Common Core State Standards for Mathematics

Grade 5: The Big Picture

Domains	Operations and Algebraic Thinking	Number & Operations in Base Ten	Number & Operations: *Fractions*	Measurement and Data	Geometry
Clusters	• Write and interpret numerical expressions • Analyze patterns and relationships	• Understand the place value system • Perform operations with multi-digit whole numbers and with decimals to hundredths	• Use equivalent fractions as a strategy to add and subtract fractions • Apply and extend previous understandings of multiplication and division to multiply and divide fractions	• Convert like measurement units within a given measurement system • Represent and interpret data • Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition	• Graph points on the coordinate plane to solve real-world and mathematical problems • Classify two-dimensional figures into categories based on their properties
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 5, instructional time should focus on three critical areas:

1. ***Developing fluency with addition and subtraction of fractions, developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions)***
   - Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)

2. ***Extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operation***
   - Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They finalize fluency with multi-digit addition, subtraction, multiplication, and division. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths efficiently and accurately.

3. ***Developing understanding of volume***
   - Students recognize volume as an attribute of three-dimensional space. They understand that volume can be quantified by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1-unit by 1-unit by 1-unit cube is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to solve real world and mathematical problems.

GRADE 5 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
5.OA.1	Use parentheses, brackets, or braces in numerical expressions and evaluate expressions with these symbols.	No HCPS3 benchmark at this grade level. *Related benchmark at another grade level: 6.2.1: Apply the order of operations when calculating with whole numbers.*	N/A	This Common Core Standard is a new learning expectation for this grade level.
5.OA.2	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.	No HCPS3 benchmark at this grade level.	N/A	This Common Core Standard is a new learning expectation for this grade level.
5.OA.3	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.	5.9.1: Analyze patterns and functions and use generalizations to make reasonable predictions. *Related benchmark at another grade level: 4.9.1: Extend, create, and generalize growing and shrinking numeric and geometric patterns (including multiplication patterns).*	1	As fifth grade is the first time that graphing of ordered pairs in the coordinate plane is introduced, sufficient frontloading and scaffolding should be included in the instructional design so that the learning target is accessible to all students. CC standard 5.G.1 should be addressed prior to and in connection with this CC standard. There are a number of components to this CC standard that need to be addressed in order to get to the analysis and communication components.
5.NBT.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.	No HCPS3 benchmark at this grade level. *Related benchmark at another grade level: 4.1.1: Identify place value from ten-thousandths to millions.*	N/A	This Common Core Standard is a new learning expectation for this grade level. This CC standard builds on the 4th grade CC standard 4.NBT.1 .The CC standard emphasizes an understanding the value of each digit in relation to BOTH digits next to it. For example, in the number 333, the "middle 3" really represents the number 30, while the 3 that is furthest to the left really represents the number 300.

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5.NBT.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use positive integer exponents to denote powers of 10.	No HCPS3 benchmark at this grade level.	N/A	This Common Core Standard is a new learning expectation for this grade level. Building on standard 5.NBT.1, this CC standard extends students' number sense so that they can apply their conceptual understanding in a way that helps them to develop efficient computational strategies. This standard supports students' progress toward mastery of a useful mental math strategy. This is the first learning expectation in CCSS regarding the use of exponents. Sufficient frontloading and scaffolding should be planned for in the learning opportunities provided for students.
5.NBT.3	Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form. For example: $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$ b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	No HCPS3 benchmark at this grade level. *Related benchmarks at another grade level: 4.1.1: Identify place value from ten-thousandths to millions; and, 6.1.1: Compare and order fractions, decimals, and percents.*	N/A	This Common Core Standard is a new learning expectation for this grade level.While this is a new learning expectation for grade 5, this CC standard relates very closely to two HCPS III benchmarks in other grade levels (4.1.1 and 6.1.1).
5.NBT.4	Use place value understanding to round decimals to any place.	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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5.NBT.5	Fluently multiply multi-digit whole numbers using the standard algorithm.	No HCPS3 benchmark at this grade level. *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.*	N/A	This Common Core Standard is a new learning expectation for this grade level. This CC standard builds on the computational strategies students have developed and used in previous grades, culminating in this expectation to correctly use the standard algorithm. Instruction should be designed to build on students' prior experiences and background knowledge.
5.NBT.6	Find whole-number quotients with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	5.2.1: Apply the inverse relationship between addition and subtraction, and multiplication and division, to solve problems. 5.10.2: Model problem situations with objects or manipulatives and use representations (e.g., graphs, tables, equations) to draw conclusions. 5.10.1: Use a variety of strategies to solve number sentences with unknowns. *Related benchmarks at another grade level: 4.2.2: Use associative, commutative, and distributive properties as they apply to operations involving whole numbers; and, 3.2.3: Demonstrate that multiplication and division of whole numbers can undo each other.*	1	Learning opportunities should build on students' prior knowledge of and experience with division, place value and multiplication.
5.NBT.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	5.3.1: Multiply decimals up to 3 places and divide decimals by whole numbers.5.10.2: Model problem situations with objects or manipulatives and use representations (e.g., graphs, tables, equations) to draw conclusions.5.10.1: Use a variety of strategies to solve number sentences with unknowns.*Related benchmark at another grade level: 4.3.4: Add and subtract decimals to 3 places.*	2	

