

SIDE BY SIDE OF OKLAHOMA PASS STRANDDDS AND COMMON CORE STATE STANDARDS

PASS		PASS	Strand and Standard	Grade	Common Core State Standard
Strand	Standard #				
THIRD GRADE					
* Legends/Abbreviations can be found in a separate table.					
A		Standard 1: Algebraic Reasoning: Patterns and Relationships - The student will use a variety of problem-solving approaches to extend and create patterns.			
A	1.1	Describe (orally or in written form), create, extend and predict patterns in a variety of situations (e.g., 3, 6, 9, 12 . . . , use a function machine to generate input and output values for a table, show multiplication patterns on a hundreds chart, determine a rule and generate additional pairs with the same relationship).	OA..5	4	Generate and analyze patterns. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.
A	1.1	Describe (orally or in written form), create, extend and predict patterns in a variety of situations (e.g., 3, 6, 9, 12 . . . , use a function machine to generate input and output values for a table, show multiplication patterns on a hundreds chart, determine a rule and generate additional pairs with the same relationship).	OA.9	3	Solve problems involving the four operations, and identify and explain patterns in arithmetic. Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.

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A	1.2	Find unknowns in simple arithmetic problems by solving open sentences (equations) and other problems involving addition, subtraction, and multiplication.	OA.2	4	Use the four operations with whole numbers to solve problems. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.
A	1.2	Find unknowns in simple arithmetic problems by solving open sentences (equations) and other problems involving addition, subtraction, and multiplication.	OA.3	3	Represent and solve problems involving multiplication and division. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
A	1.2	Find unknowns in simple arithmetic problems by solving open sentences (equations) and other problems involving addition, subtraction, and multiplication.	OA.4	3	Represent and solve problems involving multiplication and division. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = _ \div 3$, $6 \times 6 = ?$.
A	1.2	Find unknowns in simple arithmetic problems by solving open sentences (equations) and other problems involving addition, subtraction, and multiplication.	OA.6	3	Understand properties of multiplication and the relationship between multiplication and division. Understand division as an unknown-factor problem. For example, divide $32 \div 8$ by finding the number that makes 32 when multiplied by 8.

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A	1.2	Find unknowns in simple arithmetic problems by solving open sentences (equations) and other problems involving addition, subtraction, and multiplication.	OA.8	3	Solve problems involving the four operations, and identify and explain patterns in arithmetic. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).)
A	1.3	Recognize and apply the commutative and identity properties of multiplication using models and manipulative to develop computational skills (e.g., $3 \cdot 5 = 5 \cdot 3$, $7 \cdot 1 = 7$).	OA.1	4	Use the four operations with whole numbers to solve problems. Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
A	1.3	Recognize and apply the commutative and identity properties of multiplication using models and manipulative to develop computational skills (e.g., $3 \cdot 5 = 5 \cdot 3$, $7 \cdot 1 = 7$).	OA.5	3	Understand properties of multiplication and the relationship between multiplication and division. Apply properties of operations as strategies to multiply and divide. Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$ then $15 \times 2 = 30$, or by $5 \times 2 = 10$ then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.) (Students need not use formal terms for these properties.)
A	1.3	Recognize and apply the commutative and identity properties of multiplication using models and manipulative to develop computational skills (e.g., $3 \cdot 5 = 5 \cdot 3$, $7 \cdot 1 = 7$).	OA.9	3	Solve problems involving the four operations, and identify and explain patterns in arithmetic. Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.

