Scope and Sequence for Grado 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:

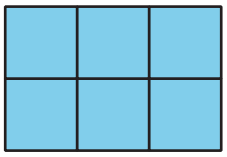
1. Factors and Multiples
2. Fraction Equivalence and Comparison
3. Extending Operations to Fractions
4. From Hundredths to Hundred-thousands
5. Multiplicative Comparison and Measurement
6. Multiplying and Dividing Multi-digit Numbers
7. Angles and Angle Measurement
8. Properties of Two-dimensional Shapes
9. Putting it All Together

Unit 1: Factores y múltiplos

In this unit, students extend their knowledge of multiplication, division, and the area of a rectangle to deepen their understanding of factors and to learn about multiples.

In grade 3, students learned that they can multiply the two side lengths of a rectangle to find its area, and divide the area by one side length to find the other side length.

To represent these ideas, students used area diagrams, wrote expressions and equations, and learned the terms “factors” and “products.”



In this unit, students return to the concept of area to make sense of factors and multiples of numbers. Students find as many pairs of whole-number side lengths as they can given a rectangle with a specific area. They make sense of those side lengths as factor pairs of the whole-number area, and the area as a multiple of each side length.

Students also learn that a number can be classified as prime or composite based on the number of factor pairs it has.

Throughout the unit, students encounter various contexts related to school, gatherings, and celebrations. They are intended to invite conversations about students’ lives and experiences. Consider them as opportunities to learn about students as individuals, to foster a positive learning community, and to shape each lesson based on insights about students.

Section A: Comprendamos factores y múltiplos

- Lesson 1: Múltiplos de un número
- Lesson 2: Parejas de factores
- Lesson 3: Números primos y números compuestos
- Lesson 4: Practiquemos la multiplicación

Section B: Encontremos parejas de factores y múltiplos

- Lesson 5: Más múltiplos
- Lesson 6: El problema de los casilleros
- Lesson 7: Encontremos factores y múltiplos
- Lesson 8: El arte de Mondrian

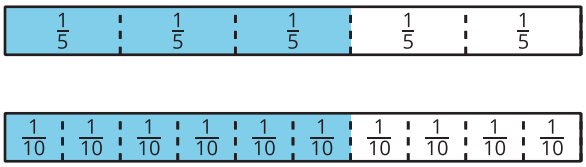
Unit 2: Equivalencia y comparación de fracciones

In this unit, students extend their prior understanding of equivalent fractions and comparison of fractions.

In grade 3, students partitioned shapes into parts with equal area and expressed the area of each part as a unit fraction. They learned that any unit fraction $\frac{1}{b}$ results from a 1 partitioned into b equal parts. Students used unit fractions to build non-unit fractions, including fractions greater than 1, and represented them on fraction strips and tape diagrams. The denominators of these fractions were limited to 2, 3, 4, 6, and 8. Students also worked with fractions on a number line, establishing the idea of fractions as numbers and equivalent fractions as the same point on the number line.

Here, students follow a similar progression of representations. They use fraction strips, tape diagrams, and number lines to make sense of the size of fractions, generate equivalent fractions, and compare and order fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.

Students generalize that a fraction $\frac{a}{b}$ is equivalent to fraction $\frac{(n \times a)}{(n \times b)}$ because each unit fraction is being broken into n times as many equal parts, making the size of the part n times as small $\frac{1}{(n \times b)}$ and the number of parts in the whole n times as many $(n \times a)$. For example, we can see $\frac{3}{5}$ is equivalent to $\frac{6}{10}$ because when each fifth is partitioned into 2 parts, there are 2×3 or 6 shaded parts, twice as many as before, and the size of each part is half as small, $\frac{1}{(2 \times 5)}$ or $\frac{1}{10}$.



As the unit progresses, students use equivalent fractions and benchmarks, such as $\frac{1}{2}$ and 1, to reason about the relative location of fractions on a number line and to compare and order fractions.

Section A: Tamaño y ubicación de fracciones

- Lesson 1: Representaciones de fracciones (parte 1)
- Lesson 2: Representaciones de fracciones (parte 2)
- Lesson 3: El mismo denominador o numerador
- Lesson 4: Mismo tamaño, tamaños relacionados
- Lesson 5: Fracciones en rectas numéricas
- Lesson 6: Relacionemos fracciones con valores de referencia

Section B: Fracciones equivalentes

- Lesson 7: Fracciones equivalentes
- Lesson 8: Fracciones equivalentes en la recta numérica
- Lesson 9: Expliquemos la equivalencia

- Lesson 10: Usemos múltiplos para encontrar fracciones equivalentes
- Lesson 11: Usemos factores para encontrar fracciones equivalentes

Section C: Comparación de fracciones

- Lesson 12: Formas de comparar fracciones
- Lesson 13: Usemos fracciones equivalentes para comparar
- Lesson 14: Problemas de comparación de fracciones
- Lesson 15: Usemos denominadores comunes para comparar
- Lesson 16: Comparemos y ordenemos fracciones
- Lesson 17: Juegos de clips

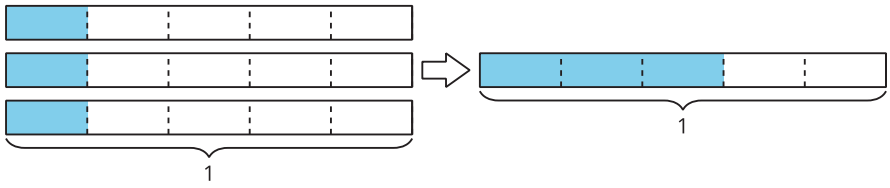
Unit 3: Extendamos las operaciones a las fracciones

In this unit, students deepen their understanding of how fractions can be composed and decomposed, and they learn about operations on fractions.

In grade 3, students partitioned a whole into equal parts and identified one of the parts as a unit fraction. They learned that non-unit fractions and whole numbers are composed of unit fractions. They used visual fraction models, including tape diagrams and number lines, to represent and compare fractions. In a previous unit, students extended that work and reasoned about fraction equivalence.

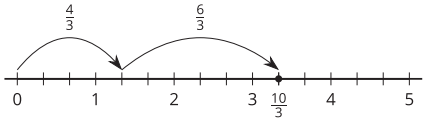
Here students multiply fractions by whole numbers, add and subtract fractions with the same denominator, and add tenths and hundredths. They rely on familiar concepts and representations to do so. For instance, students had represented multiplication on a tape diagram, with equal-size groups and a whole number in each group. Here they use a tape diagram that shows a fraction in each group.

$$3 \times \frac{1}{5} = \frac{3}{5}$$

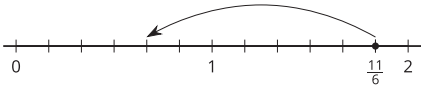


In earlier grades, students used number lines to represent addition and subtraction of whole numbers. Here they use number lines to represent the decomposition of fractions into sums, and to reason about addition and subtraction of fractions with the same denominator, including mixed numbers.

$$\frac{4}{3} + \frac{6}{3} = \frac{10}{3}$$



$$\frac{11}{6} - \frac{7}{6} = \frac{4}{6}$$



Students then apply these skills in the context of measurement and data. They analyze line plots showing fractional lengths and find sums and differences to answer questions about the data.

Lastly students use fraction equivalence to find sums of tenths and hundredths. For instance, to find $\frac{3}{10} + \frac{15}{100}$, they reason that $\frac{3}{10}$ is equivalent to $\frac{30}{100}$, so the sum is $\frac{30}{100} + \frac{15}{100}$, which is $\frac{45}{100}$.

