End of the Year Physics Fair!

*One physics student team will consist of* ***1-3 people.*** *Each project will require the physics student team to:*

1. Apply the scientific method to a “real” problem or question
2. Write a complete lab report detailing the problem, materials, scientific question, hypothesis (the building procedure), testing procedure, results, and conclusion that relates your project to at least one physics unit from the year.
3. Present the group’s report to the class using visual aids (powerpoint, poster, handout, etc.)

*This project is due on* ***Monday, June 8.*** *Presentations will occur June 8-12. By the end of this week* ***(Friday, May 29****), your group needs to submit**a* ***1-2 page*** *(typed, double-spaced)* ***proposal*** *containing the answers to the following questions:*

* What scientific question are you attempting to answer?
* What procedure will you follow to answer this question?
* What will you accomplish each day of next week (don’t forget to plan for a double period on your lab day!)?
* What materials will you need, and how will you obtain them?

**Strong/Difficult Problems**: If the group successfully completes these projects they are guaranteed a grade no lower than an A- because of their level of difficulty

1. **Bicycle that creates electricity**- Problem/Questions. Is it possible for a team of high school students to design, construct a bicycle that when ridden creates and stores enough electricity to power a small lightbulb?
2. **Wind Powered/Water Powered generator**- Is it possible for a high school team of students to design and construct a generator of electricity that runs solely off of the wind or water?
3. **Rube Goldberg Machine**- Is it possible for a high school student group to design, construct and test a Rube Goldberg Machine that has 10 steps, 4 types of energies and is REUSABLE?
4. **Project of your choice**—What have you been dying to create since learning about it in this class?

**Medium Difficulty**- If the group successfully completes any one of these projects the group will be guaranteed no lower than a B- on the project.

1. **Water powered rocket with launcher**- Is it possible for a high school student group to design, construct and test a water powered rocket and system to launch this rocket safely and effectively?
2. **Working Solar Oven-** Is it possible for a high school student group to design, construct and test a working solar oven? A working solar oven is defined as an oven that can, on sunny day, reach temperatures of over 150 degrees.

**Easy Project-** In order for the group to receive an A+ or A the group will have to produce a great presentation and supporting materials for the class during this presentation such as; stations for the class to explore during or after the presentation.

1. **Educational power point** – Is it possible for a high school student group to make educational power points that are complete and accurately review an entire physics unit that was covered in this year’s course?
2. **Demonstration set up-** Is it possible for a high school student group to research, design, construct and show to the class a demonstration set up of one of the major topics studied this year in physics?
3. **Research a Famous Physics Experiment**- Is it possible for a high school student group to research, design, construct and show the class how a famous physicists performed an experiment that became very well known worldwide?
4. **Research a Famous Physicist-** Is it possible for a high school student group to research a famous physicist, including her/his biographical information, summaries of her/his most important experiments, hands-on element (such as an impersonation of the physicist or a demonstration of her/his most important discovery/experiment) and discussion of how her/his work is still used in modern day applications?