Virginia Standards of Learning Assessment
Grade 4 Mathematics Performance Level Descriptors

Fail/Below Basic	Fail/Basic	Pass/Proficient	Pass/Advanced
A student performing at this level should be able to: *Reporting Category 1: Number and Number Sense* • read and write whole numbers with up to seven digits • read and write proper fractions with models • read and write decimals with and without concrete materials • identify place and value of digits in whole numbers • use words and/or symbols to compare two whole numbers with up to seven digits, with and without models • use words to compare proper fractions with models	A student performing at this level should be able to: *Reporting Category 1: Number and Number Sense* • read and write whole numbers with up to nine digits • read and write decimals through hundredths • read and write proper and improper fractions • identify place and value of digits in decimals • use words to compare proper fractions and mixed numbers with models • compose and decompose proper fractions • identify the fraction bar as a division symbol	A student performing at this level should be able to: *Reporting Category 1: Number and Number Sense* • given the values of digits in a whole number with up to nine digits, write and read the corresponding whole number • read and write decimals through thousandths with and without models • read and write fractions and/or mixed numbers with denominators of 12 or less • use words and/or symbols to compare and order whole numbers having up to seven digits • use words and/or symbols to compare and order fractions and mixed numbers with	A student performing at this level should be able to: *Reporting Category 1: Number and Number Sense* • order proper and improper fractions and mixed numbers with unlike denominators of 12 or less without models • determine fraction and decimal equivalence using number lines • compose and decompose fractions and mixed numbers • use division statements and fractions interchangeably to represent contextual problems that include models

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		denominators of 12 or less with and without models • use words and/or symbols to compare and order decimals through thousandths • compose and decompose proper and improper fractions and/or mixed numbers • represent equivalence between fractions and/or decimals with and without models • use models to relate fractions to division	

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A student performing at this level should be able to: *Reporting Category 2: Computation and Estimation* • add and subtract aligned whole numbers without regrouping • add and subtract aligned decimals without regrouping • represent basic multiplication facts with models • recall basic multiplication facts up to 10x10 • add fractions with like denominators without regrouping	A student performing at this level should be able to: *Reporting Category 2: Computation and Estimation* • recall basic multiplication facts and division facts up to 10x10 • determine equivalent expressions involving addition or subtraction • add and subtract aligned decimals with regrouping • multiply two whole numbers involving a one-digit factor and a two-digit factor • determine factor pairs for a whole number using concrete or pictorial representations • add and subtract fractions with like denominators without regrouping to solve single-step contextual problems	A student performing at this level should be able to: *Reporting Category 2: Computation and Estimation* • recall basic multiplication and division facts up to 12x12 • estimate and determine the product of a two-digit whole number and a two-digit whole number or a one-digit factor and a three-digit factor • estimate and determine the quotient of a three-digit dividend and a one-digit divisor, with or without a remainder • apply strategies to estimate and determine the sum and/or difference of decimals with and without models and regrouping • estimate, represent, and solve single-step contextual problems involving addition, subtraction, and	A student performing at this level should be able to: *Reporting Category 2: Computation and Estimation* • add and subtract mixed numbers with like denominators with regrouping and simplify the result • apply mathematical properties to solve and justify solutions to single- and multistep contextual problems with whole numbers • apply mathematical properties to solve and justify solutions to single- and multistep contextual problems with decimals • apply mathematical properties to solve and justify solutions to single- and multistep contextual problems with fractions and/or mixed numbers with like denominators, with and without regrouping

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		multiplication of whole numbers • estimate, represent, and solve single-step division problems with whole numbers • estimate, represent, and solve single-step contextual problems involving decimals • add and subtract fractions with like denominators and mixed numbers to estimate and solve single-step problems, with and without context, and simplify the result • identify equivalent mathematical relationships between expressions involving addition, subtraction, multiplication and/or division with whole numbers • determine factor pairs for a whole number using numerical representations • determine common factors for two whole numbers	• estimate, represent, solve, and justify solutions to single-step contextual division problems and interpret remainders • create equations to represent equivalent mathematical relationships between expressions • determine the greatest common factor of three whole numbers • apply the multiplicative inverse property using models

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		• multiply a fraction and a whole number using models to solve a single-step contextual problem	

