

Math Literacy Standards and Benchmarks –

May 29, 2007

	Demonstrates understanding and use of numbers and their operations.	Demonstrates understanding and use of data collections, statistics, basic probabilities, and concepts.	Demonstrates understanding and use of measurement units, systems, techniques, and tools.	Demonstrates understanding and use of algebraic patterns, symbols, and relationships.	Demonstrates understanding and use of geometric shapes, attributes, properties and relationships.
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	Number and Operation	Data Analysis and Probability	Measurement	Algebra	Geometry
K	<p>1.1 Understands numbers, ways of representing numbers, relationships among numbers, and number systems.</p> <ul style="list-style-type: none"> a) count to 31 b) write numbers to 31 c) constructs sets to 31 through the use of manipulatives d) recognize numbers to 31 e) basic whole number relationships using words “less than, greater than, equal to”, and sequencing f) solve a simple addition problem to sums of ten (with manipulatives) g) B solve a simple subtraction problem from ten or less (with manipulatives) h) apply and adapt a variety of appropriate strategies to solve problems 	<p>2.1 Demonstrates the ability to collect, compare, and display data using manipulatives.</p> <ul style="list-style-type: none"> a) sort objects by specified attributes b) read and interpret developmentally appropriate graphs and charts 	<p>3.1 Understands measurable attributes of objects and the units, systems, and processes of measurement.</p> <ul style="list-style-type: none"> a) verbally tell time to the hour b) write time to hour (6:00) c) identify a penny d) e) f) use nonstandard units to measure and compare g) compare measurement attributes of objects (longer, shorter, bigger, smaller, warmer, colder) 	<p>4.1 Understands simple patterns.</p> <ul style="list-style-type: none"> a) recognize, construct, and extend simple patterns 	<p>5.1 Understands simple (2-D) shapes</p> <ul style="list-style-type: none"> a) name, draw, sort, and compare basic shapes b) recognize shapes and patterns are all around us

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1	<p>1.1 Understands and applies advanced concepts of numbers.</p> <ul style="list-style-type: none"> a) write numbers to 100 b) identify numbers before, after, between c) read number words to 10 d) recognize a whole and parts of a whole e) count by 2's to 20 f) count by 5's to 100 g) count by 10's to 100 h) recognize and use ordinal numbers to 10 i) demonstrate place value of tens and ones j) apply and adapt a variety of appropriate strategies to solve problems <p>1.2 Understands addition and subtraction operations and how they relate to each other.</p> <ul style="list-style-type: none"> a) adds sums through ten b) subtracts from ten 	<p>2.1 Demonstrates the ability to create, read, and interpret simple graphs.</p> <ul style="list-style-type: none"> a) sort and classify objects b) draw and/or read various graphs (bar, picture, etc) 	<p>3.1 Understands measurable attributes of objects and the units, systems, and processes of measurement.</p> <ul style="list-style-type: none"> a) verbally tell time to the half-hour b) write time to the half-hour (6:30) c) tell value of penny d) tell value of nickel e) tell value of dime f) measure length using a variety of units (paper clips, cubes, inches, cm, etc.) g) estimate length using a variety of units 	<p>4.1 Understands general principle of properties of addition and subtraction.</p> <ul style="list-style-type: none"> a) demonstrate commutative property of addition b) recognize the addition and subtraction relationships of fact families 	<p>5.1 Understands spatial relationships of objects.</p> <ul style="list-style-type: none"> a) extend knowledge of 2-D shapes to 3-D shapes b) recognize shapes and patterns in our environment

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2	<p>1.1 Understands and applies basic and advanced properties of the concepts of numbers.</p> <ul style="list-style-type: none"> a) demonstrate place value of 1's, 10's, and 100's b) compare numbers using the symbols $<$, $>$, $=$ c) recognize, count and write numbers to 1,000 d) choose fractional names to represent fractional parts e) recognize odd and even numbers f) order a set of numbers from 0-99 <p>1.2 Understands addition and subtraction while using a variety of methods and tools to compute (including objects, mental computation, estimation, paper and pencil, and calculators).</p> <ul style="list-style-type: none"> a) round numbers to nearest 10 b) add and subtract to/from 18 c) add three single-digit numbers d) add and subtract any two-digit number (with or 	<p>2.1 Demonstrates the ability to collect, organize, and interpret data for visual display.</p> <ul style="list-style-type: none"> a) interpret and/or construct a pictograph b) interpret and/or construct a bar graph c) tally information d) makes observations about a graph <p>2.2 Understands basic concepts of probability.</p> <ul style="list-style-type: none"> a) describes the likelihood of an event b) predict the outcome of a probability experiment 	<p>3.1 Uses appropriate tools and techniques to determine measurements (including money, time, and linear measure).</p> <ul style="list-style-type: none"> a) verbally tell time to five-minute intervals b) write time to fifteen-minute intervals using proper notation c) identify the value of a collection of coins to \$1.00 d) write money amounts using \$ and cents sign e) measure using inch and centimeter rulers f) recognize and apply days, months, weeks, and year g) measure and compare volume, weight, and temperature 	<p>4.1 Demonstrates the ability to create, extend, and explain a simple pattern.</p> <ul style="list-style-type: none"> a) ability to continue a pattern using objects or numbers b) skip count by 2's, 5's, 10's, from any number with the use of manipulatives <p>4.2 Understands basic addition and subtraction equations with a missing element.</p> <ul style="list-style-type: none"> a) write addition and subtraction fact families b) represents or models the basic equation with a missing element 	<p>5.1 Understands 2 and 3 dimensional shapes.</p> <ul style="list-style-type: none"> a) recognize pyramids, cylinders, cones, spheres, and rectangular solids <p>5.2 Understands that geometric shapes can be observed in the real world (recognize and specify location)</p> <ul style="list-style-type: none"> a) identify lines of symmetry in the world around them b) recognize congruent shapes

