

DeSoto County High School

Liberal Arts Mathematics

Curriculum Calendar

2011-2012

UNIT/ORGANIZING PRINCIPLE: Problem Solving and Mathematical Models				Pacing: 1 st 9 weeks Days 1-30
<u>Essential Question:</u> What are the various strategies and mathematical models used to solve real world problems?				Big Idea : Properties of Real Numbers
Concepts/ Content	Learning Target/Skills	Benchmarks	Essential Content and Understanding	Terminology
Real Numbers	<p>Perform <u>operations</u> on <u>real numbers</u> (including <u>integer exponents</u>, <u>radicals</u>, <u>percents</u>, <u>scientific notation</u> , <u>absolute value</u> , <u>rational numbers</u>, <u>irrational numbers</u>) using multi-step and <u>real-world problems</u>.</p> <p>Interpret a graph representing a real-world situation.</p> <p>Describe the concept of a <u>function</u>, use <u>function</u> notation, determine whether a given <u>relation</u> is a <u>function</u>, and link <u>equations</u> to <u>functions</u>.</p> <p>Symbolically represent and solve multi-step and real-world applications that involve linear <u>equations</u> and inequalities.</p>	<p>MA.912.A.1.4 Moderate</p> <p>MA.912.A.2.2 Moderate</p> <p>MA.912.A.2.3 Moderate</p> <p>MA.912.A.3.5 Moderate</p>	<p>simplify real number expressions using the laws of exponents</p> <p>perform operations on real numbers (including integer exponents, radicals, percents, scientific notation, absolute value, rational numbers, irrational numbers) using multi-step and real-world problems</p>	<p>Real numbers</p> <p>Integers</p> <p>Percents</p> <p>Scientific notation</p> <p>Absolute value</p> <p>Rational numbers</p> <p>Irrational numbers</p> <p>Functions</p> <p>Function notation</p> <p>Equations</p>

UNIT/ORGANIZING PRINCIPLE: Linear Functions				Pacing: 1 st /2 nd 9-weeks Days 31 – 66
Essential Question: How can the different ways to write linear equations be used to solve problems?				Big Idea : Linear equations and inequalities
Concepts/ Content	Learning Target/Skills	Benchmarks	Essential Content and Understanding	Terminology
Solve one-step equations	Solve literal <u>equations</u> for a specified <u>variable</u> .	MA.912.A.3.3 Moderate	describe and identify functions and use function notation	Equations Variables Line Table of values Slope Slope-intercept form Perpendicular Model Set Rate of change approximate
Solve multi-step equations	Solve and graph simple and compound inequalities in one <u>variable</u> and be able to justify each step in a solution.	MA.912.A.3.4 Moderate	solve literal equations for a specified variable	
Graph linear equations	Rewrite <u>equations</u> of a <u>line</u> into slope-intercept form and standard form.	MA.912.A.3.7 Low	solve and graph simple and compound inequalities with one variable	
Solve and graph linear inequalities	Graph a <u>line</u> given any of the following information: a <u>table</u> of values, the x- and y-intercepts, two <u>points</u> , the <u>slope</u> and a <u>point</u> , the <u>equation</u> of the <u>line</u> in slope-intercept form, standard form, or point-slope form .	MA.912.A.3.8 Moderate	translating word problems into algebraic expressions, linear equations, and inequalities	
Plot points on a coordinate plane	Determine the <u>slope</u> , <u>x-intercept</u> , and <u>y-intercept</u> of a <u>line</u> given its graph, its <u>equation</u> , or two <u>points</u> on the <u>line</u> .	MA.912.A.3.9 Moderate	write linear equations in slope-intercept and standard form	
Graph a linear equation using a table of values	Write an <u>equation</u> of a <u>line</u> given any of the following information: two <u>points</u> on the	MA.912.A.3.10 Moderate	graph a linear equation using a table of values, x- and yintercepts, two points, the slope and a point, slope intercept form, and standard form	
Graph horizontal and vertical lines				

