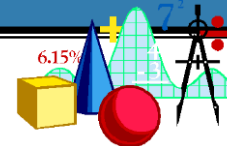Mathematics, Grade 8
Unit XII: Lesson 2   Poster / Bulletin Board: **Equation Graphics**

Review graphing equations with two variables. Review the meanings of the words: terms, coefficient, variable, and constant.

Select an equation with two variables to work with, for example, $y = -x + 2$ or $2x + y = 3$. Find at least three solutions to your equation and graph them on a coordinate plane. Now change only one part of the original equation, for example, the x or y coefficient, the constant, or the sign between the terms. Graph each change on the same coordinate plane. Look for a pattern.

Now make a new graph and change a different part of the original equation, keeping all other terms the same, for example, $y = -x + 2$; $2y = -x + 2$; $3y = -x + 2$. As you did for your first equation, change only one part of this new equation several times, graphing the effects of each change on one graph. After all possible changes have been tested; repeat the procedure using a new equation. Look for a pattern. Make generalizations about the effect the changes to the equations have on the graphs.

Make a poster or bulletin board to display your graphs. Show the test equations and provide a written summary of your generalizations. Present your project to the class.