**DESCRIPTION**: You are looking to find the best gym for your money. In this activity, you will compare popular gym rates.

**What you need**: Group of 2 - 4 people with computers: 1) at least one person looking up the prices of gyms, 2) a person using Fathom on the VCL, 3) someone to keep the others on task and to read the activity directions.

**BEFORE YOU BEGIN**:

Predict which gym is the best value for your money. You will then research the gym rates for Planet Fitness, YMCA, Gold’s Gym (Option 1 and Option 2), Anytime Fitness, and Triangle Fitness.

***If a fitness club has different options available compare the options to one another as well.***

**SETTING UP THE EXPERIMENT**:

1. Make a new, empty collection in Fathom by dragging it from the shelf.
2. Make sure your collection is highlighted and drag a table from the shelf.
3. Click new and type in the attributes at the top of each column.
4. The first attribute should represent the month and the other attributes will represent the individual gym names (and options if it has more than one).
5. The month attribute should represent a membership purchase for up to 12 months.
6. The gym attributes should the total amount of money spent after the given month for each gym.

**COLLECT THE DATA**:

1. Use the Internet to find the membership rates for each of the gyms. ***If the fitness clubs have different options available compare the options to one another as well.***
2. To put the formula in the table, right click the attribute and go to show formula.
3. In the blank box underneath the name of the attribute, right click the box and click edit formula.
4. Type the equation for the gym memberships rate in the box.
5. Then click apply and okay. You should see the total cost after x number of months in each box.
6. Repeat steps 2-5 for the other gyms.
7. Drag a graph from the shelf to the workspace.
8. Choose and drag the independent variable and dependent variable from the table to the graph.
9. To include an additional gym, click the attribute and drag it to the appropriate variable and drop it over the plus sign.
10. You should see two sets of data in your graph.
11. To see the graph of your regression equation, highlight the graph, right click and choose the least-squares line.

**ANALYZE AND INTERPRET THE DATA**:

1. What do the y-intercepts represent?
2. What does slope of each line represent?
3. At what month will the cost be the same for both gym memberships?
4. What kind of system does this graph represent?
5. Describe the graph before and after the point of intersections.
6. Which gym is the best gym to join and why?
7. Besides price, what other factors contribute to your decision to join a particular gym?

**FINAL THOUGHTS OR QUESTIONS**:

How does this activity relate to the mathematical concepts we have reviewed?

What conditions would have to happen in order to have a system that has an inconsistent solution?

What conditions would have to happen in order to have a system that has a dependent solution?

What other real life connections can you make to systems of equations?