
*The mission of the Chardon Local Schools is high achievement
for all students where learning is our most important work.*

Course of Study – MATH

Revised November 2021

4TH GRADE





Course of Study — MATH — Revised November 2021

4th Grade

Strand: Operations and Algebraic Thinking

<p>Learning Standard:</p> <p>4.OA.1 Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
<p>Materials:</p> <ul style="list-style-type: none">• Workbooks• Board Adopted Materials	<p>How Assessed?</p> <p>Assessments may include, but are not limited to:</p> <ul style="list-style-type: none">• Pre-Assessments (pre-tests, observation, questioning, diagnostics)• Formative Assessments (entry/exit slips, group work, discussions, homework/classwork, observations)• Summative Assessments (using rubrics; tests/exams)
	<p>How Re-Taught?</p> <p>Re-teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• breaking down concept into smaller components• presenting the information again in a different way• data-driven interventions• practice activities such as computer tutorials, games, hands-on activities• review sessions



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Strand: Operations and Algebraic Thinking

<p>Learning Standard:</p> <p>4.OA.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. See Table 2, page 19. Drawings need not show details, but should show the mathematics in the problem.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
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Strand: Operations and Algebraic Thinking

<p>Learning Standard:</p> <p>4.OA.3 Solve multistep word problems posed with whole numbers and having whole number answers using the four operations, including problems in which remainders must be interpreted. 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.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
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Strand: Operations and Algebraic Thinking

<p>Learning Standard:</p> <p>4.OA.4 Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
<p>Materials:</p> <ul style="list-style-type: none">• Workbooks• Board Adopted Materials	<p>How Assessed?</p> <p>Assessments may include, but are not limited to:</p> <ul style="list-style-type: none">• Pre-Assessments (pre-tests, observation, questioning, diagnostics)• Formative Assessments (entry/exit slips, group work, discussions, homework/classwork, observations)• Summative Assessments (using rubrics; tests/exams)
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Strand: Operations and Algebraic Thinking

<p>Learning Standard:</p> <p>4.OA.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
<p>Materials:</p> <ul style="list-style-type: none">• Workbooks• Board Adopted Materials	<p>How Assessed?</p> <p>Assessments may include, but are not limited to:</p> <ul style="list-style-type: none">• Pre-Assessments (pre-tests, observation, questioning, diagnostics)• Formative Assessments (entry/exit slips, group work, discussions, homework/classwork, observations)• Summative Assessments (using rubrics; tests/exams)
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Strand: Number and Operations in Base Ten

<p>Learning Standard:</p> <p>4.NBT.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right by applying concepts of place value, multiplication, or division.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none"> • Direct Instruction • Cooperative Groups • Stations • Data Driven Instruction • Scaffolding
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Strand: Number and Operations in Base Ten

<p>Learning Standard:</p> <p>4.NBT.2 Read and write multi-digit whole numbers using standard form, word form, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons. Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
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Strand: Number and Operations in Base Ten

<p>Learning Standard:</p> <p>4.NBT.3 Use place value understanding to round multi-digit whole numbers to any place through 1,000,000.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
<p>Materials:</p> <ul style="list-style-type: none">• Workbooks• Board Adopted Materials	<p>How Assessed?</p> <p>Assessments may include, but are not limited to:</p> <ul style="list-style-type: none">• Pre-Assessments (pre-tests, observation, questioning, diagnostics)• Formative Assessments (entry/exit slips, group work, discussions, homework/classwork, observations)• Summative Assessments (using rubrics; tests/exams)
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Strand: Number and Operations in Base Ten

<p>Learning Standard:</p> <p>4.NBT.4 Fluently add and subtract multi-digit whole numbers using a standard algorithm.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
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Strand: Number and Operations in Base Ten

<p>Learning Standard:</p> <p>4.NBT.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
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Strand: Number and Operations in Base Ten

<p>Learning Standard:</p> <p>4.NBT.6 Find whole number quotients and remainders with up to four digit dividends and one-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.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
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Strand: Number and Operations-Fractions

<p>Learning Standard:</p> <p>4.NF.1 Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
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Strand: Number and Operations-Fractions

