

GRADE 4 MATHEMATICS

Performance Level Descriptors

Grade 4 Math: Content (Operations and Algebraic Thinking)

The student solves problems for the grade/course with connections to the Standards for Mathematical Practice.

Exceeds Expectations Level 4 – A student who performs at Level 4 exceeds expectations for the assessed standards.	Meets Expectations Level 3 – A student who performs at Level 3 meets expectations for the assessed standards.	Partially Meets Expectations Level 2 – A student who performs at Level 2 partially meets expectations for the assessed standards.	Does Not Yet Meet Expectations Level 1 – A student who performs at Level 1 does not yet meet expectations for the assessed standards.
Use the four operations with whole numbers to solve problems: 4.OA.A.1, 4.OA.A.2, 4.OA.A.3			
Highly proficient at demonstrating and interpreting multiplication equations as comparisons, and representing statements of multiplicative comparisons as multiplicative equations.	Interprets multiplication equations as comparisons or represents statements of multiplicative comparisons as multiplicative equations, with proficiency.	Interprets multiplication equations as comparisons or represents statements of multiplicative comparisons as multiplicative equations, with partial accuracy.	Interprets multiplication equations as comparisons or represents statements of multiplicative comparisons as multiplicative equations, with limited accuracy.
Distinguishes multiplicative comparisons.			
Uses multiplication or division to solve multi-step problems involving multiplicative comparisons, including using a symbol for the unknown number.	Uses multiplication or division to solve one- or two-step problems involving multiplicative comparisons, including using a symbol for the unknown number.	Uses multiplication or division to solve scaffolded problems involving multiplicative comparisons.	
Accurately solves multi-step problems using the four operations with whole numbers: in multiplying a three- or four-digit by a one-digit number or two two-digit numbers.	Correctly solves two-step problems using the four operations with whole numbers: in multiplying a three-digit by a one-digit number or two two-digit numbers.	Partially solves one- or two-step problems using the four operations with whole numbers: in multiplying a three-digit by a one-digit number or two two-digit numbers.	Attempts to solve one-step problems using the four operations with whole numbers: in multiplying a three-digit by a one-digit number or two two-digit numbers.
Finds whole number quotients and remainders with up to four-digit dividends and one-digit divisors and consistently interprets remainders as appropriate.	Finds whole number quotients and remainders with up to three-digit dividends and one-digit divisors and interprets remainders as appropriate.	Finds whole number quotients and remainders with up to three-digit dividends and one-digit divisors, with partial accuracy.	Finds whole number quotients and remainders with up to three-digit dividends and one-digit divisors, with limited accuracy.

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Exceeds Expectations	Meets Expectations	Partially Meets Expectations	Does Not Yet Meet Expectations
Gain familiarity with factors and multiples: 4.OA.B.4			
Recognizes that a whole number is a multiple of each of its factors, and within the range of 1-100, finds all factor pairs and determines multiples of whole numbers, with consistent accuracy.	Recognizes that a whole number is a multiple of each of its factors, and within the range of 1-100 finds factor pairs or determines multiples of whole numbers, with accuracy.	Recognizes that a whole number is a multiple of each of its factors, and within the range of 1-100 finds factor pairs or determines multiples of whole numbers, with partial accuracy.	Recognizes that a whole number is a multiple of each of its factors, and within the range of 1-100 identifies factor pairs or multiples of whole numbers, with limited accuracy.
Determines whether a whole number in the range 1-100 is prime or composite, with consistent accuracy.	Determines whether a whole number in the range 1-100 is prime or composite, with accuracy.	Determines, with scaffolding, whether a whole number in the range 1-100 is prime or composite.	
Generate and analyze patterns: 4.OA.C.5			
Generates a number or shape pattern that follows a given rule and identifies apparent features of the pattern that were not explicit in the rule itself and describes the rule for generating the number or shape pattern.	Generates a number or shape pattern that follows a given rule and identifies explicit features of the pattern.	Generates a number or shape pattern that follows a given rule.	Identifies a number or shape pattern that follows a given rule.

