

13. MacMolecule (and its Windows counterpart PC Molecule) can be obtained from Molecular Ventures, Inc. of Phoenix, Arizona. See <http://www.molvent.com/manual/quick/quick1.html>

14. One problem is that, if students have missed lectures, they are tempted to print out the notes for those lectures, and this can amount of many pages. And, as students do not pay for printing costs, expense to the department.

15. 15% of the course credit may be earned by handing in the lecture sheets, the worksheets used in recitations (where students use the Saunders Interactive General Chemistry CD-ROM), the "Element of the Week" puzzle, and Quick Quizzes.

16. Some of these lecture shells can be viewed at the website for the general chemistry courses at Auckland while they remain. See <http://www.che.auckland.ac.nz/Stage1/Courses/410150/JKotz/JKHome.htm>.

17. If possible, it is very desirable to have two projectors. The video of a reaction or physical change can be run from a tape or laser disk on one projector, and commentary and questions about the process can be on the computer projector.

18. Gregory C. Farrington, "The New Technologies and the Future of Residential Undergraduate Education," *Educom Review*, page 38, July/August, 1999. Using PowerPoint Page 6



Using Multimedia IV -Catching the Students' Eyes

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(Available on the WWW at <http://www.oneonta.edu/~pencehe/mmtutorial#4.html>)

As noted in the previous articles in this series,

there are several sound educational reasons for using presentation software in chemistry lectures. It allows an instructor to combine text and images in a single frame, hopefully making it easier to remember the concepts. Events and processes that were formerly difficult to make interesting now come to life, and students can actually see the real-world applications of chemistry that had previously only been described. Perhaps equally important, although less obvious, is the ability of presentation software to catch and hold the students' eyes, literally guiding their attention through the presentation.

Presentation software packages include various ways to guide the students' eyes. Probably the most important idea to keep in mind, however, is the need to stick to the same process from one frame to the next and to avoid unnecessary distractions. A uniform slide background can provide useful information; but it can also be a constant diversion. Many of the standard backgrounds provided with the software seem to be designed to distract the viewer from the text. During one memorable presentation, every slide was framed with a beach scene, complete with palm trees. Judging from the restlessness of the crowd, the audience kept wondering how this lush background was supposed to be related to the speaker's topic. If the goal was to make them wish that they were somewhere else, it was completely successful. If it had that effect on an interested audience of professionals, what effect would this distraction have on a typical group of students. A typical software presentation package offers a multitude of background choices. Many of these may be artistically interesting but may also distract the audience from the material. Some presenters create problems by using complex pictures as a background. In either case, it may be so hard to find the text that the frames begin to resemble the child's game, "Where's Waldo." A good piece of advice about writing is that if something seems so cute that it is difficult to leave it out, it should definitely be eliminated. Similarly, the best rule with slide backgrounds is simpler is better.

In general, when a frame appears on the screen, most viewers in our society will begin by either looking at the center or the upper-left hand corner of the image. This habit is based on the way that we normally read. It is very helpful to guide the viewer's eye towards that part of the screen which contains the material which is most important in the frame. One way to do this is to make background color a little brighter in the upper-left hand corner (as you face the image) and a little darker in the lower right. The brighter image will naturally draw the eye towards that corner. This is called a gradient and is easy to set with the master frame so that it will always occur in a presentation.

To reinforce the importance of the upper-left hand corner, use a frame transition that will reveal that part of the slide first. A good example is the wipe right transition. As the new material becomes visible, the viewer's eye is naturally attracted to the change. After a few frames, the viewer has become accustomed to having new material presented in the upper left hand corner for the frame, and so this is where the eye will enter the frame. In general, it is a good idea to place the material that is most important, whether it is text or an image, in the upper-left hand corner.

Like any consistent practice during a presentation, giving special status to the upper-left hand corner sets the stage for another way to emphasize an important point. When the eye expects the transition to be a simple wipe right, it magnifies the impact of a different transition, like a box-out or a dissolve. The viewer probably will not consciously recognize what has happened that was so different, but the change is noticeable. Similarly, placing an amusing image in the lower-right corner catches the viewer off-guard and can make a mildly amusing picture seem much more striking.

Once the viewer's attention has been captured in the upper-left hand corner, the build (or animate) function can be used to guide the eye through the frame at a pace that matches the presentation. Exposing all of the text on a frame immediately invites the viewer to ignore the speaker and read through all the text. That is fine if the frame contains all of the material that is to be presented; but if that is the case, why not just hand out a printed copy? The goal of using presentation software is to make the speaker more effective, not to make the speaker redundant!

For many types of presentations, it is reasonable to have the build function eliminate preceding lines. This further helps to keep the audience up with the speaker. Unfortunately, like many capabilities of presentation software, this is not appropriate for a classroom session where students are trying to take notes. It is reasonable to change the color and make the previous points less obvious, but totally eliminating lines with the build process will be quite likely to produce student rebellion.

Most professors spend hours organizing lectures to make them more effective and memorable. The goal is to present material in such a way that it gives the maximum support for student learning. When properly used, presentation software can help to accomplish this purpose.



Building a PowerPoint Presentation
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Jack and I decided to keep his paper in his Acrobat format since much of the concern of the paper is formatting PowerPoint slides. The paper begins on the next page.