Oklahoma Mathematics

Performance Level Descriptor Tables

Performance Level Descriptors

PLD Level	Below Basic	Basic	Proficient	Advanced
OK Policy Definition	*Students have not performed at least at the Basic level.*	*Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.*	*Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level.*	*In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students demonstrate superior performance on challenging subject matter.*

Grade 3 Math

Obj(s)	Basic	Proficient	Advanced
Numbers & Operations			
3.N.1.1, 3.N.1.2, 3.N.1.4	Represent and describe whole numbers up to 100,000.	Compare and order whole numbers.	Compare and order whole numbers when numbers are given in different forms.
3.N.1.3, 3.N.2.3, 3.N.2.5, 3.N.2.7, 3.N.2.8	Solve addition and subtraction problems.	Solve multiplication problems. Recognize the relationship between multiplication and division.	Assess the reasonableness of results in addition and subtraction problems.
3.N.1.5, 3.N.2.4		Round numbers to the nearest thousand, ten thousand, and hundred thousand.	Use rounding to estimate sums and differences.
3.N.2.1, 3.N.2.6		Represent multiplication and division facts by modeling a variety of approaches.	
3.N.2.2		Demonstrate fluency with multiplication facts.	
3.N.3.1, 3.N.3.2, 3.N.3.3, 3.N.3.4	Read and write fractions. Apply understanding of unit fractions. Represent fractions with models.	Compose and decompose fractions.	Compare and order fractions using models.
3.N.4.1, 3.N.4.2	Determine the value of a set of coins or a set of bills.		
Algebraic Reasoning & Algebra			
3.A.1.1, 3.A.1.2, 3.A.1.3	Describe patterns.	Describe the rule for a pattern.	Create and extend patterns.
3.A.2.1		Determine unknowns (represented by symbols) in one-step addition, subtraction, and multiplication equations.	Generate real-world situations to represent number sentences.
3.A.2.2	Identify commutative, identity, and associative properties.	Apply commutative, identity, and associative properties.	
Geometry & Measurement			
3.GM.1.1, 3.GM.1.2, 3.GM.2.3	Sort three-dimensional figures based on attributes.	Build a three-dimensional figure using unit cubes.	Count cubes to find the number of cubes needed to pack the whole or half of a structure.
3.GM.1.3	Identify right angles.	Classify angles.	
3.GM.2.1		Determine the perimeter of polygons.	
3.GM.2.2, 3.GM.2.4		Determine the area of two-dimensional figures.	Analyze why length and width are multiplied to find the area of a rectangle.
3.GM.2.5, 3.GM.2.6	Choose an appropriate instrument to measure the length of an object.	Measure length.	
3.GM.2.7		Use an analog thermometer to determine temperature.	

Grade 3 Math

Obj(s)	Basic	Proficient	Advanced
3.GM.3.1, 3.GM.3.2	Read and write time from a digital clock.	Read and write time from an analog clock.	Determine elapsed time.
Data & Probability			
3.D.1.1	Collect data.	Organize a data set using a frequency table, line plot, pictograph, or bar graph with intervals of one.	Organize a data set using a frequency table, line plot, pictograph, or bar graph with intervals other than one.
3.D.1.2		Solve one-step problems represented with a frequency table, pictograph, or bar graph with scaled intervals.	Solve two-step problems represented with a frequency table, pictograph, or bar graph with scaled intervals.