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Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
5.NF.1	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators, e.g., 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.)	5.1.2: Use equivalent forms of whole numbers, fractions, ratios, decimals and percents to solve problems. *Related benchmark at another grade level: 4.3.3: Use a variety of strategies to add and subtract fractions with like and unlike denominators.*	1	The rating of a "1" for the degree of match pertains to the relationship between 5.NF.1 and HCPS3 benchmark 5.1.2. The CC standard is actually more closely aligned with HCPS3 benchmark 4.3.3.
5.NF.2	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result 2/5 + 1/2 = 3/7 by observing that 3/7 < 1/2.	5.1.3: Use models, benchmarks, and equivalent forms to judge the size of fractions and order them. 5.10.2: Model problem situations with objects or manipulatives and use representations (e.g., graphs, tables, equations) to draw conclusions. *Related benchmarks at another grade level: 4.3.3: Use a variety of strategies to add and subtract fractions with like and unlike denominators; and, 4.3.5: Determine the reasonableness of numerical solutions.*	1	The second major component of the CC standard ("use benchmark fractions and number sense ...") expects students to analyze, synthesize and make judgments about the sizes of fractions, which are high cognitive demand tasks. Fifth grade teachers may find it very helpful to review the 3rd and 4th grade CC standards in the Fractions domain to design learning opportunities that make connections to and build upon students' prior knowledge of and experience with fractions. Students should have numerous opportunities to dialogue, receive feedback, reflect on and revise their thinking.
5.NF.3	Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3 and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?	5.3.2: Use a variety of strategies to multiply and divide fractions. 5.10.2: Model problem situations with objects or manipulatives and use representations (e.g., graphs, tables, equations) to draw conclusions.	1	Learning opportunities should build on students' prior knowledge of and experience with division. Using relevant contexts and relating numbers to the items they represent will help students to make sense of what the fraction represents about what is being divided/shared.

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Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
5.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. a. Interpret the product (a/b) × q as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations a × q ÷ b. For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = ac/bd.) b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	5.3.2: Use a variety of strategies to multiply and divide fractions.5.2.2: Describe situations involving multiplication and division of fractions and decimals.5.10.2: Model problem situations with objects or manipulatives and use representations (e.g., graphs, tables, equations) to draw conclusions.	2	Learning opportunities should build on students' prior knowledge of and experience with multiplication of whole numbers and with understanding what a fraction means/represents.
5.NF.5	Interpret multiplication as scaling (resizing), by: a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence a/b = (n×a)/(n×b) to the effect of multiplying a/b by 1.	5.1.3: Use models, benchmarks, and equivalent forms to judge the size of fractions and order them. 5.1.2: Use equivalent forms of whole numbers, fractions, ratios, decimals and percents to solve problems. *Related benchmarks at another grade level: 6.3.1: Use estimation prior to computing with fractions and decimals and compare the estimation to the actual result; and, 4.3.5: Determine the reasonableness of numerical solutions.*	1	This CC standard expects students to analyze, synthesize and make judgments about the sizes of fractions, which are high cognitive demand tasks. Fifth grade teachers may find it very helpful to review the 3rd and 4th grade CC standards in the Fractions domain to design learning opportunities that make connections to and build upon students' prior knowledge of and experience with fractions. Students should have numerous opportunities to dialogue, receive feedback, reflect on and revise their thinking.