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	e) without regrouping/trading solves real-world problems using various strategies				

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3	<p>1.1 Demonstrate ability to compute sums and differences of whole numbers and decimals using money. (G,C,GF,T)</p> <p>a) add three-digit numbers with or without regrouping</p> <p>b) subtract three-digit numbers with or without regrouping</p> <p>c) add money, sums to \$100.</p> <p>d) Subtract money from \$100</p> <p>1.2 Understands multiplication and division. (G,C, GF,T)</p> <p>a) know multiplication and division families from 0-9 (includes 9x9)</p> <p>b) multiply a two-digit number by a one-digit number with or without regrouping</p> <p>1.3 Understands numbers, ways of representing numbers, relationships among numbers, and number systems. (G,C,GF)</p> <p>a) read and write numbers to 9,999</p> <p>b) know place value to 100,000</p> <p>c) compare 4-digit numbers using $<$, $>$, $=$</p> <p>d) read and write</p>	<p>2.1 Understands tables and graphs through problem solving (including simple predictions). (G,C,GF)</p> <p>a) read and interpret graphs or tables to answer questions</p> <p>b) label horizontal and vertical coordinates</p> <p>c) use a key to read a graph or chart</p> <p>d) construct a picture graph with a key</p> <p>e) create/complete a table or horizontal graph given specific information</p> <p>f) use basic problem solving strategies (ie., guess & check, make a chart, draw a picture, identify pertinent information, estimate, and label answer)</p>	<p>3.1 Understand measurable attributes of objects and use appropriate techniques and tools to measure length, weight, temperature, money, and time. (T,GF,C)</p> <p>a) determine “weeks from,” “weeks until”, “days from”, and “days until”.</p> <p>b) Recite months and days in order</p> <p>c) Know number of days in each month</p> <p>d) Tell time to the nearest minute</p> <p>e) Write time to the five-minute intervals using proper notation</p> <p>f) Tell time before and after the hour</p> <p>g) Use terms “half-past, quarter after, quarter till”</p> <p>h) Count money using quarters, dimes, nickels, and pennies</p> <p>i) write and read value of money to \$9.99</p> <p>j) make change to one dollar</p> <p>k) measure to the nearest one-half inch</p> <p>l) measure to the nearest centimeter</p>	<p>4.1 Understands patterns, functions, and relations. (C)</p> <p>a) continue a geometric/numeric pattern</p> <p>b) supply a missing number in a number sentence</p>	<p>5.1 Understands characteristics of two- and three-dimensional shapes. (C)</p> <p>a) recognize and name lines, horizontal lines, and vertical lines</p>

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	<p>numbers from word form to standard form and vice-versa</p> <p>e) know the terms value, expanded form, standard form, about, round, and estimate</p> <p>f) round numbers to the nearest 100</p> <p>1.4 Understands fractional concepts. (G,C,GF)</p> <p>a) know terms numerator and denominator</p> <p>b) determine half of even numbers</p> <p>c) know that a fraction means part of a whole or a set of items</p>		<p>m) write the vocabulary of the standard measurement system, including abbreviations and symbols</p> <p>n) name measurement tools</p>		

