# BENCHMARK REPORT
# MATHEMATICS GRADE 5

ARCHDIOCESE CHICAGO CATHOLIC SCHOOLS

| DOMAIN: Standards for Mathematical Content | | |
|---|---|---|
| **Status:** | **OCS Code:** | **Strand: *Operations and Algebraic Thinking (OA)*** |
| | **5.SMC.OA.1** | **Write and interpret numerical expressions.** |
| Supporting | 5.SMC.OA.1.1-1.a | Use parentheses, brackets, or braces in numerical expressions |
| **Focus** | 5.SMC.OA.1.1-2.a | Evaluate numerical expressions that use parentheses, brackets, or braces |
| **Focus** | 5.SMC.OA.1.2-1.b | Write simple expressions that record calculations with numbers |
| **Focus** | 5.SMC.OA.1.2-2.b | Interpret simple numerical expressions that record calculations with numbers without evaluating them |
| | **5.SMC.OA.2** | **Analyze patterns and relationships.** |
| **Focus** | 5.SMC.OA.2.1-1.c | Generate two numerical patterns using two given rules |
| **Focus** | 5.SMC.OA.2.1-2.c | Identify relationships that are evident between corresponding terms in two numerical patterns using two given rules |
| Supporting | 5.SMC.OA.2.1-3.c | Form ordered pairs consisting of corresponding terms in two numerical patterns using two given rules |
| Supporting | 5.SMC.OA.2.1-4.c | Graph on a coordinate plane the ordered pairs consisting of corresponding terms in two numerical patterns using two given rules |
| **Status:** | **OCS Code:** | **Strand: *Number and Operations in Base Ten (NBT)*** |
| | **5.SMC.NBT.1** | **Understand the place value system.** |
| Supporting | 5.SMC.NBT.1.1-1.a | Show 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 |
| Supporting | 5.SMC.NBT.1.1-2.a | Show that in a multi-digit number, a digit in one place represents 1/10 of what it represents in the place to its left |
| Supporting | 5.SMC.NBT.1.2-1.b | Determine patterns in the number of zeros of the product when multiplying a number by powers of 10 |
| Supporting | 5.SMC.NBT.1.2-2.b | Determine patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10 |
| Supporting | 5.SMC.NBT.1.2-3.b | Use whole-number exponents to denote powers of 10 |
| Supporting | 5.SMC.NBT.1.3-1.a | Read decimals to thousandths using base-ten numerals, number names, and expanded form |
| Supporting | 5.SMC.NBT.1.3-2.a | Write decimals to thousandths using base-ten numerals, number names, and expanded form |
| **Focus** | 5.SMC.NBT.1.3-3.b | Record the results of comparisons between two decimals to thousandths based on meanings of the digits in each place using the symbols >, =, and < |
| Supporting | 5.SMC.NBT.1.4.a | Round decimals to any place |
| | **5.SMC.NBT.2** | **Perform operations with multi-digit whole numbers and with decimals to hundredths.** |
| **Focus** | 5.SMC.NBT.2.1.a | Multiply multi-digit whole numbers fluently using the standard algorithm |
| **Focus** | 5.SMC.NBT.2.2-1.b | Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors |
| Supporting | 5.SMC.NBT.2.2-2.b | Show the calculation of whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors |
| **Focus** | 5.SMC.NBT.2.3-1.c | Add, subtract, multiply, and divide decimals to hundredths |
| Supporting | 5.SMC.NBT.2.3-2.c | Relate the strategy for decimal computation to a written method |
| **Focus** | 5.SMC.NBT.2.3-3.c | Explain the reasoning for using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction for decimal computation |
| **Status:** | **OCS Code:** | **Strand: *Number and Operations - Fractions (NF)*** |
| | **5.SMC.NF.1** | **Use equivalent fractions as a strategy to add and subtract fractions.** |
| Supporting | 5.SMC.NF.1.1.b | Add and subtract fractions with unlike denominators by replacing given fractions with equivalent fractions in order to produce an equivalent sum and difference of fractions with like denominators |
| Supporting | 5.SMC.NF.1.2-1.c | Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators |
| Supporting | 5.SMC.NF.1.2-2.c | Assess the reasonableness of solutions to word problems arrived at by mentally adding and subtracting fractions referring to the same whole |
| | **5.SMC.NF.2** | **Apply and extend previous understandings of multiplication and division to multiply and divide fractions.** |
| Supporting | 5.SMC.NF.2.1-1.c | Interpret a fraction as division of the numerator by the denominator |
| Supporting | 5.SMC.NF.2.1-2.c | Solve word problems involving division of whole numbers expressing answers in the form of fractions or mixed numbers |

Code consists of Grade (K-8),Domain (2-3 character alpha code), Strand (1-3 character alpha code), Standard (1-9), Benchmark Number (1 or 1-1 and up), and Complexity (a, b, c).

