

## 2011 -12 Pacing Guide

### 05 Mathematics / Mathematics 1st Term

Term	Standard
1	<b>GPS.05.MA.M5P3.a</b> - Organize and consolidate their mathematical thinking through communication.
1	<b>GPS.05.MA.M5P3.b</b> - Communicate their mathematical thinking coherently and clearly to peers, teachers, and others.
1	<b>GPS.05.MA.M5P3.c</b> - Analyze and evaluate the mathematical thinking and strategies of others.
1	<b>GPS.05.MA.M5P3.d</b> - Use the language of mathematics to express mathematical ideas precisely.
1	<b>GPS.05.MA.M5P4</b> - Students will make connections among mathematical ideas and to other disciplines.
1	<b>GPS.05.MA.M5P4.a</b> - Recognize and use connections among mathematical ideas.
1	<b>GPS.05.MA.M5P4.b</b> - Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.
1	<b>GPS.05.MA.M5P4.c</b> - Recognize and apply mathematics in contexts outside of mathematics.
1	<b>GPS.05.MA.M5P5</b> - Students will represent mathematics in multiple ways.
1	<b>GPS.05.MA.M5P5.a</b> - Create and use representations to organize, record, and communicate mathematical ideas.
1	<b>GPS.05.MA.M5P5.b</b> - Select, apply, and translate among mathematical representations to solve problems.
1	<b>GPS.05.MA.M5P5.c</b> - Use representations to model and interpret physical, social, and mathematical phenomena.
1	<b>GPS.05.MA.M5N5</b> - Students will understand the meaning of percentage.
1	<b>GPS.05.MA.M5N5.a</b> - Explore and model percents using multiple representations.
1	<b>GPS.05.MA.M5N5.b</b> - Apply percentage to circle graphs.
1	<b>GPS.05.MA.M5P1</b> - Students will solve problems (using appropriate technology).
1	<b>GPS.05.MA.M5P1.a</b> - Build new mathematical knowledge through problem solving.
1	<b>GPS.05.MA.M5P1.b</b> - Solve problems that arise in mathematics and in other contexts.
1	<b>GPS.05.MA.M5P1.c</b> - Apply and adapt a variety of appropriate strategies to solve problems.
1	<b>GPS.05.MA.M5P1.d</b> - Monitor and reflect on the process of mathematical problem solving.
1	<b>GPS.05.MA.M5P2</b> - Students will reason and evaluate mathematical arguments.
1	<b>GPS.05.MA.M5P2.a</b> - Recognize reasoning and proof as fundamental aspects of mathematics.
1	<b>GPS.05.MA.M5P2.c</b> - Develop and evaluate mathematical arguments and proofs.
1	<b>GPS.05.MA.M5P2.d</b> - Select and use various types of reasoning and methods of proof.
1	<b>GPS.05.MA.M5P3</b> - Students will communicate mathematically.
1	<b>GPS.05.MA.M5N1</b> - Students will further develop their understanding of whole numbers.
1	<b>GPS.05.MA.M5N1.a</b> - Classify the set of counting numbers into subsets with distinguishing characteristics (odd/even, prime/composite).
1	<b>GPS.05.MA.M5N1.c</b> - Analyze and use divisibility rules.
1	<b>GPS.05.MA.M5N2</b> - Students will further develop their understanding of decimals as part