GRADE 4 MATHEMATICS

Performance Level Descriptors

Grade 4 Math: Content (Number & Operations in Base Ten) 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
Generalize place value understanding for multi-digit whole numbers: 4.NBT.A.1, 4.NBT.A.2, 4.NBT.A.3			
In any multi-digit whole number, recognizes a digit in one place represents 10 times as much as it represents in the place to its right.	In any four-digit whole number, recognizes a digit in one place represents 10 times as much as it represents in the place to its right.	In any three-digit whole number, recognizes, with partial accuracy, a digit in one place represents 10 times as much as it represents in the place to its right.	In any three-digit whole number, recognizes, with limited accuracy, a digit in one place represents 10 times as much as it represents in the place to its right.
Reads, writes, and compares multi-digit whole numbers using base-10 numerals, number names in expanded form and inequality symbols ($>$, $<$, $=$), rounds to any place and chooses appropriate context given a rounded number.	Reads, writes, and compares four-digit whole numbers using base-10 numerals, number names in expanded form and inequality symbols ($>$, $<$, $=$), and rounds to any place.	Reads, writes, and compares three-digit whole numbers using base-10 numerals, number names in expanded form and inequality symbols ($>$, $<$, $=$), and rounds to any place with scaffolding.	
Performs computations by applying conceptual understanding of place value, rather than by applying multi-digit algorithms.			

GRADE 4 MATHEMATICS

Performance Level Descriptors

Grade 4 Math: Content (Number & Operations in Base Ten) 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
Use place value understanding and properties of operations to perform multi-digit arithmetic: 4.NBT.B.4, 4.NBT.B.5, 4.NBT.B.6			
Fluently adds and subtracts multi-digit whole numbers using the standard algorithm, with consistent accuracy.	Fluently adds and subtracts multi-digit whole numbers using the standard algorithm, with accuracy.	Fluently adds and subtracts multi-digit whole numbers using the standard algorithm, with partial accuracy.	Fluently adds and subtracts multi-digit whole numbers using the standard algorithm, with limited accuracy.
Multiplies a whole number of up to four digits by a one-digit whole number, or two two-digit whole numbers, using strategies based on place value and the properties of operations, with consistent accuracy.	Multiplies a whole number of up to four digits by a one-digit whole number, or two two-digit whole numbers, using strategies based on place value and the properties of operations, with accuracy.	Multiplies a whole number of up to four digits by a one-digit whole number, or two two-digit whole numbers, using strategies based on place value and the properties of operations, with partial accuracy.	Multiplies a whole number of up to four digits by a one-digit whole number, or two two-digit whole numbers, using strategies based on place value and the properties of operations, with limited accuracy.
Finds whole-number quotients and remainders with three- or four-digit dividends and one-digit divisors using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division, with consistent accuracy.	Finds whole-number quotients and remainders with three- or four-digit dividends and one-digit divisors using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division, with accuracy.	Finds whole-number quotients and remainders with three- or four-digit dividends and one-digit divisors using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division, with partial accuracy.	Finds whole-number quotients and remainders with three- or four-digit dividends and one-digit divisors using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division, with limited accuracy.

GRADE 4 MATHEMATICS

Performance Level Descriptors

Grade 4 Math: Content (Number & Operations – Fractions) 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
Extend understanding of fraction equivalence and ordering: 4.NF.A.1, 4.NF.A.2			
Compares fractions, with like or unlike numerators and denominators, by creating equivalent fractions with common denominators, comparing to a benchmark fraction, and generating equivalent fractions.	Compares fractions, with like or unlike numerators and denominators, by creating equivalent fractions with common denominators and comparing to a benchmark fraction.	Compares fractions, with like or unlike numerators and denominators by comparing to a benchmark fraction.	Compares fractions with like denominators.
Recognizes that fractions must refer to the same whole in order to compare, with consistent accuracy.	Recognizes, with accuracy, that fractions must refer to the same whole in order to compare.	Recognizes, with partial accuracy, that fractions must refer to the same whole in order to compare.	
Shows results using symbols, with consistent accuracy.	Shows results using symbols, with accuracy.	Shows results using symbols, with partial accuracy.	
Demonstrates the use of conceptual understanding of fractional equivalence and ordering when solving problems requiring fraction comparison.	Solves problems requiring fraction comparison.	Solves problems requiring fraction comparison, with scaffolding.	

