DLM® Performance Level Descriptors–Math: Grade 3

Year-End Model

Emerging	A student who achieves at the **emerging** performance level typically uses attributes or characteristics to identify and sort familiar objects into sets. The student uses attributes or characteristics to identify and sort familiar objects into sets by • recognizing sets of objects and determining if the objects in a set are the same or different based on a given attribute (for example, size, shape, or texture) • understanding the combining and dividing of objects by attending to a particular set of objects and then moving the objects either to create a group or to create separate sets
Approaching the Target	A student who achieves at the **approaching the target** performance level typically represents and solves problems using an understanding of abstract math concepts and symbols. The student represents and solves problems using an understanding of abstract math concepts and symbols by • recognizing how numbers appear in a sequence (for example, 5, 6, 7) and counting to 30 • communicating basic place-value knowledge by recognizing ten objects as a tens unit • comparing length when shown two similar objects • classifying shapes based on a given attribute (for example, number of sides)

At Target	A student who achieves at the **at target** performance level typically uses attributes or characteristics to identify and sort familiar objects into sets, makes sense of problems and perseveres in solving them, identifies repeating calculations or patterns, and uses mathematical terms and identifies connections between mathematical concepts. The student uses attributes or characteristics to identify and sort familiar objects into sets by • understanding the difference between parts of objects and whole objects The student makes sense of problems and solves them by • identifying the place value of two-digit numbers to the tens place • selecting appropriate tools for measuring • calculating the length of objects using informal units of measurement • identifying shapes divided into fractional parts • recognizing the structure of a picture or bar graph • identifying symbols used in equations (for example, =, –, +) The student identifies repeating calculations or patterns by • classifying data based on given attributes (for example, number of objects) • skip counting by tens (for example, 10, 20, 30) The student uses mathematical terms and identifies connections between mathematical concepts by • communicating length in inches and feet
Advanced	A student who achieves at the **advanced** performance level typically calculates accurately and makes sense of problems and perseveres in solving them. The student calculates accurately by • solving repeated addition problems (for example, 2 + 2 + 2 or 3 + 3 + 3) • solving basic addition and subtraction problems with solutions up to 20 • multiplying numbers 1 through 5 The student makes sense of problems and solves them by • answering questions about the data displayed in a graph

DLM Performance Level Descriptors–Math: Grade 4

Year-End Model

Emerging	A student who achieves at the **emerging** performance level typically looks for and makes use of mathematical structures (for example, patterns and attributes of shapes). The student looks for and makes use of mathematical structures by • recognizing objects or shapes that are whole or in separate parts • recognizing that a set is a group of objects or shapes with similar or different characteristics • arranging objects or shapes into pairs based on attributes • identifying objects based on attributes • recognizing shapes divided into two or more parts
Approaching the Target	A student who achieves at the **approaching the target** performance level typically looks for and makes use of mathematical structures and attends to precision in computation and measurement. The student looks for and makes use of mathematical structures by • attending to objects and shapes • recognizing enclosures or boundaries The student attends to precision in computation and measurement by • comparing the weight or volume of two objects

At Target	A student who achieves at the **at target** performance level typically calculates accurately, reasons abstractly, makes sense of problems and perseveres in solving them, looks for and makes use of mathematical structures, and attends to precision in computation and measurement. The student calculates accurately by • adding and subtracting numbers within 20 • adding or subtracting two-digit numbers up to 100 The student reasons abstractly, makes sense of problems, and perseveres in solving them by • identifying the core unit of a repeating number or symbol pattern (for example, in 123123123, the core unit is 123) • comparing types of angles (for example, acute, obtuse, and right) • counting unit squares to calculate area • identifying fractions up to one-fourth • identifying coin names and values of coins (pennies, nickels, dimes, and quarters) and one-dollar bills The student looks for and makes use of mathematical structures by • understanding the combining and dividing of objects by moving them to create a group or to create separate sets The student attends to precision in computation and measurement by • counting objects • recognizing patterns of numbers and symbols
Advanced	A student who achieves at the **advanced** performance level typically calculates accurately, reasons abstractly, explains reasoning, and uses appropriate tools to solve problems. The student calculates accurately by • adding or subtracting two-digit numbers with regrouping The student reasons abstractly, makes sense of problems, and perseveres in solving them by • working through word problems with solutions up to 100 The student reasons abstractly and explains reasoning by • extending a pattern that uses numbers or symbols • comparing and ordering angles from largest to smallest or smallest to largest • estimating the weight or volume of objects by comparing them to familiar objects in the environment The student uses appropriate tools to solve problems by • choosing and using tools (for example, scales, tiles, or measuring cups) to measure the weight, area, or volume of different objects • recognizing the hour hand and minute hand on an analog clock • recognizing hours and minutes on a digital clock

