

Performance Level Descriptors

Grade 3

Basic

A **third-grade** student performing at the **Basic Level** adds and subtracts multi-digit numbers in single-step word problems; represents the meaning of multiplication and division with a single model; accurately represents fractions and compares fractions with common denominators; correctly identifies quadrilaterals; represents equivalence with guidance; interprets information in graphs; creates graphs with guidance; applies problem-solving strategies in familiar situations.

A student performing at the basic level can do things like...

- Add up to four-digit whole numbers with regrouping, subtract multi-digit whole numbers without regrouping
- Represent equations involving multiplication and division related to the facts through 10×10 using a single strategy
- Given a fact, use the inverse relationship of multiplication and division to complete fact families
- Represent and compare fractions with common denominators as parts of a whole and parts of a set
- Identify common fractions equivalent to one half, such as two-fourths or four-eighths
- Calculate the perimeter of quadrilaterals when given the length of each side or a picture with length and width labeled
- Name and identify quadrilaterals
- Name and identify lines such as parallel, perpendicular, and intersecting
- Use an equal sign in equations to denote an answer, such as $3 + 7 = 10$ or the commutative property, such as $5 \times 7 = 7 \times 5$
- Measure and read temperature, capacity, mass, and weight when each point is represented on the scale or the interval of the scale is one
- Read and complete graphs where data are represented by the given scale and when data points do not fall between intervals on the scale
- Extract some relevant information and use a strategy or procedure to solve one-step problems or a single step of a multi-step problem involving grade-level content in familiar contexts

“With guidance” can mean: with the teacher’s assistance, with scaffolding, with questioning, with pictures, and with charts such as multiplication or addition, tables, or hundreds charts.

Performance Level Descriptors

Grade 3

Proficient

A **third-grade** student performing at the **Proficient Level** accurately and efficiently adds and subtracts multi-digit numbers in two-step word problems; represents the meaning of multiplication and division using a variety of models; accurately represents and compares common fractions; uses properties to describe quadrilaterals and determines perimeter; accurately represents equivalence between a variety of expressions; measures temperature, weight, mass, and capacity and compares values within temperature, weight, mass, and capacity; organizes, interprets, and creates graphs; applies problem-solving strategies in new situations with persistence.

A student performing at the proficient level can do things like...

- Apply place value concepts flexibly when adding whole numbers up to 10,000 with regrouping and subtracting whole numbers up to 9,999 with up to two regroupings
- Efficiently represent equations involving multiplication and division related to the facts through 10×10 using a variety of strategies including but not limited to words, arrays, or skip counting
- Solve two-step word problems involving multiplication facts through 10×10 and simple division facts including interpretation of remainders
- Use the inverse relationship between multiplication and division to derive related facts
- Represent, compare, and order fractions as parts of a whole and parts of a set, using fractions with a common denominator and/or common numerator
- Identify all fractions equivalent to one-half using denominators of 4, 6, 8, 10, and 12
- Measure and calculate perimeters of quadrilaterals
- Use attributes such as parallel, perpendicular, and intersecting lines, and right angles to identify and describe quadrilaterals including parallelograms, rectangles, rhombi, or kites
- Determine equivalence between two expressions such as $24 \div 3 = 2 \times 4$ or $3 + 7 = 6 + 4$
- Measure and read temperature, capacity, mass, and weight using scales with intervals of one, two, or ten
- Complete and extract information from tables and graphs where data points are represented on scales of one, two, or ten
- Extract relevant information and use a strategy or procedure to solve multi-step problems involving grade-level content in a variety of contexts including problems with more than one solution

Performance Level Descriptors

Grade 3

Advanced

A **third-grade** student performing at the **Advanced Level** solves multi-step word problems involving multi-digit addition and subtraction and more than one operation, including multiplication and division; multiplies a single-digit number and a two-digit number; compares fractions and identifies fraction equivalents with a variety of methods; solves word problems involving perimeters of quadrilaterals; applies a variety of problem-solving strategies in complex situations.

