Grades 8-9 Lesson Plan

Lesson 1 | Intro to Evaluating Systems of Equations

Lure of the Labyrinth: Vending Machine can be used to introduce systems of equations. The game is an opportunity to experiment and discover intuitive math strategy skills *before* learning algebra more formally.

	Common Core State Standards
Game Level 2 'Manager's Lounge'	Intro to Evaluating Systems of Equations ● *8.EE.C*: Analyze and solve linear equations and pairs of simultaneous linear equations. ● *HSA-REI.C*: Solve systems of equations

Materials

- Devices (e.g. laptops or tablets) for students to play the game on. Small groups of 2-3 students can share each device. You may have to confirm that the game is not blocked on school devices.
- Scratch paper for students to write on.

Preparation

1. Play through Level 2 of the Lure of the Labyrinth: Vending Machine game.
2. We recommend using the *5 Practices for Orchestrating Productive Mathematics Discussions* (Smith & Stein, published by NCTM) to prepare for in-class discussions. You can find a planning template with suggested guiding questions here: Teacher Planning Template.
3. For more background, you can watch the game's intro and level explainer videos here:
    - Intro Video
    - Level 2 Explainer Video

Lesson Plan

1. **Introduction**: Briefly introduce the activity. Emphasize that students will need to figure out how to solve the game puzzles. Level 2 is a Challenge level. It's okay if students don't finish the game - the important part is to experiment, restart, and try different strategies.
2. **Arrange student groups**: Arrange students into small groups of 2-3. Each student group can share 1 device (e.g., laptop or tablet). Give students scratch paper to write on.
3. **Play Level 2**: Give students ~20 minutes to play Level 2 ('Manager's Lounge') of the game. If groups finish early, they can start on the Lesson 2 worksheets. As students play, circulate the room to see what strategies students are using.
    a. **Level 2 Hint**: Around halfway in, you can announce a hint to the class. See the Level 2 Explainer Video for more details.
4. **Class discussion**: Regroup the class. Ask a few student groups to share out what strategies they tried, and what worked. Ideally, pick a few groups that you observed using different strategies.
5. **Debrief**: The strategies that students discovered through the game are key aspects of algebraic thinking for solving systems of equations. Students should keep an eye out for similar problem solving throughout the rest of this unit, as you teach the math more formally.