**Math Example Grade-Level Learning Progression**

|  |  | **What Students Know/Are Able to Do** | **Potential misconceptions/What could go wrong** | **Instructional methods** |
| --- | --- | --- | --- | --- |
|  | 8 | **Extension:** students can find the coordinate that optimizes a system of inequalities in context. |  |  |
| Upper Anchor | 7 | Students can create a system of inequalities for a given context | Use the wrong inequality symbol, error on slope or y intercept. |  |
| Building Blocks | 6 | Graph the solution to a system of linear inequalities in 2 variables and identify solutions. And Identify the graph that corresponds to a system of inequality | Error on slope, y-intercept, boundary line and/or shading | Explore, guided practice, group work, matching game |
| 5 | Graph the solution to a linear inequality in two variables | Same as below | Practice- group and board |
| 4 | Students can identify the graph that corresponds to a given linear inequality with two variables. | Same as below | Lecture and matching activity |
| 3 | Know which region to shade and understand boundary lines and half-plane and understand how dashed and solid lines are used in solutions to inequalities. | Shade the wrong half plane and/or choose a solution that is on a dashed line. | Questioning and guided exploration |
| 2 | How to distinguish between strict < or > and ≤ or ≥ boundary lines— | Mix up dashed/ solid line | Explore activity/math Talks |
| Lower  Anchor | 1 | Solving 1 variable inequalities  Graph equations of lines |  | Scaffolding for the standard |

**Cluster/Standard:** AREI.12- Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

**Prior Knowledge:** **8** **EE.7 and 8EE.8**: Analyze and solve linear equations and pairs of simultaneous linear equations. Solve a linear equation for y.

**8.F. 1 -4** Graph linear relationships, construct linear models, Describe quantitatively the relationship between two quantities, substitute an ordered pair into an equality.

**Connection to Upper Learning:** [CCSS.Math.Content.HSA.REI.D.11](http://www.corestandards.org/Math/Content/HSA/REI/D/11/)  
Explain why the *x*-coordinates of the points where the graphs of the equations *y* = *f*(*x*) and *y* = *g*(*x*) intersect are the solutions of the equation *f*(*x*) = *g*(*x*); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where *f*(*x*) and/or *g*(*x*) more advanced than linear, ie. polynomial, rational, absolute value, exponential, and logarithmic functions.\*