



Program Transfer Goals

- 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.
- Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems.
- Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.
- Display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

PACING

First Grading Period		Second Grading Period	Third Grading Period			Fourth Grading Period		
Unit 1: Number Sense	Unit 2: Operations		Unit 3: Expressions, Equations, Inequalities, and Relationships	Unit 4: Ratios, Rates, and Proportions	Unit 5: Multiple Representations	Unit 6: Geometry	Unit 7: Data Analysis	Unit 8: Personal Financial Literacy
BOY Screener			MOY Screener			EOY Screener		

Assurances for a Guaranteed and Viable Curriculum

Adherence to this scope and sequence affords every member of the learning community clarity on the knowledge and skills on which each learner should demonstrate proficiency. In order to deliver a guaranteed and viable curriculum, our team commits to and ensures the following understandings:

Shared Accountability: Responding to the Needs of All Learners

- High levels of learning for all students.
- The district and course formative assessments aligned to the standards for this course support educators and learners in monitoring academic achievement and leveraging interventions.

Shared Understanding: Curriculum Design

- The district curriculum design weaves together the elements of content, skills and assessments in order to adhere to curriculum design at the macro and micro level, ensuring vertical alignment.
- The district curriculum incorporates standards, scope and sequence, enduring understandings, essential questions, performance assessments, and recommended resources.

Interdependence: Curriculum Units

Members of the learning community utilize the curriculum units, plan collaboratively, and reflect on results for continuous improvement.

UNIT 1: NUMBER SENSE

TIMELINE: 5 WEEKS - 1ST GRADING PERIOD

This unit begins with a study of numbers in sets and subsets of real numbers. Visual representations are used to categorize and organize the numbers. The unit continues as learners identify numbers, their opposites, and absolute values. Equivalent forms of benchmark fractions will support learners' exploration of equivalence. The unit concludes with locating, comparing, and ordering integers and rational numbers using number lines.

■ Transfer Goal:

- o Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems involving real numbers.
- o Use tools, including paper and pencil, mental math, estimation, and number sense to solve problems involving real numbers.

Students will know...

sets and subsets of rational numbers; absolute value is the magnitude of a number without regard to its sign; scale of fractional values

Students will be skilled at...

classifying whole numbers, integers, and rational numbers using a visual representation such as a Venn diagram to describe relationships between sets of numbers; identifying a number, its opposite, and its absolute value; locating, comparing, and ordering integers and rational numbers using a number line; ordering a set of benchmark fractions arising from mathematical and real-world contexts; representing ratios and percents with concrete models, fractions, and decimals; representing benchmark fractions and percents such as 1%, 10%, 25%, $33\frac{1}{3}\%$, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers; generating equivalent forms of benchmark fractions; using equivalent fractions, decimals, and percents to show equal parts of the same whole; graphing points in all four quadrants using ordered pairs of rational numbers

UNIT 2: OPERATIONS

TIMELINE: 11 WEEKS - 1ST-2ND GRADING PERIOD

The learners begin this unit by using the properties of operations, including inverse, identity, commutative, associative, and distributive properties, to generate equivalent expressions. The learners build on their experience with addition, subtraction, multiplication, and division to demonstrate fluency with these operations with integers. Their study of equivalence continues as they use order of operations and prime factorization to generate equivalent numerical expressions. Then, the learners explore decimal operations followed by fraction operations. The unit concludes as the learners compare and order rational numbers. Application of the operations include practice balancing a check register.

■ Transfer Goal:

- Use the four-step problem-solving model to solve real-world problems with rational numbers.
- Communicate equivalence using symbols and language as appropriate.

Students will know...

rules of integer operations; order of operations

Students will be skilled at...

determining, with and without computation, whether a quantity is increased or decreased when multiplied by a fraction, including values greater than or less than one; representing integer operations with concrete models and connecting the actions with the models to standardized algorithms; adding, subtracting, multiplying, and dividing integers fluently; multiplying and dividing positive rational numbers fluently; generating equivalent numerical expressions using order of operations, including whole number exponents and prime factorization; balancing a check register that includes deposits, withdrawals, and transfers

UNIT 3: EXPRESSIONS, EQUATIONS, INEQUALITIES, AND RELATIONSHIPS

TIMELINE: 3 WEEKS - 3RD GRADING PERIOD

This unit begins with the learner modeling and solving equations and inequalities that represent problem situations, including within geometric concepts. Solutions to the equations are graphed on number lines. Then, the learners apply their understanding to write real-world problems given equations and inequalities and write equations and inequalities given real-world problems.

■ Transfer Goal:

- Use the four-step problem-solving model to solve real-world problems represented by equations and inequalities.
- Display, explain, and justify solutions to equations and inequalities.

Students will know...

solutions to equations and inequalities can be displayed on a number line; the relevance of variables, constants, and operations in equations and inequalities

Students will be skilled at...

distinguishing between expressions and equations verbally, numerically, and algebraically; determining if two expressions are equivalent using concrete models, pictorial models, and algebraic models, and algebraic representations; writing one-variable, one-step equations and inequalities to represent constraints or conditions within problems; representing solutions for one-variable, one-step equations and inequalities on number lines; writing corresponding real-world problems given one-variable, one-step equations or inequalities; modeling and solving one-variable, one-step equations and inequalities that represent problems, including geometric concepts; determining if the given value(s) make(s) one-variable, one-step equations or

UNIT 4: RATIOS, RATES, AND PROPORTIONS

TIMELINE: 5 WEEKS - 3RD GRADING PERIOD

This unit of study focuses on ratios, rates, and proportions. Learners apply qualitative and quantitative reasoning to predict and solve problems involving ratios and rates. Then, they apply their understanding of ratios and rates to solve problems with measurement conversions and percent. Learners use concrete and pictorial models to demonstrate and solve problems with percent proportions.

