Clark University Master of Arts in Teaching Program
Learning Activity Plan

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***Modified* Learning Activity Plan (LAP) Format**

I. Content: Describe ***what*** it is you will teach. What is the content?

This lesson will be returning to substitution after students have had a week-long vacation. The lesson puts problems into context that allows students to choose their own challenge level to reacquaint themselves with the content.

II. Learning Goal(s): Describe what specifically students will ***know*** and ***be able to do*** after the experience of this class.

Following this lesson, students will be able to solve systems of equations using substitution while connecting it to other representations seen through graphs and tables. Students will be able to properly substitute in equations and solve for the system while understanding what the solution means in the context of the problem. The learning may take more than a day to really settle in, but students should have a strong understanding of the problems and how substitution related to the problems and how they are represented visually with a graph and table.

III. Rationale: Explain how the content and learning goal(s) relate to your Curriculum Unit Plan learning goals.

This lesson relates to my CAP student learning goal in trying to put systems of equations into more context and understanding what a solution is. The worksheets are in contexts that utilize student names and are familiar to them, so the students will be able to better recognize and understand what the problems ask for. Each tier hits on a different level of substitution, so students will be able to practice each type and get comfortable with it as they go, with each sheet getting progressively harder.

IV. Assessment: Describe ***how*** you and your students will know they have reached your learning goals. What will your students need to be able to do in order to meet the learning goals?

Students and I will know they have achieved their goals through completing the worksheet as a group and finishing them. This will be a two day lesson, so I will be able to provide feedback after the first day and as a class we will be able to go over the assignments on the second day. Students will know from this feedback if they have met the learning goals, and I will know through providing that feedback to them.

V. Personalization and equity: Describe how you will provide for individual student strengths and needs, such as academic, social, personal (including moderately and severely disabling conditions), and language development level. How specifically will ELL students and students with learning disabilities gain access and be scaffolded?

This lesson includes scaffolds through tiered work, where students will have personal choice over what level of difficulty they will work with. If they finish one problem before class is over, they can go on to the next tiered assignment. The assignment sheets themselves have scaffolds of started tables or graph labels written out so that students feel comfortable and confident jumping right into the work. The tier 1 worksheets have sentence starters on them as well to help take down the barrier of the writing to get right to the ideas. The groups will also be homogeneous so that students will be able to work with their group on one assignment and feel comfortable working with each other.

VI. Activity description and agenda

a. Describe the activities that will help your students understand the content of your class lesson by creating an agenda with time frames for your class (see table below). Be prepared to explain why you think each activity will help students on the path toward understanding.

b. What particular challenges, in terms of student learning or implementing planned activity, do you anticipate and how will you address them?

The biggest challenge I anticipate is that students will struggle to remember what we did before break. We covered this material the Friday before break, but even that week was disrupted by MCAS and a field trip. I hope to combat this through providing students necessary supports online and on paper through note sheets, as well as tiered assignments to evaluate where they're at and set their own challenge level.

VII. List the Massachusetts Learning Standards this lesson addresses.

8.EE.C.8 - Analyze and solve pairs of simultaneous linear equations.

8.EE.C.8.a - Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.

8.EE.C.8.b - Solve systems of two linear equations in two variables algebraically (using substitution and elimination strategies), and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.

VIII. Reflection

a. In light of all areas of planning, but especially in terms of your stated purpose and learning goals, in what ways was the activity(ies) successful? How do you know? In what ways was it not successful? How might the activity be planned differently another time?
b. What did you learn from the experience of this lesson that will inform your next LAP?