GRADE 4 MATHEMATICS

Performance Level Descriptors

Grade 4 Math: Content (Number & Operations – Fractions) 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
Building fractions from unit fractions: 4.NF.B.3.a, 4.NF.B.3.b, 4.NF.B.3.c, 4.NF.B.3.d, 4.NF.B.4.a, 4.NF.B.4.b, 4.NF.B.4.c			
Understands and solves mathematical and real-world problems involving the addition and subtraction of fractions and mixed numbers with like denominators by joining and separating parts referring to the same whole, and justifies the solution by using a visual model.	Using visual models and/or manipulatives, solves mathematical and word problems involving the addition and subtraction of fractions and mixed numbers with like denominators by joining and separating parts referring to the same whole.	Using visual models and/or manipulatives, solves mathematical problems involving the addition and subtraction of fractions with like denominators by joining and separating parts referring to the same whole, with partial accuracy.	Using visual models and/or manipulatives, solves mathematical problems involving the addition and subtraction of fractions with like denominators by joining and separating parts referring to the same whole, with limited accuracy.
Decomposes a fraction into a sum of fractions with the same denominator in more than one way and records the decomposition using an equation, with consistent accuracy.	Decomposes a fraction into a sum of fractions with the same denominator in more than one way and records the decomposition using an equation, with accuracy.	Decomposes a fraction into a sum of fractions with the same denominator in more than one way and records the decomposition using an equation, with partial accuracy.	
Describes a visual fraction model and solves mathematical and real-world problems by recognizing that the fraction a/b is a multiple of $1/b$ and uses that construct to multiply a fraction by a whole number.	Using visual models and/or manipulatives, solves mathematical and real-world problems by recognizing that the fraction a/b is a multiple of $1/b$ and uses that construct to multiply a fraction by a whole number.	Using visual models and/or manipulatives, solves mathematical problems by recognizing that the fraction a/b is a multiple of $1/b$ and uses that construct to multiply a fraction by a whole number.	Using visual models and/or manipulatives, solves mathematical problems by recognizing that fraction a/b is a multiple of $1/b$.

GRADE 4 MATHEMATICS

Performance Level Descriptors

Grade 4 Math: Content (Number & Operations – Fractions) 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
Understand decimal notation for fractions and compare decimal fractions: 4.NF.C.5, 4.NF.C.6, 4.NF.C.7			
Converts a simple fraction to a denominator of 10 or 100 and writes as a decimal (<i>e.g.</i> , $1/2 = 5/10 = 0.5$, $1/4 = 25/100 = 0.25$, $1/20 = 5/100 = 0.05$).			
Adds fractions with denominators of 10 and 100.			
Compares decimals to hundredths; uses decimal notation for fractions with denominators 10 or 100.	Given a visual model and/or manipulatives, compares decimals to hundredths: Expresses a fraction with denominator 10 as an equivalent fraction with denominator 100. Uses decimal notation for fractions with denominators 10 or 100.	Given a visual model and/or manipulatives, compares decimals to hundredths; uses decimal notation for fractions (tenths and hundredths), with partial accuracy.	Given a visual model and/or manipulatives, compares decimals to hundredths; uses decimal notation for fractions (tenths and hundredths), with limited accuracy.

