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## Grade 4 | Arizona Mathematics Standards (2016) Correlation to *Eureka Math*<sup>2</sup>® (2027)

*Eureka Math*<sup>2</sup> is a research-proven math curriculum that empowers teachers to center instructional techniques on student success. Teachers can foster more “aha!” learning moments by providing the support needed for all learners to build a more confident math mindset.

This *Eureka Math*<sup>2</sup> edition builds on a strong foundation of effective instruction. It provides teachers with guidance on delivering rigorous instruction that honors student choice and encourages confident problem-solving.

*Eureka Math*<sup>2</sup> carefully sequences mathematical content to maximize vertical alignment from kindergarten through high school. This kind of sequencing has proven to be essential in students’ mastery of math.

### Teachability

*Eureka Math*<sup>2</sup> employs streamlined materials that allow teachers to plan more efficiently and focus their energy on delivering high-quality instruction that meets the individual needs of their students. Differentiation suggestions, slide decks, digital interactives, and multiple forms of assessment are just a few of the resources built into the teacher materials.

### Accessibility

*Eureka Math*<sup>2</sup> incorporates Universal Design for Learning (UDL) principles so all learners can access the mathematics and take on challenging math concepts. UDL, Differentiation, and Multilingual Learner supports are built into the instructional design and are clearly identified in the *Teach* book.

The curriculum also carries a focus on readability. By eliminating unnecessary words and using clear sentences, the *Eureka Math*<sup>2</sup> teacher-writers have created one of the most readable mathematics curricula on the market. The curriculum’s readability and accessibility help all students see themselves as mathematical thinkers and doers who are fully capable of owning their mathematics learning.

### Math Confidence

*Eureka Math*<sup>2</sup> fosters a classroom culture of learning by encouraging student-led discourse and cognitive engagement that results in confident learners. By leveraging consistent models, routines, and progressions, teachers can remove barriers and allow all students an avenue to success. Within the digital platform, each grade includes wordless videos and digital interactives that spark students’ curiosity and help them make conceptual connections. Using the *Learn* books, students wonder, explore, and make sense of mathematics, which helps them develop a strong, positive mathematical identity.

| Standards for Mathematical Practice   | Aligned Components of <i>Eureka Math</i> <sup>2</sup>   |
|---|---|
| <p><b>MP.1</b><br/>Make sense of problems and persevere in solving them.</p>            | <p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p> |
| <p><b>MP.2</b><br/>Reason abstractly and quantitatively.</p>                            | <p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p> |
| <p><b>MP.3</b><br/>Construct viable arguments and critique the reasoning of others.</p> | <p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p> |
| <p><b>MP.4</b><br/>Model with mathematics.</p>  | <p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p> |
| <p><b>MP.5</b><br/>Use appropriate tools strategically.</p>                             | <p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p> |
| <p><b>MP.6</b><br/>Attend to precision.</p>   | <p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p> |
| <p><b>MP.7</b><br/>Look for and make use of structure.</p>                              | <p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p> |
| <p><b>MP.8</b><br/>Look for and express regularity in repeated reasoning.</p>           | <p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p> |

## Operations and Algebraic Thinking

### 4.OA.A Use the four operations with whole numbers to solve problems.

| Arizona Mathematics Standards  | Aligned Components of <i>Eureka Math</i> <sup>2</sup>  |
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| <p><b>4.OA.A.1</b></p> <p>Represent verbal statements of multiplicative comparisons as multiplication equations. Interpret a multiplication equation as a comparison (e.g., 35 is the number of objects in 5 groups, each containing 7 objects, and is also the number of objects in 7 groups, each containing 5 objects).</p> | <p>4 M1 Lesson 1: Interpret multiplication as multiplicative comparison.</p> <p>4 M1 Lesson 2: Solve multiplicative comparison problems with unknowns in various positions.</p> <p>4 M1 Lesson 3: Describe relationships between measurements by using multiplicative comparison.</p> <p>4 M1 Lesson 4: Represent the composition of larger units of money by using multiplicative comparison.</p> <p>4 M1 Lesson 6: Demonstrate that a digit represents 10 times the value of what it represents in the place to its right.</p>                           |
| <p><b>4.OA.A.2</b></p> <p>Multiply or divide within 1,000 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).</p>                             | <p>4 M1 Lesson 1: Interpret multiplication as multiplicative comparison.</p> <p>4 M1 Lesson 2: Solve multiplicative comparison problems with unknowns in various positions.</p> <p>4 M1 Lesson 3: Describe relationships between measurements by using multiplicative comparison.</p> <p>4 M1 Lesson 4: Represent the composition of larger units of money by using multiplicative comparison.</p> <p>4 M2 Lesson 9: Solve multiplication word problems.</p> <p>4 M2 Lesson 20: Solve word problems involving additive and multiplicative comparisons.</p> |
| <p><b>4.OA.A.3</b></p> <p>Solve multistep word problems using the four operations, including problems in which remainders must be interpreted. Understand how the remainder is a fraction of the divisor. Represent these problems using equations with a letter standing for the unknown quantity.</p>                        | <p>4 M1 Lesson 15: Apply estimation to real-world situations by using rounding.</p> <p>4 M1 Lesson 16: Add by using the standard algorithm.</p> <p>4 M1 Lesson 17: Solve multi-step addition word problems by using the standard algorithm.</p> <p>4 M1 Lesson 21: Solve two-step word problems by using addition and subtraction.</p> <p>4 M1 Lesson 22: Solve multi-step word problems by using addition and subtraction.</p> <p>4 M3 Lesson 21: Find whole-number quotients and remainders.</p>   |