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N	2	Standard 2: Number Sense and Operation - The student will use numbers and number relationships to acquire basic facts. The student will estimate and compute with whole numbers.			
N	2.1a	Number Sense: Place Value: i. Model the concept of place value through 4 digits (e.g., base-10 blocks, bundles of 10s, place value mats). ii. Read and write whole numbers up to 4 digits (e.g., expanded form, standard form).	NBT.2	4	Generalize place value understanding for multi-digit whole numbers. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.)
N	2.1a	Number Sense: Place Value: i. Model the concept of place value through 4 digits (e.g., base-10 blocks, bundles of 10s, place value mats). ii. Read and write whole numbers up to 4 digits (e.g., expanded form, standard form).	NBT.3	2	Understand place value. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
N	2.1b	Whole Numbers and Fractions: Number Sense: i. Compare and order whole numbers up to 4 digits. ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).	NBT.2	4	Generalize place value understanding for multi-digit whole numbers. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.)
N	2.1b	Whole Numbers and Fractions: Number Sense: i. Compare and order whole numbers up to 4 digits. ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).	NF.1	4	Extend understanding of fraction equivalence and ordering. Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)

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N	2.1b	<p>Whole Numbers and Fractions: Number Sense:</p> <p>i. Compare and order whole numbers up to 4 digits.</p> <p>ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).</p>	NF.2	4	<p>Extend understanding of fraction equivalence and ordering. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model. (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)</p>
N	2.1b	<p>Whole Numbers and Fractions: Number Sense:</p> <p>i. Compare and order whole numbers up to 4 digits.</p> <p>ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).</p>	NF.3	4	<p>Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. Understand a fraction $\frac{a}{b}$ with $a > 1$ as a sum of fractions $\frac{1}{b}$. (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)</p>
N	2.1b	<p>Whole Numbers and Fractions: Number Sense:</p> <p>i. Compare and order whole numbers up to 4 digits.</p> <p>ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).</p>	NF.3a	4	<p>Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.</p>

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N	2.1b	<p>Whole Numbers and Fractions: Number Sense:</p> <p>i. Compare and order whole numbers up to 4 digits.</p> <p>ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).</p>	NF.3b	4	<p>Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$; $\frac{3}{8} = \frac{1}{8} + \frac{2}{8}$; $2 \frac{1}{8} = 1 + 1 + \frac{1}{8} = \frac{8}{8} + \frac{8}{8} + \frac{1}{8}$.</p>
N	2.1b	<p>Whole Numbers and Fractions: Number Sense:</p> <p>i. Compare and order whole numbers up to 4 digits.</p> <p>ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).</p>	NF.4	4	<p>Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)</p>
N	2.1b	<p>Whole Numbers and Fractions: Number Sense:</p> <p>i. Compare and order whole numbers up to 4 digits.</p> <p>ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).</p>	NF.5	4	<p>Understand decimal notation for fractions, and compare decimal fractions. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. For example, express $\frac{3}{10}$ as $\frac{30}{100}$ and add $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$. (Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.) (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)</p>

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N	2.1b	Whole Numbers and Fractions: Number Sense: i. Compare and order whole numbers up to 4 digits. ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).	NF.7	4	Understand decimal notation for fractions, and compare decimal fractions. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons comparisons are valid only when two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model. (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)
N	2.1b	Whole Numbers and Fractions: Number Sense: i. Compare and order whole numbers up to 4 digits. ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).	NF.1	3	Develop understanding of fractions as numbers. Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)
N	2.1b	Whole Numbers and Fractions: Number Sense: i. Compare and order whole numbers up to 4 digits. ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).	NF.2	3	Develop understanding of fractions as numbers. Understand a fraction as a number on the number line; represent fractions on a number line diagram. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)
N	2.1b	Whole Numbers and Fractions: Number Sense: i. Compare and order whole numbers up to 4 digits. ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).	NF.2a	3	Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)

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N	2.1b	Whole Numbers and Fractions: Number Sense: i. Compare and order whole numbers up to 4 digits. ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).	NF.2b	3	Represent a fraction a/b on a number line diagram by marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)
N	2.1b	Whole Numbers and Fractions: Number Sense: i. Compare and order whole numbers up to 4 digits. ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).	NF.3	3	Develop understanding of fractions as numbers. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)
N	2.1b	Whole Numbers and Fractions: Number Sense: i. Compare and order whole numbers up to 4 digits. ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).	NF.3a	3	Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)
N	2.1b	Whole Numbers and Fractions: Number Sense: i. Compare and order whole numbers up to 4 digits. ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).	NF.3b	3	Recognize and generate simple equivalent fractions (e.g., $1/2 = 2/4$, $4/6 = 2/3$), Explain why the fractions are equivalent, e.g., by using a visual fraction model. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)

