PAWS MATH ASSESSMENT DESCRIPTIONS VERTICAL ALIGNMENT

	CONTENT STANDARD - Number Operations and Concepts	
SKILLS	**GRADE**	**CONTEXT**
Understand the meaning of arithmetic operations and make reasonable estimates	11	Problem solving situations with estimation and real-world problems involving real numbers and using reasoning to justify results; and prediction of the effect of operations on real numbers.
	8	Problem solving situations with estimation and real-world problems involving rational numbers and/or justification of results by inductive reasoning and; fraction/percent/decimal conversions.
	7	Problem solving situations with estimation and real-world problems involving fractions, decimals, rational numbers and percentages; and fraction/decimal conversions.
	6	Problem solving situations will include conversion and simplification of proper and improper fractions and mixed numbers; rounding decimal places to 10ths, 100ths, and wholes; and estimation of whole numbers and decimals (tenths, hundredths, and thousandths) greater than zero.
	5	Problem solving situations will include estimation and real world problems involving fractions with like denominators.
	4	Problem solving situations will include estimation and real world problems involving whole numbers up to 999,999
	3	Problem solving situations will include estimation and real world problems involving whole numbers up to 9999; and rounding to the nearest 10 or 100 (or front-end loading).
Understand ways to represent numbers, relationships among numbers, and number systems	11	Problem solving situations with real numbers and using proportional reasoning to solve real-world problems involving real numbers with justification of results
	8	Problem solving situations and a variety of models will include representing, ordering, and comparing with rational and integer numbers.
	7	Problem solving situations will include representing, ordering, and comparing rational numbers that are greater than or equal to 0, percentages, and a variety of models to allow students to develop arguments to support conclusions.
	6	Problem solving situations will include the use of place value to read and write decimals (to thousandths) in words and standard form; ordering, and comparison of whole numbers and decimals (tenths, hundredths, and thousandths) greater than zero; and representation of whole numbers and fractions greater than zero on the number line.
	5	Problem solving situations will include ordering and comparing fractions with like denominators; using place value to read and write whole numbers in words, standard, and expanded forms, and decimals to hundredths.
	4	Problem solving situations will include representing, comparing, and ordering whole numbers up to 999,999; recognition of common fractions, halves, thirds, and fourths as part of a whole using area models; and using place value to read and write decimals (to hundredths) and whole numbers up to 999,999 in words, standard, and expanded forms.
	3	Problem solving situations will include comparing and ordering whole numbers up to 9999; and using place value to read and write whole numbers in words or standard form up to 9999.

PAWS MATH ASSESSMENT DESCRIPTIONS VERTICAL ALIGNMENT

SKILLS	GRADE	CONTEXT
		CONTENT STANDARD - Number Operations and Concepts
Develop the connection between conceptual understanding and computational proficiency	11	Problem solving situations requiring computational fluency with rational numbers; and using whole number powers.
	8	Problem solving situations will include rational numbers, factors, multiples, and powers up to 5 of a given whole number; and computational fluency with integers to include the order of operations.
	7	Problem solving situations will include rational numbers; fractions and mixed numbers (with like denominators), multiplying and dividing decimals (to hundredths), dividing whole numbers by 2-digit divisors; and computational fluency with integers and applying the order of operations in real-world problems involving whole numbers (excluding roots and powers) requiring inductive reasoning to justify results.
	6	Problem solving situations will include computational fluency with addition and subtraction of decimals, multiplication of whole numbers, and division of two-digit whole numbers greater than zero.
	5	Problem solving situations with computational fluency requiring explanation of the relationships among the four operations and determination of multiples and factors of numbers up to 100; adding and subtracting fractions with like denominators; adding and subtracting decimals to hundredths; solving problems in the context of money; and multiplying by two digit whole numbers and dividing by single digit whole numbers.
	4	Problem solving situations will include mathematical reasoning by computational fluency with explanation of the strategies used in problem solving including multiplication by single digits; adding and subtracting to thousands, multiplying hundreds by a single digit; and solving problems in the context of money making combinations up to $10, and making change up to $5.
	3	Problem solving situations will include mathematical reasoning by computational fluency with explanation of the strategies used in problem solving including addition or subtraction of whole numbers up to 20; adding and subtracting three digit numbers and solving problems in the context of money using coins and bills to compare values and make combinations up to $5.

