

## 2011 -12 Pacing Guide

### 08 Mathematics / Mathematics 1st Term

Term	Standard
1	<b>GPS.08.MA.M8D2</b> - Students will determine the number of outcomes related to a given event.
1	<b>GPS.08.MA.M8D2.a</b> - Use tree diagrams to find the number of outcomes.
1	<b>GPS.08.MA.M8D2.b</b> - Apply the addition and multiplication principles of counting.
1	<b>GPS.08.MA.M8D3</b> - Students will use the basic laws of probability.
1	<b>GPS.08.MA.M8D3.a</b> - Find the probability of simple independent events.
1	<b>GPS.08.MA.M8D3.b</b> - Find the probability of compound independent events.
1	<b>GPS.08.MA.M8G2</b> - Students will understand and use the Pythagorean theorem.
1	<b>GPS.08.MA.M8G2.a</b> - Apply properties of right triangles, including the Pythagorean theorem.
1	<b>GPS.08.MA.M8G2.b</b> - Recognize and interpret the Pythagorean theorem as a statement about areas of squares on the sides of a right triangle.
1	<b>GPS.08.MA.M8N1</b> - Students will understand different representations of numbers including square roots, exponents, and scientific notation.
1	<b>GPS.08.MA.M8N1.a</b> - Find square roots of perfect squares.
1	<b>GPS.08.MA.M8N1.b</b> - Recognize the (positive) square root of a number as a length of a side of a square with a given area.
1	<b>GPS.08.MA.M8N1.c</b> - Recognize square roots as points and as lengths on a number line.
1	<b>GPS.08.MA.M8N1.d</b> - Understand that the square root of 0 is 0 and that every positive number has two square roots that are opposite in sign.
1	<b>GPS.08.MA.M8N1.e</b> - Recognize and use the radical symbol to denote the positive square root of a positive number.
1	<b>GPS.08.MA.M8N1.f</b> - Estimate square roots of positive numbers.
1	<b>GPS.08.MA.M8N1.g</b> - Simplify, add, subtract, multiply, and divide expressions containing square roots.
1	<b>GPS.08.MA.M8N1.h</b> - Distinguish between rational and irrational numbers.
1	<b>GPS.08.MA.M8N1.i</b> - Simplify expressions containing integer exponents.
1	<b>GPS.08.MA.M8N1.j</b> - Express and use numbers in scientific notation.
1	<b>GPS.08.MA.M8N1.k</b> - Use appropriate technologies to solve problems involving square roots, exponents, and scientific notation.

### 08 Mathematics / Mathematics 2nd Term

Term	Standard
2	<b>GPS.08.MA.M8A</b> - Students will use linear algebra to represent, analyze and solve problems. They will use equations, tables, and graphs to investigate linear relations and functions, paying particular attention to slope as a rate of change.
2	<b>GPS.08.MA.M8A1</b> - Students will use algebra to represent, analyze, and solve problems.
2	<b>GPS.08.MA.M8A1.a</b> - Represent a given situation using algebraic expressions or equations in one variable.
2	<b>GPS.08.MA.M8A1.b</b> - Simplify and evaluate algebraic expressions.
2	<b>GPS.08.MA.M8A1.c</b> - Solve algebraic equations in one variable, including equations involving absolute values.
2	<b>GPS.08.MA.M8A1.d</b> - Solve equations involving several variables for one variable in

