



Reveal Math GRADE 4 Curriculum Guide

[Reveal Math K-5](#) is our elementary core math program. Reveal Math develops problem solvers by incorporating both inquiry-focused and teacher-guided instructional strategies within each lesson. The [Standards Driven](#) program breaks down the standards into a coherent scope and sequence that emphasizes and reinforces each grade level's major content areas to develop a strong foundation as students progress towards algebra. *Reveal Math* addresses the mathematical practices and processes within its instructional design and defines and models the math practices for students.

Reveal Math supports a positive classroom environment, explores mathematics through a flexible lesson design, and tailors classroom activities to student needs. These guiding principles allow students to take ownership of their mathematical journey.

[Redbird Mathematics](#) is our personalized learning program that features the latest in adaptive instruction, gamification, and digital project-based learning and is designed to meet the requirements of state math standards. The individualized, self-paced program integrates conceptual understanding, procedural skill and fluency, and applications into the learning experience. All K-5 students have access to Redbird through ClassLink.

Teachers also incorporate lessons and hands-on experiences using [Math In Practice](#). Math In Practice provides additional materials to guide students into deeper math understanding, focuses on developing deep content knowledge, and supports the big ideas of math content and best-practice teaching.

Reveal Math Grade 4

UNIT 1

Math is...		Standards	Key Concepts & Learning Objectives
1-1	Math is Mine		Represent a real-world situation using mathematics Use patterns to develop efficient strategies to solve problems
1-2	Math is Exploring and Thinking		
1-3	Math is in My World		
1-4	Math is Explaining and Sharing		
1-5	Math is Finding Patterns		
1-6	Math is Ours		

UNIT 2

Generalize Place-Value Structure		Standards	Key Concepts & Learning Objectives
2-1	Understand the Structure of Multi-Digit Numbers	4.NBT.1, 4.NBT.2	Read and write numbers up to one million in multiple forms Round multi-digit numbers to any place -value position
2-2	Read and Write Numbers to One Million	4.NBT.2	
2-3	Compare Multi-Digit Numbers	4.NBT.2	
2-4	Round Multi-Digit Number	4.NBT.3	

UNIT 3

Addition and Subtraction Strategies and Algorithms		Standards	Key Concepts & Learning Objectives
3-1	Estimate Sums or Differences	4.NBT.3	Add and subtract whole numbers within one million using the standard algorithm
3-2	Strategies to Add Multi-Digit Numbers	4.NBT.4	Solve multi-step word problems using the four operations, and assess the reasonableness of answers
3-3	Understand an Addition Algorithm	4.NBT.4	
3-4	Understand an Addition Algorithm Involving Regrouping	4.NBT.4	Fluently add and subtract multi-digit whole numbers using the standard algorithm
3-5	Strategies to Subtract Algorithm	4.NBT.4	
3-6	Understand a Subtraction Algorithm	4.NBT.4	
3-7	Understand a Subtraction Algorithm Involving Regrouping	4.NBT.4	
3-8	Represent and Solve Multi-Step Problems	4.OA.3	
3-9	Solve Multi-Step Problems Involving Addition and Subtraction	4.OA.3	

UNIT 4

Multiplication and Comparison		Standards	Key Concepts & Learning Objectives
4-1	Understand Comparing with Multiplication	4.OA.1	Represent the unknown in an equation with a letter
4-2	Represent Comparison Problems	4.OA.1, 4.OA.2	Assess the reasonableness of an answer using estimation strategies
4-3	Solve Comparison Problems Using Multiplication	4.OA.2	Solve problems using multiplicative comparison
4-4	Solve Comparison Problems Using Division	4.OA.2	Solve multistep problems with whole numbers using four operations

UNIT 5

Numbers and Number Patterns		Standards	Key Concepts & Learning Objectives
5-1	Understand Factors of a Number	4.OA.4	Find all factor pairs for a whole number 1-100
5-2	Understand Prime and Composite Numbers	4.OA.4	Determine whether a given whole number in the range 1-100 is prime or composite
5-3	Understand Multiples	4.OA.4	Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number
5-4	Number or Shape Patterns	4.OA.5	Identify apparent features of a pattern that are not explicit in the rule
5-5	Generate a Pattern	4.OA.5	Generate a number pattern that follows a given rule
5-6	Analyze Features of a Pattern	4.OA.5	