Grade 4 Math

Obj(s)	Basic	Proficient	Advanced
		Numbers & Operations	
4.N.1.1, 4.N.1.2, 4.N.1.4	Represent and describe whole numbers up to 1,000,000.	Use place value to compare and order whole numbers.	
4.N.1.3		Apply knowledge of place value to multiply a number by 10, 100, and 1,000.	
4.N.2.1, 4.N.2.2, 4.N.2.3	Demonstrate fluency with multiplication and division facts.	Multiply and estimate 3-digit by 1-digit and 2-digit by 2-digit whole numbers.	Assess the reasonableness of the estimation of 3-digit by 1-digit and 2-digit by 2-digit whole-number products.
4.N.2.4		Solve multi-step problems.	Apply and analyze models to solve multi-step problems and assess the reasonableness of results.
4.N.2.5		Divide a 3-digit dividend by a 1-digit divisor with and without remainder.	
4.N.3.1	Use models to determine equivalent fractions.		
4.N.3.2		Use benchmark fractions to locate additional fractions on a number line.	
4.N.3.3	Use models to compare and order fractions with like denominators.	Use models to compare and order fractions with unlike denominators.	
4.N.3.4, 4.N.3.5	Use models to add and subtract fractions.	Decompose fractions.	
4.N.3.1, 4.N.3.6	Represent tenths and hundredths with models.	Make connections between fractions (tenths and hundredths) and decimals with models.	
4.N.3.7, 4.N.3.8, 4.N.3.9	Read and write decimals up to the hundredths place, including money.	Compare and order benchmark fractions. Compare and order decimals.	Compare and order benchmark fractions to decimals.
4.N.4.1		Select the fewest number of coins for a given amount of money.	
4.N.4.2	Determine change using whole dollars.	Determine change using coins and dollars.	
		Algebraic Reasoning & Algebra	
4.A.1.1, 4.A.1.2	Create an input/output table.	Determine rules and extend patterns shown in input/output tables.	
4.A.1.3		Define the single operation rule of a pattern involving geometric shapes.	Construct models to show growth patterns involving geometric shapes.
4.A.2.1, 4.A.2.2	Use the relationships between multiplication and division with the properties of multiplication to solve problems.	Solve for a variable in an equation with addition, subtraction, multiplication, and division of whole numbers.	Analyze models to represent number sentences.
4.A.2.3		Determine unknown values in equivalent expressions.	Determine unknown values in non-equivalent expressions.

Grade 4 Math

Obj(s)	Basic	Proficient	Advanced
Geometry & Measurement			
4.GM.1.1	Identify points, endpoints, and angles.	Identify lines, line segments, rays, and parallel and perpendicular lines.	
4.GM.1.2	Describe and recognize quadrilaterals.	Classify quadrilaterals.	Construct quadrilaterals.
4.GM.1.3	Identify three-dimensional figures.	Compare and contrast the similarities and differences of three-dimensional figures based on their attributes.	
4.GM.2.1		Measure angles.	
4.GM.2.2		Decompose and determine the area of polygons.	
4.GM.2.3		Develop the concept of volume.	Create models to determine volume.
4.GM.2.4, 4.GM.2.5, 4.GM.2.6, 4.GM.2.7	Identify appropriate units and tools to measure length. Measure the lengths of objects.	Compare the lengths of objects.	Determine and justify the best use of customary and metric measurements in a variety of situations.
4.GM.3.1, 4.GM.3.2		Convert measurements of time.	Determine elapsed time.
Data & Probability			
4.D.1.1, 4.D.1.2		Create a frequency table or line plot with whole numbers. Organize data sets to create tables, bar graphs, timelines, and Venn diagrams with whole numbers.	Create a frequency table or line plot with fractions. Organize data sets to create tables, bar graphs, timelines, and Venn diagrams with fractions.
4.D.1.3		Solve one-step problems by analyzing data in whole-number, decimal, or fraction form in a frequency table and line plot.	Solve two-step problems by analyzing data in whole-number, decimal, or fraction form in a frequency table and line plot.

