



ASPIRE FIFTH GRADE MATH COURSE OVERVIEW

The primary focal areas in Grade 5 are solving problems involving all four operations with positive rational numbers, determining and generating formulas and solutions to expressions, and extending measurement to area and volume. These focal areas are supported throughout the mathematical strands of number and operations, algebraic reasoning, geometry and measurement, and data analysis. In Grades 3-5, the number set is limited to positive rational numbers. In number and operations, students will apply place value and identify part-to-whole relationships and equivalence. In algebraic reasoning, students will represent and solve problems with expressions and equations, build foundations of functions through patterning, identify prime and composite numbers, and use the order of operations. In geometry and measurement, students will classify two-dimensional figures, connect geometric attributes to the measures of three-dimensional figures, use units of measure, and represent location using a coordinate plane. In data analysis, students will represent and interpret data.

The ASPIRE Academy is committed to serving the unique needs of highly gifted students by providing a culture where learners engage in rigorous and meaningful learning experiences that empower them to take risks, pursue passions, and make a positive impact on the world. Teachers accomplish this by utilizing a variety of research-based best practices for gifted students, such as curriculum compacting, the Depth & Complexity Framework, content imperatives, and project-based learning. The units listed below will continue to be modified and updated throughout the year.

5th Grade Math TEKS

ESTIMATED TIMEFRAME	UNIT SUMMARY	TEKS
Ongoing	Process Standards: The process standards describe ways in which students are expected to engage in the content. The placement of the process standards at the beginning of the knowledge and skills listed for each grade and course is intentional. The process standards weave the other knowledge and skills together so that students may be successful problem solvers and use mathematics efficiently and effectively in daily life. The process standards are integrated at every grade level and course. When possible, students will apply mathematics to problems arising in everyday life, society, and the workplace. Students will use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Students will select appropriate tools such as real objects, manipulatives, algorithms, paper and pencil, and technology and techniques such as mental math, estimation, number sense, and generalization and abstraction to solve problems. Students will effectively communicate mathematical ideas, reasoning, and their implications using multiple representations such as symbols, diagrams, graphs, computer programs, and language. Students will use mathematical relationships to generate solutions and make connections and predictions. Students will analyze mathematical relationships to connect and communicate mathematical ideas. Students will display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.	5.1A, 5.1B, 5.1C, 5.1D, 5.1E, 5.1F, 5.1G
10 days	Unit 1: Personal Financial Literacy Students define different types of taxes including income tax, sales tax,	5.10A, 5.10B, 5.10C, 5.10D,

	<p>property tax, and payroll tax. Students take a closer look at payroll tax when they investigate the differences between gross income and net income. They also compare and contrast various methods of payment including checks, credit cards, debit cards, and electronic payments. Students develop a system for keeping financial records with regards to income and expenses and balance a simple budget. The concept of negative values is abstractly embedded within balancing budgets as students are expected to describe the actions that might be taken should expenses exceed the income. The financial literacy expectations within this unit deepen student knowledge of income, taxes, payments, and methods to keep track of financial input and output.</p> <p>ASPIRE students are able to grasp the concepts of financial literacy quickly, so we spend one day on each focus area before moving on to the next topic.</p>	5.10E, 5.10F
10 days	<p>Unit 2: Place Value, Whole Numbers, and Decimals</p> <p>Students are formally introduced to the thousandths place. Students build upon the idea that our base-10 place value system extends infinitely to very small values as well as very large values, and that each place-value position is one-tenth the value of the place to its left and 10 times the value of the place to its right. Students relate previous representations of decimals to the hundredths with concrete and pictorial models to develop their conceptual knowledge of decimals through the thousandths. Students are expected to use expanded notation and numerals to represent the value of a decimal through the thousandths. Students use comparison symbols to compare and order decimals to the thousandths place and round decimals to the tenths or hundredths place.</p> <p>ASPIRE students normally enter 5th grade having a strong understanding of place value, rounding, and comparing/ordering whole numbers and decimals. Because of this, 10 days are spent on this unit, rather than the 15 days allotted by the district.</p>	5.2A, 5.2B, 5.2C
20 days	<p>Unit 3: Multiplication and Division of Whole Numbers</p> <p>Students work toward becoming fluent when solving whole number addition, subtraction, and multiplication problems and proficient when solving whole number division problems. The number set for multiplication grows to three-digit by two-digit factors while the number set for division becomes four-digit dividends by two-digit divisors. Using the standard algorithm becomes a focus for both multiplication and division.</p> <p>Students are introduced to the properties of prime and composite numbers. Students are encouraged to use previous understandings of representing products using arrays and area models to help support new learning and to identify prime and composite numbers by analyzing their factors.</p> <p>ASPIRE students typically enter 5th grade knowing how to multiply and divide, but need review of math facts as well as multiplying and dividing of 2-digit and higher numbers. We have found that our students need a lot of time to review multiplication and division in order to be successful in future units (ex, multiplication and division of decimals); therefore, this unit is longer than the district has allotted for non-ASPIRE students (10 days).</p>	5.3A, 5.3B, 5.3C, 5.4A
15 days	<p>Unit 4: Multiplication and Division of Decimals</p> <p>Students represent multiplication and division of problem situations with products and decimals to the hundredths with the use of concrete objects, pictorial models, and area models. There is an emphasis on representing multiplication and division before solving for products and quotients of decimals to allow for the development of the conceptual understanding before procedural understanding.</p>	5.3D, 5.3E, 5.3F, 5.3G