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N	2.1b	Whole Numbers and Fractions: Number Sense: i. Compare and order whole numbers up to 4 digits. ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).	NF.3c	3	Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)
N	2.1b	Whole Numbers and Fractions: Number Sense: i. Compare and order whole numbers up to 4 digits. ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).	NF.3d	3	Compare two fractions with the same numerator or the same denominator, by reasoning about their size, Recognize that valid comparisons rely on the two fractions referring to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)
N	2.2a	Number Operations: Estimate and find the sum or difference (with and without regrouping) of 3- and 4-digit numbers using a variety of strategies to solve application problems.	NBT.4	4	Use place value understanding and properties of operations to perform multi-digit arithmetic. Fluently add and subtract multi-digit whole numbers using the standard algorithm. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000. A range of algorithms may be used.)
N	2.2a	Number Operations: Estimate and find the sum or difference (with and without regrouping) of 3- and 4-digit numbers using a variety of strategies to solve application problems.	NBT.7	2	Use place value understanding and properties of operations to add and subtract. Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

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N	2.2a	Number Operations: Estimate and find the sum or difference (with and without regrouping) of 3- and 4-digit numbers using a variety of strategies to solve application problems.	OA.8	3	Solve problems involving the four operations, and identify and explain patterns in arithmetic. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).)
N	2.2a	Number Operations: Estimate and find the sum or difference (with and without regrouping) of 3- and 4-digit numbers using a variety of strategies to solve application problems.	NBT.1	3	Use place value understanding and properties of operations to perform multi-digit arithmetic. Use place value understanding to round whole numbers to the nearest 10 or 100.
N	2.2a	Number Operations: Estimate and find the sum or difference (with and without regrouping) of 3- and 4-digit numbers using a variety of strategies to solve application problems.	NBT.2	3	Use place value understanding and properties of operations to perform multi-digit arithmetic. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. (A range of algorithms may be used.)
N	2.2b	Number Operations: Multiplication Concepts and Fact Families: i. Use physical models and a variety of multiplication algorithms to find the product of multiplication problems with one-digit multipliers. ii. Demonstrate fluency (memorize and apply) with basic multiplication facts up to 10×10 and the associated division facts (e.g., $5 \times 6 = 30$ and $30 \div 6 = 5$). iii. Estimate the product of 2-digit by 2-digit numbers by rounding to the nearest multiple of 10 to solve application problems.	OA.1	4	Use the four operations with whole numbers to solve problems. Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.

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N	2.2b	<p>Number Operations: Multiplication Concepts and Fact Families:</p> <p>i. Use physical models and a variety of multiplication algorithms to find the product of multiplication problems with one-digit multipliers.</p> <p>ii. Demonstrate fluency (memorize and apply) with basic multiplication facts up to 10×10 and the associated division facts (e.g., $5 \times 6 = 30$ and $30 \div 6 = 5$).</p> <p>iii. Estimate the product of 2-digit by 2-digit numbers by rounding to the nearest multiple of 10 to solve application problems.</p>	NBT.5	4	<p>Use place value understanding and properties of operations to perform multi-digit arithmetic. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000. A range of algorithms may be used.)</p>
N	2.2b	<p>Number Operations: Multiplication Concepts and Fact Families:</p> <p>i. Use physical models and a variety of multiplication algorithms to find the product of multiplication problems with one-digit multipliers.</p> <p>ii. Demonstrate fluency (memorize and apply) with basic multiplication facts up to 10×10 and the associated division facts (e.g., $5 \times 6 = 30$ and $30 \div 6 = 5$).</p> <p>iii. Estimate the product of 2-digit by 2-digit numbers by rounding to the nearest multiple of 10 to solve application problems.</p>	NBT.6	4	<p>Use place value understanding and properties of operations to perform multi-digit arithmetic. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000. A range of algorithms may be used.)</p>
N	2.2b	<p>Number Operations: Multiplication Concepts and Fact Families:</p> <p>i. Use physical models and a variety of multiplication algorithms to find the product of multiplication problems with one-digit multipliers.</p> <p>ii. Demonstrate fluency (memorize and apply) with basic multiplication facts up to 10×10 and the associated division facts (e.g., $5 \times 6 = 30$ and $30 \div 6 = 5$).</p> <p>iii. Estimate the product of 2-digit by 2-digit numbers by rounding to the nearest multiple of 10 to solve application problems.</p>	OA.4	2	<p>Work with equal groups of objects to gain foundations for multiplication. Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.</p>

