

## The Chemistry of Love



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**When sparks fly between two people, we're quick to say they have "chemistry." Not everyone realizes that such couples literally do have chemistry; it's what's behind those sweaty palms, the jumpy stomach, thumping heart, and nervous jitters. Chemistry also contributes to that warm, comfortable feeling you get from being with a long-term partner.**

The common symptoms of love, including sweaty palms, shaky knees and general restlessness, are caused by a natural chemical, phenylethylamine (PEA) which is commonly dubbed the 'love molecule'. Its release from the brain can be triggered from deceptively simple actions like the meeting of the eyes or touching of the hands.

You can also get a non-romantic dose of PEA from high-intensity activities like skydiving, or by eating chocolate. Chocolate is known to have very high levels of this chemical... perhaps that's the reason why it is considered a perfect gift for Valentine's day.

When two people are attracted to each other, a virtual explosion of adrenaline-like neurochemicals gushes forth. As well as PEA, dopamine and norepinephrine (chemical cousins of amphetamines) are also released. PEA speeds up the flow of information between nerve cells, dopamine makes us feel good and norepinephrine stimulates the production of adrenaline, which makes our heart race.

The third stage of love is attachment - staying together. Attachment takes over from the attraction stage and is the bond which keeps couples together. Two different hormones are important during this phase of love. They are oxytocin and vasopressin.

In the end, even hard-core scientists agree that chemistry isn't everything. Culture, circumstances, personality, and scores of other variables help decide who turns your head and who leaves you cold. So don't try to reproduce that lovin' feeling in a basement chemistry lab, but do try your best to enjoy the natural highs that life gives you.

Welcome  
to issue 53



Hello and welcome to the February issue of ChemNet News.

This month love is in the air with Valentine's Day on 14 February. In this issue we take a look at the chemistry of love and explore the chemicals that make us go weak at the knees and the on-top-of-the-world feeling that attraction can bring.

Now that the January blues are over, we look into opportunities for enhancing science communication and, in particular, tips and hints for science writing. Also, with 2011 being the International Year of Chemistry International Union of Pure And Applied Chemists (IUPAC) are running student competitions which you have the chance to enter.

As always, we have some great prizes on offer – don't miss your chance to win our monthly competition.

*S Fernandes*

Stephanie Fernandes – Editor

## Dates for your diary

### ChemNet Events:

♥ **ChemNet Millenium Lecture: Science in Drug Politics. From current oxymoron to future principle**

Prof David Nutt  
University of Bath  
16 February 2011  
16:15 17:00

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♥ **ChemNet Millenium Lecture: Mysterious Cases of Misbehaving Molecules!**

University of Bath  
24 February 2011  
16:15 17:00

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♥ **Marie Curie and Aspects of the History of Radiochemistry**

The Chemistry Centre  
Royal Society of Chemistry  
Burlington House, London  
18 March 2011

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♥ **Look what chemistry has done for me!**

Royal Society of Chemistry  
Thomas Graham House  
Cambridge  
24 March 2011  
16:30 19:00

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# Science Writing and Communication

To book a place on a ChemNet event:  
E: [events@rsc.org](mailto:events@rsc.org)  
T: 01223 432340  
or book online and find more info  
about all the events at:  
[www.rsc.org/chemnet](http://www.rsc.org/chemnet)  
<http://my.rsc.org/chemnet>



Love it or hate it, writing is an essential part of a scientific career. Report writing skills are crucial to communicating your research, ideas and recommendations. Losing the gems of months of research in confusing, convoluted prose helps neither you nor your readers. The way you write can be more important than what you write. An instantly readable report will usually have more impact than one that is difficult to decipher.

A science writer researches, writes and edits scientific news articles and features for business, trade and professional publications, specialist scientific and technical journals, and the general media. Writers need to be able to understand and communicate complex scientific information, theories and practices in a clear, concise language that can be understood by people who may be not experts in these fields, while also maintaining accuracy.

