Kindergarten Scope & Sequence

Chapter: Content	Key Mathematical Ideas
Chapter 1: Numbers to Five	Chapter 1 of kindergarten focuses on three of the seven developmental counting principles stable order, one to one correspondence, and cardinality. Within this chapter students are asked to count and recognize small sets of items, produced sets of a given quantity as well as trace and write numerals 0-5. The concrete-pictorial-abstract progression is evident throughout the chapter and the use of manipulatives is essential.
Chapter 2: Numbers to Ten	In chapter two the number range is extended up to 10 and students are invited to count objects, images, and even sounds. Students will practice recognizing when groups contain the same number of objects and will practice the skill of subitizing, recognizing the quantity and a group without the need to count. This chapter provides the first opportunity for kindergartners to flexibly compose and decompose values up to 10. Promote unitizing by encourage students to “count” quantities in values larger than 1 (ex. I see 8 as 4 and 4 or I see 5 as 2 and 3).
Chapter 3: Measurement	Chapter 3 is placed as a cognitive break for students. It provides an opportunity for them to continue strengthening their understanding of numbers to 10 while developing the vocabulary of comparison within measurement. Through a variety of hands-on and visual experiences, students will compare the length, height and weight of objects and describe same and different. While using non-standard units look for opportunities for students to connect comparing quantities with comparing measurable aspects of various objects.
Chapter 4: Compare Numbers to Ten	Chapter 4 provides experiences to solidify and extend student’s understanding of comparison. They will match groups and describe quantitative relationships using the terms more than, less than and the same as. Invite flexible thinking by encouraging students to describe the same relationship is different ways (ex. there are more blue than red, there are fewer red than blue) A final foundational skill developed in this chapter is the concept of one more and one less which demonstrates more a specific understanding of the relative magnitude of numbers to one another and sets the stage for number patterns and simple addition and subtraction.
Chapter 5: Flat and Solid Shapes	In this chapter, students will learn to recognize the attributes of flat and solid shapes and focus on identifying the specific characteristics of each shape. Students will be able to name common flat and solid shapes such as circles, squares, rectangles, hexagons, triangles, cones, cubes, cylinders, and spheres. As students investigate geometric ideas, it is important that they manipulate concrete materials and do not simply view pictures and diagrams Depth of understanding is established as students develop the ability to provide both examples and non-examples.

Chapter 6: Numbers to 20	Students learn about numbers to 20 using manipulatives, pictorial representation, verbal descriptions and finally numeric/word form. Students develop the skill of counting on versus counting all and develop a foundation for seeing the teen numbers as 10 and some additional ones (ex. Fourteen is ten and four). An extension of this understanding developed within comparison related question. Chapter 6 is a critical chapter and servers as essential foundations for an understanding of place value.
Chapter 7: Addition	In this chapter students extend their understanding of number relationships to the concept of addition. Putting together and adding to situations are presented as students are encouraged to move flexibly among addition stories presented with words, with visuals, and ultimately using symbolic representation. It is important that students develop full understanding of the symbol + and =. Continue to use sense making language such as five and two make seven or seven is five and two.
Chapter 8: Subtraction	Chapter 8 introduces subtraction which can often feel less intuitive for some students than addition. In this chapter students will leverage their foundational understanding of part-part whole relationships and number decomposition as they develop a conceptual understanding subtraction. Students are encouraged to move flexibly among subtraction stories presented in words, with visuals (or concrete items), and ultimately using symbolic representation. Encourage flexibility and variation to help students recognize that subtraction is not only related to take away situations, but also fewer than and missing part.
Chapter 9: Numbers to 100	In chapter 9, students will learn how to rote count beyond 20 and match numeric representations with quantities from 21 to 50 using tens and ones. Building upon this, they will rote counting from 51 to 100. Students will be challenged to count forward and backward from any given number in the number sequence within 100 using a hundred chart. Students will learn to identify the 10s and 1s in numbers greater than 20 and explore different strategies in finding the missing numbers in the hundred chart. Finally, students will be introduced to skip counting by 10s. this is an important skill that lays a foundation for fluency.
Chapter 10: Sorting	In the final chapter of kindergarten, students will extend the theme of comparison when they learn how to match, group, and sort objects based on their similarities and differences. Sorting is systematic, it represents early algebraic reasoning while teaching students about attributes and relationships and promoting logical thinking and rules application. Encourage flexibility by helping students recognize that there is more than one way to sort a collection of objects.

