


welcome to issue 34

This time of year there's a lot of changes going on. You're about to get your exam results which will catalyse huge changes in your life. You might be changing your subjects in the final year of school or college, or you might have left altogether and be preparing to go to university. There are a lot of changes at the RSC too. The RSC is in the process of transforming its historic library into a modern, flexible venue in the heart of London. Due to open in September 2009, it will help to celebrate the excitement of chemistry past, present and future and will be available to host *ChemNet* events. The first one we have planned will be as part of Chemistry Week in November. Those of you who don't live in London and the South East don't have to miss out though; there will be Chemistry Week events running across the whole of the UK. A full listing of the events will soon be available at www.rsc.org/chemistryweek  *ChemNet* events during Chemistry Week will also be listed on the *ChemNet* website.


Robert Bowles – Editor





Environmental chemistry

CAREERS SPOT

This is the study of the sources, reactions, transport, effects, and fates of chemical species in the environment and the effect that mankind has on these. The environmental sector takes some beating for the sheer number of career opportunities available to people who study chemistry at degree level. You might be doing environmental research in an academic “environment” (pun intended!) to find out more about the world we live in or you might be working for environmental engineering companies carrying out

environmental clean up or impact analysis. There are further job opportunities regulating and protecting our environment working for the environment agency. Careers in environmental chemistry can make a real difference.

<http://www.environment-agency.gov.uk/> 
<http://environmentalchemistry.com/> 

Website of the month

<http://www.eea.europa.eu/> 
The European Environment agency website is an excellent resource for information about environmental issues. There's a great data search facility to look for recent data on a number of environmental indicators such as greenhouse gas emissions from Europe. It's simple and easy to navigate!



chemnet events


Meet the Universities
THE *ChemNet* event in 2009! Last chance to book. Register now!!
4 July 2009

ChemNet at Sheffield Assay Office
Learn more about the analysis and hallmarking of precious metals from the people who have been doing it for over 200 years.
1 July 2009

Café Scientifique Glasgow
An open event for *ChemNet* members and non-members alike with a chance to meet Nobel Prize for Chemistry winner, Sir Harry Kroto.
3rd August 2009

CHEMISTRY WEEK EVENTS:
Spotlight on scientists at MRC Human Nutritional Research Laboratories, Cambridge
10 November 2009

ChemNet Lecture from Tom Coultate, author of Food Chemistry, at the Chemistry Centre, London.
12 November 2009

We're currently organising *ChemNet* events throughout the whole of the Autumn term, not just Chemistry week. Visit www.rsc.org/chemnet  regularly to look for any events you might want to go to.

chemistry on the web

www.sciencepunk.com

Great website covering a wide range of science issues, not just chemistry ones, with some great science videos and the sciencepunk blog. <http://www1.rhnc.ac.uk/Chemo-Philia/index.html>

The Chemo-Philia website from the Royal Holloway College, University of London. A site set up to explore and set the record straight about some of the inaccurate chemistry horror stories which appear in the media, many of which mistakenly associate the word "chemical" with "toxic" or "hazardous".



As the author points out, we live in a chemical world and evolution has equipped us with the tools to thrive in it. <http://www.gscn.net/infoE/index.html>
The Green and Sustainable Chemistry Network in Japan produces a quarterly newsletter full of leading research into um... green and sustainable chemistry!

If you want to register to use the discussion board email chemnet@rsc.org

Chemistry in the news



Catalysts for change

One thing that is constant in life is change (Oh... the irony!) and for chemists it's especially true. Change is good for chemists. Change means their reaction has worked and that they've achieved their experimental aims. The vast majority of chemists are looking to change what we know and expand our scientific knowledge. There's change on the micro or even nano-scale with chemical reactions in tubes and flasks predicted by Schrödinger's equation and then there's change on the macro-scale; paradigm shifts in chemistry such as the debunking of phlogiston theory or the introduction of the plum pudding model of the atom. In both cases the catalyst for change was a person. Antoine Lavoisier, considered by many to be the father of modern chemistry, performed many of the experiments which debunked phlogiston theory and Ernest Rutherford pioneered the planetary model of atoms.

Catalysts of course are essential to chemists. They make reactions go quicker so that chemists don't have to spend all day hanging around in the lab waiting for their reactions to go to completion, although for many this just means they can squeeze more reactions into their working day. They are also vital to companies doing chemistry on an industrial scale as quicker, more efficient reactions make their manufacturing

processes more profitable. Their value lies in their ability to be used over and over again without changing. This is particularly important when they are made out of precious metals such as silver or platinum. One such example has been recently published in the journal Science. As their name suggests, lean burn engines reduce the amount of fuel used in them but in doing so produce more nitrogen oxide, a greenhouse gas. Silver-alumina catalysts can remove nitrogen oxide from emissions by combining it with carbon monoxide. A lack of understanding of how this works at the molecular level has now been overcome, bringing with it a real possibility of improving the efficiency of this particular catalysed process.

<http://www.rsc.org/chemistryworld/News/2009/May/21050904.asp>
The concept of a catalyst is so important that the term has "leaked" into non-scientific use. Google™ "catalysts for change" and you'll get 1.6m hits, very few of them are examples within chemistry. One of the hard things about learning any science, but especially chemistry is getting to learn the meanings of a whole language of new words. Catalyst is one of several chemistry words which convey such powerful concepts they have crossed over into everyday usage. Catalyst has joined words like crystallise, nuclear, fusion and element. Can you think of any more?

☞ To book a place on a ChemNet event email: chemnetevents@rsc.org or call 01223 432340 ☞

MEET THE
UNIVERSITIES
4 JULY 2009
LONDON

www.rsc.org/mtu

CHEMISTRY FACTS

Silver, which is now used as a catalyst in many industrial chemical reactions, was the first precious metal to be used as a currency in Ancient Greece, 4000 years ago, when silver ingots were used for trading. Silver formed the basis of UK currency before the introduction of the Gold Standard.

free stuff!

Last month's winner of the £20 HMV voucher and Molymod kit was Clare McCaughey from Wishaw in Scotland. Clare correctly answered that the Isoprene is the monomer used to make rubber.

This month we have a copy of *Molecules of Murder* to give away. This fascinating book from popular chemistry author John Emsley provides an outline of the use of chemistry in murders through the years. Text us on **07825 186304** with your name, membership number and the answer to this question:

In what year did Antoine Lavoisier die?

You can also answer by email at: chemnet@rsc.org
Closing date 9th July.

