IM K–5 SCOPE AND SEQUENCE*

Kindergarten

The big ideas in kindergarten include: representing and comparing whole numbers, initially with sets of objects; understanding and applying addition and subtraction; and describing shapes and space. More time in kindergarten is devoted to numbers than to other topics.

The mathematical work for kindergarten is partitioned into 8 units:
1. Math in Our World
2. Numbers 1–10
3. Flat Shapes All Around Us
4. Understanding Addition and Subtraction
5. Composing and Decomposing Numbers to 10
6. Numbers 0-20
7. Solid Shapes All Around Us
8. Putting It All Together

Unit 1: Math in Our World	Number of Lessons: 17

Students recognize numbers and quantities in their world.

Section A Goals

- Explore and use math tools.

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- Share mathematical ideas with a partner.

Section B Goals

- Recognize and name groups of up to 4 objects and images without counting.

Section C Goals

- Answer "are there enough" questions.

Section D Goals

- Count groups of up to 10 objects.

Standards Addressed:
K.CC.A.1, K.CC.B.4

Unit 2: Numbers 1–10	Number of Lessons: 22

Students answer "how many" questions, count out, and compare groups within 10. Students write a number to represent how many.

Section A Goals

- Connect quantities with spoken number words.
- Count and compare up to 10 objects and know the number remains the same regardless of the arrangement of the objects.

Section B Goals

- Connect quantities with spoken number words.
- Count and compare up to 10 images in organized arrangements and know the number remains the same regardless of the order in which the images are counted.

Section C Goals

- Connect quantities with spoken number words and written numbers.
- Understand the relationship between number and quantity.

Section D Goals

- Compare written numbers 1–10.

Standards Addressed:
K.CC.A.1, K.CC.A.3, K.CC.B.4, K.CC.B.5, K.CC.C.6, K.CC.C.7

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Unit 3: Flat Shapes All Around Us	Number of Lessons: 15

Students identify, describe, analyze, compare and compose two-dimensional shapes.

Section A Goals

- Recognize and describe shapes in the environment.
- Use informal language to describe and compare shapes and their attributes.

Section B Goals

- Explore shapes by putting shapes together to form larger shapes.

Standards Addressed:
K.CC.A.3, K.CC.B.4, K.CC.B.5, K.CC.C.6, K.G.A.1, K.G.A.2, K.G.B.6

Unit 4: Understanding Addition and Subtraction	Number of Lessons: 18

Students relate counting to addition and solve addition and subtraction story problems within 10.

Section A Goals

- Understand addition as putting together and subtraction as taking from.

Section B Goals

- Represent and solve Add To, Result Unknown and Take From, Result Unknown story problems within 10.

Section C Goals

- Find the value of addition and subtraction expressions within 10. Relate addition and subtraction expressions to story problems.

Standards Addressed:
K.OA.A.1, K.OA.A.2, K.CC.A.1, K.CC.A.2, K.CC.A.3, K.CC.B.4, K.CC.B.5, K.G.A.1, K.G.B.5

Unit 5: Composing and Decomposing Numbers to 10	Number of Lessons: 15

Students compose and decompose numbers within 10.

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Section A Goals

- Compose and decompose numbers up to 9 in more than 1 way.
- Write expressions to represent decompositions.

Section B Goals

- Solve Put Together, Total Unknown, Put Together/Take Apart, Both Addends Unknown, Add To, Result Unknown, and Take From, Result Unknown story problems.

Section C Goals

- For any number from 1 to 9, find the number that makes 10 when added to the given number.

Standards Addressed:
K.CC.A.1, K.CC.A.2, K.CC.A.3, K.CC.B.5, K.OA.A.1, K.OA.A.2, K.OA.A.3, K.OA.A.4, K.OA.A.5

Unit 6: Numbers 0 – 20	Number of Lessons: 13

Students answer "how many" questions and count out groups within 20. They understand that numbers 11 to 19 are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones. They write numbers within 20.

Section A Goals

- Count groups of up to 20 objects.

Section B Goals

- Understand numbers 11-19 as 10 ones and some more ones.

Section C Goals

- Count groups of up to 20 images.

Standards Addressed:
K.CC.A.1, K.CC.A.2, K.CC.A.3, K.CC.B.4, K.CC.B.5, K.NBT.A.1, K.OA.A.1, K.OA.A.2, K.OA.A.3, K.OA.A.4

Unit 7: Solid Shapes All Around Us	Number of Lessons: 16

Students identify, describe, analyze, compare, and compose two- and three- dimensional shapes. Counting, addition, and subtraction are revisited in the geometric contexts.

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Section A Goals

- Compose shapes from smaller shapes.
- Count and compare numbers, and solve story problems involving shapes.

Section B Goals

- Compare weight and capacity of objects.
- Compose shapes from smaller shapes.
- Describe and compare three-dimensional shapes.

Standards Addressed:
K.G.A.1, K.G.A.2, K.G.A.3, K.G.B.4, K.G.B.5, K.G.B.6, K.MD.A.1, K.MD.A.2, K.MD.B.3, K.CC.A.1, K.CC.A.3, K.CC.B.5, K.CC.C.6, K.CC.C.7, K.OA.A.1, K.OA.A.2, K.OA.A.3, K.OA.A.4, K.OA.A.5, K.NBT.A.1

Unit 8: Putting It All Together	Number of Lessons: 21

Students consolidate and solidify their understanding of various concepts and skills on major work of the grade. They also continue to work toward fluency goals of the grade.

