



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: Numbers and Operations	Unit 2: Equations and Inequalities	Unit 3: Proportionality	Unit 4: Multiple Representations and Rate of Change	Unit 5: Geometric Relationships	Unit 6: Data Analysis and Probability	Unit 7: 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: NUMBERS AND OPERATIONS

TIMELINE: 7 WEEKS - 1ST GRADING PERIOD

This unit begins with a study of numbers in sets and subsets. Visual representations are used to categorize and organize the numbers. Operations with rational numbers, including solving problems using addition, subtraction, multiplication, and division leads into operations with decimal values. The unit concludes with operations with fractional numbers, including solving problems with fractions.

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Students will know...

sets and subsets of rational numbers; impact of negative numbers on operations; scale of decimal and fractional values

Students will be skilled at...

extending previous knowledge of sets and subsets using a visual representation to describe relationships between sets of rational numbers; add, subtract, multiply, and divide rational numbers fluently; applying and extending previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers

UNIT 2: EQUATIONS AND INEQUALITIES

TIMELINE: 3 WEEKS - 1ST-2ND GRADING PERIOD

The learners begin this unit by modeling, solving, and graphing two-step equations and inequalities. Models used in this unit include real objects and mathematical manipulatives. Then, the learners write equations and inequalities to represent problem situations, and create problem situations to represent given equations and inequalities. The learners apply their understanding of equations and inequalities through the lens of geometry as they write and solve equations using concepts such as the sum of the angles in a triangle and angle relationships.

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Students will know...

solutions to equations and inequalities may be graphed on number lines; equations in one variable may yield one solution, while inequalities in one variable may yield infinitely many solutions; the sum of the measures of the angles in a triangle is 180 degrees

Students will be skilled at...

representing solutions for one-variable, two-step equations and inequalities on number lines; modeling and solving one-variable, two-step equations and inequalities; determining if the given value(s) make(s) one-variable, two-step equations and inequalities true; writing one-variable, two-step equations/inequalities to represent constraints/conditions within problems; writing a corresponding real-world problem given a one-variable, two-step equation or inequality; writing and solving equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships

UNIT 3: PROPORTIONALITY

TIMELINE: 4 WEEKS - 2ND GRADING PERIOD

Building upon their previous knowledge of using ratios and rates to solve problems, learners solve ratio, rate, and percent problems including those related to measurement concepts. Then, the learners apply the concept of proportionality to solve problems with scale factor related to similar shape and scale.

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Students will know...

proportional relationships involve equal ratios; ratios of corresponding sides of similar figures are equal

Students will be skilled at...

calculating unit rates from rates in mathematical and real-world problems
solving problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems; converting between measurement systems, including the use of proportions and the use of rate; generalizing the critical attributes of similarity, including ratios within and between similar shape; solving mathematical and real-world problems involving similar shape and scale drawings; calculating the sales tax for a given purchase and calculating income tax for earned wages

UNIT 4: MULTIPLE REPRESENTATIONS AND RATE OF CHANGE

TIMELINE: 3 WEEKS - 3RD GRADING PERIOD

During this unit of study, learners utilize multiple representations to demonstrate constant rates of change in real-world problems. These representations include pictorial, tabular, graphical, numeric, graphical, and algebraic forms. As an extension to their study of proportionality, the learners then determine the constant of proportionality within problem situations.

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Students will know...

the constant of proportionality is determined by dividing the value of the dependent variable by the value of the independent variable; related multiple representations communicate the same relationship

Students will be skilled at...

representing linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form $y = mx + b$; representing constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, include $d = rt$; determining the constant of proportionality ($k = y/x$) within mathematical and real-world problems

UNIT 5: GEOMETRIC RELATIONSHIPS

TIMELINE: 6 WEEKS - 3RD GRADING PERIOD

This unit of study focuses on the relationships of measurements of geometric shapes. First, the learners explore pi and circles as the ratio of the circumference to the diameter. Then, the learners study circumference and area of circles, including solving problems related to these measures. Area is continued through the study of rectangles, squares, parallelograms, trapezoids, triangles, semicircles, and quarter circles. Composite area is calculated when shapes are joined to form new figures. The unit continues with lateral and total surface area and volume of three-dimensional figures, including rectangular prisms, triangular prisms, rectangular pyramids, and triangular pyramids.

