Subject: Math Grade: 8 Unit #: 6 Title: It's in the System

UNIT OVERVIEW

STAGE ONE: Identify Desired Results

Established Goals/Standards

8.EE.8
8.EE.8a
8.EE.8b
8.EE.8c
8.F.3

Long-Term Transfer Goal

At the end of this unit, students will use what they have learned to independently…
The It's in the System unit will allow students to develop their understanding of methods in which systems of equations with two variables can be used to model problem situations. They will also develop skills in graphic and symbolic methods needed to solve systems.

Meaning

Enduring Understandings

Students will understand that…
Students will apply and extend what they have learned in previous units about the properties of equality, linear equations, and methods for solving equations. They will extend their understanding of using graphic and symbolic methods for solving equations.

Students will understand
(Linear Equations)

- Recognize linear equations in in two variables in standard form Ax+By=C
- Recognize that a linear equation in the form Ax+By=C has infinitely many solutions (x,y) and the graph of those solutions is always a straight line
- Recognize that the form Ax+By=C of linear equations is equivalent to the form y=mx+b for linear equations
- Continue to develop skills in solving a linear equation in two variables by graphing and with algebraic methods
- Recognize that solving a system of linear equations is equivalent to finding values of the variables that will simultaneously satisfy all equations in the system
- Develop skills in solving systems of linear equations by graphing solutions of separate equations, writing the system of equations in equivalent y=mx+b form, or using combinations of the system to eliminate one variable
- Recognize that systems of linear equations in the form Ax+By=C, Dx+Ey=F may have exactly one

Essential Questions

Students will consider such questions as…
How can expressions and equations be rewritten into equivalent expressions?
How can equivalent expressions be used to solve problems?

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		solution, infinitely many solutions, or no solutions • Gain fluency with symbol manipulation in solving systems of linear equations • Solve problems that involve systems of linear equations	
		Acquisition	
		What knowledge will students learn as part of this unit? What are the variables in a problem? Does the problem call for solving a system of equations relating those variables? What strategy will be most effective in solving the system (diagram, symbolic, graphically, etc.)?	*What skills will students learn as part of this unit?* Solve linear equations and systems of linear equations with two variables Use systems of linear equations to solve problems

STAGE TWO: Determine Acceptable Evidence	
	Assessment Evidence
Criteria for to assess understanding: *(This is used to build the scoring tool.)*	Performance Task focused on Transfer: Unit test
	Other Assessment Evidence: • Check up (post investigation 1) • Unit test • Self-assessments of learning targets • Teacher observations • Common assessment (task be determined during CPT)

T, M, A *(Code for Transfer, Meaning Making and Acquisition)*	**STAGE THREE: Plan Learning Experiences**	
	Learning Events: Investigation 1:Linear Equations with Two Variables (4-5 days) Emphasis on identifying and writing equations constraining two variables. These equations will produce straight line graphs and they will use the graphs to estimate the solutions of the systems of linear equations • Problem 1.1: Shirts and Caps-Solving equations with two variables (A) • Problem 1.2: Connecting Ax+By=C and y=mx+b (A)	Evidence of learning: *(formative assessment)* • Reflection questions • Ace questions • Class work • Teacher observations

	• Problem 1.3: Booster Club Members-intersecting lines (M) Investigation 2: Solving Linear Systems Symbolically (4-5 days) Scholars will develop two methods for solving a system of two linear equations with two independent variables. • Problem 2.1: Shirts and Caps Again-solving systems with y=mx+b (M) • Problem 2.2: Taco Truck Lunch- solving systems by combining equations I (M) • Problem 2.3: Solving Systems by Combining Equations II (M)	

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