Scope and Sequence for Grade 2

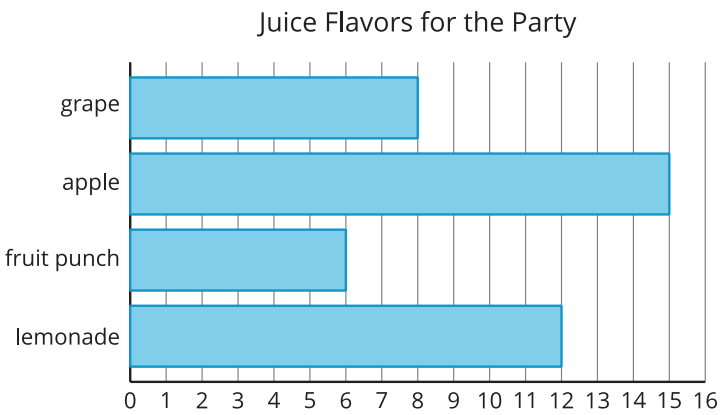
The big ideas in IM Grade 2 include: extending understanding of the base-ten number system;, building fluency with addition and subtraction; using standard units of measure; and describing and analyzing shapes. The materials, particularly units that focus on addition and subtraction, include problem types such as Add To, Take From, Put Together or Take Apart, Compare, Result Unknown, and so on. These problem types are based on common addition and subtraction situations, as outlined in Table 1 of the "Mathematics Glossary" section of the *Common Core State Standards* (NGA & CCSSO).

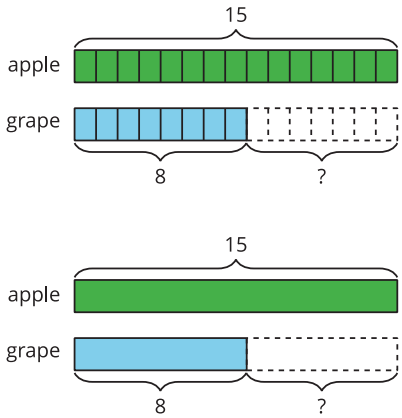
Unit 1: Adding, Subtracting, and Working with Data

In this unit, students begin the year-long work to develop fluency with sums and differences within 20, building on concepts of addition and subtraction from grade 1. They learn new ways to represent and solve problems involving addition, subtraction, and categorical data.

In grade 1, students added and subtracted within 20 using strategies based on properties of addition and place value. They developed fluency with sums and differences within 10. Students also gained experience in collecting, organizing, and representing categorical data.

In this unit, students are introduced to picture graphs and bar graphs as a way to represent categorical data. They ask and answer questions about situations described by the data. The structure of the bar graphs paves the way for a new representation, the tape diagram.





Students learn that tape diagrams can be used to represent and make sense of problems involving the comparison of two quantities. The diagrams also help to deepen students' understanding of the relationship between addition and subtraction.

This opening unit also offers opportunities to introduce mathematical routines and structures for centers, and to develop a shared understanding of what it means to do math and to be a part of a mathematical community.

Section A: Add and Subtract within 20

- Lesson 1: Add and Subtract within 10
- Lesson 2: Relate Addition and Subtraction within 10
- Lesson 3: Relate Addition and Subtraction within 20
- Lesson 4: Add and Subtract Your Way
- Lesson 5: Add within 50
- Lesson 6: Center Day 1

Section B: Ways to Represent Data

- Lesson 7: Collect and Represent Data
- Lesson 8: Interpret Picture Graphs
- Lesson 9: Interpret Bar Graphs
- Lesson 10: Represent Data Using Picture Graphs and Bar Graphs
- Lesson 11: Questions about Data
- Lesson 12: Center Day 2

Section C: Diagrams to Compare

- Lesson 13: Use Bar Graphs to Compare
- Lesson 14: Use Diagrams to Compare
- Lesson 15: Diagrams with All Kinds of Compare Problems
- Lesson 16: Solve All Kinds of Compare Problems
- Lesson 17: Center Day 3
- Lesson 18: Class Surveys

Unit 2: Adding and Subtracting within 100

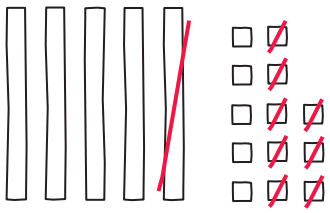
Previously, students added and subtracted numbers within 100 using strategies they learned in grade 1, such as counting on and counting back, and with the support of tools, such as connecting cubes. In this unit, students add and subtract within 100 using strategies based on place value, the properties of operations, and the relationship between addition and subtraction.

Students begin by using any strategy to find the value of sums and differences that do not involve composing or decomposing a ten. They are then introduced to base-ten blocks as a tool to represent addition and subtraction and move toward strategies that involve composing and decomposing tens.

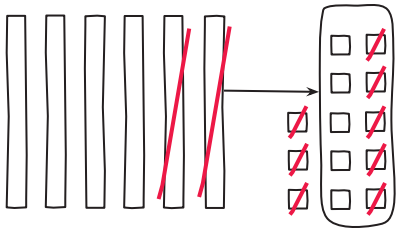
Students develop their understanding of grouping by place value, and begin to subtract one- and two-digit numbers from two-digit numbers by decomposing a ten as needed. They apply properties of operations and practice reasoning flexibly as they arrange numbers to facilitate addition or subtraction.

For example, students compare Mai's and Lin's methods for finding the value of $63 - 18$.

Mai's method
$63 - 18$



Lin's method
$63 - 18$



At the end of the unit, students apply their knowledge of addition and subtraction within 100 to solve one- and two-step story problems of all types, with unknowns in all positions. To support reasoning about place value when adding and subtracting, students may choose to use connecting cubes, base-ten blocks, tape diagrams, or other representations learned in earlier units and grades.

Section A: Add and Subtract

- Lesson 1: Add and Subtract to Compare
- Lesson 2: Find the Unknown Addend
- Lesson 3: Add or Subtract to Solve Story Problems
- Lesson 4: Center Day 1

Section B: Decompose to Subtract

- Lesson 5: Subtract Your Way
- Lesson 6: Compare Methods for Subtraction
- Lesson 7: Subtract 2 Digits
- Lesson 8: Different Ways to Decompose
- Lesson 9: Add and Subtract within 100
- Lesson 10: Center Day 2

Section C: Represent and Solve Story Problems

- Lesson 11: How Do You Solve Story Problems?
- Lesson 12: Story Problems and Diagrams
- Lesson 13: Story Problems and Equations
- Lesson 14: Solve It Your Way
- Lesson 15: Does My Estimation Make Sense?
- Lesson 16: Center Day 3
- Lesson 17: Our Store's Inventory

Unit 3: Measuring Length

This unit introduces students to standard units of lengths in the metric and customary systems.

In grade 1, students expressed the lengths of objects in terms of multiple copies of a shorter object laid end to end without gaps or overlaps. The length of the shorter object serves as the unit of measurement.

In this unit, students learn about standard units of length: centimeters, meters, inches, and feet. They examine how different measuring tools represent length units, learn how to use measurement tools, and measure and estimate the lengths of objects. Along the way, students notice that the length of the same object can be described with different measurements and relate this to differences in the size of the unit used to measure.

Throughout the unit, students solve one- and two-step story problems involving addition and subtraction of lengths. To make sense of and solve these problems, they use previously learned strategies for adding and subtracting within 100, including strategies based on place value.

To close the unit, students learn that line plots can be used to represent numerical data. They create and interpret line plots that show measurement data and use them to answer questions about the data.

Students relate the structure of a line plot to the tools they use to measure lengths. This prepares students for the work in the next unit, where they interpret numbers on the number line as lengths from 0. The number line is an essential representation that will be used in future grades and throughout students' mathematical experiences.

Section A: Metric Measurement

- Lesson 1: Standard Units of Measure
- Lesson 2: Measure in Centimeters
- Lesson 3: Create and Use a Ruler
- Lesson 4: Measure and Estimate in Centimeters
- Lesson 5: Measure in Meters
- Lesson 6: Compare Reptile Lengths in Story Problems
- Lesson 7: Center Day 1

Section B: Customary Measurement

- Lesson 8: What Is an Inch?
- Lesson 9: From Feet to Inches
- Lesson 10: Measure with a Torn Tape
- Lesson 11: Saree Silk Stories: Necklaces and Bracelets
- Lesson 12: Saree Silk Stories: Friendship Bracelets
- Lesson 13: Center Day 2

Section C: Line Plots

- Lesson 14: What Is a Line Plot?
- Lesson 15: Create Line Plots
- Lesson 16: Interpret Measurement Data
- Lesson 17: Center Day 3
- Lesson 18: Make a Yardstick

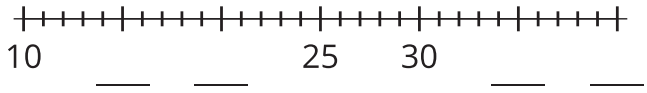
Unit 4: Addition and Subtraction on the Number Line

In this unit, students are introduced to the number line, an essential representation that will be used throughout students' K–12 mathematical experience. They learn to use number lines to represent whole numbers, sums, and differences.

