Looking Back At:

Grade 2

Grade 3

Looking Forward To:

Grade 4

Grade 3

Number and Operations

Each strand is labeled with a grade level.

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

Multiplication and Division

The strands are divided into main math ideas.

Understanding the meaning of multiplication

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

UNIT 1 MATH FOCUS POINTS IN SESSIONS

- Understanding multiplication as combining equal groups
- Writing, representing, and solving multiplication problems in context
- Identifying the number of groups and the number in each group (the factors), and the total number (the product)
- Understanding the relationship among skip counting, repeated addition, and multiplication
- Using and understanding multiplication notation
- Finding the multiples of the numbers 2, 3, 4, 5, 6, and 10
- Describing and comparing characteristics of sets of multiples
- Understanding that doubling (or halving) one factor in a multiplication expression doubles (or halves) the product
- Using contexts to understand multiplication involving 1 and 0

The main math ideas are also supported by the Ten-Minute Math activities (or Classroom Routines in Grade 2).

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

Grade 3

Number and Operations

Multiplication and Division

Understanding the meaning of multiplication

UNIT 1 MATH FOCUS POINTS

- Understanding multiplication as combining equal groups
- Writing, representing, and solving multiplication problems in context
- Identifying the number of groups and the number in each group (the factors), and the total number (the product)
- Understanding the relationship among skip counting, repeated addition, and multiplication
- Using and understanding multiplication notation
- Finding the multiples of the numbers 2, 3, 4, 5, 6, and 10
- Describing and comparing characteristics of sets of multiples
- Understanding that doubling (or halving) one factor in a multiplication expression doubles (or halves) the product
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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
- Becoming familiar with multiplication patterns to determine a sequence of multiples
- Understanding the relationship between skip counting and multiplication

Understanding and working with an array/area model of multiplication

UNIT 1 MATH FOCUS POINTS

- Modeling multiplication situations with arrays
- Finding factors of 2-digit numbers up to 30 using arrays
- Identifying characteristics of numbers, including prime and square numbers, using arrays

- Finding the product represented by an array by breaking it into parts
- Finding the area of a rectangle by covering it with square tiles
- Developing an understanding that the area of a rectangle can be found by multiplying its dimensions

Learning multiplication facts

UNIT 1 MATH FOCUS POINTS

- Learning multiplication facts using arrays
- Using known multiplication facts to determine the product of more difficult facts
- Identifying and learning multiplication facts not yet known
- Learning multiplication facts to 10 × 10

UNIT 5 MATH FOCUS POINTS

- Using known multiplication facts to determine the product of more difficult facts
- Finding a product by using an array or story context to represent breaking it into parts
- Identifying and learning multiplication facts not yet known
- Learning multiplication facts to 10 × 10

TEN-MINUTE MATH

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

Developing strategies for division based on understanding the inverse relationship between multiplication and division

UNIT 1 MATH FOCUS POINTS

- Understanding division as the splitting of a quantity into equal groups
- Writing, representing, and solving division problems in context
- Using the inverse relationship between multiplication and division to solve problems
- Using multiplication facts to solve division problems
- Using and understanding division notation

Understanding the meaning and structure of multiplication and division and the relationship between them

UNIT 5 MATH FOCUS POINTS

- Recognizing multiples and non-multiples of 3, 4, or 6
- Interpreting division as how many equal groups
- Understanding and articulating the relationship between multiplication and division
- Understanding that doubling one factor in a multiplication expression doubles the product
- Finding the area of arrays by multiplying the dimensions
- Using strategies based on the distributive property
- Developing strategies for multiplying that involve breaking apart numbers
- Understanding division as an unknown-factor problem

Solving multiplication and division problems, including multi-step problems and problems with multiple solutions

UNIT 5 MATH FOCUS POINTS

- Using multiplication or division to solve word problems
- Using multiplication facts to solve division problems
- Using the inverse relationship between multiplication and division to solve problems
- Representing and comparing multiplication problems with pictures, diagrams, or models
- Solving multi-step problems involving multiplication and addition
- Writing an equation with a letter to represent the unknown
- Solving problems with multiple solutions
- Writing equations to show how a number is a multiple or non-multiple of 3, 4, or 6
- Writing equations with two operations
- Writing and interpreting related multiplication and division equations
- Using and understanding multiplication and division notation
- Understanding the role of parentheses in equation notation