UNIT 6

Multiplication Strategies with Multi-Digit Numbers		Standards	Key Concepts & Learning Objectives
6-1	Multiply by Multiples of 10, 100, or 1,000	4.NBT.5	Multiply a whole number of up to four digits by a 1-digit whole number, and multiply two 2-digit numbers Represent the unknown in an equation with a letter
6-2	Estimate Products	4.NBT.3, 4.NBT.5	
6-3	Use the Distributive Property to Multiply	4.NBT.2, 4.NBT.5	
6-4	Multiply 2-Digit by 1-Digit Factors	4.NBT.2, 4.NBT.5	
6-5	Multiply Multi-Digit by 1-Digit Factors	4.OA.3, 4.NBT.2	
6-6	Multiple Two Multiples of 10	4.NBT.5	
6-7	Multiply Two 2-Digit Factors	4.OA.3, 4.NBT.2, 4.NBT.5	
6-8	Solve Multi-Step Problems Involving Multiplication	4.OA.3	

UNIT 7

Division Strategies with Multi-Digit Dividends and 1-Digit Divisors		Standards	Key Concepts & Learning Objectives
7-1	Divide Multiples of 10, 100, or 1,000	4.NBT.1, 4.NBT.6	<p>Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors</p> <p>Solve multistep problems with whole numbers using four operations</p> <p>Understand the structure of base-ten place value system</p> <p>Round multi-digit whole numbers to any place</p> <p>Find whole number quotients and remainders with up to 4-digit dividends and one-digit divisors</p>
7-2	Estimate Quotients	4.NBT.3, 4.NBT.6	
7-3	Find Equal Shares	4.NBT.6	
7-4	Understand Partial Quotients	4.NBT.6	
7-5	Divide 4-Digit Dividends by 1-Digit Divisors	4.OA.3, 4.NBT.6	
7-6	Understand remainders	4.OA.3, 4.NBT.6	
7-7	Make Sense of Remainders	4.OA.3	
7-8	Solver Multi-Step Problems Using Division	4.OA.2,4.NBT.4, 4.NBT.6	

UNIT 8

Fraction Equivalence		Standards	Key Concepts & Learning Objectives
8-1	Equivalent Fractions	4.OA.5, 4.NF.1	<p>Use fraction models to explain why two fractions are equivalent, and generate equivalent fractions</p> <p>Compare two fractions using benchmark fractions or by generating equivalent fractions</p> <p>Generate equivalent fractions</p>
8-2	Generate Equivalent Fractions using Models	4.OA.5, 4.NF.1	<p>Compare fractions with different numerators</p> <p>Compare fractions with different denominators</p>
8-3	Generate Equivalent Fractions using Number Lines	4.OA.5, 4.NF.1	
8-4	Compare Fractions using Benchmarks	4.NF.2	
8-5	Other Ways to Compare Fractions	4.NF.2	

UNIT 9

Addition and Subtraction Meanings and Strategies with Fractions		Standards	Key Concepts & Learning Objectives
9-1	Understand Decomposing Fractions	4.NF.3	Decompose a fraction or mixed number into a sum of fractions with the same denominator Add and subtract fractions, and mixed numbers with like denominators Solve problems involving addition and subtraction of fractions
9-2	Represent Adding Fractions	4.NF.3	
9-3	Add Fractions with Like Denominators	4.NF.3	
9-4	Represent Subtracting Fractions	4.NF.3	
9-5	Subtract Fractions with Like Denominators	4.NF.3	
9-6	Solve Problems Involving Fractions	4.NF.3	

UNIT 10

Addition and Subtraction Strategies with Mixed Numbers		Standards	Key Concepts & Learning Objectives
10-1	Understand Decomposing Mixed Numbers	4.NF.3	Decompose a fraction or mixed number into a sum of fractions with the same denominator Add and subtract fractions, and mixed numbers with like denominators
10-2	Represent Adding Mixed Numbers	4.NF.3	
10-3	Add Mixed Numbers	4.NF.3	
10-4	Represent Subtracting Mixed Numbers	4.NF.3	
10-5	Subtract Mixed Numbers	4.NF.3	
10-6	Solve Problems Involving Mixed Numbers	4.NF.3	

