

Cape Elizabeth School Department
K – 12 Math Curriculum Priority Goals

May, 2010

K-4 Math Priority Learning Goals

	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4
<p>Priority/Mastery Knowledge and Skills</p>					
<p>NUMBER</p> <p>•Whole Numbers</p>	<p>Students will:</p> <ul style="list-style-type: none"> Count to 100 by ones Count to 30 by fives Count to 100 by tens Count to 20 by twos Count backwards from 15 to 0 Count by ones starting with any number 0 - 50 Read numbers 0 - 30 Write numbers 0 - 30 Identify and form groups with numbers 0 - 10 Create stories using the numbers 0 - 10 	<p>Students will:</p> <ul style="list-style-type: none"> Count by ones, twos, fives, and tens from any number 0 - 100 to 100 and back Count collections of objects accurately and reliably Estimate the number of objects in a collection Read, write, and model with manipulatives numbers up to 1000 Use manipulatives to identify and model odd and even numbers Add and subtract, using a variety of methods, one and two digit numbers to give sums and differences from 0 - 100 Compare and order numbers up to 1000 Demonstrate proficiency with addition and subtraction facts through 10 Use a variety of methods to solve problems involving addition and subtraction of single digit numbers Estimate answers to basic facts problems to check for "reasonableness" Apply the Commutative Property of Addition to basic addition problems Apply the Additive Identity Property to basic addition problems 	<p>Students will:</p> <ul style="list-style-type: none"> Count by twos, fives, tens, and hundreds past 1000 Identify each digit's place value in two, three, four, and five digit numbers Demonstrate proficiency with complements of ten Demonstrate proficiency with addition and subtraction facts through 20 Add and subtract two digit numbers Estimate answers to basic facts problems to check for "reasonableness" Find equivalent names for numbers (tallies, arrays, numerical expressions) 	<p>Students will:</p> <ul style="list-style-type: none"> Read and write numbers up to one million Identify place value of digits in numbers through one million Apply place-value concepts in four digit numbers Find equivalent names for numbers using addition, sub., multiplication, and division Compare and order numbers to one million Demonstrate automaticity with addition and subtraction facts through 20 Use basic facts to compute fact extensions Add and subtract multi-digit numbers Estimate answers to addition and subtraction problems to check for "reasonableness" Solve addition and subtraction number stories Demonstrate automaticity with multiplication using the factors 0 - 5 and 10 Use a variety of strategies to compute multiplication facts through $10 * 10$ 	<p>Students will:</p> <ul style="list-style-type: none"> Give equivalent names for numbers Compare large numbers Read and write numbers up to one billion Identify place value of digits in numbers through one billion Compare and order numbers to one billion Solve addition and subtraction facts Solve basic multiplication facts Add and subtract multi-digit numbers Estimate sums, differences, and products Multiply by two-digit numbers Divide multi-digit numbers by single digit numbers

<p>NUMBER SENSE</p> <ul style="list-style-type: none"> •Rational Numbers 	<p>No rational number goals for Kindergarten</p>	<p>Students will:</p> <ul style="list-style-type: none"> • Use manipulatives and drawings to model halves, thirds, and fourths as equal parts of a region or collection; describe the model 	<p>Students will:</p> <ul style="list-style-type: none"> • Read and write money amounts using decimal notation • Shade a specific fractional part of a region and name the part 	<p>No rational number goals for Grade 3</p>	<p>Students will:</p> <ul style="list-style-type: none"> • Identify whole for fractions • Give equivalencies between fractions(hundredths denom.), decimals, and percents • Identify fractional parts of a collection of objects • Identify fractional parts of a region • Read, write, and order decimal numbers through thousandths • Identify place-value of digits in decimal numbers through thousandths • Read, write, and order fractions
<p>NUMBER SENSE</p> <ul style="list-style-type: none"> •Real Numbers 	<p>No real number goals for Kindergarten</p>	<p>No real number goals for Grade 1</p>	<p>No real number goals for Grade 2</p>	<p>No real number goals for Grade 3</p>	<p>No real number goals for Grade 4</p>
<p>DATA</p> <ul style="list-style-type: none"> •Measurement 	<p>Students will:</p> <ul style="list-style-type: none"> • Recognize and name the US coins; penny, nickel, dime, quarter, and dollar bill • Tell the time to the nearest hour using an analog clock 	<p>Students will:</p> <ul style="list-style-type: none"> • Know and compare the value of pennies, nickels, dimes, quarters, and dollar bills • Make equal exchanges between different coins and dollar bills • Estimate and compare length and width of objects using non-standard tools and techniques • Measure length and weight of objects using standard tools and techniques • Identify a thermometer as a tool used to measure temperature • Read temperatures on Fahrenheit and Celsius thermometers to the nearest ten degrees • Use a calendar to identify days, weeks, months, and dates • Tell the time to the nearest half and quarter hour using an analog clock 	<p>Students will:</p> <ul style="list-style-type: none"> • Show given amounts of money using standard US coins • Use equivalent coins to show amounts of money in different ways • Measure lengths to the nearest inch and centimeter • Read temperatures on Fahrenheit and Celsius thermometers to the nearest degree • Read and show the time to the nearest five minute interval on an analog clock 	<p>Students will:</p> <ul style="list-style-type: none"> • Estimate length using Metric and US Customary units • Measure lengths to the nearest half-inch and half centimeter • Tell the time to the nearest minute using an analog clock • Tell and write time using digital notation 	<p>Students will:</p> <ul style="list-style-type: none"> • Measure length to the nearest quarter inch and half centimeter