Section A Goals

- Count and compare groups of objects and images.
- Represent and write numbers up to 20

Section B Goals

- Represent and write quantities and numbers up to 20.

Section C Goals

- Fluently add and subtract within 5.

Section D Goals

- Use understanding of 10 to work with numbers to 20.

Standards Addressed:
K.CC.A.1, K.CC.A.2, K.CC.A.3, K.CC.B.4, K.CC.B.5, K.CC.C.6, K.OA.A.1, K.OA.A.2, K.OA.A.3, K.OA.A.4, K.OA.A.5, K.NBT.A.1, K.MD.B.3

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Grade 1

The big ideas in grade 1 include: developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; developing understanding of whole-number relationships and place value, including grouping in tens and ones; developing understanding of linear measurement and measuring lengths as iterating length units; and reasoning about attributes of, and composing and decomposing geometric shapes.

The mathematical work for grade 1 is partitioned into 8 units:
1. Adding, Subtracting, and Working with Data
2. Addition and Subtraction Story Problems
3. Adding and Subtracting within 20
4. Numbers to 99
5. Adding within 100
6. Length Measurements within 120 Units
7. Geometry and Time
8. Putting It All Together

Unit 1: Adding, Subtracting, and Working with Data	Number of Lessons: 15

Students add and subtract within 10, and represent and interpret categorical data.

Section A Goals

● Build toward fluency by adding and subtracting within 10 in a way that makes sense to them.

Section B Goals

● Organize and represent data.

Section C Goals

● Interpret data representations to ask and answer questions.

Standards Addressed:
1.MD.C.4, 1.OA.B.4, 1.OA.C.5, 1.OA.C.6

Unit 2: Addition and Subtraction Story Problems	Number of Lessons: 22

Students solve new types of story problems within 10 using the relationship between addition and subtraction. They develop an understanding of the meaning of the equal sign and connect story

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problems to equations.

Section A Goals

- Solve Add To and Take From, Result Unknown and Add To, Change Unknown story problems.
- Understand the meaning of the equal sign.

Section B Goals

- Solve Put Together/Take Apart problems with unknowns in different positions.
- Write equations to represent problems.

Section C Goals

- Relate addition and subtraction.
- Solve Compare, Difference Unknown problems.

Section D Goals

- Apply understanding of the meaning of the equal sign to make sense of equations with a symbol for the unknown.
- Solve different types of story problems, limited to those learned in this unit.

Standards Addressed:
1.OA.A.1, 1.OA.A.2, 1.OA.B.3, 1.OA.B.4, 1.OA.C.5, 1.OA.C.6, 1.OA.D.7, 1.OA.D.8, 1.MD.C.4

Unit 3: Adding and Subtracting within 20	Number of Lessons: 28

Students add and subtract within 20. Students apply the properties of operations and the relationship between addition and subtraction.

Section A Goals

- Build toward fluency with adding and subtracting within 10.

Section B Goals

- Add and subtract one-digit numbers from teen numbers without composing or decomposing a ten.
- Find the value that makes an addition or subtraction equation true, involving 10.
- Understand 10 ones as a ten and the numbers 11 to 19 as a ten and some ones.

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Section C Goals

- Add within 20, including 3 addends.

Section D Goals

- Subtract within 20.

Standards Addressed:
1.OA.A.1, 1.OA.A.2, 1.OA.B.3, 1.OA.B.4, 1.OA.A.C.5, 1.OA.C.6, 1.OA.D.7, 1.OA.D.8, 1.NBT.A.1, 1.NBT.B.2

Unit 4: Numbers to 99	Number of Lessons: 23

Students develop an understanding of place value for numbers up to 99.

Section A Goals

- Add and subtract multiples of 10.
- Represent the base-ten structure of multiples of 10 up to 90 using drawings, numbers and words.

Section B Goals

- Add and subtract multiples of 10.
- Represent the base-ten structure of numbers up to 99 using drawings, numbers, and words.
- Understand that the two digits of a two-digit number represent amounts of tens and ones.

Section C Goals

- Compare two two-digit numbers based on the values of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.

Section D Goals

- Represent two-digit numbers in different ways, using different amounts of tens and ones.

Standards Addressed:
1.NBT.A.1, 1.NBT.B.2, 1.NBT.B.3, 1.NBT.C.4, 1.NBT.C.5, 1.NBT.C.6, 1.OA.A.1, 1.OA.C.5, 1.OA.C.6, 1.OA.D.7, 1.OA.D.8

Unit 5: Adding within 100	Number of Lessons: 14

Students use place value understanding and properties of operations to add within 100.

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Section A Goals

- Add within 100 without composing a ten.

- Use equations to represent addition methods.

Section B Goals

- Add a one-digit and a two-digit number within 100 that require composing a ten.

- Use equations to represent addition methods.

Section C Goals

- Add 2 two-digit numbers within 100, that require composing a ten.

- Use equations to represent addition methods.

Standards Addressed:
1.NBT.A.1, 1.NBT.B.2, 1.NBT.B.3, 1.NBT.C.4, 1.NBT.C.5, 1.NBT.C.6, 1.OA.A.1, 1.OA.C.5, 1.OA.C.6, 1.OA.D.8

Unit 6: Length Measurements within 120 Units	Number of Lessons: 17

Students measure length and count up to 120 length units. They solve addition and subtraction story problems with unknowns in all positions.

Section A Goals

- Compare the lengths of objects indirectly.

- Order objects by length.

Section B Goals

- Count groups of up to 120 objects and write a number to represent them.

- Lay length units end-to-end with no gaps or overlaps and count the units to determine length.

