Grade 4
Unit 1: Whole Numbers: Place Value, Comparison, Addition, and Subtraction

Skills and Standards

- **NY-4.NBT.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. Ex: Recognize that 70 × 10 = 700 (and, therefore, 700 ÷ 10 = 70) by applying concepts of place value, multiplication, and division.
- **NY-4.NBT.2a**. Read and write multi-digit whole numbers using base ten numerals, number names, and expanded form. Ex: 50,327 = 50,000 + 300 + 20 + 7
- **NY-4.NBT.2b** Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
- **NY-4.NBT.3** Use place value understanding to round multi-digit whole numbers to any place.
- **NY-4.NBT.4** Fluently add and subtract multi-digit whole numbers using a standard algorithm
- **Grade 4 expectations are limited to whole numbers less than or equal to 1,000,000**

Pacing Notes

- Included
  - 17 days for Lessons
  - 5 days for Lesson 0
  - 2 days for i-Ready Inform (required)
  - 1 day for End of Unit Assessment (required)

Strategies and Models

Resources to review prior to instruction:
Found in Teacher Toolbox – Beginning of Unit

- Unit Flow and Progression
- Unit 1 Math Background
- Unit 1 Grade Level Planning (Prerequisite) Report

NYS Released Questions

- Grade 4 NYS Released Questions

Assessments

- Lesson Quizzes/ Digital Comprehension Check
- End of Unit Assessment: **Think Tech** (required)

Educator Notes

- Applying place – value concepts for 1,000,000 (Lesson 1)
- Comparing numbers up to and including 1,000,000 (Lesson 2)
- Rounding numbers to 1,000,000 (Lesson 3)
- Adding numbers with sums of 1,000,000 (Lesson 4)
- Subtracting numbers from 1,000,000 (Lesson 5)

Grade 4
Unit 2: Operations: Multiplication, Division, and Algebraic Thinking

Skills and Standards

- **NY-4.OA.1** Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations. e.g., • Interpret 35 = 5 x 7 as a statement that 35 is 5 times as many as 7 or 7 times as many as 5. • Represent "Four times as many as eight is thirty-two" as an equation, 4 x 8 = 32.
- **NY-4.OA.2** Multiply or divide to solve word problems involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison. Use drawings and equations with a symbol for the unknown number to represent the problem.
- **NY-4.OA.3** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.
- **NY-4.OA.3a** Represent these problems using equations or expressions with a letter standing for the unknown quantity.
- **NY-4.OA.3b** Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
- Note: Multistep problems need not be represented by a single expression or equation
- **NY-4.OA.4** Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.
- **NY-4.OA.5** Generate a number or shape pattern that follows a given rule. Identify and informally explain apparent features of the pattern that were not explicit in the rule itself. 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. Explain informally why the numbers will continue to alternate in this way.

Pacing Notes

- Included
  - 20 days for Lessons
  - 1 day for Mid Unit Assessment
  - 1 day for End of Unit Assessment (required)

Strategies and Models

Resources to review prior to instruction:
Found in Teacher Toolbox – Beginning of Unit

- Unit Flow and Progression
- Unit 2 Math Background
- Unit 2 Grade Level Planning (Prerequisite) Report

NYS Released Questions

- Grade 4 NYS Released Questions

Assessments

- Lesson Quizzes/Digital Comprehension Checks
- Mid Unit Assessment
- End of Unit Assessment **Think Tech** (required)

Educator Notes

Consider modifying the unit materials to include the following content provided in the Enhancement Activities:

- Not requiring the use of a single expression or equation to represent two-step word problems. (Lesson 10)

Grade 4
Unit 3: Multi-digit Operations and Measurement: Multiplication, Division, Perimeter, and Area

