
Grade 4 | Mathematics Standards of Learning for Virginia Public Schools Correlation to *Eureka Math*[®]

About *Eureka Math*

Created by Great Minds[®], a mission-driven Public Benefit Corporation, *Eureka Math*[®] helps teachers deliver unparalleled math instruction that provides students with a deep understanding and fluency in math. Crafted by teachers and math scholars, the curriculum carefully sequences the mathematical progressions to maximize coherence from Prekindergarten through Precalculus—a principle tested and proven to be essential in students’ mastery of math.

Teachers and students using *Eureka Math* find the trademark “Aha!” moments in *Eureka Math* to be a source of joy and inspiration, lesson after lesson, year after year.

Aligned

Great Minds offers detailed analyses that demonstrate how each grade of *Eureka Math* aligns with specific state standards. Access these free alignment studies at greatminds.org/state-studies.

Data

Schools and districts nationwide are experiencing student growth and impressive test scores after using *Eureka Math*. See their stories and data at greatminds.org/data.

Full Suite of Resources

Great Minds offers the *Eureka Math* curriculum as PDF downloads for free, noncommercial use. Access the free PDFs at greatminds.org/math/curriculum.

The teacher-writers who created the curriculum have also developed essential resources, available only from Great Minds, including the following:

- Printed material in English and Spanish
- Digital resources
- Professional development
- Classroom tools and manipulatives
- Teacher support materials
- Parent resources

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Mathematical Process Goals for Students	Aligned Components of <i>Eureka Math</i>
Mathematical Problem Solving	Lessons in every module engage students in mathematical processes.
Mathematical Communication	
Mathematical Reasoning	
Mathematical Connections	
Mathematical Representations	

Number and Number Sense

4.NS.1 The student will use place value understanding to read, write, and identify the place and value of each digit in a nine-digit whole number.

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<p>4.NS.1.a</p> <p>Read nine-digit whole numbers, presented in standard form, and represent the same number in written form.</p>	<p>G4 M1 Lesson 3: Name numbers within 1 million by building understanding of the place value chart and placement of commas for naming base thousand units.</p> <p>G4 M1 Lesson 4: Read and write multi-digit numbers using base ten numerals, number names, and expanded form.</p>
<p>4.NS.1.b</p> <p>Write nine-digit whole numbers in standard form when the numbers are presented orally or in written form.</p>	<p>G4 M1 Lesson 2: Recognize a digit represents 10 times the value of what it represents in the place to its right.</p> <p>G4 M1 Lesson 3: Name numbers within 1 million by building understanding of the place value chart and placement of commas for naming base thousand units.</p> <p>G4 M1 Lesson 4: Read and write multi-digit numbers using base ten numerals, number names, and expanded form.</p> <p>G4 M7 Lesson 17: Practice and solidify Grade 4 fluency.</p>
<p>4.NS.1.c</p> <p>Apply patterns within the base 10 system to determine and communicate, orally and in written form, the place and value of each digit in a nine-digit whole number (e.g., in 568,165,724, the 8 represents 8 millions and its value is 8,000,000).</p>	<p>G4 M1 Lesson 3: Name numbers within 1 million by building understanding of the place value chart and placement of commas for naming base thousand units.</p> <p>G4 M1 Lesson 4: Read and write multi-digit numbers using base ten numerals, number names, and expanded form.</p> <p>G4 M1 Lesson 5: Compare numbers based on meanings of the digits, using $>$, $<$, or $=$ to record the comparison.</p> <p>G4 M3 Topic B: Multiplication by 10, 100, and 1,000</p>

Number and Number Sense

4.NS.2 The student will demonstrate an understanding of the base 10 system to compare and order whole numbers up to seven digits.

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<p>4.NS.2.a</p> <p>Compare two whole numbers up to seven digits each, using words (greater than, less than, equal to, not equal to) and/or using symbols ($>$, $<$, $=$, \neq).</p>	<p>G4 M1 Lesson 5: Compare numbers based on meanings of the digits, using $>$, $<$, or $=$ to record the comparison.</p> <p><i>Supplemental material is necessary to address the not equal to symbol.</i></p>
<p>4.NS.2.b</p> <p>Order up to four whole numbers up to seven digits each, from least to greatest or greatest to least.</p>	<p>G4 M1 Lesson 5: Compare numbers based on meanings of the digits, using $>$, $<$, or $=$ to record the comparison.</p> <p><i>Supplemental material is necessary to fully address ordering whole numbers.</i></p>

Number and Number Sense

4.NS.3 The student will use mathematical reasoning and justification to represent, compare, and order fractions (proper, improper, and mixed numbers with denominators 12 or less), with and without models.

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<p>4.NS.3.a</p> <p>Compare and order no more than four fractions (proper or improper), and/or mixed numbers, with like denominators by comparing the number of parts (numerators) using fractions with denominators of 12 or less (e.g., $\frac{1}{5} < \frac{3}{5}$). Justify comparisons orally, in writing, or with a model.</p>	<p>G4 M5 Lesson 12: Reason using benchmarks to compare two fractions on the number line.</p> <p>G4 M5 Lesson 13: Reason using benchmarks to compare two fractions on the number line.</p> <p>G4 M5 Lesson 14: Find common units or number of units to compare two fractions.</p> <p>G4 M5 Lesson 27: Compare fractions greater than 1 by creating common numerators or denominators.</p> <p>G4 M5 Lesson 28: Solve word problems with line plots.</p> <p><i>Supplemental material is necessary to fully address ordering fractions and mixed numbers.</i></p>

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<p>4.NS.3.b</p> <p>Compare and order no more than four fractions (proper or improper), and/or mixed numbers, with like numerators and unlike denominators by comparing the size of the parts using fractions with denominators of 12 or less (e.g., $\frac{3}{8} < \frac{3}{5}$). Justify comparisons orally, in writing, or with a model.</p>	<p>G4 M5 Lesson 12: Reason using benchmarks to compare two fractions on the number line.</p> <p>G4 M5 Lesson 13: Reason using benchmarks to compare two fractions on the number line.</p> <p>G4 M5 Lesson 14: Find common units or number of units to compare two fractions.</p> <p>G4 M5 Lesson 27: Compare fractions greater than 1 by creating common numerators or denominators.</p> <p>G4 M5 Lesson 28: Solve word problems with line plots.</p> <p><i>Supplemental material is necessary to fully address ordering fractions and mixed numbers.</i></p>
<p>4.NS.3.c</p> <p>Use benchmarks (e.g., 0, $\frac{1}{2}$, or 1) to compare and order no more than four fractions (proper or improper), and/or mixed numbers, with like and unlike denominators of 12 or less. Justify comparisons orally, in writing, or with a model.</p>	<p>G4 M5 Lesson 12: Reason using benchmarks to compare two fractions on the number line.</p> <p>G4 M5 Lesson 13: Reason using benchmarks to compare two fractions on the number line.</p> <p>G4 M5 Lesson 26: Compare fractions greater than 1 by reasoning using benchmark fractions.</p> <p>G4 M5 Lesson 27: Compare fractions greater than 1 by creating common numerators or denominators.</p> <p>G4 M5 Lesson 28: Solve word problems with line plots.</p> <p><i>Supplemental material is necessary to fully address ordering fractions and mixed numbers.</i></p>
<p>4.NS.3.d</p> <p>Compare two fractions (proper or improper) and/or mixed numbers using fractions with denominators of 12 or less, using the symbols $>$, $<$, and $=$ (e.g., $\frac{2}{3} > \frac{1}{7}$). Justify comparisons orally, in writing, or with a model.</p>	<p>G4 M5 Topic C: Fraction Comparison</p> <p>G4 M5 Lesson 26: Compare fractions greater than 1 by reasoning using benchmark fractions.</p> <p>G4 M5 Lesson 27: Compare fractions greater than 1 by creating common numerators or denominators.</p> <p>G4 M5 Lesson 28: Solve word problems with line plots.</p>

