(30 pts) Approx. 3 days

The first part of our unit is all about mathematical models. Later we'll be getting into the computer and Autodesk, but for now we need to look at ways tha twe can use mathematics – graphs and equations – to model real-world things. We'll colelct a variety of data over these first dew days and use that to practice some mathematical modeling.

1. Start by watching the presentations *Mathematical Models* and *Graphing Motion*. Take a full page of notes on the topics covered in those presentations. Be sure to include an example motion graph either directly from the presentation or of your own creation.
2. Next, complete the Motion Modeling Assignment. This is the closest thing we'll have to "math homework" all unit, but it's important stuff. Take your time and complete the assignment. Make sure that you show all your work as you complete it, and then check your work with the answer key.
3. Finally, complete the puzzle cube regression by following these steps:
    a. Get your puzzle cube.
    b. For every piece, count how many cubes are in it, and then also weigh it.
    c. Record your data points in your engineering notebook, and enter your data points into Microsoft Excel.
    d. Use the Excel commands to calculate the line of best fit. You should get both a SLOPE and a Y-INTERCEPT.
    e. Record those values in your engineering notebook along with a sketch of the data and graph.
    f. Interpret your slope and y-intercept values in your notebook.

Part 1: Tasks	5 points	4-3 points	2-1-0 points
▢ Mathematical Models Notes	+ You took a full page of notes on mathematical modeling + Your notes include some example motion graphs either from the presentation or of your own creation	- Your notes are less than a page - You did not include an example motion graph	- Your notes are missing - Your notes are very brief
	15-12 points	*11-6 points*	*5-0 points*
▤ Motion Modeling Assignment	+ You completed the Motion Modeling Assignment + You showed your work + You checked your answers with the key	- You did not complete the Assignment - You did not show your work - You did not check your work	- Your assignment is missing - Your assignment is mostly incomplete
	10 points	*8-6 points*	*5-0 points*
⊕ Puzzle Cube Regression	+ You collected data on your puzzle cube pieces + You entered your data into Excel and used Excel to create the regression line + You interpreted the regression line and the graph in your notebook	- You did not collect all the data - You did not complete the Excel tasks - Your work is not shared in your engineering notebook	- You did not collect any data - Nothing is in your notebook