Common Core State Standards for Mathematics

Grade 3: The Big Picture

Domains	Operations and Algebraic Thinking	Number & Operations in Base Ten	Number & Operations: *Fractions*	Measurement and Data	Geometry
Clusters	• Represent and solve problems involving multiplication and division • Understand properties of multiplication and the relationship between multiplication and division • Multiply and divide within 100 • Solve problems involving the four operations, and identify and explain patterns in arithmetic	• Use place value understanding and properties of operations to perform multi-digit arithmetic	• Develop understanding of fractions as numbers	• Solve problems involving measurement and estimation of intervals of time, liquid, volumes and masses of objects • Represent and interpret data • Geometric measurement: understand concepts of area and relate area to multiplication and to addition • Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures	• Reason with shapes and their attributes
Mathematical Practices	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.	

In Grade 3, instructional time should focus on four critical areas (note: multiplication, division, and fractions are the most important developments):

1. ***Developing understanding of multiplication and division and strategies for multiplication and division within 100***
   - Students develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal-sized groups, arrays, and area models; multiplication is finding an unknown product, and division is finding an unknown factor in these situations. For equal-sized group situations, division can require finding the unknown number of groups or the unknown group size. Students use properties of operations to calculate products of whole numbers, using increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the relationship between multiplication and division.

2. ***Developing understanding of fractions, especially unit fractions (fractions with numerator 1)***
   - Students develop an understanding of fractions, beginning with unit fractions. Students view fractions in general as being built out of unit fractions, and they use fractions along with visual fraction models to represent parts of a whole. Students understand that the size of a fractional part is relative to the size of the whole. For example, 1/2 of the paint in a small bucket could be less paint than 1/3 of the paint in a larger bucket; but 1/3 of a ribbon is longer than 1/5 of the same ribbon because when the ribbon is divided into 3 equal parts, the parts are longer than when the ribbon is divided into 5 equal parts. Students are able to use fractions to represent numbers equal to, less than, and greater than one. They solve problems that involve comparing fractions by using visual fraction models and strategies based on noticing equal numerators or denominators.

3. ***Developing understanding of the structure of rectangular arrays and of area***
   - Students recognize area as an attribute of two-dimensional regions. They measure the area of a shape by finding the total number of same-size units of area required to cover the shape without gaps or overlaps, a square with sides of unit length being the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect area to multiplication, and justify using multiplication to determine the area of a rectangle.

4. ***Describing and analyzing two-dimensional shapes***
   - Students describe, analyze, and compare properties of two-dimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole.

GRADE 3 MATHEMATICS: Crosswalk between the Common Core State Standards (CCSS) and the Hawaii Content and Performance Standards (HCPS) III

Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
3.OA.1	Interpret products of whole numbers, for example, 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.	3.2.2: Select and apply various meanings and representations of multiplication and division. 3.2.1: Recognize situations involving multiplication and division of whole numbers and represent the situation with number sentence.	3	The focus of the CC standard is on understanding and demonstrating the meaning of multiplication in context.
3.OA.2	Interpret whole-number quotients of whole numbers, for example, 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.	3.2.2: Select and apply various meanings and representations of multiplication and division. 3.2.1: Recognize situations involving multiplication and division of whole numbers and represent the situation with number sentence.	3	The focus of the CC standard is on understanding and demonstrating the meaning of division in context. Students must have experience with both of the following interpretations of division: a) the divisor representing the **number of groups** For example, depending on the context, 36 ÷ 4 could be understood as asking, "*If I divide 36 objects into 4 groups, how many will be in each group?*" b) the divisor representing the **size of the group** For example, depending on the context, 36 ÷ 4 could be understood as asking, "*If I divide 36 objects so that there will be 4 objects in each group, how many groups will I make?*" Understanding both of these interpretations of division will provide an important foundation for students, particularly for learning division of fractions in future grades.
3.OA.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, for example, by using drawings and equations with a symbol for the unknown number to represent the problem.	3.10.1: Model situations that involve multiplication and division of whole numbers using objects/pictures and number sentences 3.2.1: Recognize situations involving multiplication and division of whole numbers and represent the situation with number sentence. 3.2.2: Select and apply various meanings and representations of multiplication and division.	3	For information regarding what is meant by common multiplication and division situations, refer to Table 2 of the Glossary (page 89) in the official CCSS for Mathematics document (a PDF of the document may be downloaded at www.corestandards.org/the-standards).