TEN-MINUTE MATH

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

Making sense of multiplying multiples of 10 by one-digit numbers

UNIT 5 MATH FOCUS POINTS

- Multiplying one-digit numbers by multiples of 10
- Understanding the effect of multiplying a single-digit number by a multiple of 10

Solving multiplication problems with 2-digit numbers

UNIT 8 MATH FOCUS POINTS

- Multiplying 2-digit by 1-digit numbers
- Developing strategies for multiplying that involve breaking apart numbers
- Representing a multiplication problem with pictures, diagrams, arrays, or models
- Solving multiplication problems

TEN-MINUTE MATH

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

Solving division problems

UNIT 8 MATH FOCUS POINTS

- Using the relationship between multiplication and division to solve division problems
- Using and interpreting division notation
- Solving related division problems
- Making sense of remainders in terms of the problem context
- Dividing a 2-digit number by a 1-digit number
- Solving division problems

TEN-MINUTE MATH

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

Learning division facts

UNIT 8 MATH FOCUS POINTS

- Developing fluency with division facts
- Using known division facts and related multiplication facts to determine quotients of more difficult facts

Identifying arithmetic patterns and solving multi-step problems

UNIT 8 MATH FOCUS POINTS

- Solving multi-step problems involving more than one operation
- Representing multi-step problems involving more than one operation
- Identifying and explaining arithmetic patterns
- Using tables to identify and interpret arithmetic patterns
- Connecting the steps of a general method or rule to the parts of the situation they represent
- Representing multi-step problems with equations
- Using letters to stand for unknown quantities

Addition, Subtraction, and the Number System

Using knowledge of place value to add and subtract

UNIT 3 MATH FOCUS POINTS

- Constructing 1,000 from 10 groups of 100
- Reading, writing, and sequencing numbers to 1,000
- Representing the structure of 3-digit numbers as the composition of 100s, 10s, and 1s
- Recognizing and demonstrating the equivalence of one 100 to ten 10s and of one 10 to ten 1s
- Using place value to determine the size of any number to 1,000
- Determining the number of hundreds in the sum of 3-digit numbers (e.g., there are 6 hundreds in 329 + 287)
- Recognizing and representing the groups of 10 in 3-digit numbers (e.g., there are 27 tens in 276)
- Using place-value understanding to round whole numbers to the nearest ten or hundred

- Recognizing and representing the place value of each digit in 2- and 3-digit numbers
- Finding different combinations of 100s, 10s, and 1s for a given number, and recognizing their equivalence (e.g., 137 equals 1 hundred, 3 tens, and 7 ones, or 1 hundred, 2 tens, and 17 ones, or 13 tens and 7 ones)

TEN-MINUTE MATH

- Recognizing and interpreting the value of each digit in 2- and 3-digit numbers
- Reading and writing 2- and 3-digit numbers, including using expanded form
- Adding multiples of 10 to, and subtracting multiples of 10 from, 2- and 3-digit numbers
- Using place value understanding to round whole numbers to the nearest ten or hundred

Adding and subtracting fluently

UNIT 3 MATH FOCUS POINTS

- Adding and subtracting multiples of 10 and 100
- Solving addition problems with 2- and 3-digit numbers (up to 400) by using strategies that involve breaking each number apart by place or adding on one number in parts
- Finding the difference between 2- and 3-digit numbers and 100
- Representing a subtraction problem on a number line
- Finding pairs of numbers that add to 100
- Using known pairs of 2-digit numbers that add to 100 to find related pairs that add to 100 or a number close to 100 (e.g., $20 + 80 = 100$, so $22 + 78 = 100$)
- Estimating the sums of 2- and 3-digit numbers using knowledge of place value and known combinations
- Developing strategies for solving addition problems by focusing on how each strategy starts
- Using multiples of 100 as landmarks to solve subtraction problems
- Finding the difference between two numbers by either adding up or subtracting
- Reasoning about how increasing or decreasing one of the numbers in a subtraction problem affects the difference
- Solving subtraction problems with 2- and 3-digit numbers (up to 300) using strategies that involve subtracting one number in parts, adding up, or subtracting back
- Representing addition strategies