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4	<p>1.1 Understands fractions (G, GF)</p> <ul style="list-style-type: none"> a) identify numerators and denominators b) write a fraction to identify a portion of a set or object c) write equivalent fractions for $\frac{1}{4}$, $\frac{1}{2}$, and 1 d) represents fractions with models <p>1.2 Understands numbers, ways of representing numbers, relationships among numbers, and number systems. (G, GF)</p> <ul style="list-style-type: none"> a) read, write, compare, and order numbers to the hundred millions place <p>1.3 Demonstrate ability to compute sums, differences, products, and quotients of whole numbers. (GF)</p> <ul style="list-style-type: none"> a) add and subtract whole numbers b) multiply 3-digit by 2-digit numbers c) divide 3-digit by 1-digit numbers with remainders d) use estimation in problem solving 	<p>2.1 Demonstrates the ability to represent data in a variety of formats (including tables and graphs). (G, GF, C)</p> <ul style="list-style-type: none"> a) choose topic, collect (by surveys, observations, or experiments), and organize data using visual displays for analysis b) apply probability to a given situation (ex. Certain, equally likely, impossible) 	<p>3.1 Understand measurement using standard units in the customary and metric systems. (G)</p> <ul style="list-style-type: none"> a) determine the amount of change to be received from purchase not to exceed \$20.00 b) calculate area of squares and rectangles c) calculate perimeter of polygons d) write the vocabulary of the metric measurement system including abbreviations e) identify correct unit of measurement for length, weight, capacity and temperature <p>3.2 Use appropriate tools and technology for measurement. (C, G)</p> <ul style="list-style-type: none"> a) read scales (ex. Thermometer, calendar, odometer, ruler) b) determine appropriate tool to measure a given object 	<p>4.1 Understand and analyze mathematical situations using algebraic symbols. (G, GF)</p> <ul style="list-style-type: none"> a) repeats and extends patterns b) solve number sentences involving addition and subtraction with one variable 	<p>5.1 Understands characteristics of one, two and three-dimensional shapes.</p> <ul style="list-style-type: none"> a) classify polygons by number of sides (i.e. triangles, rectangles etc.) b) classify angles (i.e. right, obtuse, acute) c) identify three-dimensional shapes (i.e. prism, cone, pyramid, cube, cylinder, sphere) <p>5.2 Understands characteristics of lines.</p> <ul style="list-style-type: none"> a) identify lines, rays and line segments b) classify lines as parallel, perpendicular or intersecting

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	e) apply appropriate strategies for problem solving				

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5	<p>1.1 Understands numbers, ways of representing numbers, relationships among numbers and number systems.</p> <ul style="list-style-type: none"> a) read and write place value to billions b) compare, order and round whole numbers c) read and write decimal place value to thousandths <p>1.2 Understands fractional concepts.</p> <ul style="list-style-type: none"> a) find equivalent fractions b) relate fractions to decimals c) write fractions in simplest form d) compare and order fractions <p>1.3 Understands meaning of operations and how they relate to one another.</p> <ul style="list-style-type: none"> a) understands multiples of 10 b) uses rules of divisibility by 2, 5, and 10 c) understands the relationship between inverse operations <p>1.4 Demonstrates computation and estimation skills.</p>	<p>2.1 Understands averaging given relevant data.</p> <ul style="list-style-type: none"> a) compare mean and median <p>2.2 Demonstrates the ability to analyze data by expanding models of representation.</p> <ul style="list-style-type: none"> a) uses tables, charts, and graphs to interpret and analyze data b) understands prediction and probability outcomes 	<p>3.1 Demonstrates the ability to make simple unit conversions within a system of measurement.</p> <ul style="list-style-type: none"> a) understands attributes of length, area, weight, volume, and angle size b) selects appropriate type of unit for measuring each attribute c) carries out simple unit conversions as in inches to feet <p>3.2 Demonstrates appropriate techniques, tools, and formulas to determine measurements.</p> <ul style="list-style-type: none"> a) understands problem solving concepts involving elapsed time b) calculate perimeter 	<p>4.1 Understands mathematical situations and structures using algebraic symbols.</p> <ul style="list-style-type: none"> a) identifies properties (commutative, associative, and distributive) b) uses properties to compute with whole numbers c) represents the idea of a variable as an unknown using a letter or symbol d) expresses mathematical relationships using equations 	<p>5.1 Understands characteristics of geometric shapes and relationships.</p> <ul style="list-style-type: none"> a) identifies congruent, similar, and symmetrical figures b) identifies parts of a circle

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	<ul style="list-style-type: none"> a) add and subtract fractions with like denominators b) add and subtract mixed numbers with like denominators w/o regrouping c) use rounding to estimate sums and differences of whole numbers d) use rounding to estimate sums and differences of decimals e) add and subtract decimals f) estimate products g) multiply by 3-digit numbers h) estimate quotients of whole numbers i) divide by 1 and 2-digit divisors j) divide with a zero in the quotient 				

