

# GRADE 6 MATHEMATICS

## Performance Level Descriptors

| Grade 6 Math: Content (Ratios & Proportional Relationships)<br>The student solves problems for the grade/course with connections to the Standards for Mathematical Practice. |                                                                                                                                                                                                                  |                                                                                                                                                                                                                   |                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Exceeds Expectations</b><br><b>Level 4</b> – A student who performs at <b>Level 4 exceeds expectations</b> for the assessed standards.                                    | <b>Meets Expectations</b><br><b>Level 3</b> – A student who performs at <b>Level 3 meets expectations</b> for the assessed standards.                                                                            | <b>Partially Meets Expectations</b><br><b>Level 2</b> – A student who performs at <b>Level 2 partially meets expectations</b> for the assessed standards.                                                         | <b>Does Not Yet Meet Expectations</b><br><b>Level 1</b> – A student who performs at <b>Level 1 does not yet meet expectations</b> for the assessed standards.       |
| Understand ratio concepts and use ratio reasoning to solve problems: 6.RP.A.1, 6.RP.A.2, 6.RP.A.3.a, 6.RP.A.3.b, 6.RP.A.3.c, 6.RP.A.3.d                                      |                                                                                                                                                                                                                  |                                                                                                                                                                                                                   |                                                                                                                                                                     |
| Uses ratio and rate reasoning to solve real-world and mathematical problems, including ratio, unit rate, percent, and unit conversion problems, with consistent accuracy.    | Uses ratio and rate reasoning to solve real-world and mathematical problems, including ratio, unit rate, percent, and unit conversion problems using a variety of representations and strategies, with accuracy. | Uses ratio and rate reasoning to solve mathematical problems, including ratio, unit rate, percent, and unit conversion problems using a limited variety of representations and strategies, with partial accuracy. | Solves problems including ratio, unit rate, percent, and unit conversion problems using a limited variety of representations and strategies, with limited accuracy. |
| Uses and connects a variety of representations and strategies to solve these problems.                                                                                       | Uses at least one representation or strategy to solve these problems.                                                                                                                                            |                                                                                                                                                                                                                   |                                                                                                                                                                     |
| Finds missing values in tables, plots values on the coordinate plane, and uses tables to compare ratios, with consistent accuracy.                                           | Finds missing values in tables and locates and plots values on the coordinate plane, with accuracy.                                                                                                              | Finds missing values in tables and locates or plots values on the coordinate plane, with partial accuracy.                                                                                                        | Finds missing values in tables and locates or plots values on the coordinate plane, with limited accuracy.                                                          |

## GRADE 6 MATHEMATICS

### Performance Level Descriptors

| Grade 6 Math: Content (The Number System)<br>The student solves problems for the grade/course with connections to the Standards for Mathematical Practice.                                                                  |                                                                                                                                                                                       |                                                                                                                                                                              |                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Exceeds Expectations                                                                                                                                                                                                        | Meets Expectations                                                                                                                                                                    | Partially Meets Expectations                                                                                                                                                 | Does Not Yet Meet Expectations                                                                                                                                                |
| Apply and extend previous understandings of multiplication and division to divide fractions by fractions: 6.NS.1-2                                                                                                          |                                                                                                                                                                                       |                                                                                                                                                                              |                                                                                                                                                                               |
| Consistently and accurately solves word problems involving division of fractions by fractions.                                                                                                                              | Correctly divides fractions with unlike denominators and solves word problems with prompting embedded within the problem.                                                             | Partially applies division on fractions with common denominators and partially solves word problems with prompting embedded within the problem.                              | Attempts to divide fractions with common denominators.                                                                                                                        |
| Compute fluently with multi-digit numbers and find common factors and multiples: 6.NS.B.2, 6.NS.B.3, 6.NS.B.4                                                                                                               |                                                                                                                                                                                       |                                                                                                                                                                              |                                                                                                                                                                               |
| Solves two-step word problems and other problems by dividing multi-digit numbers and adding, subtracting, multiplying, and dividing multi-digit decimals and assesses reasonableness of the result using different methods. | Solves one-step word problems and other problems with some level of accuracy by dividing multi-digit numbers and adding, subtracting, multiplying, and dividing multi-digit decimals. | Partially solves one-step problems by dividing multi-digit numbers and adding, subtracting, multiplying, and dividing multi-digit decimals.                                  | Attempts to solve one-step problems with limited accuracy by dividing multi-digit numbers and adding, subtracting, multiplying, and dividing multi-digit decimals.            |
| Finds least common multiples of two numbers less than or equal to 12, and finds greatest common factors, with consistent accuracy.                                                                                          | Finds greatest common factors and least common multiples, with accuracy.                                                                                                              | Identifies greatest common factors and least common multiples, with partial accuracy.                                                                                        | Identifies greatest common factors or least common multiples, with limited accuracy.                                                                                          |
| Uses the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.                                                          | Correctly uses the distributive property to rewrite a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.          | Partially uses the distributive property to rewrite a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor. | Attempts to use the distributive property to rewrite a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor. |

