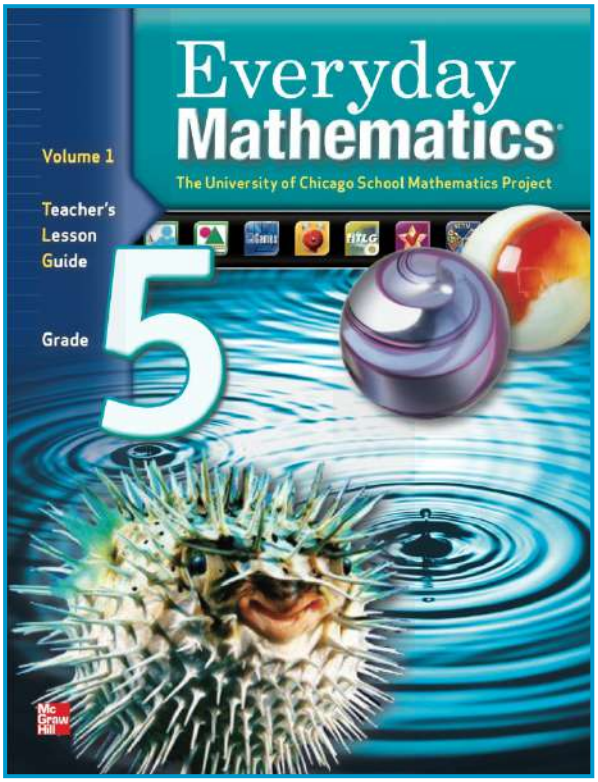
Academic Standards
Mathematics Grade 5



Everyday Mathematics

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STANDARDS	UNIT/LESSON REFERENCES

MATHEMATICS: GRADE 5

The Mathematics standards for grade 5 are supplemented by the Process Standards for Mathematics.

The Mathematics standards for grade 5 are made up of 5 strands: Number Sense; Computation; Algebraic Thinking; Geometry; Measurement; and Data Analysis and Statistics. The skills listed in each strand indicate what students in grade 5 should know and be able to do in Mathematics.

STANDARDS	UNIT/LESSON REFERENCES
NUMBER SENSE	
5.NS.1: Use a number line to compare and order fractions, mixed numbers, and decimals to thousandths. Write the results using >, =, and < symbols.	**Unit/Lessons** 2•5, 3•1, 3•5, 5•3
5.NS.2: Explain different interpretations of fractions, including: as parts of a whole, parts of a set, and division of whole numbers by whole numbers.	**Unit/Lessons** 5•1, 5•2, 5•3, 5•6, 6•8, 8•5, 8•6, 8•7, 8•8,
5.NS.3: Recognize the relationship that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right, and inversely, a digit in one place represents 1/10 of what it represents in the place to its left.	**Unit/Lessons** 2•2, 2•3, 2•10, 7•2
5.NS.4: Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	**Unit/Lessons** 1•9, 2•2, 2•7, 2•8, 2•9, 3•2, 4•1, 4•7, 7•2, 7•2, 7•7, 10•3
5.NS.5: Use place value understanding to round decimal numbers up to thousandths to any given place value.	**Unit/Lessons** 2•3, 2•5, 2•7, 2•8, 3•6, 5•5, 5•6, 5•8, 6•1, 6•4, 9•8, 10•7, 10•8, 11•3, 12•7
5.NS.6: Understand, interpret, and model percents as part of a hundred (e.g. by using pictures, diagrams, and other visual models).	**Unit/Lessons** 2•6, 3•1, 5•8, 5•9, 5•10, 5•11, 5•12, 5•13, 6•10, 8•9, 8•10, 8•11, 12•3
COMPUTATION	
5.C.1: Multiply multi-digit whole numbers fluently using a standard algorithmic approach.	**Unit/Lessons** *Algorithm Projects 5, 6*
5.C.2: Find whole-number quotients and remainders with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Describe the strategy and explain the reasoning used.	**Unit/Lessons** 4•1, 4•2, 4•4, 4•6 *Algorithm Project 7*
5.C.3: Compare the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.	**Unit/Lessons** 1•4, 4•1, 8•5, 8•8, 10•2
5.C.4: Add and subtract fractions with unlike denominators, including mixed numbers.	**Unit/Lessons** 5•3, 6•8, 6•9, 6•10, 7•6, 8•1, 8•2, 8•3, 8•4