Section C Goals

- Solve story problems within 20 with unknowns in all positions.

Standards Addressed:
1.MD.A.1, 1.MD.A.2, 1.NBT.A.1, 1.NBT.B.3, 1.NBT.C.4, 1.NBT.C.5, 1.OA.A.1, 1.OA.A.2, 1.OA.B.4, 1.OA.C.5, 1.OA.C.6 , 1.OA.C.7

Unit 7: Geometry and Time	Number of Lessons: 17

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Students reason with shapes and their attributes, partition shapes into equal pieces, and tell time to the hour and half hour.

Section A Goals

- Describe attributes of two-dimensional and three-dimensional shapes.
- Compose two- dimensional or three-dimensional shapes to create a composite shape.
- Build and draw shapes to possess defining attributes.

Section B Goals

- Partition circles and rectangles into two and four equal pieces, describe the pieces with words (halves, fourths, and quarters).

Section C Goals

- Tell and write time in hours and half-hours.

Standards Addressed:
1.G.A.1, 1.G.A.2, 1.G.A.3, 1.MD.B.3, 1.NBT.A.1, 1.NBT.C.4, 1.NBT.C.5, 1.OA.C.6, 1.OA.D.7

Unit 8: Putting It All Together	Number of Lessons: 12

Students consolidate and solidify their understanding of various concepts and skills on major work of the grade. They also continue to work toward fluency goals of the grade.

Section A Goals

- Add and subtract within 20.
- Fluently add and subtract within 10.

Section B Goals

- Solve Add To and Take From, Change Unknown story problems in a way that makes sense to them.
- Solve Compare, Difference Unknown story problems in a way that makes sense to them.
- Solve Put Together/Take Apart, Addend Unknown story problems in a way that makes sense to them.

Section C Goals

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- Apply place value understanding to represent a quantity with written numerals and expressions.
- Count a group of up to 120 objects.

Standards Addressed:
1.OA.A.1, 1.OA.A.2, 1.OA.C.6, 1.OA.D.7, 1.OA.D.8, 1.NBT.A.1, 1.NBT.B.3, 1.NBT.C.4

Grade 2

The big ideas in grade 2 include: extending understanding of the base-ten number system, building fluency with addition and subtraction, using standard units of measure, and describing and analyzing shapes.

The mathematical work for grade 2 is partitioned into 9 units:
1. Adding, Subtracting, and Working with Data
2. Adding and Subtracting within 100
3. Measuring Length
4. Addition and Subtraction on the Number Line
5. Numbers to 1,000
6. Geometry, Time, and Money
7. Adding and Subtracting within 1,000
8. Equal Groups
9. Putting It All Together

Unit 1: Adding, Subtracting, and Working with Data	Number of Lessons: 18

Students represent and solve story problems within 20 through the context of picture and bar graphs that represent categorical data. Students build toward fluency with addition and subtraction.

Section A Goals

- Build toward fluency with adding within 100.
- Build toward fluency with subtracting within 20.

Section B Goals

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- Interpret picture and bar graphs.
- Represent data using picture and bar graphs.
- Solve one- and two-step problems using addition and subtraction within 20.

Section C Goals

- Make sense of and interpret tape diagrams.
- Represent and solve Compare problems with unknowns in all positions within 100.

Standards Addressed:
2.MD.D.10, 2.OA.A.1, 2.OA.B.2, 2.NBT.A.2, 2.NBT.B.5

Unit 2: Adding and Subtracting within 100	Number of Lessons: 16

Students add and subtract within 100 using strategies based on place value, properties of operations, and the relationship between addition and subtraction. They then use what they know to solve story problems.

Section A Goals

- Add and subtract within 100 using strategies based on place value and the relationship between addition and subtraction. Problems in this section are limited to the problems like 65 – 23, where decomposing a ten is not required.

Section B Goals

- Subtract within 100 using strategies based on place value, including decomposing a ten, and the properties of operations.

Section C Goals

- Represent and solve one- and two-step problems involving addition and subtraction within 100, including different problem types with unknowns in all positions.

Standards Addressed:
2.MD.D.10, 2.NBT.A.2, 2.NBT.B.5, 2.NBT.B.6, 2.NBT.B.8, 2.NBT.B.9, 2.OA.A.1, 2.OA.A.2

Unit 3: Measuring Length	Number of Lessons: 18

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Students measure and estimate lengths in standard units and solve measurement story problems within 100.

Section A Goals

- Measure length in centimeters and meters.
- Represent and solve one-step story problems within 100.

Section B Goals

- Measure length in feet and inches.
- Represent and solve one- and two-step story problems within 100.

Section C Goals

- Represent numerical data on a line plot.

Standards Addressed:
2.MD.A.1, 2.MD.A.2, 2.MD.A.3, 2.MD.A.4, 2.MD.B.5, 2.MD.D.9, 2.OA.A.1, 2.OA.B.2, 2.NBT.A.2, 2.NBT.B.5

Unit 4: Addition and Subtraction on the Number Line	Number of Lessons: 15

Students learn about the structure of a number line and use it to represent numbers within 100. They also relate addition and subtraction to length and represent the operations on the number line.

Section A Goals

- Represent whole numbers within 100 as lengths from 0 on a number line.
- Understand the structure of the number line.

Section B Goals

- Represent sums and differences on a number line.

Standards Addressed:
2.MD.B.5, 2.MD.B.6, 2.OA.A.1, 2.NBT.A.2, 2.NBT.B.5

Unit 5: Numbers to 1,000	Number of Lessons: 14

Students extend place value understanding to three-digit numbers.

