Sample Scope and Sequence for Grade 3 for the Common Core State Standards for Mathematics

In the years prior to Grade 3, students have gained an understanding of place value, used strategies based on place value to add and subtract, worked with standard units of measure for length, and described attributes of shapes. Students have an initial understanding of multiplication based on the array model.

The grade 3 year in this scope and sequence begins with students relating addition to perimeter. This is a new concept to third grade students. This will allow students access to prior learning. Students apply place value to addition and rounding. The concepts of fractions, multiplication, and division are critical areas introduced early in the third grade year. Throughout the year, students develop multiplication strategies and relate division to multiplication. By the end of the year students recall all products of two one-digit numbers. Third grade students will develop understanding of fractions as numbers. They compare and reason about fractions. To continue the study of geometry, students describe and analyze shapes by their sides, angles, and definitions. The final unit in this scope and sequence is for students to generalize and apply strategies learned for computational fluency.

This scope and sequence assumes 160 days for instruction, divided among 16 units.

The units are sequenced in a way that we believe best develops and connects the mathematical content described in the Common Core State Standards for Mathematics; however, the order of the standards included in any unit does not imply a sequence of content within that unit. Some standards may be revisited several times during the course; others may be only partially addressed in different units, depending on the mathematical focus of the unit.

Throughout Grade 3, students should continue to develop proficiency with the Common Core's eight Standards for Mathematical Practice:

1. **Make sense of problems and persevere in solving them.**
2. **Reason abstractly and quantitatively.**
3. **Construct viable arguments and critique the reasoning of others.**
4. **Model with mathematics.**
5. **Use appropriate tools strategically.**
6. **Attend to precision.**
7. **Look for and make use of structure.**
8. **Look for and express regularity in repeated reasoning.**

These practices should become the natural way in which students come to understand and to do mathematics. While, depending on the content to be understood or on the problem to be solved, any practice might be brought to bear, some practices may prove more useful than others. Opportunities for highlighting certain practices are indicated in different units of study in this sample scope and sequence, but this highlighting should not be interpreted to mean that other practices should be neglected in those units.

This scope and sequence reflects our current thinking related to the intent of the CCSS for Mathematics, but it is an evolving document. We expect to make refinements to this scope and sequence in the coming months in response to new learnings about the standards. In planning your district's instructional program, you should be prepared to have similar flexibility in implementing your district's own scope and sequence for the next 2 to 3 years, as you transition from your state's current standards to full implementation of the CCSS for Mathematics.

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Unit	Standards for Mathematical Content	Standards for Mathematical Practice	Days	Comments
Exploring perimeter	**3.MD.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.) **[Comment]**	**1.** Make sense of problems and persevere in solving them. **2.** Reason abstractly and quantitatively. **3.** Construct viable arguments and critique the reasoning of others. **4.** Model with mathematics. **5.** Use appropriate tools strategically. **6.** Attend to precision. **7**. Look for and make use of structure. **8.** Look for and express regularity in repeated reasoning.	**5**	**3.MD.8** This unit focuses on perimeter which is a new concept. Area will be addressed in the unit **Investigating linear and area measures**.

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Unit	Standards for Mathematical Content	Standards for Mathematical Practice	Days	Comments
Applying place value to addition and rounding	**3.OA.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])**[Comment]** [3]This standard is limited to problems posed with whole numbers and having whole- number answers; students should know how to perform operations in the conven- tional order when there are no parentheses to specify a particular order (Order of Operations). **3.OA.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.*) **3.NBT.1** (Use place value understanding to round whole numbers to the nearest 10 or 100.) **3.NBT.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.) **[Comment]**	**1.** Make sense of problems and persevere in solving them. **2.** Reason abstractly and quantitatively. **3.** Construct viable arguments and critique the reasoning of others. **4.** Model with mathematics. **5.** Use appropriate tools strategically. **6.** Attend to precision. **7.** Look for and make use of structure. **8.** Look for and express regularity in repeated reasoning.	**15**	**3.OA.8** Solving problems involving addition and subtraction using estimation and rounding to assess reasonableness of answers is the focus in this unit. **3.NBT.2** Fluency is not expected at this time.
Developing understanding of fractional quantities	**3.NF.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.2.** (Understand a fraction as a number on the number line; represent fractions on a number line diagram. **a**. 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. **b**. 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.3.**(Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. **a.** Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. **c**. 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.*) **3.G.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.*)	**1.** Make sense of problems and persevere in solving them. **2.** Reason abstractly and quantitatively. **3.** Construct viable arguments and critique the reasoning of others. **4.** Model with mathematics. **5.** Use appropriate tools strategically. **6.** Attend to precision. **7**. Look for and make use of structure. **8.** Look for and express regularity in repeated reasoning.	**10**	