A student performing at the advanced level can do things like...

- Apply place-value concepts fluently when adding and subtracting whole numbers up to 10,000
- Multiply numbers from 11 through 19 by single-digit numbers
- Solve multi-step word problems involving multiple operations, including interpreting remainders, and verify solutions
- Represent, identify, compare, and order fractions using common numerators; common denominators of 2, 3, 4, 5, 6, 8, 9, 10, and 12; or using benchmarks such as one half or one whole
- Identify equivalent fractions
- Use the perimeter of quadrilaterals to solve problems
- Analyze and evaluate information from tables and graphs to draw conclusions
- Flexibly interpret/read various interval units and locate specific points on a scale
- Extract relevant information and apply a variety of efficient strategies or procedures to solve multi-step problems involving grade-level content in a variety of complex and unfamiliar situations including problems with more than one solution; explain reasoning, verify results and/or justify conclusions

Performance Level Descriptors

Grade 4

Basic

A **fourth-grade** student performing at the **Basic Level** accurately multiplies multi-digit numbers by a single digit; uses simple division facts in single-step word problems; recognizes equivalent forms of benchmark fractions and decimals; determines equivalent forms of fractions, mixed numbers, and decimals with guidance; determines area and perimeter of rectangles with guidance; represents situations symbolically in expressions and equations; converts units of measurement with guidance; determines simple probability; applies problem-solving strategies in familiar situations.

A student performing at the basic level can do things like...

- Represent and multiply numbers up to three-digits by one-digit
- Accurately identify multiples using multiplication facts through 10×10
- Identify some factors of numbers up to and including 24
- Accurately solve single-step word problems involving multiplication and simple division
- Recognize equivalent forms of benchmark fractions (e.g. $\frac{1}{4}$, $\frac{1}{2}$, or $\frac{3}{4}$), mixed numbers, and decimals through hundredths with guidance
- Determine area and perimeter of rectangles given formulas
- Accurately use notation (e.g. letters/symbols) to represent an unknown quantity in single step expressions and equations
- Determine measurement conversions including time, weight, length, or capacity within either U.S. customary or metric systems with guidance
- Determine the median, mode, or range of a set of data with guidance
- Determine simple probability
- Extract some relevant information and use a strategy or procedure to solve one-step problems or a single step of a multi-step problem involving grade-level content in familiar contexts

“With guidance” can mean: with the teacher’s assistance, with scaffolding, with questioning, with pictures, and with charts such as multiplication or addition, tables, or hundreds charts.

Performance Level Descriptors

Grade 4

Proficient

A **fourth-grade** student performing at the **Proficient Level** accurately and efficiently multiplies multi-digit numbers; uses simple division facts in two-step word problems; compares and determines equivalent forms of fractions, mixed numbers, and decimals; consistently differentiates between area and perimeter; accurately determines area and perimeter of rectangles; correctly represents situations symbolically in simple expressions, equations, and inequalities; solves problems involving unit conversions; determines probability and displays results; applies a variety of problem-solving strategies in new situations.

A student performing at the proficient level can do things like...

- Represent and efficiently multiply two-digit numbers by two-digit numbers
- Accurately identify factors and multiples of a number up to 100
- Solve multi-step word problems involving multiplication and simple division with accuracy
- Represent, compare, and order fractions, including mixed numbers, and decimals to hundredths
- Accurately solve problems involving perimeters and areas of rectangles
- Accurately use notation (e.g. letters/symbols) to represent an unknown quantity in single-step expressions, equations, and inequalities
- Solve problems involving up to two measurement conversions including time, weight, length, and capacity within either U.S. customary or metric systems
- Determine and describe data using appropriate language including median, mode, and range
- Determine simple probability within a context and display results of probability experiments
- Extract relevant information and use a strategy or procedure to solve multi-step problems involving grade-level content in a variety of contexts including problems with more than one solution

Performance Level Descriptors

Grade 4

Advanced

A **fourth-grade** student performing at the **Advanced Level** multiplies multi-digit numbers and uses simple division facts to solve multi-step word problems involving any combination of operations; fluently simplifies fractions and moves from equivalent forms of fractions, mixed numbers, and decimals in problem-solving situations; determines the area of compound figures that can be broken down into rectangles; solves problems involving multi-step unit conversions; applies a variety of problem-solving strategies in complex situations.