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<p>4.NS.3.e</p> <p>Represent equivalent fractions with denominators of 12 or less, with and without models.</p>	<p>G4 M5 Lesson 5: Decompose unit fractions using area models to show equivalence.</p> <p>G4 M5 Lesson 6: Decompose fractions using area models to show equivalence.</p> <p>G4 M5 Topic B: Fraction Equivalence Using Multiplication and Division</p> <p>G4 M5 Lesson 20: Use visual models to add two fractions with related units using the denominators 2, 3, 4, 5, 6, 8, 10, and 12.</p> <p>G4 M5 Lesson 21: Use visual models to add two fractions with related units using the denominators 2, 3, 4, 5, 6, 8, 10, and 12.</p> <p>G4 M6 Lesson 5: Model the equivalence of tenths and hundredths using the area model and place value disks.</p> <p>G4 M6 Lesson 8: Use understanding of fraction equivalence to investigate decimal numbers on the place value chart expressed in different units.</p> <p>G5 M3 Lesson 1: Make equivalent fractions with the number line, the area model, and numbers.</p>
<p>4.NS.3.f</p> <p>Compose and decompose fractions (proper and improper) and/or mixed numbers with denominators of 12 or less, in multiple ways, with and without models.</p>	<p>G4 M5 Topic A: Decomposition and Fraction Equivalence</p> <p>G4 M5 Lesson 16: Use visual models to add and subtract two fractions with the same units.</p> <p>G4 M5 Lesson 17: Use visual models to add and subtract two fractions with the same units, including subtracting from one whole.</p> <p>G4 M5 Lesson 18: Add and subtract more than two fractions.</p> <p>G4 M5 Lesson 20: Use visual models to add two fractions with related units using the denominators 2, 3, 4, 5, 6, 8, 10, and 12.</p> <p>G4 M5 Lesson 21: Use visual models to add two fractions with related units using the denominators 2, 3, 4, 5, 6, 8, 10, and 12.</p> <p>G4 M5 Lesson 22: Add a fraction less than 1 to, or subtract a fraction less than 1 from, a whole number using decomposition and visual models.</p> <p>G5 M3 Lesson 2: Make equivalent fractions with sums of fractions with like denominators.</p>

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<p>4.NS.3.g</p> <p>Represent the division of two whole numbers as a fraction given a contextual situation and a model (e.g., $\frac{3}{5}$ means the same as 3 divided by 5 or $\frac{3}{5}$ represents the amount of muffin each of five children will receive when sharing three muffins equally).</p>	<p>G5 M4 Topic B: Fractions as Division</p>
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Number and Number Sense

4.NS.4 The student will use mathematical reasoning and justification to represent, compare, and order decimals through thousandths, with and without models.

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<p>4.NS.4.a</p> <p>Investigate and describe the ten-to-one place value relationship for decimals through thousandths, using concrete models (e.g., place value mats/charts, decimal squares, base 10 blocks).</p>	<p>G4 M6 Lesson 1: Use metric measurement to model the decomposition of one whole into tenths.</p> <p>G4 M6 Lesson 3: Represent mixed numbers with units of tens, ones, and tenths with place value disks, on the number line, and in expanded form.</p> <p>G4 M6 Lesson 4: Use meters to model the decomposition of one whole into hundredths. Represent and count hundredths.</p> <p>G4 M6 Lesson 5: Model the equivalence of tenths and hundredths using the area model and place value disks.</p> <p>G4 M6 Lesson 8: Use understanding of fraction equivalence to investigate decimal numbers on the place value chart expressed in different units.</p> <p>G4 M6 Topic D: Addition with Tenths and Hundredths</p> <p>G4 M6 Lesson 15: Express money amounts given in various forms as decimal numbers.</p> <p>G5 M1 Lesson 1: Reason concretely and pictorially using place value understanding to relate adjacent base ten units from millions to thousandths.</p>
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<p>4.NS.4.b</p> <p>Represent and identify decimals expressed through thousandths, using concrete, pictorial, and numerical representations.</p>	<p>G4 M6 Topic A: Exploration of Tenths</p> <p>G4 M6 Lesson 4: Use meters to model the decomposition of one whole into hundredths. Represent and count hundredths.</p> <p>G4 M6 Lesson 5: Model the equivalence of tenths and hundredths using the area model and place value disks.</p> <p>G4 M6 Lesson 6: Use the area model and number line to represent mixed numbers with units of ones, tenths, and hundredths in fraction and decimal forms.</p> <p>G4 M6 Lesson 7: Model mixed numbers with units of hundreds, tens, ones, tenths, and hundredths in expanded form and on the place value chart.</p> <p>G4 M6 Lesson 12: Apply understanding of fraction equivalence to add tenths and hundredths.</p> <p>G4 M6 Lesson 13: Add decimal numbers by converting to fraction form.</p> <p>G4 M6 Lesson 15: Express money amounts given in various forms as decimal numbers.</p> <p>G4 M7 Lesson 17: Practice and solidify Grade 4 fluency.</p> <p>G5 M1 Lesson 2: Reason abstractly using place value understanding to relate adjacent base ten units from millions to thousandths.</p> <p>G5 M1 Topic B: Decimal Fractions and Place Value Patterns</p>
<p>4.NS.4.c</p> <p>Read and write decimals expressed through thousandths, using concrete, pictorial, and numerical representations.</p>	<p>G4 M6 Topic A: Exploration of Tenths</p> <p>G4 M6 Lesson 4: Use meters to model the decomposition of one whole into hundredths. Represent and count hundredths.</p> <p>G4 M6 Lesson 5: Model the equivalence of tenths and hundredths using the area model and place value disks.</p> <p>G4 M6 Lesson 6: Use the area model and number line to represent mixed numbers with units of ones, tenths, and hundredths in fraction and decimal forms.</p> <p>G4 M6 Lesson 7: Model mixed numbers with units of hundreds, tens, ones, tenths, and hundredths in expanded form and on the place value chart.</p>

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<p>4.NS.4.c <i>continued</i></p>	<p>G4 M6 Lesson 12: Apply understanding of fraction equivalence to add tenths and hundredths.</p> <p>G4 M6 Lesson 13: Add decimal numbers by converting to fraction form.</p> <p>G4 M6 Lesson 15: Express money amounts given in various forms as decimal numbers.</p> <p>G4 M7 Lesson 17: Practice and solidify Grade 4 fluency.</p> <p>G5 M1 Lesson 1: Reason concretely and pictorially using place value understanding to relate adjacent base ten units from millions to thousandths.</p> <p>G5 M1 Lesson 2: Reason abstractly using place value understanding to relate adjacent base ten units from millions to thousandths.</p> <p>G5 M1 Topic B: Decimal Fractions and Place Value Patterns</p> <p>G5 M6 Lesson 28: Solidify fluency with Grade 5 skills.</p>
<p>4.NS.4.d</p> <p>Identify and communicate, both orally and in written form, the place and value of each digit in a decimal through thousandths (e.g., given 0.385, the 8 is in the hundredths place and has a value of 0.08).</p>	<p>G4 M6 Topic A: Exploration of Tenths</p> <p>G4 M6 Lesson 4: Use meters to model the decomposition of one whole into hundredths. Represent and count hundredths.</p> <p>G4 M6 Lesson 5: Model the equivalence of tenths and hundredths using the area model and place value disks.</p> <p>G4 M6 Lesson 6: Use the area model and number line to represent mixed numbers with units of ones, tenths, and hundredths in fraction and decimal forms.</p> <p>G4 M6 Lesson 7: Model mixed numbers with units of hundreds, tens, ones, tenths, and hundredths in expanded form and on the place value chart.</p> <p>G4 M6 Lesson 12: Apply understanding of fraction equivalence to add tenths and hundredths.</p> <p>G4 M6 Lesson 13: Add decimal numbers by converting to fraction form.</p> <p>G4 M6 Lesson 15: Express money amounts given in various forms as decimal numbers.</p> <p>G4 M7 Lesson 17: Practice and solidify Grade 4 fluency.</p> <p>G5 M1 Lesson 1: Reason concretely and pictorially using place value understanding to relate adjacent base ten units from millions to thousandths.</p>