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Section A Goals
- Read, write, and represent three-digit numbers using base-ten numerals and expanded form.
- Use place value understanding to compose and decompose three-digit numbers.

Section B Goals
- Compare and order three-digit numbers using place value understanding and the relative position of numbers on a number line.
- Represent whole numbers up to 1,000 as lengths from 0 on a number line.

Standards Addressed:
2.NBT.A.1, 2.NBT.A.2, 2.NBT.A.3, 2.NBT.A.4, 2.NBT.B.5, 2.NBT.B.8, 2.MD.B.6

Unit 6: Geometry, Time, and Money	Number of Lessons: 21

Students reason with shapes and their attributes and partition shapes into equal shares, building a foundation for fractions. They relate halves, fourths, and skip-counting by 5 to tell time, and solve story problems involving the values of coins and dollars.

Section A Goals
- Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
- Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.

Section B Goals
- Partition rectangles and circles into halves, thirds, and fourths and name the pieces.
- Recognize 2 halves, 3 thirds, and 4 fourths as one whole.
- Understand that equal pieces do not need to be the same shape.

Section C Goals
- Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

Section D Goals
- Find the value of a group of bills and coins.
- Use addition and subtraction within 100 to solve one- and two-step word problems.

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Standards Addressed:
2.G.A.1, 2.G.A.3, 2.MD.A.1, 2.MD.C.7, 2.MD.C.8, 2.NBT.A.1, 2.NBT.A.2, 2.NBT.A.3, 2.NBT.B.5, 2.NBT.B.6, 2.NBT.B.8, 2.OA.A.1

Unit 7: Adding and Subtracting within 1,000	Number of Lessons: 18

Students use place value understanding, the relationship between addition and subtraction, and properties of operations to add and subtract within 1,000.

Section A Goals

- Add and subtract numbers within 1,000 without composition or decomposition, and use strategies based on the relationship between addition and subtraction and the properties of operations.

Section B Goals

- Add numbers within 1,000 using strategies based on place value understanding, including composing a ten or hundred.

Section C Goals

- Subtract numbers within 1,000 using strategies based on place value understanding, including decomposing a ten or hundred.

Standards Addressed:
2.NBT.A.1, 2.NBT.A.2, 2.NBT.A.3, 2.NBT.A.4, 2.NBT.B.5, 2.NBT.B.6, 2.NBT.B.7, 2.NBT.B.8, 2.NBT.B.9, 2.MD.D.10

Unit 8: Equal Groups	Number of Lessons: 13

Students work with equal groups of objects to gain foundations for multiplication.

Section A Goals

- Determine whether a group of objects (up to 20) has an odd or even number of members.
- Write an equation to express an even number as a sum of two equal addends.

Section B Goals

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- Find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns using addition.
- Partition rectangles into rows and columns of equal-size squares, and count to find the total number of squares.
- Represent the total number of objects in an array as a sum of equal addends.

Standards Addressed:
2.NBT.A.2, 2.NBT.B.7, 2.NBT.B.8, 2.OA.B.2, 2.OA.C.3, 2.OA.C.4, 2.G.A.2

Unit 9: Putting It All Together	Number of Lessons: 13

Students consolidate and solidify their understanding of various concepts and skills related to major work of the grade. They also continue to work toward fluency goals of the grade.

Section A Goals
- Fluently add and subtract within 20.

Section B Goals
- Add and subtract within 1,000 using strategies based on place value and the properties of operations.
- Fluently add and subtract within 100.

Section C Goals
- Represent and solve one- and two-step story problems within 100.

Standards Addressed:
2.OA.A.1, 2.OA.B.2, 2.NBT.A.1, 2.NBT.A.3, 2.NBT.B.5, 2.NBT.B.7, 2.NBT.B.9, 2.MD.A.1, 2.MD.A.4, 2.MD.B.5, 2.MD.D.9

Grade 3

The big ideas in grade 3 include: developing understanding of multiplication and division and strategies for multiplication and division within 100; developing understanding of fractions, especially unit

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fractions (fractions with numerator 1); developing understanding of the structure of rectangular arrays and of area; and describing and analyzing two-dimensional shapes.

The mathematical work for grade 3 is partitioned into 8 units:
1. Introducing Multiplication
2. Area and Multiplication
3. Wrapping Up Addition and Subtraction within 1,000
4. Relating Multiplication to Division
5. Fractions as Numbers
6. Measuring Length, Time, Liquid Volume, and Weight
7. Two-dimensional Shapes and Perimeter
8. Putting It All Together

Unit 1: Introducing Multiplication	Number of Lessons: 21

Students represent and solve multiplication problems through the context of picture and bar graphs that represent categorical data.

Section A Goals

- Interpret scaled picture and bar graphs.

- Represent data using scaled picture and bar graphs.

- Solve one- and two-step story problems using addition and subtraction.

Section B Goals

- Represent and solve multiplication problems involving equal groups.

- Understand multiplication in terms of equal groups.

Section C Goals

- Represent and solve multiplication problems involving arrays.

Standards Addressed:
3.OA.A.1, 3.OA.A.3, 3.OA.A.4, 3.OA.B.5, 3.OA.C.7, 3.OA.D.9, 3.MD.B.3

Unit 2: Area and Multiplication	Number of Lessons: 15

Students learn about area concepts and relate area to multiplication and to addition.

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Section A Goals

- Describe area as the number of unit squares that cover a plane figure without gaps and overlaps.
- Measure the area of rectangles by counting unit squares.

Section B Goals

- Explain why the area of a rectangle can be determined by multiplying the side lengths.
- Solve problems involving the area of rectangles.

