Public Schools of North Carolina
State Board of Education | Department of Public Instruction

This document is designed to help North Carolina educators teach the Common Core. NCDPI staff are continually updating and improving these tools to better serve teachers.

5th Grade Math Curriculum Crosswalk

The following document is to be used to compare the 2003 North Carolina Mathematics Standard Course of Study and the Common Core State Standards for Mathematics.

As noted in the Common Core State Standards for Mathematics document, the instructional time in Grade 5 should focus on three critical areas:

1. (developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions);
2. extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; and
3. developing understanding of volume.

To download the Common Core State Standards, please visit http://www.corestandards.org/the-standards.

Important Note: The current SCoS will continue to be the taught and tested standards in the 2010-11 and 2011-12 school years. We expect the new Common Core standards to be taught and assessed in schools for the first time in the 2012-13 school year. That said, we are providing resources now and over the next two-years so that schools and teachers can get a head start on internalizing and planning to teach the new standards.

NC SCOS			Common Core			
Strand	Objective	Text of objective	Domain	Standard	**Cluster** Text of objective	Comments
Numbers & Operations	1.01	Develop number sense for rational numbers 0.001 through 999,999. a) Connect model, number word, and number using a variety of representations. b) Build understanding of place value (thousandths through hundred thousands). c) Compare and order rational numbers. d) Make estimates of rational numbers in appropriate situations.	Numbers & Operations in Base Ten	5.NBT.1	**Understand the place value system.** Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.	
				5.NBT.3	**Understand the place value system.** Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000). b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	
				5.NBT.4	**Understand the place value system.** Use place value understanding to round decimals to any place.	

NC SCOS			Common Core			
Strand	Objective	Text of objective	Domain	Standard	**Cluster** Text of objective	Comments
	1.02	Develop fluency in adding and subtracting non-negative rational numbers (halves, fourths, eighths; thirds, sixths, twelfths; fifths, tenths, hundredths, thousandths; mixed numbers). a) Develop and analyze strategies for adding and subtracting numbers. b) Estimate sums and differences. c) Judge the reasonableness of solutions.		5.NBT.7	**Perform operations with multi-digit whole numbers and with decimals to hundredths.** Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	Multiplying and dividing decimals moved from 6th grade NC SCOS. The written method is interpreted as using symbolic notation and writing about the process used to arrive at solutions. Students should also compare symbolic notation to other strategies such as decimal grids.
			Numbers & Operations - Fractions	5.NF.1	**Use equivalent fractions as a strategy to add and subtract fractions.** Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.)*	This standard does not specify any limitations to denominators. Fractions do not have to be related. For example, 2/3 + 5/12 is an appropriate problem.
			Numbers & Operations - Fractions	5.NF2	**Use equivalent fractions as a strategy to add and subtract fractions.** Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.*	

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Strand	Objective	Text of objective	Domain	Standard	**Cluster** Text of objective	Comments
	1.03	Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.	Numbers & Operations in Base Ten	5.NBT.5	**Perform operations with multi-digit whole numbers and with decimals to hundredths.** Fluently multiply multi-digit whole numbers using the standard algorithm.	The standards do not specify the magnitude of numbers. It is recommended to only multiply a three-digit number by a two-digit number.
				5.NBT.6	**Perform operations with multi-digit whole numbers and with decimals to hundredths.** Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	
				5.NBT.2	**Understand the place value system.** Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	Students are expected to explain the relationship between multiples of 10. For example, 4,500 = 45 x 100 and 3.6 = 360 ÷100.

NC SCOS			Common Core			
Strand	Objective	Text of objective	Domain	Standard	**Cluster** Text of objective	Comments
			Numbers & Operations - Fractions	5.NF.3	**Apply and extend previous understandings of multiplication and division to multiply and divide fractions.** Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*	Multiplying and dividing fractions moved from 6th grade NC SCOS.
				5.NF.4	**Apply and extend previous understandings of multiplication and division to multiply and divide fractions.** Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.	When students are multiplying and dividing fractions, all fractions should be less than one. Fractions in problems should not be mixed numbers, but solutions may be mixed numbers.

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Strand	Objective	Text of objective	Domain	Standard	**Cluster** Text of objective	Comments
			Numbers & Operations - Fractions		a. Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. *For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.)*	
					b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	
				5.NF.5	**Apply and extend previous understandings of multiplication and division to multiply and divide fractions.**	Multiplying and dividing fractions moved from 6th grade NC SCOS.
					Interpret multiplication as scaling (resizing), by:	
					a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.	

NC SCOS			Common Core			
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					b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.	
					Apply and extend previous understandings of multiplication and division to multiply and divide fractions. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	Multiplying and dividing fractions moved from 6th grade NC SCOS.
			Numbers & Operations - Fractions	5.NF.7	**Apply and extend previous understandings of multiplication and division to multiply and divide fractions.** Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. [1]	[1] Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade. Unit fraction is a fraction that has 1 as a numerator (e.g., 1/5, 1/6, 1/10).

