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Grade 4

Number and Operations

Multiplication and Division

Reasoning about numbers and their multiples and factors

UNIT 1 MATH FOCUS POINTS

- Determining whether one number is a factor or multiple of another
- Finding factors of 2-digit numbers using arrays
- Identifying the factors of a given number
- Identifying prime, square, and composite numbers
- Identifying all the factors of 100
- Using knowledge of the factors of 100 to find factors of multiples of 100
- Using known factors to find related factors for a given number (e.g., if $4 \times 25 = 100$, then $8 \times 25 = 200$)
- Using representations to show that a factor of a number is also a factor of its multiples (e.g., if 25 is a factor of 100, then 25 is also a factor of 300)

TEN-MINUTE MATH

- Finding the multiples of numbers through skip counting
- Using multiplication patterns to determine a sequence of multiples
- Applying the properties of multiplication to find missing factors

Each strand is labeled with a grade level.

The content is organized around six strands. All strands do not appear at every grade level.

The strands are divided into main math ideas.

The main math ideas are further subdivided into Math Focus Points. The main math ideas may appear in one or more units.

The main math ideas are also supported by the Ten-Minute Math activities.

Grade 4

Number and Operations

Multiplication and Division

Visualizing multiplication

UNIT 1 MATH FOCUS POINTS

- Representing multiplication situations with arrays
- Reviewing multiplication facts

TEN-MINUTE MATH

- Organizing and analyzing visual images
- Writing multiplication equations that model the structure of dot arrangements

Reasoning about numbers and their multiples and factors

UNIT 1 MATH FOCUS POINTS

- Determining whether one number is a factor or multiple of another
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- Identifying prime, square, and composite numbers
- Identifying all the factors of 100
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TEN-MINUTE MATH

- Finding the multiples of numbers through skip counting
- Using multiplication patterns to determine a sequence of multiples
- Applying the properties of multiplication to find missing factors

Solving multiplicative comparison problems

UNIT 1 MATH FOCUS POINTS

- Solving word problems that involve multiplicative comparison
- Representing multiplicative comparison problems with multiplication or division equations

Solving multiplication problems with 2-digit numbers

UNIT 3 MATH FOCUS POINTS

- Developing and using strategies for multiplying that involve breaking apart numbers
- Solving multi-step word problems
- Finding the product represented by an array by breaking it into parts

Understanding and using the relationship between multiplication and division to solve division problems

UNIT 3 MATH FOCUS POINTS

- Solving division word problems
- Using and interpreting division notation
- Solving division problems by making groups of the divisor
- Using the relationship between multiplication and division to solve division problems

Understanding the meaning and structure of multiplication and division

UNIT 3 MATH FOCUS POINTS

- Representing a multiplication problem with pictures, diagrams, or models
- Making sense of remainders in terms of the problem context
- Solving word problems that involve multiplicative comparison
- Creating a story context to represent a division expression
- Finding multiples of 2-digit numbers
- Using known multiples of a number to find other multiples of that number
- Comparing visual representations of multiplication situations
- Understanding the effect of multiplying by a multiple of 10
- Determining the effect on the product when one factor is doubled and one factor is halved

TEN-MINUTE MATH

- Finding the multiples of numbers through skip counting
- Using multiplication patterns to determine a sequence of multiples
- Applying the properties of multiplication to find missing factors

Solving multiplication problems

UNIT 7 MATH FOCUS POINTS

- Estimating solutions to multiplication problems
- Multiplying multiples of 10
- Using a story problem represented by a multiplication expression to keep track of parts of the problem
- Representing a multiplication problem with pictures or diagrams, including arrays and pictures of groups
- Solving multiplication problems by breaking a problem into smaller parts and combining the subproducts
- Multiplying a 4-digit number by a 1-digit number
- Solving multiplication problems by changing one factor and adjusting
- Solving multiplication problems

TEN-MINUTE MATH

- Estimating solutions to multiplication problems
- Breaking apart, reordering, rounding, or changing numbers mentally to determine a reasonable estimate
- Generating expressions equivalent to a given number using particular constraints
- Practicing computation skills

Solving division problems

UNIT 7 MATH FOCUS POINTS

- Identifying factors of a number
- Solving division problems by breaking the problem into parts
- Representing a division problem with pictures or diagrams, including arrays, and pictures of groups
- Using a story problem represented by a division expression to keep track of parts of the problem
- Using multiples of 10 to solve division problems
- Dividing a 4-digit number by a 1-digit number
- Estimating solutions to division problems
- Breaking apart, reordering, rounding, or changing numbers mentally to determine a reasonable estimate
- Solving division problems