This lesson ended up looking slightly different from intended, but felt like a strong success. The tiered assignments were a good way to bring students back in with some agency over what they worked on. Of the seven groups, five chose tier 1, and one group each took 2 and 3. The students felt a little confused at first, especially with the starter. Coming off of break, students hadn't had practice with this in 10 days, so understandably and as predicted, things weren't as smooth to start, but the worksheets asking for tons of information in understanding the problem was huge in helping their comprehension and refreshing their brains. One major goal I've had through this unit was the ability to understand what the solution from substitution means in context to the problem, and by having the scaffolded parts of the sheet that 1sked for the context of each number and variable, the students were able to better put together their conceptual understanding within the problem. The groups seemed to work really well in getting students proactive in their work and talking with one another. Aside from one group, every group worked hard and showed promise in understanding. The groups that chose higher tiers worked hard together and productively struggled through the problems, while the tier one groups seemed to have found a solid challenge level that wasn't too hard, but rather helped them re-configure themselves in the math. Students worked really hard and made good progress the first day. Some groups got finished up with their first problem and started a second one, going up a tier. I left feedback for the students for the next day to finish up the problems they were working on better and to be able to handle another problem. I addressed any common favorite-nos I noticed amongst the whole group, which was mostly just forgetting the back in all honesty. However, on day 2, almost no work was completed. Barely any students addressed any of the feedback, and only a few people even made it through a part of a problem. My intentions were to provide them this day to finish the worksheets and even go over it, but since only a handful of students worked hard and made meaningful progress, something needed to be done to cause reflection in students and teach the lesson of working hard no matter what. After talking with my mentor teacher, we decided that the 5 students that met my expectations by addressing the feedback, completing two problems, and showing comprehension could get a free day outside with my mentor while the rest of the class had to stay in and keep working. The five students that met expectations were a mix of IEP, 504, and high-flying students, as well, so I knew that I had the problems set up well and accessible for all students, it was just a matter of their effort. I had the students start class by reflecting on their work ethic the last two days through grading themselves and writing why they deserved that grade. Following that, I had a talk with them as a class, not in an aggressive tone at all, but in a level tone that showed my disappointment while providing the facts and showing the students that it's fixable and they can do better. I also made it known that the students who weren't going outside were unable to get an A for the assignment since the were receiving an extension. The students that got to go outside were incredibly grateful, while the students that couldn't understood what they needed to do and worked incredibly hard. They agreed they didn't work the greatest, and many students showed that in their reflections. No

one was too upset by the reward or by not being able to receive an A, which showed me it worked and motivated students to work harder. The last day ended up being very productive, and I feel it worked well as a strong life lesson for the students.

As far as my next lesson goes, I'm in a weird position. I will be away for the following two days for a personal matter, so my mentor teacher will be giving them some practice while I'm gone. From there, when I return, students should have a strong enough grasp on the concepts through this lesson that I will provide them an assessment problem that will go in as a quiz grade. Students showed that they understood these types of problems and the real world scenarios that goes with them and they should be ready to put it together in a final assessment. The final assessment will be looking a lot at their comprehension and writing skills on their understanding of the solution in context and the problem itself.

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Time	What students will be doing	What teacher(s) will be doing	Rationale (how this supports learning goals)
Day 1 - Monday (50 minutes)			
5 minutes	Students will complete a starter that will ask them to solve two systems with substitution with an extension starter problem. I will also give them a chance to write down their favorite part from their break to check in with them.	I will pass out starter papers and walk around to provide any help that may be needed.	This provides a necessary refresher and gets students back to work on important concepts for the lesson. The check-in also helps to give the students something fun to write and give them a chance to tell me about something they did.
3 minutes	Students will correct their starter.	I will go over the starter problems quickly on the board.	This will provide instant feedback to students to make sure they have a good idea of how substitution works.
38 minutes	Students will have open practice time to work on tiered problems that have them solve systems of equations with substitution, while also having them graph and make tables to connect multiple representations.	I will provide help to students as they work on the problems.	This is the time students have to work through the problems and reacquaint themselves with their understanding of systems and substitution.
Day 2 - Tuesday (60 minutes)			
5 minutes	Students will complete a starter that will ask them to solve two systems with substitution with an extension starter problem.	I will pass out starter papers and walk around to provide any help that may be needed.	This continues to build practice with the algebraic skills needed for this unit.
5 minutes	Students will correct their starter They will also listen to any general feedback I provide from the work yesterday and make sure that they all understand how to move forward.	I will go over the starter problems quickly on the board. I will also use this time to address any confusions I saw with the assignments from the first day to clear that up quickly before they get back to work.	This will provide instant feedback to students. This will also clear up any misconceptions received from the work yesterday and get students back on the right track.
40 minutes	Students will continue to have open work time on their worksheets. As they complete one, they move to the next tier.	I will provide help to students as they work on the problems.	This gives students time to adjust based on the feedback I provided them and gets them back to work with their group.
10 minutes	Students will correct their work from the last two days as we go over it on the board.	I will go over each assignment on the board and have students correct their work.	Students will get the chance to reflect on their own work and provide themselves feedback.

Revised 3/25/20 (by online conference agreement!)