**4th Grade Mathematics — Performance Level Descriptors**

<table>
<thead>
<tr>
<th>Reporting Categories</th>
<th>Needs Support</th>
<th>Close</th>
<th>Ready</th>
<th>Exceeding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operations and Algebraic Thinking</strong></td>
<td>A student performing at the Needs Support level:</td>
<td>A student performing at the Close level:</td>
<td>A student performing at the Ready level:</td>
<td>A student performing at the Exceeding level:</td>
</tr>
<tr>
<td>• solves two-step number sentences.</td>
<td>• solves problems involving prime numbers, factors, and multiples.</td>
<td>• solves multi-step word problems with whole numbers and having whole-number answers.</td>
<td>• solves multi-step real-world problems involving operations with multi-digit numbers.</td>
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<tr>
<td>• identifies, describes, and expands shape patterns.</td>
<td>• extends a number pattern that is presented in a context to solve a problem.</td>
<td>• finds a point of entry to solve problems involving whole numbers, fractions, and decimals.</td>
<td>• provides questions and solves problems involving prime numbers, factors, and multiples and explains their reasoning.</td>
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<tr>
<td>• converts a one-digit whole number by a two-digit whole number.</td>
<td>• makes sense of multi-step problems involving all four operations with whole numbers.</td>
<td>• solves multi-step word problems with whole numbers and having whole-number answers.</td>
<td>• provides coherence, logical argument or solution pathway by providing evidence to support claims.</td>
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<tr>
<td><strong>Number and Operations in Base Ten</strong></td>
<td>A student performing at the Needs Support level:</td>
<td>A student performing at the Close level:</td>
<td>A student performing at the Ready level:</td>
<td>A student performing at the Exceeding level:</td>
</tr>
<tr>
<td>• uses place value understanding and a given model to round whole numbers within 100,000.</td>
<td>• converts number names for multi-digit whole numbers to base-ten numerals.</td>
<td>• multiplies a one-digit whole number by a four-digit whole number; multiplies two two-digit whole numbers.</td>
<td>• provides a coherent, logical argument or solution pathway by providing evidence to support claims.</td>
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<tr>
<td>• multiplies a one-digit whole number by a three-digit whole number.</td>
<td>• uses place value to recognize the value of digits within 100,000.</td>
<td>• uses place value to understand the value of whole numbers within 100,000.</td>
<td>• provides through justification and defends conclusions by using multiple, connected statements and incorporating justification techniques such as explaining errors in reasoning or calculations, providing counterexamples, applying relevant classification schemes, and/or verifying statements or claims used to draw a conclusion.</td>
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<tr>
<td>• converts visual representations of multi-digit whole numbers to base-ten numerals.</td>
<td>• converts multi-digit whole numbers between word form and base-ten numerals.</td>
<td>• writes a multi-digit whole number in expanded form using addition and multiplication.</td>
<td>• provides through justification and defends conclusions by using multiple, connected statements and incorporating justification techniques such as explaining errors in reasoning or calculations, providing counterexamples, applying relevant classification schemes, and/or verifying statements or claims used to draw a conclusion.</td>
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<tr>
<td><strong>Number and Operations—Fractions</strong></td>
<td>A student performing at the Needs Support level:</td>
<td>A student performing at the Close level:</td>
<td>A student performing at the Ready level:</td>
<td>A student performing at the Exceeding level:</td>
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<tr>
<td>• adds and subtracts fractions with common denominators.</td>
<td>• solves mathematical or real-world problems involving addition and subtraction of fractions referring to the same whole with equal denominators.</td>
<td>• compares decimals between 0 and 1 to hundredths.</td>
<td>• compares two fractions with different numerators and different denominators by creating common denominators and explains how they know their comparison is correct.</td>
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<tr>
<td>• compares decimals to the hundredths using a given model (number lines, visual models, etc.).</td>
<td>• recognizes and generates equivalent fractions using visual fraction models.</td>
<td>• solves mathematical or real-world problems involving addition and subtraction of mixed numbers referring to the same whole with like common denominators.</td>
<td>• compares decimals to hundredths when presented in a real-world context.</td>
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<tr>
<td><strong>Measurement and Data</strong></td>
<td>A student performing at the Needs Support level:</td>
<td>A student performing at the Close level:</td>
<td>A student performing at the Ready level:</td>
<td>A student performing at the Exceeding level:</td>
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<tr>
<td>• answers basic questions about a simple line plot.</td>
<td>• solves problems involving addition and subtraction of fractions referring to the same whole with like common denominators.</td>
<td>• uses number lines to solve addition and subtraction of fractions referring to the same whole with like common denominators.</td>
<td>• uses decimal notation for fractions with denominators of 10 or 100.</td>
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<td>• selects the appropriate tool to use in a situation.</td>
<td>• solves problems involving addition and subtraction of fractions referring to the same whole with like common denominators.</td>