A student performing at the advanced level can do things like...

- Represent and efficiently multiply 3-digit by 2-digit numbers beyond multiples of 10
- Solve multi-step, multi-operational word problems involving multi-digit multiplication and simple division
- Simplify, compare, and convert between fractions, mixed numbers, and decimals to the hundredths in problem-solving situations
- Use properties of rectangles to solve problems involving areas of compound figures that can be broken down into rectangles
- Demonstrate that rectangles with the same area can have different perimeters, and that rectangles with the same perimeter can have different areas.
- Extend and apply knowledge of measurement conversions in multi-step problem-solving situations
- Apply knowledge of simple probability to represent results and draw conclusions
- Compute the median from an even number of data points
- Extract relevant information and apply a variety of efficient strategies or procedures to solve multi-step problems involving grade-level content in a variety of complex and unfamiliar situations including problems with more than one solution; explain reasoning, verify results and/or justify conclusions

Performance Level Descriptors

Grade 5

Basic

A **fifth-grade** student performing at the **Basic Level** accurately divides multi-digit numbers with a single-digit divisor; adds and subtracts fractions without regrouping; adds and subtracts decimals; determines area and perimeter of parallelograms and triangles with guidance; interprets line graphs; constructs line graphs with guidance; applies problem-solving strategies in familiar situations.

A student performing at the basic level can do things like...

- Divide a two-digit number by a one-digit number
- Represent addition and subtraction of decimals; add and subtract decimals that have the same number of decimal places
- Represent addition and subtraction of fractions; add and subtract fractions with like denominators
- Classify quadrilaterals by angle types and side lengths
- Identify a line of symmetry in a given figure
- Determine perimeter of triangles when all side lengths are labeled and parallelograms when only side lengths are labeled
- Determine area of triangles and parallelograms when figures are on a grid
- Evaluate simple algebraic expressions with variables using substitution
- Extend or describe a geometric pattern or a numeric pattern involving a single operation on whole numbers
- Identify acute, obtuse, and right angles
- Extract data from line graphs; construct line graphs meeting some requirements: appropriate scales, consistent scales, axes labels, or correct data points
- Determine the mean of a set of data with guidance
- Classify some numbers from 2 to 30 as prime or composite
- Extract some relevant information and use a strategy or procedure to solve one-step problems or a single step of a multi-step problem involving grade-level content in familiar contexts

“With guidance” can mean: with the teacher’s assistance, with scaffolding, with questioning, with pictures, and with charts such as multiplication or addition, tables, or hundreds charts.

Performance Level Descriptors

Grade 5

Proficient

A **fifth-grade** student performing at the **Proficient Level** accurately and efficiently divides multi-digit numbers in multi-step problem situations, including determining the mean; accurately adds and subtracts fractions, mixed numbers and decimals; consistently differentiates between situations involving area and perimeter; uses attributes of quadrilaterals and triangles to determine area and perimeter; uses variables to write algebraic expressions; constructs and interprets line graphs; applies a variety of problem-solving strategies in new situations.

A student performing at the proficient level can do things like...