First Grade Scope & Sequence

Chapter: Content	Key Mathematical Ideas
Chapter 1: Numbers to 10	In this chapter children recall how to count, read and write within 10. Concrete items are essential as students learn to associate physical; representation with number symbol and word form. Chapter one promotes flexibility by challenging students to describe the same situation in multiple ways (ex. there are more red than blue and there are fewer blue than red) and to identify and complete both increasing and decreasing number patterns.
Chapter 2: Addition and Subtraction within 10	Chapter two introduces several foundational arithmetic concepts. Through number bonds, students develop an understanding of part-part-whole relationships. Over time, this key idea encourages efficiency by establishing the relationship between addition and subtraction as well as flexibility when students learn that numbers with a given value can be decomposed in multiple ways. Children connect counting and part-part-whole relationships to both addition and subtraction while also learning that putting together is representative of addition and taking apart (away) is represented by subtraction. The introduction of real-world problems provides students with an opportunity to connect visuals with words/verbal descriptions with symbolic representation. Chapter two introduces strategies for efficiency however mastery is not expected. Students should continue to receive strategy based instruction and practice throughout the year.
Chapter 3: Shapes	Most students leave Kindergarten being with the ability to Identifying, naming and describing both flat and solid shapes. In addition to introducing the trapezoid, chapter 3 extends student understanding of flats and solids through challenging them to make comparison amongst shapes as well as providing them with opportunities to compose new polygons and composite figures by combining multiple flat or solid shapes. In the final lesson, students explore shape based patterns. Chapter three is strategically placed as a cognitive break chapter, while teaching this chapter, consider continuing to develop numeracy skills through games and routines.
Chapter 4: Numbers to 20	Chapter four provides students with an opportunity to apply and extend the skills and concepts introduced in chapter one . This significant chapter provides the first formal introduction to place value by inviting students to consider values 11-20 in reference to ten (ex. 14 is 10 and 4 or 10 and 7 make 17). Quantitative reasoning is strengthened through frequent concrete experiences as well as the chapter emphasis on comparison and patterning.
Chapter 5: Addition and Subtraction within 20	Experiences that invite students to internalize the patterns and properties of addition and subtraction live at the heart of this foundational chapter. Day one encouraged students to recognize that the strategies they learned in chapter two can be extended to larger numbers, while subsequent lessons introduce additional strategies related to doubles, composing and decomposing 10 and fact-families. With the goal of computational fluency in mind, it is essential to prioritize an understanding of the strategies and an ability to represent them (paper pencil or with manipulatives) rather than simply the ability to compute through counting or memorization.
Chapter 6: Numbers to 40	Chapter 6 represents one of the most important chapters in first grade. A deep understanding of place value, the ability to represent numbers, and a flexible use of comparative language are key mathematical themes. Regular use of base ten materials and a place value chart help students to recognize and generalize patterns found in numbers beyond 20. Similarly to chapters one and four, students develop quantitative reasoning and flexibility through comparing, ordering and patterning with numbers.
Chapter 7: Calendar and Time	Chapter 7 content represents a cognitive break for students and again provides an opportunity to solidify and practice skills from the previous two chapters through games and reasoning routines. Building on the concept of ordinal numbers from grade K, students learn the order of days and months as well as working to sequence events based on the time of day they would occur. The hour and minute hands of the clock are introduced and students practice telling time to the hour and half hour. Formalized notations for date (August 30, 2020) and time (5:30) as well as spoken descriptions (half past 5) are also introduced within this chapter.