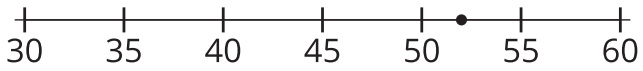
In a previous unit, students learned to measure length with rulers. Here, they see that the tick marks and numbers on the number line are like those on a ruler: both show equally spaced numbers that represent lengths from 0.

Students use this understanding of structure to locate and compare numbers on number lines and to estimate numbers represented by points on number lines.

Locate and label 17 on the number line.



What number could this be? _____



Students then learn conventions for representing addition and subtraction on a number line: using arrows pointing to the right for adding and arrows pointing to the left for subtracting. Students also use number lines to represent addition and subtraction methods discussed in *Number Talks*, such as counting on, counting back by place, and decomposing a number to get to a ten. The reasoning here deepens students' understanding of the relationship between addition and subtraction.

The number lines in this unit show a tick mark for every whole number in the given range, though not all may be labeled with the numeral. As students become more comfortable with this representation, they may draw number lines that show only the numbers needed to solve the problems, which is acceptable.

Section A: The Structure of the Number Line

- Lesson 1: Whole Numbers on the Number Line
- Lesson 2: Features of a Number Line
- Lesson 3: Unlabeled Tick Marks
- Lesson 4: Compare Numbers on a Number Line
- Lesson 5: Estimate on a Number Line
- Lesson 6: Center Day 1

Section B: Add and Subtract on a Number Line

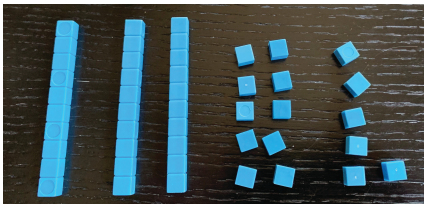
- Lesson 7: Addition and Subtraction on the Number Line
- Lesson 8: Equations on a Number Line
- Lesson 9: The Difference between Numbers
- Lesson 10: Place Value and the Number Line
- Lesson 11: Different Ways to Add and Subtract
- Lesson 12: Equations with Unknowns
- Lesson 13: Represent Story Problems
- Lesson 14: Center Day 2
- Lesson 15: Tall Enough to Ride

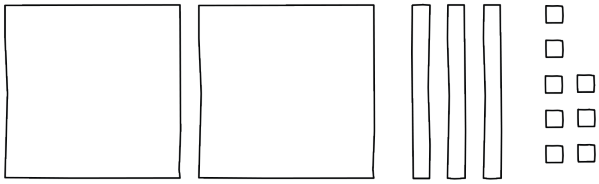
Unit 5: Numbers to 1,000

In this unit, students extend their knowledge of the units in the base-ten system to include hundreds.

In grade 1, students learned that a ten is a unit made up of 10 ones, and two-digit numbers are formed using units of tens and ones. In this unit, students learn that a hundred is a unit made up of 10 tens, and three-digit numbers are formed using units of hundreds, tens, and ones.

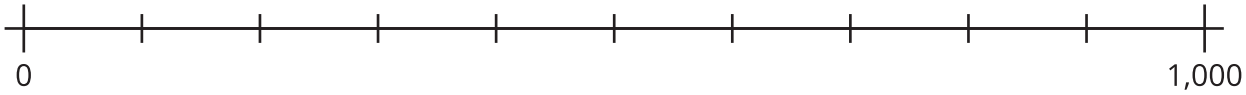
To make sense of numbers in different ways and to build flexibility in reasoning with them, students work with a variety of representations: base-ten blocks, base-ten diagrams or drawings, number lines, expressions, and equations.





At the start of the unit, students express a quantity in terms of the number of units represented by base-ten blocks (3 hundreds, 14 tens, 22 ones). They practice composing larger units from smaller units and representing the value using the fewest number of each unit (4 hundreds, 6 tens, 2 ones). They connect the number of units to three-digit numerals (462).

Next, students make sense of three-digit numbers on the number line. In a previous unit, students learned about the structure of the number line by representing whole numbers within 100 as lengths from 0. They get a sense of the relative distance of whole numbers within 1,000 from 0. Students learn to count to 1,000 by skip-counting on a number line by 10 and 100. They also locate, compare, and order three-digit numbers on a number line.



Throughout the unit, the numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 are referred to as multiples of 100. The same is true for multiples of 10. “Multiple” is not a word that students are expected to understand or use in grade 2. Students can describe the numbers as a number of tens or hundreds, such as “20 tens” or “3 hundreds.”

Section A: The Values of Three Digits

- Lesson 1: How Do We Compose a Hundred?
- Lesson 2: Make Hundreds
- Lesson 3: Compose 3-Digit Numbers
- Lesson 4: Write 3-Digit Numbers
- Lesson 5: Expanded Form of Numbers
- Lesson 6: Represent Numbers in Different Ways
- Lesson 7: Center Day 1

Section B: Compare and Order Numbers within 1,000

- Lesson 8: Three-Digit Numbers on the Number Line
- Lesson 9: Compare Numbers on the Number Line
- Lesson 10: Place Value Comparisons (Part 1)
- Lesson 11: Place Value Comparisons (Part 2)
- Lesson 12: Order Numbers
- Lesson 13: Center Day 2
- Lesson 14: Around the School

Unit 6: Geometry, Time, and Money

In this unit, students transition from place value and numbers to geometry, time, and money.

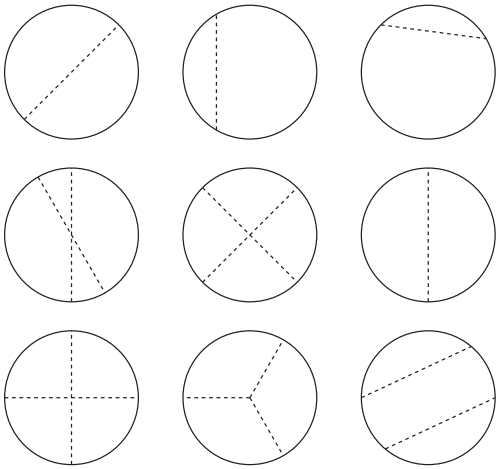
In grade 1, students distinguished between defining and nondefining attributes of shapes, including triangles, rectangles, trapezoids, and circles. Here, they continue to look at attributes of a variety of shapes and see that shapes can be identified by the numbers of sides and vertices (corners). Students then study three-dimensional (solid) shapes, and identify the two-dimensional (flat) shapes that make up the faces of these solid shapes.

Next, students look at ways to partition shapes and create equal shares. They extend their knowledge of halves and fourths (or quarters) from grade 1 to now include thirds.

Students compose larger shapes from smaller equal-size shapes and partition shapes into two, three, and four equal pieces.

As they develop the language of fractions, students also recognize that a whole can be described as two halves, three thirds, or four fourths, and that equal-size pieces of the same whole need not have the same shape.

Which circles are not examples of circles partitioned into halves, thirds, or fourths?



Later, students use their understanding of halves and fourths (or quarters) to tell time. In grade 1, they learned to tell time to the half hour. Here, they relate a quarter of a circle to the features of an analog clock. They use “quarter past” and “quarter till” to describe time, and skip-count to tell time in 5-minute intervals. They also learn to associate the notations “a.m.” and “p.m.” with their daily activities.

To continue to build fluency with addition and subtraction within 100, students conclude the unit with a money context. They skip-count, count on from the greatest value, and group like coins, and then add or subtract to find the value of a set of coins. Students also solve one- and two-step story problems involving sets of dollars and different coins, and use the symbols $ and ¢.

Section A: Attributes of Shapes

- Lesson 1: Identify and Sort Shapes
- Lesson 2: Draw Shapes
- Lesson 3: Specific Side Lengths
- Lesson 4: Solid Shapes
- Lesson 5: Center Day 1

Section B: Halves, Thirds, and Fourths

- Lesson 6: Compose and Decompose Shapes
- Lesson 7: Make Halves, Thirds, and Fourths
- Lesson 8: Are All Pieces Created Equal?
- Lesson 9: You Took the Whole Thing!
- Lesson 10: Center Day 2

Section C: Time on the Clock

- Lesson 11: Tell Time with Halves and Quarters
- Lesson 12: Count by 5 to Tell Time
- Lesson 13: Is It a.m. or p.m.?
- Lesson 14: Center Day 3

Section D: The Value of Money

- Lesson 15: Identify Pennies, Nickels, and Dimes
- Lesson 16: Identify Quarters
- Lesson 17: Let's Make a Dollar
- Lesson 18: Money Problems
- Lesson 19: More Money Problems
- Lesson 20: Does My Answer Make Sense?
- Lesson 21: Center Day 4
- Lesson 22: Spending Money

Unit 7: Adding and Subtracting within 1,000

In this unit, students add and subtract within 1,000, with and without composing and decomposing a base-ten unit.