PAWS MATH ASSESSMENT DESCRIPTIONS VERTICAL ALIGNMENT

SKILLS	GRADE	CONTEXT
	— CONTENT STANDARD - Geometry	

SKILLS	GRADE	CONTEXT
Specify locations and describe spatial relationships using coordinate geometry and other representational systems	11	Problem solving situations will include the concepts of perpendicularity, parallelism, and the Pythagorean Theorem; the coordinate plane (finding midpoints, distance, and slope) to include spatial reasoning and models.
	8	Problem solving situations will include the Pythagorean Theorem; classifying/describing lines, rays, segments, and angles; and allow students to use spatial reasoning and models to demonstrate perpendicularity, and parallelism.
	7	Problem solving situations requiring spatial reasoning and modeling to discuss perpendicularity, parallelism, and objects such as lines, rays, segments, and angles.
	6	Problem solving situations will include identifying, classifying, and drawing lines (parallel, perpendicular, and intersecting) and angles (acute, right, and obtuse).
	5	Problem solving situations will include identifying and classifying lines (parallel, perpendicular, and intersecting) and angles (acute, right, and obtuse).
	4	Problem solving situations will include demonstrating an understanding of relationships with lines by recognizing parallel, perpendicular, or intersecting lines.
	3	Not assessed at this grade
Analyze characteristics and properties of two- and three-dimensional geometric shapes	11	Not assessed at this grade
	8	Not assessed at this grade
	7	Problem solving situations will include geometrical attributes of spheres, right prisms, cylinders, cones, and pyramids to allow students to use spatial reasoning and geometric modeling.
	6	Problem solving situations will include geometrical attributes of circles and regular polygons to allow students to use spatial reasoning and geometric modeling.
	5	Problem solving situations will include geometrical attributes of quadrilaterals, triangles and 3-dimensional figures, such as cylinders, cones, pyramids, rectangular prisms, and spheres allowing students to use spatial reasoning and geometric modeling to identify, classify, and describe.
	4	Problem solving situations will include geometrical attributes of 2- and 3-dimensional objects (sides, edges, vertices, or faces), allowing students to use spatial reasoning and geometric modeling to classify and describe.
	3	Problem solving situations will include identifying and describing 2-dimensional objects (squares, rectangles, triangles, and circles).

PAWS MATH ASSESSMENT DESCRIPTIONS VERTICAL ALIGNMENT

CONTENT STANDARD - Geometry		
SKILLS	**GRADE**	**CONTEXT**
Apply transformations and use symmetry to analyze mathematical situations	11	Problem solving situations will consist of communication with mathematical language to interpret, analyze, and/or illustrate transformations, congruency and similarity of 2-dimensional geometric objects.
	8	Problem solving situations include real-world situations requiring communicating with mathematical language to interpret, analyze, and/or illustrate transformations, congruency and similarity
	7	Problem solving situations will include communicating with mathematical language to interpret, analyze, and/or illustrate congruency and similarity and comparison of polygons.
	6	Problem solving situations will include communicating with mathematical language to identify and classify congruent objects when properties of shapes are provided.
	5	Problem solving situations will include demonstrating an understanding of symmetry and/or congruency by drawing, comparing, and identifying these characteristics in quadrilaterals and triangles
	4	Problem solving situations will include identifying and describing reflections of common polygons.
	3	Problem solving situations will include demonstrating an understanding of relationships with lines by identifying lines of symmetry and; identifying and drawing congruent objects that are grade level appropriate using spatial reasoning to justify congruence.