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<p>4.NS.4.d <i>continued</i></p>	<p>G5 M1 Lesson 2: Reason abstractly using place value understanding to relate adjacent base ten units from millions to thousandths.</p> <p>G5 M1 Lesson 3: Use exponents to name place value units, and explain patterns in the placement of the decimal point.</p> <p>G5 M1 Topic B: Decimal Fractions and Place Value Patterns</p>
<p>4.NS.4.e</p> <p>Compare using symbols (<, >, =) and/or words (greater than, less than, equal to) and order (least to greatest and greatest to least), a set of no more than four decimals expressed through thousandths, using multiple strategies (e.g., benchmarks, place value, number lines). Justify comparisons with a model, orally, and in writing.</p>	<p>G4 M6 Topic C: Decimal Comparison</p> <p>G5 M1 Lesson 6: Compare decimal fractions to the thousandths using like units, and express comparisons with >, <, =.</p> <p>G5 M6 Lesson 28: Solidify fluency with Grade 5 skills.</p>

Number and Number Sense

4.NS.5 The student will reason about the relationship between fractions and decimals (limited to halves, fourths, fifths, tenths, and hundredths) to identify and represent equivalencies.

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<p>4.NS.5.a</p> <p>Represent fractions (proper or improper) and/or mixed numbers as decimals through hundredths, using multiple representations, limited to halves, fourths, fifths, tenths, and hundredths.</p>	<p>G4 M6 Topic A: Exploration of Tenths</p> <p>G4 M6 Topic B: Tenths and Hundredths</p> <p>G4 M6 Topic D: Addition with Tenths and Hundredths</p> <p>G4 M6 Lesson 15: Express money amounts given in various forms as decimal numbers.</p> <p>G4 M7 Lesson 17: Practice and solidify Grade 4 fluency.</p> <p><i>Supplemental material is necessary to address fourths and fifths.</i></p>
<p>4.NS.5.b</p> <p>Identify and model equivalent relationships between fractions (proper or improper) and/or mixed numbers and decimals, using halves, fourths, fifths, tenths, and hundredths.</p>	<p>G4 M6 Topic A: Exploration of Tenths</p> <p>G4 M6 Topic B: Tenths and Hundredths</p> <p>G4 M6 Topic D: Addition with Tenths and Hundredths</p> <p>G4 M6 Lesson 15: Express money amounts given in various forms as decimal numbers.</p> <p>G4 M7 Lesson 17: Practice and solidify Grade 4 fluency.</p> <p><i>Supplemental material is necessary to address fourths and fifths.</i></p>
<p>4.NS.5.c</p> <p>Write the decimal and fraction equivalent for a given model (e.g., $\frac{1}{4} = 0.25$ or $0.25 = \frac{1}{4}$; $1.25 = \frac{5}{4}$ or $1\frac{1}{4}$; $1.02 = \frac{102}{100}$ or $1\frac{2}{100}$).</p>	<p>G4 M6 Topic A: Exploration of Tenths</p> <p>G4 M6 Topic B: Tenths and Hundredths</p> <p>G4 M6 Topic D: Addition with Tenths and Hundredths</p> <p>G4 M6 Lesson 15: Express money amounts given in various forms as decimal numbers.</p> <p>G4 M7 Lesson 17: Practice and solidify Grade 4 fluency.</p> <p><i>Supplemental material is necessary to address fourths and fifths.</i></p>

Computation and Estimation

4.CE.1 The student will estimate, represent, solve, and justify solutions to single-step and multistep problems, including those in context, using addition and subtraction with whole numbers.

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<p>4.CE.1.a</p> <p>Determine and justify whether an estimate or an exact answer is appropriate when solving contextual problems involving addition and subtraction with whole numbers. Refine estimates by adjusting the final amount, using terms such as closer to, between, and a little more than.</p>	<p>G4 M1 Topic D: Multi-Digit Whole Number Addition</p> <p>G4 M1 Topic E: Multi-Digit Whole Number Subtraction</p> <p>G4 M1 Topic F: Addition and Subtraction Word Problems</p> <p><i>Supplemental material is needed for determining and justifying whether an estimate or an exact answer is needed.</i></p>
<p>4.CE.1.b</p> <p>Apply strategies (e.g., rounding to the nearest 100 or 1,000, using compatible numbers, other number relationships) to estimate a solution for single-step or multistep addition or subtraction problems with whole numbers, where addends or minuends do not exceed 10,000.</p>	<p>G4 M1 Topic D: Multi-Digit Whole Number Addition</p> <p>G4 M1 Topic E: Multi-Digit Whole Number Subtraction</p> <p>G4 M1 Topic F: Addition and Subtraction Word Problems</p>

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<p>4.CE.1.c</p> <p>Apply strategies (e.g., place value, properties of addition, other number relationships) and algorithms, including the standard algorithm, to determine the sum or difference of two whole numbers, where addends and minuends do not exceed 10,000.</p>	<p>G4 M1 Lesson 11: Use place value understanding to fluently add multi-digit whole numbers using the standard addition algorithm, and apply the algorithm to solve word problems using tape diagrams.</p> <p>G4 M1 Lesson 13: Use place value understanding to decompose to smaller units once using the standard subtraction algorithm, and apply the algorithm to solve word problems using tape diagrams.</p> <p>G4 M1 Lesson 14: Use place value understanding to decompose to smaller units up to three times using the standard subtraction algorithm, and apply the algorithm to solve word problems using tape diagrams.</p> <p>G4 M1 Lesson 15: Use place value understanding to fluently decompose to smaller units multiple times in any place using the standard subtraction algorithm, and apply the algorithm to solve word problems using tape diagrams.</p>
<p>4.CE.1.d</p> <p>Estimate, represent, solve, and justify solutions to single-step and multistep contextual problems involving addition and subtraction with whole numbers where addends and minuends do not exceed 1,000,000.</p>	<p>G4 M1 Topic D: Multi-Digit Whole Number Addition</p> <p>G4 M1 Topic E: Multi-Digit Whole Number Subtraction</p> <p>G4 M1 Topic F: Addition and Subtraction Word Problems</p> <p>G4 M7 Lesson 17: Practice and solidify Grade 4 fluency.</p>

Computation and Estimation

4.CE.2 The student will estimate, represent, solve, and justify solutions to single-step and multistep problems, including those in context, using multiplication with whole numbers, and single-step problems, including those in context, using division with whole numbers; and recall with automaticity the multiplication facts through 12×12 and the corresponding division facts.