DATA	<p>Students will:</p> <ul style="list-style-type: none"> • Create a simple graph and share observations 	<p>Students will:</p> <ul style="list-style-type: none"> • Collect and organize data • Create tally charts, tables, bar graphs, and line plots using data • Use graphs to answer simple questions and draw conclusions • Determine the maximum and minimum of a set of data 	<p>Students will:</p> <ul style="list-style-type: none"> • Create bar graphs to show data • Compare quantities using a bar graph • Find the minimum, maximum, mode, and median of a data set 	<p>Students will:</p> <ul style="list-style-type: none"> • Use data to create charts, tables, bar graphs, and line plots • Interpret graphs to ask and answer simple questions 	<p>Students will:</p> <ul style="list-style-type: none"> • Collect and organize data and use data to create charts, tables and graphs • Use maximum, minimum, range, and mode to describe a set of data
DATA	No Probability goals for Kindergarten	Students will: • Describe the probability of events using the terms certain, likely, unlikely, and impossible	No Probability goals for Grade 2	No Probability goals for Grade 3	Students will: • Predict the outcome of probability experiments
GEOMETRY	Students will: • Recognize and name geometric shapes: circle, square, triangle, rectangle, sphere, and cube	Students will: • Identify and describe plane and solid figures including circles, triangles, squares, rectangles, spheres, cylinders, rectangular prisms, cones, and cubes • Identify shapes having lines of symmetry • Complete line-symmetric shapes and designs	Students will: • Draw line segments • Identify two dimensional shapes • Identify three dimensional shapes	Students will: • Identify and draw intersecting and parallel line segments and lines, rays, and right angles • Classify three dimensional solids • Create two dimensional symmetrical shapes • Locate lines of symmetry	Students will: • Name and draw intersecting and parallel line segments, lines, and rays • Name and draw angles • Name and draw polygons
GEOMETRY	No Geometric Measurement goals for Kindergarten	No Geometric Measurement goals for Grade 1	No Geometric Measurement goals for Grade 2	No Geometric Measurement goals for Grade 3	No Geometric Measurement goals for Grade 4
GEOMETRY	No Transformation goals for Kindergarten	No Transformation goals for Grade 1	No Transformation goals for Grade 2	No Transformation goals for Grade 3	No Transformation goals for Grade 4

<p>ALGEBRA</p> <ul style="list-style-type: none"> • Symbols and Expressions 	<p>Students will:</p> <ul style="list-style-type: none"> • See and utilize patterns • Sort objects using various attributes 	<p>Students will:</p> <ul style="list-style-type: none"> • Extend, describe, and create numeric, visual, and concrete patterns • Solve problems involving function machines, "What's my Rule?" tables, and Frames-and-Arrows diagrams • Read, write, and explain expressions and number sentences using appropriate symbols 	<p>Students will:</p> <ul style="list-style-type: none"> • Complete "Frame and Arrow" problems with one rule • Complete "What's My Rule" problems • Use less-than, greater-than, and equal symbols to compare numbers 	<p>Students will:</p> <ul style="list-style-type: none"> • Determine operations and values in "Frame and Arrow" problems • Determine operations and values in "What's My Rule" problems • Use addition, subtraction, multiplication, division, less-than, greater-than, and equal symbols to represent and analyze numerical relationships 	<p>Students will:</p> <ul style="list-style-type: none"> • Determine whether number sentences are true or false • Write number sentences to model number stories • Use parenthesis to make number sentences true
<p>ALGEBRA</p> <ul style="list-style-type: none"> • Equations and Inequalities 	<p>No Equations and Inequalities goals for Kindergarten</p>	<p>Students will:</p> <ul style="list-style-type: none"> • Solve equations involving addition and subtraction 	<p>No Equations and Inequalities goals for Grade 2</p>	<p>No Equations and Inequalities goals for Grade 3</p>	<p>No Equations and Inequalities goals for Grade 4</p>
<p>ALGEBRA</p> <ul style="list-style-type: none"> • Functions and Relations 	<p>No Functions and Relations goals for Kindergarten</p>	<p>No Functions and Relations goals for Grade 1</p>	<p>No Functions and Relations goals for Grade 2</p>	<p>No Functions and Relations goals for Grade 3</p>	<p>No Functions and Relations goals for Grade 4</p>