## GRADE 6 MATHEMATICS

### Performance Level Descriptors

| Grade 6 Math: Content (The Number System)<br>The student solves problems for the grade/course with connections to the Standards for Mathematical Practice.                                                                             |                                                                                                                                                                                                                                       |                                                                                                                                                                                           |                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Exceeds Expectations                                                                                                                                                                                                                   | Meets Expectations                                                                                                                                                                                                                    | Partially Meets Expectations                                                                                                                                                              | Does Not Yet Meet Expectations                                                                                                                                                                         |
| Apply and extend previous understandings of numbers to the system of rational numbers: 6.NS.C.5. 6.NS.C.6.a. 6.NS.C.6.b, 6.NS.C.6.c, 6.NS.C.7.a, 6.NS.C.7.b, 6.NS.C.7.c, 6.NS.C.7.d, 6.NS.C.8                                          |                                                                                                                                                                                                                                       |                                                                                                                                                                                           |                                                                                                                                                                                                        |
| Demonstrates that positive and negative numbers describe mathematical or real-world quantities which have opposite values or directions and can be represented on a number line and compared with or without the use of a number line. | Understands that positive and negative numbers describe mathematical or real-world quantities which have opposite values or directions and can be represented on a number line and compared with or without the use of a number line. | Partially understands that positive and negative numbers describe mathematical or real-world quantities which have opposite values or directions and can be represented on a number line. | Demonstrates limited understanding that positive and negative numbers describe mathematical or real-world quantities which have opposite values or directions and can be represented on a number line. |
| Understands and interprets the absolute value of a rational number, with consistent accuracy.                                                                                                                                          | Understands the absolute value of a rational number, with accuracy.                                                                                                                                                                   | Partially determines the absolute value of a rational number, with partial accuracy.                                                                                                      | Identifies the absolute value of a rational number, with limited accuracy.                                                                                                                             |
| Plots ordered pairs in all four quadrants on a coordinate plane to solve real-world and mathematical problems, with consistent accuracy, where both coordinates are integers (e.g., (-2, 5)).                                          | Plots ordered pairs on a coordinate plane to solve real-world and mathematical problems with accuracy, where both coordinates are integers (e.g., (-2, 5)).                                                                           | Locates or plots ordered pairs on a coordinate plane to solve mathematical problems, with partial accuracy.                                                                               |                                                                                                                                                                                                        |
| Understands (or recognizes) that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.                                                                          |                                                                                                                                                                                                                                       |                                                                                                                                                                                           |                                                                                                                                                                                                        |
| Distinguishes comparisons of absolute value from statements about order.                                                                                                                                                               |                                                                                                                                                                                                                                       |                                                                                                                                                                                           |                                                                                                                                                                                                        |