Grade 5 Math

Obj(s)	Basic	Proficient	Advanced
		Numbers & Operations	
5.N.1.1	Represent decimal fractions with a model.		
5.N.1.2, 5.N.1.3, 5.N.1.4	Recognize and generate equivalent decimals, fractions, and mixed numbers and represent whole numbers.	Compare and order fractions. Compare and order decimals.	Order a mix of decimals, fractions, mixed numbers, and whole numbers.
5.N.2.1, 5.N.2.2, 5.N.2.3, 5.N.2.4	Solve division, multiplication, addition, and subtraction problems.	Estimate and solve division problems with the remainder represented as a fraction, decimal, or whole number.	Interpret the remainder of division problems within the context of the problem.
5.N.3.1, 5.N.3.2, 5.N.3.3, 5.N.3.4	Add and subtract decimals and fractions with like denominators.	Estimate, illustrate, add, and subtract fractions and mixed numbers.	
		Algebraic Reasoning & Algebra	
5.A.1.1, 5.A.1.2	Describe patterns of change. Identify the origin and axes in relation to the coordinates.	Graph patterns of change as ordered pairs on a coordinate plane. Use a rule or table to represent ordered pairs.	Make predictions and generalizations about patterns of change.
5.A.2.1, 5.A.2.3	Generate equivalent numerical expressions.	Evaluate numerical expressions.	Apply the order of operations, commutative property, associative property, and distributive property.
5.A.2.2	Determine whether an equation involving a variable is true or false for a given value of the variable.	Determine whether an inequality involving a variable is true or false for a given value of the variable.	
		Geometry & Measurement	
5.GM.1.1	Describe and identify triangles.	Classify triangles by their attributes.	Construct triangles.
5.GM.1.2	Describe, identify, and classify three-dimensional figures when given an image.	Using attributes, describe, identify, and classify three-dimensional figures without a given image.	
5.GM.1.3	Recognize nets for three-dimensional figures.	Construct nets for three-dimensional figures.	
5.GM.2.1		Determine volume of rectangular prisms.	Compare volumes of rectangular prisms.
5.GM.2.2		Estimate perimeter of polygons and shapes that may include curves.	Justify perimeter of shapes that may include curves.
5.GM.3.1	Measure angles.	Compare angles.	
5.GM.3.2, 5.GM.3.3, 5.GM.3.4	Choose an appropriate instrument to measure lengths. Measure the lengths of objects.	Apply the relationship between units to convert and compare objects to solve problems.	
5.GM.3.5		Estimate lengths and geometric measurements.	
		Data & Probability	
5.D.1.1		Calculate the mean, median, mode, and range of a data set.	
5.D.1.2		Create and analyze line and double bar graphs with whole numbers.	Create and analyze line and double bar graphs with fractions or decimals.

Obj(s)	Basic	Proficient	Advanced
	Numbers & Operations		
6.N.1.1	Represent reflective relationships between integers and their opposites. Explain the meaning of zero.		
6.N.1.2	Read and represent integers or other positive rational numbers.	Order and compare integers or other positive rational numbers.	Explain integers or other positive rational numbers.
6.N.1.3, 6.N.1.4	Explain that a percent represents parts "out of 100" and ratios "to 100."	Find equivalent fractions, mixed numbers, decimals, and percents.	
6.N.2.1, 6.N.2.2, 6.N.2.3	Illustrate and compute the addition and subtraction of integers.	Estimate addition and subtraction of integers.	Assess the reasonableness of an answer to addition and subtraction of integers.
6.N.2.4	Evaluate powers with whole-number bases and exponents.	Identify and represent patterns with whole-number exponents and perfect squares.	
6.N.2.5, 6.N.2.6	Factor whole numbers.	Write positive integers as products of prime factors. Determine greatest common factor and least common multiple.	Use greatest common factor and least common multiple to calculate with fractions, find equivalent fractions, and express the sum of two-digit numbers with a common factor using the distributive property.
6.N.3.1, 6.N.3.2, 6.N.3.3	Identify ratios.	Use ratios to compare and relate quantities. Determine unit rates. Recognize that multiplicative comparison and additive comparison are different.	Apply the relationship between ratios, equivalent fractions, unit rates, and percents to solve problems in various contexts.
6.N.4.1, 6.N.4.2, 6.N.4.3	Solve problems involving multiplication and division of fractions and decimals.	Illustrate multiplication and division of fractions and decimals. Estimate solutions involving multiplication and division of fractions and decimals.	Use estimates to assess the reasonableness of solutions involving multiplication and division of fractions and decimals in the context of the problem.
6.N.4.4		Use modeling to interpret problems including money, measurement, geometry, and data.	
	Algebraic Reasoning & Algebra		
6.A.1.1, 6.A.1.2	Graph ordered pairs in all quadrants.	Represent relationships between varying positive quantities with rules, graphs, and tables.	
6.A.1.3, 6.A.2.1, 6.A.3.1	Evaluate the value of a variable in expressions, equations, and inequalities.	Model or generate expressions, equations, and inequalities.	
6.A.3.2	Use number sense and properties of operations to solve and graph one-step equations on a number line.	Interpret the solution of a one-step equation.	Assess the reasonableness of the solution of a one-step equation.
	Geometry & Measurement		
6.GM.1.1, 6.GM.1.2	Identify and display the effect of transformations.	Describe, apply, and predict transformations and use transformations to show congruence.	
6.GM.1.3	Identify lines of symmetry.	Describe lines of symmetry.	
6.GM.2.1, 6.GM.2.2, 6.GM.2.3	Determine the area of parallelograms, squares, and triangles.	Determine the area of polygons that can be decomposed into triangles and rectangles.	Develop the formulas for the area of parallelograms, squares, and triangles.

