

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 Substitution
Standards	Common Core Math Standard 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 substitution method and write the coordinates.		
Prior Knowledge	<ul style="list-style-type: none"> • Solving systems of equations by graphing • Solving equations in one variable 		
Engage	With a partner, graph the system $y = 2x - 5$ and $y = 5x$ on notebook paper and find the solution.		
Elicit	Whole class discussion: Without using graphing technology, can you find the exact solution? (Not really)		
Explore	What do you notice about the two equations? (Both equal to y) Since they equal the same thing, can we set them equal to each other? (Yes) Now solve $2x - 5 = 5x$ ($x = -5/3$) How could we find the value of y ? (Plug back into one of the original equations)		
Explain	Using the Substitution Notes handout, go through the steps for solving systems of equations by substitution and complete two examples together, 1) $12x - 6y = 12$ and $x = -2y + 11$ 2) $2x + y = 4$ and $5x - 2y = -1$		
Elaborate	Using individual dry erase boards, students will complete guided practice solving the following systems by substitution: <ol style="list-style-type: none"> 1. $x + y = 75$ and $8x + 5y = 444$ 2. $x = 3y - 11$ and $5x + 2y = -4$ 3. $y = 5$ and $2x + y = 6$ 		
Extend	Independent practice by completing Substitution Worksheet		
Evaluate	Select one question from the Substitution 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, Substitution" 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 Summative assessment: <ul style="list-style-type: none"> • Educreation video 		
Materials Needed	Substitution Notes Substitution Worksheet Individual dry erase boards, dry erase markers & rags iPads		

Technology	iPad app Educreations will be used for students to demonstrate their understanding of solving by substitution. 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.
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>