Chapter 8: Addition and Subtraction within 40	Although chapter 8 introduces the formal vertical notation for addition and subtraction, it is crucial that the goal of the chapter be conceptual understanding fostered through the use of manipulatives. Ultimately, students should see that the concrete representation and the related "algorithm" tell the same mathematical story. Keep in mind that the ability to represent and describe (using the language of place value) addition and subtraction situation is much more important than procedural fluency. Chapter 8 provides many opportunities for students to begin interpreting "regrouping" as building a number with the same value in different ways (ex. 34 is 3 tens and 4 ones or 2 tens and 14 ones, etc). While it can be helpful for students to practice fluency strategies (doubles, make a ten, ect...) throughout this chapter, it is important that strategy work doesn't compromise the essential themes of the chapter.
Chapter 9: Length and Weight	In this chapter, non-standard units are used to promote the idea of measurement as a vehicle for comparison and provides students with opportunities to practice comparative vocabulary while describing tangible situations. The student text is filled with detailed and descriptive visuals however, it is important to prioritize physical and concrete measurement experiences for students. Using the context of measurement, chapter 9 provides many opportunities for students to exercise flexibility and reasoning skills.
Chapter 10: Numbers to 120	In chapter 10, students extend their ability to name, read, write and build numbers to 120. Counting on and back by tens from a given number lays a foundation for the addition and subtraction that will occur in chapter 11. Once again students are encouraged to practice building a number with the same value in multiple ways (regrouping).
Chapter 11: Adding and Subtracting within 100	Chapter 11 provides an opportunity to consolidate the skills and concepts from several previous chapters. For some students it will serve as an essential opportunity to revisit the concepts of addition, subtraction and regrouping. For students who arrive at chapter 11 will full and flexible understanding previous chapters, these lessons provide an excellent opportunity to practice efficiency by encouraging students to choose a strategy to match each given situation (ex. in 47 + 26, doubles plus 1 is an efficient strategy for adding 7 ones and 6 ones). Note that the regrouping lessons within this chapter extend beyond the grade 1 standards but provide an important foundation for the early chapters of grade 2.
Chapter 12: Graphing (embedded throughout the year)	In this chapter, students' counting skills are utilized in the collection of data. They see how data can be compiled into graphs. Students also experience the strategy of using tally marks as a way to organize data. With the understanding of picture graphs, students are led to interpret information from the graphs.
Chapter 13: Money	As kindergarteners, students practice the skill of skip counting (2's, 5's and 10's) and later in the year learn to identify and name specific coins. Chapter 13 of grade one builds upon these money concepts with opportunities for students to organize and count groups of coins up to $1.00. Strategic reasoning is promoted as students are invited to group coins and begin their counting by starting with coins of the largest value. The final chapter of grade 1 provides opportunities for students to revisit addition to 100 and solving real-world problems, in addition to laying an important foundation for future mental math strategies.

Second Grade Scope & Sequence

Chapter: Content	Key Mathematical Ideas
Chapter 1: Numbers to 1,000	The opening chapter of grade 2 is important as it lays a foundation of number sense and flexibility for subsequent chapters. Students will be expected to read, write, build , order and analyze patterns with numbers to 1,000. Math in Focus moves into computation with large numbers quickly in grade 2; consider finding opportunities within this first chapter to revisit addition and subtraction strategies from grade 1
Chapter 2: Addition within 1,000	In Chapter 2, students extend their understanding of addition and apply it to larger numbers. Conceptual understanding is developed through consistent use of manipulatives and efficiency is suggested through the introduction of the addition algorithm. Keep in mind that mastery of the addition algorithm is a grade 4 standard ; conceptual understanding should be prioritized in grade 2. Regrouping is a major theme within chapter 2, provide frequent opportunities for students to understand and practice regrouping as building a number with the same value in different ways.
Chapter 3: Subtraction within 1,000	Chapter 3 provides students an opportunity to revisit their understanding of subtraction first within 20, then 100. Ultimately, the chapter will invite students to expand on their understanding of subtraction and regrouping in the hundreds, tens, and ones t places, culminating with subtracting from 3-digit numbers with zeros. They will benefit from continuing to revisit fluency strategies throughout the chapter and being challenges to make an explicit connection between the operations of addition and subtraction.
Chapter 4: Using Bar Models: Addition and Subtraction	Although students have experience solving real-world problems in both kindergarten and first grade, formal bar Models will be new to them. Many second graders will be able to solve the problems in this chapter without the use of a bar model. The emphasis should remain on the ability to interpret, analyze and model multi-step problems, in addition to solving them.. Chapter 4 includes both part-whole word problems and more sophisticated additive comparison problems.