DLM Performance Level Descriptors–Math: Grade 5

Year-End Model

Emerging	A student who achieves at the **emerging** performance level typically attends to and seeks objects and looks for and makes use of mathematical structures (for example, patterns and attributes of shapes). The student attends to and seeks objects by • identifying familiar objects and communicating whether the objects are grouped together or are separate The student looks for and makes use of mathematical structures by • identifying objects that are in a set • recognizing the number of objects in a set • recognizing equal shares of objects (for example, a shape divided into two equal parts)
Approaching the Target	A student who achieves at the **approaching the target** performance level typically identifies repeated calculations, models with mathematics, and makes sense of problems and perseveres in solving them. The student identifies repeated calculations by • recognizing that repeated addition problems are made up of a set of numbers (for example, 2 + 2 + 2) • demonstrating the concept of multiplication The student models with mathematics by • identifying two-dimensional and three-dimensional shapes and their attributes • recognizing fractions • arranging objects in pairs • classifying objects or shapes by a given attribute (for example, number of sides) The student makes sense of problems and perseveres in solving them by • demonstrating number sense with numbers up to 10 • communicating place value of numbers to the tens place • comparing two sets of up to ten objects

At Target	A student who achieves at the **at target** performance level typically attends to and seeks objects, calculates accurately, reasons abstractly, interprets data, explains reasoning, and makes sense of problems and perseveres in solving them. The student attends to and seeks objects by • recognizing objects that are the same or different The student calculates accurately by • multiplying numbers 1 through 5 The student reasons abstractly by • identifying three-dimensional shapes • sorting two-dimensional shapes that are the same size The student interprets data by • using information from bar, picture, or line plot graphs to answer questions • reading the data on a graph or chart The student makes sense of problems and perseveres in solving them by • comparing numerals up to 10 The student explains reasoning by • demonstrating and expanding math vocabulary by using terms (for example, same, different, more, and fewer)
Advanced	A student who achieves at the **advanced** performance level typically calculates accurately, reasons abstractly, explains reasoning, interprets real-world problems, and models solutions. The student calculates accurately by • identifying fractions with denominators to 10 The student reasons abstractly by • demonstrating number sense up to 100 by comparing two numerals up to 100 • ordering numbers from least to greatest • recognizing proper fractions on an area-model representation (for example, a garden divided into four equal parts) The student explains reasoning by • communicating the relationship between multiplication and division (for example, connecting $2 \times 5 = 10$ and $10 \div 2 = 5$) The student interprets data by • representing data on bar, picture, or line plot graphs The student interprets real-world problems and models their solutions by • rounding whole numbers to the nearest hundred

DLM Performance Level Descriptors–Math: Grade 6

Year-End Model

Emerging	A student who achieves at the **emerging** performance level typically attends to and seeks objects or people and looks for and makes use of mathematical structures (for example, patterns and attributes of shapes). The student attends to and seeks objects by • recognizing sets of objects • recognizing groups of objects that are separated • recognizing objects that are whole and objects in parts • recognizing a unit The student looks for and makes use of mathematical structures by • classifying objects by attributes (for example, size and shape) • ordering objects using a rule or pattern • recognizing objects inside and outside of an enclosure
Approaching the Target	A student who achieves at the **approaching the target** performance level typically attends to and seeks objects, looks for and makes use of mathematical structures, reasons abstractly, and interprets data. The student attends to and seeks objects by • arranging objects into sets • recognizing the amount *some* The student looks for and makes use of mathematical structures by • identifying equal parts of objects (for example, shapes, markers, and toys) • combining and comparing sets of objects The student reasons abstractly by • explaining volume as a composition of unit cubes The student interprets data by • recognizing the distribution of data by its shape • identifying outliers in a data distribution

