Lesson Plan – AIS Math (8th Grade)

Topic: Solving Systems of Equations by Elimination

Standard:

NY-8.EE.8a - Analyze and solve pairs of simultaneous linear equations. Solve systems of two linear equations in two variables with integer coefficients: graphically, numerically using a table, and algebraically. *(Solving systems of equations will be limited to at least one equation containing at least one variable whose coefficient is 1.)*

Objectives:
SWBT solve a system of linear equations using the elimination method.

Note**:** The longer version of this lesson (to be discussed below) would also include the following objective:
SWBT determine if a system of linear equations has one solution, no solutions, or infinite solutions.

Instructional Method	Description	Materials	Time
Introduction	On the board, students will be provided with my name, the agenda for this lesson, and the intended learning outcome. As students enter the room, they will be instructed to complete the "Entry Ticket." This is a short formative assessment to determine their ability/familiarity with some of the foundational skills related to this topic. I will walk around the room as students are working to observe their responses. I will ask students to share and explain their answers to the first section of the entry ticket. We will discuss the correct answers and I will instruct students to make corrections if necessary. The second part of the assessment will be addressed during the next section.	Entry Ticket Introducti-on Slide	5 Mins
Guided and Independent Practice	I will briefly discuss that there are 3 methods they have learned for solving systems of equations; graphing, substitution, and elimination. In reviewing the second question from the entry ticket, we will discuss that when you add two like terms with opposite signs, the terms are then eliminated. I will explain that this is our goal with the method we'll be using today. **Completed Example**: I will ask students to explain each step that was taken in this example and why. Given that this is the first example, I will offer assistance in these explanations as needed. **Guided Example**: I will guide students through this example until we reach the equivalence of Step 2 from the first example. Questions: What is different about this example? How can we get it to look more like the first example? What operation should we use to get the x terms to match?	Notes Handout	10-15 Mins

	I will highlight that we must multiply **every term** in the equation by that factor. I will also ask students what property this is (distributive). Once we have completed the distribution, I will ask students what our next step should be and suggest that they look at the first example to inform their response. Next, I will ask students to independently complete the problem. When they have completed the problem, they should read and consider the "Think About It" section. After a brief discussion about their responses to this section, I will suggest that students multiply by -2 in this situation. However, I will also note that they *could* subtract the two equations instead. Note: The handout provided to students ends here. Interviewers will be provided with a two-sided handout to show how I would continue this lesson given a longer period of time.		
Activity Scaffolded/ Leveled Task Cards	Level 1: No multiplication needed Level 2: Must multiply one equation Level 3: Must multiply both equations Directions will be provided to students on the board and verbally. The task cards will be hung up around the room to give students a chance to move around and collaborate. Students will be instructed to begin with a Level 1 question. If they are able to complete that question correctly and feel confident in their work, they will be instructed to then complete a Level 2 question. Otherwise, students will attempt another Level 1 question. Level 3 questions were not covered in this lesson but will be provided for any students who may be looking for an extra challenge! Answers will be provided on the back of each card for self-checking, however, the steps will not be provided and students must show their work on the recording sheet. They will be encouraged to consult a classmate (and/or myself) if they are stuck or need assistance. Note: This activity would look slightly different following the completion of the two-sided handout, given that the second side covers the topic of checking their solutions. In this case, I would not provide the answers and I would have students exchange their recording sheet with a classmate who completed a different question. They would be instructed to check each other's answers and proceed accordingly. Additionally, some task cards would include systems that have infinite or no solutions.	Task Cards Recording Sheet Directions Slide	10-15 Mins

Closing	Students will complete the Exit Ticket and must show their work. (Note: I would typically end the lesson with a formative assessment such as the exit ticket provided. Due to time constraints and given that I will not be planning further instruction for these students, I will not be instructing them to complete this during the demonstration.)	Exit Ticket	0 Mins
During Class Assessments (All Formative)	- Entry Ticket - Questions/Answers (Guided/Independent Practice) - Activity - Exit Ticket		
Future Class Assessments	Based on student progress and performance on previous formative assessments, I would provide a quiz to students in alignment with the standards and learning objectives provided at the start of this document.		

Materials have been translated (Spanish and Ukranian) and will be provided to Emerging Bilingual students.

The task cards and recording sheet used in this lesson were obtained from TeachersPayTeachers and then revised/adapted by me.

Link: https://www.teacherspayteachers.com/Product/Solving-Systems-of-Equations-by-Elimination-Activity-Differentiated-Task-Cards-8834699?st=5f8189b2daf0406ecad3196655f40226.