Mathematics

4.2	Prerequisite Skills/Links to TEKS Vertical Alignment

- represent whole numbers as distances from any given location on a number line (2)
- name the whole number that corresponds to a specific point on a number line (2)
- locate the position of a given whole number on an open number line (2)
- demonstrate use of position words (PK4.V.C.3)
- begin to use language to describe position of objects (PK3.V.C.3)

Recognizing Numbers and Counting

- determine if a number is even or odd using divisibility rules (3)
- determine whether a number up to 40 is even or odd using pairings of objects to represent the number (2)
- generate a number that is greater than or less than a given whole number up to 1,200 (2)
- skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set (1)
- recite numbers forward and backward from any given number between 1 and 120 (1)
- generate a number that is greater than or less than a given whole number up to 120 (1)
- recognize instantly the quantity of structured arrangements (1)
- recite numbers up to at least 100 by ones and tens beginning with any given number (K)
- generate a number that is one more than or one less than another number up to at least 20 (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)
- recognize instantly the quantity of a small group of objects in organized and random arrangements (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)
- read, write, and represent whole numbers from 0 to at least 20 with and without objects or pictures (K)
- count forward and backward to at least 20 with and without objects (K)
- represent quantities up to 10 (PK4.V.A.6)
- recognize numerals 0-10 (PK4.V.A.5)
- instantly recognize the quantity of up to 6 objects without counting (subitizes) (PK4.V.A.4)
- demonstrate understanding that when counting, the items can be chosen in any order
- count up to 10 items and demonstrate cardinality by communicating that the last number indicates how many items are in the set (PK4.V.A.3)

Continued

4.2	Prerequisite Skills/Links to TEKS Vertical Alignment
	• count up to 10 objects with one-to-one correspondence (PK4.V.A.2) • rote count from 1 to 30 (PK4.V.A.1) • represent quantities up to 5 (PK3.V.A.6) • recognize numerals 0-5 (PK3.V.A.5) • instantly recognize the quantity of up to 3 objects without counting (subitizes) (PK3.V.A.4) • count up to 5 items and demonstrate cardinality by communicating that the last number indicates how many items are in the set (PK3.V.A.3) • count up to 5 objects with one-to-one correspondence (PK3.V.A.2) • rote count from 1 to 10 (PK3.V.A.1)

Mathematics

4.3	Prerequisite Skills/Links to TEKS Vertical Alignment

- explain that the unit fraction 1/*b* represents the quantity formed by one part of a whole that has been partitioned into *b* equal parts where *b* is a non-zero whole number (3)
- represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines (3)
- identify examples and non-examples of halves, fourths, and eighths (2)
- use concrete models to count fractional parts beyond one whole using words and recognize how many parts it takes to equal one whole (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)
- partition objects into equal parts and name the parts, including halves, fourths, and eighths, using words (2)
- identify examples and non-examples of halves and fourths (1)
- partition two-dimensional figures into two and four fair shares or equal parts and describe the parts using words (1)

Identifying Points and Distances on Number Lines

- represent fractions of halves, fourths, and eighths as distances from zero on a number line (3)
- explain that two fractions are equivalent if and only if they are both represented by the same point on the number line or represent the same portion of a same size whole for an area model (3)
- determine the corresponding fraction greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 given a specified point on a number line (3)
- 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)
- represent whole numbers as distances from any given location on a number line (2)
- name the whole number that corresponds to a specific point on a number line (2)
- locate the position of a given whole number on an open number line (2)
- demonstrate use of position words (PK4.V.C.3)
- begin to use language to describe position of objects (PK3.V.C.3)

Recognizing Numbers and Counting

- determine if a number is even or odd using divisibility rules (3)
- determine whether a number up to 40 is even or odd using pairings of objects to represent the number (2)

