Lesson Revision Template
Topic: <u>Solving linear systems</u>   .

	Original Lesson	Revised Lesson
General Lesson Plan	- Demonstrate the graphing method of solving systems of equations - Students practice this method with 2 examples - Demonstrate the substitution method of solving systems of equations - Students practice this method with 2 examples - Demonstrate the elimination method of solving systems of equations - Students practice this method with 2 examples - Demonstrate the matrix method of solving systems of equations - Students practice this method with 2 examples	- Students play the Linear systems "polygraph" game (this is an online game through the desmos.com website) - The class does a **think-puzzle-explore** on linear systems to determine what they know and what still puzzles them. They spend time thinking individually, and then share in groups. - The think-puzzle-explore will determine the direction of the class: - If the majority of students have never seen the solving methods, go to part I below. If the majority have seen the methods go to part II below. - Part I: Stations are set up and a demo of the method is set up at the stations. Students circulate to the station for the method that they need help with. After this, the whole class discusses the methods as well as questions. - Part II: Teacher hands out a system to each group and asks each group to solve the system using their 'favorite' method. Groups are chosen to write the work and solution to their system on the white board. Students circulate and either put a question mark or check mark next to each method. - Groups are then asked to choose a different method to solve the same system, and they do this until they have worked through all the methods. - Examples are then given as a whole class and

		students are told to solve it using a particular method, and then group and class discussion occurs to check for understanding. ● Whole class discussion ensues on the methods and difficulties with them. Students are then given a home thinking assignment, which is a car racing game that uses linear systems to model the situation. ● Link to think-puzzle-explore routine: https://tinyurl.com/lg3rm2n
Novel Application How are students applying what they already know to the task at hand? How are they applying their learning to a new context that pushes their thinking in new directions?	They aren't in this case. The teacher is telling them everything they need and would have difficulty knowing where students are in the learning.	Students are using **think-puzzle-explore** to recall what they have learned about solving systems. They also use the polygraph game to discuss solving systems with other students. They will apply what they know about each method to the other methods they are learning, and will use all of it to investigate the racing game on desmos.
Meaningful Inquiry How many methods are possible to solve the problems or challenges in the lesson? To what extent am I giving the method and to what extent are students creating	Many methods are available due to the nature of the lesson. In teaching the lesson this way, I am giving all of the information - the students are providing very little input. All students will see all of the methods, but I won't be sure where the students are at in the learning using this mode of teaching. Little space is provided for high achieving students to push their thinking.	Students are asked to recall previous knowledge of solving systems. Initially, none of the methods are given by the teacher - the students are coming up with the methods and how each method works. All students will be able to participate because all students come in with at least a rudimentary knowledge of linear systems. All students will be able to play the polygraph game, and all students will be able to do think-puzzle-explore to set up the learning. Students are able to make choices in their learning along the way - choosing which method they like best, or which method they are having the most trouble with. Higher achieving students are allowed to

a method? Will all students be able to achieve the challenge? What space have I provided in the lessons for high achieving students to push their thinking?		move at their own pace through the different methods of solving. They can then move on to the car modeling problem, or are asked to help other students that may be struggling.
Effective Communication How much is the teacher talking? How much are the students talking? How are the students given time to share and communicate their ideas?	In this particular mode of teaching, the teacher is talking a majority of the time, and only asks for student input by asking "are there any questions?" Most of the class period is quiet, with students working quietly at their desks. Little time is given for sharing and communicating.	Sharing and communicating is the centerpiece of this lesson. Students have to share their thinking about the think-puzzle-explore routine, share their thinking on which method they will use with particular examples, and share their thoughts about the methods as they are moving around the classroom.
Perceived Worth To what extent is this lesson connected to a larger goal or context? How have I made connections to this larger context or goal clear to the students?	The larger context in this way of teaching is simply the larger context of the upcoming test, and that this is the "next section" in the book. Each method is spoof-fed to the students and their knowledge about systems is what they learn about solving them using the methods.	The goal of this lesson was to get the students discussing the whole body of work known as "Linear systems" - what are they? How are they used? How are they solved? My hope is that connections to this larger context is inherent in the way that the lesson is orchestrated and how it is carried out.