

Accelerated Math math management software helps every student master every math objective, 1st grade through calculus. This content library provides the Scope and Sequence of instruction for these Texas Grade 8 Standards:

Topic 1 – Rational Number Operations

- Compare and order rational numbers in various forms including integers, percents, and positive and negative fractions and decimals (NOR 8.1.A)
 - Compare and order integers
- Understand that different forms of numbers are appropriate for different situations (NOR 8.1)
 - Opposites of integers
 - Absolute values of integers
- Select and use appropriate operations to solve problems and justify the selections (NOR 8.2.A)
 - Write a difference as a sum
- Add, subtract, multiply, and divide rational numbers in problem situations (NOR 8.2.B)
 - Add and subtract integers
 - Word Problems: Add and subtract integers
 - Multiply and divide integers
 - Word Problems: Multiply and divide integers
 - Order of operations with integers
- Select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems (UPMT 8.14.D)
 - Round whole numbers
 - Round decimals
 - Round fractions and mixed numbers
- Compare and order rational numbers in various forms including integers, percents, and positive and negative fractions and decimals (NOR 8.1.A)
 - Compare and order decimals
 - Compare and order fractions
- Add, subtract, multiply, and divide rational numbers in problem situations (NOR 8.2.B)
 - Add decimals
 - Subtract decimals
 - Word Problems: Add and subtract decimals
 - Add fractions and mixed numbers
 - Subtract fractions and mixed numbers
 - Word Problems: Add and subtract fractions and mixed numbers
 - Multiply decimals

Topic	LEGEND
➤ Standard: TEKS (Texas Essential Knowledge and Skills) for Mathematics, or Prerequisite if not referenced	
▪ Objective: (Accelerated Math objective supporting that standard)	

- Divide decimals
 - Word Problems: Multiply and divide decimals
 - Multiply fractions and mixed numbers
 - Divide fractions and mixed numbers
 - Word Problems: Multiply and divide fractions and mixed numbers
- Select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems (UPMT 8.14.D)
 - Estimate rational numbers
 - Word Problems: Estimate rational numbers

Topic 2 – Variables, Expressions, and Functions

- Identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics (UPMT 8.14.A)
 - Word phrases to algebraic expressions
 - Algebraic expressions to word phrases
- Validate conclusions using mathematical properties and relationships (UPMT 8.16.B)
 - Properties of addition and multiplication
 - Distributive property with variables
 - Identify like terms
 - Combine like terms
 - Combine like terms with parentheses
- Add, subtract, multiply, and divide rational numbers in problem situations (NOR 8.2.B)
 - Evaluate expressions
 - Evaluate expressions, order of operations

Topic 3 – Roots and Exponents

- Select and use appropriate operations to solve problems and justify the selections (NOR 8.2.A)
 - Square integers
 - Raise integers to power
 - Evaluate expressions with exponents
- Validate conclusions using mathematical properties and relationships (UPMT 8.16.B)
 - Negative exponents

- Multiply and divide with exponents
- Take a power to a power
- Express numbers in scientific notation, including negative exponents, in appropriate problem situations using a calculator (NOR 8.1.D)
 - Scientific notation
 - Scientific notation, multiply and divide
 - Scientific notation, add and subtract
 - Word Problems: Scientific notation
- Select and use appropriate operations to solve problems and justify the selections (NOR 8.2.A)
 - Square roots of perfect squares
 - Cube and fourth roots
- Understand that different forms of numbers are appropriate for different situations (NOR 8.1)
 - Roots, rational or irrational
- Approximate (mentally and with calculators) the value of irrational numbers as they arise from problem situations (NOR 8.1.C)
 - Estimate square roots between integers
- Validate conclusions using mathematical properties and relationships (UPMT 8.16.B)
 - Simplify square roots
 - Multiply and simplify square roots
- Select and use appropriate operations to solve problems and justify the selections (NOR 8.2.A)
 - Use square roots to solve equations
- Understand that different forms of numbers are appropriate for different situations (NOR 8.1)
 - Reciprocals of rational numbers
- Select and use appropriate operations to solve problems and justify the selections (NOR 8.2.A)
 - Solve 1-step equations, multiply and divide by reciprocal
 - Solve 1-step equations, multiply and divide (decimals)
 - Word Problems: Solve 1-step equations, multiply and divide
 - Solve 2-step equations (integers)
 - Solve 2-step equations (decimal and fraction)
 - Word Problems: Solve 2-step equations
 - Solve multi-step equations
 - Solve equations with no solution, all reals, or 1 solution
 - Solve formulas for specified variables
- Locate and name points on a coordinate plane using ordered pairs of rational numbers (GEOM 8.7.D)
 - Graph ordered pairs
- Generate a different representation given one representation of data such as a table, graph, equation or verbal description (PRA 8.4.A)
 - Graph lines from standard form
- Add, subtract, multiply, and divide rational numbers in problem situations (NOR 8.2.B)
 - Find slopes from 2 points
- Estimate, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations (PRA 8.5.A)
 - Find slopes from equations
- Generate a different representation given one representation of data such as a table, graph, equation or verbal description (PRA 8.4.A)
 - Graph lines from slope and point
- Evaluate a solution for reasonableness (NOR 8.2.C)
 - Verify solutions to linear equations
- Generate a different representation given one representation of data such as a table, graph, equation or verbal description (PRA 8.4.A)
 - Graph systems of equations