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Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
5.NF.6	Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	5.3.2: Use a variety of strategies to multiply and divide fractions. 5.2.2: Describe situations involving multiplication and division of fractions and decimals. 5.10.2: Model problem situations with objects or manipulatives and use representations (e.g., graphs, tables, equations) to draw conclusions.	2	
5.NF.7	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. *(Note: Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade.)* a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication & division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$. b. Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$. c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?	5.3.2: Use a variety of strategies to multiply and divide fractions.5.2.2: Describe situations involving multiplication and division of fractions and decimals.	2	This CC standard expects students to analyze, synthesize and make judgments about the sizes of fractions, which are high cognitive demand tasks. Fifth grade teachers may find it very helpful to review the 3rd and 4th grade CC standards in the Fractions domain to design learning opportunities that make connections to and build upon students' prior knowledge of and experience with fractions. Students should have numerous opportunities to dialogue, receive feedback, reflect on and revise their thinking.Using relevant contexts and relating numbers to the items they represent will help students to make sense of what the fraction represents about what is being divided/shared.

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GRADE 5 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
5.MD.1	Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step real world problems.	5.4.1: Convert simple units within a system of measurement (e.g., millimeters to centimeters, feet to yard, quarts to gallons, grams to kilogram, minutes to hours, days to weeks).	2	The only significant difference between the CC standard and the HCPS III benchmark is that the CC standard specifies applying the skill to solve real-world problems.
5.MD.2	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.	No HCPS3 benchmark at this grade level.	N/A	This Common Core Standard is a new learning expectation for this grade level.
5.MD.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.	No HCPS3 benchmark at this grade level. *Related benchmark at another grade level: 3.4.1: Describe the concept of area and volume and the appropriate units for each.*	N/A	This Common Core Standard is a new learning expectation for this grade level. Learning opportunities should build upon students' prior knowledge of and experience with area. Fifth grade teachers may find it very helpful to review the 3rd and 4th grade CC standards regarding area to design instruction that helps students to extend their understanding of what it means to measure something (i.e., iterate a unit and count up the number of iterations) and to recognize the similarities and differences between area and volume.
5.MD.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	5.4.6: Use known measurements (e.g., length, width, and height) to calculate desired measurements (e.g., surface area and volume) of rectangular solids.	2	The previous standard (5.MD.3) focuses more on the conceptual understanding of volume, which works in tandem with this CC standard that focuses more on the skill of determining volume (but **without** introducing an algorithm/formula just yet).

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GRADE 5 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
5.MD.5	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent three-fold whole-number products as volumes, e.g., to represent the associative property of multiplication. b. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems. c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.	5.4.6: Use known measurements (e.g., length, width, and height) to calculate desired measurements (e.g., surface area and volume) of rectangular solids. 5.10.1: Use a variety of strategies to solve number sentences with unknowns.	2	This CC standard is an extension of 5.MD.3 and 5.MD.4. The CC standard focuses on volume only and does not include surface area (which was an expectation in the related HCPS III benchmark).
5.G.1	Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).	5.8.1: Determine the distance between points along horizontal and vertical lines of a coordinate system. *Related benchmark at another grade level: 4.8.1: Use ordered pairs to plot points on a coordinate grid*	2	This CC standard is students' introduction to ordered pairs and the coordinate plane. Students should have numerous experiences representing and making sense of the coordinate plane (e.g., concrete, linguistic and non-linguistic, and digital representations, as well as, kinesthetic experiences).