**Arizona Mathematics Standards**

**Aligned Components of *Eureka Math*<sup>2</sup>**

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| <p><b>4.OA.A.3 <i>continued</i></b></p> | <p>4 M3 Lesson 22: Represent, estimate, and solve division word problems.</p> <p>4 M3 Lesson 23: Solve multi-step word problems and interpret remainders.</p> <p>4 M3 Lesson 24: Solve multi-step word problems and assess the reasonableness of solutions.</p> |
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**Operations and Algebraic Thinking**

**4.OA.B Gain familiarity with factors and multiples.**

**Arizona Mathematics Standards**

**Aligned Components of *Eureka Math*<sup>2</sup>**

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| <p><b>4.OA.B.4</b></p> <p>Find all factor pairs for a whole number in the range 1 to 100 and understand that a whole number is a multiple of each of its factors.</p> | <p>4 M2 Lesson 21: Find factor pairs for numbers up to 100 and use factors to identify numbers as prime or composite.</p> <p>4 M2 Lesson 22: Use division and the associative property of multiplication to find factors.</p> <p>4 M2 Lesson 23: Determine whether a whole number is a multiple of another number.</p> <p>4 M2 Lesson 24: Recognize that a number is a multiple of each of its factors.</p> <p>4 M2 Lesson 25: Explore properties of prime and composite numbers up to 100 by using multiples.</p> |
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## Operations and Algebraic Thinking

### 4.OA.C Generate and analyze patterns.

| Arizona Mathematics Standards   | Aligned Components of <i>Eureka Math</i> <sup>2</sup>  |
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| <p><b>4.OA.C.5</b></p> <p>Generate a number pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself and explain the pattern informally (e.g., 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).</p> | <p>4 M2 Lesson 26: Use relationships within a pattern to find an unknown term in the sequence.</p>   |
| <p><b>4.OA.C.6</b></p> <p>When solving problems, assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p>  | <p>4 M1 Lesson 15: Apply estimation to real-world situations by using rounding.</p> <p>4 M1 Lesson 16: Add by using the standard algorithm.</p> <p>4 M1 Lesson 17: Solve multi-step addition word problems by using the standard algorithm.</p> <p>4 M1 Lesson 21: Solve two-step word problems by using addition and subtraction.</p> <p>4 M1 Lesson 22: Solve multi-step word problems by using addition and subtraction.</p> <p>4 M3 Lesson 21: Find whole-number quotients and remainders.</p> <p>4 M3 Lesson 22: Represent, estimate, and solve division word problems.</p> <p>4 M3 Lesson 23: Solve multi-step word problems and interpret remainders.</p> <p>4 M3 Lesson 24: Solve multi-step word problems and assess the reasonableness of solutions.</p> |

