
Grade 3 | 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

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

3.NS.1 The student will use place value understanding to read, write, and determine the place and value of each digit in a whole number, up to six digits, with and without models.

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<p>3.NS.1.a</p> <p>Read and write six-digit whole numbers in standard form, expanded form, and word 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 M1 Lesson 5: Compare numbers based on meanings of the digits, using $>$, $<$, or $=$ to record the comparison.</p>
<p>3.NS.1.b</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 six-digit whole number (e.g., in 165,724, the 5 represents 5 thousands and its value is 5,000).</p>	<p>G4 M1 Lesson 1: Interpret a multiplication equation as a comparison.</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>3.NS.1.c</p> <p>Compose, decompose, and represent numbers up to 9,999 in multiple ways, according to place value (e.g., 256 can be 1 hundred, 14 tens, 16 ones, but also 25 tens, 6 ones), with and without models.</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 M1 Lesson 5: Compare numbers based on meanings of the digits, using $>$, $<$, or $=$ to record the comparison.</p>

Number and Number Sense

3.NS.2 The student will demonstrate an understanding of the base 10 system to compare and order whole numbers up to 9,999.

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<p>3.NS.2.a</p> <p>Compare two whole numbers, each 9,999 or less, using symbols ($>$, $<$, $=$, \neq) and/or words (greater than, less than, equal to, not equal to), with and without models.</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 comparing whole numbers less than 9,999.</i></p>
<p>3.NS.2.b</p> <p>Order up to three whole numbers, each 9,999 or less, represented with and without models, from least to greatest and 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 address ordering numbers less than 9,999.</i></p>

Number and Number Sense

3.NS.3 The student will use mathematical reasoning and justification to represent and compare fractions (proper and improper) and mixed numbers with denominators of 2, 3, 4, 5, 6, 8, and 10), including those in context.

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<p>3.NS.3.a</p> <p>Represent, name, and write a given fraction (proper or improper) or mixed number with denominators of 2, 3, 4, 5, 6, 8, and 10 using:</p>	<p><i>This standard is addressed by the lessons aligned to its subsections.</i></p>

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<p>3.NS.3.a.i region/area models (e.g., pie pieces, pattern blocks, geoboards);</p>	<p>G3 M5 Lesson 3: Specify and partition a whole into equal parts, identifying and counting unit fractions by drawing pictorial area models.</p> <p>G3 M5 Lesson 4: Represent and identify fractional parts of different wholes.</p> <p>G3 M5 Topic B: Unit Fractions and their Relation to the Whole</p> <p>G3 M5 Lesson 12: Specify the corresponding whole when presented with one equal part.</p> <p>G3 M7 Lesson 33: Solidify fluency with Grade 3 skills.</p> <p>G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>
<p>3.NS.3.a.ii length models (e.g., paper fraction strips, fraction bars, rods, number lines); and</p>	<p>G3 M5 Lesson 1: Specify and partition a whole into equal parts, identifying and counting unit fractions using concrete models.</p> <p>G3 M5 Lesson 2: Specify and partition a whole into equal parts, identifying and counting unit fractions by folding fraction strips.</p> <p>G3 M5 Lesson 4: Represent and identify fractional parts of different wholes.</p> <p>G3 M5 Lesson 14: Place fractions on a number line with endpoints 0 and 1.</p> <p>G3 M5 Lesson 15: Place any fraction on a number line with endpoints 0 and 1.</p> <p>G3 M5 Lesson 16: Place whole number fractions and fractions between whole numbers on the number line.</p> <p>G3 M5 Lesson 17: Practice placing various fractions on the number line.</p> <p>G3 M5 Lesson 30: Partition various wholes precisely into equal parts using a number line method.</p>
<p>3.NS.3.a.iii set models (e.g., chips, counters, cubes).</p>	<p>G3 M5 Lesson 4: Represent and identify fractional parts of different wholes.</p> <p><i>Supplemental material is necessary to address this standard.</i></p>
<p>3.NS.3.b Identify a fraction represented by a model as the sum of unit fractions.</p>	<p>G4 M5 Lesson 1: Decompose fractions as a sum of unit fractions using tape diagrams.</p> <p>G4 M5 Lesson 2: Decompose fractions as a sum of unit fractions using tape diagrams.</p>

