| **Unit 1** | **Unit 2** | | **Unit 3** | **Unit 4** | | **Unit 5** |
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| **Introduction to Multiplication and Division** | **Application of the Operations with Time, Capacity, and Mass** | | **Develop a Deeper Understanding/Application of Multiplication and Division** | **Geometric Measurement Related to Multiplication & Addition** | | **Developing an Understanding of Fractions** |
| **7 weeks** | **5 weeks** | | **7 weeks** | **4 weeks** | | **8 weeks** |
| 3.OA.A.1 | 3.OA.A.3 | | 3.OA.A.1 | 3.OA.C.7 | | 3.NF.A.1 |
| 3.OA.A.2 | 3.OA.D.8 | | 3.OA.A.2 | 3.MD.C.5 | | 3.NF.A.2 |
| 3.OA.A.4 | 3.MD.A.1 | | 3.OA.A.3 | 3.MD.C.6 | | 3.NF.A.3 |
| 3.OA.B.5 | 3.MD.A.2 | | 3.OA.A.4 | 3.MD.C.7 | | 3.MD.B.4 |
| 3.OA.B.6 | 3.NBT.A.1 | | 3.OA.B.5 | 3.G.A.1 | | 3.G.A.2 |
| 3.OA.C.7 | 3.NBT.A.2 | | 3.OA.B.6 | 3.MD.D.8 | |  |
| 3.OA.C.8 |  | | 3.OA.C.7 |  | |  |
| 3.OA.D.9 |  | | 3.OA.D.8 |  | |  |
| 3.MD.B.3 |  | | 3.OA.D.9 |  | |  |
|  |  | | 3.MD.B.3 |  | |  |
|  |  | | 3.NBT.A.3 |  | |  |
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| **Major Clusters** | | **Supporting Clusters** | | | **Additional Clusters** | |
| **OA** – Operations and Algebraic Thinking  (1, 2, 3, 4, 5, 6, 7, 8, 9)  **NF** – Number and Operations – Fractions  (1, 2, 3)  **MD** – Measurement and Data  (1, 2, 5, 6, 7) | | **MD** – Measurement and Data  (3, 4)  **G** – Geometry  (1, 2) | | | **NBT** – Number and Operations in Base Ten  (1, 2, 3)  **MD** – Measurement and Data  (8) | |

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| **Summary of Year for Grade 3 Mathematics** |
| In the years prior to Grade 3 students gained an understanding of number and used strategies based on place value, properties of operations, and the relationship between addition and subtraction to add and subtract within 1000. They worked with standard units of measure for length and described attributes of shapes.  The two major emphases of the Grade 3 year are the operations of multiplication and division and the concept of fractions. Students begin the year by working with a restricted set of multiplication facts to gain foundations with multiplication and division and begin building fluency. After students practice skills with all four operations in the context of mass, time, and capacity, students return to a deeper look at multiplication and division increasing their work to include all products within 100. Students then learn about area and relate findings to the operations of multiplication and addition. The year ends with a study of fractions as students understand fractions are not just parts of figures but rather they are points on the number line. Students will also compare fractions, find equivalent fractions in special cases, and solve problems that involve comparing fractions. |
| **Standards Clarification for Grade 3 Mathematics** |
| Some standards are included in multiple units to provide students with multiple opportunities to engage with the content. In the tables that follow, suggested focus areas and possible benchmarks for repeated standards are identified in the column labeled Standards Clarification. |
| **Mathematical Practices Recommendations for Grade 3 Mathematics** |
| Mathematical practices should be evident *throughout* mathematics instruction and connected to all of the content areas addressed at this grade level. Mathematical tasks (short, long, scaffolded, and unscaffolded) are an important opportunity to connect content and practices. Some brief examples of how the content of this grade might be connected to the practices follow.   * Students learn and use strategies for finding products and quotients that are based on the properties of operations; for example, to find 4 × 7, they may recognize that 7 = 5 + 2 and compute 4 × 5 + 4 ÷ 2. This is an example of seeing and making use of structure (MP.7). Such reasoning processes amount to brief arguments that students may construct and critique (MP.3). * Students will analyze a number of situation types for multiplication and division, including arrays and measurement contexts. Extending their understanding of multiplication and division to these situations requires that they make sense of problems and persevere in solving them (MP.1), look for and make use of structure (MP.7) as they model these situations with mathematical forms (MP.4), and attend to precision (MP.6) as they distinguish different kinds of situations over time (MP.8). |
| **Fluency Expectations for Grade 3 Mathematics** |
| **3.OA.7** Students fluently multiply and divide within 100. By the end of grade 3, they know all products of two one-digit numbers from memory.  **3.NBT.2** Students fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. (Although 3.OA.7 and 3.NBT.2 are both fluency standards, these two standards do not represent equal investments of time in grade 3. Note that students in grade 2 were already adding and subtracting within 1000, just not fluently. That makes 3.NBT.2 a relatively small and incremental expectation. By contrast, multiplication and division are new in grade 3, and meeting the multiplication and division fluency standard 3.OA.7 with understanding is a major portion of students’ work in grade 3.) |