Section A: Grupos iguales de fracciones

- Lesson 1: Grupos iguales de fracciones unitarias
- Lesson 2: Representaciones de grupos iguales de fracciones
- Lesson 3: Patrones en la multiplicación
- Lesson 4: Grupos iguales de fracciones no unitarias
- Lesson 5: Expresiones de multiplicación equivalentes
- Lesson 6: Problemas con grupos iguales de fracciones

Section B: Sumemos y restemos fracciones

- Lesson 7: Fracciones como sumas
- Lesson 8: Suma de fracciones
- Lesson 9: Diferencias de fracciones
- Lesson 10: Los números de una resta
- Lesson 11: Restemos fracciones de manera flexible
- Lesson 12: Sumas y diferencias de fracciones
- Lesson 13: Medidas fraccionarias en diagramas de puntos
- Lesson 14: Problemas sobre datos de medidas fraccionarias

Section C: Sumemos décimos y centésimos

- Lesson 15: Varios tipos de fracciones
- Lesson 16: Sumemos décimos y centésimos
- Lesson 17: Sumas de décimos y centésimos
- Lesson 18: Un montón de fracciones para sumar
- Lesson 19: Flexibilidad con fracciones
- Lesson 20: Notas adhesivas

Unit 4: De centésimas a unidades de cien mil

In this unit, students learn to express both small and large numbers in base ten, extending their understanding to include numbers from hundredths to hundred-thousands.

In previous units, students compared, added, subtracted, and wrote equivalent fractions for tenths and hundredths. In this unit, students take a closer look at the relationship between tenths and hundredths and learn to express them in decimal notation. Students analyze and represent fractions on square grids of 100 where the entire grid represents 1. They reason about the size of tenths and hundredths written as decimals, locate decimals on a number line, and compare and order decimals.

Students then explore large numbers. They begin by using base-ten blocks and diagrams to build, read, write, and represent whole numbers beyond 1,000. Students see that ten-thousands are related to thousands in the same way that thousands are related to hundreds, and hundreds are to tens, and tens are to ones.

As they make sense of this structure (MP7), students see that the value of the digit in a place represents ten times the value of the same digit in the place to its right.

Students reason about the size of multi-digit numbers and locate them on number lines. To do so, they need to consider

the value of the digits. Students compare, round, and order numbers through 1,000,000. They also use place-value reasoning to add and subtract numbers within 1,000,000 using the standard algorithm.

Throughout the unit, students relate these concepts to real-world contexts and use what they have learned to determine the reasonableness of their responses.

Section A: Decimales con décimas y centésimas

- Lesson 1: Números decimales
- Lesson 2: Decimales equivalentes
- Lesson 3: Decimales en rectas numéricas
- Lesson 4: Comparemos y ordenemos decimales
- Lesson 5: Comparemos y ordenemos decimales escritos de distintas maneras

Section B: Relaciones entre valores posicionales hasta 1,000,000

- Lesson 6: ¿Cuánto es 10,000?
- Lesson 7: Números hasta 100,000
- Lesson 8: Más allá de 100,000
- Lesson 9: Mismo dígito, distinto valor
- Lesson 10: Diez veces el valor
- Lesson 11: Números grandes en una recta numérica

Section C: Comparemos, ordenemos y redondeemos

- Lesson 12: Comparemos números de varios dígitos
- Lesson 13: Ordenemos números de varios dígitos
- Lesson 14: Múltiplos de 10,000 y de 100,000
- Lesson 15: Los múltiplos de 1,000, de 10,000 y de 100,000 más cercanos
- Lesson 16: Redondeemos números
- Lesson 17: Apliquemos el redondeo

Section D: Sumemos y restemos

- Lesson 18: Algoritmo estándar para sumar y restar
- Lesson 19: Compongamos y descompongamos para sumar y restar
- Lesson 20: Sumemos y restemos hasta 1,000,000
- Lesson 21: Los ceros en el algoritmo estándar
- Lesson 22: Resolvamos problemas en los que hay números grandes
- Lesson 23: Zumban las abejas

Unit 5: Comparación multiplicativa y medidas

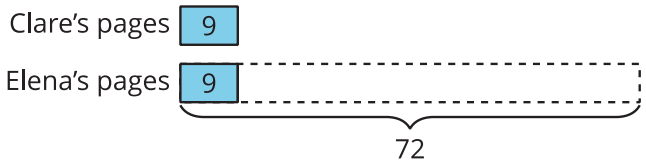
In this unit, students make sense of multiplication as a way to compare quantities. They use this understanding to solve problems about measurement.

In earlier grades, students related two quantities and made an additive comparison, where the key question was "How

many more?" Here they make a multiplicative comparison, in which the underlying question is "How many times as many?" For example, if Mai has 3 cubes and Tyler has 18 cubes, we can say that Tyler has 6 times as many cubes as Mai does.

Initially, students reason, using concrete manipulatives and discrete images. Later, they reason more abstractly, using tape diagrams and equations. Comparative language, such as "____ times as many (or much) as ____" is emphasized, offering students opportunities to attend to precision as they communicate mathematically (MP6).

Write a multiplication equation to compare the pages read by Elena and Clare. Use a symbol to represent the unknown.



Next, students use the idea and language of multiplicative relationships to learn about various units of length, mass, capacity, and time, and to convert from larger units to smaller units, within the same system of measurement. For example, they describe 1 kilometer as 1,000 times as long as a meter. Students then use their new knowledge to solve measurement problems.

Elena's disc went 3 times as far as Clare's did.
Andre's disc went 4 times as far as Tyler's did.

How far did Elena and Tyler throw the disc?

student	distance
Han	17 yards
Lin	$51\frac{1}{2}$ feet
Clare	$21\frac{1}{3}$ feet
Andre	22 yards 2 feet
Elena	
Tyler	

Section A: Comparación multiplicativa

- Lesson 1: Varias veces
- Lesson 2: Interpretemos representaciones de comparaciones multiplicativas
- Lesson 3: Resolvamos problemas de comparación multiplicativa
- Lesson 4: Resolvamos problemas de comparación multiplicativa con números grandes
- Lesson 5: Problemas de comparación de uno y dos pasos
- Lesson 6: Diez veces

Section B: Conversión de medidas

- Lesson 7: Metros y centímetros
- Lesson 8: Metros y kilómetros
- Lesson 9: Gramos y kilogramos, litros, y mililitros
- Lesson 10: Problemas de varios pasos sobre medidas
- Lesson 11: Libras y onzas

- Lesson 12: Horas, minutos y segundos
- Lesson 13: Problemas de varios pasos sobre medidas con fracciones

Section C: Pongamos las cosas en práctica

- Lesson 14: Medidas de peso y de capacidad
- Lesson 15: Medidas de longitud
- Lesson 16: Comparemos perímetros de rectángulos
- Lesson 17: Más problemas sobre perímetros
- Lesson 18: Dos verdades y una mentira

Unit 6: Multipliquemos y dividamos números de varios dígitos

In this unit, students extend their knowledge of multiplication and division to find products and quotients of multi-digit numbers.

In IM Grade 3, students learned that they could find the value of a product by decomposing one factor into smaller parts, finding partial products, and then combining them. To support this reasoning, they used base-ten diagrams (decomposing two-digit factors into tens and ones) and area diagrams (decomposing one side length into smaller numbers). In this unit, students use those understandings to multiply up to four digits by single-digit numbers, and to multiply a pair of two-digit numbers.

Students begin by generating geometric and numerical patterns that follow a given rule. Students describe features of the patterns that are not explicit in the rule and use ideas and language related to multiplication and multiplicative relationships (such as factors, multiples, double) to explain what they notice. As they generate and analyze patterns, they deepen their understanding of properties of operations.

