

Teacher: J. Cummins	Course: Algebra I	Grade Level: 9	# of Students: 25
Theme: Using Algebra to Save Money	Unit: Solving Systems of Equations		Lesson: Solving by Elimination
Standards	Common Core Math Standards HSA.REI.C.5 Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions. HSA.REI.C.6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables		
Learning Objectives	Given a system of linear equations, students will be able to find the solution algebraically using the elimination method and write the coordinates.		
Prior Knowledge	<ul style="list-style-type: none"> • Solving systems of equations by graphing • Solving systems of equations by substitution • Solving equations in one variable 		
Engage	Solve the following system by substitution: $5x + 2y = 9$ and $-5x + 6y = 7$		
Elicit	Whole class discussion: What is difficult about this problem? (When you solve for a variable, you have to deal with fractions in the substitution) Could you graph it? (Yes) What could be some problems with graphing? (It may not have integer coordinates so if you don't have technology tools it's hard to get an exact answer)		
Explore	What do you notice about the two original equations? What do they have in common? (Opposite terms $5x$ and $-5x$) What if we added the two equations together? ($5x$ and $-5x$ would cancel from the system) Can we solve for y now? (Yes, $y = 2$) How could we find x ? (Plug in y to one of the original equations, $x = 1$)		
Explain	Using the Elimination Notes handout, go through the steps for solving systems of equations by elimination and complete four examples together, 1) $7x + 3y = -5$ and $2x + 3y = 5$ 2) $4x - 3y = 15$ and $6x + 5y = -25$ 3) $5y = 8x - 2$ and $4x - 3y = -2$ 4) Word problem application		
Elaborate	Using individual dry erase boards, students will complete guided practice solving the following systems by elimination: 1. $7x - 4y = -3$ and $-3x + 4y = -1$ 2. $11x + 6y = 21$ and $11x + 4y = 25$ 3. $-2x + 5y = 6$ and $6x - 2y = 34$ 4. $-8x - 3y = 26$ and $-5x - 2y = 16$		
Extend	Independent practice by completing Elimination Worksheet		
Evaluate	Select one question from the Elimination Worksheet and record yourself solving it on the iPad app Educreation, which will record written work and voice explanation. Title your video with "Your Name, Elimination" and email the link to me. Instructions and evaluation checklist are included on the worksheet.		
Assessment	Formative assessment:		

	<ul style="list-style-type: none"> • Observation during dry erase guided practice • Worksheet assignment <p>Summative assessment:</p> <ul style="list-style-type: none"> • Educreations video
Materials Needed	<p>Elimination Notes Elimination Worksheet Individual dry erase boards, dry erase markers & rags iPads</p>
Technology	<p>iPad app Educreations will be used for students to demonstrate their understanding of solving by elimination. They will record themselves solving a system of their choice on the app which will capture their writing and voice explanation. The video link will then be emailed to me through the school email system.</p>
Differentiated Instruction	<p>This is a co-taught class, so both teachers are able to circulate during the guided practice dry erase activity providing additional support as needed.</p> <p>In the iPad app activity, students are able to choose which system they want to solve, so they can select the level of difficulty with which they are comfortable.</p>