## Number and Operations in Base Ten

### 4.NBT.A Generalize place value understanding for multi-digit whole numbers.

| Arizona Mathematics Standards   | Aligned Components of <i>Eureka Math</i> <sup>2</sup>  |
|---|--|
| <p><b>4.NBT.A.1</b></p> <p>Apply concepts of place value, multiplication, and division to understand that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.</p>  | <p>4 M1 Lesson 6: Demonstrate that a digit represents 10 times the value of what it represents in the place to its right.</p>  |
| <p><b>4.NBT.A.2</b></p> <p>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 <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to record the results of comparisons.</p> | <p>4 M1 Lesson 5: Organize, count, and represent a collection of objects.</p> <p>4 M1 Lesson 7: Write numbers to 1,000,000 in unit form and expanded form by using place value structure.</p> <p>4 M1 Lesson 8: Write numbers to 1,000,000 in standard form and word form.</p> <p>4 M1 Lesson 9: Compare numbers within 1,000,000 by using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math>.</p> <p>4 M1 Lesson 10: Name numbers by using place value understanding.</p> <p>4 M1 Lesson 11: Find 1, 10, and 100 thousand more than and less than a given number.</p> |
| <p><b>4.NBT.A.3</b></p> <p>Use place value understanding to round multi-digit whole numbers to any place.</p>   | <p>4 M1 Lesson 12: Round to the nearest thousand.</p> <p>4 M1 Lesson 13: Round to the nearest ten thousand and hundred thousand.</p> <p>4 M1 Lesson 14: Round multi-digit numbers to any place.</p> <p>4 M1 Lesson 15: Apply estimation to real-world situations by using rounding.</p>  |

## Number and Operations in Base Ten

### 4.NBT.B Use place value understanding and properties of operations to perform multi-digit arithmetic.

| Arizona Mathematics Standards   | Aligned Components of <i>Eureka Math</i> <sup>2</sup>   |
|---|---|
| <p><b>4.NBT.B.4</b></p> <p>Fluently add and subtract multi-digit whole numbers using a standard algorithm.</p>  | <p>4 M1 Lesson 16: Add by using the standard algorithm.</p> <p>4 M1 Lesson 17: Solve multi-step addition word problems by using the standard algorithm.</p> <p>4 M1 Lesson 18: Subtract by using the standard algorithm, decomposing larger units once.</p> <p>4 M1 Lesson 19: Subtract by using the standard algorithm, decomposing larger units up to 3 times.</p> <p>4 M1 Lesson 20: Subtract by using the standard algorithm, decomposing larger units multiple times.</p> <p>4 M1 Lesson 21: Solve two-step word problems by using addition and subtraction.</p> <p>4 M1 Lesson 22: Solve multi-step word problems by using addition and subtraction.</p>  |
| <p><b>4.NBT.B.5</b></p> <p>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.</p> | <p>4 M2 Lesson 1: Multiply multiples of 10 by one-digit numbers by using the associative property of multiplication.</p> <p>4 M2 Lesson 4: Multiply by using familiar strategies.</p> <p>4 M2 Lesson 5: Multiply by using place value strategies and the distributive property.</p> <p>4 M2 Lesson 6: Multiply with regrouping by using place value strategies and the distributive property.</p> <p>4 M2 Lesson 7: Multiply by using an area model and the distributive property.</p> <p>4 M2 Lesson 8: Multiply by applying the distributive property and write equations.</p> <p>4 M2 Lesson 9: Solve multiplication word problems.</p> <p>4 M2 Lesson 10: Multiply by applying simplifying strategies.</p> <p>4 M3 Lesson 2: Multiply by multiples of 100 and 1,000.</p> <p>4 M3 Lesson 3: Multiply a two-digit multiple of 10 by a two-digit multiple of 10.</p> <p>4 M3 Lesson 9: Apply place value strategies to multiply three-digit numbers by one-digit numbers.</p> <p>4 M3 Lesson 10: Apply place value strategies to multiply four-digit numbers by one-digit numbers.</p> <p>4 M3 Lesson 11: Represent multiplication by using partial products.</p> <p>4 M3 Lesson 12: Multiply by using various recording methods in vertical form.</p> |

