

Math 6 - What Your Child Will Learn

Unit 1: Decimal and Fraction Operations

Operations with whole numbers

This topic reinforces the use of operations with rational numbers. Students translate fluently between fraction and decimal representations of rational numbers, position rational numbers on number lines, and use rational numbers to solve problems in a variety of contexts. Students investigate when using fractions or decimals will yield more precise answers. Students also apply

Understanding and representing ratios

This topic investigates the uses of ratios and proportional reasoning in solving real-world problems. Students use tables and graphs to reason about ratio relationships, and they explore geometric representations of proportional relationships by investigating the use of scale factors to enlarge and reduce figures. They express proportional relationships in multiple ways and associate the multiple representations interchangeably.

Understanding and representing rates

This topic explores the concept of rate through the use of tables, graphs, ratios, and equations. Students use rates in situations to solve real-world problems such as determining the "best buy" using unit prices. Hourly rates, miles per gallon, percents, and batting averages are also used to model and apply this concept.

Equivalent forms: fractions, decimals, and percents

This topic reviews the three forms of rational numbers that are used most frequently in situations: fractions, decimals, and percents. Students use these rational numbers in real-world settings and explore order-from least to greatest or vice versa. Students practice converting from one form of rational number to another through multiple representations.

Unit 2: Ratios and Proportional Relationships

Adding and subtracting rational numbers

This topic provides students with opportunities to solve problems by adding and subtracting fractions and decimals, while reinforcing fluency with whole number operations. A variety of models that use appropriate tools allow interactive exploration of these operations.

Multiplying and dividing rational numbers

This topic provides students with opportunities to solve problems by multiplying and dividing fractions and decimals. A variety of models and appropriate tools allow interactive exploration of these operations and reinforce students' fluency with whole number operations. This learning is extended to include explorations with multiple operations in a single numerical expression.

Using rates in conversions

This topic investigates the relationship between distance, rate, and time through multiple representations such as equations, models, tables, and graphs. The solid understanding of the distance, time, and rate relationship is used as a springboard for investigating conversions between units. Using dimensional analysis, students solve problems from real-world situations. Students also work interactively with motion as they visualize the graphical representation of increased and decreased speed.

Unit 3: Writing, Interpreting, and Using Expressions and Equations

Extending the number system

This topic focuses on models that represent integers. Students learn about the position of integers and other rational numbers on number lines and develop an understanding of opposites and absolute value. They explore real-world examples of integers in a variety of contexts. Students then extend their understanding of integers and other rational numbers as they graph points in all four quadrants, and examine how the coordinates of points are impacted by reflections across the x- and y-axes.

Variables and expressions

In this topic, students explore patterns and relationships through multiple representations such as tables, graphs, models, and algebraic rules. They generate algebraic rules by investigating quantities that change and quantities that do not change. Students will also generate and compare equivalent expressions.

Equality and inequality

This topic explores the idea of equality and inequality in a concrete, meaningful manner. Students make connections between models and explanations of the concept of equality. Students work with basic number properties to build an understanding that is both intuitive and abstract.

Using equations and inequalities

In this topic, students explore the relationship among different representations of patterns and continue to develop algebraic rules to describe patterns. They also formulate simple equations and inequalities that arise from problem situations and solve them with concrete models and properties of equality.

Unit 4: Area, Surface Area, and Volume

Length and area

In this topic, students will build on their understanding of length and area in triangles and rectangles. Students will estimate lengths and areas in polygons and other atypical shapes and then verify those estimates through application of what they know about the areas of triangles and quadrilaterals. Students will also draw polygons in the coordinate plane and determine simple distances by applying their understanding of integers and other rational numbers.

Surface area and volume

This topic introduces volume and surface area of prisms and cylinders. Using nets of surface area and two-dimensional views of three-dimensional objects, students deepen their understanding of two- and three-dimensional measurements.

Unit 5: Statistical Reasoning

Graphical representations of data

This topic explores graphical representations of data including bar graphs, circle graphs, line plots, stem-and-leaf plots, and histograms. Students explore the characteristics of each representation and use them to both pose and answer questions. Students learn to choose a representation based on the type of data (categorical or numerical) they have collected and the purpose of the representation.

Describing data

This topic explores the measures of central tendency (mean, median, and mode) and variability (range, interquartile range, outliers, and mean absolute deviation). Students learn how to compute the measures and how to choose one or more measures to summarize a set of data. They learn how to make and analyze visual representations of data, such as line plots, box-and-whisker plots, or histograms.