

NORTH MAC MIDDLE SCHOOL
CURRICULUM GUIDE

Teacher : Lauri Burke

Grade Level: 8th

Course: Algebra

Course Description

This course is an in-depth study of the foundations of Algebra,. Topics include: groups, fields, and rings; algebraic expressions, equations, and inequalities; pattern finding; functions; and linear functions.

Textbook:

Title: Algebra I

ISBN: 978-0-13-365951-1

Authors: Bellman, Bragg, Charles, Hall, Handlin, & Kennedy

Publisher: Prentice Hall

Publication Date: 2009

Assessment

There will be a minimum of 500 points scored each quarter. These points will be obtained from assignments, quizzes, chapter tests, and projects. The points will be distributed from each category from the range of percents given below.

Example

- Assignments 33%
- Quizzes/Tests/Projects 67%

QUARTER: _____ 1st _____

COURSE: _____ Algebra I _____

<i>Content</i>	<i>Assessment</i>	<i>Standards</i>	<i>Common Core</i>	<i>Essential Questions</i>
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<p>Variables, Function Patterns, & Graphs</p> <ul style="list-style-type: none"> -model relationships with variables/ equations -simplify and evaluate expressions and formulas w/ grouping symbols. -classify and compare numbers -write function rules and understand relationships of quantities in function. -analyze data using scatter plots -interpret and compare data from graphs -find mean, median, mode, and range -make & use stem/leaf plots 	<p>Chapter Test</p> <p>Quizzes</p> <p>Classroom Responder Activities</p> <p>Picture graphing</p> <p>Tile modeling</p> <p>Problem Justifying Worksheet</p>	<p>6.A.3 6.A.4 6.B.3a 6.B.4 8.A.4b</p> <p>10.A.4a 10.A.4b</p>		<p>How do you use the order of operations?</p> <p>How do you solve equations?</p>
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<p>Rational Numbers</p> <ul style="list-style-type: none"> -add rational numbers using models -add rational numbers using rules -subtract rational numbers using models -subtract rational numbers using rules -multiply rational numbers -divide rational numbers -use distributive property -simplify algebraic expressions -identify properties of real numbers -use deductive reasoning -find theoretical & experimental probability -find probability of independent/dependent events 	<ul style="list-style-type: none"> Chapter Test Quizzes Classroom Responder Activities Picture graphing Tile modeling Integer Process Picture Book 	<ul style="list-style-type: none"> 6.A.4 6.C.3a 6.D.3 6.D.4 8.A.4b 	<ul style="list-style-type: none"> How can I use rational numbers and integers to help me solve a given problem? How do I use rational numbers and integers for comparing and ordering? What are the characteristics of a rational number? How do I use inverse operations to solve an equation? How can a tree diagram help me find the number of possible outcomes related to a given event?
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QUARTER: 2nd

COURSE: Algebra I

<i>Content</i>	<i>Assessment</i>	<i>Standards</i>	<i>Common Core</i>	<i>Essential Questions</i>
<p>Solving Equations</p> <p>-solve one-step equations using addition, subtraction, multiplication, & division</p> <p>-solve two-step equations using addition, subtraction, multiplication, & division</p> <p>-use deductive reasoning to justify steps of solving equations</p> <p>-use distributive property for combining like terms</p> <p>-use distributive property when solving multi-step equations</p> <p>-solve equations with variables on both sides</p>	<p>Chapter Test</p> <p>Quizzes</p> <p>Classroom Responder Activities</p> <p>Uniform Motion – “Travel” Card Activity</p> <p>“Shopping the Sales” Activity</p> <p>Justifying Steps Worksheet</p>	<p>6.B.3c</p> <p>6.C.3a</p> <p>7.A.3b</p> <p>7.A.4a</p> <p>7.A.4b</p> <p>7.C.4a</p> <p>7.C.3b</p> <p>7.C.4c</p> <p>9.C.4c</p> <p>9.D.3</p> <p>9.D.4</p>		<p>How does solving equations apply to real world?</p> <p>How can problems be modeled using algebraic symbols?</p> <p>How can algebraic symbols be manipulated?</p> <p>How do you solve single variable equations with one, two, or multiple steps?</p> <p>How do you solve various percent problems?</p>

