

NSCAS – Math Table of Specifications

External/Paper

Grade 7

40 items

7.N	NUMBER: Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.	NUMBER 15-25%			
7.N.1	Numeric Relationships: Students will demonstrate, represent, and show relationships among rational numbers within the base-ten number system.	<i>No additional indicator(s) at this level.</i>			
7.N.2	Operations: Students will compute with rational numbers accurately.	DOK 1	DOK 2	DOK 3	6-10 items
7.N.2.a	Add, subtract, multiply, and divide rational numbers (e.g., positive and negative fractions, decimals, and integers).	x	x		
7.N.2.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	2-6 items
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		
7.R.1.c	Use proportional relationships to solve authentic percent problems (e.g., percent change, sales tax, mark-up, discount, tip).		x		
7.R.1.d	Solve authentic problems involving scale drawings.		x		

7.A	ALGEBRA: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.	ALGEBRA 20-30%			
7.A.1	Algebraic Processes: Students will apply the operational properties when evaluating expressions, and solving equations and inequalities.	DOK 1	DOK 2	DOK 3	5-8 items
7.A.1.a	Use factoring and properties of operations to create equivalent algebraic expressions (e.g., $2x + 6 = 2(x + 3)$).	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			
7.A.1.d	Solve equations using the distributive property and combining like terms.	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	Applications: Students will solve authentic problems with algebraic expressions, equations, and inequalities.	DOK 1	DOK 2	DOK 3	3-4 items
7.A.2.a	Write one- and two-step equations involving rational numbers from words, tables, and authentic situations.		x		
7.A.2.b	Write one- and two-step inequalities to represent authentic situations involving integers.	x	x		

7.G	GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.	GEOMETRY 15-25%				
7.G.1	Attributes: Students will identify angle relationships and apply properties to determine angle measures.	DOK 1	DOK 2	DOK 3	1-2 items	
7.G.1.a	Apply properties of adjacent, complementary, supplementary, linear pair, and vertical angles to find missing angle measures.		x			
7.G.2	Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.	DOK 1	DOK 2	DOK 3	1-2 items	
7.G.2.a	Draw polygons in the coordinate plane given coordinates for the vertices.		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	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.	DOK 1	DOK 2	DOK 3	4-6 items	
7.G.3.a	Solve authentic problems involving perimeter and area of composite shapes made from triangles and quadrilaterals.		x			
7.G.3.b	Determine surface area and volume of composite rectangular and triangular prisms.		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	2-3 items
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	6-9 items
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		