	of the base-ten number system.
1	<b>GPS.05.MA.M5N2.a</b> - Understand place value.
1	<b>GPS.05.MA.M5N2.b</b> - Analyze the effect on the product when a number is multiplied by 10, 100, 1000, 0.1, 0.01, and .001.
1	<b>GPS.05.MA.M5N2.c</b> - Use $>$ , $<$ , or $=$ to compare decimals and justify the comparison.
1	<b>GPS.05.MA.M5N3</b> - Students will further develop their understanding of the meaning of multiplication and division with decimals and use them.
1	<b>GPS.05.MA.M5N3.a</b> - Model multiplication and division of decimals.
1	<b>GPS.05.MA.M5N3.b</b> - Explain the process of multiplication and division, including situations in which the multiplier and divisor are both whole numbers and decimals.
1	<b>GPS.05.MA.M5N3.c</b> - Multiply and divide with decimals including decimals less than one and greater than one.
1	<b>GPS.05.MA.M5N3.d</b> - Understand the relationships and rules for multiplication and division of whole numbers also apply to decimals.
1	<b>GPS.05.MA.M5A1</b> - Students will represent and interpret the relationships between quantities algebraically.
1	<b>GPS.05.MA.M5A1.a</b> - Use variables, such as $n$ or $x$ , for unknown quantities in algebraic expressions.
1	<b>GPS.05.MA.M5A1.b</b> - Investigate simple algebraic expressions by substituting numbers for the unknown.
1	<b>GPS.05.MA.M5A1.c</b> - Determine that a formula will be reliable regardless of the type of number (whole numbers or decimal fractions) substituted for the variable.
1	<b>GPS.05.MA.M5D1</b> - Students will analyze graphs.
1	<b>GPS.05.MA.M5D1.a</b> - Analyze data presented in a graph.
1	<b>GPS.05.MA.M5D1.b</b> - Compare and contrast multiple graphic representations (circle graphs, line graphs, line plot graphs, pictographs, Venn diagrams, and bar graphs) for a single set of data and discuss the advantages/disadvantages of each.
1	<b>GPS.05.MA.M5D1.c</b> - Determine and justify the mean, range, mode, and median of a set of data.
1	<b>GPS.05.MA.M5D2</b> - Students will collect, organize, and display data using the most appropriate graph.
<b>05 Mathematics / Mathematics 2nd Term</b>	
<b>Term</b>	<b>Standard</b>
2	<b>GPS.05.MA.M5N4.c</b> - Find equivalent fractions and simplify fractions.
2	<b>GPS.05.MA.M5N4.d</b> - Model the multiplication and division of common fractions.
2	<b>GPS.05.MA.M5N4.e</b> - Explore finding common denominators using concrete, pictorial, and computational models.
2	<b>GPS.05.MA.M5N4.f</b> - Use $>$ , $<$ , or $=$ to compare fractions and justify the comparison.
2	<b>GPS.05.MA.M5N4.g</b> - Add and subtract common fractions and mixed numbers with unlike denominators.
2	<b>GPS.05.MA.M5N4.h</b> - Use fractions (proper and improper) and decimals interchangeably.
2	<b>GPS.05.MA.M5N4.i</b> - Estimate products and quotients.
2	<b>GPS.05.MA.M5N1</b> - Students will further develop their understanding of whole numbers.
2	<b>GPS.05.MA.M5N1.a</b> - Classify the set of counting numbers into subsets with distinguishing characteristics (odd/even, prime/composite).
2	<b>GPS.05.MA.M5N1.b</b> - Find multiples and factors.
2	<b>GPS.05.MA.M5N4</b> - Students will continue to develop their understanding of the meaning