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6	<p>1.1 Understands meanings of operations and how they relate to one another.</p> <p>a) understands “standard order rules” for order of operations</p> <p>b) identify commutative, associative, distributive, and identity properties</p> <p>1.2 Demonstrates the ability to compute sums and differences of fractions with unlike denominators.</p> <p>a) compute the sum and difference of simple fractions</p> <p>b) compute the sum and difference of mixed numbers</p> <p>1.3 Understands properties of decimals.</p> <p>a) identifies the place value to the hundred-thousandths place</p> <p>b) compute the product and quotient of a decimal to the nearest hundred thousandths</p> <p>c) order, compare, and round decimals to the nearest hundredths</p>	<p>2.1 Demonstrate the ability to collect and organize relevant data.</p> <p>a) identify information necessary to complete the appropriate graph</p> <p>2.2 Demonstrate ability to display information collected and interpret information.</p> <p>a) identify and construct bar and line graphs</p> <p>b) identify a circle graph (pie charts)</p> <p>2.3 Demonstrate the ability to compute mean, median, mode and range</p>	<p>3.1 Understands the role of estimation in measuring.</p> <p>a) identify correct unit of measure (capacity, length, mass).</p> <p>b) Uses the correct tool for measuring length and angles</p> <p>c) Convert units of customary measure</p> <p>3.2 Understand, select and use units of appropriate size and type to measure perimeter, and area.</p> <p>3.3 Identify the correct unit needed in labeling (units, square units).</p>	<p>4.1 Understand and compare ways of representing patterns (including tables, graphs, symbols and words).</p> <p>a) identify first quadrant coordinates of a graph</p> <p>b) solve one-step whole number equations using all four operations</p> <p>c) identify simple patterns using variables</p> <p>d) identify key words for algebraic expressions (i.e. product, quotient, sum, different, etc.)</p>	<p>5.1 Understand characteristics of properties of basic 2-D and 3-D shapes</p> <p>a) classify polygons based on a variety of characteristics (i.e. sides, angles, regular, irregular)</p> <p>5.2 Understands that pi is a ratio of a circle’s diameter to it’s circumference</p>

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<p>7</p> <p>(GF, C – Both men and women are employed as architects, engineers, math teachers, etc.)</p> <p>(T – technology is used on a regular basis – classroom performance system, calculators, graphing calculators, protractors, math manipulatives, etc.)</p>	<p>1. Understands meaning of operations and how they relate to one another.</p> <p>1) follow order of operations to solve expressions 2) understands prime and composite numbers 3) applies all rules of divisibility 4) perform basic computations with whole numbers, fractions, and decimals 5) identify and use the associative and commutative properties</p>	<p>3. Demonstrates an understanding of measures of central tendency.</p> <p>1) find the mean, median, mode, and range for a set of data 2) organize and plot using line plots 3) organize and plot data using stem and leaf plots 4) create a box and whisker plot from a set of data 5) read, interpret, and create a frequency table and histogram from a set of data</p> <p>3. Understands that probability can be represented as a fraction.</p> <p>6) recognize all probabilities range from zero to one 7) identify the parts of a probability fraction</p>	<p>2. Understand conversions and ratios between units in a system.</p> <p>1) convert metric measures of length, capacity, and weight 2) convert customary measures of length, capacity, and weight 3) convert measures of time</p> <p>2. Uses appropriate units of measure when solving problems.</p> <p>4) find perimeter of polygons 5) find area of parallelograms and triangles 6) find the circumference and area of circles 7) find the volume of rectangular and triangular prisms 8) identify formula for finding area of triangles, quadrilaterals, and circles 9) identify formula for perimeter of polygons and the circumference of circles 10) identify formula for volume of rectangular prisms 11) correctly label perimeter, circumference, area,</p>	<p>4. Demonstrates the ability to solve one-step whole number equations.</p> <p>1) solve addition and subtraction equations using inverse operations 2) solve multiplication and division equations using inverse operations</p> <p>4. Understand the coordinate plane.</p> <p>3) Graph a given point 4) Identify a given point using an ordered pair</p>	<p>5. Understand geometry terms.</p> <p>1) Intersecting lines, parallel lines, transversal, perpendicular lines, adjacent angles, vertical angles, complementary and supplementary angles, angle pairs formed by parallel lines and a transversal.</p> <p>5. Understand relationships among types of two-dimensional objects using their defining properties.</p> <p>2) compare and contrast the properties of quadrilaterals and various types of triangles 3) classify triangles based on angle measure</p>

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			and volume answers 12) measures angles using a protractor		

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8 (GF, C – Both men and women are employed as architects, engineers, math teachers, etc.) (T – technology is used on a regular basis – classroom performance system, calculators, graphing calculators, protractors, math manipulatives, etc.)	<p>1. Demonstrate the ability to compute using addition and multiplication properties and order of operations with whole numbers, rational numbers and integers.</p> <ol style="list-style-type: none"> 1) identify and compute using the addition and multiplication properties (associative, commutative, distributive) with rational numbers 2) use the order of operations to evaluate expressions 3) evaluate powers and square roots 4) evaluate powers that have zero, negative, and fractional exponents 5) perform basic computations with rational 6) Evaluate algebraic expressions 7) find equivalent forms of decimals, fractions, and percents 	<p>3. Use various tools to organize and interpret data.</p> <ol style="list-style-type: none"> 1) create, read, and interpret various kinds of graphs(histograms, line, stem-&-leaf, box-&-whisker) 2) use stem and leaf plots and box and whisker plots to organize and display data 3) use scatter plots to identify correlations of data (positive, negative, none) 4) identify and use measures of central tendencies (mean, median, mode) <p>3. Demonstrate an understanding of probability.</p> <ol style="list-style-type: none"> 5) Determine the probability of a single event 6) find the probability of dependent and independent events 7) use the Fundamental Counting Principle to determine the number of outcomes of an event or events. 	<p>5. Understand conversions and relationships within systems.</p> <ol style="list-style-type: none"> 1) convert units of length, capacity, and mass in the customary and metric systems 2) find the perimeter and area of various 2-dimensional figures 3) find the surface area of prisms and cylinders 4) find the volume of prisms, cylinders, pyramids, and cones 	<p>2. Demonstrate the ability to solve linear equations.</p> <ol style="list-style-type: none"> 1) solve 1-step equations with rational numbers. 3)Solve 2-step equations with one variable term (ex. $3x + 2=29$) 4) Solve multi-step equations with one variable term <p>2. Demonstrate the ability to translate common language into algebraic form.</p> <ol style="list-style-type: none"> 2) write algebraic expressions or equations from verbal or written phrases <p>2. Demonstrate the ability to graph on coordinate plane.</p> <ol style="list-style-type: none"> 5) graph ordered pairs on a coordinate plane from a table 6) generate pairs of numbers for an equation in a table 7) find the x and y intercepts of a line 8) find the slope of a line given 2 points on the line 9) graph a line using the slope-intercept form of a line 	<p>4. Understands and applies geometric properties in order to solve problems.</p> <ol style="list-style-type: none"> 1) use proportions to find missing lengths in similar figures 2) use the Pythagorean Theorem to find the lengths of sides of right triangles

