

Name: _____ Date: _____ Period: _____

To complete this assignment, you will need access to the following web site:

<http://www.colorado.edu/physics/2000/index.pl?Type=TOC>

Choose one (1) of the following three (3) options:

- 1) Explain how calculator displays work. You should explain how polarization of light is used, and you should explain how that polarization is achieved.
- 2) Explain how a laser works. You should explain the role of constructive interference in a laser, and you should explain how a standing wave is involved inside the laser.
- 3) Explain how a microwave oven heats food, and compare and contrast this to how a heat lamp (which uses infrared radiation instead of microwave radiation) heats food.

Whatever topic you choose, your explanations should be detailed and organized, as if you are trying to teach someone about the topic (as opposed to just showing me, your teacher, that you “kinda get” the basic concepts).

Your responses may be typed, or may be done as a PowerPoint presentation or something similar. If you write a paper, include graphics if they will increase the clarity of your presentation. A paper should be 2-5 pages in length, but may be longer if necessary. A PowerPoint presentation should be at least 5 slides long. You may do a combination of PowerPoint and paper, if you choose.

A description of how you will be graded is on the next page.

Grading the project. What you are you graded on?

Overall, you are presenting your research on the topic above to someone who doesn't know much about the subject: you are creating a report aimed at *teaching* the material, instead of just showing that you "get" the material.

35% of grade: Organization and clarity of material. Presentation of concepts is clear: the larger concepts are broken down into smaller concepts, and those smaller concepts are explained well individually. How the smaller concepts fit together is explained clearly.

35% of grade: Coverage of material. All of the concepts necessary for full understanding of the subject matter are identified and presented.

20% of grade: Readability and presentation. The report is easy to read and well-written. There should be few (if any) grammatical or spelling errors, and the overall structure of paragraphs (or slides) should make sense: complete thoughts or ideas developed in paragraphs or on a slide. If broken up over several paragraphs or slides, then the breaks come at points where the overall flow of information is not disrupted. Use of images is encouraged, but only if they *enhance* the presentation of the material.

10% of grade: Peer impressions of report. You will grade each other's work as follows: If you had to take a test (that Mr. Yamashita creates) on the material in the paper,

- **4 (excellent):** you would want to use this report to learn and study the material. You would not need another source (book, internet, etc.) to study.
- **3 (good):** you would mostly use this report to study, but you'd want to have another source of information, too.
- **2 (fair):** you would use this as supplementary information, but you'd want to study mostly from another source.
- **1 (poor):** you would not use this to study for the test; you would rely on other sources entirely.