- Efficiently divide up to three-digit numbers by two-digit numbers
- Represent addition and subtraction of decimals to thousandths; accurately add and subtract decimals to thousandths with regrouping
- Represent addition and subtraction of fractions and mixed numbers; accurately add and subtract fractions and mixed numbers with regrouping applying least common multiples and greatest common factor when appropriate
- Classify and sort triangles by angle types and side lengths
- Draw and measure acute, obtuse, and right angles
- Determine perimeter and area of triangles and parallelograms
- Evaluate and write algebraic expressions using variables to represent situations
- Write a rule for and extend a geometric pattern or a numeric pattern
- Interpret or construct line graphs from data
- Determine and interpret the mean of a set of data
- Classify numbers from 2 to 100 as prime or composite
- Extract relevant information and use a strategy or procedure to solve multi-step problems involving grade-level content in a variety of contexts including problems with more than one solution

Performance Level Descriptors

Grade 5

Advanced

A **fifth grade** student performing at the **Advanced Level** accurately and efficiently divides multi-digit numbers in multi-step word problems involving any combination of operations; solves word problems involving addition and subtraction of fractions, mixed numbers, and decimals; evaluates algebraic expressions with or without parentheses; solves multi-step word problems involving perimeter and area of triangles and parallelograms; applies a variety of problem-solving strategies in complex situations.

A student performing at the advanced level can do things like...

- Divide 4-digit number by a 2-digit numbers fluently and accurately
- Solve complex (multi-step) word problems involving perimeter and area of quadrilaterals and triangles, and verify solutions
- Determine the areas and perimeters of parallelograms and triangles
- Add or subtract mixed numbers with regrouping
- Write and evaluate algebraic expressions with or without parentheses that represent situations
- Write a rule to describe the relationship between two sets of data that are linearly related
- Solve, analyze, evaluate, and summarize complex problems to determine if a solution is reasonable and/or justify a conclusion
- Determine the mean of a set of data or use the mean to draw conclusions or solve problems about the data
- Use estimation appropriately to approximate solutions to complex problems
- Extract relevant information and apply a variety of efficient strategies or procedures to solve multi-step problems involving grade-level content in a variety of complex and unfamiliar situations including problems with more than one solution; explain reasoning, verify results and/or justify conclusions

Performance Level Descriptors

Grade 6

Basic

A **sixth-grade** student performing at the **Basic Level** multiplies and divides simple fractions and decimals; chooses an equation to match a situation; evaluates simple expressions and solves simple equations; converts a fraction and/or decimal to a percent; accurately determines volume of prisms; determines area or circumference of circles; applies problem-solving strategies in familiar situations.

A student performing at the basic level can do things like...

- Compare and order a set of fractions, decimals, percents, or integers
- Convert between fractions or decimals and percents
- Multiply and divide non-negative simple fractions; multiply and divide whole numbers and decimals
- Solve problems involving computations with fractions, decimals, percents, ratios, or rates
- Use tables, coordinate graphs, or equations to describe a linear relationship involving whole numbers
- Identify and compare part-to-part and part-to-whole relationships
- Write and evaluate expressions; solve one-step equations
- Identify mathematical properties and use order of operations to evaluate mathematical expressions with two different operations
- Describe and sort polyhedra by their attributes: parallel faces, types of faces, number of faces, edges, and vertices
- Determine area and perimeter of composite figures that can be divided into triangles and rectangles when all side lengths are labeled
- Determine area or circumference of circles
- Determine volume of a rectangular prism
- Communicate some mathematical ideas, sometimes check the reasonableness of solutions, and draw some logical conclusions
- Extract some relevant information and use a strategy or procedure to solve one-step problems or a single step of a multi-step problem involving grade-level content in familiar contexts

Performance Level Descriptors

Grade 6

Proficient

A **sixth-grade** student performing at the **Proficient Level** is fluent with fractions, decimals, and percents; accurately solves word problems involving multiplication and division of fractions and decimals; consistently writes and evaluates expressions and writes and solves equations; solves problems using ratios, rates, and percents; consistently determines the surface area and volume of prisms; determines the area and perimeter of composite figures; determines the area and circumference of circles; applies a variety of problem-solving strategies in new situations.

A student performing at the proficient level can do things like...