Continued

4.3	Prerequisite Skills/Links to TEKS Vertical Alignment

- generate a number that is greater than or less than a given whole number up to 1,200 (2)
- skip count by twos, ves, and tens to determine the total number of objects up to 120 in a set (1)
- recite numbers forward and backward from any given number between 1 and 120 (1)
- generate a number that is greater than or less than a given whole number up to 120 (1)
- recognize instantly the quantity of structured arrangements (1)
- recite numbers up to at least 100 by ones and tens beginning with any given number (K)
- generate a number that is one more than or one less than another number up to at least 20 (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)
- recognize instantly the quantity of a small group of objects in organized and random arrangements (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)
- read, write, and represent whole numbers from 0 to at least 20 with and without objects or pictures (K)
- count forward and backward to at least 20 with and without objects (K)
- represent quantities up to 10 (PK4.V

4.3	Prerequisite Skills/Links to TEKS Vertical Alignment
	• explain that the more fractional parts used to make a whole, the smaller the part: the fewer the fractional parts, the larger

4.3	Prerequisite Skills/Links to TEKS Vertical Alignment

- use objects to demonstrate that taking away one or more objects from a set will decrease the number of objects in the set (PK3.V.B.2)
- use objects to demonstrate that adding one or more objects to a set will increase the number of objects in the set (PK3.V.B.1)

Recognizing Numbers and Counting

- determine if a number is even or odd using divisibility rules (3)
- determine whether a number up to 40 is even or odd using pairings of objects to represent the number (2)
- generate a number that is greater than or less than a given whole number up to 1,200 (2)
- skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set (1)
- recite numbers forward and backward from any given number between 1 and 120 (1)
- generate a number that is greater than or less than a given whole number up to 120 (1)
- recognize instantly the quantity of structured arrangements (1)
- recite numbers up to at least 100 by ones and tens beginning with any given number (K)
- generate a number that is one more than or one less than another number up to at least 20 (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)
- recognize instantly the quantity of a small group of objects in organized and random arrangements (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)
- read, write, and represent whole numbers from 0 to at least 20 with and without objects or pictures (K)
- count forward and backward to at least 20 with and without objects (K)
- represent quantities up to 10 (PK4.V.A.6)
- recognize numerals 0-10 (PK4.V.A.5)
- instantly recognize the quantity of up to 6 objects without counting (subitizes) (PK4.V.A.4)
- count up to 10 items and demonstrate cardinality by communicating that the last number indicates how many items are in the set (PK4.V.A.3)
- count up to 10 objects with one-to-one correspondence (PK4.V.A.2)
- rote count from 1 to 30 (PK4.V.A.1)

Continued

4.3	Prerequisite Skills/Links to TEKS Vertical Alignment

Mathematics

4.5	Prerequisite Skills/Links to TEKS Vertical Alignment

- represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences (1)
- generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20 (1)
- recognize, duplicate, extend, and create patterns (PK4.V.E.3)
- recognize and duplicate patterns (PK3.V.E.3)

Adding and Subtracting Whole Numbers, Fractions, and Decimals

- round to the nearest 10 or 100 or use compatible numbers to estimate solutions to addition and subtraction problems (3)
- solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction (3)
- 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)
- 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)
- recall basic facts to add and subtract within 20 with automaticity (2)
- explain strategies used to solve addition and subtraction problems up to 20 using spoken words, objects, pictorial models, and number sentences (1)
- apply basic fact strategies to add and subtract within 20, including making 10 and decomposing a number leading to a 10 (1)
- compose 10 with two or more addends with and without concrete objects (1)
- use objects and pictorial models to solve word problems involving joining, separating, and comparing sets within 20 and unknowns as any one of the terms in the problem such as 2 + 4 = [ ]; 3 + [ ] = 7; and 5 = [ ] – 3 (1)
- use concrete and pictorial models to determine the sum of a multiple of 10 and a one-digit number in problems up to 99 (1)
- explain the strategies used to solve problems involving adding and subtracting within 10 using spoken words, concrete and pictorial models, and number sentences (K)
- solve word problems using objects and drawings to find sums up to 10 and differences within 10 (K)
- model the action of joining to represent addition and the action of separating to represent subtraction (K)
- use objects, pictorial models, and/or a verbal word problem to represent subtracting objects from a set of 5 (PK4.V.B.2)
- use objects, pictorial models, and/or a verbal word problem to represent adding up to 5 objects (PK4.V.B.1)