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Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
5.G.2	Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	5.8.1: Determine the distance between points along horizontal and vertical lines of a coordinate system. *Related benchmarks at another grade level: 6.8.1: Predict the shape that is formed by connecting the points represented by given coordinates; and, 6.8.2: Use coordinate geometry to represent and analyze properties of geometric shapes.*	1	The focus of the CC standard is on understanding and interpreting the meaning of locations specified in the coordinate plane (quadrant 1) based on the context of the real world situation provided.
5.G.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.	No HCPS3 benchmark at this grade level. *Related benchmark 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.This CC standard expects students to analyze, synthesize and make judgments about the properties and classifications of two-dimensional figures, which are high cognitive demand tasks. Fifth grade teachers may find it very helpful to review the 4th grade CC standards in the Geometry domain to design learning opportunities that make connections to and build upon students' prior knowledge of and experience. Students should have numerous opportunities to dialogue, receive feedback, reflect on and revise their thinking.
5.G.4	Classify two-dimensional figures in a hierarchy based on properties.	No HCPS3 benchmark at this grade level. *Related benchmark 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. This CC standard is an extension of 5.G.3.

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MATHEMATICS: HCPS III Benchmarks Mapped to the Common Core State Standards

GRADE 5

HCPS III Code	HCPS III Benchmark	Related Common Core Standard
5.1.1	Represent percent and ratio using pictures or objects	
5.1.2	Use equivalent forms of whole numbers, fractions, ratios, decimals, and percents to solve problems	5.NF.1, 5.NF.5
5.1.3	Use models, benchmarks, and equivalent forms to judge the size of fractions and order them	5.NF.2, 5.NF.5
5.2.1	Apply the inverse relationship between addition and subtraction, and multiplication and division, to solve problems	5.NBT.6
5.2.2	Describe situations involving multiplication and division of fractions and decimals	5.NF.4, 5.NF.6, 5.NF.7
5.3.1	Multiply decimals up to 3 places and divide decimals by whole numbers	5.NBT.7
5.3.2	Use a variety of strategies to multiply and divide fractions	5.NF.3, 5.NF.4, 5.NF.6, 5.NF.7
5.4.1	Convert simple units within a system of measurement (e.g., millimeters to centimeters, feet to yard, quarts to gallons, gram to kilogram, minutes to hours, days to weeks)	5.MD.1
5.4.2	Select and apply appropriate units and tools to measure angles	
5.4.3	Use map scales to measure the distance between locations and make simple scale drawings	
5.4.4	Estimate and measure the size of an angle	
5.4.5	Use known measurements (e.g., base and height) to calculate desired measurements (e.g., area) of triangles, parallelograms, and trapezoids	
5.4.6	Use known measurements (e.g., length, width, and height) to calculate desired measurements (e.g., surface area and volume) of rectangular solids	5.MD.4, 5.MD.5
5.5.1	Describe the properties that define classifications of three-dimensional shapes (e.g., cylinders have two bases that are circles)	
5.5.2	Apply the understanding that the sum of the measures of the angles in any triangle is 180°	
5.5.3	Classify angles (no larger than 180°) as acute, right, obtuse, or straight	
5.6.1	Predict and confirm the results of combinations of flips, turns, and slides	
5.6.2	Identify three-dimensional objects that have rotational symmetry and locate the rotational axis	
5.7.1	Use two-dimensional nets of rectangular solids to solve surface area problems	
5.8.1	Determine the distance between points along horizontal and vertical lines of a coordinate system	5.G.1, 5.G.2
5.9.1	Analyze patterns and functions and use generalizations to make reasonable predictions	5.OA.3
5.9.2	Describe situations in which the relationship between two quantities vary directly or inversely	
5.10.1	Use a variety of strategies to solve number sentences with unknowns	5.NBT.6, 5.NBT.7, 5.MD.5
5.10.2	Model problem situations with objects or manipulatives and use representations (e.g., graphs, tables, equations) to draw conclusions	5.NF.2, 5.NF.3, 5.NF.4, 5.NF.6, 5.NBT.6, 5.NBT.7
5.10.3	Describe situations with constant or varying rates (e.g., miles per hour, items per box)	
5.11.1	Collect and display data in circle graphs	
5.11.2	Recognize the difference in representing numeric data and categorical data and select appropriate representations to display each type of data	
5.12.1	Determine the range, median, mode, and mean for a data set	
5.12.2	Compare different representations of the same data and evaluate how well each representation shows important aspects of the data	
5.13.1	Design studies to further investigate the conclusion/predictions made based on data	
5.14.1	Use fractions, decimals, and percents to indicate the probability of events	
5.14.2	Determine all possible outcomes of a simple compound event	