

Grade 4 RICAS Mathematics Achievement Level Descriptors

(Updated March 2022)

Student results on the RICAS assessments are reported according to four achievement levels:

- **Exceeding Expectations**

A student who performed at this level exceeded grade-level expectations by demonstrating mastery of the subject matter.

- **Meeting Expectations**

A student who performed at this level met grade-level expectations and is academically on-track to succeed in the current grade in this subject.

- **Partially Meeting Expectations**

A student who performed at this level partially met grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should consider whether the student needs additional academic assistance to succeed in this subject.

- **Not Meeting Expectations**

A student who performed at this level did not meet grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should determine the coordinated academic assistance and/or additional instruction the student needs to succeed in this subject.

The descriptors included in the table below illustrate the knowledge and skills students demonstrate on RICAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students' work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.



Adopted from [2019 MCAS Next-Generation Achievement Level Descriptors](#)

Grade 4 RICAS Achievement Level Descriptors – General Performance

Grade 4	Partially Meets Expectations <i>On RICAS, a student at this level:</i>	Meeting Expectations <i>On RICAS, a student at this level:</i>	Exceeding Expectations <i>On RICAS, a student at this level:</i>
Conceptual Understanding and Procedural Knowledge	<ul style="list-style-type: none"> • demonstrates partial understanding of the numeration system • performs some calculations and estimations • identifies examples of basic math concepts • reads and constructs graphs, tables, • and charts 	<ul style="list-style-type: none"> • demonstrates solid understanding of the numeration system • performs most calculations and estimations • defines concepts and generates examples and counterexamples of concepts • represents data and mathematical relationships in multiple forms • (e.g., equations, graphs) 	<ul style="list-style-type: none"> • connects concepts from various areas of mathematics, and uses concepts to develop generalizations • performs complex calculations and estimations • selects the best representations for a given set of data and purpose
Problem Solving	<ul style="list-style-type: none"> • applies learned procedures to solve routine problems 	<ul style="list-style-type: none"> • applies learned procedures and mathematical concepts to solve a variety of problems, including multi-step problems 	<ul style="list-style-type: none"> • generates unique strategies and procedures to solve non-routine problems
Mathematical Reasoning	<ul style="list-style-type: none"> • applies some reasoning methods to solve simple problems 	<ul style="list-style-type: none"> • uses a variety of reasoning methods to solve problems • explains steps and procedures 	<ul style="list-style-type: none"> • uses multiple reasoning methods to solve complex problems • justifies strategies and solutions
Mathematical Communication	<ul style="list-style-type: none"> • identifies and uses basic mathematical terms 	<ul style="list-style-type: none"> • uses various forms of representation (e.g., text, graphs, symbols) to illustrate steps to a solution 	<ul style="list-style-type: none"> • uses various forms of representation (e.g., text, graphs, symbols) to justify solutions and solution strategies

Grade 4 RICAS Achievement Level Descriptors – Content Specific

Grade 4	Partially Meets Expectations <i>On RICAS, a student at this level:</i>	Meeting Expectations <i>On RICAS, a student at this level:</i>	Exceeding Expectations <i>On RICAS, a student at this level:</i>
Operations and Algebraic Thinking	<ul style="list-style-type: none"> • Interprets a multiplication equation as a comparison • Solves multiplication and division word problems • Solves two-step word problems using the four operations with whole numbers, including problems where remainders must be interpreted • Identifies multiplication facts through 12 x 12 • Identifies factor pairs in the 1-100 range • Identifies a pattern that follows a rule 	<ul style="list-style-type: none"> • Recognizes verbal statements of multiplicative comparisons as multiplication equations. • Represents multiplication and division word problems using drawings and equations • Uses the four operations to solve multi-step word problems and represents the problems by equations • Identifies related multiplication and division facts through 12 x 12 • Finds factor pairs in the 1-100 range and recognizes that a whole number is a multiple of each of its factors • Distinguishes between prime and composite numbers in the range 1-100 • Identifies a pattern that follows a rule and generates a pattern, given a rule 	<ul style="list-style-type: none"> • Explains the difference between multiplicative and additive comparison • Uses equations to represent problems, and justifies solutions with estimation • Identifies multiples and their corresponding factors and distinguishes between prime and composite numbers. • Generates patterns not explicit to the rule • Uses estimation to assess the reasonableness of answers