Here are some top tips and techniques that can transform your written work:

#### 1. Ask the right questions

Powerful writing starts from an ordered, clear structure. Begin ordering your ideas by asking yourself the questions: what? where? when? how? why? and who? Always make sure you ask yourself the exact purpose of what you are writing.

#### 2. Avoid jargon where possible

Abbreviations are a great shortcut when you and your reader speak a common language. But don't forget that there may be acronyms and abbreviations that people outside your organisation or area of expertise just wouldn't know. Be aware of your reader's knowledge and choose the words and phrases that you are certain they will understand.

#### 3. Focus on your reader

Ask yourself the following questions so that you can tailor your information to your reader.

## Chemistry on the web

### ♥ Weird Science

This is a collection of articles and links covering strange or unusual chemistry topics as well as other weird science and pseudoscience.

[http://chemistry.about.com/od/weirdscience/Weird\\_Science.htm](http://chemistry.about.com/od/weirdscience/Weird_Science.htm)

### ♥ The Sweet Science of Chocolate

A live webcast and interactive feature about the science and history of chocolate

<http://www.exploratorium.edu/chocolate/>

### ♥ International Year of Chemistry

Visit the official IYC page to find out what's happening

<http://www.chemistry2011.org/>

### ♥ Creative Chemistry

Help with your chemistry revision

<http://www.creative-chemistry.org.uk/gcse/revision/>



### ♥ Chemistry Highlights - What Happened and When?

Chemistry history highlights - a chronology of notable achievements.

<http://www.chemistry.co.nz/chronology.htm>

- ▶ Who will read the document?
- ▶ How much experience do they have of the subject?
- ▶ How much do they know about it?
- ▶ What is their likely attitude towards it?
- ▶ How involved in the subject are they?
- ▶ How interested are they in the subject?

#### 4. Create a compelling opening paragraph

Research has shown that when it comes to focus, people remember the beginning and end of something, plus a high point in the middle. This is as true for reports as it is for holidays or feature films.

#### 5. Keep it short and simple

Avoid long, flowery phrases and make sure your sentences contain a maximum of 15 to 20 words. Presenting information in short, manageable chunks also helps you to keep the reader with you, so stick to the principle of one idea per sentence. To paraphrase Einstein: make things as simple as they are but no simpler.

#### 6. Check for errors

Always proofread carefully by printing out your document and combing through it word for word. You cannot rely on your spellchecker, especially if you have it on the automated setting. If possible, put your work aside for a day and come back to it with fresh eyes. It's likely that any errors will jump out at you more easily.

Also check for punctuation and make sure that your structure is as effective as it can be.

#### Typical work activities

The exact work activities the writer undertakes will depend upon the nature of the role. Common activities include:

- ▶ producing articles for publication in print and online according to agreed style and to strict deadlines; conducting interviews with scientists, doctors and academics and establishing a network of industry experts
- ▶ attending academic and press conferences
- ▶ reading and researching specialist media and literature, e.g. scientific papers, company reports, newspapers, magazines and journals, press releases and internet resources
- ▶ attending meetings or taking part in conference calls with clients, scientists or writing professionals
- ▶ meeting with colleagues to plan the content of a document
- ▶ reviewing own work and amending work in response to editor feedback
- ▶ selecting appropriate artwork
- ▶ reading page proofs from printers and checking colour proofs
- ▶ networking and building relationships with publications and their staff.



## International Year of CHEMISTRY Student Competitions 2011

The United Nations has declared 2011 the International Year of Chemistry (IYC 2011). IUPAC, in collaboration with UNESCO, is leading the preparations for this year-long celebration of the achievements of chemistry, and of chemical contributions to the well-being of humankind.