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<p>3.NS.3.c</p> <p>Use a model of a fraction greater than one to count the fractional parts to name and write it as an improper fraction and as a mixed number (e.g., $\frac{1}{4}, \frac{2}{4}, \frac{3}{4}, \frac{4}{4}, \frac{5}{4} = 1\frac{1}{4}$).</p>	<p>G3 M5 Lesson 16: Place whole number fractions and fractions between whole numbers on the number line.</p> <p>G3 M5 Lesson 17: Practice placing various fractions on the number line.</p> <p>G3 M5 Lesson 24: Express whole numbers as fractions and recognize equivalence with different units.</p> <p>G3 M5 Lesson 25: Express whole number fractions on the number line when the unit interval is 1.</p> <p>G3 M5 Lesson 26: Decompose whole number fractions greater than 1 using whole number equivalence with various models.</p> <p>G4 M5 Lesson 1: Decompose fractions as a sum of unit fractions using tape diagrams.</p> <p>G4 M5 Lesson 2: Decompose fractions as a sum of unit fractions using tape diagrams.</p> <p>G4 M5 Lesson 16: Use visual models to add and subtract two fractions with the same units.</p> <p>G4 M5 Lesson 24: Decompose and compose fractions greater than 1 to express them in various forms.</p> <p>G4 M5 Lesson 25: Decompose and compose fractions greater than 1 to express them in various forms.</p>
<p>3.NS.3.d</p> <p>Compose and decompose fractions (proper and improper) with denominators of 2, 3, 4, 5, 6, 8, and 10 in multiple ways (e.g., $\frac{7}{4} = \frac{4}{4} + \frac{3}{4}$ or $\frac{4}{6} = \frac{3}{6} + \frac{1}{6} = \frac{2}{6} + \frac{2}{6}$) with models.</p>	<p>G3 M5 Lesson 15: Place any fraction on a number line with endpoints 0 and 1.</p> <p>G4 M5 Lesson 1: Decompose fractions as a sum of unit fractions using tape diagrams.</p> <p>G4 M5 Lesson 2: Decompose fractions as a sum of unit fractions using tape diagrams.</p> <p>G4 M5 Lesson 16: Use visual models to add and subtract two fractions with the same units.</p> <p>G4 M5 Lesson 24: Decompose and compose fractions greater than 1 to express them in various forms.</p> <p>G4 M5 Lesson 25: Decompose and compose fractions greater than 1 to express them in various forms.</p>

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<p>3.NS.3.e</p> <p>Compare a fraction, less than or equal to one, to the benchmarks of 0, $\frac{1}{2}$, and 1 using area/region models, length models, and without models.</p>	<p>G3 M5 Lesson 10: Compare unit fractions by reasoning about their size using fraction strips.</p> <p>G3 M5 Lesson 11: Compare unit fractions with different-sized models representing the whole.</p> <p>G3 M5 Lesson 13: Identify a shaded fractional part in different ways depending on the designation of the whole.</p> <p>G3 M5 Lesson 18: Compare fractions and whole numbers on the number line by reasoning about their distance from 0.</p> <p>G3 M5 Lesson 19: Understand distance and position on the number line as strategies for comparing fractions.</p> <p>G3 M5 Lesson 28: Compare fractions with the same numerator pictorially.</p> <p>G3 M5 Lesson 29: Compare fractions with the same numerator using $<$, $>$, or $=$, and use a model to reason about their size.</p> <p>G3 M7 Lesson 33: Solidify fluency with Grade 3 skills.</p>
<p>3.NS.3.f</p> <p>Compare two fractions (proper or improper) and/or mixed numbers with like numerators of 2, 3, 4, 5, 6, 8, and 10 (e.g., $\frac{2}{3} > \frac{2}{8}$) using words (<i>greater than</i>, <i>less than</i>, <i>equal to</i>) and/or symbols ($>$, $<$, $=$), using area/region models, length models, and without models.</p>	<p>G3 M5 Lesson 10: Compare unit fractions by reasoning about their size using fraction strips.</p> <p>G3 M5 Lesson 11: Compare unit fractions with different-sized models representing the whole.</p> <p>G3 M5 Lesson 13: Identify a shaded fractional part in different ways depending on the designation of the whole.</p> <p>G3 M5 Lesson 18: Compare fractions and whole numbers on the number line by reasoning about their distance from 0.</p> <p>G3 M5 Lesson 19: Understand distance and position on the number line as strategies for comparing fractions.</p> <p>G3 M5 Lesson 28: Compare fractions with the same numerator pictorially.</p> <p>G3 M5 Lesson 29: Compare fractions with the same numerator using $<$, $>$, or $=$, and use a model to reason about their size.</p> <p>G3 M7 Lesson 33: Solidify fluency with Grade 3 skills.</p>

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<p>3.NS.3.g</p> <p>Compare two fractions (proper or improper) and/or mixed numbers with like denominators of 2, 3, 4, 5, 6, 8, and 10 (e.g., $\frac{3}{6} < \frac{4}{6}$) using words (<i>greater than, less than, equal to</i>) and/or symbols ($>$, $<$, $=$), using area/region models, length models, and without models.</p>	<p>G3 M5 Lesson 10: Compare unit fractions by reasoning about their size using fraction strips.</p> <p>G3 M5 Lesson 11: Compare unit fractions with different-sized models representing the whole.</p> <p>G3 M5 Lesson 13: Identify a shaded fractional part in different ways depending on the designation of the whole.</p> <p>G3 M5 Lesson 18: Compare fractions and whole numbers on the number line by reasoning about their distance from 0.</p> <p>G3 M5 Lesson 19: Understand distance and position on the number line as strategies for comparing fractions.</p> <p>G3 M7 Lesson 33: Solidify fluency with Grade 3 skills.</p>
<p>3.NS.3.h</p> <p>Represent equivalent fractions with denominators of 2, 3, 4, 5, 6, 8, or 10, using region/area models and length models.</p>	<p>G3 M5 Topic E: Equivalent Fractions</p>

Number and Number Sense

3.NS.4 The student will solve problems, including those in context, that involve counting, comparing, representing, and making change for money amounts up to \$5.00.