Continued

4.5	Prerequisite Skills/Links to TEKS Vertical Alignment
	• use objects to demonstrate that taking away one or more objects from a set will decrease the number of objects in the set (PK3.V.B.2) • use objects to demonstrate that adding one or more objects to a set will increase the number of objects in the set (PK3.V.B.1) *Multiplying Whole Numbers, Fractions, and Decimals* • describe a multiplication expression as a comparison such as 3 × 24 represents 3 times as much as 24 (3) • use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties (3) • recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts (3) • represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, and skip counting (3) • determine the total number of objects when equally-sized groups of objects are combined or arranged in arrays up to 10 by 10 (3) • model, create, and describe contextual multiplication situations in which equivalent sets of concrete objects are joined (2) *Dividing Whole Numbers, Fractions, and Decimals* • solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts (3) • determine a quotient using the relationship between multiplication and division (3) • determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally (3) • model, create, and describe contextual division situations in which a set of concrete objects is separated into equivalent sets (2)

STAAR Reporting Category 3 – Geometry and Measurement: The student will demonstrate an understanding of how to represent and apply geometry and measurement concepts.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	**STAAR Alternate 2 Essence Statement**
(4.5) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to: (D) solve problems related to perimeter and area of rectangles where dimensions are whole numbers. Readiness Standard	Solves problems involving perimeter or area of rectangles.

4.5	**Prerequisite Skills/Links to TEKS Vertical Alignment**
	Measuring Length, Area, Volume, and Weight/Mass • determine liquid volume (capacity) or weight using appropriate units and tools (3) • determine when it is appropriate to use measurements of liquid volume (capacity) or weight (3) • determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems (3) • 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) • decompose composite figures formed by rectangles into non-overlapping rectangles to determine the area of the original figure using the additive property of area (3) • determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row (3) • use concrete models of square units to find the area of a rectangle by covering it with no gaps or overlaps, counting to find the total number of square units, and describing the measurement using a number and the unit (2) • determine a solution to a problem involving length, including estimating lengths (2) • determine the length of an object to the nearest marked unit using rulers, yardsticks, meter sticks, or measuring tapes (2) • describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object (2) • find the length of objects using concrete models for standard units of length (2) • describe a length to the nearest whole unit using a number and a unit (1) • measure the same object/distance with units of two different lengths and describe how and why the measurements differ (1)

Continued

4.5	**Prerequisite Skills/Links to TEKS Vertical Alignment**
	• illustrate that the length of an object is the number of same-size units of length that, when laid end-to-end with no gaps or overlaps, reach from one end of the object to the other (1) • use measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement (1) • compare two objects with a common measurable attribute to see which object has more of/less of the attribute and describe the difference (K) • give an example of a measurable attribute of a given object, including length, capacity, and weight (K) • recognize and compare weights of objects (PK4.V.D.3) • recognize and compare capacity based on how much space exists within an object (PK4.V.D.2) • recognize and compare heights or lengths of people or objects (PK4.V.D.1) • understand that weights of objects can vary and be compared (PK3.V.D.3) • begin to recognize capacity based on how much space exists within an object (PK3.V.D.2) • understand that lengths of objects can vary and be compared (PK3.V.D.1)

Mathematics

4.6	Prerequisite Skills/Links to TEKS Vertical Alignment
	• compose two-dimensional shapes by joining two, three, or four gures to produce a target shape in more than one way if possible (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) • 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) • create two-dimensional gures, including circles, triangles, rectangles, and squares, as special rectangles, rhombuses, and hexagons (1) • distinguish between attributes that de ne a two-dimensional or three-dimensional gure and attributes that do not de ne the shape (1) • classify and sort regular and irregular two-dimensional shapes based on attributes using informal geometric language (1) • create two-dimensional shapes using a variety of materials and drawings (K) • classify and sort a variety of regular and irregular two- and three-dimensional gures regardless of orientation or size (K) • identify attributes of two-dimensional shapes using informal and formal geometric language interchangeably (K) • identify two-dimensional components of three-dimensional objects (K) • identify three-dimensional solids, including cylinders, cones, spheres, and cubes, in the real world (K) • identify two-dimensional shapes, including circles, triangles, rectangles, and squares as special rectangles (K) • create shapes using materials and/or manipulatives (PK4.V.C.2) • name and describe common 2D shapes and name at least 1 solid 3D shape (PK4.V.C.1) • attempt to create shapes using materials and/or manipulatives (PK3.V.C.2) • name and describe common 2D shapes (PK.3.V.Cr1a) name and descr