## GRADE 6 MATHEMATICS

### Performance Level Descriptors

| Grade 6 Math: Content (Expressions & Equations)<br>The student solves problems for the grade/course with connections to the Standards for Mathematical Practice.            |                                                                                                                                               |                                                                                                                        |                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| Exceeds Expectations                                                                                                                                                        | Meets Expectations                                                                                                                            | Partially Meets Expectations                                                                                           | Does Not Yet Meet Expectations                                                                            |
| Apply and extend previous understandings of arithmetic to algebraic expressions: 6.EE.A.1, 6.EE.A.2.a, 6.EE.A.2.b, 6.EE.A.2.c, 6.EE.A.4                                     |                                                                                                                                               |                                                                                                                        |                                                                                                           |
| Writes, reads, and evaluates numerical and algebraic expressions, including those that contain whole number exponents.                                                      | Correctly reads and evaluates numerical and algebraic expressions, including those that contain whole number exponents.                       | Partially reads and evaluates numerical and algebraic expressions including those that contain whole number exponents. |                                                                                                           |
| Consistently and accurately writes complicated numerical expressions and algebraic expressions, including those that contain whole number exponents and grouping symbols.   | Correctly writes numerical expressions and algebraic expressions, including those that contain whole number exponents and grouping symbols.   | Writes numerical expressions and some algebraic expressions but does not use grouping symbols correctly.               |                                                                                                           |
| Identifies parts of algebraic and numerical expressions using mathematical terms and views one or more parts of an expression as a single entity, with consistent accuracy. | Identifies parts of algebraic and numerical expressions (e.g., terms, variables, coefficients, etc.) using mathematical terms, with accuracy. | Identifies parts of algebraic and numerical expressions using mathematical terms, with partial accuracy.               | Identifies parts of an algebraic or numerical expression using mathematical terms, with limited accuracy. |
| Consistently and accurately identifies equivalent expressions using properties of operations.                                                                               | Correctly identifies equivalent expressions using properties of operations, with accuracy.                                                    |                                                                                                                        |                                                                                                           |

## GRADE 6 MATHEMATICS

### Performance Level Descriptors

| Grade 6 Math: Content (Expressions & Equations)<br>The student solves problems for the grade/course with connections to the Standards for Mathematical Practice.                                                                                  |                                                                                                                                                                |                                                                                                                                                                |                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Exceeds Expectations                                                                                                                                                                                                                              | Meets Expectations                                                                                                                                             | Partially Meets Expectations                                                                                                                                   | Does Not Yet Meet Expectations                                                                                                                                 |
| Reason about and solve one-variable equations and inequalities: 6.EE.B.5, 6.EE.B.6, 6.EE.B.7, 6.EE.B.8                                                                                                                                            |                                                                                                                                                                |                                                                                                                                                                |                                                                                                                                                                |
| Uses variables to represent numbers, writes expressions and single-step equations to solve real-world and mathematical problems, and understands their solutions.                                                                                 | Uses variables to represent numbers and writes expressions and single-step equations to solve real-world or mathematical problems.                             | Uses variables to represent numbers and writes expressions without exponents, and single-step equations to solve mathematical problems, with partial accuracy. | Uses variables to represent numbers and writes expressions without exponents, and single-step equations to solve mathematical problems, with limited accuracy. |
| Accurately writes and graphs inequalities using multiple representations (such as number lines, coordinate planes, and algebraic expressions) to clearly show relationships of a constraint or condition in a real-world or mathematical problem. | Correctly writes and graphs inequalities to represent a constraint or condition in a real-world or mathematical problem.                                       | Partially graphs inequalities to represent a constraint or condition in a mathematical problem.                                                                |                                                                                                                                                                |
| Demonstrates that there are an infinite number of solutions for an inequality.                                                                                                                                                                    |                                                                                                                                                                |                                                                                                                                                                |                                                                                                                                                                |
| Represent and analyze quantitative relationships between dependent and independent variables: 6.EE.C.9                                                                                                                                            |                                                                                                                                                                |                                                                                                                                                                |                                                                                                                                                                |
| Expresses a relationship between dependent and independent variables and relates tables and graphs to equations.                                                                                                                                  | Relates tables and graphs to the equations, with accuracy.                                                                                                     | Relates tables and graphs to the equations, with partial accuracy.                                                                                             |                                                                                                                                                                |
| Consistently and accurately analyzes the relationship between independent and dependent variables in mathematical and real-world situations using a table, graph, and equation.                                                                   | Accurately analyzes the relationship between independent and dependent variables in mathematical and real-world situations using a table, graph, and equation. | Identifies a relationship between independent and dependent variables, with partial accuracy.                                                                  | Attempts to identify a relationship between independent and dependent variables, with limited accuracy.                                                        |