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| **Unit 1: Introduction to Multiplication and Division** | **Possible time frame**:  7 weeks |
| One major focus in Grade 3 is multiplication and division within 100. Since this will be the first time students are formally introduced to multiplication and division, the year begins by working with a restricted set of multiplication facts. Students build upon the foundation created in grade 2 (2.OA.C.4) and concentrate on the meaning of multiplication and division. They begin developing fluency for learning the products involving factors of 2, 3, 4, 5, and 10. The restricted set of facts keeps learning manageable. It also provides opportunities for students to do one- and two-step word problems beyond those involving addition and subtraction. Students will also collect and organize data in this unit and use the data to answer problems involving addition and subtraction. | |
| **Major Cluster Standards** | **Standards Clarification** |
| **Represent and solve problems involving multiplication and division.**  **3.OA.A.1** Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*  **3.OA.A.2** Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*  **3.OA.A.3** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.  **3.OA.A.4** Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 =* □ *÷ 3, 6 × 6 = ?*  **Understand properties of multiplication and the relationship between multiplication and division.**  **3.OA.B.5** Apply properties of operations as strategies to multiply and divide. *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3× 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find*  *8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*  **3.OA.B.6** Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*  **Multiply and divide within 100.**  **3.OA.C.7** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.  **Solve problems involving the four operations, and identify and explain patterns in arithmetic.**  **3.OA.D.8** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.  **3.OA.D.9** Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.* | Limit work in this unit to the factors 2, 3, 4, 5, and 10 and their corresponding dividends.  **3.OA.A.3** See Glossary, Table 2 of Common Core State Standards for Mathematics, page 89.  **3.OA.B.5** Students need not use formal terms for these properties.  **3.OA.D.8** This standard is limited to problems posed with whole numbers and having whole number answers; students show know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations). |
| **Supporting Cluster Standards** | **Standards Clarification** |
| **Represent and interpret data.**  **3.MD.B.3** Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.* | This standard should support the work with the four operations (**3.OA.D.8**). Graphs should be picture graphs only at this time. |

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| **Unit 2: Application of the Operations with Time, Capacity, and Mass** | **Possible time frame**:  5 weeks |
| The focus of this unit is on measurement. The placement of this unit allows time for students to practice the multiplication facts learned in unit one while also building fluency with addition and subtraction within 1000. Students will also take this time to work on place value, comparison, and rounding concepts. This work will help students better create proportional bar diagrams to use in solving word problems. Word problems involving multiplication and/or division are limited to the factors studied in Unit 1. | |
| **Major Cluster Standards** | **Standards Clarification** |
| **Represent and solve problems involving multiplication and division.**  **3.OA.A.3** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.  **Solve problems involving the four operations, and identify and explain patterns in arithmetic.**  **3.OA.D.8** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.  **Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.**  **3.MD.A.1** Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.  **3.MD.A.2** Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. | **3.OA.A.3** See Glossary, Table 2 of Common Core State Standards for Mathematics, page 89.  **3.OA.D.8** This standard is limited to problems posed with whole numbers and having whole number answers; students show know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).  **3.MD.A.2** Excludes compound units such as cm3 and finding the geometric volume of a container. Excludes multiplicative comparison problems (problems involving notions of “times as much”; see Glossary, Table 2, CCSSM page 89). Also limit problems involving multiplication to those using the factors studied in Unit 1. |
| **Additional Cluster Standards** | **Standards Clarification** |
| **Use place value understanding and properties of operations to perform multi-digit arithmetic.**  **3.NBT.A.1** Use place value understanding to round whole numbers to the nearest 10 or 100.  **3.NBT.A.2** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. | A range of algorithms should be used for these standards. |

