UNIT OF STUDY
#6

Title: solve inequalities of two variables / write linear equations of two variables
Subject/Course: 10th Res. Math **Length: 2 weeks**
Topic: graphing linear inequalities of two variables **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.AI.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.AI.6 - Calculate the slope given

- two points
- the graph of a line
- the equation of a line

LF.3.AI.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. $\|x\| = 5$, $\|x\| \leq 5$, $\|x\| > 5$)
SPECIFIC DECLARATIVE KNOWLEDGE – What I know 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	**SPECIFIC PROCEDURAL KNOWLEDGE – What I need to do** • 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

ACTIVITIES AND LEARNING EXPERIENCES	Resources
1. 4 step vocabulary to introduce key words from the unit.	4 step worksheet
2. Lesson 7.3 graphing linear inequalities of two variables	Algebra's Cool DVD program Unit C
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

*horizontal and vertical lines 4. marker board review – group review	marker board & eraser
Career Connections	
Treasure hunter, score keeper, road construction designer, parachute jumper	