

# *Wallenpaupack Area School District*

**COURSE:** Applied Algebra

**GRADE LEVEL:** Tenth Grade

**LENGTH OF COURSE:** 90 days/semester (Block Schedule)

**TEXT:** Cord Algebra I, Mathematics in Context

**PUBLISHER:** Globe Fearon Educational Publisher

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**COURSE DESCRIPTION:**

Applied Algebra employs an interactive, workplace-centered approach to teaching algebra concepts. The algebra concepts which are introduced and applied in the context of the workplace include order of operations, solving linear equations, graphing linear equations, non-linear functions, basic probability and statistics, and systems of equations.

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**DATE OF REVISION:**

2006

# Wallenpaupack Area School District

**Course:** Applied Algebra

**Grade Level:** Grade 10

**Unit:** Integers and Vectors

**PA Standards:** 2.1.11.A  
2.2.11.A  
2.2.11.C  
2.3.11.C  
2.4.11.E

<b>Topics:</b> Identifying integers Absolute value Adding integers Subtracting integers Multiplying and dividing integers Identifying vectors Combining vectors	<b>Skills:</b> Categorizing numbers (real, rational, integers, positive, negative, whole) Finding the absolute value of an integer Finding distance between points on a number line Add integers Subtract integers Multiply integers Divide integers Find the magnitude and direction of a vector Solve problems using basic vectors
<b>Activities:</b> Textbook problem solving Worksheets Partner work/cooperative learning Board work Lab work	<b>Performance Assessments:</b> Teacher produced tests and quizzes Class assignments Class participation Homework Board work Teacher observation Lab work

# Wallenpaupack Area School District

**Course:** Applied Algebra

**Grade Level:** Grade 10

**Unit:** Scientific Notation

**PA Standards:** 2.1.11.A  
2.2.11.E  
2.3.11.A  
2.3.11.C

<b>Topics:</b>	<b>Skills:</b>
Power of ten Other powers of ten Power of ten notation Scientific notation Using scientific notation Metric measurement	Multiply by ten or powers of ten Divide by ten or powers of ten Writing expressions with positive and negative exponents as integers Writing expressions with zero exponents Write a number in exponential notation Write a number in scientific notation Covert from scientific notation to decimal notation Recognize and use the prefixes of metric measurements Covert metric measurements
<b>Activities:</b>	<b>Performance Assessments:</b>
Textbook problem solving Worksheets Partner work/cooperative learning Board work	Teacher produced tests and quizzes Class assignments Class participation Homework Board work Teacher observation Lab work

# Wallenpaupack Area School District

**Course:** Applied Algebra

**Grade Level:** Grade 10

**Unit:** Using Formulas

**PA Standards:** 2.1.11.A  
2.2.11.A  
2.2.11.B  
2.4.11.B  
2.4.11.E  
2.5.11.A  
2.5.11.C  
2.6.11.B

<b>Topics:</b>	<b>Skills:</b>
Variable and expressions Equations and formulas Interest	Evaluate an expression using order of operations Use the distributive property Find simple interest Find compound interest
<b>Activities:</b>	<b>Performance Assessments:</b>
Textbook problem solving Worksheets Partner work/cooperative learning Board work Lab work	Teacher produced tests and quizzes Class assignments Class participation Homework Board work Teacher observation Lab work

# Wallenpaupack Area School District

**Course:** Applied Algebra

**Grade Level:** Grade 10

**Unit:** Solving Linear Equations

**PA Standards:** 2.1.11.A  
2.2.11.A  
2.2.11.B  
2.5.11.C  
2.8.11.D  
2.8.11.N

<b>Topics:</b> Solving multiplication equations Multiplication property of equality Solving proportions and percent equations Addition property of equality Solving multi-step equations Equations with variable on both sides Equations on the job	<b>Skills:</b> Solve one step equations using multiplication, division, addition, and subtraction Solve equations using fractions Solve multi-step equations using distribution, variables on both sides, and combining like terms Solve percent problems Solve proportions Solve word problems using equations
<b>Activities:</b> Textbook problem solving Worksheets Partner work/cooperative learning Board work Lab work	<b>Performance Assessments:</b> Teacher produced tests and quizzes Class assignments Class participation Homework Board work Teacher observation Lab work

# *Wallenpaupack Area School District*

**Course:** Applied Algebra

**Grade Level:** Grade 10

**Unit:** Graphing Linear Functions

**PA Standards:** 2.1.11.A  
 2.2.11.F  
 2.5.11.C  
 2.8.11.A  
 2.8.11.B  
 2.8.11.D  
 2.8.11.E  
 2.8.11.J  
 2.8.11.K  
 2.8.11.L  
 2.8.11.Q  
 2.8.11.R