Obj(s)	Basic	Proficient	Advanced
6.GM.3.1, 6.GM.3.2	Identify angle relationships by name.	Use relationships between angles and the triangle sum theorem to solve problems.	
6.GM.4.1, 6.GM.4.2		Estimate weights and capacities. Estimate and solve problems requiring conversion of lengths.	
Data & Probability			
6.D.1.1, 6.D.1.2		Interpret the mean, median, and mode for a set of data.	Justify which measure of center would provide the most descriptive information for a set of data.
6.D.2.1, 6.D.2.2, 6.D.2.3	Represent possible outcomes using a probability continuum. Determine the sample space of simple experiments and identify possible outcomes.	Compare possible outcomes of simple experiments.	Analyze the differences between two outcomes of simple experiments.

Obj(s)	Basic	Proficient	Advanced
Numbers & Operations			
7.N.1.1		Compare and order rational numbers.	
7.N.1.2	Recognize equivalent representations of rational numbers.	Generate equivalent representations of rational numbers.	
7.N.1.3	Calculate the absolute value of a rational number.	Explain the absolute value of a rational number as the distance of that number from zero on a number line.	Apply the concept of absolute value to model and solve problems.
7.N.2.1		Estimate solutions of problems involving rational numbers.	Assess the reasonableness of the solutions of problems with rational numbers.
7.N.2.2, 7.N.2.3	Multiply and divide integers.	Illustrate multiplication and division of integers using a variety of representations.	
7.N.2.4, 7.N.2.5	Solve problems involving rational numbers and exponents.	Model problems involving rational numbers and exponents.	
Algebraic Reasoning & Algebra			
7.A.1.1, 7.A.1.2	Identify a proportional relationship.	Identify the constant of proportionality from a graph.	
7.A.2.1		Represent proportional relationships in a variety of ways and determine unit rates.	Translate from one representation of a proportional relationship to another.
7.A.2.2, 7.A.2.3, 7.A.2.4		Solve problems involving proportional relationships.	Assess the reasonableness of solutions of problems involving proportional relationships.
7.A.3.1	Solve equations.	Write equations.	
7.A.3.2	Solve and graph inequalities.	Write inequalities.	Interpret equations and inequalities involving variables and rational numbers.
7.A.4.1, 7.A.4.2	Evaluate expressions using the order of operations.	Generate and evaluate equivalent expressions.	Justify the steps when evaluating expressions.
Geometry & Measurement			
7.GM.1.1, 7.GM.1.2., GM.1.3	Develop the concepts of surface area and volume of rectangular prisms.	Develop the concepts of surface area and volume of rectangular prisms with non-whole number units. Calculate surface area of rectangular prisms.	
7.GM.2.1, 7.GM.2.2	Calculate perimeter of composite figures.	Calculate area of trapezoids and composite figures.	Develop the formula for area of trapezoids.
7.GM.3.1		Solve problems that require conversions of weights and capacities.	
7.GM.3.2, 7.GM.3.3	Recognize that pi can be approximated by rational numbers such as 22/7 and 3.14. Calculate the circumference and area of circles.	Demonstrate an understanding of the proportional relationship between the diameter and circumference of a circle.	Make connections between circumference and area to solve problems involving circles.
7.GM.4.1	Determine scale factors resulting from dilations.	Use scale factors to solve problems.	
7.GM.4.1		Describe similarity and compare figures for similarity.	