- Compare and order a set that includes fractions, decimals, percents, and integers
- Convert and make connections among fractional, decimal, and percent representations of a number
- Multiply and divide non-negative fractions and decimals
- Multiply and divide whole numbers and decimals by applying base-ten number system concepts
- Solve real-world problems involving fractions, decimals, percents, ratios, or rates
- Use tables, coordinate graphs, and equations to describe a linear relationship involving simple fractions and compatible decimals
- Write and evaluate expressions; write and solve one-step equations
- Apply mathematical properties and use the order of operations to evaluate mathematical expressions with up to four operations
- Determine the experimental and theoretical probability of a simple event
- Determine area and perimeter of composite figures that can be divided into rectangles, triangles, and parts of circles
- Determine area and circumference of circles
- Determine surface area and volume of a rectangular prism; determine surface area of a pyramid with guidance
- Communicate mathematical ideas, check the reasonableness of solutions, and draw some logical conclusions
- Extract relevant information and use a strategy or procedure to solve multi-step problems involving grade-level content in a variety of contexts including problems with more than one solution

“With guidance” can mean: with the teacher’s assistance, with scaffolding, with questioning, with pictures, and with charts such as multiplication or addition, tables, or hundreds charts.

Performance Level Descriptors

Grade 6

Advanced

A **sixth-grade** student performing at the **Advanced Level** is fluent with fractions, decimals, and percents; accurately solves multi-step word problems involving multiplication and division of fractions and decimals; solves multi-step problems using ratios, rates, and percents; determines surface area of both prisms and pyramids; applies a variety of problem-solving strategies in complex situations.

A student performing at the advanced level can do things like...

- Convert and make connections among fractional, decimal, and percent representations of a number and verify the relationships
- Describe the effect of multiplying and dividing numbers by any non-negative rational number
- Multiply and divide non-negative fractions and decimals by applying the inverse relationship between multiplication and division
- Solve real-world, multi-step problems involving decimals, fractions, ratios, percents, and/or rates and verify solutions
- Use tables, coordinate graphs, and equations to describe linear relationships involving non-negative rational numbers
- Write and evaluate expressions; write and solve equations and consistently verify solutions in given situations
- Apply mathematical properties and use the order of operations to solve a problem in complex situations by applying four different operations
- Determine area and circumference of a circle in real-world situations; determine the radius or diameter of a circle when given the circumference of the circle
- Determine missing side lengths of composite figures that can be divided into rectangles, triangles, and parts of circles needed to determine area and perimeter of the composite figure
- Determine missing edge lengths of rectangular prisms needed to determine volume or surface area of the rectangular prism; determine a missing edge length when given the volume or surface area of a rectangular prism
- Communicate mathematical ideas, consistently verify the reasonableness of the solutions, draw logical conclusions, and make generalization
- Extract relevant information and apply a variety of efficient strategies or procedures to solve multi-step problems involving grade-level content in a variety of complex and unfamiliar situations including problems with more than one solution; explain reasoning, verify results and/or justify conclusions

Performance Level Descriptors

Grade 7

Basic

A **seventh-grade** student performing at the **Basic Level** adds, subtracts, multiplies, and divides with compatible rational numbers; solves two-step linear equations with whole numbers; identifies and graphs proportional relationships and uses proportions to solve simple problems; determines volume of cylinders, cones, and pyramids; determines probability of a simple event; constructs stem-and-leaf plots and circle graphs; applies problem-solving strategies in familiar situations.

A student performing at the basic level can do things like...

