OCS 7th Grade Math Priority Standards

RATIO & PROPORTIONAL RELATIONSHIPS	
NC.7.RP.2	Recognize and represent proportional relationships between quantities. a. Understand that a proportion is a relationship of equality between ratios. ○ Represent proportional relationships using tables and graphs. ○ Recognize whether ratios are in a proportional relationship using tables and graphs. ○ Compare two different proportional relationships using tables, graphs, equations, and verbal descriptions. b. Identify the unit rate (constant of proportionality) within two quantities in a proportional relationship using tables, graphs, equations, and verbal descriptions. c. Create equations and graphs to represent proportional relationships. d. Use a graphical representation of a proportional relationship in context to: ○ Explain the meaning of any point (x, y). ○ Explain the meaning of (0, 0) and why it is included. ○ Understand that the y-coordinate of the ordered pair (1, r) corresponds to the unit rate and explain its meaning.
THE NUMBER SYSTEM	
NC.7.NS.3	Solve real-world and mathematical problems involving numerical expressions with rational numbers using the four operations.
EXPRESSIONS & EQUATIONS	
NC.7.EE.1	Apply properties of operations as strategies to: • Add, subtract, and expand linear expressions with rational coefficients. • Factor linear expression with an integer GCF.
NC.7.EE.4	Use variables to represent quantities to solve real-world or mathematical problems. a. Construct equations to solve problems by reasoning about the quantities. ○ Fluently solve multistep equations with the variable on one side, including those generated by word problems. ○ Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. ○ Interpret the solution in context. b. Construct inequalities to solve problems by reasoning about the quantities. ○ Fluently solve multi-step inequalities with the variable on one side, including those generated by word problems. ○ Compare an algebraic solution process for equations and an algebraic solution process for inequalities. ○ Graph the solution set of the inequality and interpret in context.
GEOMETRY	
NC.7.G.1	Solve problems involving scale drawings of geometric figures by: • Building an understanding that angle measures remain the same and side lengths are proportional. • Using a scale factor to compute actual lengths and areas from a scale drawing. • Creating a scale drawing.
NC.7.G.5	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve equations for an unknown angle in a figure.
NC.7.G.6	Solve real-world and mathematical problems involving: • Area and perimeter of two-dimensional objects composed of triangles, quadrilaterals, and polygons. • Volume and surface area of pyramids, prisms, or three-dimensional objects composed of cubes, pyramids, and right prisms.

STATISTICS & PROBABILTY	
NC.7.SP.2	Generate multiple random samples (or simulated samples) of the same size to gauge the variation in estimates or predictions, and use this data to draw inferences about a population with an unknown characteristic of interest.
NC.7.SP.3	Recognize the role of variability when comparing two populations. a. Calculate the measure of variability of a data set and understand that it describes how the values of the data set vary with a single number. o Understand the mean absolute deviation of a data set is a measure of variability that describes the average distance that points within a data set are from the mean of the data set. o Understand that the range describes the spread of the entire data set. o Understand that the interquartile range describes the spread of the middle 50% of the data. b. Informally assess the difference between two data sets by examining the overlap and separation between the graphical representations of two data sets.
NC.7.SP.7	Develop a probability model and use it to find probabilities of simple events. a. Develop a uniform probability model by assigning equal probability to all outcomes and use the model to determine probabilities of events. b. Develop a probability model (which may not be uniform) by repeatedly performing a chance process and observing frequencies in the data generated. c. Compare theoretical and experimental probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.
NC.7.SP.8	Determine probabilities of compound events using organized lists, tables, tree diagrams, and simulation. a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. b. For an event described in everyday language, identify the outcomes in the sample space which compose the event, when the sample space is represented using organized lists, tables, and tree diagrams. c. Design and use a simulation to generate frequencies for compound events.