore/air/major.htm
Detailed Climate change scenarios from the CSIRO extension 5-6
http://www.dar.csiro.au/res/cm/scenarios.htm
Power of Choice - Choice of Power
http://www.repp.org/greene/a&d.html

c) Make recommendations from your findings to
Senator Minchin, Minister for Industry Science and Resources
Home Page
http://www.aph.gov.au/senate/senators/homepages/web/s-JX4.htm
Email Address
senator.minchin@aph.gov.au



d) And also the Prime Minster John Howard
Email Address
http://www.pm.gov.au/your_feedback/feedback.htm
Letter Writing tips
http://www.globalresponse.org/letters.html
Tip You may wish to compose your letter offline in Microsoft Word and then copy and paste it onto the Prime Minister's feedback form.

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