Section C Goals

- Find the area of a figure composed of rectangles.

Standards Addressed:
3.OA.A.1, 3.OA.B.5, 3.OA.D.9, 3.NBT.A.2 , 3.MD.C.5, , 3.MD.C.6, 3.MD.C.7

Unit 3: Wrapping Up Addition and Subtraction within 1,000	Number of Lessons: 21

Students use place value understanding to round whole numbers and add and subtract within 1,000. They also represent and solve two-step word problems using addition, subtraction, and multiplication and assess the reasonableness of answers.

Section A Goals

- Fluently add within 1,000 using algorithms based on place value and properties of operations.
- Use place value understanding to compose and decompose numbers.

Section B Goals

- Fluently subtract within 1,000 using algorithms based on place value, properties of operations, and the relationship between addition and subtraction.

Section C Goals

- Round whole numbers to the nearest multiple of 10 and 100.

Section D Goals

- Assess the reasonableness of answers.
- Solve two-step word problems using addition, subtraction, and multiplication.

Standards Addressed:
3.NBT.A.1, 3.NBT.A.2, 3.OA.B.5, 3.OA.C.7, 3.OA.D.8, 3.OA.D.9

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Unit 4: Relating Multiplication to Division	Number of Lessons: 23

Students learn about and use the relationship between multiplication and division, place value understanding, and the properties of operations to multiply divide whole numbers within 100. They also represent and solve two-step word problems using the four operations.

Section A Goals

- Represent and solve "how many groups?" and "how many in each group?" problems.

Section B Goals

- Understand division as a missing-factor problem.
- Use properties of operations to develop fluency with single-digit multiplication facts, and their related division facts.

Section C Goals

- Use properties of operations and place value understanding to develop strategies to multiply within 100 and to multiply one-digit numbers by a multiple of ten.

Section D Goals

- Use properties of operations, place value understanding, and the relationship between multiplication and division to divide within 100.

Standards Addressed:
3.OA.A.2, 3.OA.A.3, 3.OA.A.4, 3.OA.B.5, 3.OA.B.6, 3.OA.C.7, 3.OA.D.8, 3.OA.D.9, 3.NBT.A.2, 3.NBT.A.3, 3.MD.C.7

Unit 5: Fractions as Numbers	Number of Lessons: 18

Students develop an understanding of fractions as numbers and of fraction equivalence by representing fractions on diagrams and number lines, generating equivalent fractions, and comparing fractions.

Section A Goals

- Understand that fractions are built from unit fractions such that a fraction $\frac{a}{b}$ is the quantity

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formed by a parts of $\frac{1}{b}$ size .

- Understand that unit fractions are formed by partitioning shapes into equal parts.

Section B Goals

- Understand a fraction as a number and represent fractions on the number line.

Section C Goals

- Explain equivalence of fractions in special cases and express whole numbers as fractions and fractions as whole numbers.

Section D Goals

- Compare two fractions with the same numerator or denominator, record the results with the symbols >, =, or <, and justify the conclusions.

Standards Addressed:
3.OA.B.5, 3.NF.A.1, 3.NF.A.2, 3.NF.A.3, 3.G.A.2

Unit 6: Measuring Length, Time, Liquid Volume, and Weight	Number of Lessons: 16

Students generate and represent length measurement data in halves and fourths of an inch on line plots. They learn about and estimate relative units of measure including time, liquid volume, and weight, and use the four operations to solve problems involving measurement.

Section A Goals

- Measure lengths using rulers marked with halves and fourths of an inch to generate data for making a line plot.

Section B Goals

- Measure and estimate liquid volumes and weights of objects.

Section C Goals

- Solve problems involving addition and subtraction of time intervals in minutes.
- Tell time to the minute.

Section D Goals

- Solve problems involving the four operations and measurement contexts.

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Standards Addressed: 3.OA.A.3, 3.OA.C.7, 3.NBT.A.2, 3.NF.A.3, 3.MD.A.1, 3.MD.A.2, 3.MD.B.4	
Unit 7: Two-dimensional Shapes and Perimeter	Number of Lessons: 15

Students reason about polygons and their attributes, with a focus on quadrilaterals. They solve problems involving the perimeter and area of polygons.

Section A Goals

- Reason about shapes and their attributes.

Section B Goals

- Find the perimeter of two-dimensional shapes, including when all or some side lengths are given.

Section C Goals

- Solve problems involving perimeter and area, in and out of context.

Section D Goals

- Apply geometric understanding to solve problems.

Standards Addressed: 3.OA.C.7, 3.OA.D.8 , 3.NBT.A.2 , 3.NBT.A.3, 3.MD.D.8, 3.G.A.1	
Unit 8: Putting It All Together	Number of Lessons: 15

Students consolidate and solidify their understanding of various concepts and skills related to major work of the grade. They also continue to work toward fluency goals of the grade.

Section A Goals

- Understand a fraction as a number and represent fractions on the number line.

Section B Goals

- Apply concepts of measurement and data to solve problems.

Section C Goals

- Develop fluency with single-digit multiplication facts and their related division facts.

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Section D Goals

- Review the major work of the grade by creating and designing instructional routines.

