

Guidelines for Student-Lead Activities
SCI 210 - Mireles - Cal Poly Pomona - Physics - Winter 2005

You will prepare two student-lead activities this quarter, each is worth 12.5% of the final grade. Choose fun and creative activities from one of the dozen sources on the web and in the library to teach/demonstrate some scientific phenomena. The idea is to deliver the activity to the classroom, then make the activity available and useful to your classmates, so that they may collect ideas for their future teaching posts.

• **Presentation:** (25 points total)

- < *Time* (10 points): You will get one point for every minute in which you actively engage the classroom with your activity.
- < *Delivery* (5 points) Make your delivery clear, coherent and helpful. You're a professional and you're speaking to other professionals.
- < *Physical Explanation* (5 points) Your explanation doesn't have to be academically rigorous for scientists, but must be conceptually correct and pedagogically effective.
- < *Peer Evaluation:* (5 points) Your peers will evaluate your presentation on the basis creativity, usefulness and professionalism. 5 Good. 0 Bad.

Level: Prepare an activity suitable for children in the particular K-8 level that you wish to teach. The science content of the activity must be both interesting and challenging to a child, but must not lie outside of their capacity to perform the activity.

Class Involvement: Involve the SCI 210 class in some manner. This can be done on or more of the following methods, bringing materials for them to use, give them calculations/estimations to make, using them as volunteers in demonstrations, having them ponder and discuss issues in peer groups, or leading them in an ordered discussion.

Length of Presentation: 15-20 minutes. We need to do 8 presentations in each 2 hr and 50 minute lab class. So I'll tell you when we're running out of time.

Materials: Most of the activities can be performed with simple household items. You're expected to provide the materials for the colleagues in your class, (12 groups). In exchange, they will provide the materials for their activities. If you have handouts, (for drawings or for questions) make 12 copies. Keep in mind however, that the finished report will be available for them a week later after you submit the written component. So there is no need to print out everything. Just print out what they need to perform the activity.

You can assume that there are scissors, tape, stop-watches, rulers, flashlights and meter sticks in the laboratory room. But if your activity calls for special equipment and supplies, such as microscopes, dry ice or heating plates, then you must arrange for that equipment to be brought to the room with the technicians in the research stockroom (Room 8-238) . You may not seek equipment or assistance from the stockrooms on the evening of your activity. That's far too late.

- **Floppy Submission:** (25 points)

(Due the Monday after your presentation.)

- < *Physical Explanation:* (5 points) From this section, a teacher must be able to learn enough of the relevant science to explain it effectively to a child. So the activity must have much more than just “gee-wiz” value. If the source from which you got your idea is from the web, it might not be that good. It's *your* responsibility to gain a good understanding the physics behind your activity. Do not just cut-and-paste an explanation that you yourself don't understand. Do a little asking-around or research to figure it out on your own. I've seen some teacher resources on the web that were just flat-out wrong. If you don't understand it and you include it, it can be easily detected and your grade will be marked down.
- < *Self Containment:* (5 points) This document must serve you and your colleagues as a good stand-alone resource that they can quickly and effectively use in a classroom environment. It must be well written and complete. If you have a diagram, address the diagram in a way that justifies its existence. If the diagram has information on it, address it in the text. You should give an indication of the time that it would take to execute the activity.
- < *Citations:* (5 points) You must give credit to the source of your work somewhere. This means writing out the name of the site or book where you found the material or idea. If the material is another website, make the citation a link so that clicking on it takes you directly to that site.
- < *Submission:* (5 points) Your finished teaching plan must be turned into me by Monday night on the week after you delivered your activity to the class. The title of your attached file must be your name and the number of your activity, (1 or 2). So files could be called MMonroe1.htm or JDean2.htm. I will your work either on a burned CD or on two identical floppy disks with labels on them. On both of these labels you will write...
 -) Your name,
 -) Your lab day,
 -) The date of presentation,

) The title of activity written. .

This file will also have any other files necessary for me to open up your page with web browser. If my browser can't open it, yours couldn't either. So check it first.

< *Technology:* (5 points) You're all pretty good consumers of web material by now. So it's fitting that you now post something on the web for others.

G Your attachment must be in the HTML file format. This is the kind of file that a web browser can read. It stands for *Hyper Text Markup Language*. It's easy!

For this class we will use a free open-source program "NVU" to author web-pages. The program can be downloaded from <http://www.nvu.com>. Just download the version for your operating system and double click on the package after it downloads. It should install itself on your computer.

G When you save your file, do it to a CLEAN, BLANK, VIRUS-FREE Floppy Disk. On the label of this disk, write your name and the day of your lab. But also keep a copy of the word file in your own computer's hard disk. Floppy disks DO go corrupt, so check the file on the floppy disk after saving it there. Open up a browser and locate the HTML file. Do you see everything you wanted to see there?

G For all files associated with these pages, including image files, it's best not to give the files names with funny characters like #%/ or spaces.

G You are **not** permitted to submit a print-out of a web-page that you found.

G *Links:* Feel free to add whatever links you want. But you must incorporate at least two links. One of these links must be to the source of your idea (if it came from the web). The other link can be to anything you want. Think of something that a teacher might need. Use the LINK button to bring up a LINK window.

G *Images:* To include a picture, use the IMAGE button. You should include at least one picture to help make the webpage easy to use. Feel free to experiment with the options to make the picture look just right.

G Make sure that the picture is included on the floppy drive that you submit and that the HTML document can see the image file. You should save the HTML document to a floppy and make sure that the image is on the floppy too. Test

this carefully, because your grade will be reduced if your HTML file doesn't see the image file.