	<p>We have found that our 5th-grade math ASPIRE students need more time than the district-allocated 10 days on multiplication and division of decimals to solidify their understanding and, again, to be successful in future units (ex, order of operations).</p>	
25 days	<p>Unit 5: Fraction Operations and Rational Numbers Students solve addition and subtraction of fractions with unequal denominators using concrete objects, pictorial models, and properties of operations to build to the expectation of adding and subtracting positive rational numbers fluently. Students use concrete objects and pictorial models to multiply a whole number by a fraction and divide a whole number by a unit fraction and a unit fraction by a whole number.</p> <p>Students extend previous understandings of adding and subtracting positive whole numbers and decimals with the expectation of developing fluency in adding and subtracting positive rational numbers, including fractions.</p> <p>ASPIRE students enter 5th grade math able to quickly understand how to multiply fractions, so a lot of time is instead spent on adding and subtracting with unlike denominators, improper fraction operations, mixed number operations, and dividing fractions. Students have shown the ability to grasp rational number conversions rather quickly, therefore, this unit is 5 days (one week) less than the district's allotted 30 days for non-ASPIRE students.</p>	5.3H, 5.3I, 5.3J, 5.3K, 5.3L
25 days	<p>Unit 6: Operations & Algebraic Reasoning Students estimate solutions to mathematical and real-world problems to determine the reasonableness of solutions. Students examine the meaning of grouping symbols within a numeric expression. Students also simplify numerical expressions that involve all operations with whole numbers, decimals, and fractions. Students also represent and solve multi-step problems algebraically using a numerical equation with a letter representing the unknown.</p> <p>Order of operations is a new concept for our 5th-grade Math ASPIRE students and is a concept that will appear often on the STAAR test, therefore, we spend more time solidifying the content. ASPIRE students will all take Algebra I before leaving middle school, and the 5th-grade algebraic reasoning content in this unit provides a foundational basis for their work in that class. Because of these reasons, we allot 25 days to these concepts, rather than the 15 days allotted by the district for non-ASPIRE students.</p>	5.4B, 5.4E, 5.4F
10 days	<p>Unit 7: Data Analysis This unit explores the understanding of how data representations display the counts (frequencies) or measures of data values in an organized, visual format so that the data can be interpreted efficiently. Representing data and solving problems involving data in frequency tables, dot plots, stem-and-leaf plots, and scatterplots leads to summarizing numeric and categorical data with numerical and/or graphical summaries in Grade 6. Therefore, the concepts of data representation and interpretation are the focus of this unit.</p> <p>ASPIRE students typically enter 5th grade with a strong understanding of bar graphs and dot plots, but are new to the concept of scatterplots and stem & leaf plots. ASPIRE students can read, interpret, and infer information from these graphs at a higher level than non-ASPIRE students, so we spend less time in this unit than the district-allotted 20 days to spend more time on unit 8, which introduces graphing on the coordinate plane for the first time to</p>	5.9A, 5.9B, 5.9C

	students.	
15 days	<p>Unit 8: Graphing & Number Patterns</p> <p>This unit explores understandings of the components of the coordinate plane and how to graph points (ordered pairs) and examines numerical patterns to identify and represent relationships. Graphing in the first quadrant of the coordinate plane, including ordered pairs generated by number patterns or found in an input-output table, leads to graphing in all quadrants of the coordinate plane in Grade 6. Recognizing and generating additive and multiplicative patterns in input-output tables and graphs leads to comparing two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships in Grade 6. Therefore, the concepts of coordinate planes and numerical relationships are the focus of this unit.</p> <p>Graphing on the coordinate plane is a new concept for our 5th-grade ASPIRE students, so we spend time solidifying the content, specifically identifying number patterns in graphs and input/output tables. Coordinate graphing is typically mastered quickly by our ASPIRE students, so we spend 5 days less (one week) than the district-allotted 20 days.</p>	5.4C, 5.4D, 5.8A, 5.8B, 5.8C
15 days	<p>Unit 9: Geometry and Measurement</p> <p>Students are introduced to the concept of volume as a three-dimensional measure. Students are expected to understand the concept that a cube with a side length of one unit is a unit cube having one cubic unit of volume, and the volume of a three-dimensional figure as the number of unit cubes (n cubic units) needed to fill the figure with no gaps or overlaps. Students use objects and pictorial models to develop the formulas for volume of a rectangular prism ($V = l \times w \times h$ and $V = Bh$), including the special form for the volume of a cube ($V = s \times s \times s$). Students extend previous knowledge of classifying two-dimensional figures based on the presence or absence of parallel or perpendicular lines or angles of a specified size to formally classify two-dimensional figures into a hierarchy of sets and subsets using graphic organizers. Students extend previous work with conversions to solve problems by calculating conversions within a measurement system. Measurements for side lengths of two- or three-dimensional figures and measurement conversions may include positive rational numbers within the number system and operational limitations for the grade level.</p> <p>ASPIRE students enter 5th grade math having a strong understanding of area and perimeter, so we do not spend as many days on that topic as they do in non-ASPIRE. Students are also able to grasp the concept of volume and its formulas quickly. We choose to spend more time in this unit going deeper into measurement, both customary and metric, as measurement shows on i-Ready throughout the year to be the weakest area for most students. For these reasons, this unit is 10 days (two weeks) less for ASPIRE students than the district-allotted 25 days.</p>	5.4G, 5.4H, 5.5A, 5.6A, 5.6B, 5.7A
10 days	<p>Unit 10: STAAR Review & Preparation</p> <p>ASPIRE students spend this unit reviewing content from the year in order to prepare for the upcoming STAAR test. All 9 units will be reviewed, and students will also be given the opportunity to take a practice STAAR test from the previous year.</p>	All TEKS
10 days	<p>Unit 11: 5th Grade Math Review</p> <p>After taking the STAAR test, teachers use data from throughout the year to determine which concepts students need more practice with to exit 5th-grade prepared and ready for middle school.</p>	All TEKS