Standards Addressed:
3.OA.A.1, 3.OA.A.3, 3.OA.B.6, 3.OA.C.7, 3.OA.D.8, 3.NBT.A.2, 3.NF.A.1, 3.NF.A.2, 3.NF.A.3, 3.MD.B.3, 3.MD.B.4, 3.MD.C.7, 3.MD.D.8, 3.G.A.1

Grade 4

The big ideas in grade 4 include: developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends; developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

The mathematical work for grade 4 is partitioned into 9 units:
1. Factors and Multiples
2. Fraction Equivalence and Comparison
3. Extending Operations to Fractions
4. From Hundredths to Hundred-thousands
5. Multiplicative Comparison and Measurement
6. Multiplying and Dividing Multi-digit Numbers
7. Angles and Angle Measurement
8. Properties of Two-dimensional Shapes
9. Putting It All Together

Unit 1: Factors and Multiples	Number of Lessons: 8

Students apply understanding of multiplication and area to work with factors and multiples.

Section A Goals

- Relate the side lengths and area of a rectangle to factors and multiples.

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- Determine if a number is prime or composite.
- Explain what it means to be a factor or a multiple of a whole number.

Section B Goals

- Apply multiplication fluency within 100 and the relationship between multiplication and division to find factor pairs and multiples.

Standards Addressed:
4.OA.B.4

Unit 2: Fraction Equivalence and Comparison	Number of Lessons: 17

Students generate and reason about equivalent fractions and compare and order fractions with the following denominators: 2, 3, 4, 5, 6, 8, 10, 12, and 100.

Section A Goals

- Make sense of fractions with denominators 2, 3, 4, 5, 6, 8, 10, and 12 through physical representations and diagrams.
- Reason about the location of fractions on the number line.

Section B Goals

- Generate equivalent fractions with the following denominators: 2, 3, 4, 5, 6, 8, 10, 12, and 100.
- Use visual representations to reason about fraction equivalence, including using benchmarks such $\frac{1}{2}$ as and 1.

Section C Goals

- Use visual representations or a numerical process to reason about fraction comparison.

Standards Addressed:
4.NBT.B.4, 4.NBT.B.5, 4.NF.A.1, 4.NF.A.2

Unit 3: Extending Operations to Fractions	Number of Lessons: 20

Students learn that a fraction $\frac{a}{b}$ is a product of a whole number a and a unit fraction $\frac{1}{b}$, or $\frac{a}{b} = a \times \frac{1}{b}$, and that $n \times \frac{a}{b} = \frac{(n \times a)}{b}$. Students learn to add and subtract fractions with like

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denominators, and to add and subtract tenths and hundredths.

Section A Goals

- Recognize that $n \times \frac{a}{b} = \frac{(n \times a)}{b}$.

- Represent and explain that a fraction $\frac{a}{b}$ is a multiple of $\frac{1}{b}$, namely $a \times \frac{1}{b}$.

- Represent and solve problems involving multiplication of a fraction by a whole number.

Section B Goals

- Create and analyze line plots that display measurement data in fractions of a unit ($\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$).

- Represent and solve problems that involve the addition and subtraction of fractions and mixed numbers, including measurements presented in line plots.

- Use various strategies to add and subtract fractions and mixed numbers with like denominators.

Section C Goals

- Reason about equivalence to add tenths and hundredths.

- Reason about equivalence to solve problems involving addition and subtraction of fractions and mixed numbers.

Standards Addressed:
4.NF.A.1, 4.NF.A.2, 4.NF.B.3, 4.NF.B.4, 4.NF.C.5, 4.MD.B.4

Unit 4: From Hundredths to Hundred-thousands	Number of Lessons: 23

Students read, write and compare numbers in decimal notation. They also extend place value understanding for multi-digit whole numbers and add and subtract within 1,000,000.

Section A Goals

- Represent, compare, and order decimals to the hundredths by reasoning about their size.

- Write tenths and hundredths in decimal notation.

Section B Goals

- Read, represent, and describe the relative magnitude of multi-digit whole numbers up to 1

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million.

- Recognize that in a multi-digit whole number, the value of a digit in one place represents ten times what it represents in the place to its right.

Section C Goals

- Compare, order, and round multi-digit whole numbers within 1,000,000.

Section D Goals

- Add and subtract multi-digit whole numbers using the standard algorithm.

Standards Addressed:
4.NBT.A.1, 4.NBT.A.2, 4.NBT.A.3, 4.NBT.B.4, 4.NF.B.3, 4.NF.C.5, 4.NF.C.6, 4.NF.C.7

Unit 5: Multiplicative Comparison and Measurement	Number of Lessons: 18

Students interpret, represent, and solve multiplicative comparison problems using an understanding of the relationship between multiplication and division. They use this thinking to convert units of measure within a given system from larger to smaller units.

Section A Goals

- Analyze, describe, and represent multiplicative comparison situations.
- Solve one-step and two-step problems involving multiplicative comparison.

Section B Goals

- Convert from larger units to smaller units within a given system of measurement.
- Solve multi-step problems involving multiplicative comparison and measurement.
- Understand the relative sizes of kilometers, meters and centimeters, liters and milliliters, kilograms and grams, and pounds and ounces.

Section C Goals

- Solve multi-step problems involving multiplicative comparison and measurement.

Standards Addressed:
4.OA.A.1, 4.OA.A.2, 4.OA.A.3, 4.NBT.B.5, 4.NF.B.4, 4.NF.B.3, 4.MD.A.1, 4.MD.A.2, 4.MD.A.3, 4.MD.B.4

Unit 6: Multiplying and Dividing Multi-Digit Numbers	Number of Lessons: 25

Students multiply and divide multi-digit whole numbers using partial products and partial quotients

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strategies, and apply this understanding to solve multi-step problems using the four operations.

Section A Goals

- Generate a number or shape pattern that follows a given rule.
- Identify apparent features of a number pattern that were not explicit in the rule itself.