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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 × ? = 48, 5 = __ ÷ 3, and 6 × 6 = ?.	3.2.3: Demonstrate that multiplication and division of whole number can undo each other. 3.3.1: Recall multiplication facts from 0 x 0 to 10 x 10. *Related benchmark at another grade level: 4.10.1: Use symbols to represent unknown quantities in open sentences and determine the unknown quantities.*	3	For information regarding what is meant by common multiplication and division situations, refer to Table 2 of the Glossary (page 89) in the official CCSS for Mathematics document (a PDF of the document may be downloaded at www.corestandards.org/the-standards).
3.OA.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 multiplying 3 × 5 = 15 then multiplying 15 × 2 = 30, or by multiplying 5 × 2 = 10 then multiplying 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). ***(Students need not use formal terms for these properties.)***	3.2.4: Use properties of addition of whole numbers (e.g. associative, commutative) to solve problems. *Related benchmark at another grade level: 4.2.2: Use associative, commutative, and distributive properties as they apply to operations involving whole numbers.*	2	The CC standard is concerned with applying the properties to multiplication and division, whereas the HCPS III benchmark 3.4.2 is only concerned with addition. The CC standard is a much better match with HCPS III benchmark 4.2.2. The focus of the CC standard is on being able to apply the properties as a strategy to promote number sense and computational fluency. For example, the application of the distributive property can help many students who struggle with recalling multiplication facts for 7. Since 7 = 5 + 2, multiplying by 6 x 7 can be done by multiplying 6 x 5 and 6 x 2, then adding those products: 30 + 12 = 42. Students should be able to generalize this strategy for multiplying by 6, 7, 8, 9 (or any number). In addition, representing this application of the distributive property with an area model would be a great connection to the Mathematical Practices #4 (***model with mathematics***) and #7 (***look for and make use of structure***).
3.OA.6	Understand division as an unknown-factor problem. For example, divide 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.	3.2.3: Demonstrate that multiplication and division of whole number can undo each other.	3	

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3.OA.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 end of Grade 3, know from memory all products of one-digit numbers.	3.3.1: Recall multiplication facts from 0 x 0 to 10 x 10. 3.2.3: Demonstrate that multiplication and division of whole number can undo each other. *Related benchmark at another grade level: 4.2.2: Use associative, commutative, and distributive properties as they apply to operations involving whole numbers.*	2	This would be an excellent match, however, the CC standard specifically includes "properties of operations" which is not a 3rd grade expectation in HCPS III.
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. (This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order.)	3.2.1: Recognize situations involving multiplication and division of whole numbers and represent the situation with number sentence. 3.3.3: Estimate the results of whole-number computations. 3.10.1: Model situations that involve multiplication and division of whole numbers using objects/pictures and number sentences. *Related benchmark at another grade level: 4.10.1: Use symbols to represent unknown quantities in open sentences and determine the unknown quantities.*	1	The CC standard has many components. The standard implies that the concepts of "variable" and "order of operations" have been previously introduced. Also, the expectation that students will "assess the reasonableness of answers" adds another layer of understanding and application to the standard. There is a considerable amount of scaffolding and frontloading that should be planned for when addressing this standard. Furthermore, due to the numerous components, instructional planning should consider how to support students through a progression learning opportunities over time in order to develop mastery.
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.	3.9.1: Create and describe growing numerical and spatial patterns and generalize a rule for the pattern. 3.9.3: Identify and describe patterns in a hundreds chart.	2	There are a considerable number of patterns that can be discussed. The focus should be on how the pattern brings about understanding of number sense and/or can be used to promote computational fluency. This CC standard could be addressed in relation to CC standard 3.OA.5.
3.NBT.1	Use place value understanding to round whole numbers to the nearest 10 or 100.	No HCPS3 benchmark at this grade level.	N/A	This Common Core Standard is a new learning expectation for this grade level.