- Add, subtract, multiply, or divide the same type of rational numbers (all decimals, fractions, integers, or percent)
- Solve single-step word problems with the same type of rational numbers (all decimals, fractions, integers, or percent) including negative and positive numbers
- Solve single-step problems involving proportional relationships including rates, similar figures, and scale drawings
- Represent proportional relationships using tables, graphs, or equations
- Determine the slope of a line
- Determine the change shown by a visual representation of an operation on integers
- Determine the volume of cones, pyramids, or cylinders given the formulas
- Construct stem-and-leaf plots or construct circle graphs with guidance; extract relevant information from stem-and-leaf plots, circle graphs, and histograms
- Use factors to write a prime factorization of a whole number without using exponents
- Communicate some mathematical ideas, sometimes check the reasonableness of solutions, and draw some logical conclusions
- Extract some relevant information and use a strategy or procedure to solve one-step problems or a single step of a multi-step problem involving grade-level content in familiar contexts

“With guidance” can mean: with the teacher’s assistance, with scaffolding, with questioning, with pictures, and with charts such as multiplication or addition, tables, or hundreds charts.

Performance Level Descriptors

Grade 7

Proficient

A **seventh-grade** student performing at the **Proficient Level** accurately solves word problems involving rational numbers; writes and solves two-step linear equations; consistently graphs and solves problems involving proportional relationships; solves problems involving surface area and volume; represents sample space for probability; accurately makes predictions using theoretical probability; constructs and interprets graphs; applies a variety of problem-solving strategies in new situations.

A student performing at the proficient level can do things like...

- Solve multi-step word problems with rational numbers including negative and positive numbers
- Solve problems involving proportional relationships in similar figures
- Solve multi-step problems involving proportional relationships such as percent of increase, percent of decrease, and measurement conversions
- Use multiple representations (e.g., context, graph, table, equation) to show proportional relationships
- Determine rate of change and relate it to slope
- Represent operations with positive and negative rational numbers visually or numerically
- Solve problems involving volume of cylinders, pyramids, and cones using geometric thinking
- Determine the effect that a change in scale on one dimension of a two-dimensional or three-dimensional figure has on area, perimeter, surface area, or volume
- Effectively use strategies of probability to predict outcomes
- Construct and interpret stem-and-leaf plots, circle graphs, and histograms
- Accurately plot points in all four quadrants
- Complete a data set given a partial set and a measure of central tendency
- Use exponents to write the prime factorization of a whole number
- Communicate mathematical ideas, check the reasonableness of solutions, and draw some logical conclusions
- Extract relevant information and use a strategy or procedure to solve multi-step problems involving grade-level content in a variety of contexts including problems with more than one solution

Performance Level Descriptors

Grade 7

Advanced

A **seventh-grade** student performing at the **Advanced Level** uses multiple representations to solve problems; graphs proportional relationships; solves problems involving surface area and volume of cylinders and pyramids and volumes of cones; applies a variety of problem-solving strategies in complex situations.

A student performing at this level can do things like. . .

- Determine rate of change/slope, determine whether it represents a proportional relationship, and justify reasoning
- Make connections among multiple representations of proportional relationships (e.g., context, graph, table, equations) to solve multi-step problems
- Solve multi-step problems involving surface area and/or volume of cylinders and pyramids and volume of cones in a variety of contexts
- Describe the effect that a change in volume would have on a single dimension of prisms, cylinders, pyramids, and cones
- Evaluate the effectiveness and bias of different statistical representations of the same data and explain reasoning
- Determine and justify the most appropriate measure of central tendency for a given data set in a specific situation
- Represent a contextual situation as a two-step algebraic equation
- Apply principles of probability to real life situations
- Extend application of order of operations to include rational numbers
- Communicate mathematical ideas, consistently verify the reasonableness of the solutions, draw logical conclusions, and make generalization
- Extract relevant information and apply a variety of efficient strategies or procedures to solve multi-step problems involving grade-level content in a variety of complex and unfamiliar situations including problems with more than one solution; explain reasoning, verify results and/or justify conclusions

Performance Level Descriptors

Grade 8

Basic

An **eighth-grade** student performing at the **Basic Level** solves simple linear equations; uses a linear equation in $y=mx+b$ form to determine slope and y-intercept; determines missing angle measures in triangles and simple diagrams with intersecting lines; determines missing angle measures in triangles; creates data displays for two sets of data; determines probability for independent events; follows a procedure to evaluate numeric expressions involving non-negative integer exponents; applies problem-solving strategies in familiar situations.