Skills and Standards

- **NY-4.NBT.5** 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.
- Note on and/or: Students should be taught to use equations, rectangular arrays, and area models; however, when illustrating and explaining any calculation, students can choose any strategy.
- **NY-4.NBT.6** 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.
- Notes on and/or: Students should be taught to use strategies based on place value, the properties of operations, and the relationship between multiplication and division; however, when solving any problem, students can choose any strategy. Students should be taught to use equations, rectangular arrays, and area models; however, when illustrating and explaining any calculation, students can choose any strategy.
- Note: Grade 4 expectations are limited to whole numbers less than or equal to 1,000,000
- **Posttest** **NY-4.MD.1** Know relative sizes of measurement units: ft., in.; km, m, cm e.g., An inch is about the distance from the tip of your thumb to your first knuckle. A foot is the length of two-dollar bills. A meter is about the height of a kitchen counter. A kilometer is 2 ½ laps around most tracks. Know the conversion factor and use it to convert measurements in a larger unit in terms of a smaller unit: ft., in.; km, m, cm; hr., min., sec. e.g., Know that 1 ft. is 12 times as long as 1 in. and express the length of a 4 ft. snake as 48 in. Given the conversion factor, convert all other measurements within a single system of measurement from a larger unit to a smaller unit. e.g., Given the conversion factors, convert kilograms to grams, pounds to ounces, or liters to milliliters. Record measurement equivalents in a two-column table. e.g., Generate a conversion table for feet and inches.
- **NY-4.MD.3** Apply the area and perimeter formulas for rectangles in real world and mathematical problems. e.g., 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.

Dates/Number of Days/ Pacing Notes

- Lessons Taught in Trimester 1, Trimester 2, and Trimester 3.
- Included:
  - 22 days for Lessons
  - 1 day for NYS Enhancement Activity
  - 1 day for End of Unit Assessment (required)
  - 2 days for i-Ready Inform (required)

Strategies and Models

Resources to review prior to instruction:
Found in Teacher Toolbox – Beginning of Unit

- Unit Flow and Progression
- Unit 3 Math Background
- Unit 3 Grade Level Planning (Prerequisite) Report

NYS Released Questions

- Grade 4 NYS Released Questions

Assessments

- Lesson Quizzes/Digital Comprehension Checks
- Mid Unit Assessment
- End of Unit Assessment **Think Tech** (required)

Educator Notes

Consider modifying the unit materials to include the following content provided in the Enhancement Activities:

- Recognize the relative sizes of ft, in, km, m, and cm

Lesson 13 will be taught posttest Trimester 3

Grade 4
Unit 4 (Part 1) Lessons 17 – 24: Fractions, Decimals, and Measurement: Addition, Subtraction, and Multiplication

Skills and Standards

- **NY-4.NF.1** Explain why a fraction a/b is equivalent to a fraction $a \times n \,/\, b \times n$ 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.
- **NY-4.NF.2** Compare two fractions with different numerators and different denominators. Recognize that comparisons are valid only when the two fractions refer to the same whole. e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½. Record the results of comparisons with symbols >, =, or <, and justify the conclusions. E.g., using a visual fraction model.
  Note: Grade 4 expectations are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100
- **NY-4.NF.3** Understand a fraction a/b with a > 1 as a sum of fractions 1/b.
  Note: $\mathbf{1/b}$ refers to the unit fraction for $\boldsymbol{a/b}$.
- **NY-4.NF.3a** Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
- **NY-4.NF.3b** 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 such as, but not limited to:
  - $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$
  - $\frac{3}{8} = \frac{1}{8} + \frac{2}{8}$
  - $2\frac{1}{8} = 1 + 1 + \frac{1}{8} = \frac{8}{8} + \frac{8}{8} + \frac{1}{8}$
- **NY-4.NF.3c** Add and subtract mixed numbers with like denominators. e.g., replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
- **NY-4.NF.3d** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators. e.g., using visual fraction models and equations to represent the problem.
- **NY-4.NF.4** Apply and extend previous understandings of multiplication to multiply a whole number by a fraction.
- Note: This standard refers to n groups of a fraction (where n is a whole number), e.g., 4 groups of **1/3**; which lends itself to being thought about as repeated addition. In grade 5 (NY-5. NF.4) students will be multiplying a fraction by a whole number, e.g., **1/3** of 4.
- **NY-4.NF.4a** Understand a fraction a/b as a multiple of 1/b. e.g., Use a visual fraction model to represent 5/4 as the product 5 × ¼, recording the conclusion with the equation 5/4 = 5 × ¼ .
- **NY-4.NF.4b** Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a whole number by a fraction. e.g., Use a visual fraction model to express 3 × 2/5 as 6 × 1/5, recognizing this product as 6/5 , in general, n × a/b = $(n \times a)$/b .
- **NY-4.NF.4c** Solve word problems involving multiplication of a whole number by a fraction. e.g., using visual fraction models and equations to represent the problem. e.g., If each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?
- **NY-4.MD.4** Make a line plot to display a data set of measurements in fractions of a unit ½, ¼, 1/8. Solve problems involving addition and subtraction of fractions by using information presented in line plots. e.g., Given measurement data on a line plot, find and interpret the difference in length between the longest and shortest specimens in an insect collection

