

NSCAS - Math Table of Specifications

External/Paper

Grade 6

48 items

MA 6.1	NUMBER: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.	Number 25% - 35%			
MA 6.1.1	Numeric Relationships: Students will demonstrate, represent, and show relationships among fractions, decimals, percents, and integers within the base-ten number system.	DOK 1	DOK 2	DOK 3	8 - 12 items
MA 6.1.1.a	Determine common factors and common multiples using prime factorization of numbers with and without exponents.	x	x		
MA 6.1.1.b	Represent non-negative whole numbers using exponential notation.	x			
MA 6.1.1.c	Compare and order rational numbers both on the number line and not on the number line.	x	x		
MA 6.1.1.d	Convert among fractions, decimals, and percents using multiple representations.	x	x		
MA 6.1.1.e	Determine ratios from drawings, words, and manipulatives.	Assessed at the local level			
MA 6.1.1.f	Explain and determine unit rates.	Assessed at the local level			
MA 6.1.1.g	Model integers using drawings, words, manipulatives, number lines, and symbols.		x		
MA 6.1.1.h	Compare and order integers and absolute value both on the number line and not on the number line.	x	x		
MA 6.1.1.i	Determine absolute value of rational numbers.	x			
MA 6.1.2	Operations: Students will compute with fractions and decimals accurately.	DOK 1	DOK 2	DOK 3	3 - 6 items
MA 6.1.2.a	Multiply and divide non-negative fractions and mixed numbers.	x			
MA 6.1.2.b	Evaluate expressions with positive exponents.	Assessed at the local level			
MA 6.1.2.c	Divide multi-digit whole numbers using the standard algorithm.	x			
MA 6.1.2.d	Add, subtract, multiply, and divide decimals using the standard algorithms.	x			
MA 6.1.2.e	Estimate and check reasonableness of answers using appropriate strategies and tools.		x		

MA 6.2	ALGEBRA: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.	Algebra 30% - 40%			
MA 6.2.1	Algebraic Relationships: Students will demonstrate, represent, and show relationships with expressions, equations, and inequalities.	DOK 1	DOK 2	DOK 3	0 - 3 items
MA 6.2.1.a	Create algebraic expressions (e.g., one operation, one variable as well as multiple operations, one variable) from word phrases.	x	x		
MA 6.2.1.b	Recognize and generate equivalent algebraic expressions involving distributive property and combining like terms.	Assessed at the local level			
MA 6.2.1.c	Represent and analyze the relationship between two variables using graphs, tables, and one-step equations.	Assessed at the local level			
MA 6.2.2	Algebraic Processes: Students will apply the operational properties when evaluating expressions, and solving equations and inequalities.	DOK 1	DOK 2	DOK 3	8 - 12 items
MA 6.2.2.a	Simplify expressions using the distributive property and combining like terms.	x			
MA 6.2.2.b	Use substitution to determine if a given value for a variable makes an equation or inequality true.	x	x		
MA 6.2.2.c	Evaluate numerical expressions, including absolute value and exponents, with respect to order of operations.	x			
MA 6.2.2.d	Given the value of the variable, evaluate algebraic expressions (which may include absolute value) with respect to order of operations (non-negative rational numbers).	x	x		
MA 6.2.2.e	Solve one-step equations with non-negative rational numbers using addition, subtraction, multiplication and division.	x			
MA 6.2.2.f	Use equivalent ratios relating quantities with whole numbers to create a table. Find missing values in the table.		x		
MA 6.2.2.g	Represent inequalities on a number line (e.g., graph $x > 3$).	x	x		
MA 6.2.3	Applications: Students will solve real-world problems involving ratios, unit rates, and percents.	DOK 1	DOK 2	DOK 3	3 - 6 items
MA 6.2.3.a	Write equations (e.g., one operation, one variable) to represent real-world problems involving non-negative rational numbers.	Assessed at the local level			
MA 6.2.3.b	Solve real-world problems involving non-negative rational numbers.		x		
MA 6.2.3.c	Solve real-world problems involving percents of numbers.		x		
MA 6.2.3.d	Solve real-world problems using ratios and unit rates.		x		

MA 6.3	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 6.3.1	Characteristics: Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.	DOK 1	DOK 2	DOK 3	0 - 3 items	
MA 6.3.1.a	Identify and create nets to represent two- dimensional drawings of prisms, pyramids, cylinders, and cones.	x	x			
MA 6.3.2	Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.	DOK 1	DOK 2	DOK 3	1 - 4 items	
MA 6.3.2.a	Identify the ordered pair of a given point in the coordinate plane.	x				
MA 6.3.2.b	Plot the location of an ordered pair in the coordinate plane.	Assessed at the local level				
MA 6.3.2.c	Identify the quadrant of a given point in the coordinate plane.	x	x			
MA 6.3.2.d	Draw polygons in the coordinate plane given coordinates for the vertices.		x			
MA 6.3.2.e	Calculate vertical and horizontal distances in the coordinate plane to find perimeter and area.	Assessed at the local level				
MA 6.3.3	Measurement: Students will perform and compare measurements and apply formulas.	DOK 1	DOK 2	DOK 3	4 - 8 items	
MA 6.3.3.a	Determine the area of quadrilaterals, including parallelograms, trapezoids, and triangles by composition and decomposition of polygons as well as application of formulas.		x			
MA 6.3.3.b	Determine the surface area of rectangular prisms and triangular prisms using nets.		x			
MA 6.3.3.c	Apply volume formulas for rectangular prisms.		x			

MA 6.4	DATA: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.	<p style="text-align: center;">Data 10% - 20%</p>			
MA 6.4.1	Representations: Students will create displays that represent data.	DOK 1	DOK 2	DOK 3	NA
MA 6.4.1.a	Represent data using line plots, dot plots, box plots, and histograms.	Assessed at the local level			
MA 6.4.2	Analysis & Applications: Students will analyze data to address the situation.	DOK 1	DOK 2	DOK 3	4 - 10 items
MA 6.4.2.a	Solve problems using information presented in line plots, dot plots, box plots, and histograms.		x		
MA 6.4.2.b	Compare and interpret data sets based upon their graphical representations (e.g., center, spread, and shape).		x	x	
MA 6.4.2.c	Find and interpret the mean, median, mode, and range for a set of data.	x	x		
MA 6.4.2.d	Compare the mean, median, mode, and range from two sets of data.		x	x	
MA 6.4.3	Probability: Students will interpret and apply concepts of probability.	<i>No additional indicator(s) at this level.</i>			