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TEKS Vertical Alignment for STAAR Alternate 2

Mathematics

Pre-kindergarten through Algebra I

Numerical Representations and Relationships

Counting skills. The student shows basic counting readiness and counting by using nonverbal and verbal means (Pre-K.V.A).

Geometry and spatial sense skills. The student recognizes, describes, and names attributes of shapes (Pre-K.V.C).

Geometry and measurement. The student applies mathematical process standards to select and use units to describe length, area, and time (2.9). The student applies mathematical process standards and select appropriate units, strategies, and tools to solve problems involving customary and metric measurement (3.7).

Algebraic reasoning. The student applies mathematical process standards to identify the pattern in the number word list (K.5). The student applies mathematical process standards to identify and apply number patterns within properties of numbers and operations in order to describe relationships (1.5; 2.7). The student applies mathematical process standards to develop concepts of expressions and equations (5.4)

Expressions, equations, and relationships. The student applies mathematical process standards to develop concepts of expressions and equations (6.7).

Number and operations. The student applies mathematical process standards to understand how to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system (K.2). The student applies mathematical process standards to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value (1.2). The student applies mathematical process standards to understand how to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value (2.2). The student applies mathematical process standards to represent and compare whole numbers and understand relationships related to place value (3.2)! The student applies mathematical process standards to represent and explain fractional units (3.3). The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve problems with efficiency and accuracy (3.4). The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value (4.2). The student applies mathematical process standards to represent and generate fractions to solve problems (4.3). The student applies mathematical process standards to represent, compare, and order positive rational numbers and understand relationships as related to place value (5.2)! The student applies mathematical process standards to represent and use rational numbers in a variety of forms (6.2; 7.2). The student applies mathematical process standards to represent and use real numbers in a variety of forms (8.2).

Number and algebraic methods. The student applies the mathematical process standards and algebraic methods to rewrite in equivalent forms and perform operations on polynomial expressions (A.10). The student applies the mathematical process standards and algebraic methods to rewrite algebraic expressions into equivalent forms (A.11). The student is expected to

Recognizing Numbers and Counting

- ¥ know that objects, or parts of an object, can be counted (Pre-K)
- ¥ use words to rote count from 1 to 30 (Pre-K)
- ¥ count 1-10 items, with one count per item (Pre-K)
- ¥ demonstrate that the order of the counting sequence is always the same, regardless of what is counted (Pre-K)
- ¥ count up to 10 items and demonstrate that the last count indicates how many items were counted (Pre-K)
- ¥ demonstrate understanding that when counting, the items can be chosen in any order (Pre-K)

- ¥ use the verbal ordinal terms (PreK)
- ¥ verbally identify, without counting, the number of objects from 1 to 5 (PreK)
- ¥ recognize one-digit numerals, 0-9 (PreK)
- ¥ count forward and backward to at least 20 with and without objects (K)
- ¥ read, write, and represent whole numbers from 0 to at least 20 with and without objects or pictures (K)
- ¥ count a set of objects up to at least 20 and demonstrate that the last number said tells the number of objects in the set regardless of their arrangement or order (K)
- ¥ recognize instantly the quantity of a small group of objects in organized and random arrangements (K)
- ¥ generate a set using concrete and pictorial models that represents a number that is more than, less than, and equal to a given number up to 20 (K)
- ¥ generate a number that is one more than or one less than another number up to at least 20 (K)
- ¥ recite numbers up to at least 100 by ones and tens beginning with any given number (K)
- ¥ recognize instantly the quantity o]TJ 066fn Tc 9.872 0T2 1-4(o)-4(th)-4theothKb áup

Identifying Points and Distances on Number Lines

¥   demonstrate use of location words (such as Òover,Ó Òunder,Ó Òabove,Ó Òon,Ó Òbeside,Ó Ònext to,Ó Òbetween,Ó Òin front of,Ó Ònear,Ó Òfar,Ó etc.) (Pre

¥   locate the position of a given whole number on an open number line (2)

¥   name the whole number that corresponds specific point on a number line (2)

¥   represent whole numbers as distances from any given location on a number line (2)

¥   represent a number on a number line as being between two consecutive multiples of 10; 100; 1,000; or 10,000 and use words to describe relative size of numbers in order to round whole numbers (3)

¥   determine the corresponding fraction greater than zero and less good Td [((,41 0 Td (0(6-8.1(a)-12.7(t17(a)0.004

- ¥ distinguish between expressions and equations verbally, numerically, and algebraically (6)
- ¥ determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations (6)
- ¥ generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties (6)
- ¥ extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of rational numbers (7)
- ¥ extend previous relationships between sets of rational numbers

- ¥   partition objects into equal parts and name the parts, including halves, fourths, and eighths, using words (2)
- ¥   explain that the more fractional parts used to make a whole, the smaller the part: the fewer the fractional parts, the larger the part (2)
- ¥   use concrete models to count fractional parts beyond one whole using words and recognize how many parts it takes to make a whole (2)