Next, students reason about products of multi-digit numbers. They transition from using base-ten diagrams to using algorithms to record partial products.

Students learn that they can multiply the factors by place value, one digit at a time, and then organize the partial products vertically. Here are two ways to show partial products for $3{,}419 \times 8$.

$$\begin{array}{r} 3,\ 4\ 1\ 9 \\ \times \qquad\quad 8 \\ \hline 7\ 2 \\ 8\ 0 \\ 3,\ 2\ 0\ 0 \\ +\ 2\ 4,\ 0\ 0\ 0 \\ \hline \end{array} \qquad \begin{array}{r} 3,\ 4\ 1\ 9 \\ \times \qquad\quad 8 \\ \hline 2\ 4,\ 0\ 0\ 0 \\ 3,\ 2\ 0\ 0 \\ 8\ 0 \\ +\ 7\ 2 \\ \hline \end{array}$$

Later in the unit, students divide dividends up to four-digit by single-digit divisors. Students see that it helps to decompose a dividend into smaller numbers and find partial quotients, just as it helps to decompose factors and find partial products.

They also recognize that sometimes it is most productive to decompose a dividend by place value. For instance, to find $465 \div 5$, we can divide each 400, 60, and 5 by 5.

Students encounter various ways to record the division process, including an algorithm that records partial quotients in a vertical arrangement.

At the end of the unit, students apply their expanded knowledge of operations to solve multi-step problems about measurement in various contexts—calendar days, distance, and population.

$$\begin{aligned} 400 \div 5 &= 80 \\ 60 \div 5 &= 12 \\ 5 \div 5 &= 1 \\ \hline 465 \div 5 &= 93 \end{aligned}$$

$$\begin{array}{rl} \boxed{93} & \\ 1 & \\ 12 & \\ 80 & \\ 5\overline{)465} & \\ -\ 400 & 5 \times 80 \\ \hline 65 & \\ -\ 60 & 5 \times 12 \\ \hline 5 & \\ -\ 5 & 5 \times 1 \\ \hline 0 & \end{array}$$

Section A: Características de patrones

- Lesson 1: Patrones que crecen
- Lesson 2: Patrones que se repiten
- Lesson 3: Patrones numéricos
- Lesson 4: Más patrones numéricos

Section B: Multiplicación de varios dígitos

- Lesson 5: Productos más allá de 100
- Lesson 6: Multipliquemos números de dos dígitos por números de un dígito
- Lesson 7: Multipliquemos números de tres y de cuatro dígitos por números de un dígito
- Lesson 8: Multipliquemos 2 números de dos dígitos
- Lesson 9: Registremos productos parciales: Factores de un dígito y factores de tres o de cuatro dígitos
- Lesson 10: Usemos algoritmos de productos parciales: 2 números de dos dígitos
- Lesson 11: Productos parciales y el algoritmo estándar
- Lesson 12: Resolvamos problemas en los que hay multiplicaciones

Section C: División de varios dígitos

- Lesson 13: Situaciones que involucran grupos de igual tamaño
- Lesson 14: Situaciones que involucran áreas
- Lesson 15: Dividamos con bloques en base diez
- Lesson 16: Representemos la división con diagramas en base diez
- Lesson 17: Un algoritmo con cocientes parciales
- Lesson 18: Usemos un algoritmo de cocientes parciales
- Lesson 19: Divisiones con residuos
- Lesson 20: Interpretemos residuos en situaciones de división
- Lesson 21: Problemas con residuos

Section D: Pongamos las cosas en práctica: Resolvamos problemas con números grandes

- Lesson 22: Distintas formas de resolver problemas
- Lesson 23: Problemas sobre perímetro y área
- Lesson 24: Resolvamos problemas que tienen varias operaciones
- Lesson 25: Analicemos qué tan razonables son las soluciones
- Lesson 26: Decoraciones con flores de papel

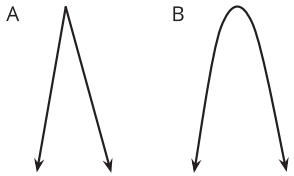
Unit 7: Ángulos y medidas de ángulos

In this unit, students deepen and refine their understanding of geometric figures and measurement.

In earlier grades, students learned about two-dimensional shapes and their attributes, which they described informally early on but with increasing precision over time. Here, students formalize their intuitive knowledge about geometric

features and draw them. They identify and define some building blocks of geometry (points, lines, rays, and line segments), and develop concepts and language to more precisely describe and reason about other geometric figures.

Jada says figure A shows an angle, but figure B does not. Do you agree?



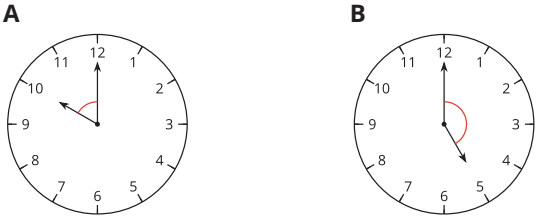
Students analyze cases where lines intersect and where they don't (for example, parallel lines). They learn that an angle is a figure composed of two rays that share the same starting point.

Later, students compare the sizes of angles and consider ways to quantify the comparison. They learn that angles can be measured in terms of the amount of turn one ray makes relative to another ray that shares the same vertex.

Students learn that a 1-degree angle is $\frac{1}{360}$ of a full turn or full circle and can be used to measure angles. They use a protractor to measure angles in whole-number degrees.

Students also learn that angles are additive. When an angle is composed of multiple non-overlapping parts, the measure of the whole is the sum of the angle measures of the parts. These insights enable students to classify angles (as acute, obtuse, right, or straight) and to solve problems about unknown angle measurements in concrete and abstract contexts.

How many degrees is each marked angle on the clock? Show your reasoning.



Section A: Puntos, rectas, segmentos, rayos y ángulos

- Lesson 1: ¿Cómo describirías estas figuras?
- Lesson 2: Puntos, rectas, rayos y segmentos
- Lesson 3: Dos o más rectas
- Lesson 4: Puntos y rectas por todas partes
- Lesson 5: ¿Qué es un ángulo?

Section B: El tamaño de un ángulo

- Lesson 6: Comparemos y describamos ángulos
- Lesson 7: El tamaño de un ángulo en un reloj
- Lesson 8: El tamaño de un ángulo, en grados
- Lesson 9: Usemos un transportador para medir ángulos
- Lesson 10: Rectas perpendiculares y medidas de ángulos
- Lesson 11: Usemos un transportador para dibujar ángulos

Section C: Análisis de ángulos

- Lesson 12: Tipos de ángulos
- Lesson 13: Encontremos medidas de ángulos

- Lesson 14: Razonemos sobre ángulos (parte 1)
- Lesson 15: Razonemos sobre ángulos (parte 2)
- Lesson 16: Ángulos, calles y escaleras

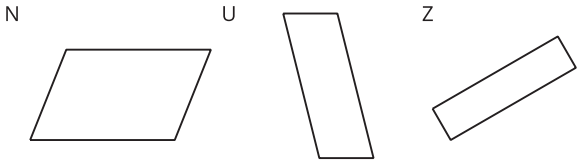
Unit 8: Propiedades de figuras de dos dimensiones

In this unit, students deepen their understanding of the attributes and measurement of two-dimensional figures.

