

7th Grade Math Syllabus

UNIT 1 and 2: Arithmetic in Base Ten and Understanding Fraction Operations

Vocabulary: remainder, powers of 10, partial quotients, partial products, Decimal, digits, expression, product, factors, dividend, divisor, repeating decimal, standard form, terminating decimal, place value, operation, estimate, rounding, Whole #, simplify, numerator, denominator, common denominator, reciprocal, equation, Improper Fraction, Proper fraction, Mixed Number, equivalent, Convert, Proportions, Cross-Product property of proportions, multiplicative inverse property, simplest form, Greatest Common Factor, Multiples

Essential Questions:

- What strategies do I use to solve expressions with decimals?
- How do I use place value to estimate a decimal solution?
- When is it appropriate to convert decimals?
- How do I interpret and represent situations involving fractions, and decimals?
- How do I set up and solve proportions in real life situations?

Unit 3 and 4: 2-D shapes and 3-D figures

Vocabulary: angle, complimentary angles, point, base, height, cone, cube, cylinder, edge, face, net, prism, pyramid, sphere, surface area, area, lateral area, unit cube, volume, circumference, diameter, pi, quadrilateral, square, triangle, polygon, radius, perimeter, vertex, width, circle, chord, arc, midpoint, perpendicular lines, transversal, vertical angles, segment, dimension

Essential Questions:

- How do I determine which measure will solve the problem involving 2-d geometric shapes?
- What patterns are there among volumes of cylinders, cones and spheres?
- What strategies or formulas might help solve real-world problems involving 3-D figures?
- Which measures of a three-dimensional object are involved—volume or surface area?

Unit 5: Introducing proportional relationships

Vocabulary: similar, congruent, figure, scale factor, corresponding, equivalent ratios, image, proportion, rate, rate table, proportional relationship, equation, Constant of proportionality, cross-product property of proportions, Equation, Linear graph. x-axis, y-axis, Coordinate plane, linear graph

Essential Questions:

- What determines whether two shapes are congruent or similar?
- How is the scale factor related in similar figures?
- How do I compare proportional and nonproportional relationships?
- How do I determine the correct equation for solving a proportional relationship?
- How can tables, graphs, and equations of linear relationships be used to solve real-world problems?

Unit 6: Proportional relationships and Percent

Vocabulary: conversion, scale, ratio, unit rate, cross product, numerator, denominator, indirect measurement, scale factor, conversion factor enlargement, reduction, dilation, mark-up, discount, simple interest, selling price, principal, interest rate, percent of change, increase, decrease,

Essential Questions:

- How do I interpret situations with constant speed?
- I can calculate the unit rate for real life situations?
- What strategies do I use to solve problems involving percent change?

Unit 7: Rational Numbers

Vocabulary: Rational number, Integer, positive number, negative number, absolute value, expression, substitute, order of operations, simplify, evaluate, like terms, commutative property, associative property, identity property, distributive property, algorithm, inverse operations, number sentence, opposites, coordinate plane, ordered pair, quadrants, signed numbers

Essential Questions:

- How do positive and negative numbers help describe a situation?
- What does relate the location of numbers, on a number line, to the real-life situation?
- How do I evaluate expressions involving Integers?

Unit 8: Expressions, Equations and Inequalities

Vocabulary: conjecture, coordinates, ordered pair, expression, equation, slope-intercept form, function, constant, coefficient, dependent variable, equivalent expressions, independent variable, linear relationship, linear function, point of intersection, properties of equality, slope, x-intercept, y-intercept, additive inverse, multiplicative inverse, intersecting lines, rise, run, scale, origin

Essential Questions:

- How do you use the order of operations to evaluate an expression?
- How do changes in one variable affect changes in a related variable?
- How can the equation be used to answer questions about the variable relationship?
- How do you know if the problem involves an equation or an inequality?
- Which strategy do I choose to visually justify a solution to an equation and inequality?

Unit 9: Probability and Sampling

Vocabulary: area model, binomial probability, equally likely, expected value, experimental probability, fair game, law of large numbers, outcome, payoff, probability, random, sample space, theoretical probability, tree diagram, census, convenience sampling, population, random sampling, relative frequency, sample, sampling distribution, bar graph, box-and-whisker plot, categorical data, distribution, frequency, histogram, interquartile range, line plot, mean, mean absolute deviation, median, mode, numerical data, outlier, quartile, range, average, stem-and-leaf plot

Essential Questions:

- What are the possible outcomes for an event in a situation?
- How can I determine the probability of the outcome of one event followed by a second event?
- How can I use expected value to help me make decisions?