To celebrate the International Year of Chemistry, IUPAC is launching student cartoon and video competitions. The competitions will run from 1 Jan to 31 May 2011. For each competition there will be a \$1000 first prize and an invitation to attend the IUPAC Congress in Puerto Rico in August 2011 where the first prizes will be presented. There will be five additional prizes of \$100 to finalist

entries in each competition. Full details of these competitions are on the IYC website.

**Student Chemistry Cartoon Competition.** The goal of the competition is to illustrate clearly a chemistry principle in a manner that can enrich the teaching of chemistry. Register by visiting: <http://www.chemistry2011.org/participate/activities/show?id=361>

**Student Physical Chemistry Video Competition.** The goal of the competition is to illustrate clearly a physical chemistry principle in a manner that can enrich the teaching of physical chemistry. Register by visiting <http://www.chemistry2011.org/participate/activities/show?id=324>

Win  
stuff

Philosophers have mused over them, poets have written about them and musicians have sung about them.

Love, desire and passion will at some point touch everyone's life - yet they are little understood and some of the oldest mysteries of mankind. Why do people fall in love and what is love anyway? What makes people attractive? 'Lust and Love: Is it more than Chemistry?' provides answers to some of these questions through the eyes of science.

To win a copy of this book you simply need to answer the question: **Which chemical is commonly known as the 'love molecule'?**



To submit your answer log onto to the ChemNet area of MyRSC at [my.rsc.org/chemnet](http://my.rsc.org/chemnet) and check out our competition corner! The closing date is 14 February 2011.

Congratulations to last month's winners who were **Ferogh Ishan** and **Lekha Korla**. They both correctly translated the following inscription found on the Nobel medal for chemists to mean: *'And they who bettered life on earth by new found mastery'*.

# Cutting-edge Chemistry

## Human Pheromones:



**Pheromones are aromatic chemical compounds released by one person that affect the sexual behaviour or physiology of another individual.**

There are several kinds of human pheromone: Androstenol which makes the wearer seem more approachable and friendly; androstenone which projects a dominant and aggressive aura and has a

strong and sharp smell; androsterone which creates an aura of protection usually associated with peaceful alpha males; androstadienone, which increases caring feelings and closeness; and copulins - female pheromones that can increase testosterone levels in men. Some of the lesser known pheromones include androstadienol and estratetraenol.

Pheromones are sometimes referred to as 'smellprints', supposedly as unique as our fingerprints. Smell is the most primitive of human senses, and pheromones, present in underarm perspiration, are detected by a small organ composed of a few small pits a few centimetres up the nose.

The emotional reaction they provoke can, quite literally, be a 'turn on'!

Therefore, next time you find chemistry with another person, you really have!



## The RSC Bill Bryson Prize

**This is a fantastic competition designed to encourage clear science communication in schools and colleges, inviting students to be as creative as they dare!**

We received some amazing entries last year, and our 2010 Bill Bryson Prize winners recently attended a wonderful prize-giving ceremony at the House of Commons where they were congratulated by Bill Bryson himself! To view the winning entries, head over to the RSC website, you'll find them all here <http://www.rsc.org/Education/BillBryson/2010winners.asp>

The Bill Bryson Prize 2011 is now open to submissions, and this year's competition is set to be particularly exciting as it coincides with the International Year of Chemistry (IYC), celebrating the achievements of chemistry across the globe. So, whether you're savvy with a science story, or nifty with newsletters, if you want to enter you'll find the competition details and all important entry forms here <http://www.rsc.org/Education/BillBryson/index.asp>

## Bill Bryson Competition

**Hands on Science, Science (Physics) Rap Video Competition:**

The Royal Society of Chemistry has just announced the winner of the Bill Bryson iPad competition. Well, actually winners - we couldn't pick between the top two.

The joint winners are **Aarti** and **Jyoti Sehdev** for their "Epic Chemistry" rap, and **Tim Williams** for his myth-busting egg-whites video.

If you're curious, you can enjoy the entries yourself at <http://www.thereaction.net>