Chapter 5: Length	Chapter 5 serves as a cognitive break for students and will feel less demanding than the previous 4 chapters. Students will be introduced to measurement as a comparative language as well as the two basic systems of measurement used in the United States – metric and customary. Chapter 5 provides opportunities for students to estimate and measure lengths of objects using meter stick and centimeter ruler, foot and inch ruler. The real-world problem lessons provide an opportunity for continued practice with addition, subtraction and bar models.
Chapter 6: Mass	As first graders students learned the concepts of comparing and measuring weight using non-standard units.. Building on this foundation students will extend their understanding of to with 1-kilogram or 1-gram masses before proceeding to read the measuring scales in kilograms or in grams. They will apply this skill in problem solving situations and determine and compare the masses of objects using strategies such as addition and subtraction.
Chapter 7: Graph and Line Plots	In Chapter 7 students will learn to analyze and construct more complex picture graphs, bar graphs, and line plots. Through opportunities to compare, students are invited to recognize that the same set of data can be represented in different ways and to describe the similarities and differences in the representations. The chapter concludes with students solving real world problems based on data displayed. Leading up to this lesson it can be beneficial for students to generate their own lists of questions based on given graphs.
Chapter 8: Multiplication and Division	Chapter 8 is a rich and accessible chapter that introduces essential understanding regarding multiplication, division and connections between the two. Using concrete materials and pictorial representations, students learn to use repeated addition and multiplication to find the total number of items in equal groups. An understanding of division is developed through opportunities to share equally among a known number of groups and to form equal groups with a known. number of items in each group. In addition, students will review the concept of repeated subtraction and relate it to the division operation.

Chapter 9: Multiplication Tables	Chapter 9 develops a visual and conceptual foundation that will eventually lead to fluency. Students will learn to skip count and use dot paper to write the multiplication tables of 2, 3, 4, 5, and 10. They will use the relationship between addition and multiplication to write multiplication sentences and consider the patterns and properties of multiplication. Chapter 9 provides opportunities to see division as an inverse operation of multiplication and introduces the idea of using multiplication facts to divide. Students will use the relationship between multiplication and division operations to make different multiplication and division fact families.
Chapter 10: Time and Money	In chapter 10 students will learn to read time (am and pm) based on the position of the minute hand on the clock by understanding that the minute hand tells the number of minutes after the hour. Building on chapter 9 students will use the strategy of skip counting to tell how many minutes have passed after the hour, in addition the learn how to read and write time in hours and minutes using numerals and words. Building upon their money experiences in grade 1, students will be introduced to bills and will practice creating and counting amounts up to $20. The end of chapter 10 revisits several grade 2 concepts by providing opportunities for practice interpreting solving real world problems with bar models.
Chapter 11: Shapes	In the final chapter of grade two students review attributes such as sides corners and angles and extend their understanding of shapes by distinguishing the difference between lines and curves. Students will then learn to combine both flat and solid shapes to make larger shapes or figures and take apart figures to identify the shapes that can be used to build it. Lesson 2 lays an important foundation for fractional understanding when students are invited to divide flat shapes into two, three or four equal parts.

Third Grade Scope & Sequence

Chapter: Content	Key Mathematical Ideas
Chapter 1: Numbers to 10,000	The opening chapter of grade 3 builds upon similar chapters from grades 1 and 2. Students are expected to read, write, build, order and analyze patterns with numbers to 10,000. Concrete representations support students to develop understanding and flexibility with large number. In the second part of the chapter students will use visual representations and their understanding of place value to round numbers to the nearest ten or hundred and ultimately derive rounding rules.
Chapter 2: Addition within 10,000	The focus of chapter 2 is on understanding addition as it relates to place value. Students will be expected to be able to rename numbers (e.g. 3,000 = two thousands and ten hundreds) and add with and without regrouping to 10,000. The emphasis of the chapter is on strengthening conceptual understanding while building procedural knowledge. Base ten materials are important in supporting these goals. Depth of understanding is developed in the chapter through the introduction of Mental math strategies (compensation) supported by the use of number bonds. Bar models are revisited as students analyze and solve two-step real world problems.
Chapter 3: Subtraction within 10,000	The focus of chapter 3 is on understanding subtraction as it relates to place value and addition. An important foundational idea is the understanding of "regrouping" as the ability to build a number with the same value in multiple ways (5,000 can be built using 4 thousands, 9 hundreds, 9 tens and 10 ones). The emphasis is on building procedural knowledge with deep, flexible understanding. The content of Chapter 3 continues to develop student's number and operational sense as students explore various mental math strategies using number bonds and compensation.
Chapter 4: Multiplication Tables	The primary goal of Chapter 4 is to develop an understanding of the patterns and properties of multiplication using visual representations. in addition to movement towards fluency with the multiplication facts. Properties of addition are extended to multiplication (The Commutative Property i.e., $3 \times 4 = 4 \times 3$. The Associative Property ; i.e., $4 \times 5 \times 6 = 5 \times 6 \times 4$ and the Distributive Property ; use a known fact to solve an unknown fact. for example, 7×8 can be solved by finding $(5 \times 8) + (2 \times 8)$. Consistent use of visual models (number line, dot paper arrays, and area models) will ensure students build a deep conceptual understanding of multiplication that can be generalized to work with larger numbers.