<p>Learning Standard:</p> <p>4.NF.2 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
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Strand: Number and Operations-Fractions

<p>Learning Standard:</p> <p>4.NF.3 Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.</p> <p>a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.</p> <p>b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: $3/8 = 1/8 + 1/8 + 1/8$; $3/8 = 1/8 + 2/8$; $2 \frac{1}{8} = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$.</p> <p>c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.</p> <p>d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding <hr/> <p>How Assessed?</p> <p>Assessments may include, but are not limited to:</p> <ul style="list-style-type: none">• Pre-Assessments (pre-tests, observation, questioning, diagnostics)• Formative Assessments (entry/exit slips, group work, discussions, homework/classwork, observations)• Summative Assessments (using rubrics; tests/exams)
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Strand: Number and Operations-Fractions

<p>Learning Standard:</p> <p>4.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</p> <p>a. Understand a fraction a/b as a multiple of $1/b$. For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$ or $5/4 = (1/4) + (1/4) + (1/4) + (1/4) + (1/4)$.</p> <p>b. Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$.)</p> <p>c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat $3/8$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
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Strand: Number and Operations-Fractions

<p>Learning Standard:</p> <p>4.NF.5</p> <p>Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. For example, express $\frac{3}{10}$ as $\frac{30}{100}$, and add $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$. In general, students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators, but addition and subtraction with unlike denominators is not a requirement at this grade</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
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Strand: Number and Operations-Fractions

<p>Learning Standard:</p> <p>4.NF.6</p> <p>Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as $\frac{62}{100}$; describe a length as 0.62 meters; locate 0.62 on a number line diagram.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
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Strand: Number and Operations-Fractions

<p>Learning Standard:</p> <p>4.NF.7</p> <p>Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
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Strand: Measurement and Data

<p>Learning Standard:</p> <p>4.MD.1</p> <p>Know relative sizes of the metric measurement units within one system of units. Metric units include kilometer, meter, centimeter, and millimeter; kilogram and gram; and liter and milliliter. Express a larger measurement unit in terms of a smaller unit. Record measurement conversions in a two-column table.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none"> • Direct Instruction • Cooperative Groups • Stations • Data Driven Instruction • Scaffolding
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Strand: Measurement and Data

<p>Learning Standard:</p> <p>4.MD.2</p> <p>Solve real-world problems involving money, time, and metric measurement. a. Using models, add and subtract money and express the answer in decimal notation. b. Using number line diagrams, clocks, or other models, add and subtract intervals of time in hours and minutes. c. Add, subtract, and multiply whole numbers to solve metric measurement problems involving distances, liquid volumes, and masses of objects</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
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4th Grade

Strand: Measurement and Data

<p>Learning Standard:</p> <p>4.MD.3</p> <p>Develop efficient strategies to determine the area and perimeter of rectangles in real-world situations and mathematical problems.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
<p>Materials:</p> <ul style="list-style-type: none">• Workbooks• Board Adopted Materials	<p>How Assessed?</p> <p>Assessments may include, but are not limited to:</p> <ul style="list-style-type: none">• Pre-Assessments (pre-tests, observation, questioning, diagnostics)• Formative Assessments (entry/exit slips, group work, discussions, homework/classwork, observations)• Summative Assessments (using rubrics; tests/exams)
	<p>How Re-Taught?</p> <p>Re-teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• breaking down concept into smaller components• presenting the information again in a different way• data-driven interventions• practice activities such as computer tutorials, games, hands-on activities• review sessions



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Strand: Measurement and Data

<p>Learning Standard:</p> <p>4.MD.4</p> <p>Display and interpret data in graphs (picture graphs, bar graphs, and line plots) to solve problems using numbers and operations for this grade.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
<p>Materials:</p> <ul style="list-style-type: none">• Workbooks• Board Adopted Materials	<p>How Assessed?</p> <p>Assessments may include, but are not limited to:</p> <ul style="list-style-type: none">• Pre-Assessments (pre-tests, observation, questioning, diagnostics)• Formative Assessments (entry/exit slips, group work, discussions, homework/classwork, observations)• Summative Assessments (using rubrics; tests/exams) <p>How Re-Taught?</p> <p>Re-teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• breaking down concept into smaller components• presenting the information again in a different way• data-driven interventions• practice activities such as computer tutorials, games, hands-on activities• review sessions