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<p>3.NS.4.a</p> <p>Determine the value of a collection of bills and coins whose total is \$5.00 or less.</p>	<p>G2 M7 Lesson 6: Recognize the value of coins and count up to find their total value.</p> <p>G2 M7 Lesson 7: Solve word problems involving the total value of a group of coins.</p> <p>G2 M7 Lesson 8: Solve word problems involving the total value of a group of bills.</p> <p><i>Supplemental material is necessary to address determining the value of a collection of bills and coins whose total is greater than \$1.00.</i></p>
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<p>3.NS.4.b</p> <p>Construct a set of bills and coins to total a given amount of money whose value is \$5.00 or less.</p>	<p>G2 M7 Lesson 9: Solve word problems involving different combinations of coins with the same total value.</p> <p>G2 M7 Lesson 10: Use the fewest number of coins to make a given value.</p> <p><i>Supplemental material is necessary to address constructing a set of bills and coins to total an amount greater than \$1.00.</i></p>
<p>3.NS.4.c</p> <p>Compare the values of two sets of coins or two sets of bills and coins, up to \$5.00, with words (<i>greater than, less than, equal to</i>) and/or symbols ($>$, $<$, $=$) using concrete or pictorial models.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>3.NS.4.d</p> <p>Solve contextual problems to make change from \$5.00 or less by using counting on or counting back strategies with concrete or pictorial models.</p>	<p>G2 M7 Lesson 11: Use different strategies to make \$1 or make change from \$1.</p> <p>G2 M7 Lesson 12: Solve word problems involving different ways to make change from \$1.</p> <p><i>Supplemental material is necessary to address making change from amounts between \$1.00 and \$5.00.</i></p>

Computation and Estimation

3.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 where addends and minuends do not exceed 1,000.

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<p>3.CE.1.a</p> <p>Determine and justify whether an estimate or an exact answer is appropriate when solving single-step and multistep contextual problems involving addition and subtraction, where addends and minuends do not exceed 1,000.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>3.CE.1.b</p> <p>Apply strategies (e.g., rounding to the nearest 10 or 100, using compatible numbers, using other number relationships) to estimate a solution for single-step or multistep addition or subtraction problems, including those in context, where addends or minuends do not exceed 1,000.</p>	<p>G3 M2 Topic C: Rounding to the Nearest Ten and Hundred</p> <p>G3 M2 Lesson 17: Estimate sums by rounding and apply to solve measurement word problems.</p> <p>G3 M2 Lesson 20: Estimate differences by rounding and apply to solve measurement word problems.</p> <p>G3 M2 Lesson 21: Estimate sums and differences of measurements by rounding, and then solve mixed word problems.</p> <p>G3 M7 Lesson 33: Solidify fluency with Grade 3 skills.</p> <p>G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>

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<p>3.CE.1.c</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>G3 M2 Lesson 8: Solve one-step word problems involving metric weights within 100 and estimate to reason about solutions.</p> <p>G3 M2 Lesson 11: Solve mixed word problems involving all four operations with grams, kilograms, liters, and milliliters given in the same units.</p> <p>G3 M2 Topic D: Two- and Three-Digit Measurement Addition Using the Standard Algorithm</p> <p>G3 M2 Topic E: Two- and Three-Digit Measurement Subtraction Using the Standard Algorithm</p> <p>G3 M7 Lesson 33: Solidify fluency with Grade 3 skills.</p> <p>G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>
<p>3.CE.1.d</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>

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<p>3.CE.1.e</p> <p>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.</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>G3 M2 Lesson 8: Solve one-step word problems involving metric weights within 100 and estimate to reason about solutions.</p> <p>G3 M2 Lesson 11: Solve mixed word problems involving all four operations with grams, kilograms, liters, and milliliters given in the same units.</p> <p>G3 M2 Topic D: Two- and Three-Digit Measurement Addition Using the Standard Algorithm</p> <p>G3 M2 Topic E: Two- and Three-Digit Measurement Subtraction Using the Standard Algorithm</p> <p>G3 M7 Lesson 33: Solidify fluency with Grade 3 skills.</p> <p>G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>
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Computation and Estimation

3.CE.2 The student will recall with automaticity multiplication and division facts through 10×10 ; and represent, solve, and justify solutions to single-step contextual problems using multiplication and division with whole numbers.