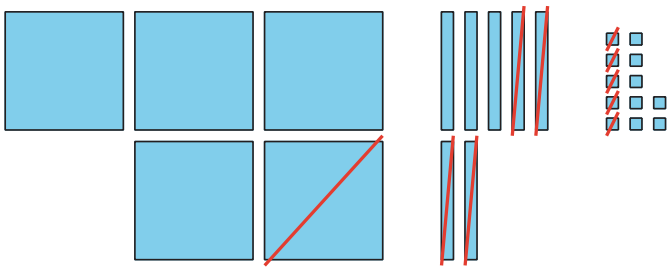
Previously, students added and subtracted within 100, using methods such as counting on, counting back, and composing or decomposing a ten. Here, they apply the methods they know and their understanding of place value and three-digit numbers to find sums and differences within 1,000.

Initially, students add and subtract, without composing or decomposing a ten or a hundred. Instead, they rely on methods based on the relationship between addition and subtraction and the properties of operations. They make sense of sums and differences, using counting sequences, number relationships, and representations (number lines, base-ten blocks, base-ten diagrams, and equations).

As the unit progresses, students work with numbers that prompt them to compose and decompose one or more units, eliciting strategies based on place value. When adding and subtracting by place, students first compose or decompose only a ten, then either a ten or a hundred, and finally both a ten and a hundred. They also make sense of and connect different ways to represent place-value strategies. For example, students make sense of a written method for subtracting 145 from 582 by connecting it to a base-ten diagram and their experiences with base-ten blocks.

How do Jada's equations match Lin's diagram?
Finish Jada's work to find $582 - 145$.

Lin's diagram



Jada's equations

500 − 100 =

70
~~80~~ − 40 =

12
~~2~~ − 5 =

Students learn to recognize when composition or decomposition is a useful strategy for adding or subtracting by place. In the later half of the unit, they encounter lessons that encourage them to think flexibly and to use strategies that make sense to them, based on number relationships, properties of operations, and the relationship between addition and subtraction.

Section A: Add and Subtract within 1,000, without Composition or Decomposition

- Lesson 1: Compare, Count On, and Count Back
- Lesson 2: Add and Subtract with Tens and Hundreds
- Lesson 3: Count On or Count Back to Subtract
- Lesson 4: Add and Subtract 3-Digit Numbers in Different Ways
- Lesson 5: Center Day 1

Section B: Add within 1,000, Using Place-Value Strategies

- Lesson 6: Use a Ten to Add within 1,000
- Lesson 7: Compose a Greater Unit
- Lesson 8: Compose Tens and Hundreds to Add
- Lesson 9: Add 3-Digit Numbers
- Lesson 10: Add within 1,000
- Lesson 11: Center Day 2

Section C: Subtract within 1,000, Using Place-Value Strategies

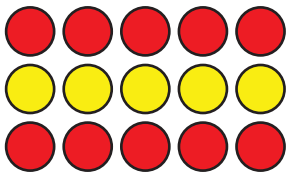
- Lesson 12: Decompose to Subtract
- Lesson 13: Decompose Tens or Hundreds
- Lesson 14: Think Before You Subtract
- Lesson 15: Decompose a Ten and a Hundred to Subtract
- Lesson 16: Subtract within 1,000
- Lesson 17: Does It Make Sense?
- Lesson 18: Center Day 3
- Lesson 19: Book Drive

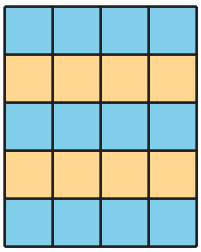
Unit 8: Equal Groups

In this unit, students develop an understanding of equal groups, building on their experiences with skip-counting and with finding the sums of equal addends. The work here serves as the foundation for multiplication and division in grade 3 and beyond.

Students begin by analyzing even and odd numbers of objects. They learn that any even number can be split into 2 equal groups or into groups of 2, with no objects left over. Students use visual patterns to identify whether numbers of objects are even or odd.

Next, students learn about rectangular arrays. They describe arrays using mathematical terms, such as“rows” and “columns.” Students see the total number of objects as a sum of the objects in each row and as a sum of the objects in each column, which they express by writing equations with equal addends. Students also recognize that there are many ways of seeing the equal groups in an array.





Later, students transition from working with arrays that contain discrete objects to equal-size squares within a rectangle. Students build rectangular arrays using inch tiles and partition rectangles into rows and columns of equal-size squares. The work here sets the stage for the concept of area in grade 3.

Section A: Odd and Even

- Lesson 1: Can You Share?
- Lesson 2: Partners Make Pairs
- Lesson 3: Is It Odd or Even?
- Lesson 4: Decompose Even and Odd Numbers
- Lesson 5: Patterns with Even and Odd Numbers
- Lesson 6: Center Day 1

Section B: Rectangular Arrays

- Lesson 7: What Is an Array?
- Lesson 8: Count Columns and Objects in Columns
- Lesson 9: A Sum of Equal Addends
- Lesson 10: Write Expressions and Equations to Represent Arrays
- Lesson 11: Arrays and Rectangles
- Lesson 12: Partition Rectangles into Squares
- Lesson 13: Center Day 2
- Lesson 14: A Band Concert

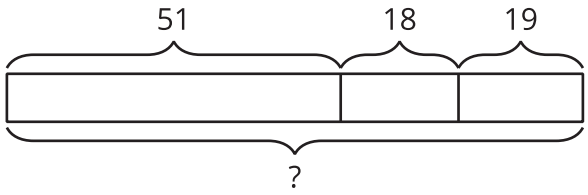
Unit 9: Putting It All Together

In this unit, students revisit major work and fluency goals of the grade, applying their learning from the year.

The first section gives students a chance to solidify their fluency with addition and subtraction within 20. The second section, students apply methods they used with smaller numbers to add and subtract numbers within 100. Students also revisit numbers within 1,000: composing and decomposing three-digit numbers in different ways and using methods based on place value to find their sums and differences.

In the final section, students interpret, solve, and write story problems involving numbers within 100, which further develops their fluency with addition and subtraction of two-digit numbers. Students work with all problem types with the unknown in all positions.

Clare picked 51 apples. Lin picked 18 apples. Andre picked 19 apples.
Here is the work a student shows to answer to a question about the apples.



$51 + 19 = 70$

$70 + 18 = 88$

What is the question?

The sections in this unit are standalone sections, not required to be completed in order. The goal is to offer ample opportunities for students to integrate the knowledge they have gained and to practice skills related to the expected fluencies of the grade.

Section A: Fluency within 20 and Measurement

- Lesson 1: Sums and Differences within 20
- Lesson 2: Fluency Flip
- Lesson 3: Measure on a Map
- Lesson 4: Measure and Plot

Section B: Numbers to 1,000

- Lesson 5: Compose and Decompose Numbers within 1,000
- Lesson 6: Represent Numbers with Expressions
- Lesson 7: Add and Subtract within 1,000
- Lesson 8: Add and Subtract within 100

Section C: Create and Solve Story Problems

- Lesson 9: Sort the Story Problems
- Lesson 10: What's the Question?
- Lesson 11: All about Tape Diagrams
- Lesson 12: What's the Story?
- Lesson 13: Let's Solve Our Story Problems

Pacing Guide

The number of days includes two assessment days per unit. The upper bound of the range includes optional lessons.