**Arizona Mathematics Standards**

**Aligned Components of *Eureka Math*<sup>2</sup>**

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| <p><b>4.NBT.B.5 <i>continued</i></b></p>  | <p>4 M3 Lesson 13: Multiply two-digit numbers by two-digit multiples of 10.</p> <p>4 M3 Lesson 14: Apply place value strategies to multiply two-digit numbers by two-digit numbers.</p> <p>4 M3 Lesson 15: Multiply with four partial products.</p> <p>4 M3 Lesson 16: Multiply with two partial products.</p> <p>4 M3 Lesson 17: Apply the distributive property to multiply.</p>   |
| <p><b>4.NBT.B.6</b></p> <p>Demonstrate understanding of division by finding whole-number quotients and remainders with up to four-digit dividends and one-digit divisors.</p> | <p>4 M2 Lesson 2: Divide two- and three-digit multiples of 10 by one-digit numbers.</p> <p>4 M2 Lesson 11: Divide by using familiar strategies.</p> <p>4 M2 Lesson 12: Divide two-digit numbers by one-digit numbers by using an area model.</p> <p>4 M2 Lesson 13: Divide three-digit numbers by one-digit numbers by using an area model.</p> <p>4 M2 Lesson 14: Divide two-digit numbers by one-digit numbers by using place value strategies.</p> <p>4 M2 Lesson 15: Divide three-digit numbers by one-digit numbers by using place value strategies.</p> <p>4 M2 Lesson 16: Divide by using the break apart and distribute strategy.</p> <p>4 M3 Lesson 1: Divide multiples of 100 and 1,000.</p> <p>4 M3 Lesson 4: Apply place value strategies to divide hundreds, tens, and ones.</p> <p>4 M3 Lesson 5: Apply place value strategies to divide thousands, hundreds, tens, and ones.</p> <p>4 M3 Lesson 6: Connect pictorial representations of division to long division.</p> <p>4 M3 Lesson 7: Represent division by using partial quotients.</p> <p>4 M3 Lesson 8: Choose and apply a method to divide multi-digit numbers.</p> <p>4 M3 Lesson 21: Find whole-number quotients and remainders.</p> <p>4 M3 Lesson 22: Represent, estimate, and solve division word problems.</p> |

## Number and Operations—Fractions

### 4.NF.A Extend understanding of fraction equivalence and ordering.

| Arizona Mathematics Standards   | Aligned Components of <i>Eureka Math</i> <sup>2</sup>  |
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| <p><b>4.NF.A.1</b></p> <p>Explain why a fraction <math>\frac{a}{b}</math> is equivalent to a fraction <math>\frac{n \times a}{n \times b}</math> 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 understand and generate equivalent fractions.</p> | <p>4 M4 Lesson 8: Generate equivalent fractions with smaller units for unit fractions.</p> <p>4 M4 Lesson 9: Generate equivalent fractions with smaller units for non-unit fractions.</p> <p>4 M4 Lesson 10: Generate equivalent fractions with larger units.</p> <p>4 M4 Lesson 11: Represent equivalent fractions by using tape diagrams, number lines, and multiplication or division.</p> <p>4 M4 Lesson 12: Generate equivalent fractions for fractions greater than 1 and generate equivalent mixed numbers.</p> |
| <p><b>4.NF.A.2</b></p> <p>Compare two fractions with different numerators and different denominators (e.g., by creating common denominators or numerators and by comparing to a benchmark fraction).</p>  | <p>4 M4 Lesson 13: Compare fractions by using the benchmarks, 0, <math>\frac{1}{2}</math>, and 1.</p> <p>4 M4 Lesson 14: Compare fractions with related denominators.</p> <p>4 M4 Lesson 15: Compare fractions with related numerators.</p> <p>4 M4 Lesson 16: Generate a common numerator or denominator to compare fractions.</p> <p>4 M4 Lesson 17: Apply fraction comparison strategies to compare fractions greater than 1.</p>   |
| <p><b>4.NF.A.2a</b></p> <p>Understand that comparisons are valid only when the two fractions refer to the same size whole.</p>  | <p>4 M4 Lesson 13: Compare fractions by using the benchmarks, 0, <math>\frac{1}{2}</math>, and 1.</p> <p>4 M4 Lesson 14: Compare fractions with related denominators.</p> <p>4 M4 Lesson 15: Compare fractions with related numerators.</p> <p>4 M4 Lesson 16: Generate a common numerator or denominator to compare fractions.</p> <p>4 M4 Lesson 17: Apply fraction comparison strategies to compare fractions greater than 1.</p>   |

| Arizona Mathematics Standards   | Aligned Components of <i>Eureka Math</i> <sup>2</sup>  |
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| <p><b>4.NF.A.2b</b></p> <p>Record the results of comparisons with symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions.</p> | <p>4 M4 Lesson 13: Compare fractions by using the benchmarks, 0, <math>\frac{1}{2}</math>, and 1.</p> <p>4 M4 Lesson 14: Compare fractions with related denominators.</p> <p>4 M4 Lesson 15: Compare fractions with related numerators.</p> <p>4 M4 Lesson 16: Generate a common numerator or denominator to compare fractions.</p> <p>4 M4 Lesson 17: Apply fraction comparison strategies to compare fractions greater than 1.</p> |