TEN-MINUTE MATH

- Estimating solutions to division problems
- Breaking apart, reordering, rounding, or changing numbers mentally to determine a reasonable estimate

Solving measurement problems

UNIT 7 MATH FOCUS POINTS

- Using multiplication to convert measurements
- Using the four operations to solve word problems involving measurements
- Solving multi-step problems
- Writing equations using a letter for the unknown quantity

Addition, Subtraction, and the Number System

Extending knowledge of the number system to 1,000,000

UNIT 5 MATH FOCUS POINTS

- Reading, writing, and sequencing numbers to 10,000
- Understanding the structure of 10,000 and its equivalence to one thousand 10s, one hundred 100s, and ten 1,000s
- Writing multidigit numbers using expanded form
- Using place-value understanding to round numbers to any place

TEN-MINUTE MATH

- Reading and writing multidigit numbers, including using expanded form
- Adding multiples of 10 to, and subtracting multiples of 10 from, multidigit numbers
- Using place value understanding to round whole numbers to any place

Adding and subtracting fluently

UNIT 5 MATH FOCUS POINTS

- Adding 3- and 4-digit numbers fluently
- Using clear and concise notation to record addition strategies
- Understanding the steps and notation of the U.S. standard algorithm for addition
- Adding using the U.S. standard algorithm for addition
- Solving subtraction problems using different strategies
- Understanding the meaning of the steps and notation of the U.S. standard algorithm for subtraction

- Using clear and concise notation for recording subtraction strategies
- Subtracting using the U.S. standard algorithm
- Solving distance problems involving subtraction situations
- Representing subtraction situations
- Representing addition and subtraction on a number line
- Solving subtraction problems fluently
- Finding combinations of 3-digit numbers that add to 1,000
- Solving addition and subtraction problems with large numbers by focusing on place value
- Interpreting and solving multi-step problems
- Solving whole-number addition and subtraction problems fluently
- Adding and subtracting using the U.S. standard algorithms

TEN-MINUTE MATH

- Generating expressions equivalent to a given number using particular constraints
- Practicing computation skills

Describing, analyzing, and comparing strategies for adding and subtracting whole numbers

UNIT 5 MATH FOCUS POINTS

- Identifying, describing, and comparing addition strategies by focusing on how each strategy starts
- Developing arguments about why two addition expressions are equivalent (e.g., $597 + 375 = 600 + 372$) using story contexts and representations.
- Identifying, describing, and comparing subtraction strategies by focusing on how each strategy starts
- Using story contexts and representations to support explanations about related subtraction expressions

Grade 4

Rational Numbers

Fractions and Decimals

Understanding the meaning of fractions and decimals

UNIT 6 MATH FOCUS POINTS

- Finding fractional parts of a rectangle
- Interpreting the meaning of the numerator and the denominator of a fraction
- Representing fractions greater than 1
- Reading and writing tenths and hundredths
- Representing tenths and hundredths as parts of an area
- Identifying equivalent fractions and explaining why they are equivalent

Comparing the values of fractions and decimals

UNIT 6 MATH FOCUS POINTS

- Identifying relationships between unit fractions when one denominator is a multiple of the other (e.g., halves and fourths, thirds and sixths)
- Comparing the same fractional parts of different-sized wholes
- Comparing and ordering fractions and justifying their order through reasoning about fraction equivalencies and relationships
- Representing fractions on a number line
- Comparing fractions to the landmarks 0 , $\frac{1}{2}$, 1 , and 2
- Comparing and ordering decimals and justifying their order through reasoning about representations and the meaning of the numbers

Computing with rational numbers

UNIT 6 MATH FOCUS POINTS

- Decomposing fractions into smaller fractions
- Adding fractions
- Using representations to show addition of fractions
- Subtracting fractions
- Using representations to show subtraction of fractions
- Making a line plot to display a data set of measurements involving fractions
- Adding and subtracting fractions and mixed numbers
- Representing tenths and hundredths as part of an area
- Adding tenths and hundredths
- Solving word problems involving distances that include fractions or decimals
- Multiplying a fraction by a whole number
- Using visual models to solve word problems involving multiplication of a fraction by a whole number
- Using addition, subtraction, and multiplication to solve problems involving fractions or mixed numbers
- Solving word problems involving measurement

