# Scope and Sequence for CMP3  
## Grade 8

## IT’S IN THE SYSTEM  
### Systems of Linear Equations and Inequalities

<table>
<thead>
<tr>
<th>Instructional Time and Investigations</th>
</tr>
</thead>
</table>
| 20 $\frac{1}{2}$ days  

| Goals |  
|---|---|
| **Linear Equations:** Develop understanding of linear equations and systems of linear equations.  
• A system of linear equations can be used to solve problems when two or more equations that represent constraints on the variables in a situation are identified.  
• The solution to a system of linear equations can be found graphically or algebraically. Analyzing the equations and the situation can help you to determine which strategy is most appropriate to apply. | **Linear Inequalities:** Develop understanding of graphic and symbolic methods for solving linear inequalities with one and two variables.  
• The strategies for solving linear equations, linear inequalities, and systems of linear equations can be extended to solving systems of linear inequalities using the properties of inequality. |

| Common Core Standards |  
|---|---|
| **Common Core Standards for Mathematical Practice**  
**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. | **Common Core Content Standards**  
**8.EE.C.8:** Analyze and solve pairs of simultaneous linear equations.  
**8.EE.C.8a:** 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.  
**8.EE.C.8b:** Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.  
**8.EE.C.8c:** Solve real-world and mathematical problems leading to two linear equations in two variables.  
**8.F.A.3:** Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. |
## IT'S IN THE SYSTEM  Systems of Linear Equations and Inequalities

### Content Connections to Other Units

<table>
<thead>
<tr>
<th>Goals of the Unit</th>
<th>Prior Work</th>
<th>Future Work</th>
</tr>
</thead>
</table>
| **Linear Equations:** Develop understanding of linear equations and systems of linear equations. | • Formulating, reading, and interpreting symbolic rules (Variables and Patterns; Comparing and Scaling; Moving Straight Ahead; Thinking With Mathematical Models; Say It With Symbols)  
• Solving problems in geometric and algebraic contexts (Shapes and Designs; Moving Straight Ahead; Thinking With Mathematical Models; Say It With Symbols)  
• Solving linear equations (Variables and Patterns; Comparing and Scaling; Moving Straight Ahead; Thinking With Mathematical Models; Growing, Growing, Growing; Say It With Symbols) | • Using constraints to interpret a real-world situation in linear and nonlinear contexts (High School)  
• Finding areas of bounded regions in the coordinate plane (High School; College)  
• Solving systems of equations beyond linear equations (e.g., a quadratic and a polynomial); solving multi-dimensional systems of linear equations; using matrices and Cramer's Rule to solve systems of linear equations (High School; College) |
| **Linear Inequalities:** Develop understanding of graphic and symbolic methods for solving linear inequalities with one and two variables. | • Working with the triangle inequality (Shapes and Designs)  
• Solving linear equations (Variables and Patterns; Comparing and Scaling; Moving Straight Ahead; Thinking With Mathematical Models; Growing, Growing, Growing; Say It With Symbols) | • Solving multi-dimensional inequalities (High School; College)  
• Finding minimum and maximum values through linear programming; solving systems of inequalities beyond linear functions (High School) |