<td>• converts measurements in fractional amounts expressed in a measurement system's larger unit in terms of as smaller unit in real-world situations.</td>
<td>• uses appropriate tools to solve complex and multi-step problems.</td>
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<td><strong>Geometry</strong></td>
<td>A student performing at the Needs Support level:</td>
<td>A student performing at the Close level:</td>
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<td>A student performing at the Exceeding level:</td>
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<td>• identifies representations of points, lines, line segments, rays, and angles.</td>
<td>• classifies two-dimensional figures based on the presence or absence of parallel or perpendicular lines.</td>
<td>• solves problems involving length and distance, using all four operations with whole numbers, fractions, and decimals.</td>
<td>• selects and uses appropriate tools to solve complex and multi-step problems.</td>
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<tr>
<td><strong>Modeling</strong></td>
<td>A student performing at the Needs Support level:</td>
<td>A student performing at the Close level:</td>
<td>A student performing at the Ready level:</td>
<td>A student performing at the Exceeding level:</td>
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<tr>
<td>• uses a diagram of a 2-dimensional figure to recognize a line of symmetry.</td>
<td>• identifies angles in a diagram or drawing of two-dimensional figures as right, acute, or obtuse.</td>
<td>• draws conclusions using both specific and general evidentiary statements.</td>
<td>• contextualizes and decontextualizes real-world situations.</td>
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<tr>
<td>• uses place value blocks with fractions and decimals to represent and solve problems.</td>
<td>• understands that a line of symmetry for a two-dimensional figure is a line across the figure such that the figure would be divided into matching parts if it were folded on the line.</td>
<td>• uses number lines and area models to multiply.</td>
<td>• provides through justification and defends conclusions by using multiple, connected statements and incorporating justification techniques such as explaining errors in reasoning or calculations, providing counterexamples, applying relevant classification schemes, and/or verifying statements or claims used to draw a conclusion.</td>
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<td>• uses number lines to solve addition and subtraction of whole numbers.</td>
<td>• uses the distributive property to decompose and recompose numbers.</td>
<td>• estimates to check the result of a calculation.</td>
<td>• provides through justification and defends conclusions by using multiple, connected statements and incorporating justification techniques such as explaining errors in reasoning or calculations, providing counterexamples, applying relevant classification schemes, and/or verifying statements or claims used to draw a conclusion.</td>
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<td><strong>Justification and Explanation</strong></td>
<td>A student performing at the Needs Support level:</td>
<td>A student performing at the Close level:</td>
<td>A student performing at the Ready level:</td>
<td>A student performing at the Exceeding level:</td>
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<td>• gives reasons, explaining &quot;Why?&quot;.</td>
<td>• explains steps of a procedure.</td>
<td>• provides a coherent, logical argument or solution pathway by providing evidence to support claims.</td>
<td>• provides through justification and defends conclusions by using multiple, connected statements and incorporating justification techniques such as explaining errors in reasoning or calculations, providing counterexamples, applying relevant classification schemes, and/or verifying statements or claims used to draw a conclusion.</td>
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<td>• states a property, definition, or relationships between two or more objects.</td>
<td>• provides a counterexample.</td>
<td>• provides a coherent, logical argument or solution pathway by providing evidence to support claims.</td>
<td>• provides through justification and defends conclusions by using multiple, connected statements and incorporating justification techniques such as explaining errors in reasoning or calculations, providing counterexamples, applying relevant classification schemes, and/or verifying statements or claims used to draw a conclusion.</td>
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<tr>
<td>• uses a single statement to draw a conclusion.</td>
<td>• uses a pattern or sequence to support an argument.</td>
<td>• uses a pattern or sequence to support an argument.</td>
<td>• provides through justification and defends conclusions by using multiple, connected statements and incorporating justification techniques such as explaining errors in reasoning or calculations, providing counterexamples, applying relevant classification schemes, and/or verifying statements or claims used to draw a conclusion.</td>
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### Integrating Essential Skills

Integrate and continue to grow with topics from prior grades.

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| **Integrating Essential Skills** | - multiplies through 12 × 12 with models.  
- matches the number of parts in a whole to a given model.  
- recognizes polygons of up to 8 sides.  
- identifies a pattern.  
- identifies and gives the value of the digits in different place values with visual models.  
- recalls basic facts using the four operations.  
- uses standard measurement tools to measure objects and uses the measurements to create data.  
- selects the appropriate tool to use in a situation. | - constructs arguments.  
- uses a diagram of a two-dimensional figure to recognize a line of symmetry.  