# GRADE 6 MATHEMATICS

## Performance Level Descriptors

| Grade 6 Math: Content (Geometry)<br>The student solves problems for the grade/course with connections to the Standards for Mathematical Practice.                                                 |                                                                                                                                                                                                               |                                                                                                                                                       |                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Exceeds Expectations                                                                                                                                                                              | Meets Expectations                                                                                                                                                                                            | Partially Meets Expectations                                                                                                                          | Does Not Yet Meet Expectations                                                                                                                                   |
| Solve real-world and mathematical problems involving area, surface area, and volume: 6.G.A.1, 6.G.A.2, 6.G.A.3, 6.G.A.4                                                                           |                                                                                                                                                                                                               |                                                                                                                                                       |                                                                                                                                                                  |
| Solves real-world and mathematical problems involving area of all polygons by composing into rectangles or decomposing into triangles and other shapes.                                           | Correctly solves real-world and mathematical problems involving area of polygons (e.g., trapezoids and irregular figures) by either composing into rectangles or decomposing into triangles and other shapes. | Partially solves mathematical problems involving area of polygons by either composing into rectangles or decomposing into triangles and other shapes. | Attempts to solve mathematical problems involving area of polygons by composing into rectangles.                                                                 |
| Graphs polygons in the coordinate plane when given coordinates of its vertices, and determines measurements of polygons in the coordinate plane, with consistent accuracy.                        | Graphs polygons in the coordinate plane when given coordinates of its vertices, and determines measurements of polygons in the coordinate plane.                                                              | Determines measurements of polygons in the coordinate plane with partial accuracy.                                                                    | Determines measurements of polygons in the coordinate plane with limited accuracy.                                                                               |
| Determines and uses nets of three-dimensional figures to find surface area with consistent accuracy.                                                                                              | Determines and uses nets of three-dimensional figures to find surface area.                                                                                                                                   | Uses nets of three-dimensional figures to find surface area, with partial accuracy.                                                                   | Uses nets of three-dimensional figures to find surface area, with limited accuracy.                                                                              |
| Accurately determines volume of right rectangular prisms with fractional edge lengths by packing them with unit cubes and using formulas (e.g., $V = l \times w \times h$ and $V = B \times h$ ). | Correctly determines volume of right rectangular prisms with fractional edge lengths by packing them with unit cubes and using formulas (e.g., $V = l \times w \times h$ and $V = B \times h$ ).              | Partially determines volume of right rectangular prisms with fractional edge lengths by packing them with unit cubes and using formulas.              | Attempts to determine volume of right rectangular prisms with fractional edge lengths by packing them with unit cubes and using formulas, with limited accuracy. |
| Uses volume formulas to find unknown measurements.                                                                                                                                                |                                                                                                                                                                                                               |                                                                                                                                                       |                                                                                                                                                                  |
| Demonstrates the concepts of area and volume to solve unscaffolded problems.                                                                                                                      |                                                                                                                                                                                                               |                                                                                                                                                       |                                                                                                                                                                  |