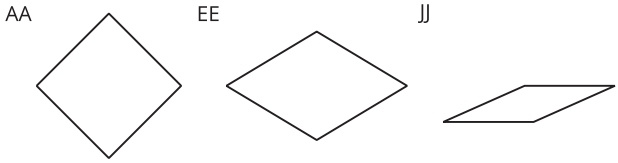
Prior to this unit, students learned about some building blocks of geometry—points, lines, rays, segments, and angles. Students identified parallel and intersecting lines, measured angles, and classified angles based on their measurement. In this unit, they apply those insights to describe and reason about characteristics of shapes.

In the first half of the unit, students analyze and categorize two-dimensional shapes—triangles and quadrilaterals—by their attributes. They classify two-dimensional shapes based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Students also learn about symmetry. They identify line-symmetric figures and draw lines of symmetry.

Quadrilaterals N, U, and Z are parallelograms.



Quadrilaterals AA, EE, and JJ are rhombuses.



Write 4–5 statements about the sides and angles of the quadrilaterals in each set. Each statement must be true for all the shapes in the set.

The second half of the unit gives students opportunities to apply their understanding of geometric attributes to solve problems about measurements (side lengths, perimeters, and angles).

Included in this unit are three optional lessons that offer opportunities for students to strengthen and extend their understanding of symmetry and other attributes of two-dimensional figures.

Section A: Longitudes de lado, ángulos y líneas de simetría

- Lesson 1: Formas de ver figuras
- Lesson 2: Formas de ver triángulos
- Lesson 3: Formas de ver cuadriláteros
- Lesson 4: Simetría de figuras (parte 1)
- Lesson 5: Simetría de figuras (parte 2)
- Lesson 6: Todo tipo de características

Section B: Razonemos sobre características para resolver problemas

- Lesson 7: Formas de encontrar la longitud desconocida (parte 1)
- Lesson 8: Formas de encontrar la longitud desconocida (parte 2)
- Lesson 9: Simetría en acción
- Lesson 10: Maneras de encontrar medidas de ángulos
- Lesson 11: Simetría en los deportes

Unit 9: Conectemos todo

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

In Section A, students reinforce what they learn about comparing fractions, adding and subtracting fractions, and multiplying fractions and whole numbers. In Section B, they strengthen their ability to add and subtract multi-digit numbers fluently, using the standard algorithm. They also multiply and divide numbers by reasoning about place value and practice doing so strategically.

Here are the times of the runners for two teams.
Which team won the relay race?

runner	Diego's team, time (seconds)	Jada's team, time (seconds)
1	$10\frac{25}{100}$	$11\frac{9}{10}$
2	$11\frac{40}{100}$	$9\frac{8}{10}$
3	$9\frac{7}{10}$	$9\frac{84}{100}$
4	$10\frac{5}{100}$	$10\frac{60}{100}$

In Section C, students practice making sense of situations and solving problems that involve reasoning with multiplication and division, including multiplicative comparison and interpreting remainders. In the final section, students review major work of the grade as they create activities in the format of the *Warm-up* routines they have encountered throughout the year (*Estimation Exploration, Number Talk,* and *Which Three Go Together?*).

The sections in this unit stand alone and are not required to be completed in order. Within a section, lessons also can be completed selectively, without completing prior lessons. 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: Razonemos con fracciones

- Lesson 1: Sumemos, restemos y multipliquemos fracciones
- Lesson 2: Sumas y diferencias de fracciones
- Lesson 3: Historias con fracciones

Section B: Operaciones con números enteros

- Lesson 4: Otra mirada al algoritmo estándar
- Lesson 5: Multiplicación de números de varios dígitos
- Lesson 6: ¿Cuál es el cociente?

Section C: Resolvamos problemas con multiplicación y división

- Lesson 7: Resolvamos problemas de comparación multiplicativa
- Lesson 8: Resolvamos problemas con multiplicaciones y divisiones
- Lesson 9: Inventemos problemas en palabras

Section D: Creación y diseño

- Lesson 10: Exploración de estimación
- Lesson 11: Cuáles tres van juntos
- Lesson 12: Conversación numérica

Pacing Guide

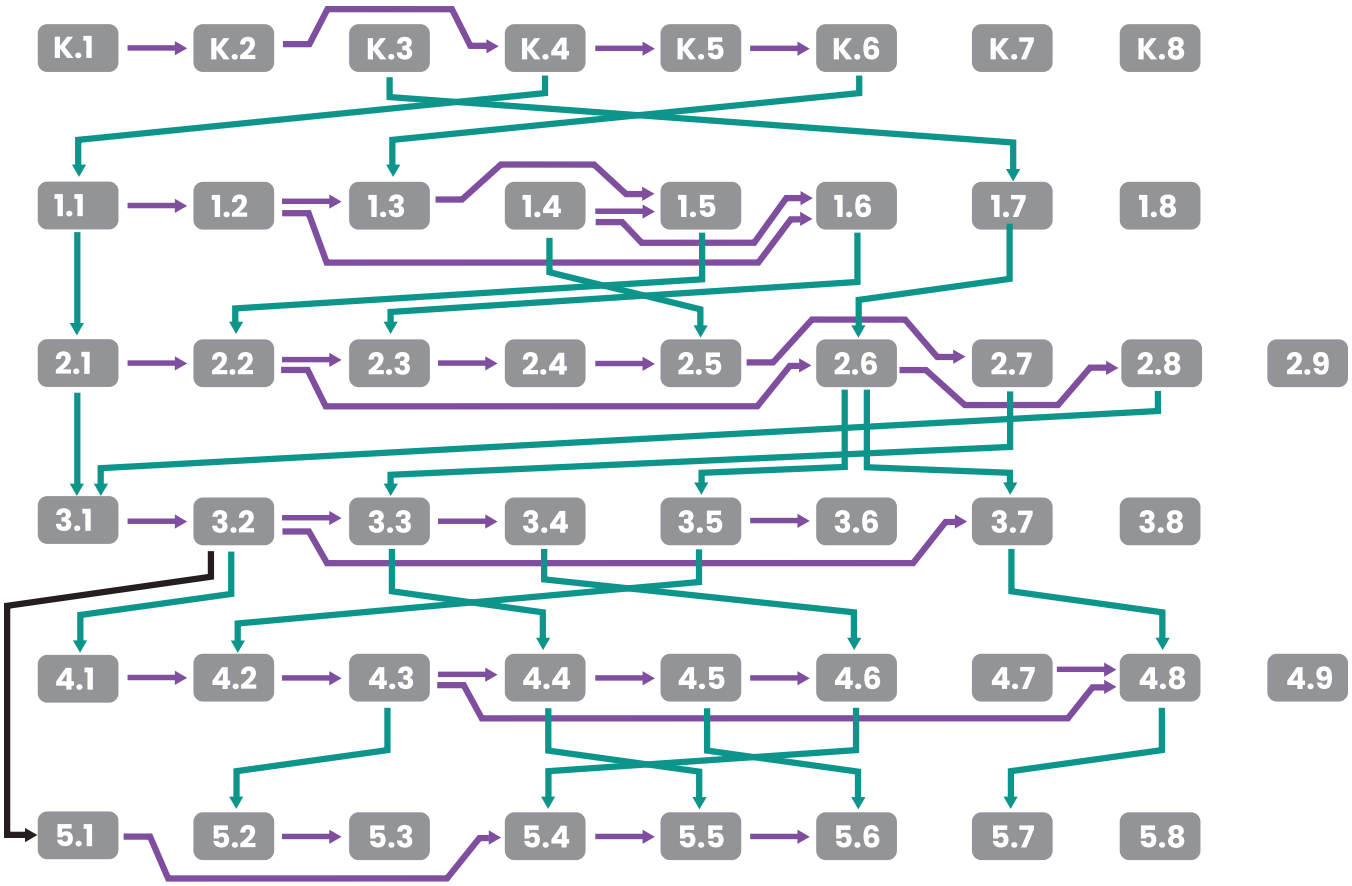
The number of days includes two assessment days per unit. The upper bound of the range includes optional lessons.