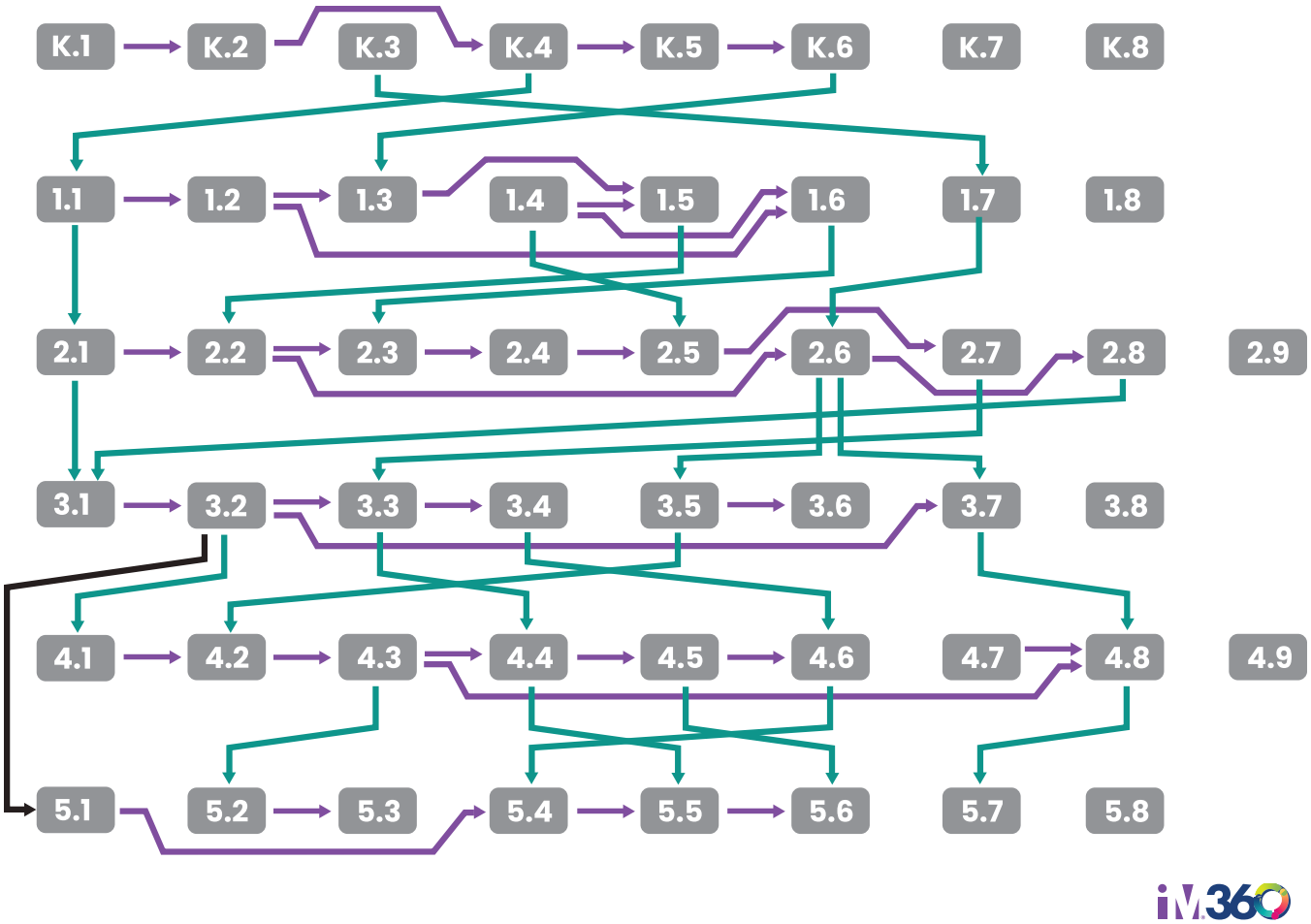
	Kindergarten	Grade 1	Grade 2
week 1 week 2 week 3 week 4	Unit 1 Math in Our World (18–19 days) Optional Lesson: 17	Unit 1 Adding, Subtracting, and Working with Data (16–17 days) Optional Lesson: 15	Unit 1 Adding, Subtracting, and Working with Data (16–20 days) Optional Lessons: 6, 12, 17, 18
week 5 week 6 week 7 week 8	Unit 2 Numbers 1–10 (23–26 days) Optional Lessons:7, 8, 24	Unit 2 Addition and Subtraction Story Problems (24–25 days) Optional Lesson: 23	Unit 2 Adding and Subtracting within 100 (15–19 days) Optional Lessons: 4, 10, 16, 17
week 9 week 10 week 11 week 12 week 13	Unit 3 Flat Shapes All Around Us (16–17 days) Optional Lesson: 15	Unit 3 Adding and Subtracting within 20 (29–30 days) Optional Lesson: 28	Unit 3 Measuring Length (16–20 days) Optional Lessons: 7, 13, 17, 18
week 14 week 15 week 16 week 17	Unit 4 Understanding Addition and Subtraction (18–20 days) Optional Lessons: 13, 18	Unit 4 Numbers to 99 (23–25 days) Optional Lessons: 12, 23	Unit 4 Addition and Subtraction on the Number Line (14–17 days) Optional Lessons: 6, 14, 15
week 18 week 19 week 20 week 21	Unit 5 Composing and Decomposing Numbers to 10 (15–17 days) Optional Lessons: 4, 15	Unit 5 Adding within 100 (15–16 days) Optional Lesson: 14	Unit 5 Numbers to 1,000 (13–16 days) Optional Lessons: 7, 13, 14
week 22 week 23 week 24	Unit 6 Numbers 0-20 (13–15 days) Optional Lessons: 2, 13	Unit 6 Length Measurements within 120 Units (18–19 days) Optional Lesson: 17	Unit 6 Geometry, Time, and Money (19–24 days) Optional Lessons: 5, 10, 14, 21, 22
week 25 week 26 week 27 week 28	Unit 7 Solid Shapes All Around Us (17-18 days) Optional Lesson: 16	Unit 7 Geometry and Time (19-20 days) Optional Lesson: 18	Unit 7 Adding and Subtracting within 1,000 (16–21 days) Optional Lessons: 5, 11, 17, 18, 19
week 29 week 30 week 31 week 32 week 33 week 34	Unit 8 Putting It All Together (17–23 days) Optional Lessons: 2, 4, 5, 17, 18, 19	Unit 8 Putting It All Together (12 days) Optional Lessons: none	Unit 8 Equal Groups (12–16 days) Optional Lessons: 5, 6, 13, 14 Unit 9 Putting It All Together (15 days) Optional Lessons: none

