Grade: 8 FCPS 2025-2026 Math Grade 8 Topic 5

8th Grade Topic 5: Analyze and Solve Systems of Equations	Estimate Time Frame: 25 days
Essential Standards: 8.EE.8 Assessment Resource: enVision Topic 5 Assessment	

FCPS Supporting Links	Additional Supporting Links
Pacing Guide 8th Grade Topic 5 Standards Resource with Sample Formative Assessments enVision 8th Grade Topic 2 Standards Crosswalk Resource FCPS P-12 Mathematics Guidance Document FCPS Achievement & Trauma-Informed Strategies in the Classroom	Kentucky Academic Standards KSA Blueprint Target of the Standards - conceptual, procedural & application Three-Reads Routine Notice and Wonder Routine **MILC Resources Topic 5: Analyze and Solve Systems of Equations** ***enVision Teacher Guide: page 260A to 260D for specific Topic 5 Focus-Coherence-Rigor***

Big Ideas
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.

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.** ***enVision Teacher Guide: page 260E for specific Topic 5 Math Practice suggestions***	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. *Incorporating texts into math instruction fosters interdisciplinary learning for a more engaging educational experience.*	
Essential Standards	**Sample Learning Intentions & Success Criteria**	**HQIR/Resource Considerations**
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 satisfy both equations simultaneously; understand that a system of two linear equations may have one solution, no solution, or infinitely many solutions. ☐**Conceptual** ❑ Procedural ❑ Application	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 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.	• Topic 5 Lesson 1 • Topic 5: Let's Investigate! A Honey of a Deal (replaces example 1 in Topic 5 Lesson 5-2) • enVision Language Support Handbook • MILC - Systems Foldable • MILC - Systems Turover Cards

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. ☐**Conceptual** ☐**Procedural** ❑ Application c. Solve real-world and mathematical problems leading to two linear equations in two variables. ❑ Conceptual ☐**Procedural** ☐ **Application** **Clarifications:** a. Examples include mathematical and real-life contexts. The emphasis is on determining what types of contexts lead to no solutions or infinitely many solutions. b. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6. **The elimination method is <u>not required.</u>** 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**	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.	● 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

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.