7TH GRADE MATH SCOPE AND SEQUENCE

EARLY FIRST QUARTER

Number, Number Sense and Operations

A. Represent and compare numbers less than 0 through familiar applications and extending the number line.
B. Compare, order and convert among fractions, decimals and percents.
C. Develop meaning for percents, including percents greater than 100 and less than 1.
D. Use models and pictures to relate concepts of ratio, proportion and percent.
G. Apply and explain the use of prime factorizations, common factors, and common multiples in problem situations.

Measurement

A. Select appropriate units to measure angles, circumference, surface area, mass and volume, using: • U.S. customary units; e.g., degrees, square feet, pounds, and other units as appropriate; • metric units; e.g., square meters, kilograms and other units as appropriate.
C. Identify appropriate tools and apply appropriate techniques for measuring angles, perimeter or circumference and area of triangles, quadrilaterals, circles and composite shapes, and surface area and volume of prisms and cylinders.

Geometry and Spatial Sense

A. Identify and label angle parts and the regions defined within the plane where the angle resides.
B. Draw circles, and identifies and determines the relationships among the radius, diameter, center and circumference.

Mathematical Processes

A through K

LATE FIRST QUARTER

Number, Number Sense and Operations

E. Use order of operations, including use of parenthesis and exponents to solve multi-step problems, and verify and interpret the results.
H. Use and analyze the steps in standard and non-standard algorithms for computing with fractions, decimals and integers.

Measurement

B. Convert units of length, area, volume, mass and time within the same measurement system.
D. Select a tool and measure accurately to a specified level of precision.

Geometry and Spatial Sense

D. Identify, describe and classify types of line pairs, angles, two-dimensional figures and three dimensional objects using their properties.
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Data Analysis and Probability

B. Interpret data by looking for patterns and relationships, draw and justify conclusions, and answer related questions.

Mathematical Processes

A. Apply and justify the use of a variety of problem solving strategies.
B. Use an organized approach and appropriate strategies to solve multi-step problems.
C. Interpret results in the context of the problem being solved.
D. Use mathematical strategies to solve problems that relate to other curriculum areas and the real world.
E. Link concepts to procedures and to symbolic notation.
F. Recognize relationships among different topics within mathematics.
G. Use reasoning skills to determine and explain the reasonableness of a solution with respect to the problem situation.
H. Recognize basic valid and invalid arguments, and use examples and counter examples, models, number relationships, and logic to support or refute.
I. Represent problem situations in a variety of forms (physical model, diagram, in words or symbols), and recognize when some ways of representing a problem may be more helpful than others.
J. Read, interpret, discuss and write about mathematical ideas and concepts using both everyday and mathematical language.
K. Use mathematical language to explain and justify mathematical ideas, strategies and solutions.

EARLY SECOND QUARTER

Number, Number Sense and Operations

F. Apply number system properties when performing computations.

Measurement

E. Use problem solving techniques and technology as needed to solve problems involving length, weight, perimeter, area, volume, time and temperature.

Geometry and Spatial Sense

E. Use proportions to express relationships among corresponding parts of similar figures.

Patterns, Functions and Algebra

A. Describe, extend and determine the rule for patterns and relationships occurring in numeric patterns, computation, geometry, graphs and other applications.
B. Represent, analyze and generalize a variety of patterns and functions with tables, graphs, words and symbolic rules.

Data Analysis and Probability

A. Read, create and use line graphs, histograms, circle graphs, box-and-whisker plots, stem-and-leaf plots, and other representations when appropriate.
C. Evaluate interpretations and conclusions as additional data are collected, modify conclusions and predictions, and justify new findings.
E. Collect, organize, display and interpret data for a specific purpose or need.

Mathematical Processes

A through K

LATE SECOND QUARTER

Number, Number Sense and Operations

I. Use a variety of strategies, including proportional reasoning, to estimate, compute, solve and explain solutions to problems involving integers, fractions, decimals and percents.

Measurement

F. Analyze and explain what happens to area and perimeter or surface area and volume when the dimensions of an object are changed.

Geometry and Spatial Sense

F. Describe and use the concepts of congruence, similarity and symmetry to solve problems.
G. Describe and use properties of triangles to solve problems involving angle measures and side lengths of right triangles.
H. Predict and describe results (size, position, orientation) of transformations of two dimensional figures.
J. Apply properties of equality and proportionality to solve problems involving congruent or similar figures; e.g., create a scale drawing.

Patterns, Functions and Algebra

C. Use variables to create and solve equations and inequalities representing problem situations.
H. Solve linear equations and inequalities symbolically, graphically and numerically.

Data Analysis and Probability

F. Determine and use the range, mean, median and mode to analyze and compare data, and explain what each indicates about the data.
G. Evaluate conjectures and predictions based upon data presented in tables and graphs, and identify misuses of statistical data and displays.
H. Find all possible outcomes of simple experiments or problem situations, using methods such as lists, arrays and tree diagrams.

Mathematical Processes

A through K

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