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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. (A range of algorithms may be used.)	3.3.2: Use a variety of strategies to solve problems involving addition and subtraction of two- and three-digit numbers. 3.1.1: Represent place value from hundredths to ten-thousand flexibly.	3	The strategy of composing and decomposing numbers is a critical area of emphasis for elementary grades (written on paper and mentally). This strategy represents the algebra that students need to have experience with as they begin to learn computation algorithms. The computation algorithms should generalize the strategies learned and thus, should be introduced later in the learning progression rather than at the beginning.
3.NBT.3	Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (for example, 9 × 80, 5 × 60) using strategies based on place value and properties of operations. (A range of algorithms may be used.)	3.3.1: Recall multiplication facts from 0 x 0 to 10 x 10. *Related benchmark at another grade level: 4.3.2: Select and use appropriate strategies and/or tools (e.g., mental math, calculators, paper/pencil, standard algorithms) for computing whole numbers.*	1	Computational fluency is a goal of this CC standard, thus, learning opportunities should be designed for students to master efficient strategies (not merely recall). For example, students should eventually be able to multiply 5 x 70 by mentally computing 5 x 7 = 35, and 35 x 10 = 350. Students should be able to generalize this strategy for multiplying by any multiple of 10.
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 $^1/_b$. ***(Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)***	No HCPS3 benchmark at this grade level. *Related benchmarks at another grade level: 2.1.3: Represent fractions with denominators no larger than ten using pictures, numbers, words, or models; and, 1.1.3: Identify representations of simple fractions (e.g., one-half, one-third, one fourth).*	N/A	This Common Core Standard is a new learning expectation for this grade level. Numerous experiences (with concrete and semi-concrete representations) should be provided for students to be able to develop a cognitive map for reading a fraction that is grounded in the conceptual understanding being expected in this CC standard. Students should be able to generalize that for any fraction, the denominator tells me how many equal parts to break up the whole (i.e., how many slices to cut the pizza into), while the numerator tells me how many of those parts to count up (i.e., how many of those pizza slices I will eat).

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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.	3.1.3: Compare and order fractions with denominators up to 12 (e.g., greater than, less than, equal). *Related benchmarks at another grade level: 2.1.3: Represent fractions with denominators no larger than ten using pictures, numbers, words, or models; and, 1.1.3: Identify representations of simple fractions (e.g., one-half, one-third, one fourth).*	1	This standard builds on CC standard 3.NF.1. This CC standard expects that students will understand that each unit on the number line represents "the whole" (e.g., the interval from 0 to 1). Thus, as an extension of 3.NF.1, students should be able to recognize that in order to indentify the location of ¾ on the number line, they must first use the denominator of the fraction to know that they must make 4 equal parts between 0 and 1, then using the numerator of the fraction as a counter, mark off the location of 3 of those parts. ***(Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)***
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. b. Recognize and generate simple equivalent fractions, for example, $^1/_2 = {}^2/_4$, $^4/_6 = {}^2/_3$). Explain why the fractions are equivalent, e.g., by using a visual fraction model. 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. 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.	3.1.3: Compare and order fractions with denominators up to 12 (e.g., greater than, less than, equal). *Related benchmarks at another grade level: 4.1.3: Identify equivalent forms of commonly used fractions and decimals; 2.1.3: Represent fractions with denominators no larger than ten using pictures, numbers, words, or models; and, 1.1.3: Identify representations of simple fractions (e.g., one-half, one-third, one fourth).*	1	The taxonomic level of the CC standard is considerably different from that of the HCPS III benchmarks. This standard builds on CC standard 3.NF.1 and 3. NF.2. Due to the numerous components of the CC standard, instructional planning should consider how to support students through a progression learning opportunities over time in order to develop mastery.