Section B Goals

- Multiply a whole number of up to four digits by a one-digit whole number, and 2 two-digit numbers using strategies based on place value and the properties of operations.

Section C Goals

- Use a partial quotients algorithm to divide multi-digit numbers of up to four digits by one-digit divisors, resulting in numbers with or without a remainder.

Section D Goals

- Use the four operations to solve problems that involve multi-digit whole numbers and assess the reasonableness of answers.

Standards Addressed:
4.OA.A.2, 4.OA.A.3, 4.OA.B.4, 4.OA.C.5, 4.NBT.B.4, 4.NBT.B.5, 4.NBT.B.6, 4.MD.A.2, 4.MD.A.3

Unit 7: Angles and Angle Measurement	Number of Lessons: 14

Students learn to draw and identify points, rays, segments, angles, and lines, including parallel and perpendicular lines. Students also learn how to use a protractor to measure angles and draw angles of given measurements, and identify acute, obtuse, right, and straight angles in two-dimensional figures.

Section A Goals

- Draw and identify points, lines, rays, segments, and parallel and intersecting lines in geometric figures.
- Recognize that angles are formed wherever two rays share a common endpoint and identify angles in two-dimensional figures.

Section B Goals

- Recognize that angles can be measured in degrees, and can be found using addition and

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subtraction.

- Use a protractor to measure and draw angles, and recognize that perpendicular lines meet or cross at a right angle.

Section C Goals

- Draw and identify acute, obtuse, right, and straight angles in two-dimensional figures.
- Write equations to represent angle relationships and reason about and find unknown measurements.

Standards Addressed:
4.NBT.B.5, 4.NBT.B.6, 4.MD.C.5, 4.MD.C.6, 4.MD.C.7, 4.G.A.1, 4.G.A.2

Unit 8: Properties of Two-dimensional Shapes	Number of Lessons: 10

Students classify triangles and parallelograms based on the properties of their side lengths and angles, and learn about lines of symmetry in two-dimensional figures. They use their understanding of these attributes to solve problems, including problems involving perimeter and area.

Section A Goals

- Classify triangles (including right triangles), parallelograms, rectangles, rhombuses, and squares based on the properties of their side lengths and angles.
- Identify and draw lines of symmetry in two-dimensional figures.

Section B Goals

- Solve problems involving unknown side lengths, perimeter, area, and angle measurements using the known attributes and properties of two-dimensional shapes.

Standards Addressed:
4.G.A.1, 4.G.A.2, 4.G.A.3, 4.MD.A.3, 4.MD.C.7, 4.NBT.B.5, 4.NF.B.3, 4.NF.B.4

Unit 9: Putting It All Together	Number of Lessons: 12

Students consolidate and solidify their understanding of various concepts and skills related to major work of the grade. They also continue to work toward fluency goals of the grade.

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Section A Goals

- Solve problems involving fraction equivalence and operating with fractions.

Section B Goals

- Add, subtract, multiply, and divide multi-digit numbers using place value understanding.

Section C Goals

- Solve problems involving measurement comparison.

Section D Goals

- Review the major work of the grade by creating and designing instructional routines.

Standards Addressed: 4.NF.A.1, 4.NF.A.2, 4.NF.B.3, 4.NF.B.4, 4.NF.C.5, 4.NF.C.6, 4.NF.C.7, 4.OA.A.2, 4.OA.A.3, 4.OA.B.4, 4.OA.C.5, 4.NBT.A.1, 4.NBT.B.4, 4.NBT.B.5, 4.NBT.B.6, 4.G.A.1

Grade 5

The big ideas in grade 5 include: developing fluency with addition and subtraction of fractions, developing understanding of multiplication and division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions), extending division to two-digit divisors, developing understanding of operations with decimals to hundredths, developing fluency with whole number and decimal operations, and developing understanding of volume.

The mathematical work for grade 5 is broken into 8 units:
1. Finding Volume
2. Fractions as Quotients and Fraction Multiplication
3. Multiplying and Dividing Fractions
4. Wrapping Up Multiplication and Division with Multi-Digit Numbers
5. Place Value Patterns and Decimal Operations
6. More Decimal and Fraction Operations
7. Shapes on the Coordinate Plane
8. Putting It All Together

Unit 1: Finding Volume	Number of Lessons: 12

Students find the volume of right rectangular prisms and solid figures composed of two right rectangular prisms.

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Section A Goals

- Describe volume as the space taken up by a three-dimensional object.
- Measure the volume of a rectangular prism by finding the number of unit cubes needed to fill it.
- Use the layered structure in a rectangular prism to find volume.

Section B Goals

- Describe the calculations from the previous section as *length x width x height* or area of the *base x height.*
- Find volume using length x width x height or area of the *base x height*.

Section C Goals

- Find the volume of a figure composed of rectangular prisms.

Standards Addressed:
5.OA.A.1, 5.OA.A.2, 5.MD.C.3, 5.MD.C.4, 5.MD.C.5

Unit 2: Fractions as Quotients and Fraction Multiplication	Number of Lessons: 17

Students develop an understanding of fractions as the division of the numerator by the denominator, that is $a \div b = \frac{a}{b}$, and solve problems that involve the multiplication of a whole number and a fraction, including fractions greater than 1.

Section A Goals

- Represent and explain the relationship between division and fractions.
- Solve problems involving division of whole numbers leading to answers that are fractions.

Section B Goals

- Extend understanding of the relationship between multiplication and division to fractions.
- Represent and solve problems involving multiplication of a whole number by a fraction.
- Write and interpret numerical expressions using the relationship between multiplication and division.