Grade 4 RICAS Achievement Level Descriptors – Content Specific

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Number and Operations in Base Ten	<ul style="list-style-type: none"> • Reads and writes whole numbers using base-ten number names and expanded form • Uses place value understanding to round whole numbers to the thousands place • Solves problems involving multiplication of four digit numbers by a one-digit numbers • Solves problems involving quotients and remainders with up to three-digit dividends and one-digit divisors based on place value and properties of operations 	<ul style="list-style-type: none"> • Uses place value to recognize that in a multi-digit number, a digit in any place represents 10 times as much as it represents in the place to its right • Compares two multi-digit numbers based on place value position using $<$, $>$ and $=$ • Uses place value understanding to round whole numbers to the ten thousands place • Adds and subtracts whole numbers using the standard algorithm • Solves problems involving multiplication of two-digit numbers by two-digit numbers • Solves problems involving quotients and remainders with up to four-digit dividends and one-digit divisors, using the relationship between multiplication and division understanding 	<ul style="list-style-type: none"> • Uses place value understanding to round whole numbers up to one million • Uses understanding of structure to explain the standard algorithm for addition and subtraction. • Solves problems involving multiplication of four digit numbers by one-digit, and justifies solutions by using equations, rectangular arrays or area models. • Justifies solutions using equations, rectangular arrays, and/or area models

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Number and Operations – Fractions	<ul style="list-style-type: none"> • Recognizes equivalency in fractions • Compares fractions with different numerators and different denominators by using common denominators or common numerators • Decomposes fractions into a sum of fractions and uses visual fraction models to solve problems • Multiplies a fraction by a whole number 	<ul style="list-style-type: none"> • Explains why fractions are equivalent using visual fraction models • Consistently compares two fractions when the two fractions refer to the same whole • Consistently compares two decimals when the two decimals refer to the same whole • Compares fractions with different numerators and different denominators by comparing to a benchmark fraction • Adds and subtracts fractions with like denominators • Decomposes fractions into a sum of fractions and uses equations to solve problems • Adds and subtracts mixed numbers with like denominators by replacing with equivalent fraction and by using properties of operations or the relationship of addition and subtraction • Uses visual fraction models and equations to solve word problems involving multiplication of a fraction by a whole number 	<ul style="list-style-type: none"> • Generates equivalent fractions including fractions greater than 1 • Decomposes fractions into a sum of fractions and justifies solutions to problems with visual fraction models and equations • Justifies the conversion of a fraction with denominator of 10 to an equivalent fraction with a denominator of 100 and expresses it as a decimal

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Number and Operations – Fractions		<ul style="list-style-type: none"> • Uses decimal notation to represent fractions with denominators of 10 and 100 • Compares decimals to hundredths by reasoning about their size 	
Measurement and Data	<ul style="list-style-type: none"> • Solves measurement problems involving whole numbers using all four operations • Solves measurement problems involving perimeter and area • Interprets data presented in line plots (dot plots) and uses addition and subtraction of fractions to solve problems involving line plots <p>Identifies concepts of angles and angle measurement</p>	<ul style="list-style-type: none"> • Solves problems involving converting measurements from larger units to smaller units • Creates line plots (dot plots) in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$), to display given data, and uses addition and subtraction of fractions solve problems involving line plots • Uses a protractor to measure, sketch or interpret an angle • Finds unknown angles in diagrams • Justifies solutions to perimeter and area problems 	<ul style="list-style-type: none"> • Reasons about relative sizes of measurement units within one system of units • Sketches an angle without a protractor
Geometry	<ul style="list-style-type: none"> • Identifies right triangles, points, lines, line segments, rays, angles, perpendicular and parallel lines, lines of symmetry 	<ul style="list-style-type: none"> • Identifies right triangles and draws points, lines, line segments, rays, angles, perpendicular and parallel lines, in two dimensional shapes • Classifies two-dimensional shapes based on their attributes, including the presence and absence of parallel or perpendicular lines or angles of a specified size. • Recognizes lines of symmetry in two-dimensional figures and identifies line-symmetric figures 	<ul style="list-style-type: none"> • Draws two-dimensional shapes based on attributes.