<p>Find the x- and y-intercepts of a linear equation and graph</p> <p>Use two points to find the slope of a line</p> <p>Graph a linear equation given in slope-intercept form</p> <p>Graph a system of linear equations or inequalities</p>	<p><u>line</u>, its <u>slope</u> and one <u>point</u> on the <u>line</u>, or its graph. Also, find an <u>equation</u> of a new <u>line</u> parallel to a given <u>line</u>, or <u>perpendicular</u> to a given <u>line</u>, through a given <u>point</u> on the new <u>line</u>.</p> <p>Write an <u>equation</u> of a <u>line</u> that <u>models</u> a data <u>set</u>, and use the <u>equation</u> or the graph to make predictions. Describe the <u>slope</u> of the <u>line</u> in terms of the data, recognizing that the <u>slope</u> is the <u>rate</u> of change.</p> <p>Use a graph to <u>approximate</u> the solution of a system of linear <u>equations</u> or inequalities in two <u>variables</u> with and without technology.</p>	<p>MA.912.A.3.11 High</p> <p>MA.912.A.3.13 Moderate</p>	<p>determine the slope and the x- and y-intercepts of a line with given information (graph, equation, or two points)</p> <p>write an equation of a line given: two points on a line, the slope and a point, or its graph</p> <p>write an equation of a line parallel to or perpendicular to a given line</p> <p>write and graph an equation of a line given a data set and make predictions</p> <p>describe the slope of the line using the data, recognizing that the slope is the rate of change</p> <p>solve a system of linear equations or inequalities by graphing (with and without technology)</p> <p>create a graph to represent a real-world situation</p> <p>interpret a graph representing a real-world situation</p>	
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UNIT/ORGANIZING PRINCIPLE: Quadratics and Power Functions				Pacing: 2 nd / 3 rd 9-weeks Days 67 - 97
Essential Question: What are the different methods to solve quadratic equations? How can simplifying real number expressions using the laws of exponents?				Big Idea : Quadratics
Concepts/ Content	Learning Target/Skills	Benchmarks	Essential Content and Understanding	Terminology
Factor a quadratic equation	<u>Simplify real number expressions</u> using the laws of <u>exponents</u> .	MA.912.A.1.3 Low	use the zero product property to identify solutions to equations	Simplify expressions Exponents Zero product property Real numbers Equations Quadratics Quadratic formula
Use the quadratic formula to solve a quadratic equation	Use the zero <u>product</u> property of <u>real number</u> s in a variety of contexts to identify solutions to equations.	MA.912.A.1.8 Moderate	solve quadratic equations by factoring and using the quadratic formula	
Graph a quadratic equation	Solve quadratic <u>equations</u> over the <u>real number</u> s by factoring and by using the quadratic <u>formula</u> .	MA.912.A.7.2 Moderate		

UNIT/ORGANIZING PRINCIPLE: Geometric Models				Pacing: 3 rd 9-weeks Days 98 – 133
Essential Question: How do you determine what formula to use when working with two dimensional figures? How do you determine which formula to use when working with three dimensional figures?				Big Idea : Geometry
Concepts/ Content	Learning Target/Skills	Benchmarks	Essential Content and Understanding	Terminology
Use distance formula to find the length of a segment Find the slope of a line Use Pythagorean theorem Identify corresponding sides and angles	Find the <u>lengths</u> and midpoints of <u>line</u> segments in two-dimensional <u>coordinate</u> systems. Use properties of <u>congruent</u> and similar <u>polygons</u> to solve mathematical or <u>real-world problems</u> . Explain the derivation and apply <u>formulas</u> for <u>perimeter</u> and <u>area</u> of <u>polygons</u> (triangles, <u>quadrilaterals</u> , <u>pentagons</u> , etc.). Determine how changes in <u>dimensions</u> affect the <u>perimeter</u> and <u>area</u> of common geometric figures. Describe, classify, and compare relationships among <u>quadrilaterals</u> including the <u>square</u> , <u>rectangle</u> , rhombus, <u>parallelogram</u> , trapezoid, and <u>kite</u> .	MA.912.G.1.1 Moderate MA.912.G.2.3 High MA.912.G.2.5 Moderate MA.912.G.2.7 Moderate MA.912.G.3.1 Moderate	find the lengths and midpoints of line segments on the coordinate plane use coordinate geometry to find slopes, parallel lines, perpendicular lines, and equations of lines use the properties of congruent and similar polygons to solve real-world problems describe, classify, and compare special quadrilaterals and their properties use Properties of congruent and similar triangles to solve problems involving length and area	Length Coordinate system Formula Perimeter Area Quadrilaterals Polygons Triangles Pentagons Dimensions Square Rectangle Parallelogram Kite Congruent Right triangle Volume Geometric solids