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Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
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.	3.4.4: Estimate and determine the elapsed time between two events or times. *Related benchmark at another grade level: 2.4.4: Tell time to the minute.*	2	This CC standard is the first learning expectation in the CCSS that deals with the concept of time. Time does not appear in grades K-2. Thus, the first part of the CC standard ("tell and write time") does not match the HCPS III benchmark because this part of the standard was addressed in previous grades in HCPS III. The second part of the CC standard matches well with the HCPS III benchmark. Representing time on a number line diagram is an excellent opportunity to develop an understanding for determining elapsed time.
3.MD.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. (Excludes compound units such as cm^3 and finding the geometric volume of a container.)	3.4.3: Measure length and capacity, and weight in U.S. customary and metric units (e.g., pound, kilogram).	2	The taxonomic level of the CC standard is different from that of the HCPS III benchmark, particularly in reference to the expectation of estimating and solving word problems involving masses and volumes.
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.	3.11.2: Organize and represent data in more than one way (e.g. tallies, chart, tables, bar graphs, line plots, line graphs). 3.12.1: Interpret data (e.g., tallies, chart, tables, bar graphs, line plots) and state what the representation shows about the set of data. 3.13.1: Answer questions based on data represented in graphs.	3	
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.	3.4.3: Measure length and capacity, and weight in U.S. customary and metric units (e.g., pound, kilogram). 3.11.2: Organize and represent data in more than one way (e.g. tallies, chart, tables, bar graphs, line plots, line graphs).	2	The CC standard combines the two HCPS III benchmarks indicated, however, the CC standard focuses only on measuring lengths to generate the data set, and focuses only on using a line plot to represent the data.

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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.	3.4.1: Describe the concept of area and volume and the appropriate units for each.	3	The CC standard focuses only on the concept of area.
3.MD.6	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	3.4.2: Measure area and volume using standard and non-standard units (e.g., tiles, index cards, grids, cubes).	3	
3.MD.7	Relate area to the operations of multiplication and addition. 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. 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 × b and a × c. Use area models to represent the distributive property in mathematical reasoning. 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.	3.2.2: Select and apply various meanings and representations of multiplication and division. 3.10.1: Model situations that involve multiplication and division of whole numbers using objects/pictures and number sentences. 3.2.1: Recognize situations involving multiplication and division of whole numbers and represent the situation with number sentence 3.4.1: Describe the concept of area and volume and the appropriate units for each. 3.2.3: Demonstrate that multiplication and division of whole number can undo each other. *Related benchmark at another grade level: 4.2.2: Use associative, commutative, and distributive properties as they apply to operations involving whole numbers.*	3	This CC standard is an excellent example of the internal coherence that is present throughout the CCSS document. Connecting the learning expectations regarding multiplication and area provides meaningful opportunities to develop conceptual understanding and promote sense-making in mathematics.

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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 area or with the same area and different perimeter.	3.4.6: Estimate and measure perimeter and area of common shapes and irregular shapes (e.g., house-shaped pentagon).	1	The taxonomic level of this CC standard is considerably different from that of the HCPS III benchmark indicated. The CC standard has several components for promoting student understanding of perimeter.
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.	No HCPS3 benchmark at this grade level. *Related benchmarks at another grade level: 4.5.1: Classify different types of triangles and quadrilaterals according to their properties and identify the properties that define the classifications.*	N/A	This Common Core Standard is a new learning expectation for this grade level.
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.	No HCPS3 benchmark at this grade level. *Related benchmarks at another grade level: 2.1.3: Represent fractions with denominators no larger than ten using pictures, numbers, words, or models.*	N/A	This Common Core Standard is a new learning expectation for this grade level. This CC standard is an excellent example of the internal coherence that is present throughout the CCSS document. Connecting the learning expectations regarding 3.G.2 and 3.NF.1 provides meaningful opportunities to develop conceptual understanding and promote sense-making in mathematics.

