

# NSCAS - Math Table of Specifications

External/Paper

**Grade 3**

**48 items**

MA 3.1	NUMBER: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.	<b>Number 35% - 45%</b>			
MA 3.1.1	Numeric Relationships: Students will demonstrate, represent, and show relationships among whole numbers and simple fractions within the base-ten number system.	DOK 1	DOK 2	DOK 3	12 - 17 items
MA 3.1.1.a	Read, write and demonstrate multiple equivalent representations for numbers up to 100,000 using objects, visual representations, including standard form, word form, expanded form, and expanded notation.	x	x		
MA 3.1.1.b	Compare whole numbers through the hundred thousands and represent the comparisons using the symbols $>$ , $<$ or $=$ .	x			
MA 3.1.1.c	Round a whole number to the tens or hundreds place, using place value understanding or a visual representation.	x			
MA 3.1.1.d	Represent and understand a fraction as a number on a number line.	x	x		
MA 3.1.1.e	Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.	x	x		
MA 3.1.1.f	Show and identify equivalent fractions using visual representations including pictures, manipulatives, and number lines.	x	x		
MA 3.1.1.g	Find parts of a whole and parts of a set using visual representations.	x	x		
MA 3.1.1.h	Explain and demonstrate how fractions $\frac{1}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$ and a whole relate to time, measurement, and money, and demonstrate using visual representation.	x	x		
MA 3.1.1.i	Compare and order fractions having the same numerators or denominators using visual representations, comparison symbols, and verbal reasoning.	x	x		

MA 3.1.2	Operations: Students will demonstrate the meaning of multiplication and division with whole numbers and compute accurately.	DOK 1	DOK 2	DOK 3	3 - 6 items							
MA 3.1.2.a	Add and subtract within 1,000 with or without regrouping.	x										
MA 3.1.2.b	Select and apply the appropriate methods of computation when solving one- and two- step addition and subtraction problems with four- digit whole numbers through the thousands (e.g., visual representations, mental computation, paper-pencil).	Assessed at the local level										
MA 3.1.2.c	Use drawings, words, arrays, symbols, repeated addition, equal groups, and number lines to explain the meaning of multiplication.	x	x									
MA 3.1.2.d	Use words and symbols to explain the meaning of the Zero Property and Identity Property of multiplication.	Assessed at the local level										
MA 3.1.2.e	Multiply one digit whole numbers by multiples of 10 in the range of 10 to 90.	x										
MA 3.1.2.f	Use objects, drawings, arrays, words and symbols to explain the relationship between multiplication and division (e.g., if $3 \times 4 = 12$ then $12 \div 3 = 4$ ).	x	x									
MA 3.1.2.g	Fluently (i.e. automatic recall based on understanding) multiply and divide within 100.	Assessed at the local level										
MA 3.1.2.h	Determine the reasonableness of whole number sums and differences in real-world problems using estimation, compatible numbers, mental computations, or other strategies.	Assessed at the local level										

MA 3.2	ALGEBRA: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.	Algebra 15% - 20%			
MA 3.2.1	<b>Algebraic Relationships: Students will demonstrate, represent, and show relationships with expressions and equations.</b>	DOK 1	DOK 2	DOK 3	1 - 4 items
MA 3.2.1.a	Identify arithmetic patterns (including patterns in the addition or multiplication tables) using properties of operations.	x	x		
MA 3.2.1.b	Interpret a multiplication equation as equal groups (e.g., interpret $4 \times 6$ as the total number of objects in four groups of six objects each). Represent verbal statements of equal groups as multiplication equations.	x	x		
MA 3.2.2	<b>Algebraic Processes: Student will apply the operational properties when multiplying and dividing.</b>	DOK 1	DOK 2	DOK 3	2 - 5 items
MA 3.2.2.a	Apply the commutative, associative, and distributive properties as strategies to multiply and divide.	Assessed at the local level			
MA 3.2.2.b	Solve one-step whole number equations involving addition, subtraction, multiplication, or division, including the use of a letter to represent the unknown quantity.	x	x		
MA 3.2.3	<b>Applications: Students will solve real-world problems involving equations with whole numbers.</b>	DOK 1	DOK 2	DOK 3	1 - 4 items
MA 3.2.3.a	Solve real-world problems involving two-step equations (involving two operations) involving whole numbers using addition and subtraction.		x		
MA 3.2.3.b	Write an equation (e.g., one operation, one variable) to represent real-world problems involving whole numbers.		x		

MA 3.3	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 20% - 30%			
MA 3.3.1	<b>Characteristics: Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.</b>	DOK 1	DOK 2	DOK 3	3 - 6 items
MA 3.3.1.a	Identify the number of sides, angles, and vertices of two-dimensional shapes.	x			
MA 3.3.1.b	Sort quadrilaterals into categories (e.g., rhombuses, squares, and rectangles).	x	x		
MA 3.3.1.c	Draw lines to separate two-dimensional figures into equal areas, and express the area of each part as a unit fraction of the whole.	x	x		
MA 3.3.2	<b>Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.</b>	Assessed at the local level			
MA 3.3.3	<b>Measurement: Students will perform and compare measurements and apply formulas.</b>	DOK 1	DOK 2	DOK 3	6 - 10 items
MA 3.3.3.a	Find the perimeter of polygons given the side lengths, and find an unknown side length.	x	x		
MA 3.3.3.b	Tell and write time to the minute using both analog and digital clocks.	x			
MA 3.3.3.c	Solve real-world problems involving addition and subtraction of time intervals and find elapsed time.		x		
MA 3.3.3.d	Identify and use the appropriate tools and units of measurement, both customary and metric, to solve real-world problems involving length, weight, mass, liquid volume, and capacity (within the same system and unit).	Assessed at the local level			
MA 3.3.3.e	Estimate and measure length to the nearest half inch, quarter inch, and centimeter.	x			
MA 3.3.3.f	Use concrete and pictorial models to measure areas in square units by counting square units.	Assessed at the local level			
MA 3.3.3.g	Find the area of a rectangle with whole-number side lengths by modeling with unit squares, and show that the area is the same as would be found by multiplying the side lengths.	x	x		
MA 3.3.3.h	Identify and draw rectangles with the same perimeter and different areas or with the same area and different perimeters.	x	x	x	

MA 3.4	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;"><b>Data</b> <b>15% - 20%</b></p>			
MA 3.4.1	<b>Representations: Students will create displays that represent data.</b>	DOK 1	DOK 2	DOK 3	5 - 8 items
MA 3.4.1.a	Create scaled pictographs and scaled bar graphs to represent a data set—including data collected through observations, surveys, and experiments—with several categories.		x	x	
MA 3.4.1.b	Represent data using line plots where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.	x	x		
MA 3.4.2	<b>Analysis &amp; Applications: Students will analyze data to address the situation.</b>	DOK 1	DOK 2	DOK 3	1 - 4 items
MA 3.4.2.a	Solve problems and make simple statements about quantity differences (e.g., how many more and how many less) using information represented in pictographs and bar graphs.		x		
MA 3.4.3	<b>Probability: Students will interpret and apply concepts of probability.</b>	<i>No additional indicator(s) at this level.</i>			