Unit Title: **"The Big Race: Slopes and Rates of Change"**

Course: **Algebra I (High School)**

Subject Area: **Mathematics**

Time Frame: **13 days**

Standards

Algebra I Standards	**Sunshine State Standards Benchmarks**	**NCEE New Standards**
The student will: 7.4 Graph sets of ordered pairs, linear equations in two variables by using intercepts, slope and points, and point-plotting. 7.6 Determine the slope of a line when given two points on a line or an equation of a line.	MA.C.3.4.2 The student will using a rectangular coordinate system (graph), apply and algebraically verify properties of two- and *three-dimensional* figures, including distance, midpoint, slope, parallelism, and perpendicularity. MA.D.1.4.1 The student will describe, analyze, and generalize relationships, patterns, and functions using words, symbols, variables, tables, and graphs.	The student: M3a Discovers, describes, and generalizes patterns, including linear, exponential, and simple quadratic relationships, i.e., those of the form $f(n) = n^2$ of $f(n) = cn^2$ for constant c, including $A = \pi r^2$, and re[resent them with variables and expressions. M3b Represent relationships with tables, graphs in the coordinate plane, and verbal or symbolic rules.

Desired Results

Enduring Understanding	Essential Questions	Knowledge and Skills
Students will understand: • One of the most important ideas in the study of algebra is the relationship between two variables and how one can be used to predict values of the other. • A linear relationship is one in which there is a constant rate of change between the two variables; the change in *y* that is associated with a particular change in *x* will remain the same over the range of the function. The rate of change is the *slope* of the line that represents the relationship.	• How is a point on a graph related to a table, an equation, or the context? • How does a solution to an equation relate to a graph, a table, or the context? • Can graphs help us predict changes between related variables if the variables are not related in a linear way? • What kind of everyday problems can be solved by using mathematical tables and equations?	Students will know • Key terms (i.e., coefficient, coordinate pair, linear relationship, point of intersection, rise, run, slope, y-intercept). Students will be able to • Graph sets of ordered pairs, linear equations in two variables by using intercepts, slope and points, and point-plotting. • Determine the slope of a line when given two points on a line or an equation of a line.

Acceptable Evidence

Performance Tasks	Quizzes, Test, and Work Samples	Observations and Dialogues
• **Sleepy Time** Students explore constant rate of change and its effects on various representations. • **Money Matters** Students continue to develop their understanding of what it means for a situation to be linear; there must be a constant rate of change between the two variables: for each unit change in x, there must be a constant rate of change in y. Students determine whether a line is increasing (has a positive slope), decreasing (has a negative slope), or neither (has slope of 0). • **Graphing Linear Equations** Students graph linear equations in two variables by using intercepts, slope and a points, and point-plotting.	Check-Up 1 Quiz A Check-Up 2 Quiz B Unit Test	Teacher observations of students during work on performance tasks. Accountable talk during work on performance tasks.

Performance Tasks	Quizzes, Test, and Work Samples	Observations and Dialogues
• **The Big Race** The game is intended to be the culminating activity involving graphing with slope and y-intercept.		