<b>Topics:</b>	<b>Skills:</b>
<ul style="list-style-type: none"> <li>Coordinates and graphs</li> <li>Graphing points and lines</li> <li>Slope of a line</li> <li>Graphing linear equations</li> <li>Intercepts of a line</li> <li>Linear functions</li> <li>Using a graphing calculator</li> </ul>	<ul style="list-style-type: none"> <li>Graph data on a coordinate system</li> <li>Graph a linear equations (including horizontal and vertical lines)</li> <li>Find the slope of a line</li> <li>Use the slope-intercept form of a linear equation</li> <li>Find the x- and y-intercepts of a line</li> <li>Use the graphing calculator to graph a linear equations and find the x- and y-intercepts</li> <li>Find the equation of a line given a graph or points on the line</li> </ul>
<b>Activities:</b>	<b>Performance Assessments:</b>
<ul style="list-style-type: none"> <li>Textbook problem solving</li> <li>Worksheets</li> <li>Partner work/cooperative learning</li> <li>Board work</li> <li>Lab work</li> <li>Project</li> </ul>	<ul style="list-style-type: none"> <li>Teacher produced tests and quizzes</li> <li>Class assignments</li> <li>Class participation</li> <li>Homework</li> <li>Board work</li> <li>Teacher observation</li> <li>Lab work</li> </ul>

# *Wallenpaupack Area School District*

**Course:** Applied Algebra

**Grade Level:** Grade 10

**Unit:** Nonlinear Functions

**PA Standards:** 2.1.11.A  
 2.2.11.A  
 2.2.11.B  
 2.2.11.C  
 2.2.11.E  
 2.4.11.E  
 2.8.11.E  
 2.8.11.N  
 2.8.11.S  
 2.11.11.A

<b>Topics:</b>	<b>Skills:</b>
<ul style="list-style-type: none"> <li>Relations and functions</li> <li>Absolute value function</li> <li>Quadratic function</li> <li>Square root function</li> <li>Exponential function</li> </ul>	<ul style="list-style-type: none"> <li>Identify the domain and range of a function</li> <li>Graph absolute value functions</li> <li>Graph quadratic functions</li> <li>Recognize perfect squares and their roots</li> <li>Solve basic quadratic equations</li> <li>Solve problems using the Pythagorean theorem</li> <li>Evaluate exponential functions</li> </ul>
<b>Activities:</b>	<b>Performance Assessments:</b>
<ul style="list-style-type: none"> <li>Textbook problem solving</li> <li>Worksheets</li> <li>Partner work/cooperative learning</li> <li>Board work</li> <li>Lab work</li> </ul>	<ul style="list-style-type: none"> <li>Teacher produced tests and quizzes</li> <li>Class assignments</li> <li>Class participation</li> <li>Homework</li> <li>Board work</li> <li>Teacher observation</li> <li>Lab work</li> </ul>

# Wallenpaupack Area School District

**Course:** Applied Algebra

**Grade Level:** Grade 10

**Unit:** Statistics and Probability

**PA Standards:** 2.1.11.A  
2.2.11.A  
2.2.11.B  
2.2.11.C  
2.4.11.E  
2.5.11.B  
2.6.11.C  
2.7.11.A  
2.7.11.D  
2.7.11.E  
2.8.11.M

<b>Topics:</b> Measures of central tendency Basic concepts of the normal curve and standard deviation Scatter plots and correlations Compound probability	<b>Skills:</b> Find the mean, median, mode, and range of set of data Construct a scatter plot from a set of data Describe the correlations of scatter plot Find the line of best fit for a scatter plot Find the probability of multiple events occurring
<b>Activities:</b> Textbook problem solving Worksheets Partner work/cooperative learning Board work	<b>Performance Assessments:</b> Teacher produced tests and quizzes Class assignments Class participation Homework Board work Teacher observation Lab work

# Wallenpaupack Area School District

**Course:** Applied Algebra

**Grade Level:** Grade 10  
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**Unit:** Systems of Equations

**PA Standards:** 2.1.11.A  
2.2.11.A  
2.8.11.D  
2.8.11.F  
2.8.11.G

<b>Topics:</b>	<b>Skills:</b>
Solving a linear system by graphing Special linear systems Solving systems by substitution, addition, subtraction and multiplication	Solve a system of two equations by graphing, substitution, addition and subtraction Recognize how many solutions a system should have (intersecting, parallel, coinciding lines)
<b>Activities:</b>	<b>Performance Assessments:</b>
Textbook problem solving Worksheets Partner work/cooperative learning Board work	Teacher produced tests and quizzes Class assignments Class participation Homework Board work Teacher observation Lab work

# Wallenpaupack Area School District

**Course:** Applied Algebra

**Grade Level:** Grade 10

**Unit:** Inequalities

**PA Standards:** 2.1.11.A  
2.2.11.A

<b>Topics:</b>	<b>Skills:</b>
Inequalities and the number line Addition property of inequality Multiplication property of inequality Solutions of compound inequalities	Graph an inequality on a number line Solve linear inequalities Solve compound inequalities
<b>Activities:</b>	<b>Performance Assessments:</b>
Textbook problem solving Worksheets Partner work/cooperative learning Board work	Teacher produced tests and quizzes Class assignments Class participation Homework Board work Teacher observation Lab work

# Wallenpaupack Area School District

**Course:** Applied Algebra

**Grade Level:** Grade 10

**Unit:** Matrices

**PA Standards:** 2.1.11.A  
2.8.11.I

<b>Topics:</b>	<b>Skills:</b>
Addition and subtraction of matrices Scalar multiplication of matrices Multiplication of matrices	Add and subtract matrices Scalar multiplication of matrices Multiply matrices
<b>Activities:</b>	<b>Performance Assessments:</b>
Textbook problem solving Worksheets Partner work/cooperative learning Board work	Teacher produced tests and quizzes Class assignments Class participation Homework Board work Teacher observation Lab work