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<p>3.CE.2.a</p> <p>Represent multiplication and division of whole numbers through 10×10, including in a contextual situation, using a variety of approaches and models (e.g., repeated addition/subtraction, equal-sized groups/sharing, arrays, equal jumps on a number line, using multiples to skip count).</p>	<p>G3 M1 Topic A: Multiplication and the Meaning of the Factors</p> <p>G3 M1 Topic B: Division as an Unknown Factor Problem</p> <p>G3 M1 Topic C: Multiplication Using Units of 2 and 3</p> <p>G3 M1 Topic D: Division Using Units of 2 and 3</p> <p>G3 M1 Lesson 17: Model the relationship between multiplication and division.</p> <p>G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>
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<p>3.CE.2.b</p> <p>Use inverse relationships to write the related facts connected to a given model for multiplication and division of whole numbers through 10×10.</p>	<p>G3 M1 Lesson 5: Understand the meaning of the unknown as the number of groups in division.</p> <p>G3 M1 Lesson 6: Interpret the unknown in division using the array model.</p> <p>G3 M1 Topic D: Division Using Units of 2 and 3</p> <p>G3 M1 Lesson 17: Model the relationship between multiplication and division.</p> <p>G3 M3 Lesson 4: Count by units of 6 to multiply and divide using number bonds to decompose.</p> <p>G3 M3 Lesson 5: Count by units of 7 to multiply and divide using number bonds to decompose.</p>
<p>3.CE.2.c</p> <p>Apply strategies (e.g., place value, the properties of multiplication and/or addition) when multiplying and dividing whole numbers.</p>	<p>G3 M1 Topic C: Multiplication Using Units of 2 and 3</p> <p>G3 M1 Lesson 15: Relate arrays to tape diagrams to model the commutative property of multiplication.</p> <p>G3 M1 Lesson 16: Use the distributive property as a strategy to find related multiplication facts.</p> <p>G3 M1 Lesson 18: Apply the distributive property to decompose units.</p> <p>G3 M1 Lesson 19: Apply the distributive property to decompose units.</p> <p>G3 M3 Lesson 1: Study commutativity to find known facts of 6, 7, 8, and 9.</p> <p>G3 M3 Lesson 2: Apply the distributive and commutative properties to relate multiplication facts $5 \times n + n$ to $6 \times n$ and $n \times 6$ where n is the size of the unit.</p> <p>G3 M3 Lesson 5: Count by units of 7 to multiply and divide using number bonds to decompose.</p> <p>G3 M3 Lesson 6: Use the distributive property as a strategy to multiply and divide using units of 6 and 7.</p> <p>G3 M3 Lesson 8: Understand the function of parentheses and apply to solving problems.</p> <p>G3 M3 Lesson 9: Model the associative property as a strategy to multiply.</p> <p>G3 M3 Lesson 10: Use the distributive property as a strategy to multiply and divide.</p> <p>G3 M3 Lesson 12: Apply the distributive property and the fact $9 = 10 - 1$ as a strategy to multiply.</p> <p>G3 M3 Lesson 20: Use place value strategies and the associative property $n \times (m \times 10) = (n \times m) \times 10$ (where n and m are less than 10) to multiply by multiples of 10.</p>

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<p>3.CE.2.c <i>continued</i></p>	<p>G3 M7 Lesson 33: Solidify fluency with Grade 3 skills. G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>
<p>3.CE.2.d</p> <p>Demonstrate fluency with multiplication facts through 10×10 by applying reasoning strategies (e.g., doubling, add-a-group, subtract-a-group, near squares, and inverse relationships).</p>	<p>G3 M1 Lesson 14: Skip-count objects in models to build fluency with multiplication facts using units of 4. G3 M1 Lesson 17: Model the relationship between multiplication and division. G3 M3 Topic A: The Properties of Multiplication and Division G3 M3 Topic B: Multiplication and Division Using Units of 6 and 7 G3 M3 Lesson 12: Apply the distributive property and the fact $9 = 10 - 1$ as a strategy to multiply. G3 M3 Lesson 13: Identify and use arithmetic patterns to multiply. G3 M3 Lesson 14: Identify and use arithmetic patterns to multiply. G3 M3 Lesson 16: Reason about and explain arithmetic patterns using units of 0 and 1 as they relate to multiplication and division. G3 M3 Lesson 17: Identify patterns in multiplication and division facts using the multiplication table. G3 M7 Lesson 33: Solidify fluency with Grade 3 skills. G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>
<p>3.CE.2.e</p> <p>Represent, solve, and justify solutions to single-step contextual problems that involve multiplication and division of whole numbers through 10×10.</p>	<p>G3 M1 Topic D: Division Using Units of 2 and 3 G3 M1 Lesson 20: Solve two-step word problems involving multiplication and division and assess the reasonableness of answers. G3 M1 Lesson 21: Solve two-step word problems involving all four operations and assess the reasonableness of answers. G3 M3 Lesson 7: Interpret the unknown in multiplication and division to model and solve problems using units of 6 and 7. G3 M3 Lesson 11: Interpret the unknown in multiplication and division to model and solve problems. G3 M3 Lesson 15: Interpret the unknown in multiplication and division to model and solve problems.</p>