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Strand: Measurement and Data

<p>Learning Standard:</p> <p>4.MD.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement. a. Understand an angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a “one-degree angle,” and can be used to measure angles. b. Understand an angle that turns through n one-degree angles is said to have an angle measure of n degrees</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
<p>Materials:</p> <ul style="list-style-type: none">• Workbooks• Board Adopted Materials	<p>How Assessed?</p> <p>Assessments may include, but are not limited to:</p> <ul style="list-style-type: none">• Pre-Assessments (pre-tests, observation, questioning, diagnostics)• Formative Assessments (entry/exit slips, group work, discussions, homework/classwork, observations)• Summative Assessments (using rubrics; tests/exams)
	<p>How Re-Taught?</p> <p>Re-teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• breaking down concept into smaller components• presenting the information again in a different way• data-driven interventions• practice activities such as computer tutorials, games, hands-on activities• review sessions



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Strand: Measurement and Data

<p>Learning Standard:</p> <p>4.MD.6</p> <p>Measure angles in whole number degrees using a protractor. Sketch angles of specified measure.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
<p>Materials:</p> <ul style="list-style-type: none">• Workbooks• Board Adopted Materials	<p>How Assessed?</p> <p>Assessments may include, but are not limited to:</p> <ul style="list-style-type: none">• Pre-Assessments (pre-tests, observation, questioning, diagnostics)• Formative Assessments (entry/exit slips, group work, discussions, homework/classwork, observations)• Summative Assessments (using rubrics; tests/exams)
	<p>How Re-Taught?</p> <p>Re-teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• breaking down concept into smaller components• presenting the information again in a different way• data-driven interventions• practice activities such as computer tutorials, games, hands-on activities• review sessions



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Strand: Measurement and Data

<p>Learning Standard:</p> <p>4.MD.7</p> <p>Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
<p>Materials:</p> <ul style="list-style-type: none">• Workbooks• Board Adopted Materials	<p>How Assessed?</p> <p>Assessments may include, but are not limited to:</p> <ul style="list-style-type: none">• Pre-Assessments (pre-tests, observation, questioning, diagnostics)• Formative Assessments (entry/exit slips, group work, discussions, homework/classwork, observations)• Summative Assessments (using rubrics; tests/exams)
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Strand: Geometry

<p>Learning Standard:</p> <p>4.G.1</p> <p>Draw points, lines, line segments, rays, angles (right, acute, and obtuse), and perpendicular and parallel lines. Identify these in two dimensional figures.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
<p>Materials:</p> <ul style="list-style-type: none">• Workbooks• Board Adopted Materials	<p>How Assessed?</p> <p>Assessments may include, but are not limited to:</p> <ul style="list-style-type: none">• Pre-Assessments (pre-tests, observation, questioning, diagnostics)• Formative Assessments (entry/exit slips, group work, discussions, homework/classwork, observations)• Summative Assessments (using rubrics; tests/exams)
	<p>How Re-Taught?</p> <p>Re-teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• breaking down concept into smaller components• presenting the information again in a different way• data-driven interventions• practice activities such as computer tutorials, games, hands-on activities• review sessions



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Strand: Geometry

<p>Learning Standard:</p> <p>4.G.2</p> <p>Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size.</p>	<p>How Taught?</p> <p>Teaching activities may include, but are not limited to:</p> <ul style="list-style-type: none">• Direct Instruction• Cooperative Groups• Stations• Data Driven Instruction• Scaffolding
<p>Materials:</p> <ul style="list-style-type: none">• Workbooks• Board Adopted Materials	<p>How Assessed?</p> <p>Assessments may include, but are not limited to:</p> <ul style="list-style-type: none">• Pre-Assessments (pre-tests, observation, questioning, diagnostics)• Formative Assessments (entry/exit slips, group work, discussions, homework/classwork, observations)• Summative Assessments (using rubrics; tests/exams)
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