UNIT 11

Multiply Fractions By Whole Numbers		Standards	Key Concepts & Learning Objectives
11-1	Represent Multiplication of a Unit Fraction by a Whole Number	4.NF.4	Multiply a fraction or a mixed number Multiply a fraction by a whole number Solve problems involving multiplication of fractions
11-2	Understand Multiplying a Fraction by a Whole Number	4.NF.4	
11-3	Multiply a Fraction by a Whole Number	4.NF.4	
11-4	Multiply a Mixed Number by a Whole Number	4.NF.4	
11-5	Solve Problems Involving Fractions and Mixed Numbers	4.NF.4	

UNIT 12

Decimal Fractions		Standards	Key Concepts & Learning Objectives
12-1	Understand Tenths and Hundredths	4.NF.5	<p>Represent fractions with denominators of 10 or 100 using decimal notation and compare two decimals to hundredths</p> <p>Use fractions with denominators 10 and 100 by using equivalent fractions</p> <p>Express fractions with denominator 10 as equivalent fractions with denominator 100</p>
12-2	Understand Decimal Notation	4.NF.6	<p>Write decimal fractions using decimal notation</p> <p>Compare two decimals to hundredths by reasoning about their size</p>
12-3	Compare Decimals	4.NF.7	
12-4	Add Decimals Using Fractions	4.NF.5	
12-5	Solve Problems Involving Money	4.NF.6, 4.MD.2	

UNIT 13

Units of Measurement and Data		Standards	Key Concepts & Learning Objectives
13-1	Relate Metric Units	4.MD.1	Convert larger units of measurement to smaller equivalent units
13-2	Relate Customary Units of Weight	4.MD.1, 4.MD.2	Determine and apply the formulas for the area and perimeter of a rectangle Display and interpret measurement data in line plots to solve problems
13-3	Relate Customary Units of Capacity	4.MD.1	Solve problems involving distances, intervals of time, liquid volumes, masses of objects, and money
13-4	Convert Units of Time	4.MD.1	Represent measurement quantities using diagrams, such as number line diagrams
13-5	Solve Problems That Involve Units of Measure	4.MD.2	Apply the area formula for rectangles to solve problems Apply the perimeter formula for rectangles to solve problems
13-6	Solve More Problems That Involve Units of Measure	4.MD.2	Make a line plot with fractional intervals to display measurement data gathered
13-7	Solve Problems Using a Perimeter Formula	4.OA.3, 4.MD.3	
13-8	Solve Problems Using an Area Formula	4.OA.3, 4.MD.3	
13-9	Solve Problems Involving Perimeter and Area	4.OA.3, 4.MD.3	
13-10	Display and Interpret Data on a Line lot	4.MD.4	
13-11	Solve Problems Involving Data on a Line Plot	4.MD.4	

UNIT 14

Geometric Figures		Standards	Key Concepts & Learning Objectives
14-1	Understand Lines, Line Segments, and Rays	4.G.1	Identify and draw points, lines, line segments, and rays
14-2	Classify Angles	4.MD.5, 4.G.1	Classify angles as right, acute, or obtuse, and measure and draw angles
14-3	Draw and measure Angles	4.MD.5, 4.MD.6	Draw perpendicular and parallel lines and identify them in 2-dimensional figures
14-4	Understand Parallel and Perpendicular Lines	4.G.1	Recognize that when an angle is decomposed into parts, the angle measure of the whole is the sum of the angle measure of the parts
14-5	Add and Subtract Angle Measures	4.MD.7	Measure angles in whole-number degrees using a protractor
14-6	Solve problems Involving Unknown Angle Measures	4.MD.7	Solve addition and subtraction problems to find unknown angles
14-7	Classify Polygons	4.G.1	
14-8	Classify Triangles	4.G.1, 4.G.2a	
14-9	Understand Line Symmetry	4.G.3	
14-10	Draw lines of Symmetry	4.G.3	

STANDARDS

UNIT/LESSON

NY-4.OA Operations and Algebraic Thinking**Use the four operations with whole numbers to solve problems.**

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| 1. Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations. | 4-1, 4-2 |
| 2. Multiply or divide to solve word problems involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison. Use drawings and equations with a symbol for the unknown number to represent the problem. | 4-2, 4-3, 4-4, 7-8 |
| 3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. <ol style="list-style-type: none"> Represent these problems using equations or expressions with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. | 3-8, 3-9, 6-5, 6-7, 6-8, 6-9, 7-5, 7-6, 7-7, 13-7, 13-8, 13-9 |

Gain familiarity with factors and multiples

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| 4. Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite. | 5-1, 5-2, 5-3 |
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Generate and analyze patterns.