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<p>3.CE.2.e <i>continued</i></p>	<p>G3 M3 Lesson 18: Solve two-step word problems involving all four operations and assess the reasonableness of solutions.</p> <p>G3 M7 Lesson 33: Solidify fluency with Grade 3 skills.</p>
<p>3.CE.2.f</p> <p>Recall with automaticity the multiplication facts through 10×10 and the corresponding division facts.</p>	<p>G3 M1 Lesson 14: Skip-count objects in models to build fluency with multiplication facts using units of 4.</p> <p>G3 M1 Lesson 17: Model the relationship between multiplication and division.</p> <p>G3 M3 Topic A: The Properties of Multiplication and Division</p> <p>G3 M3 Topic B: Multiplication and Division Using Units of 6 and 7</p> <p>G3 M3 Lesson 12: Apply the distributive property and the fact $9 = 10 - 1$ as a strategy to multiply.</p> <p>G3 M3 Lesson 13: Identify and use arithmetic patterns to multiply.</p> <p>G3 M3 Lesson 14: Identify and use arithmetic patterns to multiply.</p> <p>G3 M3 Lesson 16: Reason about and explain arithmetic patterns using units of 0 and 1 as they relate to multiplication and division.</p> <p>G3 M3 Lesson 17: Identify patterns in multiplication and division facts using the multiplication table.</p> <p>G3 M7 Lesson 33: Solidify fluency with Grade 3 skills.</p> <p>G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>
<p>3.CE.2.g</p> <p>Create an equation to represent the mathematical relationship between equivalent expressions using multiplication and/or division facts through 10×10 (e.g., $4 \times 3 = 14 - 2$, $35 \div 5 = 1 \times 7$).</p>	<p>G3 M1 Lesson 10: Model the distributive property with arrays to decompose units as a strategy to multiply.</p> <p>G3 M1 Lesson 16: Use the distributive property as a strategy to find related multiplication facts.</p> <p>G3 M1 Lesson 18: Apply the distributive property to decompose units.</p> <p>G3 M1 Lesson 19: Apply the distributive property to decompose units.</p> <p>G3 M3 Lesson 1: Study commutativity to find known facts of 6, 7, 8, and 9.</p> <p>G3 M3 Lesson 6: Use the distributive property as a strategy to multiply and divide using units of 6 and 7.</p>

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3.CE.2.g <i>continued</i>	<p>G3 M3 Lesson 8: Understand the function of parentheses and apply to solving problems.</p> <p>G3 M3 Lesson 9: Model the associative property as a strategy to multiply.</p> <p>G3 M3 Lesson 10: Use the distributive property as a strategy to multiply and divide.</p> <p>G3 M3 Lesson 12: Apply the distributive property and the fact $9 = 10 - 1$ as a strategy to multiply.</p> <p>G3 M3 Lesson 20: Use place value strategies and the associative property $n \times (m \times 10) = (n \times m) \times 10$ (where n and m are less than 10) to multiply by multiples of 10.</p>
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Measurement and Geometry

3.MG.1 The student will reason mathematically using standard units (U.S. Customary and metric) with appropriate tools to estimate and measure objects by length, weight/mass, and liquid volume to the nearest half or whole unit.

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<p>3.MG.1.a</p> <p>Justify whether an estimate or an exact measurement is needed for a contextual situation and choose an appropriate unit.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>3.MG.1.b</p> <p>Estimate and measure:</p>	<p><i>This standard is addressed by the lessons aligned to its subsections.</i></p>

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<p>3.MG.1.b.i</p> <p>length of an object to the nearest U.S. Customary unit ($\frac{1}{2}$ inch, inch, foot, yard) and metric unit (centimeter, meter);</p>	<p>G2 M2 Topic A: Understand Concepts About the Ruler</p> <p>G2 M2 Lesson 4: Measure various objects using centimeter rulers and meter sticks.</p> <p>G2 M2 Lesson 6: Measure and compare lengths using centimeters and meters.</p> <p>G2 M7 Topic C: Creating an Inch Ruler</p> <p>G2 M7 Lesson 16: Measure various objects using inch rulers and yardsticks.</p> <p>G2 M7 Lesson 17: Develop estimation strategies by applying prior knowledge of length and using mental benchmarks.</p> <p>G2 M7 Lesson 19: Measure to compare the differences in length using inches, feet, and yards.</p>
<p>3.MG.1.b.ii</p> <p>weight/mass of an object to the nearest U.S. Customary unit (pound) and metric unit (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><i>Supplemental material is necessary to address estimating and measuring weight in pounds.</i></p>
<p>3.MG.1.b.iii</p> <p>liquid volume to the nearest U.S. Customary unit (cup, pint, quart, gallon) and metric unit (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><i>Supplemental material is necessary to address estimating and measuring liquid volume in cups, pints, quarts, and gallons.</i></p>

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<p>3.MG.1.c</p>	<p>G2 M7 Lesson 17: Develop estimation strategies by applying prior knowledge of length and using mental benchmarks.</p>
<p>Compare estimates of length, weight/mass, or liquid volume with the actual measurements.</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 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><i>Supplemental material is necessary to address comparing estimates with actual measurements in U.S. Customary units.</i></p>

Measurement and Geometry

3.MG.2 The student will use multiple representations to estimate and solve problems, including those in context, involving area and perimeter (in both U.S. Customary and metric units).

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<p>3.MG.2.a</p>	<p><i>This standard is addressed by the lessons aligned to its subsections.</i></p>
<p>Solve problems, including those in context, involving area:</p>	
<p>3.MG.2.a.i</p>	<p>G3 M4 Lesson 1: Understand area as an attribute of plane figures.</p>
<p>describe and give examples of area as a measurement in contextual situations; and</p>	<p>G3 M4 Lesson 2: Decompose and recompose shapes to compare areas.</p>
	<p>G3 M4 Lesson 6: Draw rows and columns to determine the area of a rectangle given an incomplete array.</p>
	<p>G3 M4 Lesson 12: Solve word problems involving area.</p>
	<p>G3 M4 Lesson 15: Apply knowledge of area to determine areas of rooms in a given floor plan.</p>
	<p>G3 M4 Lesson 16: Apply knowledge of area to determine areas of rooms in a given floor plan.</p>