GRADE 4 MATHEMATICS

Performance Level Descriptors

Grade 4 Math: Content (Measurement & Data) 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 problems involving measurement and conversion of measurements: 4.MD.A.1, 4.MD.A.2, 4.MD.A.3			
Solves measurement problems involving whole numbers which include calculation of area and perimeter – including those in which side lengths are missing – using all four operations.	Solves measurement problems involving whole numbers which include calculation of area and perimeter – when information about side lengths is provided – using all four operations.	Solves mathematical measurement problems involving whole numbers using all four operations, with partial accuracy.	Solves mathematical measurement problems involving whole numbers using all four operations, with limited accuracy.
Solves measurement problems which include calculation of area and perimeter – including those in which side lengths are missing – using addition, subtraction, and multiplication of simple fractions.	Solves measurement problems which include calculation of area and perimeter – when information about side lengths is provided – using addition, subtraction, and multiplication of simple fractions.	Solves mathematical measurement problems using addition, subtraction, and multiplication of simple fractions.	Solves mathematical measurement problems using addition and subtraction of simple fractions.
Records measurement equivalents in a two-column table, with consistent accuracy.	Records measurement equivalents in a two-column table, with accuracy.	Records measurement equivalents in a two-column table, with partial accuracy.	
Uses knowledge of measurement units within one system to solve word problems, real-world problems, and mathematical problems involving converting from larger units to smaller units, with consistent accuracy.	Uses knowledge of measurement units within one system to solve word problems, real-world problems, and mathematical problems involving converting from larger units to smaller units, with accuracy.	Uses knowledge of measurement units within one system to convert from larger units to smaller units, with partial accuracy.	
Represents measurement quantities using diagrams such as number line diagrams that require students to provide the appropriate measurement scale given the context.	Represents measurement quantities using diagrams such as number line diagrams that feature a measurement scale.		

GRADE 4 MATHEMATICS

Performance Level Descriptors

Grade 4 Math: Content (Measurement & Data) 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
Represent and Interpret Data: 4.MD.B.4			
Makes a line plot to display a data set of measurements in fractions of a unit with like denominators limited to 2, 4, and 8, (including mixed numbers) and uses addition and subtraction of fractions to solve problems involving information in the line plots and evaluates the solution in relation to the data.	Makes a line plot to display a data set of measurements in fractions of a unit with like denominators of 2 or 4 and uses addition and subtraction of fractions to solve problems involving information in the line plot.	Makes a line plot to display a data set of measurements in fractions of a unit with like denominators of 2 or 4.	Identifies a correct line plot that displays a data set of measurements in fractions of a unit with like denominators of 2 or 4.
Geometric measurement: understand concepts of angle and measure angles: 4.MD.C.5, 4.MD.C.6, 4.MD.C.7			
Recognizes how angles are formed and that angle measures are additive.	Understands and applies concepts of angle measurement, with accuracy.	Understands and applies concepts of angle measurement, with partial accuracy.	Understands and identifies concepts of angle measurement, with limited accuracy.
Understands and applies concepts of angle measurement, recognizing that angles are measured in reference to a circle.			
Uses a protractor to measure and sketch angles, with consistent accuracy.	Uses a protractor to measure and sketch angles, with accuracy.	Uses a protractor to measure angles, with partial accuracy.	
Solves mathematical and real-world problems by composing and decomposing angles, with consistent accuracy.	Solves mathematical and real-world problems by composing and decomposing angles, with accuracy.		
Solves mathematical and real-world angle problems, including problems that require the use of equations with a symbol for the unknown angle measure.			

GRADE 4 MATHEMATICS

Performance Level Descriptors

Grade 4 Math: Content (Geometry) 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
Draw and identify lines and angles, and classify shapes by properties of their lines and angles: 4.G.A.1, 4.G.A.2, 4.G.A.3			
Draws and identifies points, lines, line segments, rays, angles (right, obtuse, and acute), perpendicular lines, parallel lines, lines of symmetry, and right triangles, and uses any of these to classify or describe two-dimensional figures, with consistent accuracy.	Draws and identifies points, lines, line segments, rays, angles (right, obtuse, and acute), perpendicular lines, parallel lines, lines of symmetry, and right triangles, and uses some of these to classify two-dimensional figures, with accuracy.	Identifies points, lines, line segments, rays, angles (right, obtuse, and acute), perpendicular lines, parallel lines, lines of symmetry, and right triangles, and uses some of these to classify quadrilaterals and triangles.	Identifies points, lines, line segments, rays, angles (right, obtuse, and acute), perpendicular lines, parallel lines, lines of symmetry, and right triangles.