# BENCHMARK REPORT
# MATHEMATICS GRADE 5

| | | |
|---|---|---|
| Supporting | 5.SMC.NF.2.2-1.b | Interpret the product (a/b) × q as "a" parts of a partition of q into b equal parts |
| Supporting | 5.SMC.NF.2.2-2.b | Interpret the product (a/b) × q as the result of a sequence of operations a × q ÷ b |
| Supporting | 5.SMC.NF.2.2-3.a | Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths |
| Supporting | 5.SMC.NF.2.2-4.a | Compare the area of a rectangle found by tiling it with unit squares of the appropriate unit fraction side lengths to the area of a rectangle found by multiplying the side lengths |
| Supporting | 5.SMC.NF.2.2-5.b | Find the area of a rectangle by multiplying fractional side lengths |
| Supporting | 5.SMC.NF.2.2-6.b | Represent fraction products as rectangular areas |
| Supporting | 5.SMC.NF.2.3-1.a | Use scaling or resizing to compare the size of a product to the size of one factor on the basis of the size of the other factor |
| Supporting | 5.SMC.NF.2.3-2.b | Use scaling or resizing to explain why multiplying a given number by a fraction greater than one results in a product greater than the given number |
| Supporting | 5.SMC.NF.2.3-3.b | Use scaling or resizing to explain why multiplying a given number by a fraction less than one results in a product smaller than the given number |
| Supporting | 5.SMC.NF.2.3-4.b | Use scaling or resizing to relate the principle of fraction equivalence to the effect of multiplication |
| **Focus** | 5.SMC.NF.2.4.c | Solve real world problems involving multiplication of fractions and mixed numbers |
| Supporting | 5.SMC.NF.2.5-1.b | Compute quotients by dividing unit fractions by non-zero whole numbers |
| Supporting | 5.SMC.NF.2.5-2.b | Compute quotients by dividing whole numbers by unit fractions |
| Supporting | 5.SMC.NF.2.5-3.c | Solve real world problems involving division of unit fractions by non-zero whole numbers |
| Supporting | 5.SMC.NF.2.5-4.c | Solve real world problems involving division of whole numbers by unit fractions |
| **Status:** | **OCS Code:** | **Strand: *Measurement and Data (MD)*** |
| | **5.SMC.MD.1** | **Convert like measurement units within a given measurement system.** |
| **Focus** | 5.SMC.MD.1.1-1.a | Convert different-sized standard measurement units within a given measurement system |
| **Focus** | 5.SMC.MD.1.1-2.a | Solve multi-step, real world problems by converting different-sized standard measurement units within a given measurement system |
| | **5.SMC.MD.2** | **Represent and interpret data.** |
| **Focus** | 5.SMC.MD.2.1-1.b | Make a line plot to display a data set of measurements in fractions of a unit |
| **Focus** | 5.SMC.MD.2.1-2.b | Solve problems involving information presented in line plots by using operations on fractions |
| | **5.SMC.MD.3** | **Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.** |
| Supporting | 5.SMC.MD.3.1-1.a | Show that volume can be measured by one cubic unit with a side length 1 unit, called a "unit cube" |
| Supporting | 5.SMC.MD.3.1-2.b | Show that volume of n cubic units is made up of n unit cubes without gaps or overlaps |
| Supporting | 5.SMC.MD.3.2.b | Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units |
| Supporting | 5.SMC.MD.3.3-1.b | Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes |
| Supporting | 5.SMC.MD.3.3-2.b | Compare the volume of a right rectangular prism with whole-number side lengths, found by packing it with unit cubes, to the volume found by multiplying the edge lengths, to the volume found by multiplying the height by the area of the base |
| Supporting | 5.SMC.MD.3.3-3.b | Represent threefold whole-number products as volumes |
| Supporting | 5.SMC.MD.3.3-4.c | Solve real world and mathematical problems by finding the volume of right rectangular prisms with whole number edge lengths using the formula V = l x w x h |
| Supporting | 5.SMC.MD.3.3-5.c | Solve real world and mathematical problems by finding the volume of right rectangular prisms with whole number edge lengths using the formula V = b x h |
| Supporting | 5.SMC.MD.3.3-6.c | Demonstrate that volume is additive by finding volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts |
| Supporting | 5.SMC.MD.3.3-7.c | Solve real world problems by adding the volumes of non-overlapping parts to find the volume of a solid figure composed of two non-overlapping right rectangular prisms |
| **Status:** | **OCS Code:** | **Strand: *Geometry (G)*** |
| | **5.SMC.G.1** | **Graph points on the coordinate plane to solve real-world and mathematical problems.** |
| Supporting | 5.SMC.G.1.1-1.a | Define a coordinate system using a pair of perpendicular number lines that intersect with the 0 and a given point located by using an ordered pair of numbers |