5-8 Math Priority Learning Goals

	Grade 5	Grade 6	Rational Math	Transition Math, Part 1
<p>Priority/Mastery Knowledge and Skills</p> <p>NUMBER SENSE</p> <ul style="list-style-type: none"> • Whole Numbers 	<p>Students will:</p> <ul style="list-style-type: none"> • Read and write whole numbers to one hundred billion • Use expanded notation to represent whole numbers • Multiply and divide whole numbers and interpret remainders 	<p>Students will:</p> <ul style="list-style-type: none"> • Identify prime and composite numbers • Interpret and use exponential notation as repeated multiplication • Find the least common multiple and greatest common factor of two numbers • Use order of operations to evaluate three and four term numerical expressions 	<p>Students will:</p> <ul style="list-style-type: none"> • Use knowledge of prime and composite numbers to factor numbers • Use “Fact Families” to show that inverse operations can be used to check answers • Follow conventions of order of operations using whole numbers 	<p>Students will:</p> <ul style="list-style-type: none"> • Translate numbers back and forth from written words into numerals • Use a calculator to perform arithmetic operations and solve problems • Use and interpret numbers written in exponential notation • Identify numbers written in scientific notation • Use scientific notation to denote large numbers • Identify and apply the Multiplication Property of Equality • Identify and apply the Properties of Addition (Additive Identity, Commutative, Associative) • Use Order of Operations to evaluate whole number expressions • Solve problems involving inequalities
<p>NUMBER SENSE</p> <ul style="list-style-type: none"> • Rational Numbers 	<p>Students will:</p> <ul style="list-style-type: none"> • Read and write decimal numbers to the thousandths place • Multiply and divide decimal numbers by a whole number and interpret decimal remainders • Solve problems involving addition and subtraction of decimal number to the thousandths place • Solve problems involving addition and subtraction of fractions with like denominators • Place positive and negative numbers on a number line and determine the distance between them 	<p>Students will:</p> <ul style="list-style-type: none"> • Compare and order fractions with unlike denominators • Add and subtract fractions with unlike denominators • Compare and order decimals • Multiply and divide decimals by 10, 100, and 1000 • Convert between fractions, decimals, and percents • Find a given whole percent of a number • Compare and order integers • Add and subtract integers 	<p>Students will:</p> <ul style="list-style-type: none"> • Compare and order integers on a number line • Add, subtract, multiply and divide fractions • Solve problems involving money, including computing sales tax, percent reductions and total cost • Express relative quantities as fractions, decimals, and percentages 	<p>Students will:</p> <ul style="list-style-type: none"> • Add, subtract, multiply and divide decimal numbers • Add, subtract, multiply and divide fractions • Add, subtract, multiply and divide positive and negative numbers • Compare and order rational numbers using correct symbols of inequality • Round decimal numbers • Use a calculator to perform arithmetic operations and solve problems involving rational numbers • Convert between fractions, mixed numbers, decimals and percents • Find percents of quantities in various given situations • Use scientific notation to denote numbers less than one using negative exponents • Explain the concept of absolute value, and calculate it for any given rational number • Use the Addition of Opposites Prop. to convert subtraction to addition

<p>NUMBER SENSE</p> <ul style="list-style-type: none"> • Real Numbers 	<p>No real number goals for Grade 5</p>	<p>No real number goals for Grade 6</p>	<p>No real number goals for Rational Math</p>	<p>No real number goals for Transition Math, Part I</p>
<p>DATA</p> <ul style="list-style-type: none"> • Measurement 	<p>No measurement goals for Grade 5</p>	<p>Students will:</p> <ul style="list-style-type: none"> • Choose appropriate units for measuring • Convert units within systems 	<p>Students will:</p> <ul style="list-style-type: none"> • Measure and draw lines using traditional "ruler" units and metric units • Determine elapsed time involving whole hours, whole days, and whole years • Compute simple conversions among units of time (seconds, minutes, hours) 	<p>Students will:</p> <ul style="list-style-type: none"> • Measure and draw lines using U.S. standard units to one eighth of an inch • Measure and draw lines using metric units to one millimeter • Name and use customary measures of length in U.S. standard units • Convert units of length within the U.S. standard system • Name and use customary measures of length in the metric system • Convert units of length within the metric system • Name and use customary measures of mass and volume in the U.S. standard system • Name and use customary measures of mass and volume in the metric system • Convert common relationships between U.S. standard units and metric units given a conversion factor
<p>DATA</p> <ul style="list-style-type: none"> • Data Analysis 	<p>Students will:</p> <ul style="list-style-type: none"> • Find and use median, mode, and range for a set of data • Students will understand elapsed time and temperature • Read, construct, and interpret line graphs 	<p>Students will:</p> <ul style="list-style-type: none"> • Determine the range, mean, median, and mode given a set of data • Construct bar, line, and circle graphs • Interpret bar, line, and circle graphs 	<p>Students will:</p> <ul style="list-style-type: none"> • Solve problems using tables • Interpret bar, line, and circle graphs • Organize data to create simple bar or line graphs • Determine the range, mean, median, and mode given a set of data 	<p>No Data Analysis goals for Transition Math, Part I</p>
<p>DATA</p> <ul style="list-style-type: none"> • Probability 	<p>No probability goals for Grade 5</p>	<p>Students will:</p> <ul style="list-style-type: none"> • Determine probability as a ratio 	<p>Students will:</p> <ul style="list-style-type: none"> • Recognize events as certain, likely, unlikely, or impossible • Determine the probability for a simple experiment using one or more coins 	<p>Students will:</p> <ul style="list-style-type: none"> • Calculate and predict probabilities and relative frequencies given situations with known numbers of outcomes • Describe given events in various degrees of likelihood, as a fraction, and as a percentage