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<p>4.CE.2.a</p> <p>Determine and justify whether an estimate or an exact answer is appropriate when solving contextual problems involving multiplication and division of whole numbers. Refine estimates by adjusting the final amount, using terms such as closer to, between, and a little more than.</p>	<p>G4 M3 Topic D: Multiplication Word Problems</p> <p>G4 M3 Lesson 29: Represent numerically four-digit dividend division with divisors of 2, 3, 4, and 5, decomposing a remainder up to three times.</p> <p>G4 M3 Lesson 31: Interpret division word problems as either number of groups unknown or group size unknown.</p> <p>G4 M7 Lesson 11: Solve multi-step measurement word problems.</p> <p>G4 M7 Lesson 14: Solve multi-step word problems involving converting mixed number measurements to a single unit.</p> <p>G4 M7 Lesson 15: Create and determine the area of composite figures.</p> <p><i>Supplemental material is needed for determining and justifying whether an estimate or an exact answer is needed.</i></p>
<p>4.CE.2.b</p> <p>Recall with automaticity the multiplication facts through 12×12 and the corresponding division facts.</p>	<p>4 M3 Topic A: Multiplicative Comparison Word Problems</p> <p>4 M3 Lesson 5: Multiply multiples of 10, 100, and 1,000 by single digits, recognizing patterns.</p>

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<p>4.CE.2.c</p> <p>Create an equation using addition, subtraction, multiplication, and division to represent the relationship between equivalent mathematical expressions (e.g., $4 \times 3 = 2 \times 6$; $10 + 8 = 36 \div 2$; $12 \times 4 = 60 - 12$).</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>4.CE.2.d</p> <p>Identify and use the appropriate symbol to distinguish between expressions that are equal and expressions that are not equal, using addition, subtraction, multiplication, and division (e.g., $4 \times 12 = 8 \times 6$ and $64 \div 8 \neq 8 \times 8$).</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>4.CE.2.e</p> <p>Determine all factor pairs for a whole number 1 to 100, using concrete, pictorial, and numerical representations.</p>	<p>G4 M3 Topic F: Reasoning with Divisibility</p>
<p>4.CE.2.f</p> <p>Determine common factors and the greatest common factor of no more than three numbers.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>

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<p>4.CE.2.g Apply strategies (e.g., rounding, place value, properties of multiplication and/or addition) and algorithms, including the standard algorithm, to estimate and determine the product of two whole numbers when given:</p>	<p><i>This standard is fully addressed by the lessons aligned to its subsections.</i></p>
<p>4.CE.2.g.i a two-digit factor and a one-digit factor;</p>	<p>G4 M3 Lesson 4: Interpret and represent patterns when multiplying by 10, 100, and 1,000 in arrays and numerically. G4 M3 Lesson 5: Multiply multiples of 10, 100, and 1,000 by single digits, recognizing patterns. G4 M3 Topic C: Multiplication of up to Four Digits by Single-Digit Numbers G4 M3 Topic D: Multiplication Word Problems G4 M7 Lesson 17: Practice and solidify Grade 4 fluency.</p>
<p>4.CE.2.g.ii a three-digit factor and a one-digit factor; or</p>	<p>G4 M3 Lesson 4: Interpret and represent patterns when multiplying by 10, 100, and 1,000 in arrays and numerically. G4 M3 Lesson 5: Multiply multiples of 10, 100, and 1,000 by single digits, recognizing patterns. G4 M3 Topic C: Multiplication of up to Four Digits by Single-Digit Numbers G4 M3 Topic D: Multiplication Word Problems</p>
<p>4.CE.2.g.iii a two-digit factor and a two-digit factor.</p>	<p>G4 M3 Lesson 4: Interpret and represent patterns when multiplying by 10, 100, and 1,000 in arrays and numerically. G4 M3 Lesson 6: Multiply two-digit multiples of 10 by two-digit multiples of 10 with the area model. G4 M3 Topic H: Multiplication of Two-Digit by Two-Digit Numbers G4 M7 Lesson 17: Practice and solidify Grade 4 fluency.</p>

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<p>4.CE.2.h</p> <p>Estimate, represent, solve, and justify solutions to single-step and multistep contextual problems that involve multiplication with whole numbers.</p>	<p>G4 M3 Lesson 5: Multiply multiples of 10, 100, and 1,000 by single digits, recognizing patterns.</p> <p>G4 M3 Lesson 6: Multiply two-digit multiples of 10 by two-digit multiples of 10 with the area model.</p> <p>G4 M3 Lesson 8: Extend the use of place value disks to represent three- and four-digit by one-digit multiplication.</p> <p>G4 M3 Lesson 9: Multiply three- and four-digit numbers by one-digit numbers applying the standard algorithm.</p> <p>G4 M3 Lesson 10: Multiply three- and four-digit numbers by one-digit numbers applying the standard algorithm.</p> <p>G4 M3 Lesson 11: Connect the area model and the partial products method to the standard algorithm.</p> <p>G4 M3 Topic D: Multiplication Word Problems</p> <p>G4 M7 Lesson 11: Solve multi-step measurement word problems.</p> <p>G4 M7 Lesson 15: Create and determine the area of composite figures.</p>
<p>4.CE.2.i</p> <p>Apply strategies (e.g., rounding, compatible numbers, place value) and algorithms, including the standard algorithm, to estimate and determine the quotient of two whole numbers, given a one-digit divisor and a two- or three-digit dividend, with and without remainders.</p>	<p>G4 M3 Topic E: Division of Tens and Ones with Successive Remainders</p> <p>G4 M3 Topic G: Division of Thousands, Hundreds, Tens, and Ones</p> <p>G4 M7 Lesson 17: Practice and solidify Grade 4 fluency.</p>

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<p>4.CE.2.j</p> <p>Estimate, represent, solve, and justify solutions to single-step contextual problems involving division with whole numbers.</p>	<p>G4 M3 Lesson 14: Solve division word problems with remainders.</p> <p>G4 M3 Lesson 19: Explain remainders by using place value understanding and models.</p> <p>G4 M3 Lesson 21: Solve division problems with remainders using the area model.</p> <p>G4 M3 Lesson 29: Represent numerically four-digit dividend division with divisors of 2, 3, 4, and 5, decomposing a remainder up to three times.</p> <p>G4 M3 Lesson 31: Interpret division word problems as either number of groups unknown or group size unknown.</p> <p>G4 M3 Lesson 32: Interpret and find whole number quotients and remainders to solve one-step division word problems with larger divisors of 6, 7, 8, and 9.</p> <p>G4 M7 Lesson 11: Solve multi-step measurement word problems.</p>
<p>4.CE.2.k</p> <p>Interpret the quotient and remainder when solving a contextual problem.</p>	<p>G4 M3 Lesson 14: Solve division word problems with remainders.</p> <p>G4 M3 Lesson 19: Explain remainders by using place value understanding and models.</p> <p>G4 M3 Lesson 29: Represent numerically four-digit dividend division with divisors of 2, 3, 4, and 5, decomposing a remainder up to three times.</p> <p>G4 M3 Lesson 31: Interpret division word problems as either number of groups unknown or group size unknown.</p> <p>G4 M3 Lesson 32: Interpret and find whole number quotients and remainders to solve one-step division word problems with larger divisors of 6, 7, 8, and 9.</p>

Computation and Estimation

4.CE.3 The student will estimate, represent, solve, and justify solutions to single-step problems, including those in context, using addition and subtraction of fractions (proper, improper, and mixed numbers with like denominators of 2, 3, 4, 5, 6, 8, 10, and 12), with and without models; and solve single-step contextual problems involving multiplication of a whole number (12 or less) and a unit fraction, with models.

