Practical PowerPoint Presentation Preparation
Chemistry 200 – Fall 2004 –Assignment #12
Due: November 12, 2004, high noon

It is important to be able to seamlessly integrate various software programs to prepare documents and presentations. We have had practice using KnowItAll or Spartan with Word (i.e. pasting structures and pictures into Word). This assignment will give you practice in using KnowItAll and Spartan with Powerpoint.

For this assignment, you must prepare an 12-slide Powerpoint document. Each slide must have a title, and must present the required information in a very clear manner. Prepare the document as if it were a presentation you were planning to give to your peers. Make sure all structures and words are large enough to be seen, even in the back of a large room. You must use the “master slide” so that you each of the titles is formatted in the same way. [Click view master slide master. Format your slide on this master slide. When you close the master, all of the slides will br formatter accordingly.]

After completing the assignment, print out a copy to hand in. ALSO, you must submit a digital copy via the digital drop box on Blackboard. The file must be named using your JMU email name in the following manner: username_c200_12.ppt.

You will be graded on both the content (ie- be sure all required information is there, and correct), and the presentation (ie- is it clear? Does everything make sense?) of your document. If you pay careful attention to the requirements for each slide, and you present the information clearly, you should have no problem getting a good grade on this assignment.

The slides:

Slide 1  Title Slide. Include a title for the presentation (be creative, as long as it’s appropriate for your presentation), your name, class, section.

Slide 2  Geometry of Cyclic Hydrocarbons. Draw cyclopropane, cyclobutane, cyclopentane and cyclohexane. On the left, show these structures as “flat” KnowItAll drawings. To the right show an energy-minimized structure (using the minimizer) from Spartan as a tube structure. To the right of these, write in the relative minimized energy you obtained from Spartan.

Slide 3  Polarity of Methyl Halides. Draw CH3F, CH3Cl, CH3Br and CH3I in order of increasing dipole moment. Use both KnowItAll, and Spartan, and Include the calculated dipole moment from Spartan. [To do this, build the molecules, and calculate equilibrium geometry using a Hartree-Fock 3-21G(*) basis set. After the calculation is complete, display the properties to see the calculated dipole.]

Slide 4  Demonstration of Laboratory Technique 1. Show a lab technique (ie- fractional distillation, GC, column chromatography, TLC, etc.) using the images from the “clip art” button in the ReportIt section of KnowItAll. This
should be a slide from which you could clearly explain the principals of
the technique. Include specific examples. (ie- if you choose TLC, show
the structure of two compounds you will separate; if you choose
distillation, show structures and BPs of liquids you will be separating.

Slide 5  **Demonstration of Laboratory Technique 1.** Show a second technique
in the same fashion as the previous slide.

Slide 6  **Cyclohexane Stability.** Draw cyclohexane both as a chair and a boat (or
twist boat) in both *KnowItAll* and *Spartan*. Calculate their relative
energies (in Spartan, using the minimzer). Point out the types of strain
present in the boat conformation that are alleviated in the chair.
*Instructions for drawing a twist boat in Spartan:* Draw chair cyclohexane.
Add an axial methyl group. Choose the “make bond” tool. Select one of
the open valences on the methyl group (a gold ball will mark this
position). Now select the axial open valence on C3 (C1 being the one with
the methyl substituent). This will form a bond, giving you a bicyclic
compound (bicyclo[3.1.1]heptane). Now you need to erase one of the one
carbon bridges (using the delete button on the build menu) so that you
are left with a boat-like structure. Make sure you erase the correct one,
otherwise you’ll end up with a chair again! Energy minimization will give
you a twist-boat.

Slides 7-8  **Focus on Research at JMU.** Pick two professors in the JMU chemistry
department who are not in the same discipline (*i.e.* not both physical
chemists). Go to their webpages and take a look at their research.
Present a slide on some part of their research. At least one of the two
must contain a structure that you draw in *KnowItAll*. You may re-draw a
structure or an image that they have. Each professor’s work should be
presented on a separate slide. You must include their name, and their
website address.

Slides 9-12  **Focus on Research at Other Institutions.** Pick four professors at four
different PhD-granting institutions. They must be from at least 3 different
disciplines of chemistry (*i.e.* no more than two may be from the same
discipline). Go to their webpages and take a look at their research.
Present a slide on some part of their research. At least two of the four
must contain a structure that you draw in *KnowItAll*. Each professor’s
work should be presented on a separate slide. You must include their
name, their website address, and their affiliation (*i.e.* what school and
department they are from).

*Directions for pasting structures from KnowItAll into Powerpoint:*

a. Orient the molecule or image so that all atoms are clearly visible.
b. Select the molecule or image and hit control-C to copy (or go to Edit →
copy)
c. Copy the molecule or image and paste it into *Powerpoint.*
d. Resize it to an appropriate size once in *Powerpoint.*
Directions for pasting structures from Spartan into Powerpoint:

a. Orient the molecule so that all atoms are clearly visible.
b. Increase the size of the molecule so that it is approximately as large as the window. [hold shift, and hold down the right mouse button while dragging up until the molecule reaches the desired size.]
c. Set the background color to white. [click on the background, then select: options → color, set all to 100%]
d. Copy the molecules and paste it into Powerpoint.
e. Resize it to an appropriate size once in Powerpoint.