### Number and Operations—Fractions

#### 4.NF.B Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers.

| Arizona Mathematics Standards   | Aligned Components of <i>Eureka Math</i> <sup>2</sup>  |
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| <p><b>4.NF.B.3</b></p> <p>Understand a fraction <math>\frac{a}{b}</math> with <math>a &gt; 1</math> as a sum of unit fractions <math>\left(\frac{1}{b}\right)</math>.</p> | <p><i>This standard is fully addressed by the lessons aligned to its subsections.</i></p>  |
| <p><b>4.NF.B.3a</b></p> <p>Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.</p>                              | <p>4 M4 Lesson 1: Decompose whole numbers into a sum of unit fractions.</p> <p>4 M4 Lesson 2: Decompose fractions into a sum of unit fractions.</p> <p>4 M4 Lesson 3: Decompose fractions into a sum of fractions.</p> <p>4 M4 Lesson 4: Represent fractions by using various fraction models.</p> <p>4 M4 Lesson 5: Rename fractions greater than 1 as mixed numbers.</p> <p>4 M4 Lesson 6: Rename mixed numbers as fractions greater than 1.</p> <p>4 M4 Lesson 7: Rename fractions as a sum of equivalent smaller unit fractions.</p> <p>4 M4 Lesson 18: Estimate sums and differences of fractions by using benchmarks.</p> <p>4 M4 Lesson 19: Add and subtract fractions with like units.</p> <p>4 M4 Lesson 20: Subtract a fraction from a whole number.</p> |

## Arizona Mathematics Standards

Aligned Components of *Eureka Math*<sup>2</sup>

| Arizona Mathematics Standards   | Aligned Components of <i>Eureka Math</i> <sup>2</sup>   |
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| <b>4.NF.B.3a</b> <i>continued</i>   | <p>4 M4 Lesson 21: Solve addition and subtraction word problems and estimate the reasonableness of the answers.</p> <p>4 M4 Lesson 22: Add two fractions with related units.</p>  |
| <p><b>4.NF.B.3b</b></p> <p>Decompose a fraction into a sum of fractions with the same denominator in more than one way (e.g., <math>\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}</math>; <math>\frac{3}{8} = \frac{2}{8} + \frac{1}{8}</math>; <math>2\frac{1}{8} = 1 + 1 + \frac{1}{8}</math>; or <math>2\frac{1}{8} = \frac{8}{8} + \frac{8}{8} + \frac{1}{8}</math>).</p> | <p>4 M4 Lesson 1: Decompose whole numbers into a sum of unit fractions.</p> <p>4 M4 Lesson 2: Decompose fractions into a sum of unit fractions.</p> <p>4 M4 Lesson 3: Decompose fractions into a sum of fractions.</p> <p>4 M4 Lesson 4: Represent fractions by using various fraction models.</p> <p>4 M4 Lesson 5: Rename fractions greater than 1 as mixed numbers.</p> <p>4 M4 Lesson 6: Rename mixed numbers as fractions greater than 1.</p> <p>4 M4 Lesson 7: Rename fractions as a sum of equivalent smaller unit fractions.</p> <p>4 M4 Lesson 18: Estimate sums and differences of fractions by using benchmarks.</p> <p>4 M4 Lesson 19: Add and subtract fractions with like units.</p> <p>4 M4 Lesson 20: Subtract a fraction from a whole number.</p> <p>4 M4 Lesson 21: Solve addition and subtraction word problems and estimate the reasonableness of the answers.</p> <p>4 M4 Lesson 22: Add two fractions with related units.</p> |
| <p><b>4.NF.B.3c</b></p> <p>Add and subtract mixed numbers with like denominators (e.g., by using properties of operations and the relationship between addition and subtraction and/or by replacing each mixed number with an equivalent fraction).</p>   | <p>4 M4 Lesson 23: Add a fraction to a mixed number.</p> <p>4 M4 Lesson 24: Add a mixed number to a mixed number.</p> <p>4 M4 Lesson 25: Subtract a fraction from a mixed number, part 1.</p> <p>4 M4 Lesson 26: Subtract a fraction from a mixed number, part 2.</p> <p>4 M4 Lesson 27: Subtract a mixed number from a mixed number.</p>   |