CC BY NC 2024
Illustrative Mathematics®

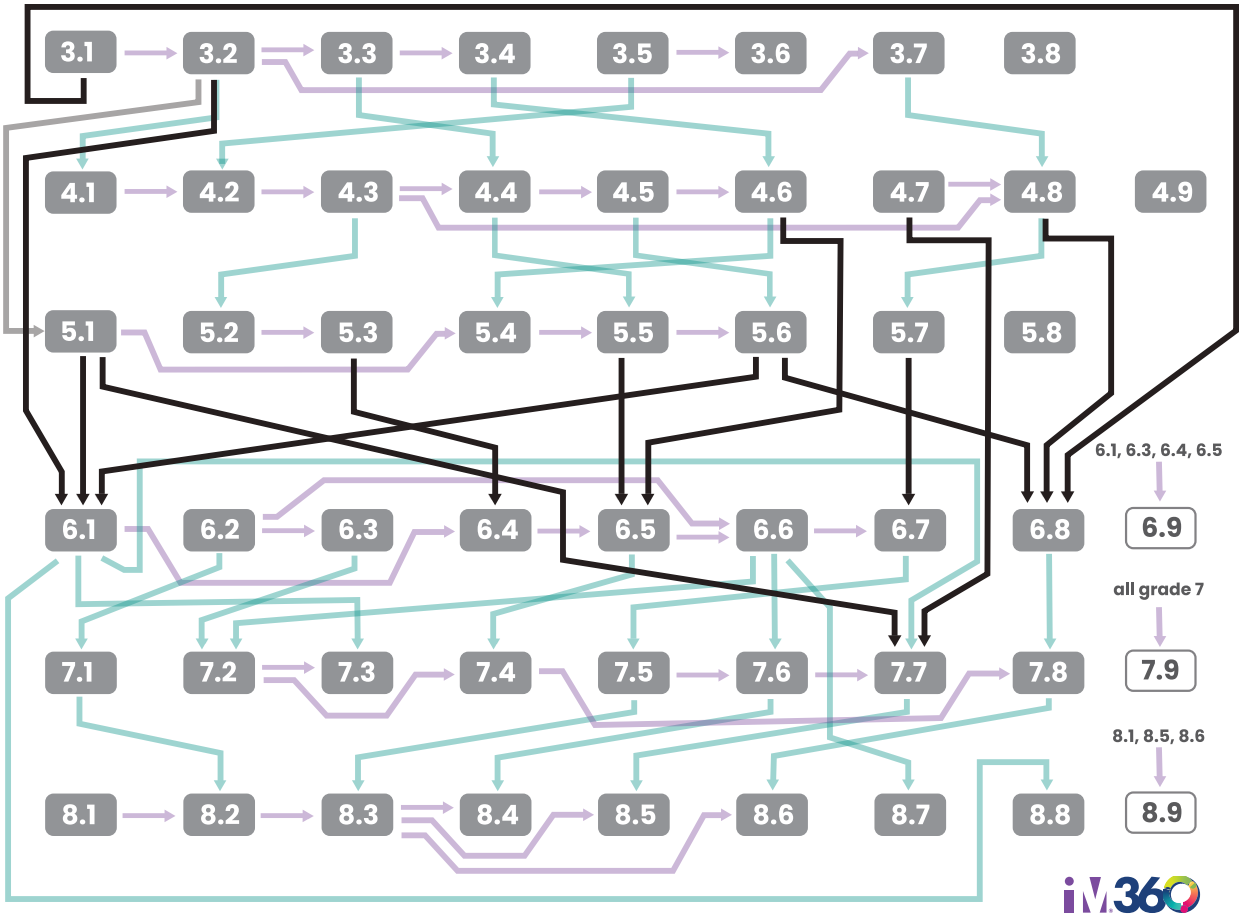
	Grade 3	Grade 4	Grade 5
week 1	Unit 1 Introducing Multiplication (22–23 days) Optional Lesson: 21	Unit 1 Factors and Multiples (8–10 days) Optional Lessons: 4, 8	Unit 1 Finding Volume (13–14 days) Optional Lesson: 12
week 2			
week 3		Unit 2 Fraction Equivalence and Comparison (18–19 days) Optional Lesson: 17	
week 4			Unit 2 Fractions as Quotients and Fraction Multiplication (17–19 days) Optional Lessons: 16, 17
week 5			
week 6	Unit 2 Area and Multiplication (16–17 days) Optional Lessons: 15		
week 7		Unit 3 Extending Operations to Fractions (20–22 days) Optional Lessons: 19, 20	
week 8			Unit 3 Multiplying and Dividing Fractions (20–22 days) Optional Lessons: 10, 20
week 9	Unit 3 Wrapping Up Addition and Subtraction within 1,000 (22–23 days) Optional Lesson: 21		
week 10			
week 11		Unit 4 From Hundredths to Hundred-thousands (24–25 days) Optional Lesson: 23	
week 12			Unit 4 Wrapping Up Multiplication and Division with Multi-Digit Numbers (20–22 days) Optional Lessons: 16, 20
week 13			
week 14	Unit 4 Relating Multiplication to Division (23–24 days) Optional Lesson: 22		
week 15			
week 16		Unit 5 Multiplicative Comparison and Measurement (19-20 days) Optional Lesson: 18	
week 17			Unit 5 Place Value Patterns and Decimal Operations (26–28 days) Optional Lessons: 4, 26
week 18			
week 19	Unit 5 Fractions as Numbers (19–20 days) Optional Lesson: 18		
week 20		Unit 6 Multiplying and Dividing Multi-digit Numbers (27–28 days) Optional Lesson: 26	
week 21			
week 22			
week 23	Unit 6 Measuring Length, Time, Liquid Volume, and Weight (17–18 days) Optional Lesson: 16		Unit 6 More Decimal and Fraction Operations (21–23 days) Optional Lessons: 20, 21
week 24			
week 25		Unit 7 Angles and Angle Measurement (17–18 days) Optional Lesson: 16	
week 26			
week 27	Unit 7 Two-dimensional Shapes and Perimeter (16 - 17 days) Optional Lesson: 15		Unit 7 Shapes on the Coordinate Plane (15 -16 days) Optional Lesson: 14
week 28			
week 29		Unit 8 Properties of Two-dimensional Shapes (9–13 days) Optional Lessons: 6, 9, 10, 11	
week 30			
week 31	Unit 8 Putting It All Together (17 days) Optional Lessons: none		Unit 8 Putting It All Together (19–20 days) Optional Lesson: 9
week 32		Unit 9 Putting It All Together (14 days) Optional Lessons: none	
week 33			
week 34			

Dependency Chart

In the unit dependency chart, an arrow indicates that a particular unit is designed for students who already know the material in a previous unit. Reversing the order of the units would have a negative effect on mathematical or pedagogical coherence.

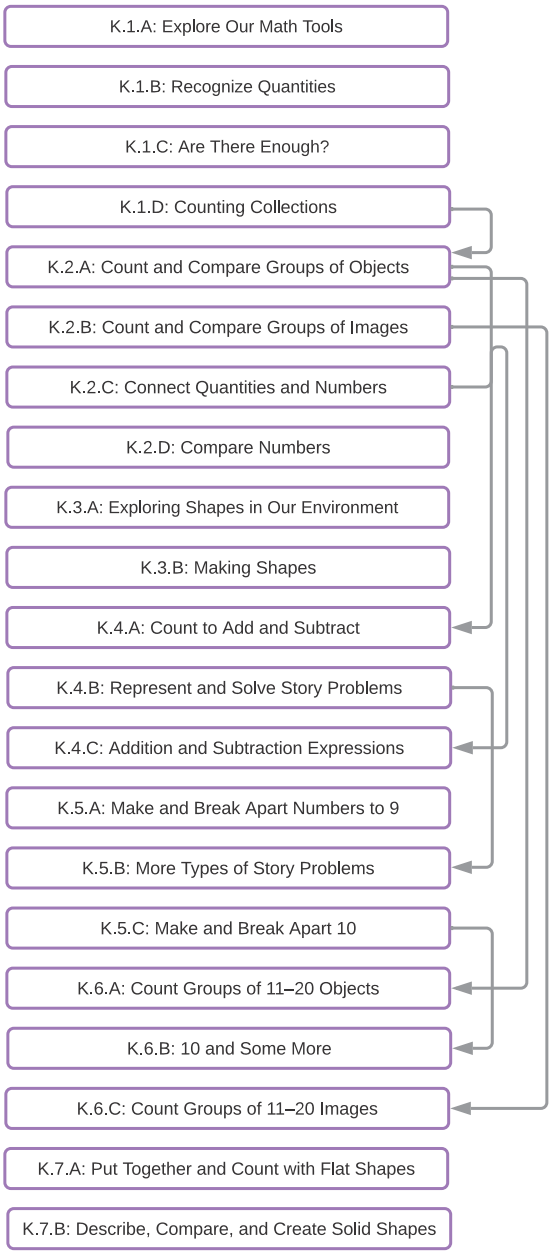


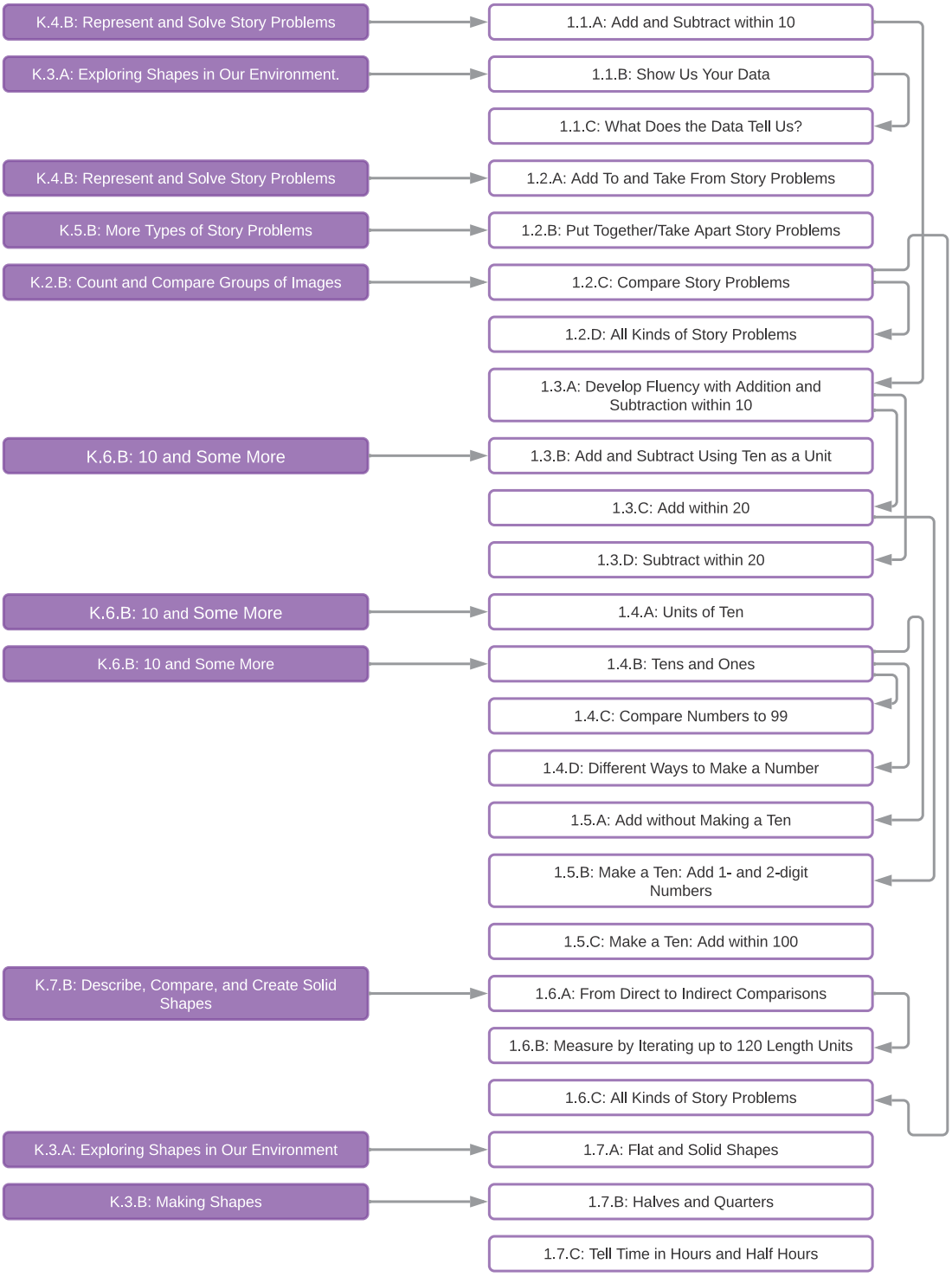
The following chart shows unit dependencies across the curriculum for IM Grades 3–8.

