

# Unit 3 Plan Template

**UNIT 3: Quadratic Equations, Functions & Polynomials**    **TIME FRAME: 3 months**

**TEACHER: Meghan Miller**

**Unit Summary and Rationale:** (Outlines the components of the unit and the reasoning for their inclusion):

- Perform arithmetic operations on polynomials
- Understand the relationship between zeros and factors
- Interpret the structure of expressions
- Solve equations and inequalities in one variable
- Create equations that describe numbers or relationships
- Interpret functions that arise in applications in terms of the context
- Represent and solve equations and inequalities graphically
- Build a function that models a relationship between two quantities
- Construct & compare linear, quadratic, & exponential models
- Build new functions from existing functions
- Analyze functions using different representations
- Use properties of rational and irrational numbers

**Unit Standards:** Teachers should list the standards to be addressed within the unit.

HSN- RN.A.2, HSN-RN.A.1, HAS-CED.A.2, HSF-IF.B.4, HSF-IF.C.7e, HSF-IF.C.9, HSF-BF.A.1a, HSF-BF.B.3, HSF-LE.A1a, HSF-LE.A.2, HAS-SSE.B.3c, HAS-CED.A.2, HAS-REI.A.1, HAS-REI.11, HAS-APR.A.1, HAS-APR.B.3, HAS-REI.B.4b, HAS-SSE. A.2, HSN-RN.B.3, HAS-REI.D.11, HAS-SSE.B.3b

**Learning Tasks:** Teachers list the various tasks students will engage in throughout the unit. (Content) – Should be separated by Reading Tasks, Writing Tasks, Discussion Tasks, and Language/Vocabulary Tasks.

Practice Worksheet A and B  
Puzzle Worksheets  
Whiteboard review activity

**Skills:** These are what the students need to be able to do in relation to the tasks. These skills are translated statements from the standards and represent measurable verbs, instructional targets, and descriptors for the sake of consistency across teachers in the same content area and grade level.

- add and subtract polynomials.
- multiply polynomials.
- recognize numerical expressions as

<p>Basic Skills Review WS</p>	<p>a difference of squares and rewrite the expression as the product of sums/differences. • recognize polynomial expressions in one variable as a difference of squares and rewrite the expression as the product of sums/differences. • use the method of completing the square to transform a quadratic equation in <math>x</math> into an equation of the form <math>(x - p)^2 = q</math>. • derive the quadratic formula from <math>(x - p)^2 = q</math>. • solve a quadratic equations in one variable by inspection. • solve quadratic equations in one variable by taking square roots. • solve a quadratic equations in one variable by completing the square. • solve a quadratic equations in one variable using the quadratic formula. • solve a quadratic equations in one variable by factoring. • strategically select, as appropriate to the initial form of the equation, a method for solving a quadratic equation in one variable. • write complex solutions of the quadratic formula in <math>a \pm bi</math> form. • analyze the quadratic formula, recognizing the conditions leading to complex solutions (discriminant). • create quadratic equations in one variable. • use quadratic equations to solve real world problems. • interpret maximum/minimum and intercepts of quadratic functions from graphs and tables in the context of the problem. • sketch graphs of quadratic functions given a verbal description of the relationship between the quantities. • identify intercepts and intervals where function is increasing/decreasing</p>
<p><b>Key Terms / Vocabulary:</b>  Nth root of a, radical, index of radical, exponential function, exponential growth, exponential decay, compound interest, exponential equation, common ratio, recursive rule, geometric sequence, explicit rule, monomial, degree of monomial, polynomial, trinomial, degree of a polynomial, standard form, leading coefficient, FOIL method, factored form, Zero-Product Property, roots, repeated root, factor by grouping, factored completely, quadratic functions, parabola, vertex, axis of symmetry, zero of a function, maximum value, minimum value, even function, odd function, vertex form, intercept form, average rate of change, radical expression, simplest form of a radical, rationalizing the denominator, conjugate, like radicals, quadratic equations, completing the square, discriminate, system of nonlinear equations, Quadratic Formula</p>	

<p><b>Assessments:</b> List types of assessments that will be used throughout the course of the unit.          *If you do not have assessments for this unit, they should be created before moving on to the lesson design* (Label Assessments as Diagnostic, Formative, or Summative)</p> <p>6.1-6.4 Quiz          Chapter 6 Test          7.1-7.4 Quiz          Chapter 7 Test          8.1-8.3 Quiz          Chapter 8 Test          9.1-9.3 Quiz          Chapter 9 Test</p>	
<p><b>Learning Activities:</b> Any agreed upon activities/lesson plans can be listed here.</p> <p>Group Work          White Board Activity          Math Battleship</p>	<p><b>Resources / Text Selections:</b> (generated by both teacher and student?) Teachers will list the titles/genres for study:</p> <p>Kahn academy          Kuta worksheets          Big ideas worksheets and online assignments</p>
<p><b>Additional Notes:</b></p>	