	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	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 13 week 14 week 15 week 16	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 17 week 18 week 19 week 20	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 21 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 (17–21 days) Optional Lessons: 5, 11, 18, 19
week 29 week 30 week 31 week 32	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
week 33 week 34			Unit 9 Putting It All Together (15 days) Optional Lessons: none

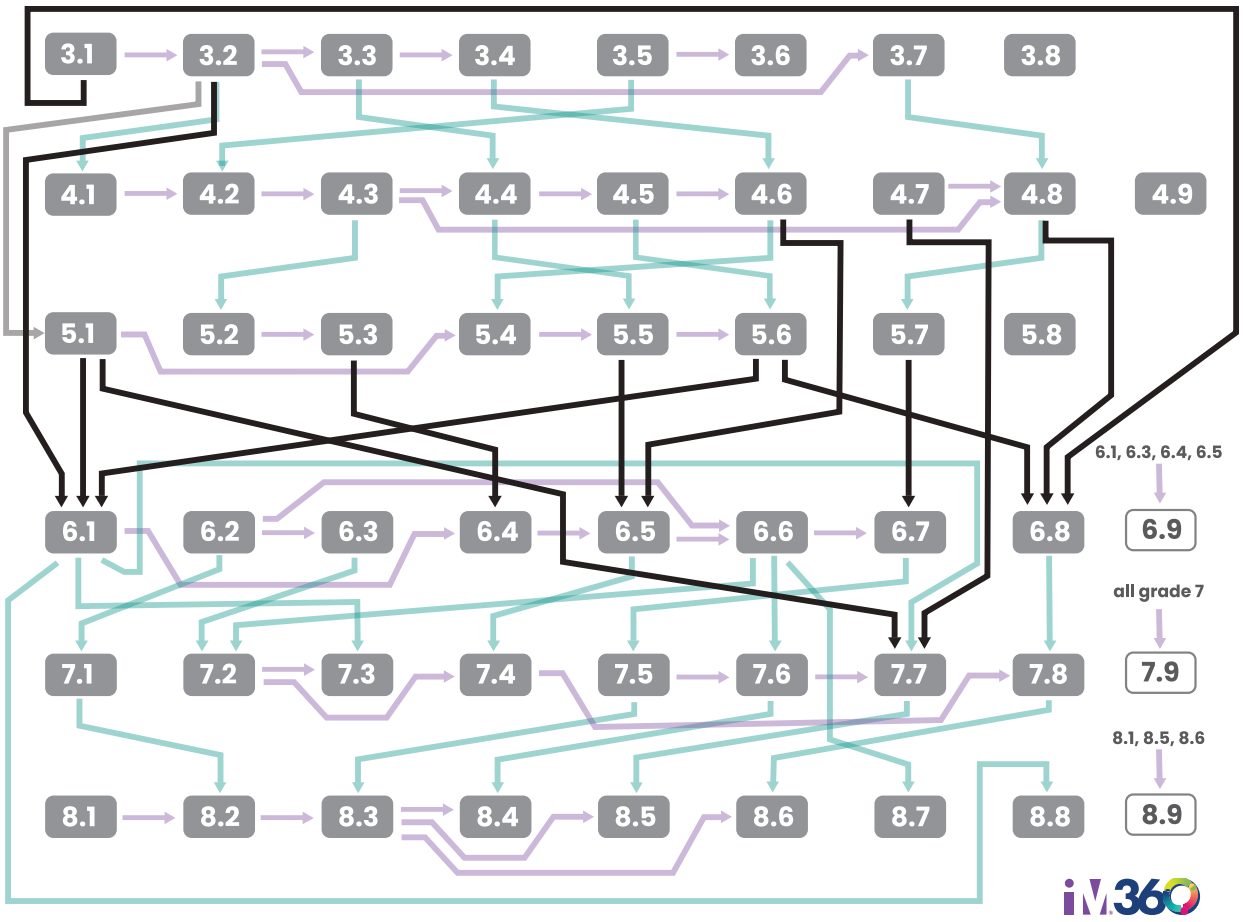
	Grade 3	Grade 4	Grade 5
week 1	Unit 1 Introducing Multiplication (22–23 days) Optional Lesson: 21	Unit 1 Factors and Multiples (8–10 days) Optional Lessons: 4, 8	Unit 1 Finding Volume (14–15 days) Optional Lesson: 12
week 2			
week 3		Unit 2 Fraction Equivalence and Comparison (18–19 days) Optional Lesson: 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			
week 10	Unit 3 Wrapping Up Addition and Subtraction within 1,000 (22–23 days) Optional Lesson: 21		
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 5 Multiplicative Comparison and Measurement (19-20 days) Optional Lesson: 18	
week 15	Unit 4 Relating Multiplication to Division (23–24 days) Optional Lesson: 22		
week 16			Unit 5 Place Value Patterns and Decimal Operations (26–28 days) Optional Lessons: 4, 26
week 17			
week 18		Unit 6 Multiplying and Dividing Multi-digit Numbers (27–28 days) Optional Lesson: 26	
week 19			
week 20	Unit 5 Fractions as Numbers (19–20 days) Optional Lesson: 18		
week 21			
week 22			Unit 6 More Decimal and Fraction Operations (21–23 days) Optional Lessons: 20, 21
week 23	Unit 6 Measuring Length, Time, Liquid Volume, and Weight (17–18 days) Optional Lesson: 16		
week 24		Unit 7 Angles and Angle Measurement (17–18 days) Optional Lesson: 16	
week 25			
week 26			Unit 7 Shapes on the Coordinate Plane (15 -16 days) Optional Lesson: 14
week 27	Unit 7 Two-dimensional Shapes and Perimeter (16 - 17 days) Optional Lesson: 15		
week 28		Unit 8 Properties of Two-dimensional Shapes (9–13 days) Optional Lessons: 6, 9, 10, 11	
week 29			
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.