Topic 4 – Linear Equations

- Identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics (UPMT 8.14.A)
 - Translate with equations
- Evaluate a solution for reasonableness (NOR 8.2.C)
 - Verify solutions to equations
- Make conjectures from patterns or sets of examples and nonexamples (UPMT 8.16.A)
 - Equation tables
- Select and use appropriate operations to solve problems and justify the selections (NOR 8.2.A)
 - Solve 1-step equations, add and subtract (integers)
 - Solve 1-step equations, add and subtract (decimal and fraction)
 - Word Problems: Solve 1-step equations, add and subtract

Topic 5 – Linear Inequalities

- Identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics (UPMT 8.14.A)
 - Translate with inequalities
- Select and use appropriate operations to solve problems and justify the solutions (NOR 8.2.A)
 - Solve 1-step inequalities
 - Solve multi-step inequalities
- Validate conclusions using mathematical properties and relationships (UPMT 8.16.B)
 - Compound statements with inequalities
- Select and use appropriate operations to solve problems and justify the solutions (NOR 8.2.A)
 - Solve compound inequalities
 - Word Problems: Inequalities
- Generate a different representation given one representation of data such as a table, graph, equation, or verbal description (PRA 8.4.A)
 - Solve and graph inequalities (number line)
 - Solve and graph compound inequalities (number line)
 - Graph linear inequalities (coordinate plane)
 - Graph systems of linear inequalities (coordinate plane)

Topic 6 – Ratio, Proportion, and Percent

- Select and use appropriate forms of rational numbers to solve real-life problems including those involving proportional relationships (NOR 8.1.B)
 - Ratios as fractions, lowest terms
 - Translate with proportions
- Use multiplication by a constant factor (unit rate) to represent proportional relationships (NOR 8.2.D)
 - Proportions as linear equations
- Compare and contrast proportional and non-proportional relationships (PRA 8.3.A)
 - Proportional and nonproportional relationships
- Select and use appropriate forms of rational numbers to solve real-life problems including those involving proportional relationships (NOR 8.1.B)
 - Solve proportions
- Estimate and find solutions to application problems involving percents and proportional relationships such as similarity and rates (PRA 8.3.B)
 - Word Problems: Proportions

- Convert customary units
- Convert metric units
- Convert complex units
- Use multiplication by a constant factor (unit rate) to represent proportional relationships (NOR 8.2.D)
 - Determine unit rates
- Estimate and find solutions to application problems involving percents and proportional relationships such as similarity and rates (PRA 8.3.B)
 - Use unit rates
- Compare and order rational numbers in various forms including integers, percents, and positive and negative fractions and decimals (NOR 8.1.A)
 - Decimals to percents
 - Fractions to percents
 - Percents to decimals
 - Percents to fractions
 - Compare and order percents and rational numbers
- Select and use appropriate operations to solve problems and justify the solutions (NOR 8.2.A)
 - Percent of a number
 - Find what percent 1 number is of another
 - Find base in percent problem
- Estimate and find solutions to application problems involving percents and proportional relationships such as similarity and rates (PRA 8.3.B)
 - Word Problems: Percent
 - Word Problems: Discount or markup
 - Word Problems: Percent change
 - Word Problems: Simple interest

Topic 7 – Statistics and Graphs

- Select the appropriate measure of central tendency to describe a set of data for a particular purpose (PROB 8.12.A)
 - Means, medians, modes, and ranges for data sets
 - Apply central tendency
- Draw conclusions and make predictions by analyzing trends in scatter plots (PROB 8.12.B)
 - Scatter plots
- Construct circle graphs, bar graphs, and histograms, with and without technology (PROB 8.12.C)
 - Bar graphs
 - Histograms
 - Circle graphs

- Communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models (UPMT 8.15.A)
 - Frequency distributions and line plots
 - Stem-and-leaf plots
 - Box-and-whisker plots
- Evaluate the effectiveness of different representations to communicate ideas (UPMT 8.15.B)
 - Choose appropriate data display
- Recognize misuses of graphical or numerical information and evaluate predictions and conclusions based on data analysis (PROB 8.13.B)
 - Misleading graphs
- Evaluate methods of sampling to determine validity of an inference made from a set of data (PROB 8.13.A)
 - Sampling methods