<p>GEOMETRY</p> <ul style="list-style-type: none"> • Geometric Figures 	<p>Students will:</p> <ul style="list-style-type: none"> • Identify, describe and classify solid figures • Identify acute, obtuse, and straight angles 	<p>Students will:</p> <ul style="list-style-type: none"> • Identify lines, line segments, and rays using appropriate symbols 	<p>Students will:</p> <ul style="list-style-type: none"> • Identify acute, obtuse, and straight angles • Identify intersecting, parallel, and perpendicular lines • Identify the parts of a circle 	<p>Students will:</p> <ul style="list-style-type: none"> • Identify and describe several common polygons by their number of sides • Apply the definitions of parallelogram, rectangle, rhombus, and square, to determine the properties of each quadrilateral • Identify the center, radius, diameter and sector of a circle
<p>GEOMETRY</p> <ul style="list-style-type: none"> • Geometric Measurement 	<p>Students will:</p> <ul style="list-style-type: none"> • Find the area of triangles and quadrilaterals 	<p>Students will:</p> <ul style="list-style-type: none"> • Calculate the area and perimeter of squares, rectangles, and triangles • Measure and draw angles to a certain degree using a protractor • Use “given formulas” to calculate circumference and area of circles 	<p>Students will:</p> <ul style="list-style-type: none"> • Convert between inches and feet • Calculate the area and perimeter of squares, rectangles • Solve simple problems involving measurement of length 	<p>Students will:</p> <ul style="list-style-type: none"> • Measure and draw angles to a certain degree using a protractor • Calculate the areas of square rectangles • Calculate the volume of a cube • Know and apply relationships among angles formed by intersecting lines • Determine the measure of angles in figures containing linear pairs, vertical angles, and perpendicular lines • Find measures of angles formed in figures containing parallel lines and transversals • Use the Triangle Sum Property to find measures of angles
<p>GEOMETRY</p> <ul style="list-style-type: none"> • Transformations 	<p>No Transformation goals for Grade 5</p>	<p>Students will:</p> <ul style="list-style-type: none"> • Determine congruency or similarity of shapes • Use proportions with similar shapes to determine a missing side length • Use reflections, rotations, and translations to determine congruency 	<p>No Transformation goals for Rational Math</p>	<p>No Transformation goals for Transition Math, Part 1</p>

<p>ALGEBRA</p> <ul style="list-style-type: none"> • Symbols and Expressions 	<p>Students will:</p> <ul style="list-style-type: none"> • Create and evaluate simple expressions 	<p>Students will:</p> <ul style="list-style-type: none"> • Create and give a rule for a numerical pattern • Generalize patterns (input, output tables) • Convert word phrases to algebraic expressions • Evaluate two-variable expressions with values given for each variable 	<p>Students will:</p> <ul style="list-style-type: none"> • Convert word phrases to algebraic expressions • Complete an arithmetic pattern by filling in missing numbers and creating a rule • Use order of operations to solve simple algebraic expressions and that involve grouping symbols 	<p>Students will:</p> <ul style="list-style-type: none"> • Give instances of a pattern and write a "rule" for a pattern using variables • Translate a written word expression into an algebraic or numerical expression • Evaluate algebraic expressions given the value of the variable • Use order of operations to solve simple algebraic expressions and formulas that involve grouping symbols • Identify and apply the Properties of Addition to simplify algebraic expressions
<p>ALGEBRA</p> <ul style="list-style-type: none"> • Equations and Inequalities 	<p>No Equations and Inequalities goals for Grade 5</p>	<p>No Equations and Inequalities goals for Grade 6</p>	<p>Students will:</p> <ul style="list-style-type: none"> • Solve basic facts addition and subtraction open sentences • Solve simple open sentences with missing factors 	<p>Students will:</p> <ul style="list-style-type: none"> • Solve open sentences • Identify and apply the Addition Property of Equality to solve algebraic equations • Use the Addition of Opposites Property to convert subtraction to addition when solving algebraic equations • Solve equations of the form $x + a = b$ • Solve equations of the form $x - a = b$ • Solve equations of the form $a - x = b$
<p>ALGEBRA</p> <ul style="list-style-type: none"> • Functions and Relations 	<p>No Functions and Relations goals for Grade 5</p>	<p>No Functions and Relations goals for Grade 6</p>	<p>No Functions and Relations goals for Rational Math</p>	<p>No Functions and Relations goals for Transition Math, Part 1</p>

5-8 Math Priority Learning Goals (Draft)

	Transition Math, Part 2	Transition Math, Full year	Algebra	Geometry
<p>Priority/Mastery Knowledge and Skills</p> <p>NUMBER SENSE</p> <p>•Whole Numbers</p>	<p>Students will:</p> <ul style="list-style-type: none"> Use and apply the Algebraic Definition of Division with both fractions and variables 	<p>Students will:</p> <ul style="list-style-type: none"> Translate numbers back and forth from written words into numerals Use a calculator to perform arithmetic operations and solve problems Use and interpret numbers written in exponential notation Identify numbers written in scientific notation Use scientific notation to denote large numbers Identify and apply the Multiplication Property of Equality Identify and apply the Properties of Addition (Additive Identity, Commutative, Associative) Use Order of Operations to evaluate whole number expressions Solve problems involving inequalities Use and apply the Algebraic Definition of Division with both fractions and variables 	<p>See Algebra Course under HS Priority Learning Goals</p>	<p>See Geometry Course under HS Priority Learning Goals</p>
<p>NUMBER SENSE</p> <p>•Rational Numbers</p>	<p>Students will:</p> <ul style="list-style-type: none"> Identify numbers as rational, irrational, or real 	<p>Students will:</p> <ul style="list-style-type: none"> Add, subtract, multiply and divide decimal numbers Add, subtract, multiply and divide fractions Add, subtract, multiply and divide positive and negative numbers Compare and order rational numbers using correct symbols of inequality Round decimal numbers Use a calculator to perform arithmetic operations and solve problems involving rational numbers Convert between fractions, mixed numbers, decimals and percents Find percents of quantities in various given situations Use scientific notation to denote numbers less than one using negative exponents Explain the concept of absolute value, and calculate it for any rational number 	<p>See Algebra Course under HS Priority Learning Goals</p>	<p>See Geometry Course under HS Priority Learning Goals</p>