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<p>Basic Math</p> <p>9</p> <p>(GF, C – Both men and women are employed as architects, engineers, math teachers, etc.)</p> <p>(T – technology is used on a regular basis – calculators, graphing calculators, protractors, math manipulatives, etc.)</p>	<p>1.1 Demonstrates computational fluency with whole numbers, decimals, integers, and rational numbers.</p> <ul style="list-style-type: none"> a) addition b) subtraction c) multiplication d) division e) estimation to check for reasonableness of results f) distinguish between prime and composite numbers <p>1.2 Demonstrates the ability to model/represent fractions, decimals and percents and the relationship among them.</p> <ul style="list-style-type: none"> a) convert between forms b) understand basic percent problems c) uses rates of interest d) models/represents each graphically <p>1.3 Demonstrate the ability to evaluate expressions.</p> <ul style="list-style-type: none"> a) use order of operations b) use exponents c) use ratios and proportions <p>1.4 Understands and demonstrates different strategies in solving word problems</p> <ul style="list-style-type: none"> a) estimation to check for reasonableness of results b) work backwards c) identify patterns d) represents problem graphically or with models e) work a simpler problem f) being able to translate from English phrases and sentences to algebraic expressions and equations. 	<p>2.1 Use various methods to interpret and display data and make predictions.</p> <ul style="list-style-type: none"> a) line graph b) bar graph c) circle graph d) pictograph <p>2.2 Understand simple probabilities and use them to make predictions.</p>	<p>3.1 Demonstrates the ability to solve simple problems involving rates.</p> <p>3.2 Measure and/or estimate using appropriate units of length, weight, mass, and capacity.</p> <ul style="list-style-type: none"> a) temperature b) capacity c) linear measurement d) area e) mass 	<p>4.1 Evaluate and simplify expressions (including expressions with exponents).</p> <ul style="list-style-type: none"> a) algebraic b) numerical <p>4.2 Demonstrates the ability to simplify polynomials</p> <ul style="list-style-type: none"> a) combining like terms <p>4.3 Solve equations and inequalities.</p> <ul style="list-style-type: none"> a) linear equation/inequality 	<p>5.1 Understand the properties of parallel and perpendicular lines.</p> <ul style="list-style-type: none"> a) angle relationships <p>5.2 Understands coordinate geometry.</p> <ul style="list-style-type: none"> a) distance formula b) mid-point formula c) slope <p>5.3 Understand and apply properties of geometric figures.</p> <ul style="list-style-type: none"> a) congruence b) similarity c) symmetry