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<p>4.CE.3.a</p> <p>Estimate and determine the sum or difference of two fractions (proper or improper) and/or mixed numbers, having like denominators limited to 2, 3, 4, 5, 6, 8, 10, and 12 (e.g., $\frac{3}{8} + \frac{3}{8}$, $2\frac{1}{5} + \frac{4}{5}$, $\frac{7}{4} - \frac{5}{4}$) and simplify the resulting fraction. Addition and subtraction with fractions may include regrouping.</p>	<p>G4 M5 Topic D: Fraction Addition and Subtraction</p> <p>G4 M5 Lesson 24: Decompose and compose fractions greater than 1 to express them in various forms.</p> <p>G4 M5 Topic F: Addition and Subtraction of Fractions by Decomposition</p>
<p>4.CE.3.b</p> <p>Estimate, represent, solve, and justify solutions to single-step contextual problems using addition and subtraction with fractions (proper or improper) and/or mixed numbers, having like denominators limited to 2, 3, 4, 5, 6, 8, 10, and 12, and simplify the resulting fraction. Addition and subtraction with fractions may include regrouping.</p>	<p>G4 M5 Lesson 19: Solve word problems involving addition and subtraction of fractions.</p> <p>G4 M5 Lesson 28: Solve word problems with line plots.</p>

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<p>4.CE.3.c</p> <p>Solve single-step contextual problems involving multiplication of a whole number, limited to 12 or less, and a unit fraction (e.g., $6 \times \frac{1}{3}$, $\frac{1}{5} \times 8$, $2 \times \frac{1}{10}$), with models.</p>	<p>G4 M5 Lesson 11: Explain fraction equivalence using a tape diagram and the number line, and relate that to the use of multiplication and division.</p> <p>G4 M5 Lesson 22: Add and multiply unit fractions to build fractions greater than 1 using visual models.</p> <p>G4 M5 Lesson 23: Decompose and compose fractions greater than 1 to express them in various forms.</p> <p>G4 M5 Lesson 24: Decompose and compose fractions greater than 1 to express them in various forms.</p> <p>G4 M5 Topic G: Repeated Addition of Fractions as Multiplication</p> <p><i>Note: In these lessons, some problems use non-unit fractions.</i></p>
<p>4.CE.3.d</p> <p>Apply the inverse property of multiplication in models (e.g., use a visual fraction model to represent $\frac{4}{4}$ or 1 as the product of $4 \times \frac{1}{4}$).</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>

Computation and Estimation

4.CE.4 The student will estimate, represent, solve, and justify solutions to single-step and multistep problems, including those in context, using addition and subtraction of decimals through the thousandths, with and without models.

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<p>4.CE.4.a</p> <p>Apply strategies (e.g., rounding to the nearest whole number, using compatible numbers) and algorithms, including the standard algorithm, to estimate and determine the sum or difference of two decimals through the thousandths, with and without models, in which:</p>	<p>G4 M6 Topic D: Addition with Tenths and Hundredths</p> <p>G5 M1 Topic D: Adding and Subtracting Decimals</p> <p><i>Supplemental material is necessary to fully address rounding to the nearest whole number and using compatible numbers to estimate and determine the sum or difference of two decimals.</i></p>
<p>4.CE.4.a.i</p> <p>decimals do not exceed the thousandths; and</p>	<p>G4 M6 Topic D: Addition with Tenths and Hundredths</p> <p>G5 M1 Topic D: Adding and Subtracting Decimals</p>
<p>4.CE.4.a.ii</p> <p>addends, subtrahends, and minuends are limited to four digits.</p>	<p>G4 M6 Topic D: Addition with Tenths and Hundredths</p> <p>G5 M1 Topic D: Adding and Subtracting Decimals</p>
<p>4.CE.4.b</p> <p>Estimate, represent, solve, and justify solutions to single-step and multistep contextual problems using addition and subtraction of decimals through the thousandths.</p>	<p>G4 M6 Lesson 14: Solve word problems involving the addition of measurements in decimal form.</p> <p>G5 M1 Topic D: Adding and Subtracting Decimals.</p>

Measurement and Geometry

4.MG.1 The student will reason mathematically to solve problems, including those in context, that involve length, weight/mass, and liquid volume using U.S. Customary and metric units.

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<p>4.MG.1.a</p> <p>Determine an appropriate unit of measure to use when measuring:</p>	<p><i>This standard is fully addressed by the lessons aligned to its subsections.</i></p>
<p>4.MG.1.a.i</p> <p>length in both U.S. Customary (inch, foot, yard, mile) and metric units (millimeter, centimeter, meter);</p>	<p>G4 M2 Lesson 1: Express metric length measurements in terms of a smaller unit; model and solve addition and subtraction word problems involving metric length.</p> <p>G4 M2 Lesson 4: Know and relate metric units to place value units in order to express measurements in different units.</p> <p>G4 M7 Lesson 1: Create conversion tables for length, weight, and capacity units using measurement tools, and use the tables to solve problems.</p>
<p>4.MG.1.a.ii</p> <p>weight/mass in both U.S. Customary (ounce, pound) and metric units (gram, kilogram); and</p>	<p>G4 M2 Lesson 2: Express metric mass measurements in terms of a smaller unit; model and solve addition and subtraction word problems involving metric mass.</p> <p>G4 M2 Lesson 4: Know and relate metric units to place value units in order to express measurements in different units.</p> <p>G4 M7 Lesson 1: Create conversion tables for length, weight, and capacity units using measurement tools, and use the tables to solve problems.</p>
<p>4.MG.1.a.iii</p> <p>liquid volume in both U.S. Customary (cup, pint, quart, gallon) and metric units (milliliter, liter).</p>	<p>G4 M2 Lesson 3: Express metric capacity measurements in terms of a smaller unit; model and solve addition and subtraction word problems involving metric capacity.</p> <p>G4 M2 Lesson 4: Know and relate metric units to place value units in order to express measurements in different units.</p> <p>G4 M7 Lesson 2: Create conversion tables for length, weight, and capacity units using measurement tools, and use the tables to solve problems.</p>

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<p>4.MG.1.b Estimate and measure:</p>	<p><i>This standard is addressed by the lessons aligned to its subsections.</i></p>
<p>4.MG.1.b.i length of an object to the nearest U.S. Customary unit ($\frac{1}{2}$ inch, $\frac{1}{4}$ inch, $\frac{1}{8}$ inch, foot, yard) and nearest metric unit (millimeter, centimeter, or meter);</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>4.MG.1.b.ii weight/mass of an object to the nearest U.S. Customary unit (ounce, pound) and nearest metric unit (gram, kilogram); and</p>	<p>G3 M2 Lesson 6: Build and decompose a kilogram to reason about the size and weight of 1 kilogram, 100 grams, 10 grams, and 1 gram.</p> <p>G3 M2 Lesson 7: Develop estimation strategies by reasoning about the weight in kilograms of a series of familiar objects to establish mental benchmark measures.</p> <p>G3 M2 Lesson 8: Solve one-step word problems involving metric weights within 100 and estimate to reason about solutions.</p> <p>G4 M7 Lesson 1: Create conversion tables for length, weight, and capacity units using measurement tools, and use the tables to solve problems.</p>
<p>4.MG.1.b.iii liquid volume to the nearest U.S. Customary unit (cup, pint, quart, gallon) and nearest metric unit (milliliter, liter).</p>	<p>G3 M2 Lesson 9: Decompose a liter to reason about the size of 1 liter, 100 milliliters, 10 milliliters, and 1 milliliter.</p> <p>G3 M2 Lesson 10: Estimate and measure liquid volume in liters and milliliters using the vertical number line.</p> <p>G3 M2 Lesson 12: Round two-digit measurements to the nearest ten on the vertical number line.</p> <p>G4 M2 Lesson 3: Express metric capacity measurements in terms of a smaller unit; model and solve addition and subtraction word problems involving metric capacity.</p> <p>G4 M7 Lesson 2: Create conversion tables for length, weight, and capacity units using measurement tools, and use the tables to solve problems.</p>

