MIAMI-DADE COUNTY PUBLIC SCHOOLS
District Pacing Guide

ALGEBRA I   **Course Code: 120031001**

BODY OF KNOWLEDGE: A: Algebra

Pacing		Date(s)
Traditional	13 days	01-24-11 to 02-09-11
Block	6 days	01-24-11 to 02-09-11

TOPIC VI: Inequalities

NEXT GENERATION SUNSHINE STATE STANDARDS	ESSENTIAL CONTENT	OBJECTIVES	INSTRUCTIONAL TOOLS

MA.912.A.3.4
Solve and graph simple and compound inequalities in one variable and be able to justify each step in a solution.
 	
MA.912.A.3.5
Symbolically represent and solve multi-step and real-world applications that involve linear equations and inequalities.
 	
MA.912.A.3.12
Graph a linear equation or inequality in two variables with and without graphing technology. Write an equation or inequality represented by a given graph.
 	
MA.912.A.3.13
Use a graph to approximate the solution of a system of linear equations or inequalities in two variables with and without technology.
 	
MA.912.A.3.14
Solve systems of linear equations and inequalities in two and three variables using graphical, substitution, and elimination methods
 	
MA.912.A.3.15
Solve real-world problems involving systems of linear equations and inequalities in two and three variables.
	A. One-variable Inequalities
	  1. Graph on a number line
	  2. Change of sign rule for multiplication/division
	  3. Compound Inequalities
	
	B. System of linear inequalities
	  1. Graphing
	    a. Solve a two-variable inequality for y
	    b. Graph a two-variable inequality on a coordinate plane
	    c. Use a graphing calculator to graph an inequality in two variables
	  2. Interpret a graph of a system of real-world data inequalities
	  3. Interpret graph of half-planes and write corresponding linear inequalities
		• Solve a system of linear equations using a graph, the substitution method and the linear combination method
		• Model real-world data with a system of linear equation in two variables
		• Solve two-variable inequalities for y
		• Graph an inequality in two variables
		• Solve a system of linear inequalities by graphing
		• Graph an inequality in two variables with and without graphing technology
		• Write an inequality represented by a given graph.
		• Solve real-world problems involving inequalities
		• Interpret the mathematical solutions to a system of inequalities in terms of the problem content
			Core Text Book:
			
			Vocabulary: one-variable inequality, linear inequality, compound inequality, half-plane, system of inequalities, coordinate plane
			
			Technology:
			1. Graphing Calculator Activities
			2. Gizmo Activities
			
			Strategies: Note taking, Journal writing, Problem creation, and Summarizing
			
			o **ELL: Cooperative Team Reflection & Writing**
			o **Enrichment: K-L-W organizer**
			o **SPED: Similarity/Difference Graphic organizer**
			
			Performance Assessment:
			(see page 5)
			1. My Best Work
			2. Pop Up Story

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NEXT GENERATION SUNSHINE STATE STANDARDS

ALGEBRA BODY OF KNOWLEDGE

Standard3: Linear Equations and Inequalities
Students solve linear equations and inequalities.

BENCHMARK CODE	BENCHMARK
MA.912.A.3.4	Solve and graph simple and compound inequalities in one variable and be able to justify each step in a solution. *Remarks/Examples*: Example 1: Solve the following inequality for *x* and then graph the solution set on a number line: 7<3x+5<11 Example 2: Solve the following inequality for x in the set {0, 1, 2, 3, 4}: 6x-3>10 Show your work. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
MA.912.A.3.5	Symbolically represent and solve multi-step and real-world applications that involve linear equations and inequalities. *Remarks/Examples*: Example 1: You are selling tickets for a play that cost $3 each. You want to sell at least $50 worth. Write and solve an inequality for the minimum number of tickets you must sell. Example 2: An alloy is a metal that contains combinations of different types of metal. A manufacturing company needs to make an alloy that has nickel content between 43% and 47% (based on mass). The company already has an alloy with 50% nickel and another alloy with 40% nickel. They plan to mix them to make the alloy they need. Find the least and greatest mass (in kg) of a 50% nickel alloy that should be mixed with a 40% nickel alloy to end up with 100 kilograms of an alloy containing the required percentage of nickel. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
MA.912.A.3.12	Graph a linear equation or inequality in two variables with and without graphing technology. Write an equation or inequality represented by a given graph. *Remarks/Examples*: Example: On a coordinate plane , graph of the following inequality: 3x+8y≥24 Example: Use a spreadsheet to create a line graph of the following function: y = (3/4)x + 7 *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
MA.912.A.3.13	Use a graph to approximate the solution of a system of linear equations or inequalities in two variables with and without technology. *Remarks/Examples*: Example 1: Graph 3y - x = 0 and 2x + 4y = 15 on the same coordinate system. Determine whether the lines intersect. If so, find the point of intersection. Example 2: Graph the following inequalities and shade the region (if any) on the coordinate plane where both inequalities are true: y ≤ 4 and x + y ≤ 5 Example 3: Approximate the solution, if any, for the following system of linear equations: $$\begin{cases} y = \dfrac{-1}{4} x + 9 \\ y = 8 \end{cases}$$ Example 4: Explain why (4,-3) is a solution to the following system of inequalities:

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		$$\begin{cases} y < 3x + 1 \\ x > 2 \end{cases}$$ *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
	MA.912.A.3.14	Solve systems of linear equations and inequalities in two and three variables using graphical, substitution, and elimination methods. *Remarks/Examples*: Example 1: Solve the following system of equations by substitution: $$\begin{cases} y = 2x \\ 2x + 3y = 12 \end{cases}$$ Example 2: Graph the solution for the following system of inequalities: $$\begin{cases} 3x + 4y < 11 \\ 3x + 2y \geqslant 7 \end{cases}$$ Example 3: Solve the following system of equations: $$\begin{cases} x - 2y + 3z = 5 \\ x + 3z = 11 \\ 5y - 6z = 9 \end{cases}$$ *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
	MA.912.A.3.15	Solve real-world problems involving systems of linear equations and inequalities in two and three variables. *Remarks/Examples*: Example 1: Each week, you work a total of 20 hours. Some of the 20 hours is spent working at the local bookstore and some spent at the drugstore. You prefer the bookstore and want to work at least 10 more hours at the bookstore relative to the drugstore. Draw a graph to show the possible combinations of hours that you could work. Example 2: Let x = the amount of liquid (in milliliters) of a product sold by some company. The income (I) that the company makes from sales of the liquid can be represented by the equation $I(x)=10.5x$ and the expenses (E) for the production of the liquid can be represented by the equation $E(x)=5.25x+10,000$, where I and e are in dollars. What is the minimum amount of the liquid (in milliliters) that the company must sell to reach the break-even point (the point where income in dollars is equal to expenses in dollars)? Example 3: You need to rent a car to drive from Pensacola to Key West. You will need the car for 7 days. One car rental agency charges \$55 per day and \$0.06 per mile. Another rental agency charges \$65 per day with unlimited mileage. Which rental offer will cost you less? Create a situation where the rental offer in this situation will cost more than the other offer. Explain. *Cognitive Complexity/Depth of Knowledge Rating:* High

TOPIC VI	SUGGESTED PERFORMANCE ASSESSMENT
	My Best Work 1. Update your portfolio of your best work. 2. Choose one or more examples of your most significant work. Be sure each piece is complete. 3. Write a paragraph about each piece. Be sure to address the following questions – What is the piece an example of? Why did you choose this piece to represent your best work? What mathematics did you learn or apply in this piece? How would you improve the piece if you were to redo it? **Pop Up Story** Create a pop up book that tells the story of linear equations and linear inequalities

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	1. Design and create a pop up story book for a small child that tells the story of how linear equations and linear inequalities are related (similarities and differences) 2. Include real-world references to plotting points, rate of change, using the equation to make predictions 3. Include illustrations, graphs, and tables. 4. Read your story to your class.

TOPIC VI	GRAPHING CALCULATOR ACTIVITIES	
CONTENT FOCUS	TITLE	SITE
Linear Inequalities	A Boolean Look at Inequalities	http://education.ti.com/educationportal/activityexchange/Activity.do?cid=US&aId=8193
	Inequalities	http://education.ti.com/educationportal/activityexchange/Activity.do?cid=US&aId=10557
	Inequality APP for the TI83+ and TI84	http://education.ti.com/educationportal/sites/US/productDetail/us_inequality_83_84.html
	Linear Inequalities: Using Algebra	http://education.ti.com/educationportal/activityexchange/activity_detail.do?cid=us&activityid=4422

TOPIC VI	GIZMO CORRELATION
GIZMO TITLE	
Compound Inequalities	
Linear Inequalities in Two Variables - Activity A	
Linear Inequalities in Two Variables - Activity B	
Solving Inequalities Using Multiplication and Division	
Solving Linear Inequalities using Addition and Subtraction	
Solving Linear Inequalities using Multiplication and Division	
Systems of Linear Inequalities (Slope-intercept form) - Activity A	

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Date	Pacing Guide Benchmark(s)	Data Driven Benchmark(s)	Activities	Assessment(s)	Strategies
Traditional: 01-24-11 to 02-09-11 **Block:** 01-24-11 to 02-09-11	**MA.912.A.3.12** Graph a linear equation or inequality in two variables with and without graphing technology. Write an equation or inequality represented by a given graph. **MA.912.A.3.13** Use a graph to approximate the solution of a system of linear equations or inequalities in two variables with and without technology. **MA.912.A.3.14** Solve systems of linear equations and inequalities in two and three variables using graphical, substitution, and elimination methods **MA.912.A.3.15** Solve real-world problems involving systems of linear equations and inequalities in two and three variables.				