	<p>Use properties of <u>congruent</u> and similar <u>triangles</u> to solve problems involving <u>lengths</u> and areas.</p> <p>Use special <u>right triangle</u> s ($30^\circ - 60^\circ - 90^\circ$ and $45^\circ - 45^\circ - 90^\circ$) to solve problems.</p> <p>Solve <u>real-world problem</u> s involving <u>right triangles</u>.</p> <p>Explain and use <u>formulas</u> for lateral <u>area</u>, surface <u>area</u>, and <u>volume</u> of solids.</p> <p>Determine how changes in <u>dimensions</u> affect the surface <u>area</u> and <u>volume</u> of common <u>geometric solids</u>.</p>	<p>MA.912.G.4.4 Moderate</p> <p>MA.912.G.5.3 Moderate</p> <p>MA.912.G.5.4 High</p> <p>MA.912.G.7.5 Moderate</p> <p>MA.912.G.7.7 Moderate</p>	<p>use special right triangles to solve problems</p> <p>solve real-world problems involving right triangle</p>	
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UNIT/ORGANIZING PRINCIPLE: Data Analysis				Pacing: 4 th 9-weeks Days 134 - 180
Essential Question: How can data be presented and interpreted? How can you use math in the financial real world?				Big Idea : Data analysis
Concepts/ Content	Learning Target/Skills	Benchmarks	Essential Content and Understanding	Terminology
Find the mean, median, mode, and range of a data set	<p>Calculate and interpret measures of the center of a <u>set</u> of data, including <u>mean</u>, <u>median</u>, and <u>weighted mean</u>, and use these measures to make comparisons among <u>sets</u> of data.</p> <p>Calculate and interpret the range and quartiles of a <u>set</u> of data.</p> <p>Read and interpret data presented in various formats. Determine whether data is presented in appropriate format, and identify possible corrections. Formats to include:</p> <ul style="list-style-type: none"> • <u>bar graphs</u> • <u>line graphs</u> • <u>stem and leaf plots</u> • <u>circle graphs</u> • <u>histograms</u> • <u>box and whiskers plots</u> • <u>scatter plots</u> • <u>cumulative frequency (ogive)</u> 	<p>MA.912.S.3.3 Moderate</p> <p>MA.912.S.3.5 Moderate</p> <p>MA.912.S.3.1 Moderate</p>	<p>use a variety of problem solving strategies</p> <p>determine whether a solution is reasonable</p> <p>read and interpret data in various formats</p> <p>determine whether the data is presented in the appropriate format</p> <p>collect, organize, and analyze data sets, and determine the best format for the data</p> <p>calculate and interpret measures of central tendency; make comparisons among sets of data</p> <p>calculate and interpret the range and quartiles of a set of data</p>	<p>Set</p> <p>Mean</p> <p>Median</p> <p>Weighted mean</p>

	<p>graphs</p> <p>Collect, organize, and analyze data <u>sets</u>, determine the best format for the data and present visual summaries from the following:</p> <ul style="list-style-type: none"><input type="checkbox"/> <u>bar graphs</u><input type="checkbox"/> <u>line graphs</u><input type="checkbox"/> stem and leaf <u>plots</u><input type="checkbox"/> <u>circle graphs</u><input type="checkbox"/><input type="checkbox"/> <u>histograms</u><input type="checkbox"/> box and whisker <u>plots</u><input type="checkbox"/> scatter <u>plots</u><input type="checkbox"/> cumulative frequency (ogive) <u>graph</u>	<p>MA.912.S.3.2 High</p>		
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UNIT/ORGANIZING PRINCIPLE: Additional Learning Strategies				Pacing: Throughout the course where appropriate
Essential Question: Can the student use appropriate language arts strategies to achieve success in mathematics? Can the student use a variety of problem-solving strategies? Can the student read and interpret data?				Big Idea :
Concepts/ Content	Learning Target/Skills	Benchmarks	Essential Content and Understanding	Terminology
NA	<p>The student will use new vocabulary that is introduced and taught directly;</p> <p>The student will write in a variety of informational/expository forms, including a variety of technical documents (e.g., how-to-manuals, procedures, assembly directions);</p> <p>Use a variety of problem-solving strategies, such as drawing a diagram, making a <u>chart</u>, guess-and-check, solving a simpler problem, writing an <u>equation</u>, and working backwards</p> <p>Determine whether a solution is reasonable in the context of the original situation.</p>	<p>LA.910.1.6.1</p> <p>LA.910.4.2.1</p> <p>MA.912.G.8.2</p> <p>MA.912.G.8.3</p>	<p>The student will use new vocabulary that is introduced and taught directly.</p> <p>The student will write in a variety of informational/expository forms, including a variety of technical documents (e.g., how-to-manuals, procedures, assembly directions).</p>	<p>Chart</p> <p>Bar graphs</p> <p>Line graphs</p> <p>Stem and leaf plots</p> <p>Circle graphs</p> <p>Histograms</p> <p>Box and whisker plots</p> <p>Scatter plots</p>