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Unit	Standards for Mathematical Content	Standards for Mathematical Practice	Days	Comments
Exploring multiplication	**3.MD.7.** (Relate area to the operations of multiplication and addition. **[Comment]** **a.** 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. **b**. 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.OA.5** (Apply properties of operations as strategies to multiply and divide.[2] *Examples: If 6 x 4 = 24 is known, then 4 x 6 = 24 is also known. (Commutative property of multiplication.) 3 X 5 X 2 can be found by 3 X 5 = 15, then 15 x 2 = 30, or by 5 x 2 = 10, then 3 X 10 = 30. (Associative property of multiplication.) Knowing that 8 X 5 = 40 and 8 X 2 = 16, one can find 8 X 7 as 8 X (5 + 2) = (8 X 5) + (8 X 2) = 40 + 16 = 56. (Distributive property.)*) **[Comment]** [2]Students need not use formal terms for these properties. **3.OA.9** **3.MD.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.*)	**1.** Make sense of problems and persevere in solving them. **2.** Reason abstractly and quantitatively. **3.** Construct viable arguments and critique the reasoning of others. **4.** Model with mathematics. **5.** Use appropriate tools strategically. **6.** Attend to precision. **7**. Look for and make use of structure. **8.** Look for and express regularity in repeated reasoning.	**10**	**3.MD.7, 3.OA.5** Relating multiplication to area using the commutative property is the focus of this unit.
Using addition and subtraction	**3.NBT.1** **3.NBT.2 [Comment]** **3.OA.8** **3.MD.3**	**1.** Make sense of problems and persevere in solving them. **2.** Reason abstractly and quantitatively. **3.** Construct viable arguments and critique the reasoning of others. **4.** Model with mathematics. **5.** Use appropriate tools strategically. **6.** Attend to precision. **7**. Look for and make use of structure. **8.** Look for and express regularity in repeated reasoning.	**10**	**3.NBT.2** Addition and subtraction to solve problems including measurement problems is the focus of this unit. Fluency is not expected at this time.

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Telling time and problem solving	**3.MD.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.)	**1.** Make sense of problems and persevere in solving them. **2.** Reason abstractly and quantitatively. **3.** Construct viable arguments and critique the reasoning of others. **4.** Model with mathematics. **5.** Use appropriate tools strategically. **6.** Attend to precision. **7**. Look for and make use of structure. **8.** Look for and express regularity in repeated reasoning.	**5**	
Reasoning with shapes and their attributes	**3.G.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.)	**1.** Make sense of problems and persevere in solving them. **2.** Reason abstractly and quantitatively. **3.** Construct viable arguments and critique the reasoning of others. **4.** Model with mathematics. **5.** Use appropriate tools strategically. **6.** Attend to precision. **7**. Look for and make use of structure. **8.** Look for and express regularity in repeated reasoning.	**10**	

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Unit	Standards for Mathematical Content	Standards for Mathematical Practice	Days	Comments
Developing multiplication strategies	**3.OA.1**(Interpret products of whole numbers, e.g., interpret 5 x 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 X 7.*) **3.OA.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.[1]) [1]See Glossary, Table 2. **3.OA.5** **3.OA.7** (Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 X 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.) **[Comment]** **3.NBT.3** (Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 X 80, 5 X 60) using strategies based on place value and properties of operations.) **[Comment]** **3.MD.7.** **c.** (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 x b* and *a x c*. Use area models to represent the distributive property in mathematical reasoning.)	**1.** Make sense of problems and persevere in solving them. **2.** Reason abstractly and quantitatively. **3.** Construct viable arguments and critique the reasoning of others. **4.** Model with mathematics. **5.** Use appropriate tools strategically. **6.** Attend to precision. **7**. Look for and make use of structure. **8.** Look for and express regularity in repeated reasoning.	**15**	**3.OA.7** In this unit students use the commutative property of mutiplication as a strategy to multiply. **3.NBT.3** They multiply one-digit whole numbers by 10.