At Target	A student who achieves at the **at target** performance level typically calculates accurately, reasons abstractly, and interprets data. The student calculates accurately by • solving equations with positive and negative numbers • packing unit cubes to calculate volume of rectangular prisms The student reasons abstractly by • explaining the relationships between unit fractions • explaining opposite numbers (for example, –2 and 2) • explaining the relationship between a unit square and area The student interprets data by • recognizing the overall shape of data in a graph
Advanced	A student who achieves at the **advanced** performance level typically calculates accurately, reasons abstractly, explains reasoning, and uses mathematical tools to solve problems. The student calculates accurately by • using tiling to find the area of a rectangle • solving for the unknown value in expressions • adding, comparing, and decomposing fractions (for example, 2/4 = 1/4 + 1/4) The student reasons abstractly by • explaining decimals • recognizing equivalent expressions that involve addition or subtraction The student explains reasoning by • communicating measurements of center by using data distribution (for example, a graph or line plot) The student uses mathematical tools to solve problems by • calculating area with unit squares and tiling

DLM Performance Level Descriptors–Math: Grade 7

Year-End Model

Emerging	A student who achieves at the **emerging** performance level typically looks for and makes use of mathematical structures (for example, patterns and attributes of shapes). The student looks for and makes use of mathematical structures by • recognizing separate objects and objects in a set
Approaching the Target	A student who achieves at the **approaching the target** performance level typically attends to and seeks objects, identifies repeated calculations, looks for and makes use of mathematical structures, calculates accurately, and models with mathematics. The student attends to and seeks objects by • recognizing measurable attributes of an object (for example, size, shape, and number of sides) • identifying objects that are the same and objects that are different The student identifies repeated calculations by • modeling, solving, and explaining repeated addition (for example, 2 + 2 + 2 or 4 + 4 + 4) • modeling, solving, and explaining repeated subtraction (for example, 10 – 2 – 2 – 2 – 2) The student models with mathematics by • recognizing two-dimensional and three-dimensional shapes The student looks for and makes use of mathematical structures by • combining and partitioning, or dividing, objects into sets The student calculates accurately by • decomposing fractions (for example, 2/4 = 1/4 + 1/4) • demonstrating the concept of multiplication

At Target	A student who achieves at the **at target** performance level typically calculates accurately and explains reasoning. The student calculates accurately by • adding and subtracting fractions with common denominators (for example, 2/5 + 1/5) • demonstrating the concept of division • multiplying numbers 1–20 by numbers 1–5 and 10 The student explains their reasoning by • describing attributes of shapes (for example, size and number of sides) • explaining length and perimeter
Advanced	A student who achieves at the **advanced** performance level typically calculates accurately and reasons abstractly. The student calculates accurately by • demonstrating the relationship between multiplication and division • adding and subtracting fractions with denominators of 10 and 100 (for example, 4/10 + 60/100) • dividing numbers 1–20 by numbers 1–5 and 10 The student reasons abstractly by • applying the properties of addition and multiplication to solve problems

DLM Performance Level Descriptors–Math: Grade 8

Year-End Model

Emerging	A student who achieves at the **emerging** performance level typically looks for and makes use of mathematical structures (for example, patterns and attributes of shapes). The student looks for and makes use of mathematical structures by • recognizing a set of objects • recognizing objects that are separate from a set • classifying objects and ordering objects by attribute • recognizing attribute values of shapes (for example, size and number of sides)
Approaching the Target	A student who achieves at the **approaching the target** performance level typically looks for and makes use of mathematical structures, reasons abstractly, and interprets data. The student looks for and makes use of mathematical structures by • combining and partitioning, or dividing, sets of objects • forming pairs of objects and ordering objects • combining two parts or two sets to make a whole • using sets of objects to demonstrate the concept of addition • recognizing tenths and one-tenth in decimal and fraction form (for example, .10 and 1/10) • recognizing angles of different degrees (for example, acute, obtuse, and right) The student reasons abstractly by • explaining decimals The student interprets data by • recognizing bar graphs, picture graphs, line graphs, and charts • using graphs or charts to answer questions