UNIT 7 MATH FOCUS POINTS

- Solving addition and subtraction problems in the context of money (dollars, cents)
- Solving addition and subtraction problems in the context of distance traveled
- Solving multi-step word problems
- Combining hundreds to numbers above 1,000
- Solving addition problems with 3-digit numbers
- Estimating and solving addition problems with sums greater than 1,000
- Solving addition problems with more than 2 addends
- Determining combinations of addends for a given sum
- Subtracting from multiples of 100
- Adding multiples of 10 and 100 to, and subtracting them from, 3-digit numbers
- Estimating answers to subtraction problems with 3-digit numbers
- Solving related subtraction problems involving multiples of 100
- Using multiples of 100 to solve subtraction problems
- Writing a story problem to represent a subtraction equation
- Solving add to, take from, put together/take apart, and compare story problems

TEN-MINUTE MATH

- Generating expressions equivalent to a given number using particular constraints
- Practicing computation skills
- Estimating solutions to 3-digit addition and subtraction problems
- Breaking apart, reordering, rounding, or changing numbers mentally to determine a reasonable estimate

Understanding different types of addition and subtraction problems

UNIT 3 MATH FOCUS POINTS

- Visualizing and representing add to, take from, put together/take apart, and compare problems
- Solving add to, take from, put together/take apart, and compare story problems
- Using number lines to represent solutions to comparison problems

Solving problems involving measurement of liquid volume and mass

UNIT 7 MATH FOCUS POINT

- Solving addition and subtraction problems involving liquid volume and mass

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

UNIT 7 MATH FOCUS POINTS

- Identifying addition strategies by focusing on how each strategy starts
- Solving addition problems by changing the numbers to create an equivalent problem that is easier to solve
- Using story contexts and representations to support explanations about equivalent addition expressions (e.g., $88 + 105 = 90 + 103$)
- Subtracting 3-digit numbers by using strategies that involve subtracting one number in parts, adding up, or subtracting back
- Subtracting by using strategies that involve changing one number to make a problem that is easier to solve
- Using story contexts and representations to support explanations about how changing a number in a subtraction problem affects the difference (e.g., $200 - 75 = 125$ and $200 - 78 = 122$)

Grade 3
Rational Numbers

Fractions

Understanding the meaning of fractions as equal parts of a whole

UNIT 6 MATH FOCUS POINTS

- Representing fractional parts of an area
- Understanding one of the equal parts of a whole as a unit fraction
- Understanding fractional parts are constructed of unit fractions
- Finding fractions of different-sized wholes
- Understanding that the size of a fraction is determined by the whole
- Demonstrating that different-shaped pieces are the same fraction of a whole
- Using representations to visualize how fractions relate to each other and are parts of a whole.

Understanding the meaning of fractions as numbers

UNIT 6 MATH FOCUS POINTS

- Representing fractions on a number line
- Understanding a unit fraction as a number represented on a number line
- Understanding fractions with numerators greater than 1 as iterations of a unit fraction on the number line
- Measuring length to the nearest fourth inch
- Representing measurement data to the nearest fourth inch on a line plot

Comparing fractions and reasoning about fraction equivalencies with representations

UNIT 6 MATH FOCUS POINTS

- Generating and identifying equivalent fractions
- Understanding and explaining why fractions are equivalent
- Ordering unit fractions by reasoning about their size
- Comparing fractions by reasoning about their size
- Comparing fractions with the same denominators or same numerators

Modeling with fraction notation

UNIT 6 MATH FOCUS POINTS

- Understanding and using notation for unit fractions (e.g., $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{8}$)
- Understanding and using notation for fractions with numerators greater than 1 (e.g., $\frac{3}{4}$, $\frac{2}{3}$)
- Understanding and using notation for fractions equivalent to 1 (e.g., $\frac{2}{2}$, $\frac{3}{3}$)
- Understanding and using notation for fractions greater than 1 (e.g., $\frac{3}{2}$, $\frac{7}{4}$)
- Using equations to represent how fractions relate to each other and to a whole