GRADE 4 MATHEMATICS

Performance Level Descriptors

Grade 4 Math: Reasoning (may cross multiple reporting categories) 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: 4.NBT.A.1, 4.NBT.A.2, 4.NBT.A.3, 4.NBT.B.5, 4.NBT.B.6			
In connection with the content knowledge, skills, and abilities, the student clearly constructs and communicates a complete written response based on explanations / reasoning using the: • properties of operations • relationship between addition and subtraction • relationship between multiplication and division • identification of arithmetic patterns. Response may include: • a logical/defensible approach based on a conjecture and/or stated assumptions, utilizing mathematical connections (when appropriate) • an efficient and logical progression of steps with appropriate justification • precision of calculation • consistently accurate use of grade-level vocabulary, symbols, and labels • logical justification of a conclusion	In connection with the content knowledge, skills, and abilities, the student clearly constructs and communicates a complete written response based on explanations / reasoning using the: • properties of operations • relationship between addition and subtraction • relationship between multiplication and division • identification of arithmetic patterns. Response may include: • a logical/defensible approach based on a conjecture and/or stated assumptions, utilizing mathematical connections (when appropriate) • a logical progression of steps • precision of calculation • correct use of grade-level vocabulary, symbols, and labels • justification of a conclusion	In connection with the content knowledge, skills, and abilities, the student constructs and communicates a written response based on explanations / reasoning using the: • properties of operations • relationship between addition and subtraction • relationship between multiplication and division • identification of arithmetic patterns. Response may include: • a logical approach based on a conjecture and/or stated assumptions • a logical, but incomplete, progression of steps • minor calculation errors • some use of grade-level vocabulary, symbols, and labels • partial justification of a conclusion based on own calculations	In connection with the content knowledge, skills, and abilities, the student constructs and communicates an incomplete written response based on explanations / reasoning using the: • properties of operations • relationship between addition and subtraction • relationship between multiplication and division • identification of arithmetic patterns. Response may include: • an approach based on a conjecture and/or stated or faulty assumptions • an incomplete or illogical progression of steps • an intrusive calculation error • limited use of grade-level vocabulary, symbols, and labels • limited justification of a conclusion based on own calculations

GRADE 4 MATHEMATICS

Performance Level Descriptors

Grade 4 Math: Reasoning (may cross multiple reporting categories) 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
- evaluating, interpreting and critiquing the validity of others' responses, reasonings, and approaches, utilizing mathematical connections (when appropriate). Provides a counter-example where applicable - evaluation of whether an argument or conclusion is generalizable.	- evaluating, interpreting and critiquing the validity of others' responses, reasonings, and approaches, utilizing mathematical connections (when appropriate) - evaluation of whether an argument or conclusion is generalizable.	evaluating the validity of others' responses, approaches, and conclusions.	