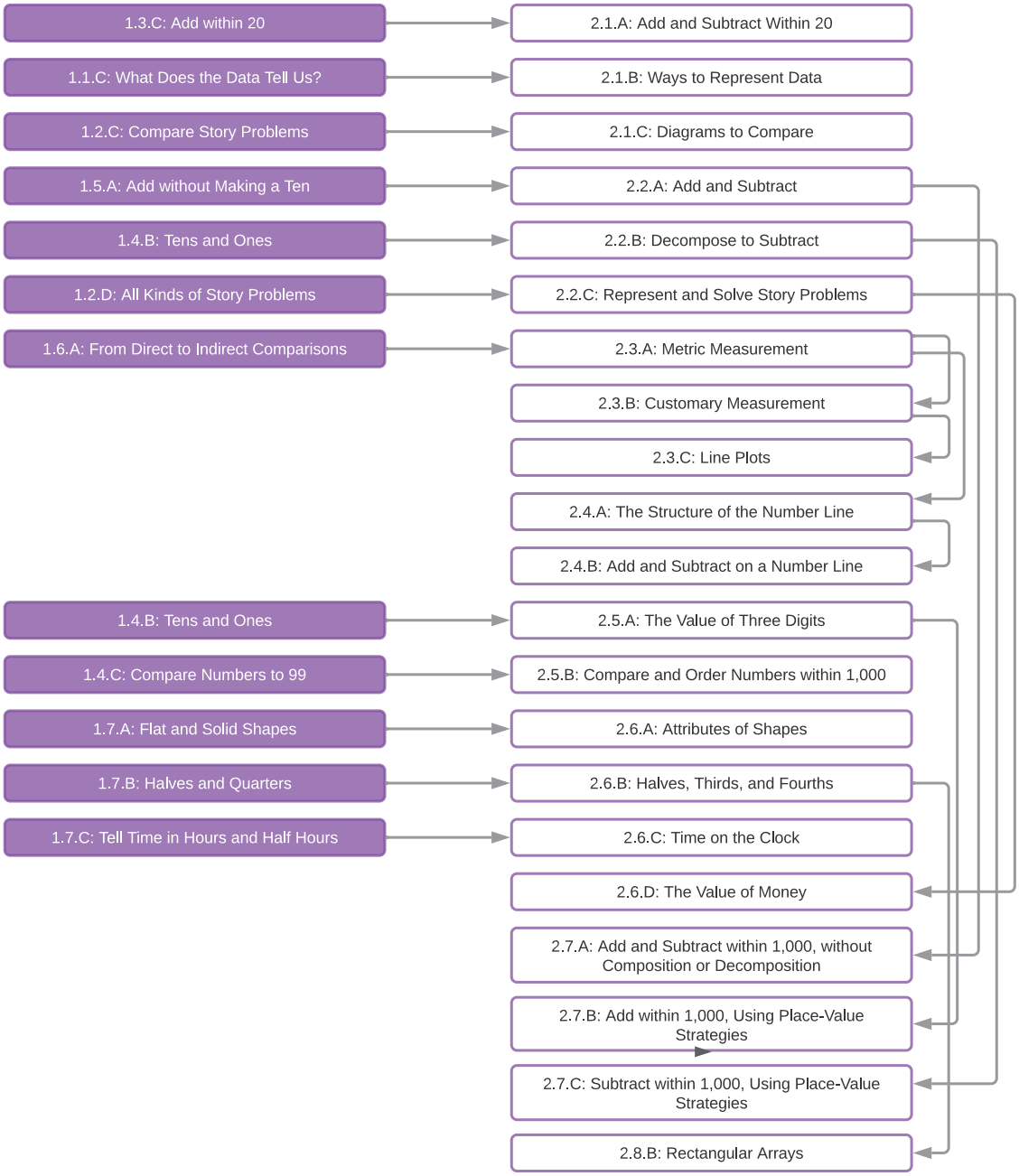


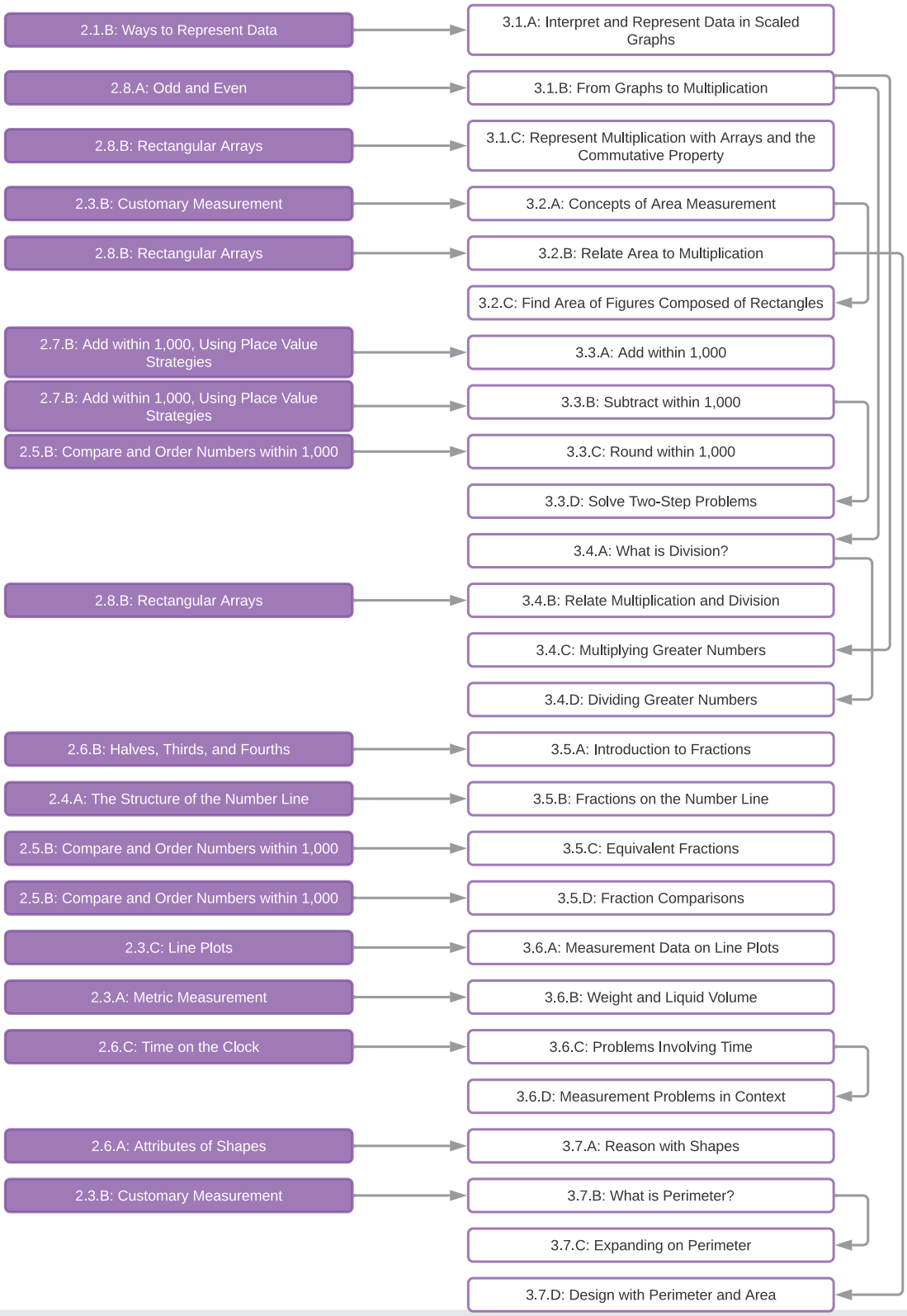
Section Dependency Diagrams

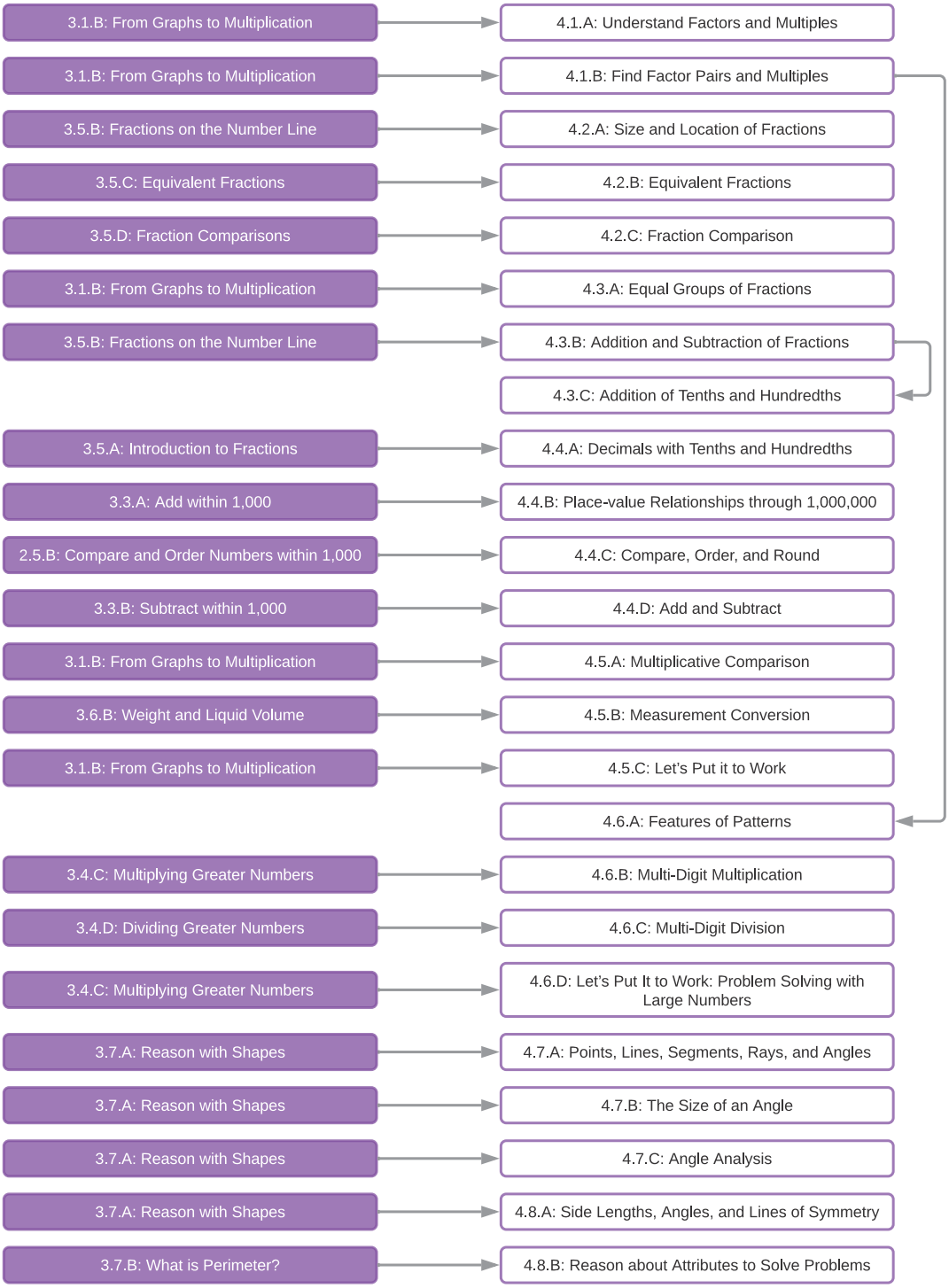
In the section dependency charts, an arrow indicates the prior section that contains content most directly designed to support or build toward the content in the current section.

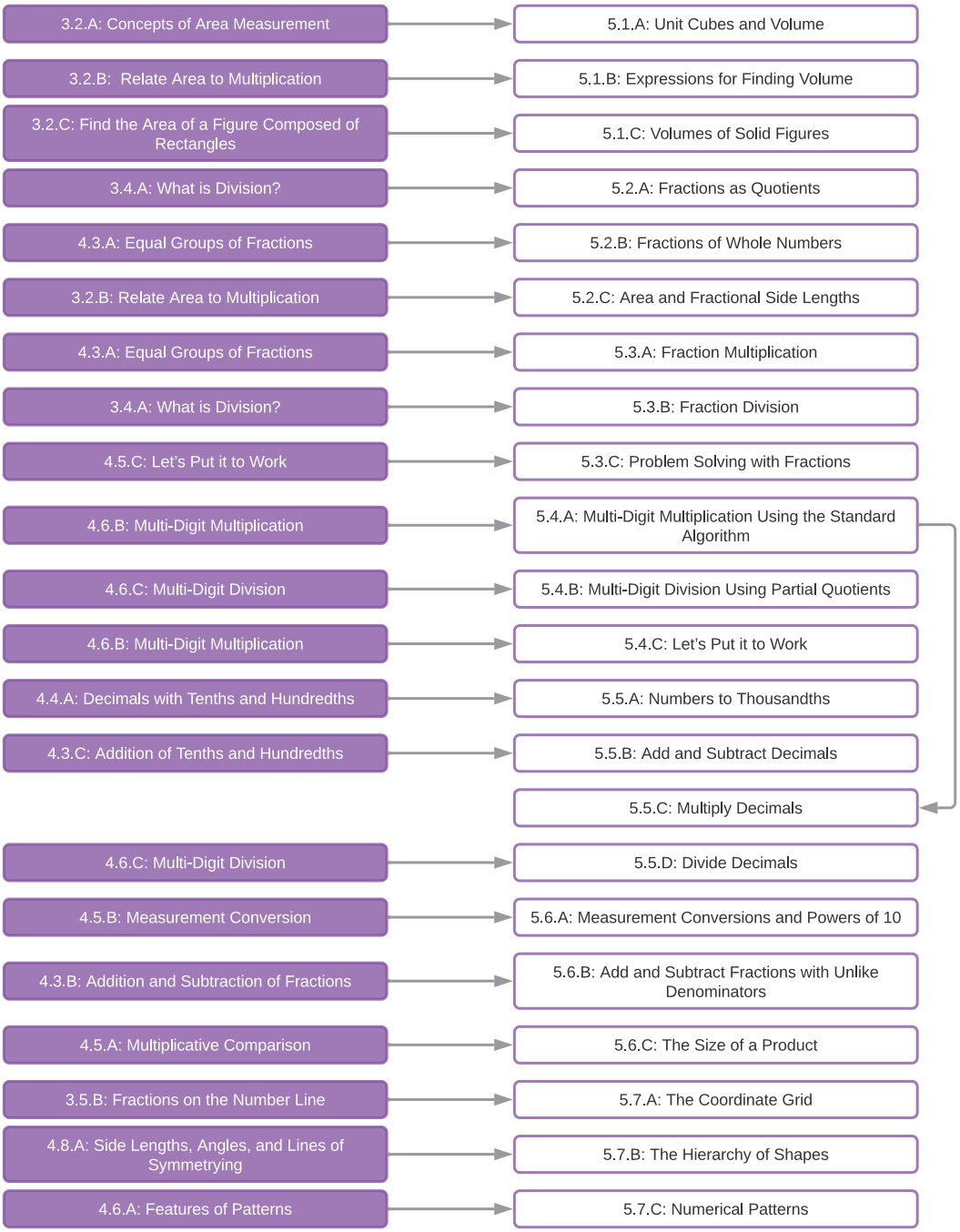

K.1.A: Explore Our Math Tools
K.1.B: Recognize Quantities
K.1.C: Are There Enough?
K.1.D: Counting Collections
K.2.A: Count and Compare Groups of Objects
K.2.B: Count and Compare Groups of Images
K.2.C: Connect Quantities and Numbers
K.2.D: Compare Numbers
K.3.A: Exploring Shapes in Our Environment
K.3.B: Making Shapes
K.4.A: Count to Add and Subtract
K.4.B: Represent and Solve Story Problems
K.4.C: Addition and Subtraction Expressions
K.5.A: Make and Break Apart Numbers to 9
K.5.B: More Types of Story Problems
K.5.C: Make and Break Apart 10
K.6.A: Count Groups of 11–20 Objects
K.6.B: 10 and Some More
K.6.C: Count Groups of 11–20 Images
K.7.A: Put Together and Count with Flat Shapes
K.7.B: Describe, Compare, and Create Solid Shapes


