NSCAS - Math Table of Specifications

External/Paper | **Grade 5** | **48 items**

MA 5.1	**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 5.1.1	**Numeric Relationships: Students will demonstrate, represent, and show relationships among whole numbers, fractions, and decimals within the base-ten number system.**	**DOK 1**	**DOK 2**	**DOK 3**	
MA 5.1.1.a	Determine multiple equivalent representations for whole numbers and decimals through the thousandths place using standard form, word form, and expanded notation.	x	x		**7 - 10 items**
MA 5.1.1.b	Compare whole numbers, fractions, mixed numbers, and decimals through the thousandths place and represent comparisons using symbols <,>, or =.	x	x		
MA 5.1.1.c	Round whole numbers and decimals to any given place.	x			
MA 5.1.1.d	Recognize and generate equivalent forms of commonly used fractions, decimals, and percents (e.g., halves, thirds, fourths, fifths, and tenths).	x	x		
MA 5.1.1.e	Write powers of 10 with exponents.	x			
MA 5.1.2	**Operations: Students will demonstrate the meaning of operations and compute accurately with whole numbers, fractions, and decimals.**	**DOK 1**	**DOK 2**	**DOK 3**	**9 - 12 items**
MA 5.1.2.a	Multiply multi-digit whole numbers using the standard algorithm.	x			
MA 5.1.2.b	Divide four-digit whole numbers by a two-digit divisor, with and without remainders using the standard algorithm.	x			
MA 5.1.2.c	Multiply a whole number by a fraction or a fraction by a fraction using models and visual representations.	x	x		
MA 5.1.2.d	Divide a unit fraction by a whole number and a whole number by a unit fraction.	x			
MA 5.1.2.e	Explain division of a whole number by a fraction using models and visual representations.	Assessed at the local level			
MA 5.1.2.f	Interpret a fraction as division of the numerator by the denominator.	Assessed at the local level			
MA 5.1.2.g	Add, subtract, multiply, and divide decimals to the hundredths using concrete models or drawings and strategies based on place value, properties of operations (i.e. Commutative, Associative, Distributive, Identity, Zero), and/or relationships between operations.	x			
MA 5.1.2.h	Add and subtract fractions and mixed numbers with unlike denominators.	x			
MA 5.1.2.i	Determine the reasonableness of computations involving whole numbers, fractions, and decimals.	Assessed at the local level			
MA 5.1.2.j	Multiply and divide by powers of 10.	x			

MA 5.2	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 5.2.1	**Algebraic Relationships: Students will demonstrate, represent, and show relationships with expressions and equations.**	**DOK 1**	**DOK 2**	**DOK 3**	**3 - 6 items**
MA 5.2.1.a	Form ordered pairs from a rule such as y=2x, and graph the ordered pairs on a coordinate plane.	x			
MA 5.2.2	**Algebraic Processes: Students will apply the operational properties when evaluating expressions and solving equations.**	**DOK 1**	**DOK 2**	**DOK 3**	**4 - 7 items**
MA 5.2.2.a	Interpret and evaluate numerical or algebraic expressions using order of operations (excluding exponents).	x	x		
MA 5.2.3	**Applications: Students will solve real-world problems involving equations with fractions and mixed numbers.**	**DOK 1**	**DOK 2**	**DOK 3**	**1 - 4 items**
MA 5.2.3.a	Solve real-world problems involving addition and subtraction of fractions and mixed numbers with like and unlike denominators.		x	x	

MA 5.3	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 5.3.1	**Characteristics: Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.**	**DOK 1**	**DOK 2**	**DOK 3**	
MA 5.3.1.a	Identify three-dimensional figures including cubes, cones, pyramids, prisms, spheres, and cylinders.	x			**2 - 5 items**
MA 5.3.1.b	Identify faces, edges, and vertices of rectangular prisms.	x			
MA 5.3.1.c	Justify the classification of two-dimensional figures based on their properties.		x	x	
MA 5.3.2	**Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.**	**DOK 1**	**DOK 2**	**DOK 3**	
MA 5.3.2.a	Identify the origin, x axis, and y axis of the coordinate plane.	Assessed at the local level			**1 - 4 items**
MA 5.3.2.b	Graph and name points in the first quadrant of the coordinate plane using ordered pairs of whole numbers.	x			
MA 5.3.3	**Measurement: Students will perform and compare measurements and apply formulas.**	**DOK 1**	**DOK 2**	**DOK 3**	
MA 5.3.3.a	Recognize that solid figures have volume that is measured in cubic units.	Assessed at the local level			**1 - 4 items**
MA 5.3.3.b	Use concrete models to measure the volume of rectangular prisms in cubic units by counting cubic units.	x	x		
MA 5.3.3.c	Generate conversions within the customary and metric systems of measurement.	x	x		

MA 5.4	**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 5.4.1	**Representations: Students will create displays that represent data.**	***No additional indicator(s) at this level.***			
MA 5.4.2	**Analysis & Applications: Students will analyze data to address the situation.**	**DOK 1**	**DOK 2**	**DOK 3**	
MA 5.4.2.a	Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (e.g., frequency charts) and bar graphs.	x	x	x	**4 - 10 items**
MA 5.4.2.b	Formulate questions that can be addressed with data and make predictions about the data.		x	x	
MA 5.4.3	**Probability: Students will interpret and apply concepts of probability.**	***No additional indicator(s) at this level.***			