## GRADE 6 MATHEMATICS

### Performance Level Descriptors

| Grade 6 Math: Content (Statistics & Probability)<br>The student solves problems for the grade/course with connections to the Standards for Mathematical Practice.                                                                                    |                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Exceeds Expectations                                                                                                                                                                                                                                 | Meets Expectations                                                                                                                                                                                                                 | Partially Meets Expectations                                                                                                                                                                                                    | Does Not Yet Meet Expectations                                                                                                                                                                                                   |
| Develop understanding of statistical variability: 6.SP.A.1, 6.SP.A.2, 6.SP.A.3                                                                                                                                                                       |                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                  |
| Consistently and independently recognizes a statistical question and understands that a set of collected data has a distribution which can be described by its center, spread and overall shape, with consistent accuracy.                           | Recognizes a statistical question and understands that a set of collected data has a distribution which can be described by its center, spread and overall shape, with accuracy.                                                   | Recognizes a statistical question and understands that a set of collected data has a distribution which can be described by its center, spread and overall shape, with partial accuracy.                                        | Identifies that a set of collected data has a distribution which can be described by its center, spread and overall shape.                                                                                                       |
| Understands the purpose of center and variability and that it can be summarized with a single number, with consistent accuracy.                                                                                                                      | Understands the purpose of center and that it can be summarized with a single number, with accuracy.                                                                                                                               | Partially understands the purpose of center and that it can be summarized with a single number, with partial accuracy.                                                                                                          | Minimally understands that the center of a set of data can be summarized with a single number.                                                                                                                                   |
| Consistently and accurately determines which measures of center and variability are the most appropriate for a set of data.                                                                                                                          | Correctly determines which measures of center and variability are the most appropriate for a set of data.                                                                                                                          | Partially determines which measures of center and variability are the most appropriate for a set of data.                                                                                                                       | Attempts to determine which measures of center and variability are the most appropriate for a set of data.                                                                                                                       |
| Summarize and describe distributions: 6.SP.B.4, 6.SP.B.5.a, 6.SP.B.5.b, 6.SP.B.5.c, 6.SP.B.5.d                                                                                                                                                       |                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                  |
| Displays numerical data in plots on a number line, including dot plots, histograms, and box plots, and determines which display is the most appropriate.                                                                                             | Displays numerical data in plots on a number line, including dot plots, histograms, and box plots.                                                                                                                                 | Displays numerical data on a number line, including dot plots and histograms.                                                                                                                                                   | Displays numerical data on a number line, including dot plots.                                                                                                                                                                   |
| Accurately and consistently summarizes numerical data sets in relation to their context, such as by reporting the number of observations, describing the nature of the attributes under investigation, and using measures of center and variability. | Correctly summarizes numerical data sets in relation to their context, such as by reporting the number of observations, describing the nature of the attributes under investigation, and using measures of center and variability. | Partially summarizes numerical data sets in relation to their context, such as by reporting the number of observations, describing and using measures of center, and using the interquartile range as a measure of variability. | Attempts to summarize numerical data sets in relation to their context, such as by reporting the number of observations, describing and using measures of center, and using the interquartile range as a measure of variability. |

## GRADE 6 MATHEMATICS

### Performance Level Descriptors

| Grade 6 Math: Reasoning (may cross multiple reporting categories)<br>In connection with content, the student expresses grade/course-level appropriate mathematical reasoning by constructing viable arguments, critiquing the reasoning of others and/or attending to precision when making mathematical statements.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Exceeds Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Meets Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Partially Meets Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Does Not Yet Meet Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Properties of Operations: 6.EE.A.3, 6.EE.A.4, 6.NS.A.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <p>In connection with the content knowledge, skills, and abilities, the student clearly constructs and communicates a well organized and complete response based on the properties of operations and the relationship between addition and subtraction or between multiplication and division, including:</p> <ul style="list-style-type: none"> <li>a logical approach based on a conjecture and/or stated assumptions</li> <li>a logical and complete progression of steps</li> <li>precision of calculation</li> <li>correct use of grade-level vocabulary, symbols and labels</li> <li>complete justification of a conclusion</li> <li>evaluating, interpreting, and critiquing the validity and efficiency of others' responses, approaches and reasoning, and providing counter-examples where applicable</li> <li>generalization of an argument or conclusion.</li> </ul> | <p>In connection with the content knowledge, skills, and abilities, the student clearly constructs and communicates a well organized and complete response based on the properties of operations and the relationship between addition and subtraction or between multiplication and division, including:</p> <ul style="list-style-type: none"> <li>a logical approach based on a conjecture and/or stated assumptions</li> <li>a logical and complete progression of steps</li> <li>precision of calculation</li> <li>correct use of grade-level vocabulary, symbols and labels</li> <li>complete justification of a conclusion</li> <li>evaluating, interpreting, and critiquing the validity of others' responses, approaches and reasoning.</li> </ul> | <p>In connection with the content knowledge, skills, and abilities, the student constructs and communicates a complete response based on the properties of operations and the relationship between addition and subtraction or between multiplication and division, including:</p> <ul style="list-style-type: none"> <li>a logical approach based on a conjecture and/or stated assumptions</li> <li>a logical, but incomplete, progression of steps</li> <li>minor calculation errors</li> <li>some use of grade-level vocabulary, symbols and labels</li> <li>partial justification of a conclusion</li> <li>evaluating the validity of others' approaches and conclusions.</li> </ul> | <p>In connection with the content knowledge, skills, and abilities, the student constructs and communicates an incomplete response based on the properties of operations and the relationship between addition and subtraction or between multiplication and division, which may include:</p> <ul style="list-style-type: none"> <li>a faulty approach based on a conjecture and/or stated assumptions</li> <li>an incomplete or illogical progression of steps</li> <li>major calculation errors</li> <li>limited use of grade-level vocabulary, symbols and labels</li> <li>partial justification of a conclusion.</li> </ul> |