Topic 8 – Probability

- Add, subtract, multiply, and divide rational numbers in problem situations (NOR 8.2.B)
 - Fundamental counting principle
 - Factorials
 - Permutations
 - Combinations
 - Word Problems: Permutations
 - Word Problems: Combinations
- Identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics (UPMT 8.14.A)
 - Probability of single events
 - Probability of complements of events
 - Odds of an event
- Find the probabilities of compound events (dependent and independent) (PROB 8.11.A)
 - Probability of independent events
 - Probability of dependent events
- Select and use different models to simulate an event (PROB 8.11.C)
 - Modeling events
- Use theoretical probabilities and experimental results to make predictions and decisions (PROB 8.11.B)
 - Experimental probability
 - Predicting from probability information

Topic 9 – Geometry

- Use geometry to model and describe the physical world (GEOM 8.7)
 - Line notation and relationships
 - Measure, draw, and name angles
 - Angle pairs
 - Identify polygons and quadrilaterals
 - Diagonals and angles in polygons
 - Missing angle in triangles
 - Classify angles and triangles
 - Similarity and congruence
- Use proportional relationships in similar shapes to find missing measurements (MEAS 8.9.B)
 - Similar triangles and proportions
 - Word Problems: Similar triangles and proportions
- Graph dilations, reflections, and translations on a coordinate plane (GEOM 8.6.B)
 - Translations, rotations, reflections, and dilations
- Generate similar shapes using dilations, including enlargements and reductions (GEOM 8.6.A)
 - Produce similar shapes with dilations
- Use geometry to model and describe the physical world (GEOM 8.7.A)
 - Solids
- Draw solids from different perspectives (GEOM 8.7.A)
 - Top, side, and front views of solids

Topic 10 – Perimeter, Area, and Volume

- Use geometric concepts and properties to solve problems in fields such as art and architecture (GEOM 8.7.B)
 - Perimeter of quadrilaterals
 - Word Problems: Perimeter
 - Circumference of circles
 - Word Problems: Circumference of circles
 - Area of rectangles and squares
 - Area of parallelograms
 - Area of triangles
 - Area of trapezoids
 - Area of circles
 - Word Problems: Area
- Find surface area of prisms and cylinders using concrete models and nets (two-dimensional models) (MEAS 8.8.A)
 - Surface area of prisms
 - Surface area of sphere, cone, pyramid, and cylinder

- Estimate answers and use formulas to solve application problems involving surface area and volume (MEAS 8.8.C)
 - Word Problems: Surface area
- Connect models to formulas for volume of prisms, cylinders, pyramids and cones (MEAS 8.8.B)
 - Volume of rectangular prisms
 - Volume of cylinders
 - Volume of cones
 - Volume of pyramids
 - Volume of spheres
- Estimate answers and use formulas to solve application problems involving surface area and volume (MEAS 8.8.C)
 - Word Problems: Volume
- Describe the resulting effects on perimeter and area when dimensions of a shape are changed proportionally (MEAS 8.10.A)
 - Ratio of perimeter/area to dimension
- Describe the resulting effect on volume when dimensions of a solid are changed proportionally (MEAS 8.10.B)
 - Ratio of volume to dimension
- Use proportional relationships in similar shapes to find missing measurements (MEAS 8.9.B)
 - Scale drawings

Topic 11 – Right Triangles

- Use pictures or models to demonstrate the Pythagorean Theorem (GEOM 8.7.C)
 - Pythagorean Theorem, determine right triangles
 - Pythagorean Theorem, solve sides
- Use the Pythagorean Theorem to solve real-life problems (MEAS 8.9.A)
 - Word Problems: Pythagorean Theorem
- Use proportional relationships in similar shapes to find missing measurements (MEAS 8.9.B)
 - Special right triangles
 - Sine, cosine, and tangent ratios

- Trigonometry, find side of triangle from angle
- Word Problems: Trigonometry

Topic 12 – Polynomials

- Validate conclusions using mathematical properties and relationships (UPMT 8.16.B)
 - Classify polynomials as mono, bi, or trinomial
 - List terms and coefficients of polynomials
 - Find degree of polynomials
 - Add polynomials
 - Subtract polynomials
 - Multiply simple polynomials
 - Divide simple polynomials

Topic 13 – Mathematical Reasoning

- Use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness (UPMT 8.14.B)
 - Problem Solving: 4-step plan
- Select or develop an appropriate problem-solving strategy from a variety of different types (UPMT 8.14.C)
 - Problem Solving: Draw a picture
 - Problem Solving: Look for a pattern
 - Problem Solving: Guess and check
 - Problem Solving: Make a table
 - Problem Solving: Solve a simpler problem
 - Problem Solving: Work backwards
- Make conjectures from patterns or sets of examples and nonexamples (UPTM 8.16.A)
 - Patterns and conjectures
- Use an algebraic expression to find any term in a sequence (PRA 8.5.B)
 - Find any term of sequence from expression

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Wisconsin Rapids, WI 54495-8036
(866) 492-6284
www.renlearn.com