		<ul style="list-style-type: none"> Use the Addition of Opposites Property to convert subtraction to addition Identify numbers as rational, irrational, or real 		
NUMBER SENSE <ul style="list-style-type: none"> Real Number 	No Real Number goals for Transition Math, Part 2	No Real Number goals for Transition Math, Full Year	See Algebra Course under HS Priority Learning Goals	See Geometry Course under HS Priority Learning Goals
DATA <ul style="list-style-type: none"> Measurement 	No Measurement goals for Transition Math, Part 2	Student's will: <ul style="list-style-type: none"> Measure and draw lines using U.S. standard units to one eighth of an inch Measure and draw lines using metric units to one millimeter Name and use customary measures of length in U.S. standard units Convert units of length within the U.S. standard system Name and use customary measures of length in the metric system Convert units of length within the metric system Name and use customary measures of mass and volume in the U.S. standard system Name and use customary measures of mass and volume in the metric system Convert common relationships between U.S. standard units and metric units given a conversion factor 	See Algebra Course under HS Priority Learning Goals	See Geometry Course under HS Priority Learning Goals
DATA <ul style="list-style-type: none"> Data Analysis 	Student's will: <ul style="list-style-type: none"> Interpret information on coordinate graphs Display information on coordinate graphs Plot and name points on a coordinate graph Graph equations for lines of the form $x + y = k$ or $x - y = k$ Graph solutions to equations of the form $ax + b = cx + d$ 	Student's will: <ul style="list-style-type: none"> Interpret information on coordinate graphs Display information on coordinate graphs Plot and name points on a coordinate graph Graph equations for lines of the form $x + y = k$ or $x - y = k$ Graph solutions to equations of the form $ax + b = cx + d$ 	See Algebra Course under HS Priority Learning Goals	See Geometry Course under HS Priority Learning Goals

<p>DATA</p> <ul style="list-style-type: none"> • Probability 	<p>No Probability goals for Transition Math, Part 2</p>	<p>Student's will:</p> <ul style="list-style-type: none"> • Calculate and predict probabilities and relative frequencies given situations with known numbers of outcomes • Describe given events in various degrees of likelihood, as a fraction, and as a percentage 	<p>See Algebra Course under HS Priority Learning Goals</p>	<p>See Geometry Course under HS Priority Learning Goals</p>
<p>GEOMETRY</p> <ul style="list-style-type: none"> • Geometric Figures 	<p>Student's will:</p> <ul style="list-style-type: none"> • Identify similar figures and name corresponding parts • Show how square roots and geometric figures are related 	<p>Student's will:</p> <ul style="list-style-type: none"> • Identify and describe several common polygons by their number of sides • Apply the definitions of parallelogram, rectangle, rhombus, and square, to determine the properties of each quadrilateral • Identify the center, radius, diameter and sector of a circle • Identify similar figures and name corresponding parts • Show how square roots and geometric figures are related 	<p>See Algebra Course under HS Priority Learning Goals</p>	<p>See Geometry Course under HS Priority Learning Goals</p>
<p>GEOMETRY</p> <ul style="list-style-type: none"> • Geometric Measurement 	<p>Student's will:</p> <ul style="list-style-type: none"> • Calculate the volume of a rectangular solid • Calculate the surface area of a rectangular solid • Find the area of a trapezoid • Use the Pythagorean Theorem to find the length of the third side of a right triangle • Calculate the circumference of a circle given its radius or diameter (using the formula) • Calculate the area of a circle or sector given its radius or diameter (using the formula) • Calculate the area of cylinders and prisms (using the formula) • Calculate the volume of cylinders and prisms (using the formula) • Calculate the surface area and volume of a sphere, given its radius or diameter (using the formula) 	<p>Student's will:</p> <ul style="list-style-type: none"> • Measure and draw angles to a certain degree using a protractor • Calculate the areas of squares and rectangles • Calculate the volume of a cube • Know and apply relationships among angles formed by intersecting lines • Determine the measure of angles in figures containing linear pairs, vertical angles, and perpendicular lines • Find measures of angles formed in figures containing parallel lines and transversals • Use the Triangle Sum Property to find measures of angles • Calculate the volume of a rectangular solid • Calculate the surface area of a rectangular solid • Find the area of a trapezoid • Use the Pythagorean Theorem to find the length of the third side of a right triangle 	<p>See Algebra Course under HS Priority Learning Goals</p>	<p>See Geometry Course under HS Priority Learning Goals</p>

<p>GEOMETRY</p> <ul style="list-style-type: none"> • Transformations 	<p>Student's will:</p> <ul style="list-style-type: none"> • Apply the relationships between geo. figures and their translated images • Interpret translations on a coordinate graph • Draw the reflection image of a figure over a line • Interpret reflections on a coordinate graph • Apply the Size Change Model for Multiplication to real situations involving expansions, contractions, and reflections 	<p>Geo. Measurement (cont.)</p> <p>Student's will:</p> <ul style="list-style-type: none"> • Calculate the circumference of a circle given its radius or diameter (using the formula) • Calculate the area of a circle or sector given its radius or diameter (using the formula) • Calculate the area of cylinders and prisms (using the formula) • Calculate the volume of cylinders and prisms (using the formula) • Calculate the surface area and volume of a sphere, given its radius or diameter (using the formula) 		
<p>ALGEBRA</p> <ul style="list-style-type: none"> • Symbols and Expressions 	<p>No Symbols and Expressions goals for Trans Math, Part 2</p>	<p>Student's will:</p> <ul style="list-style-type: none"> • Give instances of a pattern and write a "rule" for a pattern using variables • Translate a written word expression into an algebraic or numerical expression • Evaluate algebraic expressions given the value of the variable • Use order of operations to solve simple algebraic expressions and formulas that involve grouping symbols • Identify and apply the Properties of Addition to simplify algebraic expressions 	<p>See Algebra Course under HS Priority Learning Goals</p>	<p>See Geometry Course under HS Priority Learning Goals</p>
			<p>See Algebra Course under HS Priority Learning Goals</p>	<p>See Geometry Course under HS Priority Learning Goals</p>