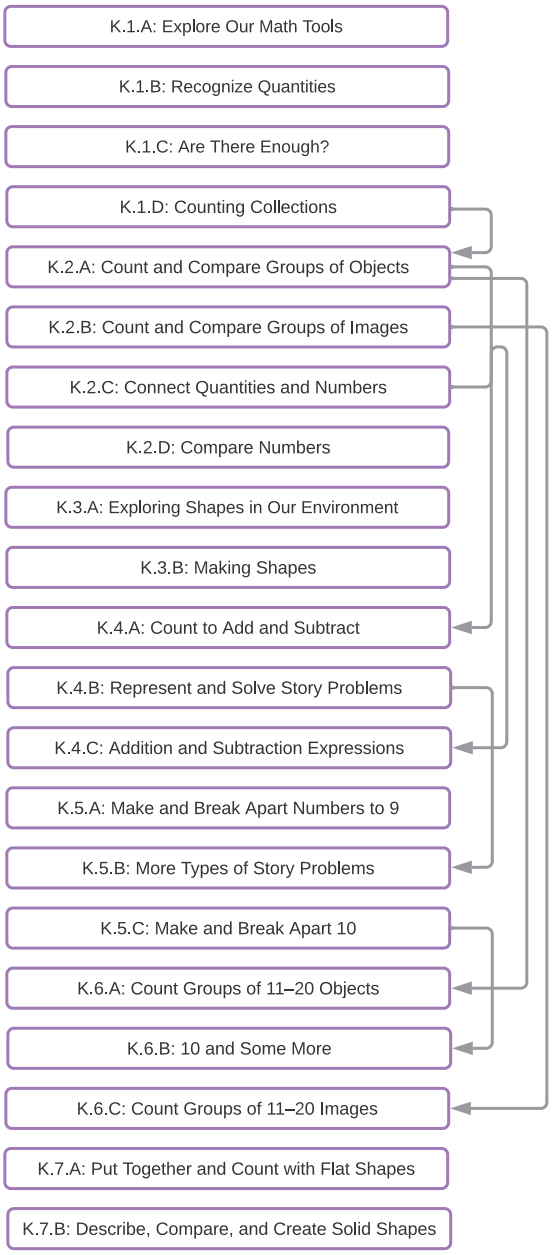


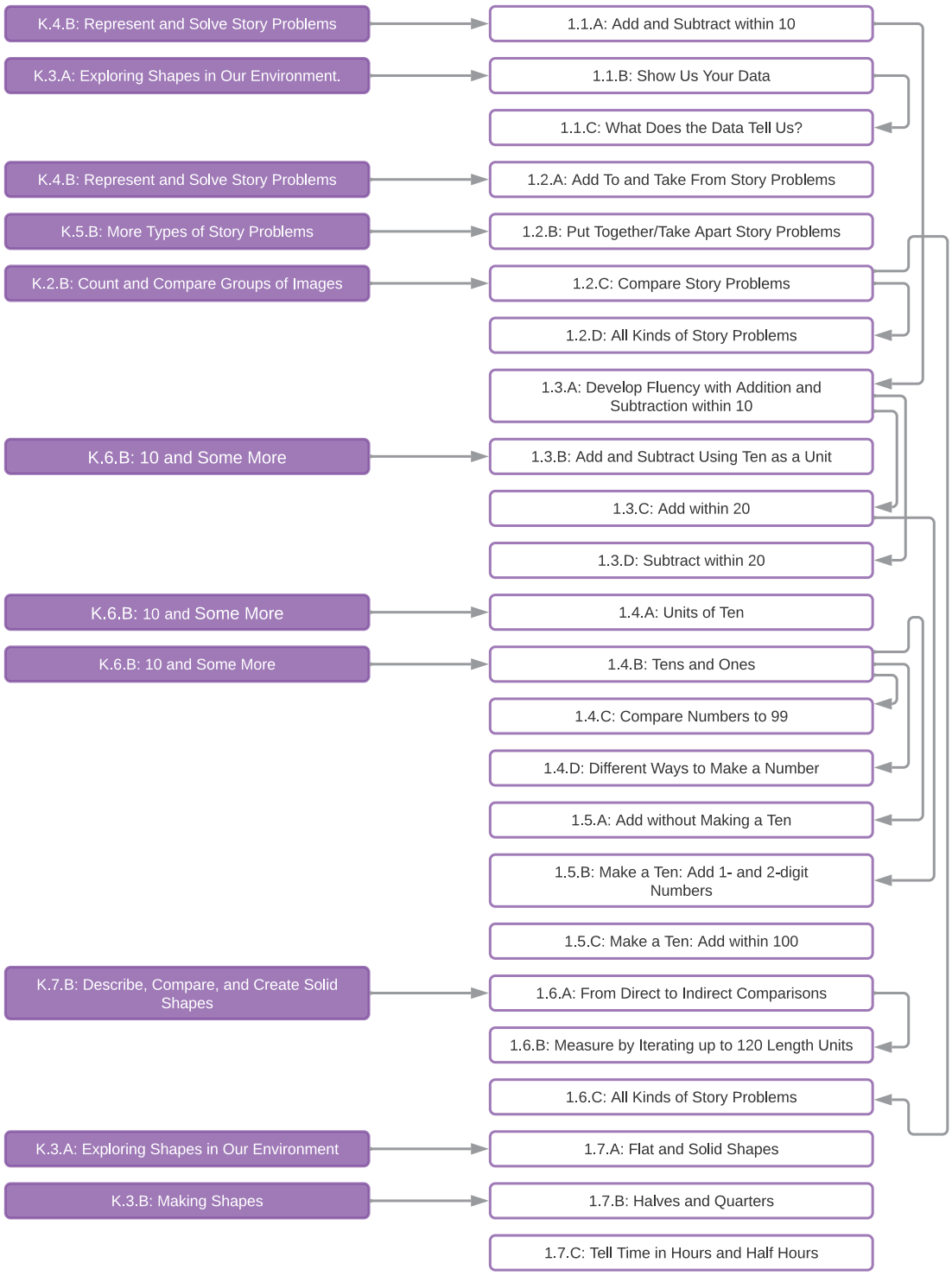
The following chart shows unit dependencies across the curriculum for IM Grades 3–8.