PAWS MATH ASSESSMENT DESCRIPTIONS VERTICAL ALIGNMENT

SKILLS	GRADE	CONTEXT
		CONTENT STANDARD - Measurement
Understand measurable attributes of objects and the units, systems, and processes of measurement	11	Problem solving situations will include scale, ratios, and proportions and converting measures within metric and customary systems of measurement; and angle measure (such as properties of complementary and/or supplementary angles). Models and real-world problems will allow for use of proportional reasoning to increase student's understanding of the topic.
	8	Problem solving situations which require use of appropriate methods, tools, units, and proportional reasoning to solve problems involving angle measures (such as the concept of complementary and/or supplementary angle relationships); models and real-world problems including estimation and conversion of weight/mass/capacity/volume within metric and customary units.
	7	Problem solving situations will include the use of appropriate methods, tools, and units to solve problems involving estimation and conversion of weight and capacity using metric units and conversion of measurements of length within the metric and customary systems.
	6	Problem solving situations will include the use of appropriate methods, tools, and units to solve problems involving estimation and measure of length, weight and capacity using metric units; and conversion of measurements of length within the metric system and weight and capacity in the U.S. customary system
	5	Problem solving situations will include the use of appropriate methods, tools, and units to solve problems involving estimation and measure of length, weight and capacity using customary units (miles, yards, feet, half-inch, quarter-inch, eighth-inch, ounces, pounds, teaspoons, tablespoons, cups, pints, quarts, and gallons); conversion of customary measurements; and conversion among seconds, minutes, and hours.
	4	Problem solving situations will include the use of appropriate methods, tools, and units to solve problems involving estimation and measure of length, weight and capacity using customary units (yards, feet, inch, half inch, quarter inch, ounces, pounds, teaspoons, tablespoons, cups, pints, quarts, gallons); and reasoning about the relationships within the U.S. customary system (seconds, minutes, hours) and elapsed time (nearest minute).
	3	Problem solving situations will include the use of appropriate methods, tools, and units to solve problems involving estimation and measure of length or capacity using customary units (inches, feet, yards, cups, quarts, and gallons); and reading time using digital and analog clocks.

PAWS MATH ASSESSMENT DESCRIPTIONS VERTICAL ALIGNMENT

CONTENT STANDARD - Measurement		
SKILLS	**GRADE**	**CONTEXT**
Apply appropriate techniques, tools, and formulas to determine perimeter, area or volume	11	Problem solving situations will require calculating surface areas of cones, cylinders, and square pyramids; and volumes of cones, cylinders, and square pyramids.
	8	Problem solving situations will include calculating area and circumference of circles and surface area and volume of rectangular solids in real-world situations.
	7	Problem solving situations will include calculating circumference of circles and interpreting models and real-world situations involving area of triangles and trapezoids
	6	Problem solving situations will include calculating the perimeter of regular polygons with no more than 8 sides and the area of parallelograms with and without models.
	5	Problem solving situations will include calculating or estimating the perimeter and area of rectangles and squares without grids and of triangles with grids.
	4	Problem solving situations will include the use of sound reasoning to calculate perimeter or area of rectangles and squares using models.
	3	Problem solving situations will include calculation of perimeter of rectangles and squares using models.