<p>ALGEBRA</p> <ul style="list-style-type: none"> • Equations and Inequalities 	<p>Student's will:</p> <ul style="list-style-type: none"> • Solve and check equations of the form $Ax = B$ • Solve and check equations of the form $Ax + B = C$ • Solve and check equations of the form $Ax + B = C$ when A is a negative number • Solve equations of the form $ax + b = cx + d$ • Recognize and apply the Multiplication Property of Equality • Recognize and apply the Means-Extremes Property to solve proportions that involve variables • Apply the Distributive Property of Multiplication over Addition and Subtraction to simplify expressions 	<p>Student's will:</p> <ul style="list-style-type: none"> • Solve open sentences • Identify and apply the Addition Property of Equality to solve algebraic equations • Use the Addition of Opposites Property to convert subtraction to addition when solving algebraic equations • Solve equations of the form $x + a = b$ • Solve equations of the form $x - a = b$ • Solve equations of the form $a \cdot x = b$ • Solve and check equations of the form $Ax = B$ • Solve and check equations of the form $Ax + B = C$ • Solve and check equations of the form $Ax + B = C$ when A is a negative number • Solve equations of the form $ax + b = cx + d$ • Recognize and apply the Multiplication Property of Equality • Recognize and apply the Means-Extremes Property to solve proportions that involve variables • Apply the Distributive Property of Multiplication over Addition and Subtraction to simplify expressions 	<p>See Algebra Course under HS Priority Learning Goals</p>	<p>See Geometry Course under HS Priority Learning Goals</p>
<p>ALGEBRA</p> <ul style="list-style-type: none"> • Functions and Relations 	<p>No Functions and Relations goals for Transition Math, Part 2</p>	<p>No Functions and Relations goals for Trans Math, Full year</p>	<p>See Algebra Course under HS Priority Learning Goals</p>	<p>See Geometry Course under HS Priority Learning Goals</p>

HS Math Priority Learning Goals

Algebra Priority/Mastery Knowledge and Skills	Geometry Priority/Mastery Knowledge and Skills	Adv. Algebra Priority/Mastery Knowledge and Skills	Functions, Stats. Trig. Priority/Mastery Knowledge and Skills
<p>Using Algebra to Describe</p> <p>Students will:</p> <ul style="list-style-type: none"> • Evaluate numerical and algebraic expressions • Use variables to describe patterns in instances or tables. • Evaluate expressions using absolute value. • Calculate the range and mean absolute deviation. • Identify and apply the associative, commutative, and transitive properties. • Create expressions to model real-world situations. • Calculate and interpret the spread of a distribution using mean absolute deviation. • Create a scatterplot from a table or expression. • Use graphs to determine whether expressions seem to be equivalent • Use graphs to find values, create tables, and select appropriate windows. <p>Using Algebra to Explain</p> <p>Students will:</p> <ul style="list-style-type: none"> • Use the Distributive Property to expand and combine like terms. • Use the Opposites of Opposites Property, the Opposite of a Sum Property, and the Opposite of a Difference Property to simplify expressions. • Apply and recognize the following multiplication properties: Multiplicative Identity Property, Multiplicative Inverse Property, Multiplication Property of Zero, Multiplication Property of Equality, and the Zero Product Property. • Apply and recognize the following addition properties: Additive Identity Property, Additive Inverse Property, and Addition Property of Equality. 	<p>Points and Lines</p> <p>Students will:</p> <ul style="list-style-type: none"> • Apply the Distance Postulate properties of betweenness <p>Angles and Lines</p> <p>Students will:</p> <ul style="list-style-type: none"> • Find the measures of central angles and the degree measures of arcs. • Give justifications for conclusions involving angles and lines. • Apply angle and arc measures in real situations. <p>Proofs using Congruence</p> <p>Students will:</p> <ul style="list-style-type: none"> • Identify and determine measures of parts of congruent figures. • Make and justify conclusions about congruent figures. <p>Triangle Congruence</p> <p>Students will:</p> <ul style="list-style-type: none"> • Write proofs that triangles are congruent. • Apply the triangle congruence and CPCF theorems to prove that segments or angles are congruent. 	<p>Functions</p> <p>Students will:</p> <ul style="list-style-type: none"> • Solve and check linear equations. • Write a recursive definition for a sequence. • Determine the domain and range of a function defined by a table, a list of ordered pairs, or a simple equation. • Determine the domain, range, and values of a function from its graph. <p>Variation and Graphs</p> <p>Students will:</p> <ul style="list-style-type: none"> • Solve variation problems. • Find slopes (rates of change). • Recognize variation situations. • Fit an appropriate model to data. • Graph variation equations. <p>Linear Functions</p> <p>Students will:</p> <ul style="list-style-type: none"> • Evaluate or find explicit and recursive formulas for arithmetic sequences. • Fit lines to data. • Graph or interpret graphs of linear equations. 	<p>Exploring Data</p> <p>Students will:</p> <ul style="list-style-type: none"> • Compare measures of center and compare measures of spread • Use samples to make inferences about populations <p>Functions and Models</p> <p>Students will:</p> <ul style="list-style-type: none"> • Identify the independent variables, domain, and range of a function. • Identify properties of regression lines and the correlation coefficient. • Use scatterplots to draw conclusions about models for data. <p>Transformations of Graphs and Data</p> <p>Students will:</p> <ul style="list-style-type: none"> • Recognize and graph parent functions. <p>Circular Functions</p> <p>Students will:</p> <ul style="list-style-type: none"> • Find lengths of circular arcs and areas of sectors. • Find sines, cosines, and tangents of angles. • Solve Problems involving lengths of arcs of areas of sectors.