| Arizona Mathematics Standards  | Aligned Components of <i>Eureka Math</i> <sup>2</sup>  |
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| <p><b>4.NF.B.3d</b></p> <p>Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators.</p>   | <p>4 M4 Lesson 18: Estimate sums and differences of fractions by using benchmarks.</p> <p>4 M4 Lesson 20: Subtract a fraction from a whole number.</p> <p>4 M4 Lesson 21: Solve addition and subtraction word problems and estimate the reasonableness of the answers.</p> <p>4 M4 Lesson 24: Add a mixed number to a mixed number.</p> <p>4 M4 Lesson 27: Subtract a mixed number from a mixed number.</p> <p>4 M4 Lesson 28: Represent and solve word problems with mixed numbers by using drawings and equations.</p> |
| <p><b>4.NF.B.4</b></p> <p>Build fractions from unit fractions.</p>   | <p><i>This standard is fully addressed by the lessons aligned to its subsections.</i></p>  |
| <p><b>4.NF.B.4a</b></p> <p>Understand a fraction <math>\frac{a}{b}</math> as a multiple of a unit fraction <math>\frac{1}{b}</math>. In general, <math>\frac{a}{b} = a \times \frac{1}{b}</math>.</p>  | <p>4 M4 Lesson 31: Decompose non-unit fractions into a product of a whole number and a unit fraction.</p>  |
| <p><b>4.NF.B.4b</b></p> <p>Understand a multiple of <math>\frac{a}{b}</math> as a multiple of a unit fraction <math>\frac{1}{b}</math>, and use this understanding to multiply a whole number by a fraction. In general, <math>n \times \frac{a}{b} = \frac{n \times a}{b}</math>.</p> | <p>4 M4 Lesson 32: Multiply a fraction by a whole number by using the associative property.</p> <p>4 M4 Lesson 33: Solve word problems involving multiplication of a fraction by a whole number.</p> <p>4 M4 Lesson 34: Multiply a mixed number by a whole number by using the distributive property.</p>  |
| <p><b>4.NF.B.4c</b></p> <p>Solve word problems involving multiplication of a whole number by a fraction.</p>   | <p>4 M4 Lesson 33: Solve word problems involving multiplication of a fraction by a whole number.</p>   |

## Number and Operations—Fractions

### 4.NF.C Understand decimal notation for fractions, and compare decimal fractions.

| Arizona Mathematics Standards   | Aligned Components of <i>Eureka Math</i> <sup>2</sup>   |
|---|---|
| <p><b>4.NF.C.5</b></p> <p>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 (tenths) and 100 (hundredths).</p>   | <p>4 M5 Lesson 5: Decompose 1 one and express hundredths in fraction form and decimal form.</p> <p>4 M5 Lesson 6: Represent hundredths as a place value unit.</p> <p>4 M5 Lesson 7: Write mixed numbers in decimal form with hundredths.</p> <p>4 M5 Lesson 8: Represent decimal numbers in expanded form.</p> <p>4 M5 Lesson 12: Apply fraction equivalence to add tenths and hundredths.</p> <p>4 M5 Lesson 13: Apply fraction equivalence to add mixed numbers with tenths and hundredths.</p> <p>4 M5 Lesson 14: Solve word problems with tenths and hundredths.</p>  |
| <p><b>4.NF.C.6</b></p> <p>Use decimal notation for fractions with denominators 10 (tenths) or 100 (hundredths), and locate these decimals on a number line.</p>   | <p>4 M5 Lesson 1: Organize, count, and represent a collection of money.</p> <p>4 M5 Lesson 2: Decompose 1 one and express tenths in fraction form and decimal form.</p> <p>4 M5 Lesson 3: Represent tenths as a place value unit.</p> <p>4 M5 Lesson 4: Write mixed numbers in decimal form with tenths.</p> <p>4 M5 Lesson 5: Decompose 1 one and express hundredths in fraction form and decimal form.</p> <p>4 M5 Lesson 6: Represent hundredths as a place value unit.</p> <p>4 M5 Lesson 7: Write mixed numbers in decimal form with hundredths.</p> <p>4 M5 Lesson 8: Represent decimal numbers in expanded form.</p> |
| <p><b>4.NF.C.7</b></p> <p>Compare two decimals to hundredths by reasoning about their size. Understand that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>.</p> | <p>4 M5 Lesson 9: Compare measurements expressed as decimal numbers.</p> <p>4 M5 Lesson 10: Use pictorial representations to compare decimal numbers.</p> <p>4 M5 Lesson 11: Compare and order decimal numbers.</p>   |