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<p>3.MG.2.a.i <i>continued</i></p>	<p>G3 M7 Lesson 28: Solve a variety of word problems involving area and perimeter using all four operations.</p> <p>G3 M7 Lesson 29: Solve a variety of word problems involving area and perimeter using all four operations.</p>
<p>3.MG.2.a.ii</p> <p>estimate and determine the area of a given surface by counting the number of square units, describe the measurement (using the number and unit) and justify the measurement.</p>	<p>G3 M4 Lesson 2: Decompose and recompose shapes to compare areas.</p> <p>G3 M4 Lesson 3: Model tiling with centimeter and inch unit squares as a strategy to measure area.</p> <p>G3 M4 Lesson 4: Relate side lengths with the number of tiles on a side.</p> <p>G3 M4 Lesson 5: Form rectangles by tiling with unit squares to make arrays.</p> <p>G3 M4 Lesson 6: Draw rows and columns to determine the area of a rectangle given an incomplete array.</p> <p>G3 M4 Lesson 7: Interpret area models to form rectangular arrays.</p> <p><i>Supplemental material is necessary to address estimating the area of a given surface.</i></p>
<p>3.MG.2.b</p> <p>Solve problems, including those in context, involving perimeter:</p>	<p><i>This standard is addressed by the lessons aligned to its subsections.</i></p>
<p>3.MG.2.b.i</p> <p>describe and give examples of perimeter as a measurement in contextual situations;</p>	<p>G3 M7 Lesson 15: Solve word problems to determine perimeter with given side lengths.</p> <p>G3 M7 Lesson 23: Solve a variety of word problems with perimeter.</p> <p>G3 M7 Lesson 28: Solve a variety of word problems involving area and perimeter using all four operations.</p> <p>G3 M7 Lesson 29: Solve a variety of word problems involving area and perimeter using all four operations.</p>

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<p>3.MG.2.b.ii</p> <p>estimate and measure the distance around a polygon (with no more than six sides) to determine the perimeter and justify the measurement; and</p>	<p>G3 M7 Lesson 10: Decompose quadrilaterals to understand perimeter as the boundary of a shape.</p> <p>G3 M7 Lesson 11: Tessellate to understand perimeter as the boundary of a shape.</p> <p>G3 M7 Lesson 12: Measure side lengths in whole number units to determine the perimeter of polygons.</p> <p>G3 M7 Lesson 16: Use string to measure the perimeter of various circles to the nearest quarter inch.</p> <p>G3 M7 Lesson 18: Construct rectangles from a given number of unit squares and determine the 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><i>Supplemental material is necessary to address estimating the distance around a polygon.</i></p>
<p>3.MG.2.b.iii</p> <p>given the lengths of all sides of a polygon (with no more than six sides), determine its perimeter and justify the measurement.</p>	<p>G3 M7 Lesson 13: Explore perimeter as an attribute of plane figures and solve problems.</p> <p>G3 M7 Lesson 14: Determine the perimeter of regular polygons and rectangles when whole number measurements are unknown.</p> <p>G3 M7 Lesson 17: Use all four operations to solve problems involving perimeter and unknown measurements.</p>

Measurement and Geometry

3.MG.3 The student will demonstrate an understanding of the concept of time to the nearest minute and solve single-step contextual problems involving elapsed time in one-hour increments within a 12-hour period.

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<p>3.MG.3.a</p> <p>Tell and write time to the nearest minute, using analog and digital clocks.</p>	<p>G3 M2 Lesson 1: Explore time as a continuous measurement using a stopwatch.</p> <p>G3 M2 Lesson 2: Relate skip-counting by fives on the clock and telling time to a continuous measurement model, the number line.</p> <p>G3 M2 Lesson 3: Count by fives and ones on the number line as a strategy to tell time to the nearest minute on the clock.</p> <p>G3 M2 Lesson 12: Round two-digit measurements to the nearest ten on the vertical number line.</p> <p>G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>
<p>3.MG.3.b</p> <p>Match a written time (e.g., 4:38, 7:09, 12:51) to the time shown on analog and digital clocks to the nearest minute.</p>	<p>G3 M2 Lesson 1: Explore time as a continuous measurement using a stopwatch.</p> <p>G3 M2 Lesson 2: Relate skip-counting by fives on the clock and telling time to a continuous measurement model, the number line.</p> <p>G3 M2 Lesson 3: Count by fives and ones on the number line as a strategy to tell time to the nearest minute on the clock.</p> <p>G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>
<p>3.MG.3.c</p> <p>Solve single-step contextual problems involving elapsed time in one-hour increments, within a 12-hour period (within a.m. or within p.m.) when given:</p>	<p><i>This standard is addressed by the lessons aligned to its subsections.</i></p>

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<p>3.MG.3.c.i the starting time and the ending time, determine the amount of time that has elapsed;</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. G3 M2 Lesson 5: Solve word problems involving time intervals within 1 hour by adding and subtracting on the number line. G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>
<p>3.MG.3.c.ii the starting time and amount of elapsed time in one-hour increments, 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. G3 M2 Lesson 5: Solve word problems involving time intervals within 1 hour by adding and subtracting on the number line. G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>
<p>3.MG.3.c.iii the ending time and the amount of elapsed time in one-hour increments, 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. G3 M2 Lesson 5: Solve word problems involving time intervals within 1 hour by adding and subtracting on the number line. G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>

Measurement and Geometry

3.MG.4 The student will identify, describe, classify, compare, combine, and subdivide polygons.