Section C Goals

- Find the area of a rectangle when one side length is a whole number and the other side length is a fraction or mixed number.
- Represent and solve problems involving the multiplication of a whole number by a fraction or

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mixed number.

- Write, interpret and evaluate numerical expressions that represent multiplication of a whole number by a fraction or mixed number.

Standards Addressed:
5.NF.B.3, 5.NF.B.4, 5.OA.A.1, 5.OA.A.2

Unit 3: Multiplying and Dividing Fractions	Number of Lessons: 20

Students extend multiplication and division of whole numbers to multiply fractions by fractions and divide a whole number and a unit fraction.

Section A Goals

- Recognize that $\frac{a}{b} \; x \; \frac{c}{d} \; = \; \frac{a \, x \, c}{b \, x \, d}$ and use this generalization to multiply fractions numerically.
- Represent and describe multiplication of a fraction by a fraction using area concepts.

Section B Goals

- Divide a unit fraction by a whole number using whole-number division concepts.
- Divide a whole number by a unit fraction using whole-number division concepts.

Section C Goals

- Solve problems involving fraction multiplication and division.

Standards Addressed:
5.NF.B.4, 5.NF.B.6, 5.NF.B.7

Unit 4: Wrapping Up Multiplication and Division with Multi-Digit Numbers	Number of Lessons: 21

Students use the standard algorithm to multiply multi-digit whole numbers. They divide whole numbers up to four-digits by two-digits divisors using strategies based on place value and properties of operations.

Section A Goals

- Multiply multi-digit whole numbers using the standard algorithm.

Section B Goals

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- Divide multi-digit whole numbers using strategies based on place value, properties of operations, and the relationship between multiplication and division.

Section C Goals

- Multiply and divide to solve real-world and mathematical problems involving volume.

Standards Addressed:
5.NBT.B.5, 5.NBT.B.6, 5.MD.C.3, 5.MD.C.5, 5.NF.B.3, 5.NF.B.4, 5.NF.B.7, 5.OA.A.2

Unit 5: Place Value Patterns and Decimal Operations	Number of Lessons: 26

Students build from place value understanding in grade 4 to recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $\frac{1}{10}$ of what it represents in the place to its left. They use this place value understanding to round, compare, order, add, subtract, multiply, and divide decimals.

Section A Goals

- Compare, round and order decimals through the thousandths place based on the value of the digits in each place.
- Read, write, and represent decimals to the thousandths place, including in expanded form.

Section B Goals

- Add and subtract decimals to the hundredths using strategies based on place value.

Section C Goals

- Multiply decimals with products resulting in the hundredths using place value reasoning and properties of operations.

Section D Goals

- Divide decimals with quotients resulting in the hundredths using place value reasoning and properties of operations.

Standards Addressed:
5.NBT.A.3, 5.NBT.A.4, 5.NBT.B.7, 5.NF.B.7

Unit 6: More Decimal and Fraction Operations	Number of Lessons: 21

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Students solve multi-step problems involving measurement conversions, line plots, and fraction operations, including addition and subtraction of fractions with unlike denominators. They also explain patterns when multiplying and dividing by powers of 10 and interpret multiplication as scaling by comparing products with factors.

Section A Goals
- Explain patterns when multiplying and dividing by powers of 10.
- Solve multi-step problems involving measurement conversions.

Section B Goals
- Add and subtract fractions with unlike denominators.
- Create line plots to display fractional measurement data, and use the information to solve problems.
- Solve problems involving fraction operations.

Section C Goals
- Interpret multiplication as scaling (resizing).
- Make generalizations about multiplying a whole number by a fraction greater than, less than and equal to 1.

Standards Addressed:

5.MD.A.1, 5.MD.A.2, 5.NF.A.1, 5.NF.A.2, 5.NF.A.4, 5.NF.A.5, 5.NBT.A.1, 5.NBT.A.2, 5.OA.A

Unit 7: Shapes on the Coordinate Plane	Number of Lessons: 13

Students plot coordinate pairs on a coordinate grid and classify triangles and quadrilaterals in a hierarchy based on properties of side length and angle measure. They generate, identify, and graph relationships between corresponding terms in two numeric patterns, given two rules, and represent and interpret real world and mathematical problems on a coordinate grid.

Section A Goals
- Locate points on a coordinate grid.

Section B Goals

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- Classify triangles and quadrilaterals in a hierarchy based on angle measurements and side lengths

Section C Goals

- Generate, identify, and graph relationships between corresponding terms in two patterns, given a rule.
- Represent and interpret real world and mathematical problems on a coordinate grid.

Standards Addressed:
5.G.A.1, 5.G.A.2, 5.G.B.3, 5.G.B.4, 5.OA.B.3

Unit 8: Putting It All Together	Number of Lessons: 17

Students consolidate and solidify their understanding of various concepts and skills related to major work of the grade. They also continue to work toward fluency goals of the grade.

Section A Goals

- Divide multi-digit whole numbers using place value strategies and the properties of operations.
- Fluently multiply multi-digit whole numbers using the standard algorithm.

Section B Goals

- Solve multi-step problems involving volume

Section C Goals

- Operate with fractions and decimals.

Section D Goals

- Review the major work of the grade by creating and designing instructional routines.

Standards Addressed:
5.NBT.B.5, 5.NBT.B.6, 5.NBT.B.7, 5.MD.C.5, 5.NF.A.1, 5.NF.B.3, 5.NF.B.4, 5.G.B.3, 5.G.B.4

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