

## Demonstrations/Activities/Applications for Organic Chemistry Topics – Some Suggestions – May 2007

1. Electron arrangement/Line Spectra  
Pass some inexpensive (\$10 US) spectrosopes around the class. From Educational Innovations: <http://www.teachersource.com/>
2. Dispersion (London) Forces  
Application – the gecko's ability to run across ceilings – show pictures. eg. [http://en.wikipedia.org/wiki/Van\\_der\\_Waals\\_force](http://en.wikipedia.org/wiki/Van_der_Waals_force)
3. Alkane Physical Properties & Rxns  
The Burning Book - check out Ed Escudero's poster on: <http://nobel.scas.bcit.ca/chemed2005/welcome.htm> then go to "Trading Post". Demo'd using "White Gas" camp fuel.
4. Alkane or Ether Physical Properties & Rxns  
Flaming Vapour Ramp: <http://www.flinnsci.com/Sections/spotlightDisplay.asp?ID=45&cat=2>
5. Alkene Rxns – Halogenation  
Decolourize a small amount of Br<sub>2</sub> in CCl<sub>4</sub> by adding dropwise an alkene. Contrast with a similar alkane. Use overhead for large classes. A quick qualitative test
6. Alcohol Physical Properties & Rxns  
The Whoosh Tube (demo'd using 99% isopropyl alcohol): <http://www.magma.ca/~dougde/chemed03/firedemo.htm>  
The BBQ Lighter Gun (methanol): <http://www.magma.ca/~dougde/ideas/8-bbq.htm>
7. Stereochemistry  
Mirror & models to show non-superimposability of enantiomers M. Collins, *J. Chem. Ed.* **78**, 1484 (2001)  
Use 2 polarizing filters & a clear container of corn syrup to show rotation of plane polarized light. Filters from Educational Innovations (see 1. above). Pass around in a smaller class, use on an overhead projector for larger (filter down first, syrup container on top of this, final filter topmost). Contrast with a similar container filled with water.
8. Aromatics  
Give some background history. Benzene first isolated in 1825 by Faraday (show picture). Read an account of Kekulé's (show picture) dream (eg. found in Morrison & Boyd 3<sup>rd</sup> ed). Show some of the early proposed structures for benzene.
9. Amine Structure  
Use an overhead to illustrate some of the many biologically important amines (eg. found in Solomons 6<sup>th</sup> ed). Contrast the structural relationship between adrenaline (stimulatory hormone) with amphetamine and methamphetamine (CNS stimulants).
10. Amide Structure  
Discuss the importance of both natural polyamides (proteins) and synthetic polyamides (nylon). Nylon Rope Trick: [http://www.chem.umn.edu/services/lecturedemo/info/Nylon\\_Rope\\_Trick.htm](http://www.chem.umn.edu/services/lecturedemo/info/Nylon_Rope_Trick.htm)

For more information on any of these, feel free to contact Steve Twa, NAIT, Edmonton, AB [stephent@nait.ca](mailto:stephent@nait.ca)  
Most of the ideas are not original and have come from many sources (see above) that have graciously shared their ideas.