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GRADE 3

HCPS III Code	HCPS III Benchmark	Related Common Core Standard
3.1.1	Represent place value from hundredths to ten-thousands flexibly	3.NBT.2
~~3.1.2~~	~~Categorize and justify a number as being odd or even~~	None
3.1.3	Compare and order fractions with denominators up to 12 (e.g., *greater than, less than, equal*)	3.NF.2, 3.NF.3
~~3.1.4~~	~~Use fractions with denominators up to 12 to solve problems~~	None
3.2.1	Recognize situations involving multiplication and division of whole numbers and represent the situation with a number sentence	3.OA.1, 3.OA.2, 3.OA.3, 3.OA.8, 3.MD.7
3.2.2	Select and apply various meanings and representations of multiplication and division	3.OA.1, 3.OA.2, 3.OA.3, 3.MD.7
3.2.3	Demonstrate that multiplication and division of whole numbers can undo each other	3.OA.4, 3.OA.6, 3.OA.7, 3.MD.7
3.2.4	Use properties of addition of whole numbers (e.g., associative, commutative) to solve problems	3.OA.5
3.3.1	Recall multiplication facts from 0 x 0 to 10 x 10	3.OA.4, 3.OA.7, 3.NBT.3
3.3.2	Use a variety of strategies to solve problems involving addition and subtraction of two- and three-digit numbers	3.NBT.2
3.3.3	Estimate the results of whole-number computations	3.OA.8
3.4.1	Describe the concept of area and volume and the appropriate units for each	3.MD.5, 3.MD.7
3.4.2	Measure area and volume using standard and non-standard units (e.g., tiles, index cards, grids, cubes)	3.MD.6, 3.MD.7
3.4.3	Measure length, capacity, and weight in U.S. customary and metric units (e.g., pound, kilogram)	3.MD.2, 3.MD.4
3.4.4	Estimate and determine the elapsed time between two events or times	3.MD.1
~~3.4.5~~	~~Select appropriate tools for measuring length, capacity, and weight~~	None
3.4.6	Estimate and measure perimeter and area of common shapes and irregular (e.g., a house-shaped pentagon) shapes	3.MD.8
~~3.5.1~~	~~Compare the basic properties of isosceles, equilateral, and right triangles~~	None
~~3.5.2~~	~~Classify shapes as congruent or similar~~	None
~~3.6.1~~	~~Predict and confirm the result of flipping, sliding, and turning shapes~~	None
~~3.6.2~~	~~Use flips, slides, and turns to show that a shape or design is symmetrical~~	None
~~3.6.3~~	~~Recognize rotational symmetry of plane figures~~	None
~~3.8.1~~	~~Use coordinates to locate objects/locations on a grid~~	None
3.9.1	Create and describe growing numerical and spatial patterns and generalize a rule for the pattern	3.OA.9
~~3.9.2~~	~~Use patterns to solve problem situations involving related quantities in which one quantity changes as the other changes~~	None
3.9.3	Identify and describe patterns in a hundreds chart	3.OA.9
3.10.1	Model situations that involve multiplication and division of whole numbers using objects/pictures and number sentences	3.OA.3, 3.OA.8, 3.MD.7
~~3.10.2~~	~~Identify situations involving change and describe the change numerically and verbally~~	None
~~3.11.1~~	~~Pose questions, collect data using surveys, and organize the data into tables and graphs~~	None
3.11.2	Organize and represent data in more than one way (e.g., tallies, chart, tables, bar graphs, line plots, line graphs)	3.MD.3, 3.MD.4
3.12.1	Interpret data (e.g., tallies, chart, tables, bar graphs, line plots) and state what the representation shows about the set of data	3.MD.3
3.13.1	Answer questions based on data represented in graphs	3.MD.3
~~3.14.1~~	~~Make reasonable predictions concerning the likelihood of an event occurring (e.g., certain, likely, unlikely, impossible)~~	None