

GROUP PROJECTS
REPORT DUE ON THE DAY OF YOUR PRESENTATION
PRESENTATIONS: MONDAY, DECEMBER 4, 2006 –MONDAY,
DECEMBER 11: IN CLASS/IN LAB
LECTURE ATTENDANCE IS MANDATORY!

Guidelines: The group with the highest interactive set average will get first pick of a group project theme. Once a theme is selected by a group, it will be removed from the list so that every group in class will have an opportunity to explore something different from peers in other groups. The group with the nth highest interactive set average gets the nth selection from the topics. Once a topic has been selected, you and your group members must assign roles for the project. For example, assign someone to research the topic in the library and via the web—your research consultant, assign another person to develop an outline for how you will address the problem—your organizer. Other roles are educator (the person who facilitates a teaching dynamic within the group) and moderator (the person who helps steer the group toward productivity and the end result of the task at hand). In addition to writing a two-page summary of your group project, your group will present a 12 minute talk (+3 additional minutes for questions). You may use overhead transparencies, the chalkboard, or you may even decide to create a poster, but I would suggest (and encourage) using tools such as Microsoft Power Point. Your group project will be graded as follows: 25% presentation, 25% summary report, 25% group dynamics (to what degree was this a group initiated effort), and 25% integration of course material into project theme. Overall, the group project is 15% of your PH 1121 grade, as indicated in the course syllabus.

Important Dates:

Friday, November 17, 2006: You and your group members will be asked to select a project theme. Please have a first choice, second choice, third choice, etc., lined up in the event another group selected your preferred topic.

Monday, December 4, 2006 - Monday, December 11, 2006: These presentations will be held during class, for the most part—attendance is MANDATORY, and the whole class is expected to participate. Invite your friends and fellow classmates. The audience will consist of PH 1121 students, some physics faculty and graduate students, and some undergraduate physics majors. For those of you presenting during your lab time, we will discuss attendance issues.

Topics:

1. Magnetic Levitation
2. Proton Accelerators
3. Electrostatic Precipitators
4. Cathode Ray Tubes
5. The Nervous System
6. Semiconductors
7. Superconductivity

8. A book report of Feynman's book QED (stands for Quantum Electrodynamics)
9. Historical Overview of 4 legendary scientists of Electricity and Magnetism
10. Electricity and Magnetism and Electric guitars (Induction)
11. Mass Spectrometers (there is a virtual lab reference for this one)
12. JJ Thompson's Charge to Mass Ratio Experiment (there is a virtual lab reference for this one)
13. Maxwell's Equations
14. Dielectrics
15. Power Transmission
16. Principles of Electricity and Magnetism applied to electronic music
17. Java applets of some introductory electricity and magnetism concepts
18. Integrated Circuits
19. Introductory Electricity and Magnetism applied to forecasting the weather
20. Computing and introductory electricity and magnetism
21. Sprites and Lightning
22. All about Charge
23. Gauss' Law
24. All about Flux
25. Similarities between Mechanics and Electromagnetism
26. Grand Unified Theories