K.4.B: Represent and Solve Story Problems
K.3.A: Exploring Shapes in Our Environment.
K.4.B: Represent and Solve Story Problems
K.5.B: More Types of Story Problems
K.2.B: Count and Compare Groups of Images
K.6.B: 10 and Some More
K.6.B: 10 and Some More
K.6.B: 10 and Some More
K.7.B: Describe, Compare, and Create Solid Shapes
K.3.A: Exploring Shapes in Our Environment
K.3.B: Making Shapes
1.1.A: Add and Subtract within 10
1.1.B: Show Us Your Data
1.1.C: What Does the Data Tell Us?
1.2.A: Add To and Take From Story Problems
1.2.B: Put Together/Take Apart Story Problems
1.2.C: Compare Story Problems
1.2.D: All Kinds of Story Problems
1.3.A: Develop Fluency with Addition and Subtraction within 10
1.3.B: Add and Subtract Using Ten as a Unit
1.3.C: Add within 20
1.3.D: Subtract within 20
1.4.A: Units of Ten
1.4.B: Tens and Ones
1.4.C: Compare Numbers to 99
1.4.D: Different Ways to Make a Number
1.5.A: Add without Making a Ten
1.5.B: Make a Ten: Add 1- and 2-digit Numbers
1.5.C: Make a Ten: Add within 100
1.6.A: From Direct to Indirect Comparisons
1.6.B: Measure by Iterating up to 120 Length Units
1.6.C: All Kinds of Story Problems
1.7.A: Flat and Solid Shapes
1.7.B: Halves and Quarters
1.7.C: Tell Time in Hours and Half Hours


1.3.C: Add within 20
1.1.C: What Does the Data Tell Us?
1.2.C: Compare Story Problems
1.5.A: Add without Making a Ten
1.4.B: Tens and Ones
1.2.D: All Kinds of Story Problems
1.6.A: From Direct to Indirect Comparisons
1.4.B: Tens and Ones
1.4.C: Compare Numbers to 99
1.7.A: Flat and Solid Shapes
1.7.B: Halves and Quarters
1.7.C: Tell Time in Hours and Half Hours
2.1.A: Add and Subtract Within 20
2.1.B: Ways to Represent Data
2.1.C: Diagrams to Compare
2.2.A: Add and Subtract
2.2.B: Decompose to Subtract
2.2.C: Represent and Solve Story Problems
2.3.A: Metric Measurement
2.3.B: Customary Measurement
2.3.C: Line Plots
2.4.A: The Structure of the Number Line
2.4.B: Add and Subtract on a Number Line
2.5.A: The Value of Three Digits
2.5.B: Compare and Order Numbers within 1,000
2.6.A: Attributes of Shapes
2.6.B: Halves, Thirds, and Fourths
2.6.C: Time on the Clock
2.6.D: The Value of Money
2.7.A: Add and Subtract within 1,000, without Composition or Decomposition
2.7.B: Add within 1,000, Using Place-Value Strategies
2.7.C: Subtract within 1,000, Using Place-Value Strategies
2.8.B: Rectangular Arrays


2.1.B: Ways to Represent Data
3.1.A: Interpret and Represent Data in Scaled Graphs
2.8.A: Odd and Even
3.1.B: From Graphs to Multiplication
2.8.B: Rectangular Arrays
3.1.C: Represent Multiplication with Arrays and the Commutative Property
2.3.B: Customary Measurement
3.2.A: Concepts of Area Measurement
2.8.B: Rectangular Arrays
3.2.B: Relate Area to Multiplication
3.2.C: Find Area of Figures Composed of Rectangles
2.7.B: Add within 1,000, Using Place Value Strategies
3.3.A: Add within 1,000
2.7.B: Add within 1,000, Using Place Value Strategies
3.3.B: Subtract within 1,000
2.5.B: Compare and Order Numbers within 1,000
3.3.C: Round within 1,000
3.3.D: Solve Two-Step Problems
3.4.A: What is Division?
2.8.B: Rectangular Arrays
3.4.B: Relate Multiplication and Division
3.4.C: Multiplying Greater Numbers
3.4.D: Dividing Greater Numbers
2.6.B: Halves, Thirds, and Fourths
3.5.A: Introduction to Fractions
2.4.A: The Structure of the Number Line
3.5.B: Fractions on the Number Line
2.5.B: Compare and Order Numbers within 1,000
3.5.C: Equivalent Fractions
2.5.B: Compare and Order Numbers within 1,000
3.5.D: Fraction Comparisons
2.3.C: Line Plots
3.6.A: Measurement Data on Line Plots
2.3.A: Metric Measurement
3.6.B: Weight and Liquid Volume
2.6.C: Time on the Clock
3.6.C: Problems Involving Time
3.6.D: Measurement Problems in Context
2.6.A: Attributes of Shapes
3.7.A: Reason with Shapes
2.3.B: Customary Measurement
3.7.B: What is Perimeter?
3.7.C: Expanding on Perimeter
3.7.D: Design with Perimeter and Area


3.1.B: From Graphs to Multiplication
4.1.A: Understand Factors and Multiples
3.1.B: From Graphs to Multiplication
4.1.B: Find Factor Pairs and Multiples
3.5.B: Fractions on the Number Line
4.2.A: Size and Location of Fractions
3.5.C: Equivalent Fractions
4.2.B: Equivalent Fractions
3.5.D: Fraction Comparisons
4.2.C: Fraction Comparison
3.1.B: From Graphs to Multiplication
4.3.A: Equal Groups of Fractions
3.5.B: Fractions on the Number Line
4.3.B: Addition and Subtraction of Fractions
4.3.C: Addition of Tenths and Hundredths
3.5.A: Introduction to Fractions
4.4.A: Decimals with Tenths and Hundredths
3.3.A: Add within 1,000
4.4.B: Place-value Relationships through 1,000,000
2.5.B: Compare and Order Numbers within 1,000
4.4.C: Compare, Order, and Round
3.3.B: Subtract within 1,000
4.4.D: Add and Subtract
3.1.B: From Graphs to Multiplication
4.5.A: Multiplicative Comparison
3.6.B: Weight and Liquid Volume
4.5.B: Measurement Conversion
3.1.B: From Graphs to Multiplication
4.5.C: Let's Put it to Work
4.6.A: Features of Patterns
3.4.C: Multiplying Greater Numbers
4.6.B: Multi-Digit Multiplication
3.4.D: Dividing Greater Numbers
4.6.C: Multi-Digit Division
3.4.C: Multiplying Greater Numbers
4.6.D: Let's Put It to Work: Problem Solving with Large Numbers
3.7.A: Reason with Shapes
4.7.A: Points, Lines, Segments, Rays, and Angles
3.7.A: Reason with Shapes
4.7.B: The Size of an Angle
3.7.A: Reason with Shapes
4.7.C: Angle Analysis
3.7.A: Reason with Shapes
4.8.A: Side Lengths, Angles, and Lines of Symmetry
3.7.B: What is Perimeter?
4.8.B: Reason about Attributes to Solve Problems


3.2.A: Concepts of Area Measurement
5.1.A: Unit Cubes and Volume
3.2.B: Relate Area to Multiplication
5.1.B: Expressions for Finding Volume
3.2.C: Find the Area of a Figure Composed of Rectangles
5.1.C: Volumes of Solid Figures
3.4.A: What is Division?
5.2.A: Fractions as Quotients
4.3.A: Equal Groups of Fractions
5.2.B: Fractions of Whole Numbers
3.2.B: Relate Area to Multiplication
5.2.C: Area and Fractional Side Lengths
4.3.A: Equal Groups of Fractions
5.3.A: Fraction Multiplication
3.4.A: What is Division?
5.3.B: Fraction Division
4.5.C: Let's Put it to Work
5.3.C: Problem Solving with Fractions
4.6.B: Multi-Digit Multiplication
5.4.A: Multi-Digit Multiplication Using the Standard Algorithm
4.6.C: Multi-Digit Division
5.4.B: Multi-Digit Division Using Partial Quotients
4.6.B: Multi-Digit Multiplication
5.4.C: Let's Put it to Work
4.4.A: Decimals with Tenths and Hundredths
5.5.A: Numbers to Thousandths
4.3.C: Addition of Tenths and Hundredths
5.5.B: Add and Subtract Decimals
5.5.C: Multiply Decimals
4.6.C: Multi-Digit Division
5.5.D: Divide Decimals
4.5.B: Measurement Conversion
5.6.A: Measurement Conversions and Powers of 10
4.3.B: Addition and Subtraction of Fractions
5.6.B: Add and Subtract Fractions with Unlike Denominators
4.5.A: Multiplicative Comparison
5.6.C: The Size of a Product
3.5.B: Fractions on the Number Line
5.7.A: The Coordinate Grid
4.8.A: Side Lengths, Angles, and Lines of Symmetrying
5.7.B: The Hierarchy of Shapes
4.6.A: Features of Patterns
5.7.C: Numerical Patterns