At Target	A student who achieves at the **at target** performance level typically makes sense of problems and perseveres in solving them, calculates accurately, reasons abstractly, and interprets data. The student makes sense of problems and calculates accurately by • subtracting two fractions with the same denominator • finding the unknown value in an equation • representing fractions as decimals • using formulas to calculate area, perimeter, and volume The student reasons abstractly by • recognizing increasing and decreasing patterns • extending a pattern • comparing angles to a right angle The student interprets data by • reading data on graphs and charts • generating ordered pairs • explaining coordinate pairs
Advanced	A student who achieves at the **advanced** performance level typically calculates accurately, attends to precision in calculations, interprets real-world problems, models solutions, and interprets data. The student calculates accurately and attends to precision by • solving word problems involving addition, subtraction, or multiplication • solving linear inequalities • adding and subtracting fractions with unlike denominators of 10 and 100 (for example, 4/10 + 60/100) The student interprets real-world problems and models their solutions by • recognizing geometric sequences • explaining complementary angles • using symbols to compare decimals with thousandths (for example, 0.002 < 0.005) The student interprets data by • making predictions using data on graphs and charts • representing data on graphs and charts • recognizing covariation

DLM Performance Level Descriptors–Math: Grade 9

Year-End Model

Emerging	A student who achieves at the **emerging** performance level typically looks for and makes use of mathematical structures (for example, patterns and attributes of shapes) and calculates accurately. The student looks for and makes use of mathematical structures by • recognizing sets and subsets of objects • recognizing objects that are separate • recognizing objects as the same or different • matching two-dimensional and three-dimensional shapes The student calculates accurately by • understanding place value (for example, that 1 ten equals 10 ones)
Approaching the Target	A student who achieves at the **approaching the target** performance level typically calculates accurately, looks for and makes use of mathematical structures, and reasons abstractly. The student calculates accurately by • using repeated addition to solve problems (for example, 2 + 2 + 2 or 4 + 4 + 4) • multiplying without a calculator The student looks for and makes use of mathematical structures by • recognizing two-dimensional and three-dimensional shapes • identifying points, rays, and right angles • partitioning, or dividing, and combining objects or shapes • recognizing attributes of shapes (for example, size and number of sides) The student reasons abstractly by • using geometric shape names to describe real-world objects

At Target	A student who achieves at the **at target** performance level typically makes sense of problems and perseveres in solving them, calculates accurately, and looks for and makes use of mathematical structures. The student makes sense of problems, perseveres in solving them, and calculates accurately by • solving multiplication word problems • finding the unknown value in multiplication and division equations • solving real-world problems with rational numbers • demonstrating an understanding of multiplication and division • applying the associative and commutative properties of addition and multiplication to solve problems The student looks for and makes use of mathematical structures by • representing linear equations that contain one variable • recognizing circles, perpendicular lines, and parallel lines
Advanced	A student who achieves at the **advanced** performance level typically calculates accurately, attends to precision in calculations, and looks for and makes use of mathematical structures. The student calculates accurately and attends to precision by • solving multistep word problems The student looks for and makes use of mathematical structures by • identifying vertical, straight, and adjacent angles

DLM Performance Level Descriptors–Math: Grade 10

Year-End Model

Emerging	A student who achieves at the **emerging** performance level typically looks for and makes use of mathematical structures (for example, patterns and attributes of shapes). The student looks for and makes use of mathematical structures by • recognizing objects or shapes that are the same or different • communicating the number of objects (up to ten) in a set without counting • comparing objects in a set based on attributes (for example, size, shape, and number of sides) • ordering objects using a rule • recognizing attributes of objects (for example, shape, size, and number of sides) • classifying objects based on attributes (for example, size, shape, and number of sides)
Approaching the Target	A student who achieves at the **approaching the target** performance level typically calculates accurately, looks for and makes use of mathematical structures, and interprets data. The student calculates accurately by • rounding decimals to the tenths and hundredths places • using different operations (for example, addition and subtraction) to solve problems • representing and solving real-world problems The student looks for and makes use of mathematical structures by • combining and partitioning, or dividing, objects into sets • matching two-dimensional and three-dimensional shapes of the same size and different orientation • forming pairs of objects • recognizing transformations of congruent figures • understanding and recognizing congruent shapes The student interprets data by • identifying types of bar, picture, or line graphs