## Measurement and Data

### 4.MD.A Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

| Arizona Mathematics Standards   | Aligned Components of <i>Eureka Math</i> <sup>2</sup>  |
|---|--|
| <p><b>4.MD.A.1</b></p> <p>Know relative sizes of measurement units within one system of units which could include 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 and in a smaller unit in terms of a larger unit.</p>  | <p>4 M1 Lesson 23: Express metric measurements of length in terms of smaller units.</p> <p>4 M1 Lesson 24: Express metric measurements of mass and liquid volume in terms of smaller units.</p> <p>4 M2 Lesson 17: Express measurements of length in terms of smaller units.</p> <p>4 M3 Lesson 18: Express units of time in terms of smaller units.</p> <p>4 M3 Lesson 19: Express customary measurements of weight in terms of smaller units.</p> <p>4 M3 Lesson 20: Express customary measurements of liquid volume in terms of smaller units.</p>  |
| <p><b>4.MD.A.2</b></p> <p>Use the four operations to solve word problems and problems in real-world context involving distances, intervals of time (hr, min, sec), liquid volumes, masses of objects, and money, including decimals and problems involving fractions with like denominators, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using a variety of representations, including number lines that feature a measurement scale.</p> | <p>4 M2 Lesson 17: Express measurements of length in terms of smaller units.</p> <p>4 M2 Lesson 20: Solve word problems involving additive and multiplicative comparisons.</p> <p>4 M3 Lesson 18: Express units of time in terms of smaller units.</p> <p>4 M3 Lesson 19: Express customary measurements of weight in terms of smaller units.</p> <p>4 M3 Lesson 20: Express customary measurements of liquid volume in terms of smaller units.</p> <p>4 M4 Lesson 18: Estimate sums and differences of fractions by using benchmarks.</p> <p>4 M4 Lesson 20: Subtract a fraction from a whole number.</p> <p>4 M4 Lesson 21: Solve addition and subtraction word problems and estimate the reasonableness of the answers.</p> <p>4 M4 Lesson 24: Add a mixed number to a mixed number.</p> <p>4 M4 Lesson 27: Subtract a mixed number from a mixed number.</p> <p>4 M4 Lesson 28: Represent and solve word problems with mixed numbers by using drawings and equations.</p> <p>4 M4 Lesson 33: Solve word problems involving multiplication of a fraction by a whole number.</p> <p>4 M5 Lesson 14: Solve word problems with tenths and hundredths.</p> |

| <b>Arizona Mathematics Standards</b>  | <b>Aligned Components of <i>Eureka Math</i><sup>2</sup></b>   |
|---|---|
| <p><b>4.MD.A.3</b></p> <p>Apply the area and perimeter formulas for rectangles in mathematical problems and problems in real-world contexts including problems with unknown side lengths.</p> | <p>4 M2 Lesson 3: Investigate and use a formula for the area of a rectangle.</p> <p>4 M2 Lesson 7: Multiply by using an area model and the distributive property.</p> <p>4 M2 Lesson 18: Investigate and use formulas for the perimeter of a rectangle.</p> <p>4 M2 Lesson 19: Apply area and perimeter formulas to solve problems.</p> <p>4 M2 Lesson 20: Solve word problems involving additive and multiplicative comparisons.</p> |

## Measurement and Data

### 4.MD.B Represent and interpret data.

| <b>Arizona Mathematics Standards</b>   | <b>Aligned Components of <i>Eureka Math</i><sup>2</sup></b>   |
|--|---|
| <p><b>4.MD.B.4</b></p> <p>Make a line plot to display a data set of measurements in fractions of a unit (<math>\frac{1}{2}, \frac{1}{4}, \frac{1}{8}</math>). Solve problems involving addition and subtraction of fractions by using information presented in line plots.</p> | <p>4 M4 Lesson 29: Solve problems by using data from a line plot.</p> <p>4 M4 Lesson 30: Represent data on a line plot.</p> |