PAWS MATH ASSESSMENT DESCRIPTIONS VERTICAL ALIGNMENT

SKILLS	GRADE	CONTENT STANDARD - Algebra
		CONTEXT
Understand patterns, relations, and functions	11	Problem solving situations with expressions, equations, and inequalities and the use of symbolic reasoning.
	8	Problem solving situations will include 1-step equations, with integer coefficients and solutions, and using the order of operations, given integer values for variables, in linear expressions and formulas
	7	Problem solving situations will include 1-step equations with whole number coefficients and solutions; and algebraic expressions and formulas using the order of operations given positive integer values for variables
	6	Problem solving situations will require the use of sound reasoning to recognize, describe, and extend numeric patterns in a problem solving situation.
	5	Problem solving situations will include the use of sound reasoning to identify, describe, create growing and extended patterns, such as number or graphic sequences including charts and graphs.
	4	Problem solving situations will include the use of sound reasoning to identify, describe, extended growing patterns (up to 4 places) using manipulatives, numbers, or graphic representations and/or explain results or determine and explain the rule when given a pattern or sequence.
	3	Problem solving situations will include the use of sound reasoning to identify, describe, and extend patterns (up to 2 places) using manipulatives, numbers, or graphic representations and/or explain results.
Use mathematical models to represent and understand quantitative relationships	11	Problem solving situations will consist of graphing, solving or interpreting linear equations and systems of linear equations. Modeling with real-world problems will allow for inductive reasoning to make conjectures and deductive reasoning to justify conclusions.
	8	Problem solving situations will include creating tables and graphing the solutions on a coordinate plane; and using symbolic reasoning to translate word problems involving one or more of the four basic operations into mathematical expressions and equations
	7	Problem solving situations with the coordinate system to plot and identify points in all four quadrants; and use of symbolic reasoning to translate word phrases involving addition and subtraction into algebraic expressions
	6	Problem solving situations will require using symbolic reasoning to represent the concepts of a variable as an unknown quantity, letter, or symbol within any one-step whole number operation.
	5	Problem solving situations will include using symbolic reasoning to represent the concepts of a variable as an unknown quantity, letter, or symbol in addition or subtraction sentences using whole numbers.
	4	Not Assessed at this grade level
	3	Not assessed at this grade level

PAWS MATH ASSESSMENT DESCRIPTIONS VERTICAL ALIGNMENT

CONTENT STANDARD - Data Analysis and Probability		
SKILLS	**GRADE**	**CONTEXT**
Collect, organize, and display relevant data to answer questions and use appropriate statistical methods to analyze the data	11	Problem solving situations utilizing mean, median, mode, and range; analyzing correlation or line of best fit to determine the likelihood an event will occur; and using statistical reasoning to make generalizations about a population
	8	Problem solving situations with mean, median, mode, and range. Contexts will allow students to make observations, inferences, conjectures, and use statistical reasoning to make generalizations about a population from data presented as tables, charts, diagrams, and graphs.
	7	Problem solving situations with mean, median, mode, and range. Contexts will allow students to make observations, inferences, conjectures, and use statistical reasoning to make generalizations about a population from data presented in a variety of ways, including histograms.
	6	Problem solving situations will require finding and interpreting mean and mode for data sets of no more than 10 pieces of data in real-world situations; and collecting, organizing, describing, and representing data using a variety of data displays including line graphs.
	5	Problem solving situations will include finding and interpreting mode for data sets of no more than five pieces of data in real-world situations; and collecting, organizing, describing, and representing data using a variety of data displays including bar graphs
	4	Problem solving situations will include collecting, organizing, and comparing data using a variety of data displays including Venn diagrams.
	3	Problem solving situations will include collecting, organizing, and comparing data using graphs and Venn diagrams.
Develop and evaluate inferences and predictions that are based on data	11	Problem solving situations of simple probability and communicating the likelihood of events using probabilistic reasoning in real-world situations.
	8	Problem solving situations involving simple probability and communicating the likelihood of events from experiments or simulations
	7	Problem solving situations will include simple probability and communicating the likelihood of events from experiments or simulations of 2 independent events, and to communicate the likelihood of events using the language: certain, most likely, equally likely, least likely, and impossible or report as ratios
	6	Problem solving situations with simple probability and will require communicating the likelihood of events from experiments or simulations of 2 independent events using the language: certain, most likely, equally likely, least likely, and impossible.
	5	Problem solving situations will include simple probability and recording the outcomes/combinations from experiments or simulations limited to 12 or fewer outcomes using the language: certain, most likely, equally likely, least likely, and impossible.
	4	Problem solving situations will include simple probability and recording the results of experiments or simulations limited to 9 or fewer outcomes, using the language: certain, likely, unlikely, and impossible.
	3	Problem solving situations will include simple probability and recording the results of experiments or simulations limited to 6 or fewer outcomes, using the language: certain, likely, unlikely, and impossible.