## GRADE 6 MATHEMATICS

### Performance Level Descriptors

| Grade 6 Math: Reasoning (may cross multiple reporting categories)<br>In connection with content, the student expresses grade/course-level appropriate mathematical reasoning by constructing viable arguments, critiquing the reasoning of others and/or attending to precision when making mathematical statements.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Exceeds Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Meets Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Partially Meets Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Does Not Yet Meet Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Concrete Referents and Diagrams: 6.NS.A.1, 6.NS.C.6.a, 6.NS.C.6.b, 6.NS.C.6.c, 6.NS.C.7.a, 6.NS.C.7.b, 6.NS.C.7.c, 6.NS.C.8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <p>In connection with the content knowledge, skills, and abilities, the student clearly constructs and communicates a well organized and complete response based on concrete referents provided in the prompt or constructed by the student such as: diagrams that are connected to a written (symbolic) method, number line diagrams or coordinate plane diagrams, including:</p> <ul style="list-style-type: none"> <li>a logical approach based on a conjecture and/or stated assumptions</li> <li>a logical and complete progression of steps</li> <li>precision of calculation</li> <li>correct use of grade-level vocabulary, symbols and labels</li> <li>complete justification of a conclusion</li> <li>evaluating, interpreting, and critiquing the validity and efficiency of others' responses, approaches and reasoning, and provides a counter-example where applicable</li> <li>generalization of an argument or conclusion.</li> </ul> | <p>In connection with the content knowledge, skills, and abilities, the student clearly constructs and communicates a well organized and complete response based on concrete referents provided in the prompt or constructed by the student such as: diagrams that are connected to a written (symbolic) method, number line diagrams or coordinate plane diagrams, including:</p> <ul style="list-style-type: none"> <li>a logical approach based on a conjecture and/or stated assumptions</li> <li>a logical and complete progression of steps</li> <li>precision of calculation</li> <li>correct use of grade-level vocabulary, symbols and labels</li> <li>complete justification of a conclusion</li> <li>evaluating, interpreting, and critiquing the validity of others' responses, approaches and reasoning.</li> </ul> | <p>In connection with the content knowledge, skills, and abilities, the student constructs and communicates a complete response based on concrete referents provided in the prompt or in simple cases, constructed by the student such as: diagrams that are connected to a written (symbolic) method, number line diagrams or coordinate plane diagrams, including:</p> <ul style="list-style-type: none"> <li>a logical approach based on a conjecture and/or stated assumptions</li> <li>a logical, but incomplete, progression of steps</li> <li>minor calculation errors</li> <li>some use of grade-level vocabulary, symbols and labels</li> <li>partial justification of a conclusion</li> <li>evaluating the validity of others' approaches and conclusions.</li> </ul> | <p>In connection with the content knowledge, skills, and abilities, the student constructs and communicates an incomplete response based on concrete referents provided in the prompt such as: diagrams, number line diagrams or coordinate plane diagrams, which may include:</p> <ul style="list-style-type: none"> <li>a faulty approach based on a conjecture and/or stated assumptions</li> <li>an incomplete or illogical progression of steps</li> <li>major calculation errors</li> <li>limited use of grade-level vocabulary, symbols and labels</li> <li>partial justification of a conclusion.</li> </ul> |