- ¥ find the probabilities of a simple event and its complement and describe the relationship between the two (7)
- ¥ solve problems using qualitative and quantitative predictions and comparisons from simple experiments (7)
- ¥ determine experimental and theoretical probabilities related to simple and compound events using data and sample spaces (7)

Computations

Adding to/taking away skills. The student

- ¥ apply basic fact strategies to add and subtract within 20, including making 10 and decomposing a number leading to a 10 (1)
- ¥ explain strategies used to solve addition and subtraction problems up to 20 using spoken words, objects, pictorial models, and number sentences (1)
- ¥ recall basic facts to add and subtract within 20 with automaticity (2)
- ¥ add up to four two-digit numbers and subtract two-digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations (2)
- ¥ solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms (2)
- ¥ solve with fluency one- step and two-step wngetso inv

¥ apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers (7)

Algebraic Relationships

Classification and patterns skills The student sorts and classifies objects using one or more attributes and uses attributes of objects to duplicate and create patterns (K.5).

Algebraic reasoning. The student applies mathematical process standards to identify and apply number patterns within properties of numbers and operations in order to describe relationships (1.5; 2.7). The student applies mathematical process standards to analyze and create patterns and relationships (3.5). The student applies mathematical process standards to develop concepts of expressions and equations (4.5; 5.4).

Proportionality. The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations (6.4). The student applies mathematical process standards to solve problems involving proportional relationships (6.5). The student applies mathematical process standards to represent and solve problems involving proportional relationships (7.4). The student applies mathematical process standards to explain proportional and non- proportional relationships involving slope (8.4). The student applies mathematical process standards to use proportional and non-proportional relationships to develop foundational concepts of functions (8.5).

Expressions, equations, and relationships. The student applies mathematical process standards to use multiple representations to describe algebraic relationships (6.6). The student applies mathematical process standards to use equations and inequalities to represent situations (6.9). The student applies mathematical process standards to use equations and inequalities to solve problems (6.10). The student applies mathematical process standards to represent linear relationships using multiple representations (7.7). The student applies mathematical process standards to use one-variable equations and inequalities to represent situations (7.10). The student applies mathematical process standards to needs to in2(s)(e)3(n)22(n)-2(e

Representing and Solving Algebraic Relationships

- ¥ recognize and create patterns (Pre-K)
- ¥ generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20)(1
- ¥ represent word prob

- ¥   write corresponding real-world problems given one-variable, one-step equations or inequalities. (6)
- ¥   model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts (6)
- ¥   determine if the given value(s) make(s) one-variable, one-step equations or inequalities true (6)
- ¥   represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including d = rt (7)
- ¥   calculate unit rates from rates in mathematical and real-world problems (7)
- ¥   determine the constant of proportionality (k = y/x) within mathematical and real-world problems (7)

- ¥ describe the relationship between the linear factors of quadratic expressions and the zeros of th associated quadratic functions (Alg)
- ¥ determine the effects on the graph of the parent function $f(x) = x^2$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(x - c)$, $f(bx)$ for specific values of $a, b, c,$ and d (Alg)
- ¥ solve quadratic equations having real solutions by factoring, taking square roots, completing the square, and applying the quadratic formula (Alg)
- ¥ determine the domain and range of exponential functions of the form $f(x) = ab^x$ and represent the domain and range using inequalities (Alg)
- ¥ interpret the meaning of the values of a and b in exponential functions of the form $f(x) = ab^x$ in real-world problems (Alg)
- ¥ write exponential functions in the form $f(x) = ab^x$ (where b is a rational number) to describe problems arising from mathematical and real-world situations, including growth and decay (Alg)
- ¥ graph exponential functions that model growth and decay and identify key features, including intercept and asymptote, in mathematical and real-world problems (Alg)
- ¥ decide whether relations represented verbally, tabularly, graphically, and symbolically define a function (Alg)
- ¥ evaluate functions, expressed in function notation, given one or more elements in their domains (Alg)
- ¥ identify terms of arithmetic and geometric sequences when the sequences are given in function form using recursive process (Alg)
- ¥ write a formula for the nth term of arithmetic and geometric sequences, given the value of several of their terms (Alg)
- ¥ solve mathematic and scientific formulas, and other literal equations, for a specified variable. (Alg)

Geometry

Geometry and spatial sense skills The student recognizes, describes, and names attributes of shapes (Pre-K.V.C).
Geometry and measurement The student verbally ndd55 0 Td ( )Tj 0(m)5(e)3(s)4(,)7(r)a7(d)2(e)3(s)d006- varn006