Pacing Notes

- Pretest Unit 4 Standards – Lessons 17 - 24
- Included:
  - 30 days for Lessons
  - 1 day for Mid Unit Assessment 1 (after L20)
  - 1 day for Mid Unit Assessment 2 (after L24) (required)

Strategies and Models

Resources to review prior to instruction:
Found in Teacher Toolbox – Beginning of Unit

- Unit Flow and Progression
- Unit 4 Math Background
- Unit 4 Grade Level Planning (Prerequisite) Report

NYS Released Questions

- Grade 4 NYS Released Questions

Assessments

- Lesson Quizzes/Digital Comprehension Checks
- Mid Unit Assessments **Think Tech** (required)

Grade 4
Post Test: Unit 4 (Part 2) Lessons 25 – 29: Fractions, Decimals, and Measurement: Addition, Subtraction, and Multiplication

Skills and Standards

- **NY-4.NF.5** 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. e.g., express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.
- Note: 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.
- **NY-4.NF.6** Use decimal notation for fractions with denominators 10 or 100. e.g., Rewrite 0.62 as 62/100 or 62/100 as 0.62. Describe a length as 0.62 meters. Locate 0.62 on a number line.
- **NY-4.NF.7** Compare two decimals to hundredths by reasoning about their size. Recognize that 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., using a visual model
- Note: Grade 4 expectations are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.
- **NY-4.MD.2** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money.
- **NY-4.MD.2a** Solve problems involving fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit.
- **NY-4.MD.2b** Represent measurement quantities using diagrams that feature a measurement scale, such as number lines.

Dates/Number of Days/ Pacing Notes

- Post Test Standards
- Included
  - 20 days for Lessons
  - 1 day for End of Unit Assessment (required)
  - 2 days NYS CBT

Strategies and Models

Resources to review prior to instruction:
Found in Teacher Toolbox – Beginning of Unit

- Unit Flow and Progression
- Unit 4 Math Background
- Unit 4 Grade Level Planning (Prerequisite) Report

NYS Released Questions

- Grade 4 NYS Released Questions

Assessments

- Lesson Quizzes/Digital Comprehension Checks
- End of Unit Assessment: **Think Tech** (required)

Educator Notes

Grade 4
Unit 5: Geometry and Measurement: Figures, Classification, and Symmetry

Skills and Standards

- **NY -4.MD.5** Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.
- **NY -4.MD.5a** Recognize 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 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.
- **NY - 4.MD.5b** Recognize an angle that turns through n one-degree angles is said to have an angle measure of n degrees.
- **NY- 4.MD.6** Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
- **NY- 4.MD.7** 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. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems. e.g., using an equation with a symbol for the unknown angle measure.
- **NY- 4.G.1** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
- **NY- 4.G.2a** Identify and name triangles based on angle size (right, obtuse, acute)
- **NY- 4.G.2b** Identify and name all quadrilaterals with 2 pairs of parallel sides as parallelograms.
- **NY- 4.G.2c** Identify and name all quadrilaterals with four right angles as rectangles.
- **NY- 4.G.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.

Pacing Notes

- Taught in Trimester 2 and 3
- Included:
  - 20 days for Lessons
  - 1 day for NYS Enhancement Lesson
  - 1 day for End of Unit Assessment (required)
  - 2 days for i-Ready Inform (required)

Strategies and Models

Resources to review prior to instruction:
Found in Teacher Toolbox – Beginning of Unit

- Unit Flow and Progression
- Unit 5 Math Background
- Unit 5 Grade Level Planning (Prerequisite) Report

NYS Released Questions

- Grade 4 NYS Released Questions

Assessments

- Lesson Quizzes/Digital Comprehension Checks
- End of Unit Assessment: **Think Tech** (required)

Educator Notes