2024-2025 Hickman County Pacing Guide
7th Grade Math

The eight Standards for Mathematical Practice describe the varieties of expertise that mathematics educators should seek to develop in their students. While they are not specifically stated in this pacing guide, students should be developing these skills throughout the school year. Additionally, the Instructional Focus Documents provide valuable guidance to clarify the types of instruction that will help a student progress along a continuum of learning.

1st Cumulative MVPA Assessment, Sept. 30 - Oct. 4		
Unit	**Standards**	**Major Topics/Concepts**
Ratios and Proportions	7.RP.A.1 7.RP.A.2	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units. *For example, if a person walks* $\frac{1}{2}$ *mile in each* 15 *minutes, compute the unit rate as the complex fraction* $\frac{1/2}{1/4}$ *miles per hour, equivalently* 2 *miles per hour.* Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship (e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin). b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. c. Use the concept of equality to represent proportional relationships with equations. *For example, if total cost* t *is proportional to the number* n *of items purchased at a constant price* p*, the relationship between the total cost and the number of items can be expressed as* $t = pn$. d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$, where r is the unit rate.
Operations with Rational Numbers	7.NS.A.1 7.NS.A.2 7.NS.A.3	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Understand $p + q$ as the number located a distance $\|q\|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. b. Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. c. Apply properties of operations as strategies to add and subtract rational numbers.

		Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Understand that multiplication is extended from fractions to all rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the Distributive Property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-\left(\frac{p}{q}\right) = \frac{(-p)}{q} = \frac{p}{(-q)}$. Interpret quotients of rational numbers by describing real-world contexts. c. Apply properties of operations as strategies to multiply and divide rational numbers. d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates or eventually repeats. Solve real-world and mathematical problems involving the four operations with rational numbers. (Computations with rational numbers extend the rules for manipulating fractions to complex fractions.)
Construction and Deconstruction of Geometric Figures	7.G.A.1	Solve problems involving scale drawings of congruent and similar geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
2nd Cumulative MVPA Assessment, Dec. 16 - Dec. 20 (covering all content from 1st and 2nd)		
Unit	**Standards**	**Major Topics/Concepts**
Ratios and Proportions	7.RP.A.3	Use proportional relationships to solve multi-step ratio and percent problems. Examples: batting averages, recipes, simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error, etc.
Expressions and Equations	7.EE.A.1 7.EE.A.2 7.EE.B.3 7.EE.B.4	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. Rewrite and connect equivalent expressions in different forms in a contextual problem to provide multiple ways of interpreting the problem and investigating how the quantities in it are related. For example, shoes are on sale at a 25% discount. How is the discounted price P

		related to the original cost C of the shoes? C − 0.25C = P. In other words, P is 75% of the original cost since C − 0.25CC can be written as 0.75C. Solve multi-step real-world and mathematical problems posed with positive and negative rational numbers presented in any form (whole numbers, fractions, and decimals). A. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate. B. Assess the reasonableness of answers using mental computation and estimation strategies. Use variables to represent quantities in a real-world and mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. A. Solve real-world and mathematical problems leading to equations of the form p + q = r and p(x + q) = r, where p,q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? B. Solve real-world and mathematical problems leading to inequalities of the form p + q > r, p + q < r, p + q ≥ r, and p + q ≤ r, where p, q, and r are specific rational numbers. Graph the solution set of the inequality on a number line and interpret it in the context of the problem. For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.
3rd Cumulative Assessment, March 17 - March 21 (covering all content)		
Angles, Area, and Volume	7.G.B.3 7.G.B.4 7.G.B.5	Know the formulas for the area and circumference of a circle and use them to solve problems. Explore the relationships between the radius, the circumference, and the area of a circle, and the number πππ. Know and use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

		Solve real-world and mathematical problems involving area of two- dimensional figures composed of triangles, quadrilaterals, and polygons, and volume and surface area of three-dimensional objects composed of cubes and right prisms.
Construction and Deconstruction of Geometric Figures	7.G.A.2	Draw triangles with given conditions: three angle measures or three side measures. Notice when the conditions determine a unique triangle, more than one triangle, or no triangle.
Statistics	7.SP.A.1 7.SP.A.2 7.SP.B.3 7.SP.B.4 7.SP.D.8	Explore how statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences. Collect and use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be. Informally compare the measures of center (mean, median, mode) of two numerical data distributions with similar variabilities. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team; on a dot plot or box plot, the separation between the two distributions of heights is noticeable. Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a 7th grade science book are generally longer than the words in a chapter of a 4th grade science book. Summarize a numerical data set in relation to its context. A. Give quantitative measures of center (median and/or mean) and variability (range and/or interquartile range), as well as describe any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.

		B. Relate and understand the choice of measures of center (median and/or mean) and variability (range and/or interquartile range) to the shape of the data distribution and the context in which the data were gathered.
Probability	7.SP.C.5 7.SP.C.6 7.SP.C.7	Recognize that the probability of a chance event is a number between 0 and 1 and interpret the likelihood of the event occurring. Calculate theoretical and experimental probability of simple events. A. Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. B. Calculate the theoretical probability of a simple event. C. Compare theoretical probabilities to experimental probabilities; explain any possible sources of discrepancy. For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times. Develop a probability model and use it to find experimental or theoretical probabilities of events. A. Use a uniform probability model, with equal probability assigned to all outcomes, to determine probabilities of events. For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected. B. Develop a probability model, including non-uniform models, by observing frequencies in data generated from a chance process. Use the model to estimate the probabilities of events. For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?