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A student performing at this level should be able to: *Reporting Category 3: Measurement and Geometry* • measure length of an object, to the nearest inch or foot • use pictorial models to identify points, lines, and angles • use pictorial models to identify quadrilaterals • use pictorial models to identify figures that are squares and figures that are not squares • identify concrete and pictorial models of cubes, cones, and cylinders and identify faces and vertices	A student performing at this level should be able to: *Reporting Category 3: Measurement and Geometry* • determine an appropriate unit of measure for measuring length and liquid volume • measure length to the nearest ½ inch, inch, or foot and to the nearest centimeter • measure weight and/or liquid volume of an object • determine elapsed time in hours given starting and ending times within a 12-hour period within a.m. or p.m. • determine perimeter or area of a square or rectangle given a model with all side lengths labeled • use a pictorial model to identify points, lines, line segments, rays, and angles • identify and draw parallel, perpendicular, and	A student performing at this level should be able to: *Reporting Category 3: Measurement and Geometry* • determine an appropriate unit of measure for measuring length, weight/mass, and liquid volume • estimate and measure length (to the nearest 1/8 inch, ¼ inch, ½ inch, inch, or foot and to the nearest millimeter, centimeter, or meter) • estimate and measure weight, mass, and/or liquid volume of an object • given the equivalent measure of one unit, solve problems involving length, weight, mass, and/or liquid volume • use time(s) shown on analog or digital clock(s) to determine elapsed time in hours and minutes in single- and multistep	A student performing at this level should be able to: *Reporting Category 3: Measurement and Geometry* • estimate, measure, and solve contextual problems involving length, weight or mass, and liquid volume in U.S. Customary or metric units • apply equivalent measures to solve contextual problems involving length, weight, mass, and liquid volume including measurements that involve more than one unit (e.g., 1 foot 4 inches) • solve single- and multistep contextual problems involving elapsed time within and across a.m. and p.m. • solve contextual problems involving area and perimeter • apply properties and use geometric markings and

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	intersecting lines and line segments in plane figures • identify and describe characteristics of a quadrilateral • use pictorial models to identify solid geometric figures and describe characteristics including faces, vertices, and edges	contextual problems within a.m. or p.m. • find area and perimeter of rectangles when given the measure of two adjacent sides, with and without models • find area and perimeter of squares when given the measure of one side, with and without models • identify and represent rectangles having the same perimeter but different areas or rectangles having the same area but different perimeters • describe points, lines, line segments, rays, and angles • identify and describe parallel, perpendicular, and intersecting lines and line segments in plane and solid figures, including those in context • classify quadrilaterals • compare or contrast plane and solid figures according to their characteristics	symbolic notation to compare and contrast characteristics of quadrilaterals (e.g., angles; parallel, perpendicular, and intersecting line segments)

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A student performing at this level should be able to: *Reporting Category 4: Probability, Statistics, Patterns, Functions, and Algebra* • given a description or model for a simple event, identify the likelihood of an outcome as certain; likely, but not certain; unlikely, but not impossible; or impossible • match an organized set of data displayed in a chart or table to a graph • identify parts of data displayed in a line graph that have special characteristics (e.g., greatest, same, least) • identify, describe, and extend increasing patterns	A student performing at this level should be able to: *Reporting Category 4: Probability, Statistics, Patterns, Functions, and Algebra* • given a description or model for a simple event, represent the probability for an outcome as a fraction • equate "0" with an event that is impossible and "1" with an event that is certain • given a line graph, describe special characteristics of the data and the data as a whole • collect or acquire data for a given context • construct and display data in a line graph	A student performing at this level should be able to: *Reporting Category 4: Probability, Statistics, Patterns, Functions, and Algebra* • given a description or model for simple event, describe the likelihood of different outcomes, including outcomes that are equally likely • given a description or model for a simple event having up to 24 outcomes, model all possible outcomes • determine the probability of each possible outcome for a simple event and represent the probability on a number line	A student performing at this level should be able to: *Reporting Category 4: Probability, Statistics, Patterns, Functions, and Algebra* • analyze a simple event and represent the likelihood or probability for one or more outcomes • create a contextual problem to represent a given likelihood or probability • formulate questions and determine the data that should be represented in a line graph • explain why a data set should or should not be represented in a line graph

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using objects, pictures, and/or numbers	• identify, describe, extend, and create increasing and/or decreasing patterns using objects and pictures • identify and describe how a pattern changes using numbers, number lines, input/output tables, and function machines	• equate fractions between 0 and ½ as unlikely and fractions between ½ and 1 as likely • create a model to represent a given probability • draw conclusions, make inferences, and use addition or subtraction to solve single-step contextual problems involving data displayed in a line graph • analyze increasing or decreasing numerical patterns to identify the rule, extend the pattern, or identify missing terms	• make predictions and solve multistep contextual problems involving addition and/or subtraction using data from line graphs • solve contextual problems that involve identifying, describing, and extending increasing and decreasing numerical patterns using single-operation input/output rules