

Energy Production and Usage Project

Culminating projects for regular and honors physics for final “exam” grades

In this project, you will select one primary energy source and prepare an 8 minute oral presentation to be delivered to the class during the week after Bay Studies. (an example of a primary source would be a solar cell, an example of a secondary source would be a battery) The project should include an audiovisual component (powerpoint etc.) that will be turned in to teacher at the time of the presentation and you should be prepared to answer 2-3 minutes of questions from the class.

Content: The report should include:

1. tracing the energy transformations (usually starting with the sun) all the way to the user. Example Sun -> corn -> yeast -> alcohol -> ethanol gasoline -> engine -> combustion -> kinetic energy of car. You should summarize the transformations in as much detail as you can, including efficiency if you can find it. Here is a partial list of forms of energy to get you started: electromagnetic energy, chemical potential energy, gravitational potential energy, elastic potential energy, kinetic energy, thermal energy, nuclear binding energy, atomic binding energy, etc.
2. how significant your energy source is in each sector of energy usage: transportation, industrial, commercial, residential in the united states. Break down the significance farther if you can, for instance transportation by car, rail, air, ship, etc.
3. the impact on the environment of your energy source and its sustainability or estimates of how long it will last
4. arguments for and against usage of your energy source and your conclusions about if/how it should be used
5. references: informal listing of sources

Grading: Items 1-4 are worth 10 points each adding up to 40 points. For each item I will be looking for

- completeness: did you address all parts of the item? (3pts)
- correctness: taking into account the references in item 5, are your explanations correct? (3pts)
- clarity: are your explanations and arguments clear and concise? (3pts)
- presentation skill: did you present the item in an interesting and engaging way? (1pt)

Item 5 is also worth 10 points, bringing the total to 50 points. You must have *at least* 5 references. (Don't forget to reference the source of any images downloaded from the web.)