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<p>Algebra 9-12</p> <p>(GF, C – Both men and women are employed as architects, engineers, math teachers, etc.)</p> <p>(T – technology is used on a regular basis – classroom performance system, calculators, graphing calculators, protractors, math manipulatives, etc.)</p>	<p>1.1 Demonstrates computational fluency with whole numbers, decimals, integers, and rational numbers. (MC – Algebra is a universal language)</p> <ul style="list-style-type: none"> a) estimation to check for reasonableness of results <p>1.2 Demonstrates the ability to model/represent fractions, decimals and percents and the relationship among them.</p> <ul style="list-style-type: none"> a) convert between forms b) understand basic percent problems c) uses rates of interest d) models/represents each graphically <p>1.3 Demonstrate the ability to evaluate expressions.</p> <ul style="list-style-type: none"> a) use order of operations b) use exponents c) use ratios and proportions d) use square roots <p>1.4 Understands and demonstrates different strategies in solving word problems</p> <ul style="list-style-type: none"> a) estimation to check for reasonableness of results b) work backwards c) identify patterns d) represents problem graphically or with models e) work a simpler problem f) being able to translate from English phrases and sentences to algebraic expressions and equations. 	<p>2.1 Use various methods to interpret and display data and make predictions.</p> <ul style="list-style-type: none"> a) scattergrams b) line graph c) bar graph d) histogram <p>2.2 Understand simple probabilities and use them to make predictions.</p> <p>2.3 Understands appropriate statistical methods to analyze data.</p> <ul style="list-style-type: none"> a) Mean b) Median c) Mode d) range 	<p>3.1 Demonstrate the ability to solve simple problems involving rates and derived measurements for such as velocity and density.</p> <p>3.2 Measure and/or estimate using appropriate units of length, weight, mass, and capacity.</p> <ul style="list-style-type: none"> a) temperature b) capacity c) linear measurement d) area e) mass 	<p>4.1 Understand and find slope.</p> <ul style="list-style-type: none"> a) graphing method b) algebraic method <p>4.2 Evaluate and simplify expressions (including expressions with radicals and exponents).</p> <ul style="list-style-type: none"> a) algebraic b) numerical <p>4.3 Demonstrates the ability to simplify polynomials</p> <ul style="list-style-type: none"> a) combining like terms b) rules of exponents <p>4.4 Solve equations and inequalities.</p> <ul style="list-style-type: none"> a) linear equation/inequality b) quadratic equation <p>4.5 Demonstrates the ability to graph linear equations and inequalities.</p> <ul style="list-style-type: none"> a) slope-intercept form b) table of values <p>4.6 Demonstrates the ability to write linear equations. (G – Locating a place on a globe)</p> <ul style="list-style-type: none"> a) Write the equation given the graph of a line. b) Write the equation given a point and the slope. c) Write the equation given 2 points on the line. 	<p>5.1 Understand the properties of parallel and perpendicular lines. (C – development of employability skills)</p> <ul style="list-style-type: none"> a) transversal b) angle relationships c) slope relationships <p>5.2 Understands and applies the Pythagorean Theorem.</p> <p>5.3 Understands coordinate geometry.</p> <ul style="list-style-type: none"> a) distance formula b) slope

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<p>Geometry 10-12</p> <p>(GF, C – Both men and women are employed as architects, engineers, math teachers, etc.)</p> <p>(T – technology is used on a regular basis – classroom performance system, calculators, graphing calculators, protractors, math manipulatives, etc.)</p>	<p>1.1 Demonstrates computational fluency with whole numbers, decimals, integers, and rational numbers.</p> <p>a) estimation to check for reasonableness of results</p> <p>1.2 Demonstrates the ability to model/represent fractions, decimals and percents and the relationship among them.</p> <p>a) convert between forms</p> <p>b) understand basic percent problems</p> <p>c) uses rates of interest</p> <p>d) models/represents each graphically</p> <p>1.3 Demonstrate the ability to evaluate expressions.</p> <p>a) use order of operations</p> <p>b) use exponents</p> <p>c) use ratios and proportions</p> <p>d) use square roots</p> <p>1.4 Understands and demonstrates different strategies in solving word problems</p> <p>a) estimation to check for reasonableness of results</p> <p>b) work backwards</p> <p>c) identify patterns</p> <p>d) represents problem graphically or with models</p> <p>e) work a simpler problem</p> <p>f) being able to translate from English phrases and sentences to algebraic expressions and equations.</p>	<p>2.1 Use various methods to interpret and display data and make predictions.</p> <p>a) scattergrams</p> <p>b) line graph</p> <p>c) bar graph</p> <p>d) circle graph</p> <p>e) pictograph</p> <p>f) histogram</p> <p>2.2 Understand simple probabilities and use them to make predictions.</p>	<p>3.1 Demonstrate the ability to solve simple problems involving rates and derived measurements for such as velocity and density. (G – comparing currency)</p> <p>3.2 Measure and/or estimate using appropriate units of length, weight, mass, and capacity.</p> <p>a) temperature</p> <p>b) capacity</p> <p>c) linear measurement</p> <p>d) area</p> <p>e) mass</p>	<p>4.1 Understand and find slope.</p> <p>a) graphing method</p> <p>b) algebraic method</p> <p>4.2 Evaluate and simplify expressions (including expressions with radicals and exponents).</p> <p>a) algebraic</p> <p>b) numerical</p> <p>4.3 Demonstrates the ability to simplify polynomials</p> <p>a) combining like terms</p> <p>b) rules of exponents</p> <p>4.4 Solve equations and inequalities.</p> <p>a) linear equation/inequality</p> <p>4.5 Demonstrates the ability to graph linear equations and inequalities.</p> <p>a) slope-intercept form</p> <p>b) table of values</p>	<p>5.1 Understand the properties of parallel and perpendicular lines. (C – development of employability skills)</p> <p>a) transversal</p> <p>b) angle relationships</p> <p>c) slope relationships</p> <p>5.2 Understands and applies the Pythagorean Theorem.</p> <p>5.3 Understands coordinate geometry.</p> <p>a) distance formula</p> <p>b) mid-point formula</p> <p>c) slope</p> <p>5.4 Understand and apply properties of geometric figures.</p> <p>a) congruence</p> <p>b) similarity</p> <p>c) symmetry</p>