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N	2.2b	<p>Number Operations: Multiplication Concepts and Fact Families: i. Use physical models and a variety of multiplication algorithms to find the product of multiplication problems with one-digit multipliers. ii. Demonstrate fluency (memorize and apply) with basic multiplication facts up to 10×10 and the associated division facts (e.g., $5 \times 6 = 30$ and $30 \div 6 = 5$). iii. Estimate the product of 2-digit by 2-digit numbers by rounding to the nearest multiple of 10 to solve application problems.</p>	OA.1	3	<p>Represent and solve problems involving multiplication and division. Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5×7.</p>
N	2.2b	<p>Number Operations: Multiplication Concepts and Fact Families: i. Use physical models and a variety of multiplication algorithms to find the product of multiplication problems with one-digit multipliers. ii. Demonstrate fluency (memorize and apply) with basic multiplication facts up to 10×10 and the associated division facts (e.g., $5 \times 6 = 30$ and $30 \div 6 = 5$). iii. Estimate the product of 2-digit by 2-digit numbers by rounding to the nearest multiple of 10 to solve application problems.</p>	OA.2	3	<p>Represent and solve problems involving multiplication and division. Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.</p>

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N	2.2b	<p>Number Operations: Multiplication Concepts and Fact Families:</p> <p>i. Use physical models and a variety of multiplication algorithms to find the product of multiplication problems with one-digit multipliers.</p> <p>ii. Demonstrate fluency (memorize and apply) with basic multiplication facts up to 10×10 and the associated division facts (e.g., $5 \times 6 = 30$ and $30 \div 6 = 5$).</p> <p>iii. Estimate the product of 2-digit by 2-digit numbers by rounding to the nearest multiple of 10 to solve application problems.</p>	OA.3	3	<p>Represent and solve problems involving multiplication and division. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.</p>
N	2.2b	<p>Number Operations: Multiplication Concepts and Fact Families:</p> <p>i. Use physical models and a variety of multiplication algorithms to find the product of multiplication problems with one-digit multipliers.</p> <p>ii. Demonstrate fluency (memorize and apply) with basic multiplication facts up to 10×10 and the associated division facts (e.g., $5 \times 6 = 30$ and $30 \div 6 = 5$).</p> <p>iii. Estimate the product of 2-digit by 2-digit numbers by rounding to the nearest multiple of 10 to solve application problems.</p>	OA.7	3	<p>Multiply and divide within 100. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of one-digit numbers.</p>
N	2.2b	<p>Number Operations: Multiplication Concepts and Fact Families:</p> <p>i. Use physical models and a variety of multiplication algorithms to find the product of multiplication problems with one-digit multipliers.</p> <p>ii. Demonstrate fluency (memorize and apply) with basic multiplication facts up to 10×10 and the associated division facts (e.g., $5 \times 6 = 30$ and $30 \div 6 = 5$).</p> <p>iii. Estimate the product of 2-digit by 2-digit numbers by rounding to the nearest multiple of 10 to solve application problems.</p>	NBT.1	3	<p>Use place value understanding and properties of operations to perform multi-digit arithmetic. Use place value understanding to round whole numbers to the nearest 10 or 100.</p>