NC SCOS			Common Core			
Strand	Objective	Text of objective	Domain	Standard	**Cluster** Text of objective	Comments
			Numbers & Operations - Fractions		a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3.*	A story context for 1/3 ÷ 4 = 1/12 could be: You have 1/3 of a pound of candy. If you share the candy between yourself and three friends how much candy does each person get?
					b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4.*	
					c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?*	
Measurement	2.01	Estimate the measure of an object in one system given the measure of that object in another system.				Moved to 6th grade Common Core
	2.01	Identify, estimate, and measure the angles of plane figures using appropriate tools.				Moved to 4th grade Common Core.

NC SCOS			Common Core			
Strand	Objective	Text of objective	Domain	Standard	**Cluster** Text of objective	Comments
			Measurement & Data	5.MD.1	**Convert like measurement units within a given measurement system.** Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.	Moved from 3rd grade NC SCOS.
			Measurement & Data	5.MD.3	**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.** Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.	Volume of figures moved from 6th grade NC SCOS. The concept of volume is a natural progression of area which students work with in 3rd and 4th grade. These standards should be introduced using concrete manipulatives (cubes) before going to more abstract or symbolic representations.
			Measurement & Data	5.MD.4	**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.** Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	Volume moved from 6th grade NC SCOS.

NC SCOS			Common Core			
Strand	Objective	Text of objective	Domain	Standard	**Cluster** Text of objective	Comments
				5.MD.5	**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.** Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.	Volume moved from 6th grade NC SCOS.
			Measurement & Data		a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.	
					b. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.	
					c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.	
Geometry	3.01	Identify, define, describe and accurately represent triangles, quadrilaterals and other polygons.				Moved to 3rd grade Common Core.

NC SCOS			Common Core			
Strand	Objective	Text of objective	Domain	Standard	**Cluster** Text of objective	Comments
	3.02	Make and test conjectures about polygons involving: a) Sum of the measures of interior angles. b) Lengths of sides and diagonals. c) Parallelism and perpendicularity of sides and diagonals.				Moved to 4th grade Common Core.
	3.03	Classify plane figures according to types of symmetry (line, rotational).				Moved to 4th grade Common Core.
	3.04	Solve problems involving the properties of triangles, quadrilaterals, and other polygons. a) Sum of the measures of interior angles. b) Lengths of sides and diagonals. c) Parallelism and perpendicularity of sides and diagonals.				Moved to 4th grade Common Core.
			Geometry	5.G.1	**Graph points on the coordinate plane to solve real-world and mathematical problems.** Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate).	Coordinate plane moved from 3rd and 4th grade NC SCOS.

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Strand	Objective	Text of objective	Domain	Standard	**Cluster** Text of objective	Comments
				5.G.2	**Graph points on the coordinate plane to solve real-world and mathematical problems.** Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	
				5.G.3	**Classify two-dimensional figures into categories based on their properties.** Understand that attributes belonging to a category of two dimensional figures also belong to all subcategories of that category. *For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.*	Could be viewed as an extension of NC SCOS 5th grade objectives 3.02 & 3.04.
				5.G.4	**Classify two-dimensional figures into categories based on their properties.** Classify two-dimensional figures in a hierarchy based on properties.	Could be viewed as an extension of NC SCOS 5th grade objectives 3.02 & 3.04.
Data Analysis & Probability	4.01	Collect, organize, analyze, and display data (including stem-and-leaf plots) to solve problems.				
	4.02	Compare and contrast different representations of the same data; discuss the effectiveness of each representation.				Moved to 6th grade Common Core.
	4.03	Solve problems with data from a single set or multiple sets of data using median, range, and mode.				Moved to 6th Grade Common Core.

NC SCOS			Common Core			
Strand	Objective	Text of objective	Domain	Standard	**Cluster** Text of objective	Comments
			Measurement & Data	5.MD.2	**Represent and interpret data.** Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*	This standard integrates fractions, measurement, and data. Students should measure objects to the fractions of a unit, and then create a line plot of the data to solve a problem.
Algebra	5.01	Describe, extend, and generalize numeric and geometric patterns using tables, graphs, words, and symbols.	Operations & Algebraic Thinking	5.OA.3	**Analyze patterns and relationships.** Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.*	Graphing coordinates from an ordered pair moved from 3rd grade NC SCOS.
	5.02	Use algebraic expressions, patterns, and one-step equations and inequalities to solve problems.	Operations & Algebraic Thinking	5.OA.1	**Write and interpret numerical expressions.** Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	Bracket and braces are new to 5th grade.

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Strand	Objective	Text of objective	Domain	Standard	**Cluster** Text of objective	Comments
				5.OA.2	**Write and interpret numerical expressions.** Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.*	
	5.03	Identify, describe, and analyze situations with constant or varying rates of change.				