ODE Content	Grado 8 Algobra (Part 2)
Standard	Glade o Algebia (Fall 2)
8.1	Algebra: Analyze and represent linear functions, and solve linear equations and systems of linear equations.
	<ul> <li>Translate among contextual, verbal, tabular, graphical, and algebraic representations of linear functions.</li> </ul>
	<ul> <li>Determine the slope of a line and understand that it is a constant rate of change.</li> </ul>
	<ul> <li>Identify and interpret the properties (i.e. slope, intercepts, continuity, and discreteness) of linear relationships as they are shown in the different representations and recognize proportional relationships (y/x = k or y = kx) as a special case.</li> </ul>
	<ul> <li>Use linear functions and equations to represent, analyze and solve problems, and to make predictions and inferences.</li> </ul>
	<ul> <li>Relate systems of two linear equations in two variables and their solutions to pairs of lines that are intersecting, parallel, or the same line.</li> </ul>
	<ul> <li>Use informal strategies (e.g., graphs or tables) to solve problems involving systems of linear equations in two variables.</li> </ul>
H.1A	Algebra and Numeracy: Demonstrate a deep understanding of real numbers and algebraic
H 1A 4	symbols by fluently creating, manipulating, computing with, and determining equivalent expressions, both numeric and symbolic.
& H.1A.5	<ul> <li>Develop, identify, and/or justify equivalent algebraic expressions, equations, and inequalities using the properties of exponents, equality and inequality, as well as the commutative, associative, inverse, identity, and distributive properties.</li> </ul>
	<ul> <li>Factor quadratic expressions limited to factoring common monomial terms, perfect-square trinomials, differences of squares, and quadratics of the form x2 + bx + c that factor over the integers.</li> </ul>
H.2A	Algebra: Use linear equations and functions to represent relationships and solve linear equations, linear inequalities, systems of linear equations, and systems of linear inequalities.
H.2A.3 thru H.2A.8	<ul> <li>Determine the equation of a line given any of the following information: two points on the line, its slope and one point on the line, or its graph. Also, determine an equation of a new line, parallel or perpendicular to a given line, through a given point.</li> </ul>
	<ul> <li>Fluently convert among representations of linear relationships given in the form of a graph of a line, a table of values, or an equation of a line in slope intercept and standard form.</li> </ul>
	<ul> <li>Given a linear function, interpret and analyze the relationship between the independent and dependent variables. Solve for x given f(x) or solve for f(x) given x.</li> </ul>
	• Analyze how changing the parameters transforms the graph of $f(x) = mx + b$ .
	<ul> <li>Write, use, and solve linear equations and inequalities using graphical and symbolic methods with one or two variables. Represent solutions on a coordinate graph or number line.</li> </ul>
	<ul> <li>Solve systems of two linear equations graphically and algebraically, and solve systems of two linear inequalities graphically.</li> </ul>

ODE Content Standard	Grade 8 Algebra (Part 2)
8.2	<ul> <li><u>Data Analysis</u> and <u>Algebra</u>: Analyze and summarize data sets.</li> <li>Organize and display data (e.g., histograms, box-and-whisker plots, scatter plots) to pose and answer questions; and justify the reasonableness of the choice of display.</li> <li>Use measures of center and spread to summarize and compare data sets.</li> <li>Interpret and analyze displays of data and descriptive statistics.</li> <li>Compare descriptive statistics and evaluate how changes in data affect those statistics.</li> <li>Describe the strengths and limitations of a particular statistical measure, and justify or critique its use in a given situation.</li> <li>Use sample data to make predictions regarding a population.</li> <li>Use data to estimate the likelihood of future events and evaluate the reasonableness of those claims.</li> </ul>
H.3A.1 thru H.3A.5	<ul> <li>The following content standards are introduced in middle school Algebra. They are reviewed and covered in more depth in the high school Advanced Algebra course.</li> <li><u>Algebra</u>: Use quadratic and exponential equations and functions to represent relationships.</li> <li>Given a quadratic or exponential function, identify or determine a corresponding table or graph.</li> <li>Given a table or graph that represents a quadratic or exponential function, extend the pattern to make predictions.</li> <li>Compare the characteristics of and distinguish among linear, quadratic, and exponential functions that are expressed in a table of values, a sequence, a context, algebraically, and/or graphically, and interpret the domain and range of each as it applies to a given context.</li> <li>Given a quadratic or exponential function, interpret and analyze the relationship between the independent and dependent variables, and evaluate the function for specific values of the domain.</li> </ul>
	<ul> <li>Given a quadratic equation of the form x2 + bx + c = 0 with integral roots, determine and interpret the roots, the vertex of the parabola that is the graph of y = x2 + bx + c, and an equation of its axis of symmetry graphically and algebraically.</li> </ul>

It is essential that these standards be addressed in contexts that promote problem solving, reasoning, communication, making connections, and designing and analyzing representations.