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| **Unit 3: Develop a Deeper Understanding/ Application of Multiplication and Division** | **Possible time frame**:  7 weeks |
| Students return to focusing on multiplication and division and learn the remaining multiplication and division facts as they continue to develop a deep understanding of multiplication and division strategies within 100 and use those strategies to solve two-step word problems. In both Unit 1 and Unit 3, a sustained amount of time is devoted to working with rectangular arrays to set the foundation for area work in Unit 4. | |
| **Major Cluster Standards** | **Standards Clarification** |
| **Represent and solve problems involving multiplication and division.**  **3.OA.A.1** Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*  **3.OA.A.2** Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*  **3.OA.A.3** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.  **3.OA.A.4** Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 =* □ *÷ 3, 6 × 6 = ?*  **Understand properties of multiplication and the relationship between multiplication and division.**  **3.OA.B.5** Apply properties of operations as strategies to multiply and divide. *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3× 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find*  *8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*  **3.OA.B.6** Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*  **Multiply and divide within 100.**  **3.OA.C.7** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.  **Solve problems involving the four operations, and identify and explain patterns in arithmetic.**  **3.OA.D.8** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.  **3.OA.D.9** Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.* | Students should work with all products within 100 focusing on those factors not addressed in Unit 1.  **3.OA.A.3** See Glossary, Table 2 of Common Core State Standards for Mathematics, page 89.  **3.OA.B.5** Students need not use formal terms for these properties.  **3.OA.D.8** This standard is limited to problems posed with whole numbers and having whole number answers; students show know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations). |
| **Supporting Cluster Standards** | **Standards Clarification** |
| **Represent and interpret data.**  **3.MD.B.3** Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.* | This standard should support the work with the four operations (**3.OA.D.8**). This standard should be fully addressed in this unit. |
| **Additional Cluster Standards** | **Standards Clarification** |
| **Use place value understanding and properties of operations to perform multi-digit arithmetic.**  **3.NBT.A.3** Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations. | For this standard a range of algorithms may be used. |

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| **Unit 4: Geometric Measurement Related to Multiplication & Addition** | **Possible time frame**:  4 weeks |
| By unit 4, students are ready to investigate area and the formula for the area of a rectangle. They measure area of a shape by finding the total number of same-size units of area required to cover the shape without any gaps or overlaps. When that shape is a rectangle with whole number side lengths, it is easy to partition the rectangle into squares with equal areas. Students will also recognize shapes and reason about their attributes. They will work with perimeter and understand the difference between linear and area measures. | |
| **Major Cluster Standards** | **Standards Clarification** |
| **Multiply and divide within 100.**  **3.OA.C.7** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.  **Geometric measurement: understand concepts of area and relate area to multiplication and to addition.**  **3.MD.C.5** Recognize area as an attribute of plane figures and understand concepts of area measurement.   1. A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area. 2. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.   **3.MD.C.6** Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).  **3.MD.C.7** Relate area to the operations of multiplication and addition.   1. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. 2. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. 3. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths *a* and *b* + *c* is the sum of *a* × *b* and *a* × *c*. Use area models to represent the distributive property in mathematical reasoning. 4. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems. |  |
| **Supporting Cluster Standards** | **Standards Clarification** |
| **Reason with shapes and their attributes.**  **3.G.A.1** Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. |  |
| **Additional Cluster Standards** | **Standards Clarification** |
| **Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.**  **3.MD.D.8** Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters. |  |

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| **Unit 5: Developing an Understanding of Fractions** | **Possible time frame**:  8 weeks |
| In this final unit, students will concentrate on understanding that a fraction is a number on the number line. Students make the transition from thinking about a fraction as a part of a figure to a point on the number line by thinking of fractions as unit fractions. Students relate the unit fractions to a number line diagram. Once the unit fraction has been established, counting them is as easy as counting whole numbers: 1 fourth, 2 fourths, 3 fourths, 4 fourths, 5 fourths, etc. Students also compare fractions, find equivalent fractions in special cases, and solve problems that involve comparing fractions. Students will also apply their understanding of fractions to measuring to the nearest halves or fourths and recording this data on a line plot and by partitioning shapes into parts with equal areas. | |
| **Major Cluster Standards** | **Standards Clarification** |
| **Develop understanding of fractions as numbers.**  **3.NF.A.1** Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*.  **3.NF.A.2** Understand a fraction as a number on the number line; represent fractions on a number line diagram.   1. Represent a fraction 1/*b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line. 2. Represent a fraction *a*/*b* on a number line diagram by marking off *a* lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.   **3.NF.A.3** Explain equivalence of fractions in special cases, and compare  fractions by reasoning about their size.   1. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. 2. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model. 3. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.* 4. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. | Grade 3 expectations in the NF domain are limited to fractions with denominators 2, 3, 4, 6, and 8. |
| **Supporting Cluster Standards** | **Standards Clarification** |
| **Represent and interpret data.**  **3.MD.B.4** Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.  **Reason with shapes and their attributes.**  **3.G.A.2** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.* |  |