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<p>3.MG.4.a Describe a polygon as a closed plane figure composed of at least three line segments that do not cross.</p>	<p>G2 M8 Lesson 2: Build, identify, and analyze two-dimensional shapes with specified attributes.</p>
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<p>3.MG.4.b</p> <p>Classify figures as polygons or not polygons and justify reasoning.</p>	<p>G2 M8 Lesson 2: Build, identify, and analyze two-dimensional shapes with specified attributes.</p> <p>G2 M8 Lesson 3: Use attributes to draw different polygons including triangles, quadrilaterals, pentagons, and hexagons.</p>
<p>3.MG.4.c</p> <p>Identify and describe triangles, quadrilaterals, pentagons, hexagons, and octagons in various orientations, with and without contexts.</p>	<p>G2 M8 Lesson 1: Describe two-dimensional shapes based on attributes.</p> <p>G2 M8 Lesson 2: Build, identify, and analyze two-dimensional shapes with specified attributes.</p> <p>G2 M8 Lesson 3: Use attributes to draw different polygons including triangles, quadrilaterals, pentagons, and hexagons.</p> <p>G2 M8 Lesson 4: Use attributes to identify and draw different quadrilaterals including rectangles, rhombuses, parallelograms, and trapezoids.</p>
<p>3.MG.4.d</p> <p>Identify and name examples of polygons (triangles, quadrilaterals, pentagons, hexagons, octagons) in the environment.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>3.MG.4.e</p> <p>Classify and compare polygons (triangles, quadrilaterals, pentagons, hexagons, octagons).</p>	<p>G2 M8 Lesson 1: Describe two-dimensional shapes based on attributes.</p> <p>G2 M8 Lesson 3: Use attributes to draw different polygons including triangles, quadrilaterals, pentagons, and hexagons.</p> <p>G2 M8 Lesson 4: Use attributes to identify and draw different quadrilaterals including rectangles, rhombuses, parallelograms, and trapezoids.</p> <p>G3 M7 Lesson 4: Compare and classify quadrilaterals.</p> <p>G3 M7 Lesson 5: Compare and classify other polygons.</p>

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<p>3.MG.4.f</p> <p>Combine no more than three polygons, where each has three or four sides, and name the resulting polygon (triangles, quadrilaterals, pentagons, hexagons, octagons).</p>	<p>G2 M8 Lesson 6: Combine shapes to create a composite shape; create a new shape from composite shapes.</p> <p>G3 M7 Lesson 7: Reason about composing and decomposing polygons using tetrominoes.</p> <p>G3 M7 Lesson 8: Create a tangram puzzle and observe relationships among the shapes.</p> <p>G3 M7 Lesson 9: Reason about composing and decomposing polygons using tangrams.</p>
<p>3.MG.4.g</p> <p>Subdivide a three-sided or four-sided polygon into no more than three parts and name the resulting polygons.</p>	<p>G2 M8 Lesson 6: Combine shapes to create a composite shape; create a new shape from composite shapes.</p> <p>G3 M7 Lesson 7: Reason about composing and decomposing polygons using tetrominoes.</p> <p>G3 M7 Lesson 8: Create a tangram puzzle and observe relationships among the shapes.</p> <p>G3 M7 Lesson 9: Reason about composing and decomposing polygons using tangrams.</p>

Probability and Statistics

3.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 pictographs and bar graphs.

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<p>3.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>3.PS.1.b</p> <p>Determine the data needed to answer a formulated question and collect or acquire existing data (limited to 30 or fewer data points for no more than eight categories) using various methods (e.g., polls, observations, tallies).</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p>3.PS.1.c</p> <p>Organize and represent a data set using pictographs that include an appropriate title, labeled axes, and key. Each pictograph symbol should represent 1, 2, 5 or 10 data points.</p>	<p>G3 M6 Lesson 1: Generate and organize data.</p> <p>G3 M6 Lesson 9: Analyze data to problem solve.</p> <p>G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>
<p>3.PS.1.d</p> <p>Organize and represent a data set using bar graphs with a title and labeled axes, with and without the use of technology tools. Determine and use an appropriate scale (increments limited to multiples of 1, 2, 5 or 10).</p>	<p>G3 M6 Lesson 2: Rotate tape diagrams vertically.</p> <p>G3 M6 Lesson 3: Create scaled bar graphs.</p> <p>G3 M6 Lesson 4: Solve one- and two-step problems involving graphs.</p> <p>G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p> <p><i>Supplemental material is necessary to address the use of technology tools.</i></p>
<p>3.PS.1.e</p> <p>Analyze data represented in pictographs and bar graphs, and communicate results orally and in writing:</p>	<p><i>This standard is addressed by the lessons aligned to its subsections.</i></p>