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N	2.2b	<p>Number Operations: Multiplication Concepts and Fact Families:</p> <p>i. Use physical models and a variety of multiplication algorithms to find the product of multiplication problems with one-digit multipliers.</p> <p>ii. Demonstrate fluency (memorize and apply) with basic multiplication facts up to 10×10 and the associated division facts (e.g., $5 \times 6 = 30$ and $30 \div 6 = 5$).</p> <p>iii. Estimate the product of 2-digit by 2-digit numbers by rounding to the nearest multiple of 10 to solve application problems.</p>	NBT.3	3	Use place value understanding and properties of operations to perform multi-digit arithmetic. Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations. (A range of algorithms may be used.)
G	3	Standard 3: Geometry - The student will use geometric properties and relationships to recognize and describe shapes.			
G	3.1	Identify and compare attributes of two- and three- dimensional shapes and develop vocabulary to describe the attributes (e.g., count the edges and faces of a cube, the radius is half of a circle, lines of symmetry).	G.3	4	Draw and identify lines and angles, and classify shapes by properties of their lines and angles. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.
G	3.1	Identify and compare attributes of two- and three- dimensional shapes and develop vocabulary to describe the attributes (e.g., count the edges and faces of a cube, the radius is half of a circle, lines of symmetry).	G.1	3	Reason with shapes and their attributes. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

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G	3.1	Identify and compare attributes of two- and three- dimensional shapes and develop vocabulary to describe the attributes (e.g., count the edges and faces of a cube, the radius is half of a circle, lines of symmetry).	G.1	2	Reason with shapes and their attributes. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. (Sizes are compared directly or visually, not compared by measuring.)
G	3.1	Identify and compare attributes of two- and three- dimensional shapes and develop vocabulary to describe the attributes (e.g., count the edges and faces of a cube, the radius is half of a circle, lines of symmetry).	G.1	1	Reason with shapes and their attributes. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); for a wide variety of shapes; build and draw shapes to possess defining attributes.
G	3.1	Identify and compare attributes of two- and three- dimensional shapes and develop vocabulary to describe the attributes (e.g., count the edges and faces of a cube, the radius is half of a circle, lines of symmetry).	G.4	K	Analyze, compare, create, and compose shapes. Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).
G	3.2	Analyze the effects of combining and subdividing two- and three- dimensional figures (e.g., folding paper, tiling, nets, and rearranging pieces of solids).	G.2	3	Reason with shapes and their attributes. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part is $\frac{1}{4}$ of the area of the shape.
G	3.2	Analyze the effects of combining and subdividing two- and three- dimensional figures (e.g., folding paper, tiling, nets, and rearranging pieces of solids).	G.3	1	Reason with shapes and their attributes. Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.
G	3.3	Make and use coordinate systems to specify locations and shapes on a grid with ordered pairs and to describe paths from one point to another point on a grid.			

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M	4	Standard 4: Measurement - The student will use appropriate units of measure to solve problems.			
M	4.1a	Measurement: Choose an appropriate measurement instrument and measure the length of objects to the nearest inch or half-inch and the weight of objects to the nearest pound or ounce.	MD.9	2	Represent and interpret data. Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.
M	4.1a	Measurement: Choose an appropriate measurement instrument and measure the length of objects to the nearest inch or half-inch and the weight of objects to the nearest pound or ounce.	MD.2	3	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). (Excludes compound units such as cm^3 and finding the geometric volume of a container.) Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (Excludes multiplicative comparison problems (problems involving notions of “times as much.”))
M	4.1a	Measurement: Choose an appropriate measurement instrument and measure the length of objects to the nearest inch or half-inch and the weight of objects to the nearest pound or ounce.	MD.4	3	Represent and interpret data. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

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M	4.1b	*Measurement: Choose an appropriate measurement instrument and measure the length of objects to the nearest meter or centimeter and the weight of objects to the nearest gram or kilogram.	MD.1	4	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. For example: Know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36),
M	4.1b	*Measurement: Choose an appropriate measurement instrument and measure the length of objects to the nearest meter or centimeter and the weight of objects to the nearest gram or kilogram.	MD.2	4	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
M	4.1b	*Measurement: Choose an appropriate measurement instrument and measure the length of objects to the nearest meter or centimeter and the weight of objects to the nearest gram or kilogram.	MD.2	3	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). (Excludes compound units such as cm^3 and finding the geometric volume of a container.) Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (Excludes multiplicative comparison problems (problems involving notions of “times as much.”))