Identifying and Using Attributes of Geometric Figures

- ¥ name common shapes (PreK)
- ¥ create shapes (PreK)
- ¥ identify two-dimensional shapes, including circles, triangles, rectangles, and squares as special rectangles (K)
- ¥ identify three-dimensional solids, including cylinders, cones, spheres, and cubes, in the real world (K)
- ¥ identify two-dimensional components of three-dimensional objects (K)
- ¥ identify attributes of two-dimensional shapes using informal and formal geometric language interchangeably (K)
- ¥ classify and sort a variety of regular and irregular two- and three-dimensional figures regardless of orientation or size (K)
- ¥ create two-dimensional shapes using a variety of materials and drawings (K)
- ¥ classify and sort regular and irregular two-dimensional shapes based on attributes using informal geometric language (1)
- ¥ distinguish between attributes that define a two-dimensional or three-dimensional figure and attributes that do not define the shape (1)
- ¥ create two-dimensional figures, including circles, triangles, rectangles, and squares, as special rectangles, rhombuses, and hexagons (1)
- ¥ identify two-dimensional shapes, including circles, triangles, rectangles, and squares, as special rectangles, rhombuses, and hexagons, and describe their attributes using formal geometric language (1)
- ¥ identify three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes), and triangular prisms, and describe their attributes using formal geometric language (1)
- ¥ compose two-dimensional shapes by joining two, three, or four figures to produce a target shape in more than one way if possible (1)
- ¥ create two-dimensional shapes based on given attributes, including number of sides and vertices (2)
- ¥ classify and sort three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes as special rectangular prisms), and triangular prisms, based on attributes using formal geometric language (2)
- ¥ classify and sort polygons with 12 or fewer sides according to attributes, including identifying the number of sides and number of vertices (2)
- ¥ compose two-dimensional shapes and three-dimensional solids with given properties or attributes (2)
- ¥ decompose two-dimensional shapes such as cutting out a square from a rectangle, dividing a shape in half, or partitioning a rectangle into identical triangles and identify the resulting geometric parts (2)
- ¥ classify and sort two- and three

- ¥ classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size (4)
- ¥ classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties (5)

Using Similarity and Transformational Geometry

- ¥ slide, flip, and turn shapes to demonstrate that the shapes remain the same (PreK)
- ¥ generalize the critical attributes of similarity, including ratios within and between similar shapes. (7)
- ¥ describe π as the ratio of the circumference of a circle to its diameter (7)
- ¥ solve mathematical and real-world problems involving similar shape and scale drawings (7)
- ¥ generalize that the ratio of corresponding sides of similar shapes are proportional, including a shape and its dilation (8)
- ¥ compare and contrast the attributes of a shape and its dilation(s) on a coordinate plane (8)
- ¥ use an algebraic representation to explain the effect of a given positive rational scale factor applied to two-dimensional figures on a coordinate plane with the origin as the center of dilation (8)
- ¥ generalize the properties of orientation and congruence of rotations, reflections, translations, and dilations of two-dimensional shapes on a coordinate plane (8)
- ¥ differentiate between transformations that preserve congruence and those that do not (8)
- ¥ explain the effect of translations, reflections over the x- or y-axis, and rotations limited to 90¡, 180¡, 270¡, and 360¡ as applied to two-dimensional shapes on a coordinate plane using an algebraic representation (8)
- ¥ model the effect on linear and area measurements of dilated two-dimensional shapes (8)

Graphing on the Coordinate Plane

- ¥

units to describe length, area, and time (2.9).The student applies mathematical process standards to analyze attributes of two-dimensional geometric figures to develop generalizations about their properties (3.6).The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving customary and metric measurement (3.7).The student applies mathematical process standards to solve problems involving angles less than or equal to 180 degrees (4.7).The student

- ¥ decompose two congruent two-dimensional figures into parts with equal areas and express the area of each part as a unit fraction of the whole and recognize that equal shares of identical wholes need not have the same shape (3)
- ¥ determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems (3)
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Data analysis. The student applies mathematical process standards to collect and organize data to make it useful for interpreting information (K.8). The student applies mathematical process standards to organize data to make it used for interpret...

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interpret...

- ¥ summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution (6)
- ¥ summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relativ

Personal Financial Literacy

Personal financial literacy. The student applies mathematical process standards to identify coins in order to recognize the need for monetary transactions (K.4). The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security (K.9; 1.9; 2.11; 3.9; 4.10; 5.10). The student applies mathematical process standards to identify coins, their values, and the relationships among them in order to recognize the need for monetary transactions (1.4). The student applies mathematical process standards to determine the value of coins in order to solve monetary transactions (2.5). The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve problems with efficiency and accuracy (3.4). The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor (6.14, 7.13, 8.12). The student is expected to

Understanding the Connections Among Income, Expenses, and Careers
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- ¥ describe the relationship between the availability or scarcity of resources and how that impacts cost (3)
- ¥ identify the costs and benefits of planned and unplanned spending decisions (3)
- ¥ explain that credit is used when wants or needs exceed the ability to pay and that it is the borrower's responsibility to pay it back to the lender, usually with interest (3)
- ¥ list reasons to save and explain the benefit of a savings plan, including for college (3)
- ¥ identify decisions involving income, spending, saving, credit, and charitable giving (3)
- ¥ calculate profit in a given situation (4)
- ¥ compare the advantages and disadvantages of various savings options (4)
- ¥ describe how to allocate a weekly allowance among spendi

- z   identify U.S. coins, including pennies, nickels, dimes, and quarters, by value and describe the relationships among them (1)
- z   write a number with the cent symbol to describe the value of a coin (1)
- z