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<p>4.MG.1.c</p> <p>Compare estimates of length, weight/mass, or liquid volume with the actual measurements.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>4.MG.1.d</p> <p>Given the equivalent measure of one unit, solve problems, including those in context, by determining the equivalent measures within the U.S. Customary system for:</p>	<p><i>This standard is fully addressed by the lessons aligned to its subsections.</i></p>
<p>4.MG.1.d.i</p> <p>length (inches and feet, feet and yards, inches and yards);</p>	<p>G4 M7 Lesson 1: Create conversion tables for length, weight, and capacity units using measurement tools, and use the tables to solve problems.</p> <p>G4 M7 Lesson 4: Solve multiplicative comparison word problems using measurement conversion tables.</p> <p>G4 M7 Lesson 5: Share and critique peer strategies.</p> <p>G4 M7 Lesson 7: Solve problems involving mixed units of length.</p> <p>G4 M7 Lesson 10: Solve multi-step measurement word problems.</p> <p>G4 M7 Lesson 12: Use measurement tools to convert mixed number measurements to smaller units.</p> <p>G4 M7 Lesson 14: Solve multi-step word problems involving converting mixed number measurements to a single unit.</p> <p>G4 M7 Lesson 18: Practice and solidify Grade 4 vocabulary.</p>

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<p>4.MG.1.d.ii weight/mass (ounces and pounds); and</p>	<p>G4 M7 Lesson 1: Create conversion tables for length, weight, and capacity units using measurement tools, and use the tables to solve problems.</p> <p>G4 M7 Lesson 4: Solve multiplicative comparison word problems using measurement conversion tables.</p> <p>G4 M7 Lesson 5: Share and critique peer strategies.</p> <p>G4 M7 Lesson 8: Solve problems involving mixed units of weight.</p> <p>G4 M7 Lesson 10: Solve multi-step measurement word problems.</p> <p>G4 M7 Lesson 11: Solve multi-step measurement word problems.</p> <p>G4 M7 Lesson 13: Use measurement tools to convert mixed number measurements to smaller units.</p> <p>G4 M7 Lesson 14: Solve multi-step word problems involving converting mixed number measurements to a single unit.</p> <p>G4 M7 Lesson 18: Practice and solidify Grade 4 vocabulary.</p>
<p>4.MG.1.d.iii liquid volume (cups, pints, quarts, and gallons).</p>	<p>G4 M7 Lesson 2: Create conversion tables for length, weight, and capacity units using measurement tools, and use the tables to solve problems.</p> <p>G4 M7 Lesson 6: Solve problems involving mixed units of capacity.</p> <p>G4 M7 Lesson 10: Solve multi-step measurement word problems.</p> <p>G4 M7 Lesson 11: Solve multi-step measurement word problems.</p> <p>G4 M7 Lesson 12: Use measurement tools to convert mixed number measurements to smaller units.</p> <p>G4 M7 Lesson 14: Solve multi-step word problems involving converting mixed number measurements to a single unit.</p> <p>G4 M7 Lesson 18: Practice and solidify Grade 4 vocabulary.</p>

Measurement and Geometry

4.MG.2 The student will solve single-step and multistep contextual problems involving elapsed time (limited to hours and minutes within a 12-hour period).

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<p>4.MG.2.a</p> <p>Solve single-step and multistep contextual problems involving elapsed time in hours and minutes, within a 12-hour period (within a.m., within p.m., and across a.m. and p.m.) when given:</p>	<p><i>Supplementary material is necessary to fully address elapsed time within a 12-hour period.</i></p>
<p>4.MG.2.a.i</p> <p>the starting time and the ending time, determine the amount of time that has elapsed in hours and minutes;</p>	<p>G3 M2 Lesson 4: Solve word problems involving time intervals within 1 hour by counting backward and forward using the number line and clock.</p> <p>G3 M2 Lesson 5: Solve word problems involving time intervals within 1 hour by adding and subtracting on the number line.</p> <p><i>Supplementary material is necessary to fully address this standard.</i></p>
<p>4.MG.2.a.ii</p> <p>the starting time and amount of elapsed time in hours and minutes, determine the ending time; or</p>	<p>G3 M2 Lesson 4: Solve word problems involving time intervals within 1 hour by counting backward and forward using the number line and clock.</p> <p>G3 M2 Lesson 5: Solve word problems involving time intervals within 1 hour by adding and subtracting on the number line.</p> <p><i>Supplementary material is necessary to fully address this standard.</i></p>
<p>4.MG.2.a.iii</p> <p>the ending time and the amount of elapsed time in hours and minutes, determine the starting time.</p>	<p>G3 M2 Lesson 4: Solve word problems involving time intervals within 1 hour by counting backward and forward using the number line and clock.</p> <p>G3 M2 Lesson 5: Solve word problems involving time intervals within 1 hour by adding and subtracting on the number line.</p> <p><i>Supplementary material is necessary to fully address this standard.</i></p>

Measurement and Geometry

4.MG.3 The student will use multiple representations to develop and use formulas to solve problems, including those in context, involving area and perimeter limited to rectangles and squares (in both U.S. Customary and metric units).

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<p>4.MG.3.a</p> <p>Use concrete materials and pictorial models to develop a formula for the area and perimeter of a rectangle (including a square).</p>	<p>G4 M3 Topic A: Multiplicative Comparison Word Problems</p> <p>G4 M7 Lesson 15: Create and determine the area of composite figures.</p> <p>G4 M7 Lesson 16: Create and determine the area of composite figures.</p>
<p>4.MG.3.b</p> <p>Determine the area and perimeter of a rectangle when given the measure of two adjacent sides (in whole number units), with and without models.</p>	<p>G4 M3 Topic A: Multiplicative Comparison Word Problems</p>
<p>4.MG.3.c</p> <p>Determine the area and perimeter of a square when given the measure of one side (in whole number units), with and without models.</p>	<p>G4 M3 Lesson 3: Demonstrate understanding of area and perimeter by solving multi-step real-world problems.</p>