Obj(s)	Basic	Proficient	Advanced
7.GM.4.2	Determine side lengths of similar triangles and rectangles.	Determine areas of similar triangles and rectangles.	
7.GM.4.3	Describe the effect of dilations, translations, and reflections.	Apply and graph the effect of dilations, translations, and reflections.	Apply and graph rotations. Analyze the effect of dilations and multiple transformations.
Data & Probability			
7.D.1.1			Design simple experiments and use data to draw conclusions and make predictions.
7.D.1.1	Calculate measures of central tendency and spread.		Use measures of central tendency and spread to draw conclusions about data collected and make predictions.
7.D.1.2		Display information on circle graphs and histograms.	Interpret information from circle graphs and histograms.
7.D.1.3		Use box plots to identify relevant data.	Analyze box plots.
7.D.2.1, 7.D.2.2, 7.D.2.3	Calculate theoretical probability.	Interpret theoretical probability and draw conclusions.	Predict relative frequencies based on theoretical probabilities.

Grade 8 Math

Obj(s)	Basic	Proficient	Advanced
Numbers & Operations			
PA.N.1.2, PA.N.1.3	Translate between standard form and scientific notation.	Multiply and divide numbers expressed in scientific notation.	
PA.N.1.2, PA.N.1.4	Locate, identify, compare, and order rational numbers on and off a number line.	Locate, identify, compare, and order irrational numbers on and off a number line.	
PA.N.1.4	Identify square roots of perfect squares.	Locate square roots that are irrational numbers between two consecutive positive integers.	
PA.N.1.1		Apply the properties of integer exponents.	Develop the properties of integer exponents.
Algrebraic Reasoning & Algebra			
PA.A.3.1, PA.A.3.2	Simplify and generate equivalent expressions.	Evaluate equivalent expressions. Evaluate expressions.	Justify equivalent expressions.
PA.A.4.1	Solve linear equations.	Represent situations using linear equations.	Interpret solutions of linear equations.
PA.A.4.2		Represent, write, solve, and graph inequalities.	
PA.A.2.2	Identify linear relationships.	Describe linear relationships.	Analyze linear relationships.
PA.A.1.1		Recognize that a function is a relationship between an independent variable and a dependent variable.	
PA.A.1.3	Identify linear functions from a graph.	Identify linear functions from an equation.	
PA.A.1.3	Identify linear relationships between two variables.	Describe linear relationships between two variables.	Analyze linear relationships between two variables.
PA.A.1.2, PA.A.2.1, PA.A.2.3, PA.A.2.5, PA.A.4.1, PA.A.4.2, PA.A.4.3	Describe linear functions with two variables.	Represent and solve linear functions with two variables.	Analyze linear functions with two variables and interpret results.
PA.A.2.3	Identify slope.	Identify intercepts.	
PA.A.2.4		Predict the effect on the graph of a linear function when the y-intercept is changed.	Predict the effect on the graph of a linear function when the slope is changed.
Geometry & Measurement			
PA.GM.2.1, PA.GM.2.2, PA.GM.2.3, PA.GM.2.4	Calculate the surface area of rectangular prisms.	Calculate the surface area and volume of right cylinders.	Justify the formulas for volume of rectangular prisms and right cylinders.
PA.GM.1.1, PA.GM.1.2		Use and apply the Pythagorean theorem.	Justify the Pythagorean theorem.
Data & Probability			
PA.D.1.1			Describe the impact that inserting or deleting a data point has on the mean and the median of a data set.
PA.D.1.2		Explain how outliers affect measures of center and spread.	

Grade 8 Math

Obj(s)	Basic	Proficient	Advanced
PA.D.1.3	Collect and display information on a scatter plot.	Identify the informal line of best fit from a given scatter plot.	Interpret a scatter plot, determine the rate of change, and use a line of best fit to make predictions.
PA.D.2.1, PA.D.2.2, PA.D.2.3	Identify sample spaces, classify events as independent or dependent.	Calculate experimental probability, determine how samples are chosen, and generalize samples to populations.	Interpret and predict experimental probability.