STAAR™
Alternate
State of Texas
Assessments of
Academic Readiness

STAAR Reporting Category 1 – Number and Algebraic Methods: **The student will demonstrate an understanding of how to use algebraic methods to manipulate numbers, expressions, and equations.**	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
Algebra (10) 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. The student is expected to (A) add and subtract polynomials of degree one and degree two; Supporting Standard (B) multiply polynomials of degree one and degree two; Supporting Standard (C) determine the quotient of a polynomial of degree one and polynomial of degree two when divided by a polynomial of degree one and polynomial of degree two when the degree of the divisor does not exceed the degree of the dividend; Supporting Standard (D) rewrite polynomial expressions of degree one and degree two in equivalent forms using the distributive property; Supporting Standard (E) factor, if possible, trinomials with real factors in the form $ax^2 + bx + c$, including perfect square trinomials of degree two; Readiness Standard (F) decide if a binomial can be written as the difference of two squares and, if possible, use the structure of a difference of two squares to rewrite the binomial. Supporting Standard	Determines different forms of expressions using operations or properties.

Algebra 10	**Prerequisite Skills/Links to TEKS Vertical Alignment**
	Determining and Simplifr

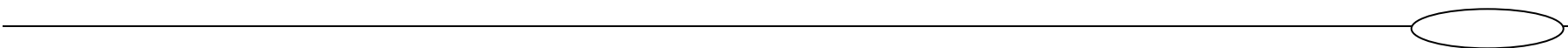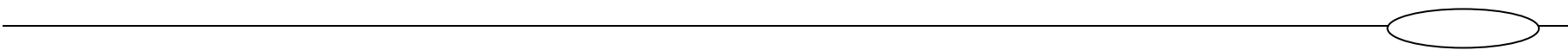| STAAR Reporting Category 1 – Number and Algebraic Methods: The student will demonstrate an understanding of how to use algebraic methods to manipulate numbers, expressions, and equations.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
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Algebra 3   **Prerequisite Skills/Links to TEKS Vertical Alignment**

- identify and verify the values of x and y

Algebra 4	Prerequisite Skills/Links to TEKS Vertical Alignment
	x represent linear non‑proportional situations with tables, graphs, and equations in the form of $y = mx + b$, where b 0
	x represent linear proportional situations with tables, graphs, and equations in the form of $y = kx$
	x use data from a table or graph to determine the rate of change or slope and y‑intercept in mathematical and real‑world problems
	x graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship
	x use similar right triangles to develop an understanding that slope, m, given as the rate comparing the change in y‑values to the change in x‑values, $(y_2 - y_1)/(x_2 - x_1)$, is the same for any two points (x_1, y_1) and (x_2, y_2) on the same line
	x determine if the given value(s) make(s) one‑variable, two‑step equations and inequalities true
	x model and solve one‑variable, two‑step equations and inequalities
	x write a corresponding real‑

Algebra 4	Prerequisite Skills/Links to TEKS Vertical Alignment

x recognize the difference between additive and multiplicative numerical patterns given in a table or graph

x generate a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph

x represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity

x represent problems using an input-output table and numerical expressions to generate a number pattern that follows a given rule representing the relationship of the values in the resulting sequence and their position in the sequence

x represent multi-step problems involving the four operations with whole numbers using strip diagrams and equations with a letter standing for the unknown quantity

x represent real-world relationships using number pairs in a table and verbal descriptions

x determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product

x represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations

x represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations

x generate and solve problem situations for a given mathematical number sentence involving addition and subtraction of whole numbers within 1,000

x determine the unknown whole number in an addition or subtraction equation when the unknown may be any one of the three or four terms in the equation

x understand that the equal sign represents a relationship where expressions on each side of the equal sign represent the same value(s)

x represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences

x generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20

Classification and patterns skills

x recognize and create patterns

Using Data

x use a trend line that approximates the linear relationship between bivariate sets of data to make predictions

x compare two populations based on data in random samples from these populations, including informal comparative inferences about differences between the two populations

x use data from a random sample to make inferences about a population

x compare two groups of numeric data using comparative dot plots or box plots by comparing their shapes, centers, and spreads

x solve problems using data represented in bar gr

Algebra 4	Prerequisite Skills/Links to TEKS Vertical Alignment
	x summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals

Mathematics

Algebra 2	Prerequisite Skills/Links to TEKS Vertical Alignment

Representing and Solving Algebraic Relationships

x   identify and verify the values of x and y that simultaneously satisfy two linear equations in the form $y = mx + b$ from the intersections of the graphed equations

x   model and solve one-variable equations with variables on both sides of the equal sign that represent mathematical and real-world problems using rational number coefficients and constants

x   write a corresponding real-world problem when given a one-variable equation or inequality with variables on both sides of the equal sign using rational number coefficients and constants

x   write one-varia

Algebra 2	Prerequisite Skills/Links to TEKS Vertical Alignment
	x determine the unknown whole number in an addition or subtraction equation when the unknown may be any one of the three or four terms in the equation x understand that the equal sign represents a relationship where expressions on each side of the equal sign represent the same value(s) x represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial m

STAAR Reporting Category 3 – Writing and Solving Linear Functions, Equations, and Inequalities: The student will demonstrate an understanding of how to write and solve linear functions, equations, and inequalities.