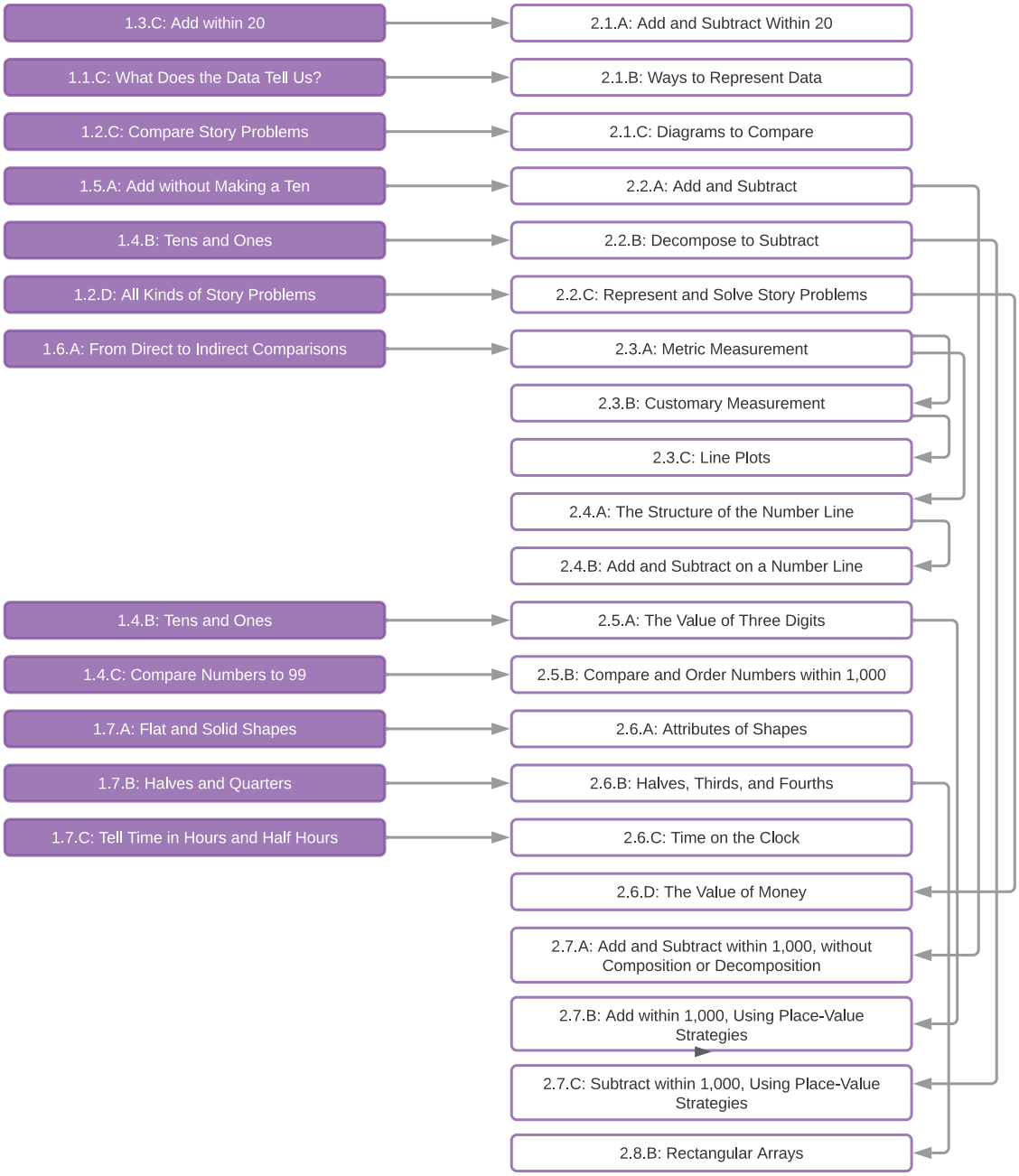


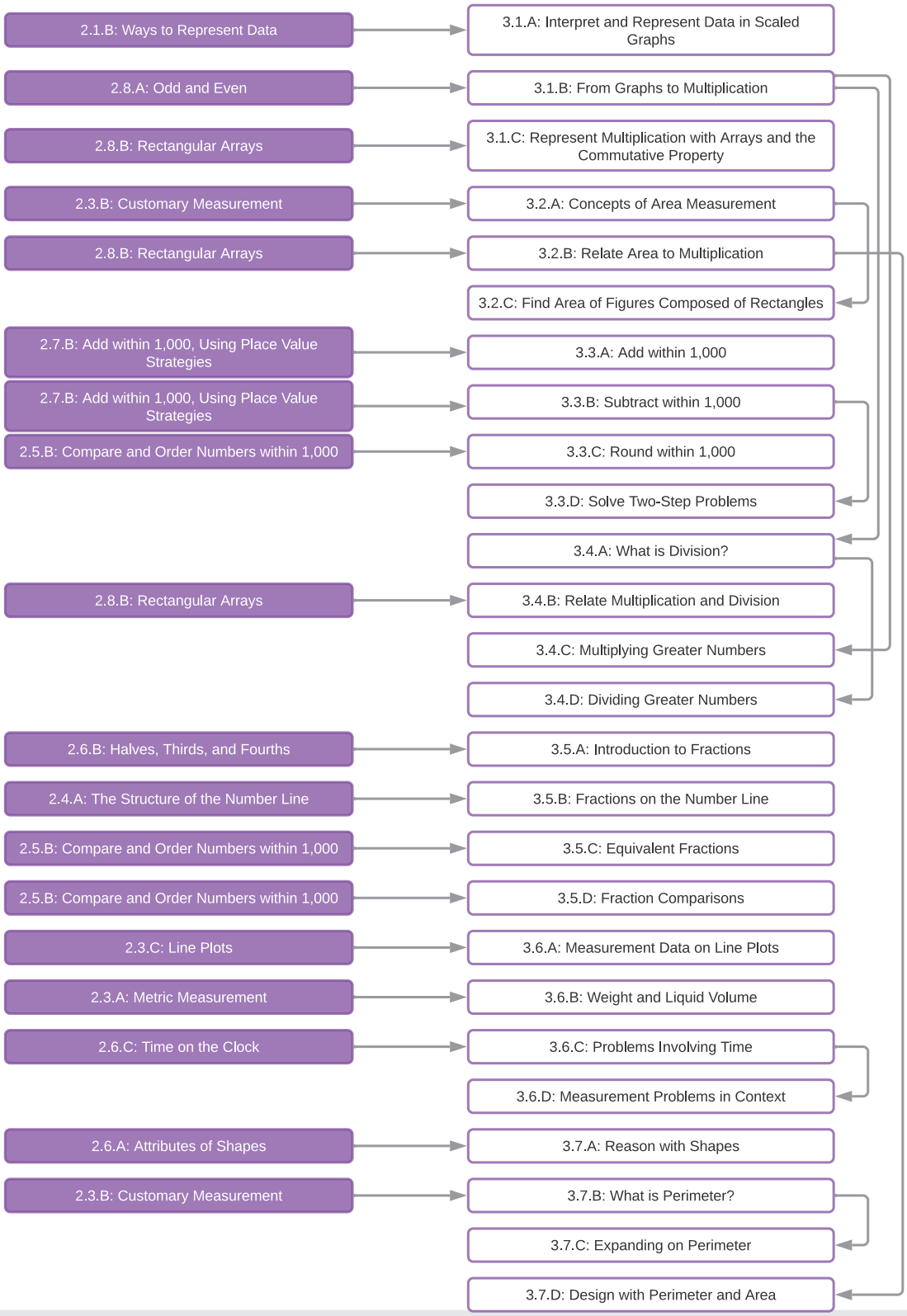
Section Dependency Diagrams

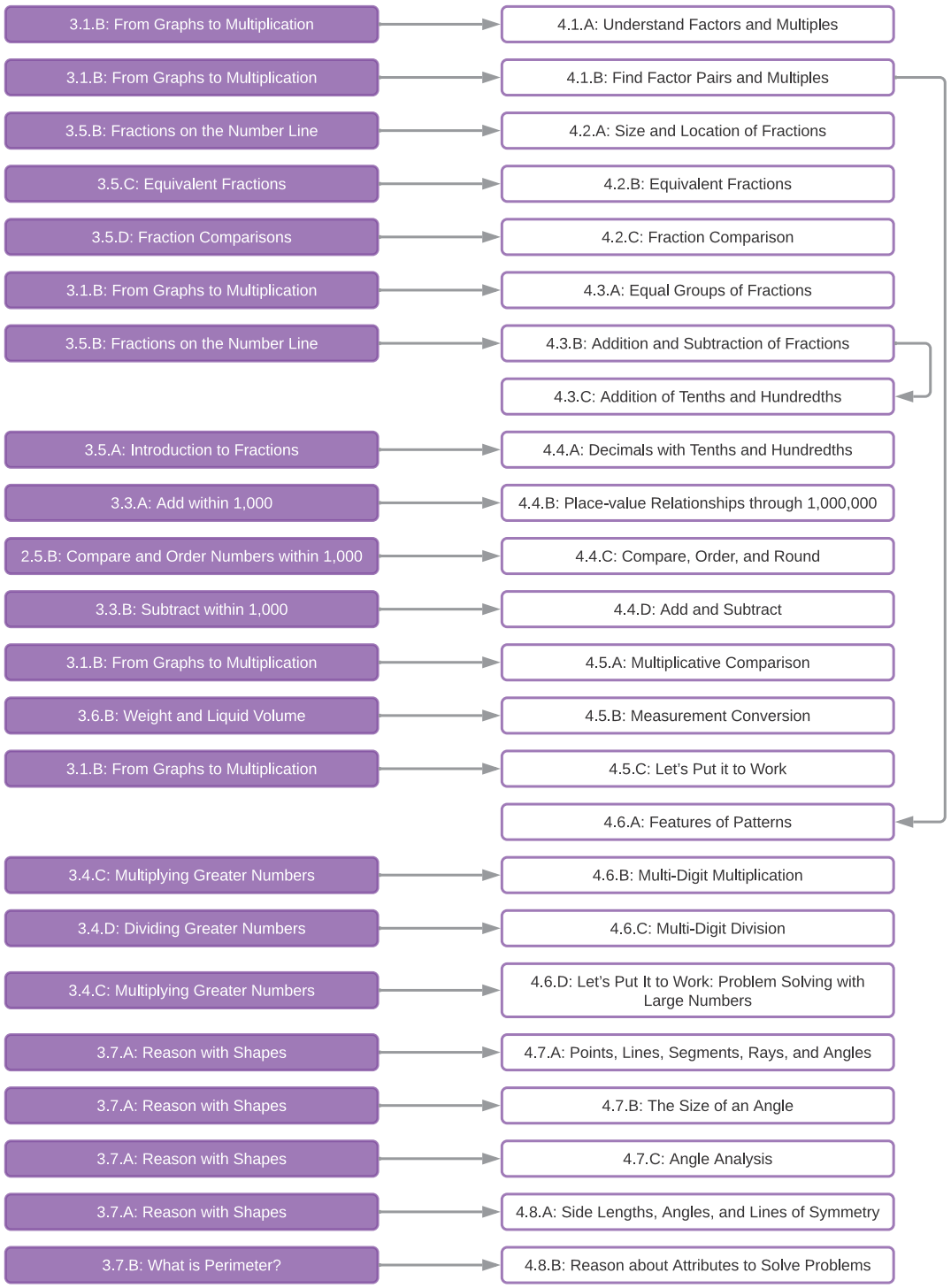
In the section dependency charts, an arrow indicates the prior section that contains content most directly designed to support or build toward the content in the current section.