# BENCHMARK REPORT
# MATHEMATICS GRADE 5

| | | |
|---|---|---|
| Supporting | 5.SMC.G.1.1-2.a | Identify that in an ordered pair of numbers located in a plane, 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 |
| Supporting | 5.SMC.G.1.1-3.a | Identify that in an ordered pair of numbers located in a plane, the names of the two axes and the coordinates correspond |
| **Focus** | 5.SMC.G.1.2-1.b | Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane |
| **Focus** | 5.SMC.G.1.2-2.b | Solve real world and mathematical problems by interpreting coordinate values of points in the first quadrant of the coordinate plane |
| | **5.SMC.G.2** | **Classify two-dimensional figures into categories based on their properties.** |
| **Focus** | 5.SMC.G.2.1.c | Compare the attributes belonging to a category of two-dimensional figures to the attributes of all subcategories of that category |
| **Focus** | 5.SMC.G.2.2.c | Classify two-dimensional figures in a hierarchy based on properties |
| **DOMAIN: Standards for Mathematical Practices** | | |
| **Status:** | **OCS Code:** | **Strand: *Solve Problems (MP1)*** |
| | **5.SMP.1** | **1. Make sense of problems and persevere in solving them.** |
| **Focus** | 5.SMP.1.c | Make sense of problems and persevere in solving them |
| **Status:** | **OCS Code:** | **Strand: *Reason (MP2)*** |
| | **5.SMP.2** | **2. Reason abstractly and quantitatively.** |
| **Focus** | 5.SMP.2.c | Reason abstractly and quantitatively |
| **Status:** | **OCS Code:** | **Strand: *Construct Arguments (MP3)*** |
| | **5.SMP.3** | **3. Construct viable arguments and critique the reasoning of others.** |
| Supporting | 5.SMP.3.c | Construct viable arguments and critique the reasoning of others |
| **Status:** | **OCS Code:** | **Strand: *Model (MP4)*** |
| | **5.SMP.4** | **4. Model with mathematics.** |
| Supporting | 5.SMP.4.c | Model with mathematics |
| **Status:** | **OCS Code:** | **Strand: *Use Tools (MP5)*** |
| | **5.SMP.5** | **5. Use appropriate tools strategically.** |
| **Focus** | 5.SMP.5.c | Use appropriate tools strategically |
| **Status:** | **OCS Code:** | **Strand: *Attend to Precision (MP6)*** |
| | **5.SMP.6** | **6. Attend to precision.** |
| **Focus** | 5.SMP.6.c | Attend to precision |
| **Status:** | **OCS Code:** | **Strand: *Use Structure (MP7)*** |
| | **5.SMP.7** | **7. Look for and make use of structure.** |
| Supporting | 5.SMP.7.c | Look for and make use of structure |
| **Status:** | **OCS Code:** | **Strand: *Express Regularity (MP8)*** |
| | **5.SMP.8** | **8. Look for and express regularity in repeated reasoning.** |
| Supporting | 5.SMP.8.c | Look for and express regularity in repeated reasoning |

Code consists of Grade (K-8),Domain (2-3 character alpha code), Strand (1-3 character alpha code), Standard (1-9), Benchmark Number (1 or 1-1 and up), and Complexity (a, b, c).