Title – High School Math Student Learning Objective

Content Area – Algebra

Grade Level – 9^{th}

Students – 75

Interval of Instruction – Year

Main Criteria	Element	Description
Essential Question: What are the most important knowledge/skill(s) I want my students to attain by the end of the interval of instruction?		
Priority of Content	**Objective Statement**	Students will be able to model real-world situations and solve algebraic problems using their knowledge of equations (linear, quadratic, simple exponential, and rational).
	Rationale	As students master the skills described above, they will have the building blocks needed for Algebra 2, Geometry, and Advanced Math. Their baseline data shows a substantial weakness in this critical area as compared to other skills. Thus, this must be a priority focus for the year.
	Aligned Standards	A-REI.1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. A-REI.2. Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise. A-REI.3. Solve linear equations and inequalities in one variable, including equations with co-efficients represented by letters. A-REI.4. Solve quadratic equations in one variable. A-REI.6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables. A-REI.7. Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. A-REI.8. (+) Represent a system of linear equations as a single matrix equation in a vector variable. A-REI.9. (+) Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3 × 3 or greater). A-REI.10. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). A-REI.11. Explain why the *x*-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. A-CED.1. Create equations and inequalities in one variable and use them to solve problems. A-CED.2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. A-CED.3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. A-CED.4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.

<table>
<tr><td colspan="3">Essential Question: Where are my students now (at the beginning of instruction) with respect to the objective?</td></tr>
<tr><td></td><td>Baseline Data / Information</td><td>I administered a baseline assessment during the first week of classes modeled after the district common assessment for pre-algebra that assessed the 8th grade standards with a focus on pre-algebra and basic algebra skills. While students had relatively strong abilities with operation skills and expressions, working with equations was much more difficult for them.

Expressions: avg. 80%
Equations: avg. 65%
Operation Skills: avg. 78%</td></tr>
<tr><td colspan="3">Essential Question: Based on what I know about my students, where do I expect them to be by the end of the interval of instruction and how will they demonstrate their knowledge/skills?</td></tr>
<tr><td rowspan="2">Rigor of Target</td><td>Target(s)</td><td>1. The 63 students (84%) who tested above 50% on the baseline assessment for equations will average 80% or higher on the final assessment.
2. The 12 students (16%) who tested below 50% on the baseline for equations will each make gains of 30% on items pertaining to modeling and solving equations.</td></tr>
<tr><td>Rationale for Target(s)</td><td>An ability to model and solve equations is the weakest skill among this group of students. This group of students mirrors last year's cohort. My target last year was 80%. After learning more about CCSS, working with the new Department Chair, and implementing a number of strategies and interventions last year, I feel more confident putting those in place for all students starting at the beginning of the year, and thus, I am more confident that students will be able to achieve a higher average across the board.</td></tr>
<tr><td>Quality of Evidence</td><td>Evidence Source(s)</td><td>The final exam is a district-wide common assessment that was developed last year. 70% of test questions pertain to modeling and solving algebraic problems through their knowledge of varied equations. I will disaggregate the data from those items to analyze for this SLO. The exam will be administered by me in class during exam week. The other algebra teacher, the Math Department chair, and I will use a key and score exams together.</td></tr>
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