STANDARDS	UNIT/LESSON REFERENCES
5.C.5: Use visual fraction models and numbers to multiply a fraction by a fraction or a whole number.	**Unit/Lessons** 8•5, 8•6, 8•7, 8•8, 8•13, 11•4, 12•5
5.C.6: Explain why multiplying a positive number by a fraction greater than 1 results in a product greater than the given number. Explain why multiplying a positive number by a fraction less than 1 results in a product smaller than the given number. Relate the principle of fraction equivalence, a/b = (n × a)/(n × b), to the effect of multiplying a/b by 1.	**Unit/Lessons** 6•9, 8•1, 8•6, 8•7, 8•8
5.C.7: Use visual fraction models and numbers to divide a unit fraction by a non-zero whole number and to divide a whole number by a unit fraction.	**Unit/Lessons** 8•12, 9•4, 12•1, 12•3, 12•5
5.C.8: Add, subtract, multiply, and divide decimals to hundredths, using models or drawings and strategies based on place value or the properties of operations. Describe the strategy and explain the reasoning.	**Unit/Lessons** 2•2, 2•3, 2•4, 2•5, 2•7, 2•8, 2•9, 4•5, 4•6, 5•11, 6•5, 6•7, 10•6 *Algorithm Project 2, 4, 6, 8, 9*
5.C.9: Evaluate expressions with parentheses or brackets involving whole numbers using the commutative properties of addition and multiplication, associative properties of addition and multiplication, and distributive property.	**Unit/Lessons** 2•4, 4•3, 7•4, 7•5
ALGEBRAIC THINKING	
5.AT.1: Solve real-world problems involving multiplication and division of whole numbers (e.g. by using equations to represent the problem). In division problems that involve a remainder, explain how the remainder affects the solution to the problem.	**Unit/Lessons** 2•8, 2•9, 5•1, 5•6, 6•8
5.AT.2: Solve real-world problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators (e.g., by using visual fraction models and equations to represent the problem). Use benchmark fractions and number sense of fractions to estimate mentally and assess whether the answer is reasonable.	**Unit/Lessons** 5•3, 6•8, 6•9, 6•10, 8•1, 8•2, 8•3, 8•4, 9•6, 10•6
5.AT.3: Solve real-world problems involving multiplication of fractions, including mixed numbers (e.g., by using visual fraction models and equations to represent the problem).	**Unit/Lessons** 8•5, 8•6, 8•7, 8•8

STANDARDS	UNIT/LESSON REFERENCES
5.AT.4: Solve real-world problems involving division of unit fractions by non-zero whole numbers, and division of whole numbers by unit fractions (e.g., by using visual fraction models and equations to represent the problem).	**Unit/Lessons** 8•12, 9•4, 12•3, 12•5, 12•6
5.AT.5: Solve real-world problems involving addition, subtraction, mutliplication, and division with decimals to hundredths, including problems that involve money in decimal notation (e.g. by using equations to represent the problem).	**Unit/Lessons** 2•2, 2•3, 2•4, 2•8, 2•9, 4•5, 7•2, 10•3 *Algorithm Project 2, 4, 6, 8, 9*
5.AT.6: Graph points with whole number coordinates on a coordinate plane. Explain how the coordinates relate the point as the distance from the origin on each axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).	**Unit/Lessons** 9•1, 9•2, 9•3, 10•4, 10•5, 10•6, 10•7, 12•8
5.AT.7: Represent real-world problems and equations by graphing ordered pairs in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	**Unit/Lessons** 9•1, 9•2, 9•3, 10•4, 10•6
5.AT.8: Define and use up to two variables to write linear expressions that arise from real-world problems, and evaluate them for given values.	**Unit/Lessons** 10•3, 10•4, 10•6
GEOMETRY	
5.G.1: Identify, describe, and draw triangles (right, acute, obtuse) and circles using appropriate tools (e.g., ruler or straightedge, compass and technology). Understand the relationship between radius and diameter.	**Unit/Lessons** 3•3, 3•5, 3•6, 4•7, 9•5, 9•6
5.G.2: Identify and classify polygons including quadrilaterals, pentagons, hexagons, and triangles (equilateral, isosceles, scalene, right, acute and obtuse) based on angle measures and sides. Classify polygons in a hierarchy based on properties.	**Unit/Lessons** 3•7, 3•8, 3•9, 3•10, 4•1
MEASUREMENT	
5.M.1: Convert among different-sized standard measurement units within a given measurement system, and use these conversions in solving multi-step real-world problems.	**Unit/Lessons** 2•1, 2•10, 6•2, 9•10, 10•5, 10•9, 11•3, 11•5, 11•6 *Project 6*

STANDARDS	UNIT/LESSON REFERENCES
5.M.2: Find the area of a rectangle with fractional side lengths by modeling with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	**Unit/Lessons** 8•8, 9•4, 9•10, 11•7
5.M.3: Develop and use formulas for the area of triangles, parallelograms and trapezoids. Solve real-world and other mathematical problems that involve perimeter and area of triangles, parallelograms and trapezoids, using appropriate units for measures.	**Unit/Lessons** 9•4, 9•5, 9•6, 9•10 *Project 6, 7*
5.M.4: Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths or multiplying the height by the area of the base.	**Unit/Lessons** 9•8, 9•10, 10•3, 11•1, 11•3, 11•7
5.M.5: Apply the formulas V = l × w × h and V = B × h for right rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths to solve real-world problems and other mathematical problems.	**Unit/Lessons** 9•4, 9•8, 9•9, 9•10, 10•3, 11•1, 11•3, 11•7
5.M.6: Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems and other mathematical problems.	**Unit/Lessons** 9•8, 9•9, 11•5 *Project 9*
DATA ANALYSIS AND STATISTICS	
5.DS.1: Formulate questions that can be addressed with data and make predictions about the data. Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (including frequency tables), line plots, bar graphs, and line graphs. Recognize the differences in representing categorical and numerical data.	**Unit/Lessons** 2•5, 2•6, 3•1, 3•2, 6•1, 6•2, 6•4, 6•5, 6•6, 6•7, 7•6, 7•10, 10•2, 10•6, 12•7 *Project 8*
5.DS.2: Understand and use measures of center (mean and median) and frequency (mode) to describe a data set.	**Unit/Lessons** 2•1, 2•5, 3•4, 6•1, 6•3, 6•4, 6•6, 7•10, 11•7