## GRADE 6 MATHEMATICS

### Performance Level Descriptors

| Grade 6 Math: Reasoning (may cross multiple reporting categories)<br>In connection with content, the student expresses grade/course-level appropriate mathematical reasoning by constructing viable arguments, critiquing the reasoning of others and/or attending to precision when making mathematical statements.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Exceeds Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Meets Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Partially Meets Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Does Not Yet Meet Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Distinguish Correct Explanation/ Reasoning from that which is Flawed: 6.EE.A.4, 6.EE.B.5, 6.EE.B.6, 6.EE.B.7, 6.EE.B.8, 6.EE.C.9, 6.RP.A.1, 6.RP.A.2, 6.RP.A.3.a, 6.RP.A.3.b, 6.RP.A.3.c, 6.RP.A.3.d                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <p>In connection with the content knowledge, skills, and abilities, the student clearly constructs and communicates a well organized and complete response to a given equation, multi-step problem, proposition or conjecture, including:</p> <ul style="list-style-type: none"> <li>a logical approach based on a conjecture and/or stated assumptions</li> <li>a logical and complete progression of steps</li> <li>precision of calculation</li> <li>correct use of grade-level vocabulary, symbols and labels</li> <li>complete justification of a conclusion</li> <li>evaluating, interpreting, and critiquing the validity and efficiency of others' responses, approaches and reasoning, and providing a counter-example where applicable</li> <li>generalization of an argument or conclusion</li> <li>identifying and describing errors in solutions, and presenting correct solutions</li> <li>distinguishing correct explanation / reasoning from that which is flawed. If there is a flaw, presents correct reasoning.</li> </ul> | <p>In connection with the content knowledge, skills, and abilities, the student clearly constructs and communicates a well organized and complete response to a given equation, multi-step problem, proposition or conjecture, including:</p> <ul style="list-style-type: none"> <li>a logical approach based on a conjecture and/or stated assumptions</li> <li>a logical and complete progression of steps</li> <li>precision of calculation</li> <li>correct use of grade-level vocabulary, symbols and labels</li> <li>complete justification of a conclusion</li> <li>evaluating, interpreting, and critiquing the validity of others' responses, approaches and reasoning</li> <li>identifying and describing errors in solutions, and presenting correct solutions.</li> </ul> | <p>In connection with the content knowledge, skills, and abilities, the student constructs and communicates a complete response to a given equation, multi-step problem, proposition or conjecture, including:</p> <ul style="list-style-type: none"> <li>a logical approach based on a conjecture and/or stated assumptions</li> <li>a logical, but incomplete, progression of steps</li> <li>minor calculation errors</li> <li>some use of grade-level vocabulary, symbols and labels</li> <li>partial justification of a conclusion</li> <li>evaluating the validity of others' approaches and conclusion</li> <li>identifying and describing errors in solutions.</li> </ul> | <p>In connection with the content knowledge, skills, and abilities, the student constructs and communicates an incomplete response to a given equation, multi-step problem, proposition or conjecture, including:</p> <ul style="list-style-type: none"> <li>an approach based on a conjecture and/or stated or faulty assumptions</li> <li>an incomplete or illogical progression of steps</li> <li>major calculation errors</li> <li>limited use of grade-level vocabulary, symbols and labels</li> <li>partial justification of a conclusion.</li> </ul> |

## GRADE 6 MATHEMATICS

### Performance Level Descriptors

#### Grade 6 Math: Modeling (may cross multiple reporting categories)

In connection with content, the student solves real-world problems with a degree of difficulty appropriate to the grade/course by applying knowledge and skills articulated in the standards for the current grade/course, engaging particularly in the Modeling practice, and where helpful making sense of problems and persevering to solve them, reasoning abstractly and quantitatively, using appropriate tools strategically, looking for and making use of structure, and/or looking for and expressing regularity in repeated reasoning.

