

Grade: 8 FCPS 2026-2027 Math Grade 8 Topic 5 Framework

8th Grade Topic 5: Analyze and Solve Systems of Equations		Estimate Time Frame: 25 days Planning Calendar Template
Essential Standards: 8.EE.8		
Assessment Resource: End of Topic Common Assessment Folder and Pear Assessment Shortcut Link		
FCPS Supporting Links		Additional Supporting Links
Pacing Guide Unit / Lesson Internalization 8th Grade Topic 5 Standards Resource with Sample Formative Assessments enVision 8th Grade Topic 5 Standards Crosswalk Resource FCPS P-12 Mathematics Guidance Document SEL Standards		Kentucky Academic Standards KSA Blueprint Target of the Standards - conceptual, procedural & application Three-Reads Routine Notice and Wonder Routine <i>enVision Teacher Guide: page 260A to 260D for specific Topic 5 Focus-Coherence-Rigor</i>
Big Ideas		Opportunities for Vibrant Learning and Writing
Analyze and solve linear equations and pairs of simultaneous linear equations.		
Essential Questions		Common Preconceptions/Misconceptions
- What does it mean to solve a system of linear equations? - How does using a graph help us to solve systems of linear equations? - How does determining a solution to a system of equations assist in assessing the reasonableness of answers?		- Systems of Equations- being aware of which variable they are substituting and watching for grouping symbols and negatives. - Solutions of Systems of Equations- students struggle to interpret the meaning of the solution in context.

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Standards for Mathematical Practices	Kentucky Interdisciplinary Literacy Practices (KILP)	
MP.1. Make sense of problems and persevere in solving them. MP.2. Reason abstractly and quantitatively. MP.3. Construct viable arguments and critique the reasoning of others. MP.4. Model with mathematics. MP.5. Use appropriate tools strategically. MP.6. Attend to precision. MP.7. Look for and make use of structure. MP.8. Look for and express regularity in repeated reasoning. <i>enVision Teacher Guide: page 260E for specific Topic 5 Math Practice suggestions</i>	1. Recognize that text is anything that communicates a message. 2. Employ, develop, and refine schemas to understand and create text. 3. View literacy experiences as transactional, interdisciplinary, and transformational. 4. Utilize receptive and expressive language arts to better understand self, others, and the world. 5. Apply strategic practices, with scaffolding and then independently, to approach new literacy tasks. 6. Collaborate with others to create new meaning. 7. Utilize digital resources to learn and share with others. 8. Engage in specialized, discipline-specific literacy practices. 9. Apply high-level cognitive processes to think deeply and critically about text. 10. Develop a literacy identity that promotes lifelong learning. <i>Incorporating texts into math instruction fosters interdisciplinary learning for a more engaging educational experience.</i>	
Essential Standards	Sample Learning Intentions & Success Criteria	HQIR/Resource Considerations  Indicates a misalignment with Kentucky Academic Standards  Indicates a consideration for planning and instruction
Cluster: Analyze and solve linear equations and pairs of simultaneous linear equations.		
KY.8.EE.8 Analyze and solve pairs of simultaneous linear equations. ☐ Conceptual ☐ Procedural ☐ Application 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	We are learning to understand systems of equations. - I can identify the solutions to a system of equations by finding the point of intersection on the graph. - I can explain why the point of intersection of the graphs of two linear equations is the solution to	- Possible formative assessment  Topic 5 8th Grade Formatives... - Topic 5 Lesson 1 Topic 5: Let's Investigate! A Honey of a Deal (replaces example 1 in Topic 5 Lesson 5-2)

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satisfy both equations simultaneously; understand that a system of two linear equations may have one solution, no solution, or infinitely many solutions.

Clarifications: Examples are both mathematical and real-life contexts. Emphasis is on determining what types of contexts lead to having no solutions or infinitely many solutions. Students use tables, graphs and equations to explain why a graphed system has infinitely many or no solutions.

☐ **Conceptual** ☐ Procedural ☐ Application

b. Solve systems of two linear equations in two variables algebraically by using substitution where at least one equation contains at least one variable whose coefficient is 1 and by inspection for simple cases.

Clarifications: Elimination and/or matrices are not required for grade 8. Emphasis is on choosing a method. Students 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 and select from the other approaches, based on the numbers in the problem. Solving systems algebraically will be limited to at least one equation containing at least one variable with a coefficient of 1; for example, $y = 3x$, $y = -12x + 6$, $x = 2$, $x = 2y + 1$.

☐ **Conceptual** ☐ **Procedural** ☐ Application

c. Solve real-world and mathematical problems leading to two linear equations in two variables.

☐ Conceptual ☐ **Procedural** ☐ **Application**

Coherence KY.7.EE.2→ KY.8.EE.8→ KY.HS.A.20

MP.1, MP.3, MP.4, KILP.1, KILP.3, KILP.8

the system of equations.

- I can explain why a system of equations could have 1, 0, or infinite solutions.
- I can determine what contexts lead to having no solutions or infinitely many solutions.

We are learning to solve systems of equations by substitution.

- I can solve systems by substituting one equation into the other, solving for one of the variables, then solving for the other variable.

We are learning to solve real-world and mathematical problems involving two linear equations.

- I can analyze a situation to create a system of equations.
- I can solve a system of equations.

- [enVision Language Support Handbook](#)

- MILC - Systems Foldable
- MILC - Systems Turover Cards

- Topic 5 Lesson 2
- Brainingcamp Task (Lesson 5-2) [“Cell Phone Plans”](#)
- [enVision Language Support Handbook](#)

- Topic 5 Lesson 5-3
- Cards to use with Lesson 5-3 posted on [MILC](#)
- [3-Act Task: Ups and Downs](#)
- [enVision Language Support Handbook](#)

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Attending to the Standards for Mathematical Practice

Students solve linear equations in one variable, including cases with one solution, infinite solutions, and no solutions. Students show examples of each case by successfully transforming an equation into simpler forms. Some linear equations require students to expand expressions by using the distributive property and to collect like terms (MP.2, MP.7). Solving pairs of simultaneous linear equations builds on the skills and understandings students used to solve linear equations with one variable. Systems of linear equations may also have one solution, an infinite number of solutions, or no solutions (MP.2, MP.3). Students discover these cases as they graph systems of linear equations and solve algebraically.

Supporting Standards

N/A

Vocabulary

solution - The value of a variable that makes an equation true.
substitution - Replacement of a variable with an equal expression or constant.
system of equations - Two or more linear equations in the same variables.

*Disclaimer: Success Criteria is the evidence students must produce to demonstrate learning. This example is not comprehensive.

** Mathematical Practices (A.MP. 1- 8) should be evidenced at some point throughout each unit, depending on the explored tasks. It is important to note that MP. 2 should support learning in every lesson.

*** Modeling Standards: Modeling is best interpreted not as a collection of isolated topics but rather with other standards. Making mathematical models is a Standard for Mathematical Practice, and specific modeling standards appear throughout the high school standards indicated by a star symbol (★). The star symbol sometimes appears on the heading for a group of standards; in that case, it should be understood to apply to *all* standards in that group.