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<ul style="list-style-type: none"> -identify equations that are identities or have no solution -become familiar with formulas & transform formulas for real-world problems -find ratios & rates -solve proportions -find missing measures of similar figures -use similar figures when measuring indirectly -compare scale factor to ratio of perimeters, areas, & volumes -define variable in terms of another variable (consecutive integer problems) -model distance-rate-time problems (uniform motion problems) -use basic percent proportion to solve percent problems -find percent of change -find percent of error 				<p>What are unit rates and how are they useful?</p> <p>How do you solve single variable equations with one, two, or multiple steps?</p> <p>What are unit rates and how are they useful?</p>
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<p>-find square roots</p> <p>-estimate and use square roots</p> <p>-identify right triangles</p> <p>-solve problems using Pythagorean Theorem</p> <p>Solving Inequalities</p> <p>-identify solutions of inequalities</p> <p>-graph and write inequalities</p> <p>-use addition/subtraction to solve inequalities</p> <p>-use multiplication/division to solve inequalities</p> <p>-solve inequalities with variables on one side</p> <p>-solve inequalities with variables on both sides</p> <p>-solve/graph inequalities with “and”</p>	<p>Chapter Test</p> <p>Quizzes</p> <p>Classroom Responder Activities</p>	<p>8.B.4a</p> <p>8.B.4b</p> <p>8.C. 3b</p> <p>8.C.3c</p>		<p>How do solving inequalities and inequalities’ solutions compare to equalities?</p>
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or “or” -identify unions/intersections of sets -solve equations with absolute value -solve inequalities with absolute value			
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QUARTER: 3rd

COURSE: Algebra I

<i>Content</i>	<i>Assessment</i>	<i>Standards</i>	<i>Common Core</i>	<i>Essential Questions</i>
Graphs & Functions -interpret, analyze, & sketch graphs from situations -identify relations and functions -evaluate functions -model functions using rules, tables and graphs -write a function rule given a table or real-world situation -write an equation of a direct variation -use ratios and proportions with	Chapter Test Quizzes Classroom Responder Activities Alternative Assessment pg 267	8.B.4b 8.C.4a 8.C. 3b 8.C.3c		What is the best way to represent a function? What are relations and functions and how are they related to graphs?

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<p>direct variations</p> <p>-solve inverse variations</p> <p>-compare inverse and direct variations</p> <p>-use inductive reasoning continue number patterns</p> <p>-write rules for arithmetic sequences</p> <p>Rational Expressions and Functions</p> <p>-simplify rational expressions</p> <p>-multiply/divide rational expressions</p> <p>-divide polynomials</p> <p>-find permutations</p> <p>-find computations</p>	<p>Chapter Test</p> <p>Quizzes</p> <p>Classroom Responder Activities</p>	<p>10.C.3a</p> <p>10.C.4a</p>		<p>What are polynomials and how do you factor them?</p> <p>What is a greatest common factor and how do you find it?</p> <p>How do you work with variables when they have exponents?</p> <p>How do you perform operations on polynomials?</p> <p>What is the total number of</p>
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			<p>possible outcomes?</p> <p>What is the probability of an event?</p> <p>What is the difference between dependent and independent events?</p> <p>What is the difference between a combination and a permutation and how do you find them?</p>
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QUARTER: 4th

COURSE: Algebra I

<i>Content</i>	<i>Assessment</i>	<i>Standards</i>	<i>Common Core</i>	<i>Essential Questions</i>
<p>Solving Linear Equations and Their Graphs</p> <p>-find rates of change from tables and graphs</p> <p>-find slope</p> <p>-write linear equations in slope-intercept form</p> <p>-graph linear equations</p>	<p>Chapter Test</p> <p>Quizzes</p> <p>Classroom Responder Activities</p>			<p>What is the slope of the line?</p> <p>What are x & y intercepts and how do you find them?</p> <p>Is the solution to a system of equations reasonable?</p> <p>Does the system have one,</p>

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<ul style="list-style-type: none"> -interpret linear graphs -graph equations using intercepts -write equations in standard form -graph and write linear equations using point-slope form -write linear equations using data -determine whether lines are parallel -determine whether lines are perpendicular -write an equations for trend lines and use it to make predictions -write the equation for a line of best fit and use it to make predictions -translate a graph of absolute value <p>Systems of Equations and Inequalities</p> <ul style="list-style-type: none"> -solve systems by graphing -analyze special types of systems 	<p>Chapter Test</p>			<p>no or infinitely many solutions?</p> <p>How can you recognize parallel or perpendicular lines without graphing them?</p> <p>How do you solve and graph linear inequalities with one or two variables?</p> <p>How do you solve and graph inequalities involving absolute value?</p> <p>How do you solve a system of inequalities with two variables?</p>
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-solve systems using substitution -solve systems by adding/subtracting	Quizzes Classroom Responder Activities		
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QUARTER: _____

COURSE: _____

<i>Content</i>	<i>Assessment</i>	<i>Standards</i>	<i>Common Core</i>	<i>Essential Questions</i>

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COURSE: _____

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