Using Algebra to Explain (cont.)

Students will:

- Use and apply the Distributive Property to perform calculations in your head.
- Use algebra to explain how number puzzles work.
- Apply the Distributive Property to real-world situations.
- Use a spreadsheet or table to test the equivalence of expressions.
- Use technology to test for equivalence of expressions.

Linear Equations and Inequalities

Students will:

- Solve and check linear equations of the form $ax + b = c$.
- Solve and check linear inequalities of the form $ax + b < c$.
- Apply the Addition and Multiplication Properties of Equality and Inequality.
- Use linear equations and inequalities of the form $ax + b = c$ and $ax + b < c$ to solve real-world problems.
- Solve problems involving equations of the form $y = ax + b$ using tables or graphs.
- Graph all the solutions of a linear inequality.

Perimeters and Areas

Students will:

- Describe or apply a method for determining the area of an irregularly shaped region.
- Calculate areas of squares, rectangles, parallelograms, trapezoids, and triangles given relevant length of sides, and vice versa.
- Apply the Pythagorean Theorem to calculate lengths and areas in right triangles and other figures.
- Calculate lengths and measures of arcs, the circumference, and the area of a circle given measures of relevant lengths and angles, and vice versa.
- Apply the Pythagorean Theorem and perimeter formulas for parallelograms, kites, and equilateral polygons to real-world situations.
- Apply formulas for the area and circumference of a circle to real-world situations.
- Determine the areas of polygons on a coordinate plane.

Surface Areas and Volumes

Students will:

- Calculate lateral areas, surface areas, and volumes of cylinders and prisms from appropriate lengths, and vice versa.
- Calculate lateral areas, surface areas, and volumes of pyramids and cones from appropriate lengths, and vice versa.
- Calculate the surface area and volume of a sphere from appropriate lengths, and vice versa.
- Determine what happens to the surface area and volume of a figure when its dimensions are multiplied by some number(s).
- Apply formulas for lateral and surface area to real situations.
- Apply formulas for volume to real situations

Systems

Students will:

- Solve 2 x 2 and 3 x 3 systems using the Linear Combination Method or substitution.
- Use matrices to solve systems of two or three linear equations.
- Recognize properties of systems of equations.
- Recognize properties of systems of inequalities.
- Use systems of two or three linear equations to solve real-world problems.
- Use linear programming to solve real-world problems.
- Solve and graph linear inequalities in one variable.
- Estimate solutions to systems by graphing.
- Solve systems of inequalities by graphing.

Quadratic Functions

Students will:

- Expand squares of binomials.
- Solve quadratic equations.
- Apply the definition of absolute value and the Absolute Value-Square Root Theorem.
- Use the discriminant of a quadratic equation to determine the nature of the solutions to the equation.
- Graph quadratic functions or absolute value functions and interpret them.
- Use the discriminant of a quadratic equation to determine the number of x-intercepts of the graph.

Trigonometric Functions

Students will:

- Find sines, cosines, and tangents of angles.
- Evaluate in verse trigonometric functions.
- Use Trigonometry to find lengths, angles, or areas.
- Solve problems using trigonometric ratios in right triangles.

Root, Power, and Logarithm Functions

Students will:

- Evaluate $b^{m/n}$ for $b > 0$
- Evaluate logarithms.
- Describe properties of rational power, n th root, and logarithm functions.
- Solve problems arising from exponential or logarithmic models.
- Graph n th root, rational power, and logarithm functions.

Probability and Simulation

Students will:

- State and use properties of probabilities.
- Determine whether events are mutually exclusive, independent, or complementary.
- Calculate probabilities in real situations.

Sequences, Series, and Combinations

Students will:

- Find the terms of sequences from explicit or recursive formulas.
- Find explicit or recursive formulas for the n th term of an arithmetic or geometric sequence.

