UNIT OF STUDY

#6

Title: solve inequalities of two variables / write linear equations of two variables
Subject/Course: 10th Res. Math  
Length: 2 weeks
Grade: 10th  
Designer: K. Henderson

Find the slope

UNIT GOALS AND EXPECTATIONS

IMPORTANT CONCEPTS/UNDERSTANDINGS:

- graphing order pairs, vertical line, horizontal line
- find 3 solutions to an equation and graph
- graph an equation using a table, intercept method, or slope intercept method
- determine the type of line to use when graphing inequalities (solid or dashed)
- shade the correct side of an inequality graph
- use the slope formula
- remember the slope of a horizontal and vertical line
- identify parallel and perpendicular lines
- understand when to use the reciprocal of a given slope
- decide which side of the line to shade by testing points that are not on the line in the inequality

For instance in solving $2x - 3y < 6$ graph the line $2x - 3y = 6$ and then test $(0,0)$ and $(5,0)$ in the inequality. $(0,0)$ gives a true statement and $(5,0)$ gives a false statement so the correct side of the line must include $(0,0)$.

ESSENTIAL QUESTIONS:

- What is an ordered pair?
- How do you graph an ordered pair?
- How do you know when to graph a vertical or horizontal line?
- How do you graph a line using a table, intercept method and the slope intercept method?
- What is the intercept method (zeros)?
- What is the slope intercept method ($y=mx+b$)?
- What is slope?
- What is the x intercept and the y intercept?
- What type of line do I use for my boundary when graphing inequalities?
- How do you determine which side of an inequality graph to shade?
- What is the slope formula?
- What is the slope of a horizontal and vertical line?
- What is the slope of parallel lines?
- What does it mean to use the reciprocal of a slope on a perpendicular line?
- If two lines are perpendicular what is true about their slopes? [They are negative reciprocals]

STUDENT LEARNING EXPECTATIONS:

LF.3.A1.5 - Interpret the rate of change/slope and intercepts within the context of everyday life (Ex. telephone charges based on base rate ($y$-intercept) plus rate per minute (slope))

LF.3.A1.6 - Calculate the slope given
  - two points
  - the graph of a line
  - the equation of a line

LF.3.A1.8 - *Write an equation in slope-intercept, point-slope, and standard forms given
  - two points
  - a point and y-intercept
  - $x$-intercept and $y$-intercept
  - a point and slope
  - a table of data
  - the graph of a line
**LF.3.AI.9** - Describe the effects of parameter changes, slope and/or y-intercept, on graphs of linear functions and vice versa

**SEI.2.AI.4** - Solve and graph simple absolute value equations and inequalities (Ex. |x| = 5, |x| ≤ 5, |x| > 5)

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<tr>
<th><strong>SPECIFIC DECLARATIVE KNOWLEDGE</strong> – What I know</th>
<th><strong>SPECIFIC PROCEDURAL KNOWLEDGE</strong> – What I need to do</th>
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| Vocabulary words – ordered pair, coordinate, linear equation, linear inequality, solution, x axis, y axis, origin, x intercept, y intercept, slope, boundary line, intercept method, slope intercept method, slope formula, slope of horizontal and vertical line, parallel and perpendicular lines, reciprocal | • identify ordered pairs and graph them correctly  
• graph equation using a data table  
• graph an equation using the intercept method  
• graph an equation using the slope intercept method  
• use the correct boundary line when graphing and shading linear inequalities  
• use the slope formula to determine the slope of a line  
• recognize parallel lines have equal slopes but perpendicular lines use the reciprocal |

**UNIT ASSESSMENTS** (Include tasks related to Dimensions 3 and 4 and Bloom’s Taxonomy)

- Open response question
  - requiring the student to graph linear inequalities with two variables (application)

**Traditional Assessments:**
- independent practice worksheets
- Test
- warm-up quizzes or homework quizzes

**Other Evidence of Learning:**
- notes
- guided practice
- observation
- marker board review

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<td>1. 4 step vocabulary to introduce key words from the unit.</td>
<td>4 step worksheet</td>
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<td>2. Lesson 7.3 graphing linear inequalities of two variables</td>
<td>Algebra’s Cool DVD program Unit C</td>
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| 3. Lesson 8.1 Find the slope  
*given the graph of the line  
*given two points on the line | Algebra’s Cool DVD program Unit |
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<td>Treasure hunter, score keeper, road construction designer, parachute jumper</td>
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