Chapter 5: Multiplication	In chapter 5 students combine their conceptual understanding of multiplication (grade 2) and their knowledge of multiplication properties to explore multi digit multiplication. Essential conceptual understanding is developed through the use of models and place value manipulatives and eventually connected to the standard algorithm. The chapter ends with opportunities for students to apply their understanding of multiplication and bar models to multi step real world problems.
Chapter 6: Using Bar Models: The Four Operations	Building on a foundation from grade 2, chapter 6 invites students to solve one-step and two step word problems using part-whole comparison and equal parts models, and eventually a combination of models. Rather than computation, the emphasis for this chapter should be on student's ability to connect visuals and symbolic representations (expressions) with scenarios presented in words. Variation in questioning promotes both arithmetic and algebraic reasoning.
Chapter 7: Fractions	Grade 3 Chapter 7 is the first formal fraction chapter. Within the lessons, students will develop an understanding of the different meanings and uses of fractions, such as representing parts of a whole, parts of a set, points or distances on a number line, and fractions of a set. Manipulatives plan an important role in developing an essential conceptual understanding of equivalency.
Chapter 8: Measurement	Building on their understanding of mass and volume from prior grades students will be introduced to new units (liters) while measurement for both mass and volume are explored further to increase the awareness of the smaller units, such as grams and millilitres. An emphasis is placed on the relationship between the larger and smaller units, where students will be taught to convert from one to the other. The use of practical, hands-on activities in this chapter are essential for students to visualize the mass and volume of various items and ultimately develop more accurate estimation skills.
Chapter 9: Area and Perimeter	In this chapter, students first learn to count square units to find the area of plane figures then extended their understanding to finding the area of a rectangle by multiplying its length by its width. As students move between area and perimeter, they learn that perimeter is a one-dimensional measurement and area is two dimensional; Students also learn to choose appropriate units of measure for area and perimeter of figures of different sizes. Finally, real-world problems provide an opportunity for students to generalize their understandings of shapes, multiplication and decomposing figures.

Chapter 10: Time	In this chapter, students will learn about reading and telling time to the minute using the terms “past” and “to.” For example, 5:20 is 20 minutes past 5, and 9:45 is 15 minutes to 10. They will move on to learn how to convert time expressed in hours and minutes to minutes and vice versa. Building on what students have learned about elapsed time in Grade 2. The use of a timeline will support understanding and flexibility as when students are presented with questions that require them to determine the start time, end time as well as how long the activity will last.
Chapter 11: Graphs and Line Plots	In this chapter, students will extend their understanding of graphs when they learn that a bar graph uses bars drawn against a scale (skips of two or greater) to organize and compare large sets of data. In addition to this, students will use a ruler to estimate and measure given lengths to the nearest quarter, half or whole inch and record a set of measurements as they develop an understanding of how line plots are used to organize data and show frequency of an event. Students will have the opportunity to construct their own visual data displays and eventually progress to learning how to read and interpret graphs and line plots to solve real-world problems.
Chapter 12: Angles, Lines and two-dimensional Figures	

Fourth Grade Scope & Sequence

Chapter: Content	Key Ideas
Chapter 1: Working with Whole Numbers	Chapter 1 is an essential foundational chapter. The chapter focuses on quantities to 100,000, but CCSS expects understanding to 1,000,000, which can be added. Note that students are expected to be proficient renaming numbers (e.g. 1200 is 12 hundreds or 120 tens).
Chapter 2: Multiplication and Division	Chapter 2 is a pinnacle chapter for grade 4. Emphasis for Chapter 3 is on building from concrete and pictorial models and connecting this to how we notate it symbolically. Conceptual understanding should drive sense making related to the algorithm. A deep and flexible understanding of multi-digit multiplication and division built upon generalizations made in earlier grades is the goal.
Chapter 3: Fractions	Chapter 3 is a critical chapter! Students need to recognize and generate equivalent fractions fluently but will not be asked to apply their understanding of equivalency in the context of adding and subtract unlike fractions and mixed numbers.
Chapter 6: Area and Perimeter (BOOK B)	This chapter focuses on student's ability to flexibly consider and calculate both area and perimeter with given information.
Chapter 7: Angles and LIne Segments	In this chapter, students will be introduced to measuring angles with protractors. Emphasize that an angle measure of 90 degrees is the same as 1/4 turn/rotation and that 180 degrees is 1/2 turn/rotation. In addition, this chapter focuses on drawing and recognize parallel and perpendicular lines. These concepts will be built upon in Chapter 8.
Chapter 8: Polygons and Symmetry	In this chapter, students work with squares and rectangles. They determine unknown angle and side measures using reasoning based on geometric properties. This accessible chapter focuses on both line and rotational symmetry and extends learning from chapter 7.
Chapter 9: Tables and Line Graphs	Chapter 9 focuses on using tables and graphs for showing and analyzing data. Thinking skills include comparing, classifying and looking for patterns. Students will understand that a line graph has two numerical axes, which is different from a bar graph with its categories of data.