TEKS Knowledge and Skills Statement/ STAARTested Student Expectations	

STAAR Reporting Category 4 – Quadratic Functions and Equations: The student will demonstrate an understanding of how to describe, write, and solve quadratic functions and equations.	
TEKS Knowledge and Skills Statement/ **STAARTested Student Expectations**	**Essence of TEKS Knowledge and Skills Statement/** **STAARTested Student Expectations**

Algebra (6) Quadratic functions and equations. The student applies the mathematical process standards when using properties of quadratic functions to write and represent in multiple ways, with and without technology, quadratic equations. The student is expected to
     (A) determine the domain and range of quadratic functions and represent the domain and range using inequalities; Readiness Standard
     (B) write equations of quadratic functions given the vertex and another point on the graph, write the equation in vertex fo rm $(f(x)$ $= a(x – h)^2 + k)$, and rewrite the equation from vertex form to standard form $(f(x) = ax^2 + bx + c)$; Supporting Standard
     (C) write quadratic functions when given real solutions and graphs of their related equations. Supporting Standard	

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Algebra 6	Prerequisite Skills/Links to TEKS Vertical Alignment
	x recognize the difference between additive and multiplicative numerical patterns given in a table or graph x generate a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph x represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity x represent problems using an input-output table and numerical expressions to generate a number pattern that follows a given rule representing the relationship of the values in the resulting sequence and their position in the sequence

Algebra 7	Prerequisite Skills/Links to TEKS Vertical Alignment
	x distinguish between proportional and non -proportional situations using tables, graphs, and equations in the form $y = kx$ or $y = mx + b$, where $b \bullet 0$

x   distinguish between proportional and non -proportional situations using tables, graphs, and equations in the form $y = kx$ or $y = mx + b$, where $b \bullet 0$

x   solve problems involving direct variation

x   represent linear non-proportional situations with tables, graphs, and equations in the form of $y = mx + b$, where $b \bullet 0$

x   represent linear proportional situations with tables, graphs, and equations in the form of $y = kx$

x   use data from a table or graph to determine the rate of change or slope and y-intercept in mathematical and real-world problems

x   graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship

x   use similar right triangles to develop an understanding that slope, m, given as the rate comparing the change in y-values to the change in x-values, $(y_2 - y_1)/(x_2 - x_1)$, is the same for any two points (x_1, y_1) and (x_2, y_2) on the same line

x   determine if the given value(s) make(s) one-variable, two-step equations and inequalities true

x   model and solve one-variable, two-step equations and inequalities

x   write a corresponding real-world problem given a one- variable, two-step equation or inequality

x   represent solutions for one-variable, two-step equations and inequalities on number lines

x   write one-variable, two-step equations and inequalities to represent constraints or conditions within problems

x   represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form $y = mx + b$

x   solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems

x   determine the constant of proportionality $(k = y/x)$ within mathematical and real-world problems

x   calculate unit rates from rates in mathematical and real-world problems

x   represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$

x   determine if the given value(s) make(s) one-variable, one-step equations or inequalities true

x   model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts

x   write corresponding real-world problems given one- variable, one-step equations or inequalities

x   represent solutions for one-variable, one-step equations and inequalities on number lines

x   write one-variable, one-sia-ne

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Algebra 8	Prerequisite Skills/Links to TEKS Vertical Alignment
	x represent linear proportional situations with tables, graphs, and equations in the form of $y = kx$ x use data from a table or graph to determine the rate of change or slope and y-intercept in mathematical and real-world problems use d/Pagination >>BDC /TT1 1 Tf 0.004 Tc-2 ((l)1.9 28nT)11 (EKS C)2 (u)-4 (rri)-4.6 (c)-6.7 (u)-4 (l)-4
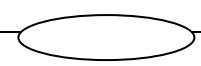
Algebra 8	Prerequisite Skills/Links to TEKS Vertical Alignment
	x use data from a random sample to make inferences about a population
	x compare two groups of numeric data using comparative dot plots or box plots by comparing their shapes, centers, and spreads
	x solve problems using data represented in bar graphs, dot plots, and circle graphs, including part-to- whole and part-to-part comparisons and equivalents
	x use data from a random sample to make inferences about a population
	x distinguish between situations that yield data with and without variability
	x interpret numeric data summarized in dot plots, stem -and-leaf plots, histograms, and box plots
	x solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem -and-leaf plot, or scatterplot
	x solve one- and two-step problems using data in whole number, decimal, and fraction form in a frequency table, dot plot, or stem -and- leaf plot
	x solve one- and two-step problems using categorical data represented with a frequency table, dot plot, pictograph, or bar graph with scaled intervals
	x draw conclusions and make predictions from information in a graph
	x write and solve one-step word problems involving addition or subtraction using data represented within pictographs and bar graphs with intervals of one
	x