## Measurement and Data

### 4.MD.C Geometric measurement: Understand concepts of angle and measure angles.

| Arizona Mathematics Standards  | Aligned Components of <i>Eureka Math</i> <sup>2</sup>   |
|--|---|
| <p><b>4.MD.C.5</b></p> <p>Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:</p>  | <p>4 M6 Lesson 7: Explore angles as fractional turns through a circle.</p> <p>4 M6 Lesson 8: Use a circular protractor to recognize a <math>1^\circ</math> angle as a turn through <math>\frac{1}{360}</math> of a circle.</p> <p>4 M6 Lesson 9: Identify and measure angles as turns and recognize them in various contexts.</p> <p>4 M6 Lesson 10: Use <math>180^\circ</math> protractors to measure angles.</p> <p>4 M6 Lesson 11: Estimate and measure angles with a <math>180^\circ</math> protractor.</p> |
| <p><b>4.MD.C.5a</b></p> <p>An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through <math>\frac{1}{360}</math> of a circle is called a “one-degree angle,” and can be used to measure angles.</p> | <p>4 M6 Lesson 7: Explore angles as fractional turns through a circle.</p> <p>4 M6 Lesson 8: Use a circular protractor to recognize a <math>1^\circ</math> angle as a turn through <math>\frac{1}{360}</math> of a circle.</p> <p>4 M6 Lesson 9: Identify and measure angles as turns and recognize them in various contexts.</p> <p>4 M6 Lesson 10: Use <math>180^\circ</math> protractors to measure angles.</p> <p>4 M6 Lesson 11: Estimate and measure angles with a <math>180^\circ</math> protractor.</p> |
| <p><b>4.MD.C.5b</b></p> <p>An angle that turns through <math>n</math> one-degree angles is said to have an angle measure of <math>n</math> degrees.</p>  | <p>4 M6 Lesson 7: Explore angles as fractional turns through a circle.</p> <p>4 M6 Lesson 8: Use a circular protractor to recognize a <math>1^\circ</math> angle as a turn through <math>\frac{1}{360}</math> of a circle.</p> <p>4 M6 Lesson 9: Identify and measure angles as turns and recognize them in various contexts.</p> <p>4 M6 Lesson 10: Use <math>180^\circ</math> protractors to measure angles.</p> <p>4 M6 Lesson 11: Estimate and measure angles with a <math>180^\circ</math> protractor.</p> |

| Arizona Mathematics Standards   | Aligned Components of <i>Eureka Math</i> <sup>2</sup>  |
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| <p><b>4.MD.C.6</b></p> <p>Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.</p>  | <p>4 M6 Lesson 8: Use a circular protractor to recognize a <math>1^\circ</math> angle as a turn through <math>\frac{1}{360}</math> of a circle.</p> <p>4 M6 Lesson 10: Use <math>180^\circ</math> protractors to measure angles.</p> <p>4 M6 Lesson 11: Estimate and measure angles with a <math>180^\circ</math> protractor.</p> <p>4 M6 Lesson 12: Use a protractor to draw angles up to <math>180^\circ</math>.</p> |
| <p><b>4.MD.C.7</b></p> <p>Understand angle measures as additive. (When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts.) Solve addition and subtraction problems to find unknown angles on a diagram within mathematical problems as well as problems in real-world contexts.</p> | <p>4 M6 Lesson 13: Decompose angles by using pattern blocks.</p> <p>4 M6 Lesson 14: Find unknown angle measures within right and straight angles.</p> <p>4 M6 Lesson 15: Find unknown angle measures within a decomposed angle of up to <math>180^\circ</math>.</p> <p>4 M6 Lesson 16: Find unknown angle measures around a point.</p>   |

## Geometry

### 4.G.A Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

| Arizona Mathematics Standards   | Aligned Components of <i>Eureka Math</i> <sup>2</sup>   |
|---|---|
| <p><b>4.G.A.1</b></p> <p>Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p>   | <p>4 M6 Lesson 1: Identify and draw points, lines, line segments, rays, and angles.</p> <p>4 M6 Lesson 2: Identify right, acute, obtuse, and straight angles.</p> <p>4 M6 Lesson 3: Draw right, acute, obtuse, and straight angles.</p> <p>4 M6 Lesson 4: Identify, define, and draw perpendicular lines.</p> <p>4 M6 Lesson 5: Identify, define, and draw parallel lines.</p> <p>4 M6 Lesson 6: Relate geometric figures to a real-world context.</p> <p>4 M6 Lesson 10: Use 180° protractors to measure angles.</p> <p>4 M6 Lesson 11: Estimate and measure angles with a 180° protractor.</p> <p>4 M6 Lesson 12: Use a protractor to draw angles up to 180°.</p> <p>4 M6 Lesson 18: Analyze and classify triangles based on side length, angle measures, or both.</p> <p>4 M6 Lesson 19: Construct and classify triangles based on given attributes.</p> <p>4 M6 Lesson 20: Sort polygons based on a given rule.</p> |
| <p><b>4.G.A.2</b></p> <p>Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size (e.g., understand right triangles as a category, and identify right triangles).</p> | <p>4 M6 Lesson 18: Analyze and classify triangles based on side length, angle measures, or both.</p> <p>4 M6 Lesson 19: Construct and classify triangles based on given attributes.</p> <p>4 M6 Lesson 20: Sort polygons based on a given rule.</p>   |

**Arizona Mathematics Standards**

**Aligned Components of *Eureka Math*<sup>2</sup>**

**4.G.A.3**

Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

4 M6 Lesson 17: Recognize, identify, and draw lines of symmetry.