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<p>4.MG.3.d</p> <p>Use concrete materials and pictorial models to explore the relationship between area and perimeter of rectangles.</p>	<p>G3 M7 Lesson 20: Construct rectangles with a given perimeter using unit squares and determine their areas.</p> <p>G3 M7 Lesson 21: Construct rectangles with a given perimeter using unit squares and determine their areas.</p> <p>G3 M7 Lesson 24: Use rectangles to draw a robot with specified perimeter measurements, and reason about the different areas that may be produced.</p> <p>G3 M7 Lesson 25: Use rectangles to draw a robot with specified perimeter measurements, and reason about the different areas that may be produced.</p> <p>G3 M7 Lesson 26: Use rectangles to draw a robot with specified perimeter measurements, and reason about the different areas that may be produced.</p> <p>G3 M7 Lesson 27: Use rectangles to draw a robot with specified perimeter measurements, and reason about the different areas that may be produced.</p> <p>G4 M3 Topic A: Multiplicative Comparison Word Problems</p>
<p>4.MG.3.e</p> <p>Identify and represent rectangles with the same perimeter and different areas or with the same area and different perimeters.</p>	<p>G3 M7 Lesson 20: Construct rectangles with a given perimeter using unit squares and determine their areas.</p> <p>G3 M7 Lesson 21: Construct rectangles with a given perimeter using unit squares and determine their areas.</p> <p>G3 M7 Lesson 24: Use rectangles to draw a robot with specified perimeter measurements, and reason about the different areas that may be produced.</p> <p>G3 M7 Lesson 25: Use rectangles to draw a robot with specified perimeter measurements, and reason about the different areas that may be produced.</p> <p>G3 M7 Lesson 26: Use rectangles to draw a robot with specified perimeter measurements, and reason about the different areas that may be produced.</p> <p>G3 M7 Lesson 27: Use rectangles to draw a robot with specified perimeter measurements, and reason about the different areas that may be produced.</p> <p>G4 M3 Lesson 1: Investigate and use the formulas for area and perimeter of rectangles.</p>

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<p>4.MG.3.f Solve contextual problems involving area and perimeter of rectangles and squares.</p>	<p>G3 M7 Lesson 28: Solve a variety of word problems involving area and perimeter using all four operations. G3 M7 Lesson 29: Solve a variety of word problems involving area and perimeter using all four operations. G3 M7 Lesson 30: Share and critique peer strategies for problem solving. G4 M3 Topic A: Multiplicative Comparison Word Problems G4 M7 Lesson 15: Create and determine the area of composite figures. G4 M7 Lesson 16: Create and determine the area of composite figures.</p>
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Measurement and Geometry

4.MG.4 The student will identify, describe, and draw points, rays, line segments, angles, and lines, including intersecting, parallel, and perpendicular lines.

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<p>4.MG.4.a Identify and describe points, lines, line segments, rays, and angles, including endpoints and vertices.</p>	<p>G4 M4 Topic A: Lines and Angles G4 M4 Lesson 1: Identify and draw points, lines, line segments, rays, and angles. Recognize them in various contexts and familiar figures. G4 M4 Lesson 2: Use right angles to determine whether angles are equal to, greater than, or less than right angles. Draw right, obtuse, and acute angles. G4 M4 Lesson 8: Identify and measure angles as turns and recognize them in various contexts. G4 M7 Lesson 18: Practice and solidify Grade 4 vocabulary.</p>
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<p>4.MG.4.b</p> <p>Describe endpoints and vertices in relation to lines, line segments, rays, and angles.</p>	<p>G4 M4 Topic A: Lines and Angles</p>
<p>4.MG.4.c</p> <p>Draw representations of points, line segments, rays, angles, and lines, using a ruler or straightedge.</p>	<p>G4 M4 Topic A: Lines and Angles</p> <p>G4 M4 Lesson 7: Measure and draw angles. Sketch given angle measures, and verify with a protractor.</p> <p>G4 M4 Lesson 14: Define and construct triangles from given criteria. Explore symmetry in triangles.</p> <p>G4 M4 Lesson 15: Classify quadrilaterals based on parallel and perpendicular lines and the presence or absence of angles of a specified size.</p> <p>G4 M4 Lesson 16: Reason about attributes to construct quadrilaterals on square or triangular grid paper.</p>
<p>4.MG.4.d</p> <p>Identify parallel, perpendicular, and intersecting lines and line segments in plane and solid figures, including those in context.</p>	<p>G4 M4 Lesson 1: Identify and draw points, lines, line segments, rays, and angles. Recognize them in various contexts and familiar figures.</p> <p>G4 M4 Lesson 3: Identify, define, and draw perpendicular lines.</p> <p>G4 M4 Lesson 4: Identify, define, and draw parallel lines.</p> <p>G4 M4 Lesson 14: Define and construct triangles from given criteria. Explore symmetry in triangles.</p> <p>G4 M4 Lesson 15: Classify quadrilaterals based on parallel and perpendicular lines and the presence or absence of angles of a specified size.</p> <p>G4 M4 Lesson 16: Reason about attributes to construct quadrilaterals on square or triangular grid paper.</p>

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4.MG.4.e	G4 M4 Lesson 1: Identify and draw points, lines, line segments, rays, and angles. Recognize them in various contexts and familiar figures.
Use symbolic notation to name points, lines, line segments, rays, angles, and to describe parallel and perpendicular lines.	G4 M4 Lesson 3: Identify, define, and draw perpendicular lines.
	G4 M4 Lesson 4: Identify, define, and draw parallel lines.
	G4 M4 Lesson 14: Define and construct triangles from given criteria. Explore symmetry in triangles.
	G4 M4 Lesson 15: Classify quadrilaterals based on parallel and perpendicular lines and the presence or absence of angles of a specified size.
	G4 M4 Lesson 16: Reason about attributes to construct quadrilaterals on square or triangular grid paper.

Measurement and Geometry

4.MG.5 The student will classify and describe quadrilaterals (parallelograms, rectangles, squares, rhombi, and/or trapezoids) using specific properties and attributes.

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4.MG.5.a	G3 M7 Lesson 4: Compare and classify quadrilaterals.
Develop definitions for parallelograms, rectangles, squares, rhombi, and trapezoids through the exploration of properties and attributes.	G3 M7 Lesson 5: Compare and classify other polygons.
	G3 M7 Lesson 6: Draw polygons with specified attributes to solve problems.
	G4 M4 Lesson 12: Recognize lines of symmetry for given two-dimensional figures. Identify line-symmetric figures and draw lines of symmetry.
	G4 M4 Lesson 15: Classify quadrilaterals based on parallel and perpendicular lines and the presence or absence of angles of a specified size.
	G4 M4 Lesson 16: Reason about attributes to construct quadrilaterals on square or triangular grid paper.

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4.MG.5.b	<p>G4 M4 Lesson 3: Identify, define, and draw perpendicular lines.</p> <p>G4 M4 Lesson 4: Identify, define, and draw parallel lines.</p> <p>G4 M4 Lesson 12: Recognize lines of symmetry for given two-dimensional figures. Identify line-symmetric figures and draw lines of symmetry.</p> <p>G4 M4 Lesson 15: Classify quadrilaterals based on parallel and perpendicular lines and the presence or absence of angles of a specified size.</p> <p>G4 M4 Lesson 16: Reason about attributes to construct quadrilaterals on square or triangular grid paper.</p> <p>G4 M7 Lesson 18: Practice and solidify Grade 4 vocabulary.</p>
4.MG.5.c	<p>G4 M4 Lesson 3: Identify, define, and draw perpendicular lines.</p> <p>G4 M4 Lesson 4: Identify, define, and draw parallel lines.</p> <p>G4 M4 Lesson 12: Recognize lines of symmetry for given two-dimensional figures. Identify line-symmetric figures and draw lines of symmetry.</p> <p>G4 M4 Lesson 15: Classify quadrilaterals based on parallel and perpendicular lines and the presence or absence of angles of a specified size.</p> <p>G4 M4 Lesson 16: Reason about attributes to construct quadrilaterals on square or triangular grid paper.</p> <p>G4 M7 Lesson 18: Practice and solidify Grade 4 vocabulary.</p> <p><i>Supplemental material is necessary to address intersecting lines.</i></p>
4.MG.5.d	<p><i>This standard is fully addressed by the lessons aligned to its subsections.</i></p>

