Performance Level Descriptors – Grade 4 Mathematics

PLD	Domain	Below Basic	Basic	Proficient	Advanced
Reporting		**Below Basic do not yet demonstrate proficiency in the knowledge and skills** necessary at this grade level/course of learning, as specified in content expectations. The students need substantial academic support to be prepared for the next grade level or course and to be on track for *college and career readiness.*	**Basic demonstrate partial proficiency in the knowledge and skills** necessary at this grade level/course of learning, as specified in content expectations. The students need additional academic support to ensure success in the next grade level or course and to be on track for *college and career readiness.*	**Proficient demonstrate proficiency in the knowledge and skills** necessary at this grade level/course of learning, as specified in content expectations, and uses clear and precise language when communicating mathematical understanding. The students are prepared for the next grade level or course and are on track for *college and career readiness.*	**Advanced demonstrate advanced proficiency in the knowledge and skills** necessary at this grade level/course of learning, as specified in content expectations. The students are well prepared for the next grade level or course and are well prepared for *college and career readiness.*
		A student who performs at the **Below Basic** level demonstrates minimal command of the grade-level expectations.	A student who performs at the **Basic** level demonstrates partial command of the grade-level expectations.	A student who performs at the **Proficient** level demonstrates proficiency of the grade-level expectations.	A student who performs at the **Advanced** level demonstrates advanced proficiency of the grade-level expectations.

Range	**Operations and Algebraic Thinking**	Solves given single-step problems by adding, subtracting and multiplying; Identifies factors and multiples of given whole numbers; Identifies the next number or shape in a pattern	Solves given problems involving the four operations; Solves division problems with remainders; Creates factor pairs of a given number; Identifies prime and composite numbers; Creates multiples of a given number; Describes patterns	Use estimation to determine reasonableness when solving multi-step problems that involve unknowns and the four operations; Interprets remainders in the context of division problems and justifies the solution; Assess if a number is prime or composite by modeling using all factor pairs where possible; Recognizes the relationship that a whole number is a multiple of each of its factors; Generates patterns and express the rule to describe a pattern; Looks for and makes use of structure and repeated reasoning when solving multiplicative comparisons problems	Constructs viable arguments to justify relationships between multiplicative and additive comparison problems; Assesses the reasonableness of solutions in multiple ways; Reasons that composite numbers are built from the products of prime numbers; Analyzes patterns through repeated reasoning.
	Number and Operations In Base Ten	Compares two whole numbers; Rounds whole numbers to the hundreds place using a given visual model; Uses place value to read and write numbers up to one million; Adds and subtracts multi-digit whole numbers; Calculates products of whole numbers	Compares two whole numbers using symbols; Rounds whole numbers up to six digits to the thousands place; Adds and subtracts multi-digit whole numbers using properties; Calculates products and quotients involving whole numbers	Explains the directional characteristics of place value within one million (a digit represents ten times what it would represent the place to the right); Reasons both contextually and abstractly when comparing and rounding whole numbers up to one million; Solves problems involving products and quotients of whole numbers using strategies based on properties and estimation; Uses multiple representations and analyzes the reasoning of others when adding and subtracting whole numbers.	Reason abstractly and quantitatively when explaining the structure of place value in relation to solving problems involving the four operations and comparing multi-digit whole numbers.

Range	**Number and Operations In Fractions**	Compares fractions with the same numerator or denominator; Identifies multiple forms of fraction and decimal equivalency; Identifies fractional equivalence when given visual models (limit to halves, thirds, fourths, sixths, and eighths)	Compares fractional and decimal quantities using models; Reads and writes multiple forms of fraction and decimal equivalency; Recognizes and generates fractional equivalence; Finds sums and differences of fractions with like denominators when given a model; Decomposes fractions based on unit fractions; Multiplies fractions by whole numbers (limit to halves, thirds, fourths, sixths, eighths, fifths and tenths)	Makes sense of the relationship between fraction and decimal equivalency; Compares and justifies fractional and decimal quantities; Generates and explains fractional equivalence; Solves problems by adding and subtracting fractions and mixed numbers with like denominators and uses modeling to justify the sums and differences; Solves problems by multiplying a fraction by a whole number using mathematical models (limit to halves, thirds, fourths, sixths, eighths, tenths, twelfths and hundredths)	Constructs arguments and critiques reasoning while making connections between models and equations when adding and subtracting fractions and mixed numbers, and when multiplying a fraction by a whole number; Attends to precision when justifying the reasonableness of a result or comparison.
	Geometry and Measurement	Solves one-step problems with measurement units; Estimates the relative sizes of measurement units; Compare rectangles that have equal perimeters but different areas, or rectangles that have equal areas but different perimeters; Recognizes angles; Identifies two-dimensional shapes; Recognizes shapes with symmetry	Solves one step measurement problems using the appropriate tool; Converts units of measurement using visual models; Solves problems involving area and perimeter of rectangles using visual models; Estimates angle measurements; Classifies two-dimensional shapes based on their sides; Identifies lines of symmetry	Justifies answers using the appropriate tool to solve problems in measurement using the four operations; Solves measurement conversion problems based on reasoning; Solves problems by applying formulas of area and perimeter of rectangles in context; Uses tools strategically to draw and measure angles; Classifies two-dimensional shapes based on their sides and angles; Constructs lines of symmetry for a two-dimensional shape	Reasons abstractly and quantitatively to find missing side lengths with a given area and perimeter; Interprets the reasons for converting measurement units; Models with mathematics to justify the classification of shapes.

Data and Statistics	Recognizes the appropriate line plot or frequency table that represents a set of given data; Compare quantities in a bar or picture graph.	Creates line plot or frequency table to represent data in whole-number units; Solves problems involving addition and subtraction using bar or picture graphs.	Reasons abstractly and quantitatively to analyze data in multiple representations; Creates line plots and frequency tables to represent measurement data; Solves addition and subtraction problems involving interpretation of data	Critiques the reasoning of others when representing and using data to make decisions