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Students will know...

pi is calculated by dividing the measure of the circumference of a circle by its diameter; composite area is the sum of the area of the joined figures; difference between lateral and total surface area; relevance of various variables in circumference, area, surface area and volume formulas

Students will be skilled at...

describing pi as the ratio of the circumference of a circle to its diameter; modeling the relationship between the volume of a rectangular prism and a rectangular pyramid having both congruent bases and heights that connect that relationship to the formulas; explaining verbally and symbolically the relationship between the volume of a triangular prism and a triangular pyramid having both congruent bases and heights and connect that relationship to the formulas; using models to determine the approximate formulas for the circumference and area of a circle and connect the models to the actual formulas; solving problems involving the volume of rectangular prisms, triangular prisms, rectangular pyramids, and triangular pyramids; determining the circumference and area of circles; determining the area of composite figures containing combinations of rectangles, squares, parallelograms, trapezoids, triangles, semicircles, and quarter circles; solving problems involving the lateral and total surface area of a rectangular prism, rectangular pyramid, triangular prism, and triangular pyramid by determining the area of the shape's net

UNIT 6: DATA ANALYSIS AND PROBABILITY

TIMELINE: 4.5 WEEKS - 4TH GRADING PERIOD

This unit includes the study of probability and data analysis. First, the learners use lists and tree diagrams to create sample spaces to find probabilities for simple and compound events. They explore probability simulations and use theoretical and experimental data to make predictions. Random samples are utilized to make inferences about the corresponding population. The next portion of the unit includes data analysis. Learners solve problems with graphs, including bar graphs, dot plots, box plots, and circle graphs.

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Students will know...

the difference between theoretical and experimental probability; the qualities of a random sample; the appropriate use of specific types of graphs

Students will be skilled at...

representing sample spaces for simple and compound events using lists and tree diagrams; selecting and using different simulations to represent simple and compound events with and without technology; making predictions and determining solutions using experimental data for simple and compound events; making predictions and determining solutions using theoretical probability for simple and compound events; finding the probabilities of a simple event and its complement and describe the relationship between the two; using data from a random sample to make inferences about a population solving problems using data represented in bar graphs, dot plots, and circle graphs, including part-to-whole and part-to-part comparisons and equivalents; solving problems using qualitative and quantitative predictions and comparisons from simple experiments; determining experimental and theoretical probabilities related to simple and compound events using data and sample spaces; comparing two groups of numeric data using comparative dot plots or box plots by comparing their shapes, centers, and spreads; using data from a random sample to make inferences about a population; comparing two populations based on data in random samples from these populations including informal comparative inferences about differences between the two populations

UNIT 7: PERSONAL FINANCIAL LITERACY

TIMELINE: 1 WEEK - 4TH GRADING PERIOD

This final unit in 7th grade mathematics involves the study of personal financial literacy. The learners begin by calculating sales and income tax before they explore budgeting. As an application of percent calculations, simple and compound interest is calculated. The learners practice constructing a net worth statement and analyze and compare monetary incentives, including sales, rebates, and coupons.

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Students will know...

the components of a personal budget, including income, planned savings for college, retirement, and emergencies, taxes, and fixed and variable expenses; difference between assets and liabilities; value of monetary incentives

Students will be skilled at...

calculating the sales tax for a given purchase and calculate income tax for earned wages; identifying the components of a personal budget, including income; planned savings for college, retirement, and emergencies, taxes; and fixed and variable expenses, and calculating what percentage each category comprises of the total budget; creating and organizing a financial assets and liabilities record and construct a net worth statement; using a family budget estimator to determine the minimum household budget and average hourly wage needed for a family to meet its basic needs in the student's city or another large city nearby.; calculating and comparing simple interest and compound interest earnings; calculating and comparing monetary incentives, including sales, rebates, and coupons