| Exceeds Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Meets Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Partially Meets Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Does Not Yet Meet Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Modeling: 6.EE.A.1, 6.EE.A.2.a, 6.EE.A.2.b, 6.EE.A.2.c, 6.EE.A.4, 6.EE.B.5, 6.EE.B.6, 6.EE.B.7, 6.EE.B.8, 6.EE.C.9, 6.NS.A.1, 6.NS.C.5, 6.NS.C.6.a, 6.NS.C.6.b, 6.NS.C.6.c, 6.NS.C.7.a, 6.NS.C.7.b, 6.NS.C.7.c, 6.NS.C.7.d, 6.NS.C.8, 6.RP.A.1, 6.RP.A.2, 6.RP.A.3.a, 6.RP.A.3.b, 6.RP.A.3.c, 6.RP.A.3.d                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <p>In connection with the content knowledge, skills, and abilities, the student devises a plan to apply mathematics in solving problems arising in everyday life, society and the workplace by:</p> <ul style="list-style-type: none"> <li>• using stated assumptions and making assumptions and approximations to simplify a real-world situation</li> <li>• analyzing and/or creating limitations, relationships and interpreting goals within the model</li> <li>• mapping relationships between important quantities by selecting appropriate tools to create models</li> <li>• analyzing relationships mathematically between important quantities to draw conclusions</li> <li>• analyzing, justifying and defending models which lead to a conclusion</li> <li>• reflecting on whether the results make sense</li> <li>• writing a complete, clear and correct algebraic expression or equation to describe a situation</li> </ul> | <p>In connection with the content knowledge, skills, and abilities, the student devises a plan to apply mathematics in solving problems arising in everyday life, society and the workplace by:</p> <ul style="list-style-type: none"> <li>• using stated assumptions and making assumptions and approximations to simplify a real-world situation</li> <li>• mapping relationships between important quantities by selecting appropriate tools to create models</li> <li>• analyzing relationships mathematically between important quantities to draw conclusions</li> <li>• reflecting on whether the results make sense</li> <li>• writing a complete, clear, and correct algebraic expression or equation to describe a situation</li> </ul> | <p>In connection with the content knowledge, skills, and abilities, the student devises a plan to apply mathematics in solving problems arising in everyday life, society and the workplace by:</p> <ul style="list-style-type: none"> <li>• using stated assumptions and approximations to simplify a real-world situation</li> <li>• illustrating relationships between important quantities by using provided tools to create models</li> <li>• analyzing relationships mathematically between important quantities to draw conclusions</li> <li>• reflecting on whether the results make sense</li> <li>• writing an incomplete algebraic expression or equation to describe a situation</li> </ul> | <p>In connection with the content knowledge, skills, and abilities, the student devises a plan to apply mathematics in solving problems arising in everyday life, society and the workplace by:</p> <ul style="list-style-type: none"> <li>• using stated assumptions and approximations to simplify a real-world situation</li> <li>• identifying important quantities by using provided tools to create models</li> <li>• analyzing relationships mathematically to draw conclusions</li> <li>• writing an incomplete algebraic expression or equation to describe a situation</li> </ul> |

## GRADE 6 MATHEMATICS

### Performance Level Descriptors

#### Grade 6 Math: Modeling (may cross multiple reporting categories)

In connection with content, the student solves real-world problems with a degree of difficulty appropriate to the grade/course by applying knowledge and skills articulated in the standards for the current grade/course, engaging particularly in the Modeling practice, and where helpful making sense of problems and persevering to solve them, reasoning abstractly and quantitatively, using appropriate tools strategically, looking for and making use of structure, and/or looking for and expressing regularity in repeated reasoning.

| Exceeds Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                    | Meets Expectations                                                                                                                                                                                                                                                                                                                                                                                                                                      | Partially Meets Expectations                                                                                                                                                                                                                                                                                                                                                                                                                    | Does Not Yet Meet Expectations                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>improving the model if it has not served its purpose</li> <li>applying proportional reasoning</li> <li>writing/using functions to describe how one quantity of interest depends on another</li> <li>using reasonable estimates of known quantities in a chain of reasoning that yields an estimate of an unknown quantity</li> <li>interpreting mathematical results in the context of the situation.</li> </ul> | <ul style="list-style-type: none"> <li>improving the model if it has not served its purpose</li> <li>applying proportional reasoning</li> <li>writing/using functions to describe how one quantity of interest depends on another</li> <li>using reasonable estimates of known quantities in a chain of reasoning that yields an estimate of an unknown quantity</li> <li>interpreting mathematical results in the context of the situation.</li> </ul> | <ul style="list-style-type: none"> <li>modifying the model if it has not served its purpose</li> <li>applying proportional reasoning</li> <li>writing/using functions to describe how one quantity of interest depends on another</li> <li>using reasonable estimates of known quantities in a chain of reasoning that yields an estimate of an unknown quantity</li> <li>interpreting mathematical results in a simplified context.</li> </ul> | <ul style="list-style-type: none"> <li>applying proportional reasoning</li> <li>using functions to describe how one quantity of interest depends on another</li> <li>using unreasonable estimates of known quantities in a chain of reasoning that yields an estimate of an unknown quantity.</li> </ul> |