A student performing at the basic level can do things like...

- Solve one-step linear inequalities with positive coefficients
- Construct a table or graph to represent a given linear equation
- Determine slope and y-intercept of a line represented by a linear equation in $y=mx+b$ form, a table, or a graph
- Determine missing angle measures in right triangles and angle measures created by two intersecting lines
- Determine missing side lengths in right triangles using Pythagorean Theorem
- Construct data displays including scatter plots or box-and-whisker plots
- Determine theoretical probabilities for independent events for a small sample space
- Represent the effect of a rotation centered at the origin of the coordinate plane, a translation, or a reflection
- Translate numbers between scientific notation and standard form
- Communicate some mathematical ideas, sometimes check the reasonableness of solutions, and draw some logical conclusions
- Extract some relevant information and use a strategy or procedure to solve one-step problems or a single step of a multi-step problem involving grade-level content in familiar contexts

Performance Level Descriptors

Grade 8

Proficient

An **eighth-grade** student performing at the **Proficient Level** accurately solves a variety of linear equations and inequalities; uses linear equations to model simple situations and determines slope and y-intercept; determines missing angle measures using geometric relationships; creates data displays for two sets of data and draws conclusions; determines compound probability; evaluates complex expressions with non-negative integer exponents; applies a variety of problem-solving strategies in new situations.

A student performing at the proficient level can do things like...

- Write and solve a variety of multi-step linear equations to represent a given situation involving integers
- Solve two-step linear inequalities with positive coefficients and graph the solution on a number line
- Represent linear relationships using equations, tables, and graphs
- Determine and interpret slope and y-intercept of a line represented by a contextual situation, symbolic expression or equation, table, or graph
- Determine missing angle measures in polygons and angle measures created by parallel lines cut by transversals
- Apply the Pythagorean Theorem and its converse to solve problems
- Determine probability for dependent and independent events for small sample spaces
- Evaluate expressions with non-negative integer exponents using the laws of exponents and order of operations
- Construct and interpret scatter plots and box-and-whisker plots
- Represent and explain the effects of a combination of rotations centered at the origin of the coordinate plane, translations, and/or reflections
- Solve problems involving operations with numbers in scientific notation
- Communicate mathematical ideas, check the reasonableness of solutions, and draw logical conclusions
- Extract relevant information and use a strategy or procedure to solve multi-step problems involving grade-level content in a variety of contexts including problems with more than one solution

Performance Level Descriptors

Grade 8

Advanced

An **eighth-grade** student performing at the **Advanced Level** uses linear equations to model various situations; determines and interprets slope and y-intercept within problem situations; determines missing angle measures of polygons by applying geometric relationships; analyzes and extends solutions, draws conclusions in a variety of contexts; applies a variety of problem-solving strategies in complex situations.

A student performing at this level can do things like. . .

- Extract and organize information from a word problem to write and solve a multi-step linear equation involving rational numbers
- Determine probability for dependent, independent, and mutually exclusive events
- Solve two-step linear inequalities involving rational numbers and graph the solution on a number line
- Represent lines using tables, graphs, and symbolic expressions that model various situations; justify the appropriateness of one representation over another for each situation
- Construct and analyze data displays to compare several data sets; justify the appropriateness of one representation over another
- Determine the distance between two points in a coordinate plane
- Explain the difference between a rational and irrational number
- Communicate mathematical ideas, consistently verify the reasonableness of the solutions, draw logical conclusions, and make generalization
- Extract relevant information and apply a variety of efficient strategies or procedures to solve multi-step problems involving grade-level content in a variety of complex and unfamiliar situations including problems with more than one solution; explain reasoning, verify results and/or justify conclusions