	Number and Operation	Data Analysis and Probability	Measurement	Algebra	Geometry
<p>Advanced Algebra 11-12</p> <p>(GF, C – Both men and women are employed as architects, engineers, math teachers, etc.)</p> <p>(T – technology is used on a regular basis – calculators, graphing calculators, protractors, math manipulatives, etc.)</p>	<p>1.1 Demonstrates computational fluency with whole numbers, decimals, integers, and rational numbers. (MC – Algebra is a universal language)</p> <p>a) estimation to check for reasonableness of results</p> <p>1.2 Demonstrates the ability to model/represent fractions, decimals and percents and the relationship among them.</p> <p>a) convert between forms</p> <p>b) understand basic percent problems</p> <p>c) uses rates of interest</p> <p>d) models/represents each graphically</p> <p>1.3 Demonstrate the ability to evaluate expressions.</p> <p>a) use order of operations</p> <p>b) use exponents</p> <p>c) use ratios and proportions</p> <p>d) use square roots</p> <p>1.4 Understands and demonstrates different strategies in solving word problems</p> <p>a) estimation to check for reasonableness of results</p> <p>b) work backwards</p> <p>c) identify patterns</p> <p>d) represents problem graphically or with models</p> <p>e) work a simpler problem</p> <p>f) being able to translate from English phrases and sentences to algebraic expressions and equations.</p>	<p>2.1 Use various methods to interpret and display data and make predictions.</p> <p>a) scattergrams</p> <p>b) line graph</p> <p>2.2 Understand simple probabilities and use them to make predictions.</p>	<p>3.1 Demonstrate the ability to solve simple problems involving rates and derived measurements for such as velocity and density.</p> <p>3.2 Measure and/or estimate using appropriate units of length, weight, mass, and capacity.</p> <p>a) capacity</p> <p>b) linear measurement</p> <p>c) area</p>	<p>4.1 Understand and find slope.</p> <p>a) graphing method</p> <p>b) algebraic method</p> <p>4.2 Evaluate and simplify expressions (including expressions with radicals and exponents).</p> <p>a) algebraic</p> <p>b) numerical</p> <p>4.3 Demonstrates the ability to simplify polynomials</p> <p>a) combining like terms</p> <p>b) rules of exponents</p> <p>4.4 Solve equations and inequalities.</p> <p>a) linear equation/inequality</p> <p>b) quadratic equation</p> <p>4.5 Demonstrates the ability to graph linear equations and inequalities.</p> <p>a) slope-intercept form</p> <p>b) table of values</p> <p>4.6 Demonstrates the ability to write linear equations.</p> <p>a) Write the equation given the graph of a line.</p> <p>b) Write the equation given a point and the slope.</p> <p>c) Write the equation given 2 points on the line.</p>	<p>5.1 Understand the properties of parallel and perpendicular lines.</p> <p>a) slope relationships</p> <p>5.2 Understands and applies the Pythagorean Theorem.</p> <p>5.3 Understands coordinate geometry.</p> <p>a) distance formula</p> <p>b) mid-point formula</p> <p>c) slope</p> <p>5.4 Understand and apply properties of geometric figures.</p> <p>a) similarity</p> <p>b) symmetry</p>

	Number and Operation	Data Analysis and Probability	Measurement	Algebra	Geometry
<p>Consumer Math 11-12</p> <p>(GF, C – Both men and women are employed as architects, engineers, math teachers, etc.)</p> <p>(T – technology is used on a regular basis – calculators, graphing calculators, protractors, math manipulatives, etc.)</p>	<p>1.1 Demonstrates computational fluency with whole numbers, decimals, integers, and rational numbers.</p> <ul style="list-style-type: none"> a) estimation to check for reasonableness of results <p>1.2 Demonstrates the ability to model/represent fractions, decimals and percents and the relationship among them.</p> <ul style="list-style-type: none"> a) convert between forms b) understand basic percent problems c) uses rates of interest d) models/represents each graphically <p>1.3 Demonstrate the ability to evaluate expressions.</p> <ul style="list-style-type: none"> a) use order of operations b) use exponents c) use ratios and proportions d) use square roots <p>1.4 Understands and demonstrates different strategies in solving word problems</p> <ul style="list-style-type: none"> a) estimation to check for reasonableness of results b) work backwards c) identify patterns d) represents problem graphically or with models e) work a simpler problem 	<p>2.1 Use various methods to interpret and display data and make predictions.</p> <ul style="list-style-type: none"> a) line graph b) circle graph 	<p>3.1 Demonstrate the ability to solve simple problems involving rates.</p>	<p>4.1 Evaluate and simplify expressions (including expressions with exponents).</p> <ul style="list-style-type: none"> a) algebraic b) numerical <p>4.2 Solve equations and inequalities.</p> <ul style="list-style-type: none"> a) linear equation/inequality <p>4.3 Demonstrates the ability to graph linear equations and inequalities.</p> <ul style="list-style-type: none"> a) table of values 	