<p>More Linear Equations and Inequalities</p> <p>Students will:</p> <ul style="list-style-type: none"> • Solve and check equations of the form $ax + b = cx + d$. • Solve and check compound inequalities of the form $ax + b < cx + d$. • Solve percent problems. • Solve absolute value equations and inequalities involving linear expressions. • Apply and recognize Addition and Multiplication Properties of Equality and Inequality when solving linear sentences. • Recognize when sentences have no solution or every real number as a solution. • Use linear equations and inequalities of the form $ax + b = cx + d$ or $ax + b < cx + d$ to solve real-world problems. • Use tables and graphs to solve real-world problems involving linear situations. • Solve real-world problems involving percents. • Use graphs to solve problems involving linear equations. • Use graphs to model sentences that have no solution or every real number as a solution. <p>Division and Proportions in Algebra</p> <p>Students will:</p> <ul style="list-style-type: none"> • Solve proportions. • Use the language of proportions and the Means-Extreme Property. • Use rates in real situations. • Convert units and use reciprocal rates in real situations. • Use ratios to compare two quantities. • Calculate relative frequencies and probabilities in situations with a finite number of equally likely outcomes. • Find probabilities involving geometric regions.* Solve problems involving proportions in real situations. 	<p>Indirect and Coordinate Proofs</p> <p>Students will:</p> <ul style="list-style-type: none"> • Determine the length and the coordinates of the midpoint of a segment in the coordinate plane. • Plot points, find distances between them, and find coordinates of midpoints in 3-dimensional space. • Apply the Distance and Box Diagonal Formulas in real situations. <p>Similarity</p> <p>Students will:</p> <ul style="list-style-type: none"> • Use proportions to find missing parts in similar figures. • Recognize and apply properties of size transformations. • Use the Fundamental Theorem of Similarity to find lengths, perimeters, areas, and volumes in similar figures. <p>Similar Triangles and Trigonometry</p> <p>Students will:</p> <ul style="list-style-type: none"> • Calculate lengths using the Right Triangle Altitude Theorem. • Determine sines, cosines, and tangents of angles and use the SAS Triangle Area Formula. • Estimate or determine exact values of the trigonometry ratios. • Know the definitions of sine, cosine, and tangent. • Use sines, cosines, and tangents to determine unknown lengths in real situations. <p>Further Work with Circles</p> <p>Students will:</p> <ul style="list-style-type: none"> • Calculate measures of inscribed angles from measures of intercepted arcs, and vice versa. 	<p>Powers</p> <p>Students will:</p> <ul style="list-style-type: none"> • Evaluate b^n when $b > 0$ and n is a rational number. • Simplify expressions or solve equations using properties of exponents. • Describe geometric sequences explicitly and recursively. • Recognize properties of the nth powers and nth roots. • Graph nth power functions. <p>Inverses and Radicals</p> <p>Students will:</p> <ul style="list-style-type: none"> • Evaluate radicals. • Apply properties of radicals and nth root functions. • Solve real-world problems which can be modeled by equations with radicals. <p>Exponential and Logarithmic Functions</p> <p>Students will:</p> <ul style="list-style-type: none"> • Use logarithms to solve exponential equations. • Solve logarithmic equations. • Apply logarithmic scales (pH, decibel), models, and formulas. • Graph exponential functions. <p>Trigonometry</p> <p>Students will:</p> <ul style="list-style-type: none"> • Find exact values of trigonometric functions of multiples of 30° or 45° or their radian equivalents. • Determine the measure of an angle given its sine, cosine, or tangent. • Solve real-world problems using the trigonometry of right triangles. 	<p>Polynomial Functions</p> <p>Students will:</p> <ul style="list-style-type: none"> • Calculate or approximate zeros and relative extrema of polynomial functions. • Divide polynomials. • Factor polynomials and solve polynomial equations using technology • Apply the Remainder Theorem, Factor Theorem, and Factor-Solution-Intercept Equivalence Theorem. <p>Binomial and Normal Distributions</p> <p>Students will:</p> <ul style="list-style-type: none"> • Calculate the mean and standard deviation of a binomial probability distribution. • Apply confidence intervals to real-world problems.
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Division and Prop. in Algebra (cont.)

Students will:

- Interpret the meaning of percentile for benchmarks of 10th, 25th, 50th, 75th, and 90th percentiles.
- Find lengths and ratios of similitude in similar figures.

Slopes and Lines

Students will:

- Find the slope of the line through two given points.
- Find an equation for a line given either its slope and any point or two points on it.
- Write an equation for a line in standard form or slope-intercept form, and using either form, find its slope and y-intercept.
- Use the definition and properties of slope.
- Calculate rates of change from real data and describe their real-world meanings.
- Use equations for lines to describe real situations.
- Given data whose graph is approximately linear, find a linear equation to fit the graph and make predictions about data values.
- Graph a line given its equation, or given a point and its slope.
- Graph linear inequalities.

Using Algebra to Describe Patterns of Change

Students will:

- Evaluate functions.
- Calculate function values in spread sheets.
- Use the language of functions.
- Calculate compound interest.
- Solve problems involving exponential growth and decay.
- Determine whether a situation is constant increase, constant decrease, exponential growth, exponential decay, or nonconstant change.
- Compare linear increase with exponential growth.
- Graph exponential relationships.
- Graph functions

Powers and Roots

Students will:

- Simplify products, quotients, and powers of powers.
- Evaluate negative integer powers of real numbers.
- Rewrite powers of products and quotients.
- Simplify square roots.
- Evaluate cube roots.
- Identify properties of powers that justify a simplification, from the following list: Zero Exponent Property; Negative Exponent Property; Power of a Product Property; Power of a Quotient Property, Product of Powers Property; Quotient of Powers Property; Power of a Power Property.
- Represent squares, cubes, square roots, and cube roots geometrically.
- Calculate distances on the x-y coordinate plane.

Quadratic Equations and Functions

Students will:

- Solve quadratic equations of the form $ax^2 = b$.
- Solve quadratic equations using the Quadratic Formula.
- Use quadratic equations to solve problems about paths of projectiles.
- Solve other real-world problems involving quadratic functions.
- Graph equations of the form $y = ax^2$ and interpret these graphs.
- Graph equations of the form $y = ax^2 + bx + c$.

Linear Systems

Students will:

- Solve systems using substitution.
- Solve systems by addition and multiplication.
- Use systems of linear equations to solve real-world problems.
- Find solutions to systems of equations by graphing.