NSCAS - Math Table of Specifications

External/Paper	Grade 4	48 items			
MA 4.1	**NUMBER: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**	**Number 35% - 45%**			
MA 4.1.1	**Numeric Relationships: Students will demonstrate, represent, and show relationships among fractions and decimals within the base-ten number system.**	**DOK 1**	**DOK 2**	**DOK 3**	**9 - 12 items**
MA 4.1.1.a	Read, write, and demonstrate multiple equivalent representations for whole numbers up to one million and decimals to the hundredths, using objects, visual representations, standard form, word form, and expanded notation.	x	x		
MA 4.1.1.b	Recognize a digit in one place represents ten times what it represents in the place to its right and 1/10 what it represents in the place to its left.	Assessed at the local level			
MA 4.1.1.c	Classify a number up to 100 as prime or composite.	x			
MA 4.1.1.d	Determine whether a given whole number up to 100 is a multiple of a given one-digit number.	x			
MA 4.1.1.e	Determine factors of any whole number up to 100.	x			
MA 4.1.1.f	Compare whole numbers up to one million and decimals through the hundredths place using >, <, and = symbols, and visual representations.	x			
MA 4.1.1.g	Round a multi-digit whole number to any given place.	x			
MA 4.1.1.h	Use decimal notation for fractions with denominators of 10 or 100.	x			
MA 4.1.1.i	Generate and explain equivalent fractions by multiplying by an equivalent fraction of 1.	Assessed at the local level			
MA 4.1.1.j	Explain how to change a mixed number to a fraction and how to change a fraction to a mixed number.	Assessed at the local level			
MA 4.1.1.k	Compare and order fractions having unlike numerators and unlike denominators using visual representations (number line), comparison symbols and verbal reasoning (e.g., using benchmarks or common numerators or common denominators).	x	x		
MA 4.1.1.l	Decompose a fraction into a sum of fractions with the same denominator in more than one way and record each decomposition with an equation and a visual representation.	Assessed at the local level			

MA 4.1.2	**Operations: Students will demonstrate the meaning of addition and subtraction of whole numbers and fractions and compute accurately.**	**DOK 1**	**DOK 2**	**DOK 3**	
MA 4.1.2.a	Add and subtract multi-digit numbers using the standard algorithm.	Assessed at the local level			
MA 4.1.2.b	Multiply a four-digit whole number by a one- digit whole number.	x			
MA 4.1.2.c	Multiply a two-digit whole number by a two- digit whole number using the standard algorithm.	x			
MA 4.1.2.d	Divide up to a four-digit whole number by a one- digit divisor with and without a remainder.	x			**7 - 10 items**
MA 4.1.2.e	Use drawings, words, and symbols to explain the meaning of addition and subtraction of fractions with like denominators.	Assessed at the local level			
MA 4.1.2.f	Add and subtract fractions and mixed numbers with like denominators.	x			
MA 4.1.2.g	Multiply a fraction by a whole number.	x			
MA 4.1.2.h	Determine the reasonableness of whole number products and quotients in real-world problems using estimation, compatible numbers, mental computations, or other strategies.	Assessed at the local level			

MA 4.2	ALGEBRA: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.	Algebra 20% - 30%			
MA 4.2.1	**Algebraic Relationships: Students will demonstrate, represent, and show relationships with expressions and equations.**	DOK 1	DOK 2	DOK 3	
MA 4.2.1.a	Create a simple algebraic expression or equation using a variable for an unknown number to represent a math process (e.g., 3 + n = 15, 81 ÷ n = 9).	x	x		1 - 4 items
MA 4.2.1.b	Generate and analyze a number or shape pattern to follow a given rule, such as y = 3x + 5 is a rule to describe a relationship between two variables and can be used to find a second number when a first number is given.	Assessed at the local level			
MA 4.2.2	**Algebraic Processes: Students will apply the operational properties when evaluating expressions and solving equations.**	DOK 1	DOK 2	DOK 3	
MA 4.2.2.a	Solve one- and two-step problems which use any or all of the four basic operations and include the use of a letter to represent the unknown quantity.	x	x		2 - 5 items
MA 4.2.3	**Applications: Students will solve real-world problems involving equations with fractions and mixed numbers.**	DOK 1	DOK 2	DOK 3	
MA 4.2.3.a	Solve real-world problems involving multi-step equations comprised of whole numbers using the four operations, including interpreting remainders.		x		4 - 8 items
MA 4.2.3.b	Solve real-world problems involving addition and subtraction of fractions and mixed numbers with like denominators.		x		

MA 4.3	GEOMETRY: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.	Geometry 15% - 25%			
MA 4.3.1	**Characteristics: Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.**	DOK 1	DOK 2	DOK 3	5 - 9 items
MA 4.3.1.a	Recognize angles as geometric shapes that are formed where two rays share a common endpoint.	Assessed at the local level			
MA 4.3.1.b	Classify an angle as acute, obtuse, or right.	x	x		
MA 4.3.1.c	Identify and draw points, lines, line segments, rays, angles, parallel lines, perpendicular lines, and intersecting lines, and recognize them in two-dimensional figures.	x	x		
MA 4.3.1.d	Classify two-dimensional shapes based on the presence or absence of parallel and perpendicular lines, or the presence or absence of specific angles.		x	x	
MA 4.3.1.e	Identify right triangles.	x	x		
MA 4.3.1.f	Measure angles in whole number degrees using a protractor.	x	x		
MA 4.3.1.g	Sketch angles of a specified measure.	x	x		
MA 4.3.1.h	Recognize and draw lines of symmetry in two-dimensional shapes.	x	x		
MA 4.3.2	**Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.**	**Assessed at the local level**			
MA 4.3.3	**Measurement: Students will perform and compare measurements and apply formulas.**	DOK 1	DOK 2	DOK 3	1 - 4 items
MA 4.3.3.a	Apply perimeter and area formulas for rectangles.	x	x		
MA 4.3.3.b	Identify and use the appropriate tools, operations, and units of measurement, both customary and metric, to solve real-world problems involving time, length, weight, mass, capacity, and volume.	Assessed at the local level			
MA 4.3.3.c	Generate simple conversions from a larger unit to a smaller unit within the customary and metric systems of measurement.	x			

MA 4.4	**DATA: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**	**Data 10% - 20%**			
MA 4.4.1	**Representations: Students will create displays that represent data.**	**DOK 1**	**DOK 2**	**DOK 3**	**2 - 5 items**
MA 4.4.1.a	Represent data using line plots where the horizontal scale is marked off in appropriate units (e.g., whole numbers, halves, quarters, or eighths).		x		
MA 4.4.2	**Analysis & Applications: Students will analyze data to address the situation.**	**DOK 1**	**DOK 2**	**DOK 3**	**2 - 5 items**
MA 4.4.2.a	Solve problems involving addition or subtraction of fractions using information presented in line plots.		x		
MA 4.4.3	**Probability: Students will interpret and apply concepts of probability.**	***No additional indicator(s) at this level.***			