Grade 3
Measurement

Generating measurement data

UNIT 2 MATH FOCUS POINTS

- Generating measurement data by measuring to the nearest half inch
- Generating measurement data by measuring lengths longer than the measuring tool
- Understanding the relationship between feet and inches
- Combining feet and inches to get a total measurement
- Using correct notation to write a measurement in feet and inches

Understanding and finding perimeter

UNIT 4 MATH FOCUS POINTS

- Understanding perimeter as the distance around the outside edges of a 2-D figure
- Finding perimeter using standard units
- Creating different shapes with the same perimeter
- Looking for and making use of structure of 2-D geometric shapes
- Finding the perimeter of an irregular shape
- Finding the unknown side lengths when given the perimeter and some side lengths
- Understanding that rectangles can have the same perimeter and different areas or the same area and different perimeters
- Reviewing the length of units of measure (inch, foot, yard, centimeter, and meter)
- Establishing measurement benchmarks
- Using U.S. standard and metric units to accurately measure length
- Recognizing and explaining possible sources of measurement error

Understanding and finding area

UNIT 4 MATH FOCUS POINTS

- Covering a shape with no gaps or overlaps
- Understanding that area is measured in square units
- Understanding that when measuring area, the space being measured must be completely covered with no gaps or overlaps
- Understanding that different shapes can have the same area
- Determining area, using square units and half-units
- Examining the relationship between areas of rectangles and triangles
- Finding the area and perimeter of a rectangle
- Understanding that rectangles can have the same perimeter and different areas or the same area and different perimeters
- Finding the areas of partially covered rectangles
- Finding the area of an irregular shape
- Finding areas of rectangles in square units
- Multiplying side lengths to find area of a rectangle
- Understanding that area is additive through finding the areas of rectilinear shapes

Solving problems involving measurement of liquid volume and mass

UNIT 7 MATH FOCUS POINTS

- Understanding measures of liquid volume and mass
- Estimating and measuring liquid volume and mass
- Solving addition and subtraction problems involving liquid volume and mass

TEN-MINUTE MATH

- Naming, notating, and telling time to the nearest minute on a digital or analog clock
- Determining intervals of time to the nearest minute
- Solving problems involving addition or subtraction of time intervals in minutes

Grade 3 Data

Describing, summarizing, and comparing data

UNIT 2 MATH FOCUS POINTS

- Describing and interpreting categorical data
- Using summaries such as *almost all, very few, half,* or *more/less than half*
- Using one half as a benchmark
- Using data to compare groups
- Solving one- and two-step "how many more" and "how many less" problems based on data presented in bar graphs
- Describing the shape of ordered, numerical data
- Summarizing what is typical about the data as a whole
- Reading and interpreting bar graphs and pictographs
- Developing and revising a survey question

Representing data

UNIT 2 MATH FOCUS POINTS

- Developing classifications to organize categorical data
- Organizing categorical data in different ways to answer different questions
- Representing categorical data
- Considering how well a data representation communicates to an audience
- Representing data with bar graphs and pictographs
- Using and interpreting a scale on a bar graph or pictograph with intervals larger than 1
- Using a line plot to represent ordered, numerical data
- Using a line plot to represent measurement data that includes fractions
- Interpreting what the numbers and symbols on a line plot mean

TEN-MINUTE MATH

- Identifying how data are sorted into categories based on similar attributes

Grade 3
Geometry

Describing and classifying 2-D figures

UNIT 4 MATH FOCUS POINTS

- Constructing triangles and quadrilaterals with given attributes
- Identifying a right angle
- Identifying the attributes of triangles: three sides, three vertices, and three angles
- Identifying the attributes of quadrilaterals: four sides, four vertices, and four angles
- Identifying the attributes of squares, rectangles, and rhombuses
- Categorizing quadrilaterals based on their attributes
- Comparing the properties of squares, rectangles, and rhombuses

TEN-MINUTE MATH

- Looking for and making use of structure of 2-D geometric shapes
- Developing language and concepts needed to communicate about spatial relationships, including shape names and attributes
- Decomposing images of 2-D shapes and then recombining them to make a given design