

# Grade 4

Adopted 2021

## Mathematical Practice Standards

1. **Make sense of problems and persevere in solving them.** MP.1

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2. **Reason abstractly and quantitatively.** MP.2

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3. **Construct viable arguments and critique the reasoning of others.** MP.3

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4. **Model with mathematics.** MP.4

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5. **Use appropriate tools strategically.** MP.5

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6. **Attend to precision.** MP.6

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7. **Look for and make use of structure.** MP.7

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8. **Look for and express regularity in repeated reasoning** MP.8

## Grade 4

### Algebraic Reasoning: Operations

- A. Use the four operations with whole numbers to solve problems. 4.OA.A
  1. Interpret a multiplication equation as comparing quantities. Represent verbal statements of multiplicative comparisons as equations. 4.OA.A.1
  2. Multiply or divide to solve problems in authentic contexts involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison. 4.OA.A.2
  3. Solve multistep problems in authentic contexts using whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. 4.OA.A.3
- B. Gain familiarity with factors and multiples. 4.OA.B
  4. Find all factor pairs for a whole number in the range 1-100. Determine whether a given whole number in the range of 1-100 is a multiple of a given one-digit number, and whether it is prime or composite. 4.OA.B.4
- C. Generate and analyze patterns. 4.OA.C
  1. Analyze a number, visual, or contextual pattern that follows a given rule. 4.OA.C.1

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## Numeric Reasoning: Base Ten Arithmetic

- A. Generalize place value understanding for multi-digit whole numbers. **4.NBT.A**
  - 1. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. **4.NBT.A.1**
  - 2. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Use understandings of place value within these forms to compare two multi-digit numbers using  $>$ ,  $=$ , and  $<$  symbols. **4.NBT.A.2**
  - 3. Use place value understanding to round multi-digit whole numbers to any place. **4.NBT.A.3**
- B. Use place value understanding and properties of operations to perform multi-digit arithmetic. **4.NBT.B**
  - 4. Fluently add and subtract multi-digit whole numbers using accurate, efficient, and flexible strategies and algorithms based on place value and properties of operations. **4.NBT.B.4**
  - 5. Use representations and strategies to multiply a whole number of up to four digits by a one-digit number, and a two-digit number by a two-digit number using strategies based on place value and the properties of operations. **4.NBT.B.5**
  - 6. Use representations and strategies to 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. **4.NBT.B.6**

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## Numeric Reasoning: Fractions

- A. Extend understanding of fraction equivalence and ordering. **4.NF.A**
  - 1. Use visual fraction representations to recognize, generate, and explain relationships between equivalent fractions. **4.NF.A.1**
  - 2. Compare two fractions with different numerators and/or different denominators, record the results with the symbols  $>$ ,  $=$ , or  $<$ , and justify the conclusions. **4.NF.A.2**
- B. Build fractions from unit fractions. **4.NF.B**
  - 3. Understand a fraction  $(a/b)$  as the sum  $(a)$  of fractions of the same denominator  $(1/b)$ . Solve problems in authentic contexts involving addition and subtraction of fractions referring to the same whole and having like denominators. **4.NF.B.3**
  - 4. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. Represent and solve problems in authentic contexts involving multiplication of a fraction by a whole number. **4.NF.B.4**
- C. Understand decimal notation for fractions, and compare decimal fractions. **4.NF.C**
  - 5. Demonstrate and explain the concept of equivalent fractions with denominators of 10 and 100, using concrete materials and visual models. Add two fractions with denominators of 10 and 100. **4.NF.C.5**
  - 6. Use and interpret decimal notation for fractions with denominators 10 or 100. **4.NF.C.6**
  - 7. Use decimal notation for fractions with denominators 10 or 100. Compare two decimals to hundredths place by reasoning about their size, and record the comparison using the symbols  $>$ ,  $=$ , or  $<$ . **4.NF.C.7**

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## Geometric Reasoning and Measurement

- A. Draw and identify lines and angles, and classify shapes by properties of their lines and angles. **4.GM.A**
  - 1. Explore, investigate, and draw points, lines, line segments, rays, angles, and perpendicular and parallel lines. Identify these in two-dimensional figures. **4.GM.A.1**
  - 2. 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. **4.GM.A.2**
  - 3. Recognize and draw a line of symmetry for a two dimensional figure. **4.GM.A.3**
- B. Solve problems involving measurement and conversion of measurements. **4.GM.B**
  - 4. Know relative sizes of measurement units and express measurements in a larger unit in terms of a smaller unit. **4.GM.B.4**
  - 5. Apply knowledge of the four operations and relative size of measurement units to solve problems in authentic contexts that include familiar fractions or decimals. **4.GM.B.5**
  - 6. Apply the area and perimeter formulas for rectangles in authentic contexts and mathematical problems. **4.GM.B.6**
- C. Geometric measurement: understand concepts of angle and measure angles. **4.GM.C**
  - 7. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint. Understand and apply concepts of angle measurement. **4.GM.C.7**
  - 8. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. **4.GM.C.8**
  - 9. Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. **4.GM.C.9**

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## Data Reasoning

- A. Pose investigative questions and collect/consider data. **4.DR.A**
  - 1. Generate questions to investigate situations within the classroom, school or community. Determine strategies for collecting or considering data involving addition and subtraction of fractions that can naturally answer questions by using information presented in line plots. **4.DR.A.1**
- B. Analyze, represent, and interpret data. **4.DR.B**
  - 2. Analyze line plots to display a distribution of numerical measurement data, which include displays of data sets of fractional measurements with the same denominator. Interpret information presented to answer investigative questions. **4.DR.B.2**