Chapter 4: Decimals (BACK TO BOOK A)	This important chapter introduces decimals while revisiting and reinforcing fraction and measurement concepts.

Fifth Grade Scope & Sequence

Chapter: Content	Key Mathematical Ideas
Chapter 1: Whole Numbers and the Four Operations	Building upon an understanding of place value, students extend their knowledge of multiplication and division to larger numbers through the use of both conventional algorithms and pattern based methods. Real world problems and order of operations provide opportunities for students to apply all four whole number operations in context.
Chapter 2: Fractions and Mixed Numbers	Topics in chapter 2 represent some of the highest priority content for grade 5. Students extend their understanding of equivalency and fraction addition and subtraction to include mixed numbers while also considering the connection between fractions and division. Multistep real world problems provide and opportunity for students to practice these skills in context.
Chapter 3: Multiplying and Dividing Fractions and Mixed Numbers	In this chapter, students will learn how to multiply and divide proper fractions, improper fractions, and mixed numbers in any combination. As an extension to multiplication, students will consolidate and extend these skills by learning how to divide a fraction by a whole number or a whole number by a unit fraction. Throughout the chapter, visuals and manipulatives are used to solidify conceptual understanding prior to introduction of the standard algorithms.
Chapter 4: Decimals	In chapter 4, students generalize the relationship between whole number, fraction and decimals. In addition to learning how to read and write decimals through thousandths, students will compare and order decimals, and round decimals to the nearest hundredth. Place value chips are an essential tool for encouraging students to recognize that decimals are simply and extension of the base ten system they are already familiar with.
Chapter 5: Four Operations of Decimals	Chapter 5 invites students to use manipulatives, patterns and eventually standard algorithms to multiply and divide decimals by 1-digit whole numbers, tens, hundreds, and thousands. The use of place value chips allows students to recognize the connections between decimal and whole number operations. Lessons involving metric conversions and real-world problems provide opportunities for students to apply decimal operations in context.

Chapter 6: Volume	Chapter 6 students develop a conceptual understanding of volume by building irregular solids and prisms using unit cubes. Initially students determine volume by counting the number of unit cubes and ultimately generalize this to the standard formula. Depth of understanding is developed through the sophistication of models and opportunities to apply content to non-routine real world problems.
Chapter 8: Polygons	Chapter 8 explores only two topics the classification of triangles and the classification/ hierarchy of polygons. Students learn that sides and angles are used to determine the classification of both triangles and various polygons. More than anything chapter 8 is a vocabulary chapter requiring that students recall and extend vocabulary from prior grades.
Chapter 7: Line Plots and the Coordinate Plane	In chapter 7, students extend their understanding of line plots to make and interpret line plots with fractional units. They apply their understanding of whole numbers, fractions, and decimals as they construct and analyze these graphs. Students use fractions and their operations to solve real-world problems using the data.
Chapter 9: Ratio	Chapter 9 provides the first formal introduction to proportional reasoning students learn to compare the relative sizes of two (and eventually three) quantities and express this relationship as a ratio. Students extend their understanding of fractions and equivalency to recognize that fractions represent part-whole relationships while ratios represent part-part relationships. Depth of knowledge is encouraged through application-based questions. Students will continue to grow their understanding of ratio in grade 6.
Chapter 10: Percent	In chapter 10 students are invited to extend their understanding of fractions and decimals to percent, fractions out of 100. Conceptual understanding is developed through the use of several key visuals, grids, double number lines, and bar models. Students learn to find percent of a quantity first with values that have a whole that easily converts to 100 and ultimately with values with denominators that require 2-steps in the conversion. The chapter ends with an opportunity to extend understanding to real world problems.