GRADE 4 MATHEMATICS

Performance Level Descriptors

Grade 4 Math: Reasoning (may cross multiple reporting categories) 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: 4.NF.A.1, 4.NF.A.2, 4.NF.B.3.a, 4.NF.B.3.b, 4.NF.B.4.a, 4.NF.B.4.b, 4.NF.C.5, 4.NF.C.6, 4.NF.C.7, 4.NF.A.1, 4.NF.A.2, 4.NF.B.3.a, 4.NF.B.4.a, 4.NF.B.4.b			
In connection with the content knowledge, skills, and abilities, the student clearly constructs and communicates a well-organized and complete response based on operations using concrete referents such as diagrams – including number lines (whether provided in the prompt or constructed by the student) and connecting the diagrams to a written (symbolic) method, which may include: - a logical approach based on a conjecture and/or stated assumptions, utilizing mathematical connections (when appropriate) - an efficient and logical progression of steps with appropriate justification - precision of calculation - correct use of grade-level vocabulary, symbols, and labels - justification of a conclusion - evaluating, interpreting, and critiquing the validity of others' responses, approaches, and reasoning, and providing a counter-example where applicable - evaluation of whether an argument or conclusion is generalizable.	In connection with the content knowledge, skills, and abilities, the student clearly constructs and communicates a well-organized and complete response based on operations using concrete referents such as diagrams – including number lines (whether provided in the prompt or constructed by the student) and connecting the diagrams to a written (symbolic) method, which may include: - a logical approach based on a conjecture and/or stated assumptions, utilizing mathematical connections (when appropriate) - a logical progression of steps - precision of calculation - correct use of grade-level vocabulary, symbols, and labels - justification of a conclusion - evaluating, interpreting, and critiquing the validity of others' responses, approaches, and reasoning - evaluation of whether an argument or conclusion is generalizable.	In connection with the content knowledge, skills, and abilities, the student constructs and communicates a complete response based on operations using concrete referents such as diagrams – including number lines (provided in the prompt) – connecting the diagrams to a written (symbolic) method, which may include: - a logical approach based on a conjecture and/or stated assumptions - a logical, but incomplete, progression of steps - minor calculation errors - some use of grade-level vocabulary, symbols, and labels - partial justification of a conclusion based on own calculations - evaluating the validity of others' responses, approaches, and conclusions.	In connection with the content knowledge, skills, and abilities, the student constructs and communicates an incomplete response based on operations using concrete referents such as diagrams – including number lines (provided in the prompt) – connecting the diagrams to a written (symbolic) method, which may include: - a conjecture and/or stated or faulty assumptions - an incomplete or illogical progression of steps - an intrusive calculation error - limited use of grade-level vocabulary, symbols, and labels - limited justification of a conclusion based on own calculations - accepting the validity of others' responses.

GRADE 4 MATHEMATICS

Performance Level Descriptors

Grade 4 Math: Reasoning (may cross multiple reporting categories) 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: 4.OA.A.3, 4.NF.A.1, 4.NF.A.2, 4.NF.B.3, 4.NF.B.3a, 4.NF.B.3.b, 4.NF.B.3.c, 4.NF.B.3.d, 4.NF.B.4, 4.NF.B.4.a, 4.NF.B.4.b, 4.NF.B.4.c, 4.NF.C.5, 4.NF.C.6, 4.NF.C.7			
In connection with the content knowledge, skills, and abilities, the student clearly constructs and communicates a well-organized and complete response by: - presenting and defending solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equal signs appropriately - evaluating explanation/reasoning; if there is a flaw in the argument, presenting and defending corrected reasoning. Response may include: - a logical approach based on a conjecture and/or stated assumptions, utilizing mathematical connections (when appropriate) - an efficient and logical progression of steps with appropriate justification - precision of calculation - consistently accurate use of grade-level vocabulary, symbols, and labels	In connection with the content knowledge, skills, and abilities, the student clearly constructs and communicates a well-organized and complete response by: - presenting and defending solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equal signs appropriately - distinguishing correct explanation / reasoning from that which is flawed - identifying and describing the flaw in reasoning or describing errors in solutions to multi-step problems - presenting corrected reasoning. Response may include: - a logical approach based on a conjecture and/or stated assumptions, utilizing mathematical connections (when appropriate) - a logical progression of steps - precision of calculation - correct use of grade-level vocabulary, symbols, and labels	In connection with the content knowledge, skills, and abilities, the student constructs and communicates a complete response by: - presenting solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equal signs appropriately - distinguishing correct explanation / reasoning from that which is flawed - identifying and describing the flaw in reasoning or describing errors in solutions to multi-step problems - presenting corrected reasoning. Response may include: - a logical approach based on a conjecture and/or stated assumptions - a logical, but incomplete, progression of steps - minor calculation errors - some use of grade-level vocabulary, symbols, and labels	In connection with the content knowledge, skills, and abilities, the student constructs and communicates an incomplete response by: - presenting solutions to scaffolded two-step problems in the form of valid chains of reasoning, sometimes using symbols such as equal signs appropriately - distinguishing correct explanation / reasoning from that which is flawed - identifying an error in reasoning. Response may include: - a conjecture based on faulty assumptions - an incomplete or illogical progression of steps - an intrusive calculation error - limited use of grade-level vocabulary, symbols, and labels

