*"Would it be possible to fit everyone in the world into a cube that measures one mile by one mile by one mile?"*

This is an example of a Fermi Question—an estimation problem designed to teach dimensional analysis, approximation, and the importance of clearly identifying one's assumptions. Numerous examples of these questions can be found below.

Three group members should devise an estimation process that can be used to answer one of the following questions. Use input from all group members to describe the best estimation process possible.

1. **Is it possible to walk from San Francisco to New York in a year? [EXAMPLE]**
2. **If the land area of Earth was divided equally for each person on the planet, about how much would you get?**
1. **What is the weight of solid garbage thrown away by Americans families each year?**
2. **How many jelly beans fill a 1 liter jar?**
3. **What is the mass in kilograms of the student body of your school?**
4. **How many gallons of gasoline are used by cars each year in the United States?**
5. **How many flat toothpicks would fit on the surface of a sheet of poster board?**
6. **If Bill Gates' net worth was doled out to him by the hour, how much is his time worth per hour?**
7. ***or* you can come up with your OWN question; just get it approved first!**

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Your project must have the following components:

**\*Assumptions:** List and explain all assumptions that you made (or had to make) to answer your Fermi question.
**\*Math work:** Explain your plan, show ALL of your math work, AND the process used to come up with your rough prediction. You need to use this information to come up with your rough prediction.
**\*Prediction:** Use your information from your initial math work to predict an answer to your Fermi question. This must be noted before you move on.
*\*Research with MORE math:** You will go online and use reliable sources and the support, (dis)prove, conclude, and/or justify your prediction and completely answer your Fermi question. Use your new found information and include all steps in your mathematical (re)calculations. Site your sources.

**Power Point Presentation:**                                                                          10pts
  1. Assumptions                                                                                         20pts
  2. Math work done BEFORE research (estimations)                                       20pts
  3. Prediction of the answer to your Fermi question bases on your estimations     10pts
  4. Results of Research (include website(s) with your (re)calculations)               10pts
  5. Explanation of how/why your prediction was (in)accurate.                           20pts
  6. Creativity                                                                                              10pts

\*\*Know your topic in great detail, be prepared for any question.\*\*

**Project counts as a TEST GRADE and is due NO LATER than Thursday August 27, 2015.**