

# NSCAS – Math Table of Specifications

External/Paper

## Grade 7

<b>7.N</b>	<b>NUMBER: Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.</b>	<b>NUMBER 15-25%</b>		
<b>7.N.1</b>	<b>Numeric Relationships: Students will demonstrate, represent, and show relationships among rational numbers within the base-ten number system.</b>	<i>No additional indicator(s) at this level.</i>		
<b>7.N.2</b>	<b>Operations: Students will compute with rational numbers accurately.</b>	<b>DOK 1</b>	<b>DOK 2</b>	<b>DOK 3</b>
<b>7.N.2.a</b>	Add, subtract, multiply, and divide rational numbers (e.g., positive and negative fractions, decimals, and integers).	x	x	x
<b>7.N.2.b</b>	Apply properties of operations (commutative, associative, distributive, identity, inverse, zero) as strategies for problem solving with rational numbers.	Assessed at the local level		

7.R	RATIOS AND PROPORTIONS: Students will understand ratio concepts and use ratio reasoning to solve problems.	RATIOS AND PROPORTIONS 5-15%		
7.R.1	Proportional Relationships: Students will understand the concept of proportions, use language to describe the relationship between two quantities, and use them to solve authentic situations.	DOK 1	DOK 2	DOK 3
7.R.1.a	Decide whether two quantities are in a proportional relationship (e.g., by testing for equivalent ratios in a table).	x	x	
7.R.1.b	Represent and solve authentic problems with proportions.		x	x
7.R.1.c	Use proportional relationships to solve authentic percent problems (e.g., percent change, sales tax, mark-up, discount, tip).		x	x
7.R.1.d	Solve authentic problems involving scale drawings.		x	x

7.A	<b>ALGEBRA: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.</b>	<b>ALGEBRA 20-30%</b>		
7.A.1	<b>Algebraic Processes: Students will apply the operational properties when evaluating expressions, and solving equations and inequalities.</b>	<b>DOK 1</b>	<b>DOK 2</b>	<b>DOK 3</b>
7.A.1.a	Use factoring and properties of operations to create equivalent algebraic expressions (e.g., $2x + 6 = 2(x + 3)$ ).	x	x	x
7.A.1.b	Given the value of the variable(s), evaluate algebraic expressions which may include absolute value.	x		x
7.A.1.c	Solve one- and two-step equations involving rational numbers.	x	x	
7.A.1.d	Solve equations using the distributive property and combining like terms.		x	x
7.A.1.e	Solve one- and two-step inequalities involving integers and represent solutions on a number line.	x	x	
7.A.2	<b>Applications: Students will solve authentic problems with algebraic expressions, equations, and inequalities.</b>	<b>DOK 1</b>	<b>DOK 2</b>	<b>DOK 3</b>
7.A.2.a	Write one- and two-step equations involving rational numbers from words, tables, and authentic situations.	x	x	x
7.A.2.b	Write one- and two-step inequalities to represent authentic situations involving integers.		x	x

7.G	<b>GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.</b>	<b>GEOMETRY 15-25%</b>		
7.G.1	<b>Attributes: Students will identify angle relationships and apply properties to determine angle measures.</b>	<b>DOK 1</b>	<b>DOK 2</b>	<b>DOK 3</b>
7.G.1.a	Apply properties of adjacent, complementary, supplementary, linear pair, and vertical angles to find missing angle measures.	x	x	x
7.G.2	<b>Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.</b>	<b>DOK 1</b>	<b>DOK 2</b>	<b>DOK 3</b>
7.G.2.a	Draw polygons in the coordinate plane given coordinates for the vertices.	x	x	
7.G.2.b	Calculate vertical and horizontal distances in the coordinate plane to find perimeter and area of rectangles.	Assessed at the local level		
7.G.3	<b>Measurement: Students will identify geometric attributes that create two- and three-dimensional shapes in order to perform measurements and apply formulas to find area and volume.</b>	<b>DOK 1</b>	<b>DOK 2</b>	<b>DOK 3</b>
7.G.3.a	Solve authentic problems involving perimeter and area of composite shapes made from triangles and quadrilaterals.		x	x
7.G.3.b	Determine surface area and volume of composite rectangular and triangular prisms.		x	x
7.G.3.c	Determine the area and circumference of circles both on and off the coordinate plane using 3.14 for the value of Pi.	x	x	

7.D	DATA: Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.	DATA 20-30%		
7.D.1	Data Collection & Statistical Methods: Students will formulate statistical investigative questions, collect data, and organize data.	DOK 1	DOK 2	DOK 3
7.D.1.a	Create an investigative question and collect data.		x	x
7.D.1.b	Generate conclusions about a population based on a random sample.	Assessed at the local level		
7.D.1.c	Identify and critique biases in various data representations.	Assessed at the local level		
7.D.2	Analyze Data and Interpret Results: Students will represent and analyze the data and interpret the results.	<i>No additional indicator(s) at this level.</i>		
7.D.3	Probability: Students will interpret and apply concepts of probability.	DOK 1	DOK 2	DOK 3
7.D.3.a	Find theoretical and experimental probabilities for compound independent and dependent events.	x	x	x
7.D.3.b	Identify complementary events and calculate their probabilities.	x	x	