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<p>3.PS.1.e.i</p> <p>describe the categories of data and the data as a whole (e.g., data were collected on preferred ways to cook or prepare eggs – scrambled, fried, hard boiled, and egg salad);</p>	<p>G3 M6 Topic A: Generate and Analyze Categorical Data</p> <p>G3 M6 Lesson 9: Analyze data to problem solve.</p> <p>G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>
<p>3.PS.1.e.ii</p> <p>identify parts of the data that have special characteristics, including categories with the greatest, the least, or the same (e.g., most students prefer scrambled eggs);</p>	<p>G3 M6 Topic A: Generate and Analyze Categorical Data</p> <p>G3 M6 Lesson 9: Analyze data to problem solve.</p> <p>G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>
<p>3.PS.1.e.iii</p> <p>make inferences about data represented in pictographs and bar graphs;</p>	<p>G3 M6 Topic A: Generate and Analyze Categorical Data</p> <p>G3 M6 Lesson 9: Analyze data to problem solve.</p> <p>G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>
<p>3.PS.1.e.iv</p> <p>use characteristics of the data to draw conclusions about the data and make predictions based on the data (e.g., it is unlikely that a third grader would like hard boiled eggs); and</p>	<p>G3 M6 Topic A: Generate and Analyze Categorical Data</p> <p>G3 M6 Lesson 9: Analyze data to problem solve.</p> <p>G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>
<p>3.PS.1.e.v</p> <p>solve one- and two-step addition and subtraction problems using data from pictographs and bar graphs.</p>	<p>G3 M6 Topic A: Generate and Analyze Categorical Data</p> <p>G3 M6 Lesson 9: Analyze data to problem solve.</p> <p>G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.</p>

Patterns, Functions, and Algebra

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

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<p>3.PFA.1.a</p> <p>Identify and describe increasing and decreasing patterns using various representations (e.g., objects, pictures, numbers, number lines).</p>	<p>G3 M1 Lesson 7: Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models.</p> <p>G3 M1 Lesson 8: Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models.</p> <p>G3 M1 Lesson 9: Find related multiplication facts by adding and subtracting equal groups in array models.</p> <p>G3 M1 Lesson 14: Skip-count objects in models to build fluency with multiplication facts using units of 4.</p> <p>G3 M3 Lesson 4: Count by units of 6 to multiply and divide using number bonds to decompose.</p> <p>G3 M3 Lesson 5: Count by units of 7 to multiply and divide using number bonds to decompose.</p> <p>G3 M3 Lesson 13: Identify and use arithmetic patterns to multiply.</p> <p>G3 M3 Lesson 14: Identify and use arithmetic patterns to multiply.</p> <p>G3 M3 Lesson 16: Reason about and explain arithmetic patterns using units of 0 and 1 as they relate to multiplication and division.</p> <p>G3 M3 Lesson 17: Identify patterns in multiplication and division facts using the multiplication table.</p> <p><i>Supplemental material is necessary to address patterns using objects, pictures, and number lines.</i></p>

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<p>3.PFA.1.b</p> <p>Analyze an increasing or decreasing pattern and generalize the change to extend the pattern or identify missing terms using various representations.</p>	<p>G3 M1 Lesson 7: Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models.</p> <p>G3 M1 Lesson 8: Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models.</p> <p>G3 M1 Lesson 9: Find related multiplication facts by adding and subtracting equal groups in array models.</p> <p>G3 M1 Lesson 14: Skip-count objects in models to build fluency with multiplication facts using units of 4.</p> <p>G3 M3 Lesson 4: Count by units of 6 to multiply and divide using number bonds to decompose.</p> <p>G3 M3 Lesson 5: Count by units of 7 to multiply and divide using number bonds to decompose.</p> <p>G3 M3 Lesson 13: Identify and use arithmetic patterns to multiply.</p> <p>G3 M3 Lesson 14: Identify and use arithmetic patterns to multiply.</p> <p>G3 M3 Lesson 16: Reason about and explain arithmetic patterns using units of 0 and 1 as they relate to multiplication and division.</p> <p>G3 M3 Lesson 17: Identify patterns in multiplication and division facts using the multiplication table.</p> <p><i>Supplemental material is necessary to address patterns using various representations.</i></p>
<p>3.PFA.1.c</p> <p>Solve contextual problems that involve identifying, describing, and extending patterns.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>

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<p>3.PFA.1.d</p> <p>Create increasing and decreasing patterns using objects, pictures, numbers, and number lines.</p>	<p>G3 M1 Lesson 7: Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models.</p> <p>G3 M1 Lesson 8: Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models.</p> <p>G3 M1 Lesson 9: Find related multiplication facts by adding and subtracting equal groups in array models.</p> <p>G3 M1 Lesson 14: Skip-count objects in models to build fluency with multiplication facts using units of 4.</p> <p>G3 M3 Lesson 4: Count by units of 6 to multiply and divide using number bonds to decompose.</p> <p>G3 M3 Lesson 5: Count by units of 7 to multiply and divide using number bonds to decompose.</p> <p>G3 M3 Lesson 13: Identify and use arithmetic patterns to multiply.</p> <p>G3 M3 Lesson 14: Identify and use arithmetic patterns to multiply.</p> <p>G3 M3 Lesson 16: Reason about and explain arithmetic patterns using units of 0 and 1 as they relate to multiplication and division.</p> <p>G3 M3 Lesson 17: Identify patterns in multiplication and division facts using the multiplication table.</p> <p><i>Supplemental material is necessary to address patterns using objects, pictures, and number lines.</i></p>
<p>3.PFA.1.e</p> <p>Investigate and explain the connection between two different representations of the same increasing or decreasing pattern.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>