TEN-MINUTE MATH

- Finding the multiples of numbers through skip counting by fractions
- Using multiplication patterns to determine a sequence of multiples
- Applying the properties of multiplication to find missing factors

Grade 4

Analyzing Patterns and Rules

Modeling situations with mathematics

UNIT 8 MATH FOCUS POINTS

- Using tables to model situations
- Using symbolic notation to model situations
- Using letters in equations to represent unspecified quantities

Generating and analyzing patterns

UNIT 8 MATH FOCUS POINTS

- Generating number patterns and identifying features of the pattern
- Articulating a rule that describes a number pattern
- Comparing situations represented by arithmetic sequences

Solving multi-step problems

UNIT 8 MATH FOCUS POINTS

- Analyzing arithmetic patterns to solve problems
- Representing and solving multi-step problems involving more than one operation

Grade 4

Measurement

Generating measurement data

UNIT 2 MATH FOCUS POINTS

- Using U.S. standard units to measure lengths longer than the measuring tool
- Measuring accurately

Solving measurement problems

UNIT 4 MATH FOCUS POINTS

- Using U.S. standard and metric units to accurately measure length
- Estimating lengths in common units (centimeter, inch, foot, yard, meter)
- Identifying measurement equivalents
- Converting measurements from larger units to smaller units
- Finding perimeter using standard units
- Using a generalizable method to determine the perimeter of a rectangle

UNIT 7 MATH FOCUS POINTS

- Converting measurements in larger units to smaller units
- Making tables of equivalent measurements
- Using multiplication to convert measurements
- Using the four operations to solve word problems involving measurements
- Solving multi-step problems
- Writing equations using a letter for the unknown quantity

TEN-MINUTE MATH

- Determining intervals of time to the minute
- Solving problems involving addition, subtraction, or multiplication of time intervals in minutes

Describing and measuring angles

UNIT 4 MATH FOCUS POINTS

- Identifying right, acute, and obtuse angles
- Identifying and creating 90-degree angles
- Using known angles to build and find the measure of other angles
- Drawing angles of a specific measure
- Understanding the relationship between the degree measure of an angle and rotation in a circular arc
- Measuring angles using a protractor

Understanding and determining area

UNIT 4 MATH FOCUS POINTS

- Finding the area of symmetrical shapes
- Dividing irregular polygons into two shapes that have equal area
- Using symmetry and congruence to identify equal areas
- Finding the area of polygons using square units
- Finding the area of polygons by decomposing shapes
- Finding the area of a rectangle
- Using a generalizable method to determine the area of a rectangle
- Determining an unknown dimension of a rectangle when one dimension and the area are known

Grade 4 Data

Representing data

UNIT 2 MATH FOCUS POINTS

- Organizing ordered, numerical data to describe a data set
- Using a line plot to represent ordered, numerical data
- Representing two sets of data in order to compare them
- Considering how well a data representation communicates information to an audience
- Using a line plot to represent measurement data that includes fractions

TEN-MINUTE MATH

- Using a line plot to represent ordered, numerical data

Describing, summarizing, and comparing data

UNIT 2 MATH FOCUS POINTS

- Describing the shape of a data set
- Describing what is typical about the data set as a whole
- Describing and interpreting data that compare two groups
- Comparing two sets of data using the shape of the data

TEN-MINUTE MATH

- Describing the shape of a set of data

Analyzing and interpreting data

UNIT 2 MATH FOCUS POINT

- Developing arguments based on data

Generating measurement data

UNIT 2 MATH FOCUS POINTS

- Recording and keeping track of data
- Developing and revising a data question

Grade 4

Geometry

Describing and classifying 2-dimensional figures

UNIT 4 MATH FOCUS POINTS

- Defining polygons as closed figures with line segments as sides that come together at points called vertices
- Identifying geometric figures including: points, lines, rays, line segments, and parallel and perpendicular lines
- Identifying shapes with parallel or perpendicular sides
- Combining polygons to make new polygons
- Recognizing number of sides as a descriptor of various polygons
- Classifying polygons by attribute, including number and relative length of sides, size of angles, and absence or presence of parallel or perpendicular sides

TEN-MINUTE MATH

- Looking for and making use of the structure of 2-D geometric shapes
- Developing language and concepts needed to communicate about spatial relationships, including shape names and attributes
- Decomposing and recombining 2-D shapes

Identifying mirror symmetry in shapes

UNIT 4 MATH FOCUS POINTS

- Determining lines of symmetry in a two-dimensional figure
- Making designs with mirror symmetry