At Target	A student who achieves at the **at target** performance level typically makes sense of problems and perseveres in solving them, calculates accurately, reasons abstractly, and interprets data. The student makes sense of problems, perseveres in solving them, and calculates accurately by • solving linear inequalities • reporting numerical answers with a degree of precision • solving problems using rational numbers • writing equations using different operations (for example, addition and subtraction) The student reasons abstractly by • communicating if an event outcome is possible or impossible The student interprets data by • using graphs to interpret concrete information • communicating an understanding of bar graphs, picture graphs, line plots, and pie charts • explaining the *x*-coordinate and *y*-coordinate • interpreting a point within a line on a graph • recognizing covariation within a data set • reading and communicating data from bar and picture graphs
Advanced	A student who achieves at the **advanced** performance level typically calculates accurately, attends to precision in calculations, reasons abstractly, and interprets data. The student calculates accurately and attends to precision by • solving multistep word problems The student reasons abstractly by • synthesizing information presented in word problems • using transformations to describe compound events • explaining compound events • communicating whether an event is independent or dependent The student interprets data by • calculating the mean of a data set

DLM Performance Level Descriptors–Math: Grade 11

Year-End Model

Emerging	A student who achieves at the **emerging** performance level typically looks for and makes use of mathematical structures (for example, patterns and attributes of shapes). The student looks for and makes use of mathematical structures by • combining and comparing object pairs • classifying objects or shapes by attribute (for example, size, shape, and number of sides) • combining two parts to make a whole • communicating if an object is the same or different • identifying objects that are the same and objects that are different • ordering objects using a rule
Approaching the Target	A student who achieves at the **approaching the target** performance level typically calculates accurately, looks for and makes use of mathematical structures, interprets data, and reasons abstractly. The student calculates accurately by • solving and explaining repeated addition problems (for example, 2 + 2 + 2 or 4 + 4 + 4) The student looks for and makes use of mathematical structures by • forming pairs of objects • matching two-dimensional and three-dimensional shapes The student interprets data by • identifying bar graphs, picture graphs, line plots, and pie charts The student reasons abstractly by • identifying all possible outcomes of an event

At Target	A student who achieves at the **at target** performance level typically makes sense of problems, perseveres in solving them, models with mathematics, reasons abstractly, interprets data, calculates accurately, and looks for and makes use of mathematical structures. The student makes sense of problems and perseveres in solving them by • recognizing the recursive rule in an equation or an arithmetic sequence The student models with mathematics by • recognizing similar and congruent figures The student reasons abstractly by • identifying the theoretical probability of an event The student interprets data by • reading data and using it to make inferences • understanding covariation • using math vocabulary related to graphing to solve problems (for example, variability, peak of data, and outlier) • explaining coordinate pairs • explaining the *x*-coordinate and *y*-coordinate • analyzing graphs, tables, and data distributions The student calculates accurately by • recognizing a sample space (all possible outcomes of an event) The student looks for and makes use of mathematical structures by • recognizing patterns and sequences of numbers or symbols • simplifying expressions with exponents
Advanced	A student who achieves at the **advanced** performance level typically calculates accurately, attends to precision in calculations, reasons abstractly, interprets data, and models with mathematics. The student calculates accurately and attends to precision by • applying a sequencing rule • extending arithmetic sequences • finding perfect squares and cubes The student reasons abstractly by • relating transformations to congruent and similar shapes • applying theoretical probability to simple events The student interprets data by • comparing data sets to draw inferences The student models with mathematics by • explaining similar and congruent figures • recognizing and extending arithmetic sequences