	terms of the others.
2	<b>GPS.08.MA.M8A1.e</b> - Interpret solutions in problem contexts.
2	<b>GPS.08.MA.M8A2</b> - Students will understand and graph inequalities in one variable.
2	<b>GPS.08.MA.M8A2.a</b> - Represent a given situation using an inequality in one variable.
2	<b>GPS.08.MA.M8A2.b</b> - Use the properties of inequality to solve inequalities.
2	<b>GPS.08.MA.M8A2.c</b> - Graph the solution of an inequality on a number line.
2	<b>GPS.08.MA.M8A2.d</b> - Interpret solutions in problem contexts.
2	<b>GPS.08.MA.M8A3</b> - Students will understand relations and linear functions.
2	<b>GPS.08.MA.M8A3.a</b> - Recognize a relation as a correspondence between varying quantities.
2	<b>GPS.08.MA.M8A3.b</b> - Recognize a function as a correspondence between inputs and outputs where the output for each input must be unique.
2	<b>GPS.08.MA.M8A3.c</b> - Distinguish between relations that are functions and those that are not functions.
2	<b>GPS.08.MA.M8A3.d</b> - Recognize functions in a variety of representations and a variety of contexts.
2	<b>GPS.08.MA.M8A3.e</b> - Use tables to describe sequences recursively and with a formula in closed form.
2	<b>GPS.08.MA.M8A3.f</b> - Understand and recognize arithmetic sequences as linear functions with whole number input values.
2	<b>GPS.08.MA.M8A3.g</b> - Interpret the constant difference in an arithmetic sequence as the slope of the associated linear function.
2	<b>GPS.08.MA.M8A3.h</b> - Identify relations and functions as linear or nonlinear.
2	<b>GPS.08.MA.M8A3.i</b> - Translate among verbal, tabular, graphic, and algebraic representations of functions.
2	<b>GPS.08.MA.M8D</b> - Students will use and understand set theory and simple counting techniques; determine the theoretical probability of simple events; and make inferences from data, particularly data that can be modeled by linear functions.
2	<b>GPS.08.MA.M8D1</b> - Students will apply basic concepts of set theory.
2	<b>GPS.08.MA.M8D1.a</b> - Demonstrate relationships among sets through use of Venn Diagrams.
2	<b>GPS.08.MA.M8D1.b</b> - Determine subsets, complements, intersection, and union of sets.
2	<b>GPS.08.MA.M8D1.c</b> - Use set notation to denote elements of a set.

**08 Mathematics / Mathematics  
3rd Term**

<b>Term</b>	<b>Standard</b>
3	<b>GPS.08.MA.M8A3.d</b> - Recognize functions in a variety of representations and a variety of contexts.
3	<b>GPS.08.MA.M8A3.h</b> - Identify relations and functions as linear or nonlinear.
3	<b>GPS.08.MA.M8A3.i</b> - Translate among verbal, tabular, graphic, and algebraic representations of functions.
3	<b>GPS.08.MA.M8A4</b> - Students will graph and analyze graphs of linear equations and inequalities.
3	<b>GPS.08.MA.M8A4.c</b> - Graph equations of the form $y = mx + b$ .
3	<b>GPS.08.MA.M8A4.d</b> - Graph equations of the form $ax + by = c$ .
3	<b>GPS.08.MA.M8A4.e</b> - Graph the solution set of a linear inequality, identifying whether the solution set is an open or a closed half-plane.
3	<b>GPS.08.MA.M8A4.f</b> - Determine the equation of a line given a graph, numerical

	information that defines the line, or a context involving a linear relationship.
3	<b>GPS.08.MA.M8A4.g</b> - Solve problems involving linear relationships.
3	<b>GPS.08.MA.M8D4</b> - Students will organize, interpret, and make inferences from statistical data.
3	<b>GPS.08.MA.M8D4.a</b> - Gather data that can be modeled with a linear function.
3	<b>GPS.08.MA.M8D4.b</b> - Estimate and determine a line of best fit from a scatter plot.
3	<b>GPS.08.MA.M8G</b> - Students will use and apply geometric properties of plane figures, including congruence and the Pythagorean theorem.
3	<b>GPS.08.MA.M8G1</b> - Students will understand and apply the properties of parallel and perpendicular lines and understand the meaning of congruence.
3	<b>GPS.08.MA.M8G1.a</b> - Investigate characteristics of parallel and perpendicular lines both algebraically and geometrically.
3	<b>GPS.08.MA.M8G1.b</b> - Apply properties of angle pairs formed by parallel lines cut by a transversal.
3	<b>GPS.08.MA.M8G1.c</b> - Understand the properties of the ratio of segments of parallel lines cut by one or more transversals.
3	<b>GPS.08.MA.M8G1.d</b> - Understand the meaning of congruence: that all corresponding angles are congruent and all corresponding sides are congruent.
<b>08 Mathematics / Mathematics 4th Term</b>	
<b>Term</b>	<b>Standard</b>
4	<b>GPS.08.MA.M8A5</b> - Students will understand systems of linear equations and inequalities and use them to solve problems.
4	<b>GPS.08.MA.M8A5.a</b> - Given a problem context, write an appropriate system of linear equations or inequalities.
4	<b>GPS.08.MA.M8A5.b</b> - Solve systems of equations graphically and algebraically, using technology as appropriate.
4	<b>GPS.08.MA.M8A5.c</b> - Graph the solution set of a system of linear inequalities in two variables.
4	<b>GPS.08.MA.M8A5.d</b> - Interpret solutions in problem contexts.