	of common fractions and will compute with them.
2	<b>GPS.05.MA.M5N4.a</b> - Understand division of whole numbers can be represented as a fraction ( $a/b = a \div b$ ).
2	<b>GPS.05.MA.M5N4.b</b> - Understand the value of a fraction is not changed when both its numerator and denominator are multiplied or divided by the same number because it is the same as multiplying or dividing by one.
<b>05 Mathematics / Mathematics 3rd Term</b>	
<b>Term</b>	<b>Standard</b>
3	<b>GPS.05.MA.M5M1.e</b> - Estimate the area of a circle through partitioning and tiling and then find the area of a circle with formula (let $\pi = 3.14$ ). (Discuss square units as they apply to circles.)
3	<b>GPS.05.MA.M5M1.f</b> - Find the area of a polygon (regular and irregular) by dividing it into squares, rectangles, and/or triangles and find the sum of the areas of those shapes.
3	<b>GPS.05.MA.M5M1.g</b> - Derive the formula for the area of a circle.
3	<b>GPS.05.MA.M5M1.h</b> - Find the area of a circle using the formula and $\pi=3.14$
3	<b>GPS.05.MA.M5M2</b> - Students will extend their understanding of perimeter to include circumference.
3	<b>GPS.05.MA.M5M2.a</b> - Derive the formula for the circumference of a circle.
3	<b>GPS.05.MA.M5M2.b</b> - Find the circumference of a circle using the formula and $\pi=3.14$ .
3	<b>GPS.05.MA.M5M3</b> - Students will measure capacity with appropriately chosen units and tools.
3	<b>GPS.05.MA.M5M3.a</b> - Use milliliters, liters, fluid ounces, cups, pints, quarts, and gallons to measure capacity.
3	<b>GPS.05.MA.M5M3.b</b> - Compare one unit to another within a single system of measurement (e.g., 1 quart = 2 pints).
3	<b>GPS.05.MA.M5M4</b> - Students will understand and compute the volume of a simple geometric solid.
3	<b>GPS.05.MA.M5M4.a</b> - Understand a cubic unit ( $u^3$ ) is represented by a cube in which each edge has the length of 1 unit.
3	<b>GPS.05.MA.M5M4.b</b> - Identify the units used in computing volume as cubic centimeters ( $cm^3$ ), cubic meters ( $m^3$ ), cubic inches ( $in^3$ ), cubic feet ( $ft^3$ ), and cubic yards ( $yd^3$ ).
3	<b>GPS.05.MA.M5M4.c</b> - Derive the formula for finding the volume of a cube and a rectangular prism using manipulatives.
3	<b>GPS.05.MA.M5M4.d</b> - Compute the volume of a cube and a rectangular prism using formulae.
3	<b>GPS.05.MA.M5M4.e</b> - Estimate the volume of a simple geometric solid.
3	<b>GPS.05.MA.M5M4.f</b> - Understand the similarities and differences between volume and capacity.
3	<b>GPS.05.MA.M5G</b> - Students will further develop their understanding of geometric figures.
3	<b>GPS.05.MA.M5G1</b> - Students will understand congruence of geometric figures and the correspondence of their vertices, sides, and angles.
3	<b>GPS.05.MA.M5G2</b> - Students will understand the relationship of the circumference of a circle, its diameter, and $\pi$ ( $\pi \approx 3.14$ ).
3	<b>GPS.05.MA.M5M1</b> - Students will extend their understanding of area of fundamental geometric plane figures.
3	<b>GPS.05.MA.M5M1.a</b> - Estimate the area of fundamental geometric plane figures.
3	<b>GPS.05.MA.M5M1.b</b> - Derive the formula for the area of a parallelogram.
3	<b>GPS.05.MA.M5M1.c</b> - Derive the formula for the area of a triangle.

3	<b>GPS.05.MA.M5M1.d</b> - Find the areas of triangles and parallelograms using formulae.
<b>05 Mathematics / Mathematics 4th Term</b>	
<b>Term</b>	<b>Standard</b>
4	<b>GPS.05.MA.M5P1</b> - Students will solve problems (using appropriate technology).
4	<b>GPS.05.MA.M5P1.a</b> - Build new mathematical knowledge through problem solving.
4	<b>GPS.05.MA.M5N1</b> - Students will further develop their understanding of whole numbers.
4	<b>GPS.05.MA.M5N1.b</b> - Find multiples and factors.
4	<b>GPS.05.MA.M5N3</b> - Students will further develop their understanding of the meaning of multiplication and division with decimals and use them.
4	<b>GPS.05.MA.M5N3.c</b> - Multiply and divide with decimals including decimals less than one and greater than one.
4	<b>GPS.05.MA.M5M1.d</b> - Find the areas of triangles and parallelograms using formulae.
4	<b>GPS.05.MA.M5M1.f</b> - Find the area of a polygon (regular and irregular) by dividing it into squares, rectangles, and/or triangles and find the sum of the areas of those shapes.
4	<b>GPS.05.MA.M5M4</b> - Students will understand and compute the volume of a simple geometric solid.
4	<b>GPS.05.MA.M5M4.a</b> - Understand a cubic unit ( $u^3$ ) is represented by a cube in which each edge has the length of 1 unit.
4	<b>GPS.05.MA.M5M4.c</b> - Derive the formula for finding the volume of a cube and a rectangular prism using manipulatives.
4	<b>GPS.05.MA.M5A</b> - Students will represent and investigate mathematical expressions algebraically by using variables.
4	<b>GPS.05.MA.M5A1.b</b> - Investigate simple algebraic expressions by substituting numbers for the unknown.
4	<b>GPS.05.MA.M5D1</b> - Students will analyze graphs.
4	<b>GPS.05.MA.M5D1.a</b> - Analyze data presented in a graph.
4	<b>GPS.05.MA.M5M1</b> - Students will extend their understanding of area of fundamental geometric plane figures.