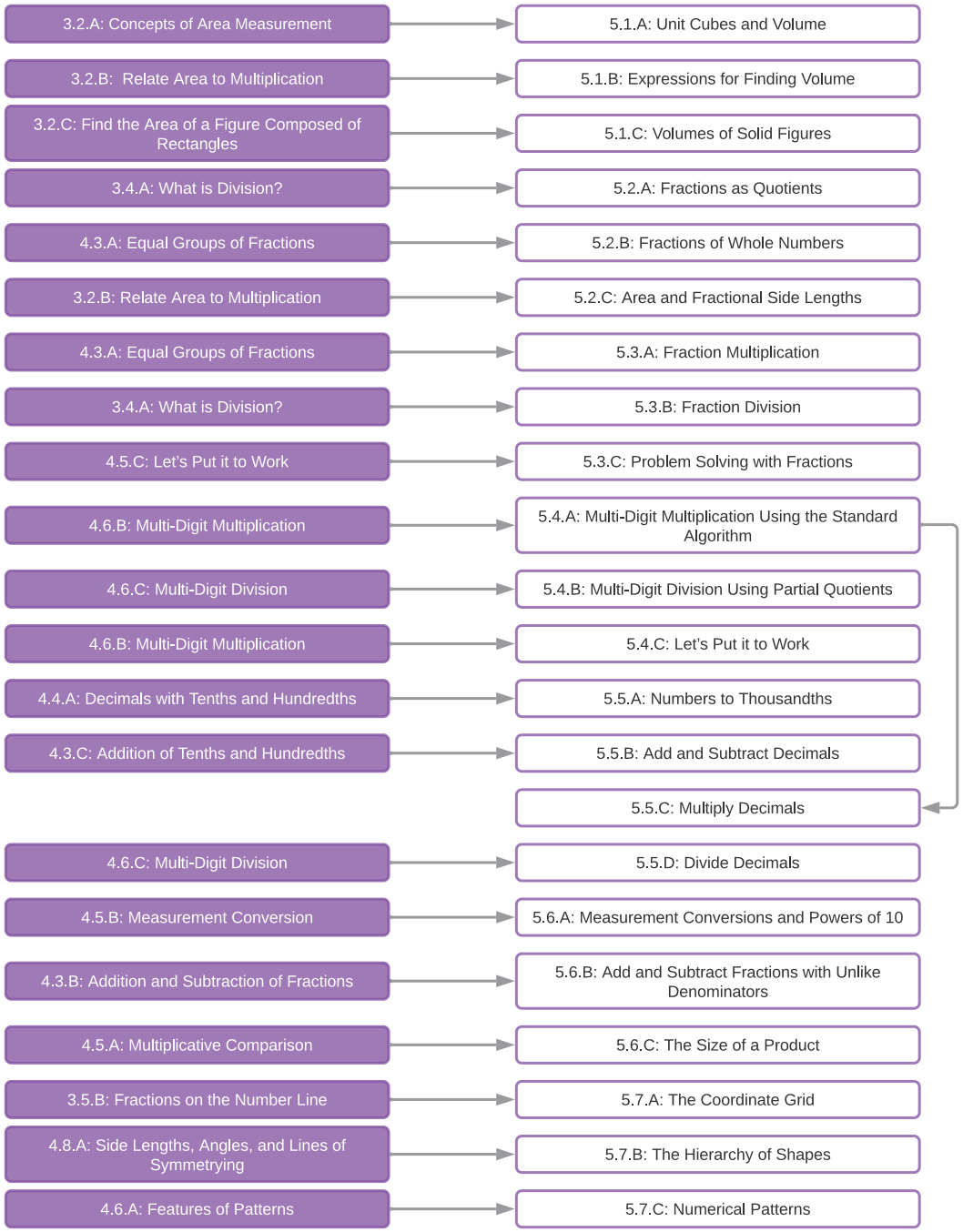

K.1.A: Explore Our Math Tools
K.1.B: Recognize Quantities
K.1.C: Are There Enough?
K.1.D: Counting Collections
K.2.A: Count and Compare Groups of Objects
K.2.B: Count and Compare Groups of Images
K.2.C: Connect Quantities and Numbers
K.2.D: Compare Numbers
K.3.A: Exploring Shapes in Our Environment
K.3.B: 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
1.1.A: Add and Subtract within 10
K.3.A: Exploring Shapes in Our Environment.
1.1.B: Show Us Your Data
1.1.C: What Does the Data Tell Us?
K.4.B: Represent and Solve Story Problems
1.2.A: Add To and Take From Story Problems
K.5.B: More Types of Story Problems
1.2.B: Put Together/Take Apart Story Problems
K.2.B: Count and Compare Groups of Images
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
K.6.B: 10 and Some More
1.3.B: Add and Subtract Using Ten as a Unit
1.3.C: Add within 20
1.3.D: Subtract within 20
K.6.B: 10 and Some More
1.4.A: Units of Ten
K.6.B: 10 and Some More
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
K.7.B: Describe, Compare, and Create Solid Shapes
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
K.3.A: Exploring Shapes in Our Environment
1.7.A: Flat and Solid Shapes
K.3.B: Making Shapes
1.7.B: Halves and Quarters
1.7.C: Tell Time in Hours and Half Hours


1.3.C: Add within 20
2.1.A: Add and Subtract Within 20
1.1.C: What Does the Data Tell Us?
2.1.B: Ways to Represent Data
1.2.C: Compare Story Problems
2.1.C: Diagrams to Compare
1.5.A: Add without Making a Ten
2.2.A: Add and Subtract
1.4.B: Tens and Ones
2.2.B: Decompose to Subtract
1.2.D: All Kinds of Story Problems
2.2.C: Represent and Solve Story Problems
1.6.A: From Direct to Indirect Comparisons
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
1.4.B: Tens and Ones
2.5.A: The Value of Three Digits
1.4.C: Compare Numbers to 99
2.5.B: Compare and Order Numbers within 1,000
1.7.A: Flat and Solid Shapes
2.6.A: Attributes of Shapes
1.7.B: Halves and Quarters
2.6.B: Halves, Thirds, and Fourths
1.7.C: Tell Time in Hours and Half Hours
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