

## NSCAS Alternate Math Table of Specifications - Grade 6

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.					
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.	Max DOK Level	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
MA 6.1.1.a	Determine common factors and common multiples using prime factorization of numbers with and without exponents. <i>Extended: Identify the common factors of 4 and 6, 6 and 9, 8 and 10, given the factors of both numbers.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.1.1.b	Represent non-negative whole numbers using exponential notation. <i>Extended: Represent 10, 100, 1,000, or 10,000 as a power of 10.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.1.1.c	Compare and order rational numbers both on the number line and not on the number line. <i>Extended: Compare and order halves, quarters, and tenths of whole numbers 0–1 on a number line.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.1.1.d	Convert among fractions, decimals, and percents using multiple representations. <i>Extended: Convert halves, fourths, and tenths to decimals using a model.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.1.1.g	Model integers using drawings, words, manipulatives, number lines, and symbols. <i>Extended: Identify models of integers –10 to 10 using drawings, words, manipulatives, number lines and symbols.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.1.1.h	Compare and order integers and absolute value both on the number line and not on the number line. <i>Extended: Compare and order integers (–10 to 10) on a number line.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.1.1.i	Determine absolute value of rational numbers. <i>Extended: Identify the absolute value of an integer –10 to 10.</i>		0 – 2	0 – 1	0 – 1	0 – 4

MA 6.1.2	Operations: Students will compute with fractions and decimals accurately.	Max DOK Level	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
MA 6.1.2.a	Multiply and divide non-negative fractions and mixed numbers. <i>Extended: Multiply and divide positive fractions, halves, fourths, thirds and tenths using models.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.1.2.c	Divide multi-digit whole numbers using the standard algorithm. <i>Extended: Divide a two-digit number by a one-digit number with a remainder.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.1.2.d	Add, subtract, multiply, and divide decimals using the standard algorithms. <i>Extended: Add and subtract numbers 0–10 with one decimal place without regrouping.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.1.2.e	Estimate and check reasonableness of answers using appropriate strategies and tools. <i>Extended: Estimate the sum of two decimal numbers with tenths (e.g., <math>5.2 + 3.7</math> is about 9).</i>		0 – 2	0 – 1	0 – 1	0 – 4

MA 6.2	ALGEBRA: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.					
MA 6.2.1	Algebraic Relationships: Students will demonstrate, represent, and show relationships with expressions, equations, and inequalities.	Max DOK Level	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
MA 6.2.1.a	Create algebraic expressions (e.g., one operation, one variable as well as multiple operations, one variable) from word phrases. <i>Extended: Match a simple word phrase with an input/output box.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.2.2	Algebraic Processes: Students will apply the operational properties when evaluating expressions, and solving equations and inequalities.	Max DOK Level	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
MA 6.2.2.a	Simplify expressions using the distributive property and combining like terms. <i>Extended: Identify whole number expressions using the distributive property (e.g., <math>2(3 + 4)</math>).</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.2.2.c	Evaluate numerical expressions, including absolute value and exponents, with respect to order of operations. <i>Extended: Demonstrate understanding of order of operations involving addition, subtraction, and multiplication.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.2.2.e	Solve one-step equations with non-negative rational numbers using addition, subtraction, multiplication and division. <i>Extended: Solve a one-step equation using addition and subtraction.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.2.2.f	Use equivalent ratios relating quantities with whole numbers to create a table. Find missing values in the table. <i>Extended: Find a missing number in a table with the ratio of 1:2, 1:3, or 1:10.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.2.2.g	Represent inequalities on a number line (e.g., graph $x > 3$ ). <i>Extended: Identify a solution to an inequality on a number line (–10 to 10).</i>		0 – 2	0 – 1	0 – 1	0 – 4

MA 6.2.3	Applications: Students will solve real-world problems involving ratios, unit rates, and percents.	Max DOK Level	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
MA 6.2.3.b	Solve real-world problems involving non-negative rational numbers. <i>Extended: Solve real-world problems with addition and subtraction of decimal numbers to the hundredth without regrouping.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.2.3.d	Solve real-world problems using ratios and unit rates. <i>Extended: Solve real-world problems using ratios up to 1:3.</i>		0 – 2	0 – 1	0 – 1	0 – 4

<b>MA 6.3</b>	<b>GEOMETRY: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.</b>					
<b>MA 6.3.1</b>	<b>Characteristics: Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.</b>	<b>Max DOK Level</b>	<b>DOK 1 Stage 1 Stage 2</b>	<b>DOK 1 Stage 3</b>	<b>DOK 2 Stage 4</b>	<b>Item Total</b>
<b>MA 6.3.1.a</b>	Identify and create nets to represent two-dimensional drawings of prisms, pyramids, cylinders, and cones. <i>Extended: Identify a cube, cylinder, or cone from a given two-dimensional representation.</i>		0 – 2	0 – 1	0 – 1	0 – 4
<b>MA 6.3.2</b>	<b>Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.</b>	<b>Max DOK Level</b>	<b>DOK 1 Stage 1 Stage 2</b>	<b>DOK 1 Stage 3</b>	<b>DOK 2 Stage 4</b>	<b>Item Total</b>
<b>MA 6.3.2.c</b>	Identify the quadrant of a given point in the coordinate plane. <i>Extended: Identify a point on a 4 by 4 grid in quadrant 1.</i>		0 – 2	0 – 1	0 – 1	0 – 4
<b>MA 6.3.2.d</b>	Draw polygons in the coordinate plane given coordinates for the vertices. <i>Extended: Identify the location of one vertex of a triangle in quadrant 1 with one vertex on the origin.</i>		0 – 2	0 – 1	0 – 1	0 – 4

MA 6.3.3	Measurement: Students will perform and compare measurements and apply formulas.	Max DOK Level	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
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. <i>Extended: Find the area of a rectangle using its whole number side lengths.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.3.3.b	Determine the surface area of rectangular prisms and triangular prisms using nets. <i>Extended: Find the surface area of a rectangular prism by counting unit squares in a net.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.3.3.c	Apply volume formulas for rectangular prisms. <i>Extended: Find the volume of a rectangular prism using the volume formula.</i>		0 – 2	0 – 1	0 – 1	0 – 4

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.					
MA 6.4.1	Representations: Students will create displays that represent data.	Max DOK Level	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
MA 6.4.2	Analysis & Applications: Students will analyze data to address the situation.	Max DOK Level	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
MA 6.4.2.a	Solve problems using information presented in line plots, dot plots, box plots, and histograms. <i>Extended: Interpret a histogram that matches a data set.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.4.2.b	Compare and interpret data sets based upon their graphical representations (e.g., center, spread, and shape). <i>Extended: Solve basic problems using histograms (e.g., How many times did Sara knock down 9 pins? How many more students have 1 pet than have 2 pets?).</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.4.2.c	Find and interpret the mean, median, mode, and range for a set of data. <i>Extended: Find the mode of a set of ordered whole number data.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.4.2.d	Compare the mean, median, mode, and range from two sets of data. <i>Extended: Find the median of a set of ordered whole number data.</i>		0 – 2	0 – 1	0 – 1	0 – 4
MA 6.4.3	Probability: Students will interpret and apply concepts of probability.					