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Unit	Standards for Mathematical Content	Standards for Mathematical Practice	Days	Comments
Solving problems involving mass and volume	**3.MD.2** (Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).6 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.[7]) [7]Excludes multiplicative comparison problems (problems involving notions of "times as much"; see Glossary, Table 2).	**1.** Make sense of problems and persevere in solving them. **2.** Reason abstractly and quantitatively. **3.** Construct viable arguments and critique the reasoning of others. **4.** Model with mathematics. **5.** Use appropriate tools strategically. **6.** Attend to precision. **7**. Look for and make use of structure. **8.** Look for and express regularity in repeated reasoning.	**10**	
Measuring area and relating area to operations	**3.MD.5.** (Recognize area as an attribute of plane figures and understand concepts of area measurement. **a.** 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. **b.** 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.6** (Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).) **3.MD.7.b** **3.MD.7.d** (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.)	**1.** Make sense of problems and persevere in solving them. **2.** Reason abstractly and quantitatively. **3.** Construct viable arguments and critique the reasoning of others. **4.** Model with mathematics. **5.** Use appropriate tools strategically. **6.** Attend to precision. **7**. Look for and make use of structure. **8.** Look for and express regularity in repeated reasoning.	**10**	

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Exploring division and relating division to multiplication	**3.OA.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.3** **3.OA.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 X ? = 48, 5 = □ ÷ 3, 6 X 6 = ?.*) **3.OA.6** (Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*) **3.OA.7 [Comment]**	**1.** Make sense of problems and persevere in solving them. **2.** Reason abstractly and quantitatively. **3.** Construct viable arguments and critique the reasoning of others. **4.** Model with mathematics. **5.** Use appropriate tools strategically. **6.** Attend to precision. **7**. Look for and make use of structure. **8.** Look for and express regularity in repeated reasoning.	**10**	**3.OA.7** Fluency and knowing mutiplication by memory are not expected in this unit.
Comparing fractions with models and reasoning	**3.NF.3.**(Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. **b**. 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. **d.** 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.)	**1.** Make sense of problems and persevere in solving them. **2.** Reason abstractly and quantitatively. **3.** Construct viable arguments and critique the reasoning of others. **4.** Model with mathematics. **5.** Use appropriate tools strategically. **6.** Attend to precision. **7**. Look for and make use of structure. **8.** Look for and express regularity in repeated reasoning.	**10**	

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Applying multiplication and division to problem solving	**3.OA.3** **3.OA.5** **3.OA.8 [Comment]** **3.NBT.3**	**1.** Make sense of problems and persevere in solving them. **2.** Reason abstractly and quantitatively. **3.** Construct viable arguments and critique the reasoning of others. **4.** Model with mathematics. **5.** Use appropriate tools strategically. **6.** Attend to precision. **7**. Look for and make use of structure. **8.** Look for and express regularity in repeated reasoning.	**10**	**3.OA.8** This unit focuses on multiplication and division.
Interpreting data with fractional amounts	**3.MD.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.)	**1.** Make sense of problems and persevere in solving them. **2.** Reason abstractly and quantitatively. **3.** Construct viable arguments and critique the reasoning of others. **4.** Model with mathematics. **5.** Use appropriate tools strategically. **6.** Attend to precision. **7**. Look for and make use of structure. **8.** Look for and express regularity in repeated reasoning.	**10**	

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Unit	Standards for Mathematical Content	Standards for Mathematical Practice	Days	Comments
Investigating linear and area measures	**3.MD.8**	**1.** Make sense of problems and persevere in solving them. **2.** Reason abstractly and quantitatively. **3.** Construct viable arguments and critique the reasoning of others. **4.** Model with mathematics. **5.** Use appropriate tools strategically. **6.** Attend to precision. **7**. Look for and make use of structure. **8.** Look for and express regularity in repeated reasoning.	**10**	
Using computational fluency and problem solving	**3.OA.3** **3.OA.7** **3.OA.8** **3.NBT.2**	**1.** Make sense of problems and persevere in solving them. **2.** Reason abstractly and quantitatively. **3.** Construct viable arguments and critique the reasoning of others. **4.** Model with mathematics. **5.** Use appropriate tools strategically. **6.** Attend to precision. **7**. Look for and make use of structure. **8.** Look for and express regularity in repeated reasoning.	**10**	