GRADE 4 MATHEMATICS

Performance Level Descriptors

Grade 4 Math: Reasoning (may cross multiple reporting categories) 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
- logical justification of a conclusion - evaluating, interpreting and critiquing the validity of others' responses, approaches, and reasoning, and providing a counter-example where applicable - evaluation of whether an argument or conclusion is generalizable.	- justification of a conclusion - evaluating, interpreting and critiquing the validity of others' responses, approaches, and reasoning - evaluation of whether an argument or conclusion is generalizable.	- partial justification of a conclusion based on own calculations - evaluating the validity of others' responses, approaches, and conclusions.	- limited justification of a conclusion based on own calculations - accepting the validity of others' responses.

GRADE 4 MATHEMATICS

Performance Level Descriptors

Grade 4 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: 4.NBT.A.1, 4.NBT.A.2, 4.NBT.A.3, 4.NBT.B.4, 4.NBT.B.5, 4.NBT.B.6, 4.NF.A.1, 4.NF.A.2, 4.NF.B.3.a, 4.NF.B.3.b, 4.NF.B.3.c, 4.NF.B.3.d, 4.NF.B.4.a, 4.NF.B.4.b, 4.NF.B.4.c, 4.NF.C.5, 4.NF.C.6, 4.NF.C.7, 4.OA.A.1, 4.OA.A.2, 4.OA.A.3			
In connection with the content knowledge, skills, and abilities, the student devises a plan and applies mathematics to solve multi-step, real-world contextual word problems by: • using stated assumptions or making assumptions and using approximations to simplify a real-world situation • analyzing and/or creating constraints, relationships, and goals • mapping relationships between important quantities by selecting appropriate tools to create models • analyzing relationships mathematically between important quantities to draw conclusions • justifying and defending models which lead to a conclusion • reflecting on whether the results make sense • improving the model if it has not served its purpose • writing a concise arithmetic expression or equation to describe a situation • interpreting mathematical results in the context of the situation.	In connection with the content knowledge, skills, and abilities, the student devises a plan and applies mathematics to solve multi-step, real-world contextual word problems by: • using stated assumptions or making assumptions and using approximations to simplify a real-world situation • mapping relationships between important quantities by selecting appropriate tools to create models • analyzing relationships mathematically between important quantities to draw conclusions • reflecting on whether the results make sense • modifying and/or improving the model if it has not served its purpose • writing an arithmetic expression or equation to describe a situation • interpreting mathematical results in the context of the situation.	In connection with the content knowledge, skills, and abilities, the student devises a plan and applies mathematics to solve multi-step, real-world contextual word problems by: • using stated assumptions and approximations to simplify a real-world situation • illustrating relationships between important quantities by using provided tools to create models • analyzing relationships mathematically between important quantities to draw conclusions • reflecting on whether the results make sense • modifying the model if it has not served its purpose • writing an arithmetic expression or equation to describe a situation • interpreting mathematical results in a simplified context.	In connection with the content knowledge, skills, and abilities, the student devises a plan and applies mathematics to solve multi-step, real-world contextual word problems by: • using stated assumptions and approximations to simplify a real-world situation • identifying important quantities • analyzing relationships mathematically to draw conclusions • using provided tools to create models • writing an arithmetic expression or equation to describe a situation.