Mathematics
Algebra 1: Academic
Unit 5: Writing Linear Equations

Essential Understandings	▪ Writing linear equations is a very important algebraic skill.
Essential Questions	▪ How do you write an equation is slope intercept form? ▪ How do you write an equation given two points? ▪ What is the "standard" form of an equation? ▪ What makes lines perpendicular to each other.
Essential Knowledge	▪ Slope-intercept form of an equation is $y = mx + b$. ▪ "Standard" form of an equation is $Ax + By = C$. ▪ Perpendicular lines have slopes that are reciprocals and opposites.
Vocabulary	▪ <u>Terms</u>: o standard form, slope-intercept form, perpendicular lines.
Essential Skills	▪ Write the equation for a line given slope and y-intercept. ▪ Write the equation for a line given slope and a point. ▪ Write the equation for a line given slope and y-intercept given two points. ▪ Find slope of a line. ▪ Write an equation for a line in "standard" form. ▪ Write the equation for perpendicular lines.

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Related Maine Learning Results	D. Algebra Equations and Inequalities D2. Students solve families of equations and inequalities. a. Solve systems of linear equations and inequalities in two unknowns and interpret their graphs. b. Solve quadratic equations graphically, by factoring in cases where factoring is efficient, and by applying the quadratic formula. c. Solve simple rational equations. d. Solve absolute value equations and inequalities and interpret the results. e. Apply the understanding that the solution(s) to equations of the form f(x) = g(x) are x-value(s) of the point(s) of intersection of the graphs of f(x) and g(x) and common outputs in table of values. f. Explain why the coordinates of the point of intersection of the lines represented by a system of equations is its solution and apply this understanding to solving problems. D3. Students understand and apply ideas of logarithms. a. Use and interpret logarithmic scales. b. Solve equations in the form of $x + b^y$ using the equivalent form $y = \log_b x$. Functions and Relations D4. Students understand and interpret the characteristics of functions using graphs, tables, and algebraic techniques. a. Recognize the graphs and sketch graphs of the basic functions. b. Apply functions from these families to problem situations. c. Use concepts such as domain, range, zeros, intercepts, and maximum and minimum values. d. Use the concepts of average rate of change (table of values) and increasing and decreasing over intervals, and use these characteristics to compare functions. D5. Students express relationships recursively and use iterative methods to solve problems. a. Express the (n+1)st term in terms of the nth term and describe relationships in terms of starting point and rule followed to transform one terms to the next. b. Use technology to perform repeated calculations to develop solutions to real life problems involving linear, exponential, and other patterns of change.
Sample Lessons	▪ Students will orally respond to questions. ▪ Students will utilize worksheets and in their notes to demonstrate

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And Activities	individual understanding of the concepts.
Sample Classroom Assessment Methods	▪ Quizzes ▪ Take-home worksheets ▪ Tests
Sample Resources	▪ Publications: o Algebra -Foerster