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| 5. Generate a number or shape pattern that follows a given rule. Identify and informally explain apparent features of the pattern that were not explicit in the rule itself. | 5-4, 5-5, 5-6, 8-1, 8-2, 8-3 |
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NY-4.NBT Number and Operations in Base Ten**Generalize place value understanding for multi-digit whole numbers.**

Note: Grade 4 expectations are limited to whole numbers less than or equal to 1,000,000.

1. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right	2-1, 7-1
2. <ol style="list-style-type: none"> Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons. 	2-1, 2-2, 2-3, 6-3, 6-4, 6-5, 6-7

STANDARDS	UNIT/LESSON
3. Use place value understanding to round multi-digit whole numbers to any place.	2-4, 3-1, 6-2, 7-2
Use place value understanding and properties of operations to perform multi-digit arithmetic.	
4. Fluently add and subtract multi-digit whole numbers using a standard algorithm.	3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 7-8
5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	6-1, 6-2, 6-3, 6-4, 6-5, 6-6, 6-7
6. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	7-1, 7-2, 7-3, 7-4, 7-5, 7-6, 7-8
NY-4.NF Number and Operations—Fractions	
Extend understanding of fraction equivalence and ordering.	
Note: Grade 4 expectations are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.	
1. Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{a \times n}{b \times n}$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	8-1, 8-2, 8-3

2. Compare two fractions with different numerators and different denominators.
Recognize that comparisons are valid only when the two fractions refer to the same whole.
Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions.

8-4, 8-5

Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

3. Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.
- Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
 - Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions.
 - Add and subtract mixed numbers with like denominators.
 - Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators.

9-1, 9-2, 9-3, 9-4, 9-5, 9-6, 10-1, 10-2, 10-3, 10-4, 10-5, 10-6

STANDARDS

UNIT/LESSON

4. Apply and extend previous understandings of multiplication to multiply a whole number by a fraction.
- Understand a fraction a/b as a multiple of $1/b$.
 - Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a whole number by a fraction.
 - Solve word problems involving multiplication of a whole number by a fraction.

11-1, 11-2, 11-3, 11-4, 11-5

Understand decimal notation for fractions, and compare decimal fractions.

5. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.
Note: Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.

12-1, 12-4

6. Use decimal notation for fractions with denominators 10 or 100.

12-2, 12-5

7. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions.

12-3

NY-4.MD Measurement and Data

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

1. Know relative sizes of measurement units: ft., in.; km, m, cm
 Know the conversion factor and use it to convert measurements in a larger unit in terms of a smaller unit: ft., in.; km, m, cm; hr., min., sec.
 Given the conversion factor, convert all other measurements within a single system of measurement from a larger unit to a smaller unit.
 Record measurement equivalents in a two-column table.

13-1, 13-2, 13-3, 13-4

2. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money.
- Solve problems involving fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit.
 - Represent measurement quantities using diagrams that feature a measurement scale, such as number lines.

12-5, 13-2, 13-5, 13-6

STANDARDS

UNIT/LESSON

3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

13-7, 13-8, 13-9

Represent and interpret data

4. Make a line plot to display a data set of measurements in fractions of a unit ($1/2, 1/4, 1/8$). Solve problems involving addition and subtraction of fractions by using information presented in line plots.

13-10, 13-11

Geometric measurement: understand concepts of angle and measure angles.

<p>5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement. Recognize an angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a “one-degree angle,” and can be used to measure angles. Recognize an angle that turns through n one-degree angles is said to have an angle measure of n degrees.</p>	14-2, 14-3
<p>6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.</p>	14-3
<p>7. Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems.</p>	14-5, 14-6
<p>NY-4.G Geometry</p>	
<p>Draw and identify lines and angles, and classify shapes by properties of their lines and angles.</p>	
<p>1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p>	14-1, 14-2, 14-4, 14-7, 14-8
<p>2.</p> <ol style="list-style-type: none"> Identify and name triangles based on angle size (right, obtuse, acute). Identify and name all quadrilaterals with 2 pairs of parallel sides as parallelograms. Identify and name all quadrilaterals with four right angles as rectangles. 	14-8 (triangles) <i>See Reveal Math © 2022 Grade 3 Unit 13 Lesson 3 for quadrilaterals.</i>
<p>3. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.</p>	14-9, 14-10