■ Transfer Goal:

- o Use the four-step problem-solving model to solve real-world problems related to ratios, rates, and proportions.
- o Communicate proportions and unit rates in mathematical and real-world situations using multiple algebraic representations.

Students will know...

the scale factor is the ratio of any two corresponding lengths in two similar geometric figures; a percent proportion is used to find the whole given a part and the percent or to find the part given the whole and the percent

Students will be skilled at...

applying qualitative and quantitative reasoning to solve prediction and comparison of real world problems involving ratios and rates; giving examples of ratios as multiplicative comparisons of two quantities describing the same attribute; giving examples of rates as the comparison by division of two quantities having different attributes, including rates and quotients; representing ratios and percents with concrete models, fractions, and decimals; converting units within a measurement system, including the use of proportions and unit rates; representing mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions; solving real-world problems to find the whole given a part and the percents, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models

UNIT 5: MULTIPLE REPRESENTATIONS

TIMELINE: 2 WEEKS - 3RD GRADING PERIOD

This unit of study begins the learner's 6th grade study of algebraic concepts. First, an exploration of independent and dependent quantities is accessed through tables and graphs. Then, they write equations to represent relationships between quantities in table form. The learners apply their understanding of algebraic relationships using multiple representations, including verbal descriptions, tables, graphs, and equations. As an extension from their 5th grade mathematics study of algebraic relationships, the learners compare rules in the forms: $y = ax$ and $y = x + a$.

■ Transfer Goal:

- o Communicate mathematical relationships using symbols, graphs, and language, as appropriate.

Students will know...

additive relationships are written in the form $y = x + a$ and multiplicative relationships are written in the form $y = ax$; the value of a dependent variable is affected by the value of the independent variable

Students will be skilled at...

comparing two rules verbally, numerically, graphically, and symbolically in the form $y=ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships; identifying independent and dependents from tables and graphs; writing an equation that represents the relationship between independent and dependent quantities from a table; representing a given situation using verbal descriptions, tables, graphs, equations in the form $y=kx$ or $y = x + b$

UNIT 6: GEOMETRY

TIMELINE: 3 WEEKS -4TH GRADING PERIOD

This unit begins with a study of triangles properties, including the sum of the angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle. Continued from their experience in 5th grade, the learners model area formulas for parallelograms, trapezoids, and triangles before they determine solutions to problems involving area of these figures as well as rectangles. The dimensions of these figures include positive rational numbers. The unit of study concludes with an exploration of volume, including right rectangular prisms with dimensions of positive rational numbers.

■ Transfer Goal:

- o Use the four-step problem-solving model to solve problems with angle relationships, area, and volume.
- o Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense, as appropriate, to solve problems with angle relationships, area, and volume.

Students will know...

properties of triangles and angle relationships; relevance of variables in area formulas for rectangles, parallelograms, trapezoids, and triangles, and the volume formula for right rectangular prisms;

Students will be skilled at...

extending previous knowledge of triangles and their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle; modeling area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes; writing equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers; determining solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers; modeling and solving one-variable, one-step equations and inequalities that represent problems, including geometric concepts

UNIT 7: DATA ANALYSIS

TIMELINE: 2 WEEKS - 4TH GRADING PERIOD

This unit of study includes data analysis. The learners represent data in various graphical forms, including dot plots, stem-and-leaf plots, histograms, and box plots. Then, they interpret these graphs and use their interpretations to describe the center, spread, and shape of the data distribution. The unit of study continues as learners summarize numeric and categorical data and distinguish between situations that yield data with and without variability.

■ **Transfer Goal:**

- o Communicate data graphically, interpret, and summarize the data.
- o Display, explain, and justify mathematical ideas and arguments using data in graphs.

Students will know...

the appropriate type of graph to use for specific data sets, including dot plots, stem-and-leaf plots, histograms, and box plots; the difference between situations that yield data with and without variability.

Students will be skilled at...

representing numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots; using the graphical representation of numeric data to describe the center, spread, and shape of the data distribution; summarizing numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution; summarizing categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution; interpreting numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots; distinguishing between situations that yield data with and without variability

UNIT 8: PERSONAL FINANCIAL LITERACY

TIMELINE: 2 WEEKS - 4TH GRADING PERIOD

This final unit in 6th grade mathematics involves the study of personal financial literacy. The learners begin by distinguishing between debit and credit cards and the features of a checking account and debit card offered at various banks. Then, they explore credit history and credit reports and the impacts on each. The unit of study continues as the learners compare various methods of pay for college and review the process to balance a bank register.

■ Transfer Goal:

- o Use the four-step problem-solving model to solve real-world problems related to personal financial literacy.
- o Display, explain, and justify financial decision making processes.

Students will know...

the differences between debit and credit; the differences between deposits, withdrawals, and transfers; what impacts credit history; the value of credit reports; methods to pay for college

Students will be skilled at...

comparing the features and cost of a checking account and a debit card offered by different local financial institutions; distinguishing between debit and credit cards; balancing a check register that includes deposits, withdrawals, and transfers; explaining why it is important to establish a positive credit history; describing the information in a credit report and how long it is retained; describing the value of credit reports to borrowers and to lenders; explaining various methods to pay for college, including through savings, grants, scholarships, student loans, and work-study; comparing the annual salary of several occupations requiring various levels of post-secondary education or vocational training and calculate the effects of the different annual salaries on lifetime income