

8th Grade Pre-Algebra

1st Quarter

The students may study the following topics:

- Identifying and writing numerical and variable expressions
- Using order of operations and grouping symbols (*all year*)
- Evaluating and solving problems with variable expressions (*all year*)
- Using ordering integers
- Finding absolute value
- Adding, subtracting, multiplying and dividing integers (*all year*)
- Making predictions and testing conjectures
- Finding number patterns
- Identifying and using properties
- Simplifying variable expressions
- Classifying types of equations
- Checking equations using substitution
- Solving equations using addition, subtraction, multiplication and division (*all year*)
- Solving inequalities using addition, subtraction, multiplication and division (*all year*)
- Choosing strategies to solve problems (*all year*)

2nd Quarter

The students may study the following topics:

- Rounding decimals
- Estimating sums, differences, products and quotients
- Finding mean, median and mode and choosing best measure
- Substituting into formulas
- Using a perimeter formula
- Solving equations with decimals
- Identifying appropriate metric measures
- Converting units
- Using divisibility rules (*all year*)
- Finding factors
- Using exponents and order of operations with exponents
- Finding prime factorizations
- Finding greatest common factor
- Finding equivalent fractions
- Writing fractions in simplest form
- Solving a simpler problem (*all year*)

3rd Quarter

The students may study the following topics:

- Identifying and graphing rational numbers
- Evaluating fractions containing variables
- Multiplying powers with the same base

- Finding a power of a power
- Dividing and simplifying expressions containing integer exponents
- Writing, evaluating, and calculating with scientific notation
- Finding least common multiple
- Comparing fractions
- Converting between fractions, decimals and percents
- Adding, subtracting, multiplying and dividing fractions and mixed numbers
(*all year*)
- Identifying and converting customary units
- Working backwards to solve problems (*all year*)
- Solving equations with fractions and mixed numbers
- Finding powers of products and quotients
- Writing and simplifying ratios
- Finding rates and unit rates
- Solving proportions and using proportions to solve problems
- Using similar figures and scale drawings
- Finding probability and odds

4th Quarter

The students may study the following topics:

- Converting fractions, decimals and percents
- Finding part of a whole, whole and percent
- Writing and solving percent equations and using equations to solve percent problems
- Finding percent of increase and decrease
- Finding markups and discounts

- Using properties to solve and solving two-step equations
- Combining like terms
- Using distributive property (*all year*)
- Solving multi-step equations with fractions and decimals
- Writing equations to solve problems
- Solving and using equations with variables on both sides
- Solving and using two-step inequalities
- Solving formulas for a given variable and using formulas to solve problems
- Identifying and graphing relations and functions
- Finding solutions and graphing equations with two-variables
- Finding the slope of a line and using slope to graph linear equations
- Writing rules from words and tables of graphs
- Interpreting and drawing scatter plots and using them to find trends
- Solving by graphing
- Graphing and writing systems of linear equations
- Graphing linear inequalities and systems of linear inequalities
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As time permits

- Solving simple-interest and compound-interest problems (7-8)