Algebra 8	Prerequisite Skills/Links to TEKS Vertical Alignment
	x use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution x represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots x represent discrete paired data on a scatterplot x represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and -leaf plots x represent data on a frequency table, dot plot, or stem-and-leaf plot marked with whole numbers and fractions x summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals x organize a collection of data with up to four categories using pictographs and bar graphs with intervals of one or more x explain that the length of a bar in a bar graph or the number of pictures in a pictograph represents the number of data points for a given category x use data to create picture and bar-type graphs x collect, sort, and organize data in up to three categories using models/representations such as tally marks or T-charts x use data to create real-object and picture graphs x collect, sort, and organize data into two or three categories **Classification and patterns skills** x collect data and organize it in a graphic representation x sort objects that are the same and different into groups and use language to describe how the groups are similar and different

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

Algebra 9	Prerequisite Skills/Links to TEKS Vertical Alignment

Representing and Solving Algebraic Relationships

x   identify and verify the values of x and y that simultaneously satisfy two linear equations in the form $y = e + b$ from the intersections of the graphed equations

x   model and solve one-variable equations with variables on both sides of the equal sign that represent mathematical and real-world problems using rational number coefficients and constants

x   write a corresponding real-world problem when given a one-variable equation or inequality with variables on both sides of the equal sign using rational number coefficients and constants

x   write one-variable equations or inequalities with variables on both sides that represent problems using rational number coefficients and constants

x   write an equation in the form $y = e + b$ to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations

x   identify examples of proportional and non-proportional functions that arise from mathematical and real-world problems

x   identify functions using sets of ordered pairs, tables, mappings, and graphs

x   distinguish between proportional and non-proportional situations using tables, graphs, and equations in the form $y = kx$ or $y = mx + b$, where $b \bullet 0$

x   solve problems involving direct variation

x   represent linear non-proportional situations with tables, graphs, and equations in the form of $y = mx + b$, where $b \bullet 0$

x   represent linear proportional situations with tables, graphs, and equations in the form of $y = kx$

x   use data from a table or graph to determine the rate of change or slope and y-intercept in mathematical and real-world problems

x   graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship

x   use similar right triangles to develop an understanding that slope, m, given as the rate comparing the change in y-values to the change in x-values, $(y_2 - y_1)/(x_2 - x_1)$, is the same for any two points (x_1, y_1) and (x_2, y_2) on the same line

x   determine if the given value(s) make(s) one-variable, two-step equations and inequalities true

x   model and solve one-variable, two-step equations and inequalities

x   write a corresponding real-world problem given a one-variable, two-step equation or inequality

x   represent solutions for one-variable, two-step equations and inequalities on number lines

x   write one-variable, two-step equations and inequalities to represent constraints or conditions within problems

x   represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form $y = mx + b$

x   solve problems involving ratios, rates, and percents, including multi-stenteluding muatig l217-2 (st)2 (u)1 0 Td [(o)-1 2 Tc 0 Tw 02 (v)1 Td [(n)

Algebra 9

Algebra 9	Prerequisite Skills/Links to TEKS Vertical Alignment

Collecting and Representing Data
- x simulate generating random samples of the same size from a population with known characteristics to develop the notion of a random sample being representative of the population from which it was selected
- x determine the mean absolute deviation and use this quantity as a measure of the average distance data are from the mean using a data set of no more than 10 data points
- x construct a scatterplot and describe the observed data to address questions of association such as linear, nonlinear, and no association between bivariate data
- x contrast bivariate sets of data that suggest a linear relationship with bivariate sets of data that do not suggest a linear relationship from a graphical representation
- x summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution
- x 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
- x use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution
- x represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots
- x represent discrete paired data on a scatterplot
- x represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem- and-leaf plots
- x represent data on a frequency table, dot plot, or stem-and-leaf plot marked with whole numbers and fractions
- x summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals
- x organize a collection of data with up to four categories using pictographs and bar graphs with intervals of one or more
- x explain that the length of a bar in a bar graph or the number of pictures in a pictograph represents the number of data points for a given category
- x use data to create picture and bar-type graphs
- x collect, sort, and organize data in up to three categories using models/representations such as tally marks or Tcharts
- x use data to create real-object and picture graphs
- x collect, sort, and organize data into two or three categories

Classification and patterns skills
- x collect data and organize it in a graphic representation