STAAR Reporting Category 3 – Geometry and Measurement: The student will demonstrate an understanding of how to represent and apply geometry and measurement concepts.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	STAAR Alternate 2 Essence Statement
(4.7) Geometry and measurement. The student applies mathematical process standards to solve problems involving angles less than or equal to 180 degrees. The student is expected to: (C) determine the approximate measures of angles in degrees to the nearest whole number using a protractor; Readiness Standard (D) draw an angle with a given measure; Supporting Standard (E) determine the measure of an unknown angle formed by two non-overlapping adjacent angles given one or both angle measures. Supporting Standard	Finds the measures of angles.

4.7	Prerequisite Skills/Links to TEKS Vertical Alignment
	Measuring Length, Area, Volume, and Weight/Mass • determine liquid volume (capacity) or weight using appropriate units and tools (3) • determine when it is appropriate to use measurements of liquid volume (capacity) or weight (3) • determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems (3) • decompose two congruent two-dimensional gures 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) • decompose composite gures formed by rectangles into non-overlapping rectangles to determine the area of the original gure using the additive property of area (3) • determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row (3) • use concrete models of square units to nd the area of a rectangle by covering it with no gaps or overlaps, counting to nd the total number of square units, and describing the measurement using a number and the unit (2) • determine a solution to a problem involving length, including estimating lengths (2) • determine the length of an object to the nearest marked unit using rulers, yardsticks, meter sticks, or measuring tapes (2) • describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object (2)

Continued

4.7	Prerequisite Skills/Links to TEKS Vertical Alignment
	• nd the length of objects using concrete models for standard units of length (2) • describe a length to the nearest whole unit using a number and a unit (1) • measure the same object/distance with units of two different lengths and describe how and why the measurements differ (1) • illustrate that the length of an object is the number of same-size units of length that, when laid end-to-end with no gaps or overlaps, reach from one end of the object to the other (1) • use measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement (1) • compare two objects with a common measurable attribute to see which object has more of/less of the attribute and describe the difference (K) • give an example of a measurable attribute of a given object, including length, capacity, and weight (K) • recognize and compare weights of objects (PK4.V.D.3) • recognize and compare capacity based on how much space exists within an object (PK4.V.D.2) • recognize and compare heights or lengths of people or objects (PK4.V.D.1) • understand that weights of objects can vary and be compared (PK3.V.D.3) • begin to recognize capacity based on how much space exists within an object (PK3.V.D.2) • understand that lengths of objects can vary and be compared (PK3.V.D.1)

STAAR Reporting Category 3 – Geometry and Measurement: The student will demonstrate an understanding of how to represent and apply geometry and measurement concepts.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	STAAR Alternate 2 Essence Statement
(4.8) Geometry and measurement. The student applies mathematical process standards to select appropriate customary and metric units, strategies, and tools to solve problems involving measurement. The student is expected to: (A) identify relative sizes of measurement units within the customary and metric systems; Supporstudent iestedt Ex806 32eT.9 (y 0 Td [<<>>BDC 5.4e1 -18b >S Q Tts L)Tj 1 (ategiMCID 23d [lit -2.885 Td (	

Mathematics

4.9	**Prerequisite Skills/Links to TEKS Vertical Alignment**
	Using Data • solve one- and two-step problems using categorical data represented with a frequency table, dot plot, pictograph, or bar graph with scaled intervals (3) • draw conclusions and make predictions from information in a graph (2) • write and solve one-step word problems involving addition or subtraction using data represented within pictographs and bar graphs with intervals of one (2) • draw conclusions and generate and answer questions using information from picture and bar-type graphs (1) • draw conclusions from real-object and picture graphs (K)

4.10	**Prerequisite Skills/Links to TEKS Vertical Alignment**
	• describe the relationship between the availability or scarcity of resources and how that impacts cost (3) • differentiate between producers and consumers and calculate the cost to produce a simple item (2) •