

Lesson: Which Method Will You Choose? Finding Solutions to Systems of Equations.

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Grade Level: 9

Subject: Algebra 1

Overview:

- This lesson focuses on the methods for finding solutions to systems of linear equations
- Students will choose a method (substitution, elimination, graphing) and sell that method using Alice software to create a commercial
- Alice concepts focus on setting up scenes and creating methods

Objectives and Goals:

- NCSCOS Algebra 1
 - Competency Goal 4: The learner will use relations and functions to solve problems.
 - Objective 4.03: Use systems of linear equations or inequalities in two variables to model and solve problems. Solve using tables, graphs, and algebraic properties; justify results.
- NCSCOS Grade 8 Computer/Technology Skills
 - Competency Goal 3: The learner will use a variety of technologies to access, analyze, interpret, synthesize, apply, and communicate information
 - Objective 3.07: Plan, design, and develop a multimedia product using data (e.g., graphs, charts, database reports) to present content information

Anticipatory Set (8 min):

- On the board put the following systems of equations and ask students to solve using any method:
 - $y = 3x + 2$; $y = \frac{1}{2}x - 4$
 - $2x + 3y = 12$; $4x - 12y = 24$
 - $7y = 2x - 1$; $y = x + 2$

Direct Instruction/Guided Practice (15 min):

- Have students come to board to solve the system of equations
- Ask for additional methods of solving the systems
- Point out the reasons for using specific methods

Closure (5 min):

- How can you tell which method is the best to use when looking at a system of equations?

Independent Practice: Solutions of Systems of Linear Equations Activity

- Create a commercial for one of the methods for solving systems of linear equations, to sell your mathematical product which, in this case, is your chosen method! Include the following:
 - A catchy slogan
 - Clear definitions of important terms
 - Example problems
 - What steps someone would take to use your method
 - A clear argument stating **the reasons why** your method is better than the other ones. (In other words, come up with a few good sentences that explain why you chose your method and why others should too!)
- Procedure:

Task #1) Your group needs to take a stance on what it will advertise

Stance 1) Why the **equation method** for finding the solution to linear equations is the best.

Stance 2) Why the **graphical method** (using a graph to find the solution) is best.

Stance 3) Why the **substitution method** (substituting one equation into the other) is best.

Stance 4) Why the **elimination method** is best.

Task #2) Assign roles to each member in your group.

Roles

Example Maker : _____

(person needs to create specific mathematical examples)

Slogan Maker : _____

(person responsible for a catchy slogan)

Definition Maker: _____

(person responsible for clearly writing all relevant definitions)

Seller : _____

(Person responsible for "Clearly stating **the reasons why** your method is better than the other way to find the answer")

Task #3) Create the commercial

Required Materials and Equipment:

- Graph paper/graphing calculator (optional)
- Computer with Alice software

- Data projector
- Colored pencils/markers for storyboarding
- Storyboard paper

Assessment

- Use rubric

Graded Component	Point Value
I. Following Procedures Did you properly follow all the steps in each task?	5 Points
II. Neatness and Clarity Is your work legible and neatly presented? Are your definitions, examples, steps and other parts of the advertisement clearly worded, labeled, and legibly written?	10 Points
III. Quality of Mathematics Did you accurately define all math terms? Did you properly state the steps necessary to use your method? Are your examples good choices to illustrate the benefits of your chosen method?	20 Points
IV. Design: Slogan/Logo. Is your logo/slogan appropriate for your advertisement? Do your logo/slogan work towards selling your method?	7 Points
V. Argument Did you articulate a clear argument for the benefits of using your chosen method?	8 Points
VI. Alice World Did you create a creative commercial using Alice, including all supporting statements listed in part III and V?	10 Points

Total Points: 60