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<p>General Statistics 11-12</p> <p>(GF, C – Both men and women are employed as architects, engineers, math teachers, etc.)</p> <p>(T – technology is used on a regular basis – calculators, graphing calculators, protractors, math manipulatives, etc.)</p>	<p>1.1 Demonstrates computational fluency with whole numbers, decimals, integers, and rational numbers.</p> <p>a) estimation to check for reasonableness of results</p> <p>1.2 Demonstrates the ability to model/represent fractions, decimals and percents and the relationship among them.</p> <p>a) convert between forms</p> <p>b) understand basic percent problems</p> <p>c) uses rates of interest</p> <p>d) models/represents each graphically</p> <p>1.3 Demonstrate the ability to evaluate expressions.</p> <p>a) use order of operations</p> <p>b) use exponents</p> <p>c) use ratios and proportions</p> <p>1.4 Understands and demonstrates different strategies in solving word problems</p> <p>a) estimation to check for reasonableness of results</p> <p>b) identify patterns</p> <p>c) represents problem graphically or with models</p> <p>d) work a simpler problem</p>	<p>2.1 Use various methods to interpret and display data and make predictions.</p> <p>a) stem and leaf plots</p> <p>b) box and whisker</p> <p>c) scattergrams</p> <p>d) line graph</p> <p>e) bar graph</p> <p>f) circle graph</p> <p>g) pictograph</p> <p>h) histogram</p> <p>2.2 Understand simple probabilities and use them to make predictions.</p> <p>2.3 Understands appropriate statistical methods to analyze data.</p> <p>a) applies measures of central tendency</p> <p>b) applies measures of variation</p>			

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<p>Trigonometry</p> <p>12</p> <p>(GF, C – Both men and women are employed as architects, engineers, math teachers, etc.)</p> <p>(T – technology is used on a regular basis – calculators, graphing calculators, protractors, math manipulatives, etc.)</p>	<p>1.1 Demonstrates computational fluency with whole numbers, decimals, integers, and rational numbers.</p> <p>a) estimation to check for reasonableness of results</p> <p>1.2 Demonstrates the ability to model/represent fractions, decimals and percents and the relationship among them.</p> <p>a) convert between forms</p> <p>b) understand basic percent problems</p> <p>c) uses rates of interest</p> <p>d) models/represents each graphically</p> <p>1.3 Demonstrate the ability to evaluate expressions.</p> <p>a) use order of operations</p> <p>b) use exponents</p> <p>c) use ratios and proportions</p> <p>d) use square roots</p> <p>1.4 Understands and demonstrates different strategies in solving word problems</p> <p>a) estimation to check for reasonableness of results</p> <p>b) work backwards</p> <p>c) identify patterns</p> <p>d) represents problem graphically or with models</p> <p>e) work a simpler problem</p> <p>f) being able to translate from English phrases and sentences to algebraic expressions and equations.</p>	<p>2.1 Use various methods to interpret and display data and make predictions.</p> <p>a) stem and leaf plots</p> <p>b) box and whisker</p> <p>c) scattergrams</p> <p>d) line graph</p> <p>e) bar graph</p> <p>f) circle graph</p> <p>g) histogram</p> <p>2.2 Understand simple probabilities and use them to make predictions.</p> <p>2.3 Understands appropriate statistical methods to analyze data.</p> <p>a) applies measures of central tendency</p> <p>b) applies measures of variation</p>	<p>3.1 Demonstrate the ability to solve simple problems involving rates and derived measurements for such as velocity and density.</p>	<p>4.1 Understand and find slope.</p> <p>a) graphing method</p> <p>b) algebraic method</p> <p>4.2 Evaluate and simplify expressions (including expressions with radicals and exponents).</p> <p>a) algebraic</p> <p>b) numerical</p> <p>4.3 Demonstrates the ability to simplify polynomials</p> <p>a) combining like terms</p> <p>b) rules of exponents</p> <p>4.4 Solve equations and inequalities.</p> <p>a) linear equation/inequality</p> <p>b) quadratic equation</p> <p>4.5 Demonstrates the ability to graph linear equations and inequalities.</p> <p>a) slope-intercept form</p> <p>b) table of values</p> <p>4.6 Demonstrates the ability to write linear equations.</p> <p>a) Write the equation given the graph of a line.</p> <p>b) Write the equation given a point and the slope.</p> <p>c) Write the equation given 2 points on the line.</p>	<p>5.1 Understand the properties of parallel and perpendicular lines.</p> <p>a) transversal</p> <p>b) angle relationships</p> <p>c) slope relationships</p> <p>5.2 Understands and applies the Pythagorean Theorem.</p> <p>5.3 Understands coordinate geometry.</p> <p>a) distance formula</p> <p>b) mid-point formula</p> <p>c) slope</p> <p>5.4 Understand and apply properties of geometric figures.</p> <p>a) congruence</p> <p>b) similarity</p> <p>c) symmetry</p>