- uses place value blocks to represent and solve questions with whole numbers.  
- uses number lines to solve addition and subtraction of whole numbers.  
- restates the problem and supplies reasoning statements that are true but not effective.  
- provides an example, computation, or one more steps in a procedure.  
- states a property, definition, or relationships between two or more objects.  
- uses a single statement to draw a conclusion. | - solves multi-step real-world problems addressing concepts from the previous grade, including whole number rounding concepts, multi-digit operations with whole numbers, geometric properties.  
- explains the desired number of parts, equal sized parts, and exhausting the whole.  
- relates rectangular arrays to area, multiplication and division.  
- solves two-step word problems using the four operations with whole numbers and having whole-number answers.  
- creates numbers sentences from a given situation involving only addition and subtraction or only multiplication and division. | - solves and explains their process and solutions for multi-step, multi-part problems addressing concepts from the previous grades, including rounding; area, perimeter, and elapsed time measurements; properties of quadrilaterals; and fraction concepts, including fraction equivalence.  
- composes and decomposes complex geometric shapes. |
| **Mathematical Practices** | - justifies and defends conclusions by explaining errors in reasoning or calculations, providing counterexamples, applying relevant classification schemes, and/or verifying statements or claims used to draw a conclusion.  
- constructs arguments with minimal errors.  
- recognizes that repeated addition and subtraction relate to multiplication and division.  
- attends to precision when using a ruler and measures within ½ inch.  
- uses a given model to solve real-world situations.  
- uses place value blocks with fractions and decimals to represent and solve questions.  
- provides a partially effective explanation of their reasoning.  
- explains a pattern using words, algebraic expressions, numeric operations.  
- generates a sequence from a rule.  
- uses conditional statements.  
- draws and labels relevant visual representations.  
- explains steps of a procedure.  
- provides a counterexample.  
- uses a pattern or sequence to support an argument. | - justifies and defends conclusions by explaining errors in reasoning or calculations, providing counterexamples, applying relevant classification schemes, and/or verifying statements or claims used to draw a conclusion.  
- constructs arguments and performs simple error analysis.  
- makes sense of multi-step problems involving all four operations with whole numbers.  
- attends to the meaning of quantities.  
- uses the distributive property to decompose and recompose numbers.  
- estimates to check the result of a calculation.  
- uses the mathematical symbols <, =, > appropriately.  
- decomposes and recomposes mixed numbers.  
- attends to precision when using a tool.  
- uses appropriate vocabulary.  
- recognizes a two-dimensional figure based on a verbal description of the properties of the figure and creates and uses diagrams of two-dimensional figures to analyze relationships between quantities.  
- determines an appropriate model for a given real-world situation (area and fraction models, number lines, etc.).  
- uses and creates area models for multiplication.  
- draws conclusions using both specific and general evidentiary statements.  
- provides general support for a claim in order to reach a conclusion.  
- uses and cites conditional statements, specific aspects of created visual representations, and/or computations or procedures to clarify an argument or draw a conclusion. | - finds a point of entry to solve problems involving whole numbers, fractions, and decimals.  
- contextualizes and decontextualizes real-world situations.  
- selects and uses appropriate tools to solve complex and multi-step problems.  
- uses models to visualize results and compare predictions with data.  
- analyzes a geometric model, a frequency plot, a data table, or a Venn diagram to solve a problem presented in a context.  
- creates and uses an appropriate model to solve real-world situations (area and fraction models, number lines, etc.).  
- provides a coherent, logical argument or solution pathway by providing evidence to support claims.  
- provides thorough justification and defends conclusions by using multiple, connected statements and incorporating justification techniques such as explaining errors in reasoning or calculations, providing counterexamples, applying relevant classification schemes, and/or verifying statements or claims used to draw a conclusion. | - constructs viable arguments and performs simple error analysis.  
- makes sense of multi-step problems involving all four operations with whole numbers.  
- attends to the meaning of quantities.  
- uses the distributive property to decompose and recompose numbers.  
- estimates to check the result of a calculation.  
- uses the mathematical symbols <, =, > appropriately.  
- decomposes and recomposes mixed numbers.  
- attends to precision when using a tool.  
- uses appropriate vocabulary.  
- recognizes a two-dimensional figure based on a verbal description of the properties of the figure and creates and uses diagrams of two-dimensional figures to analyze relationships between quantities.  
- determines an appropriate model for a given real-world situation (area and fraction models, number lines, etc.).  
- uses and creates area models for multiplication.  
- draws conclusions using both specific and general evidentiary statements.  
- provides general support for a claim in order to reach a conclusion.  
- uses and cites conditional statements, specific aspects of created visual representations, and/or computations or procedures to clarify an argument or draw a conclusion. |