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<p>4.MG.5.d.i parallel sides;</p>	<p>G4 M4 Lesson 15: Classify quadrilaterals based on parallel and perpendicular lines and the presence or absence of angles of a specified size.</p> <p>G4 M4 Lesson 16: Reason about attributes to construct quadrilaterals on square or triangular grid paper.</p> <p>G4 M7 Lesson 18: Practice and solidify Grade 4 vocabulary.</p> <p>G5 M5 Lesson 20: Classify two-dimensional figures in a hierarchy based on properties.</p>
<p>4.MG.5.d.ii perpendicular sides;</p>	<p>G4 M4 Lesson 15: Classify quadrilaterals based on parallel and perpendicular lines and the presence or absence of angles of a specified size.</p> <p>G4 M4 Lesson 16: Reason about attributes to construct quadrilaterals on square or triangular grid paper.</p> <p>G4 M7 Lesson 18: Practice and solidify Grade 4 vocabulary.</p> <p>G5 M5 Lesson 20: Classify two-dimensional figures in a hierarchy based on properties.</p>
<p>4.MG.5.d.iii congruence of sides; and</p>	<p>G4 M4 Lesson 15: Classify quadrilaterals based on parallel and perpendicular lines and the presence or absence of angles of a specified size.</p> <p>G4 M4 Lesson 16: Reason about attributes to construct quadrilaterals on square or triangular grid paper.</p> <p>G5 M5 Lesson 20: Classify two-dimensional figures in a hierarchy based on properties.</p>
<p>4.MG.5.d.iv number of right angles.</p>	<p>G4 M4 Lesson 15: Classify quadrilaterals based on parallel and perpendicular lines and the presence or absence of angles of a specified size.</p> <p>G4 M4 Lesson 16: Reason about attributes to construct quadrilaterals on square or triangular grid paper.</p> <p>G5 M5 Lesson 20: Classify two-dimensional figures in a hierarchy based on properties.</p>

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Aligned Components of *Eureka Math*

<p>4.MG.5.e</p> <p>Denote properties of quadrilaterals and identify parallel sides, congruent sides, and right angles by using geometric markings.</p>	<p>G4 M4 Lesson 15: Classify quadrilaterals based on parallel and perpendicular lines and the presence or absence of angles of a specified size.</p> <p>G4 M4 Lesson 16: Reason about attributes to construct quadrilaterals on square or triangular grid paper.</p>
<p>4.MG.5.f</p> <p>Use symbolic notation to name line segments and angles in quadrilaterals.</p>	<p>G4 M4 Lesson 15: Classify quadrilaterals based on parallel and perpendicular lines and the presence or absence of angles of a specified size.</p> <p>G4 M4 Lesson 16: Reason about attributes to construct quadrilaterals on square or triangular grid paper.</p>

Measurement and Geometry

4.MG.6 The student will identify, describe, compare, and contrast plane and solid figures according to their characteristics (number of angles, vertices, edges, and the number and shape of faces), with and without models.

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<p>4.MG.6.a</p> <p>Identify concrete models and pictorial representations of solid figures (cube, rectangular prism, square pyramid, sphere, cone, and cylinder).</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
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<p>4.MG.6.b</p> <p>Identify and describe solid figures (cube, rectangular prism, square pyramid, and sphere) according to their characteristics (number of angles, vertices, edges, and by the number and shape of faces).</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>4.MG.6.c</p> <p>Compare and contrast plane and solid figures (limited to circles, squares, triangles, rectangles, spheres, cubes, square pyramids, and rectangular prisms) according to their characteristics (number of sides, angles, vertices, edges, and the number and shape of faces).</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>

Probability and Statistics

4.PS.1 The student will apply the data cycle (formulate questions; collect or acquire data; organize and represent data; and analyze data and communicate results) with a focus on line graphs.

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<p>4.PS.1.a</p> <p>Formulate questions that require the collection or acquisition of data.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
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<p>4.PS.1.b</p> <p>Determine the data needed to answer a formulated question and collect or acquire existing data (limited to 10 or fewer data points) using various methods (e.g., observations, measurements, experiments).</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>4.PS.1.c</p> <p>Organize and represent a data set using line graphs with a title and labeled axes with whole number increments, with and without the use of technology tools.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>4.PS.1.d</p> <p>Analyze data represented in line graphs and communicate results orally and in writing:</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>4.PS.1.d.i</p> <p>describe the characteristics of the data represented in a line graph and the data as a whole (e.g., the time period when the temperature increased the most);</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>

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<p>4.PS.1.d.ii identify parts of the data that have special characteristics and explain the meaning of the greatest, the least, or the same (e.g., the highest temperature shows the warmest day);</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>4.PS.1.d.iii make inferences about data represented in line graphs;</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>4.PS.1.d.iv draw conclusions about the data and make predictions based on the data to answer questions; and</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>4.PS.1.d.v solve single-step and multistep addition and subtraction problems using data from line graphs.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>

Probability and Statistics

4.PS.2 The student will model and determine the probability of an outcome of a simple event.

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<p>4.PS.2.a</p> <p>Describe probability as the degree of likelihood of an outcome occurring using terms such as <i>impossible</i>, <i>unlikely</i>, <i>equally likely</i>, <i>likely</i>, and <i>certain</i>.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>4.PS.2.b</p> <p>Model and determine all possible outcomes of a given simple event where there are no more than 24 possible outcomes, using a variety of manipulatives (e.g., coins, two-sided counters, number cubes, spinners).</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>4.PS.2.c</p> <p>Write the probability of a given simple event as a fraction between 0 and 1, where there are no more than 24 possible outcomes.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>4.PS.2.d</p> <p>Determine the likelihood of an event occurring and relate it to its whole number or fractional representation (e.g., impossible or zero; equally likely; certain or one).</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>

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<p>4.PS.2.e</p> <p>Create a model or contextual problem to represent a given probability.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
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Patterns, Functions, and Algebra

4.PFA.1 The student will identify, describe, extend, and create increasing and decreasing patterns (limited to addition, subtraction, and multiplication of whole numbers), including those in context, using various representations.

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<p>4.PFA.1.a</p> <p>Identify, describe, extend, and create increasing and decreasing patterns using various representations (e.g., objects, pictures, numbers, number lines, input/output tables, and function machines).</p>	<p>G4 M1 Lesson 6: Find 1, 10, and 100 thousand more and less than a given number.</p> <p>G4 M3 Lesson 23: Use division and the associative property to test for factors and observe patterns.</p> <p>G4 M3 Lesson 24: Determine if a whole number is a multiple of another number.</p> <p>G4 M3 Lesson 25: Explore properties of prime and composite numbers to 100 by using multiples.</p> <p>G4 M5 Topic H: Exploring a Fraction Pattern</p> <p>G6 M2 Lesson 16: Even and Odd Numbers</p>
<p>4.PFA.1.b</p> <p>Analyze an increasing or decreasing single-operation numerical pattern found in lists, input/output tables, or function machines and generalize the change to identify the rule, extend the pattern, or identify missing terms.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>

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4.PFA.1.c	<i>Supplemental material is necessary to address this standard.</i>
Given a rule, create increasing and decreasing patterns using numbers and input/output tables (including function machines).	
4.PFA.1.d	<i>Supplemental material is necessary to address this standard.</i>
Solve contextual problems that involve identifying, describing, and extending increasing and decreasing patterns using single-operation input and output rules.	