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M	4.1b	*Measurement: Choose an appropriate measurement instrument and measure the length of objects to the nearest meter or centimeter and the weight of objects to the nearest gram or kilogram.	MD.4	3	Represent and interpret data. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.
M	4.1c	Measurement: Develop and use the concept of perimeter of different shapes to solve problems.	MD.3	4	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.
M	4.1d	*Measurement: Develop and use strategies to choose an appropriate unit and measurement instrument to estimate measurements (e.g., use parts of the body as benchmarks for measuring length).	MD.3	2	Measure and estimate lengths in standard units. Estimate lengths using units of inches, feet, centimeters, and meters.
M	4.1d	*Measurement: Develop and use strategies to choose an appropriate unit and measurement instrument to estimate measurements (e.g., use parts of the body as benchmarks for measuring length).	MD.2	3	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). (Excludes compound units such as cm^3 and finding the geometric volume of a container.) Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (Excludes multiplicative comparison problems (problems involving notions of “times as much.”))

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M	4.2a	Time and Temperature: Solve simple addition problems with time (e.g., 15 minutes added to 1:10 p.m.).	MD.2	4	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
M	4.2a	Time and Temperature: Solve simple addition problems with time (e.g., 15 minutes added to 1:10 p.m.).	MD.1	3	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
M	4.2b	Time and Temperature: Tell time on a digital and analog clock to the nearest 5 minute.	MD.7	2	Work with time and money. Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
M	4.2b	Time and Temperature: Tell time on a digital and analog clock to the nearest 5 minute.	MD.1	3	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
M	4.2c	Time and Temperature: Read a thermometer and solve for temperature change.			

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M	4.3	Money: Determine the correct amount of change when a purchase is made with a five dollar bill.	MD.2	4	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
M	4.3	Money: Determine the correct amount of change when a purchase is made with a five dollar bill.	MD.8	2	Work with time and money. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ (dollars) and ¢ (cents) symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?
D	5	Standard 5: Data Analysis - The student will demonstrate an understanding of collection, display, and interpretation of data and probability.			
D	5.1a	*Data Analysis: Pose questions, collect, record, and interpret data to help answer questions (e.g., which was the most popular booth at our carnival?).	MD.10	2	Represent and interpret data. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.
D	5.1a	*Data Analysis: Pose questions, collect, record, and interpret data to help answer questions (e.g., which was the most popular booth at our carnival?).	MD.3	3	Represent and interpret data. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets.
D	5.1b	Data Analysis: Read graphs and charts, identify the main idea, draw conclusions, and make predictions based on the data (e.g., predict how many children will bring their lunch based on a menu).	MD.10	2	Represent and interpret data. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

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D	5.1b	Data Analysis: Read graphs and charts, identify the main idea, draw conclusions, and make predictions based on the data (e.g., predict how many children will bring their lunch based on a menu).	MD.3	3	Represent and interpret data. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets.
D	5.1c	Data Analysis: Construct bar graphs, frequency tables, line graphs (plots), and pictographs with labels and a title from a set of data.	MD.4	4	Represent and interpret data. Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.
D	5.1c	Data Analysis: Construct bar graphs, frequency tables, line graphs (plots), and pictographs with labels and a title from a set of data.	MD.10	2	Represent and interpret data. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.
D	5.1c	Data Analysis: Construct bar graphs, frequency tables, line graphs (plots), and pictographs with labels and a title from a set of data.	MD.3	3	Represent and interpret data. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets.
D	5.1c	Data Analysis: Construct bar graphs, frequency tables, line graphs (plots), and pictographs with labels and a title from a set of data.	MD.4	3	Represent and interpret data. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.
D	5.2	Probability: Describe the probability (more, less, or equally likely) of chance events.			

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			MD.7a	3	Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.
			MD.7d	3	Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.