Algebra 1 Honors Unit 6: Polynomials

Unit #:	APSDO-00017749	Duration:	5.0 Week(s)	Date(s):	

Team:
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Grades:
8, 8 (Honors), 9
Subjects:
Mathematics

Unit Focus

In this unit, Honors students will classify polynomials, re-write them in descending order, and perform operations with polynomials. They will factor polynomials in the form of perfect square trinomials, greatest common factor, grouping (multi-step), trinomials, and difference of two squares. Honors students also will completely factor polynomials using multiple methods. Primary instructional materials for this unit include Algebra I, Glencoe/McGraw Hill, 2014. Secondary resources will be added to ensure the complexity, sophistication, and authenticity of the types of problems for our Honors students.

Stage 1: Desired Results - Key Understandings

Established Goals	Transfer
Common Core *Mathematics: 9* • Interpret parts of an expression, such as terms, factors, and coefficients. *CCSS.MATH.CONTENT.HSA.SSE.A.1.A* • Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials. *CCSS.MATH.CONTENT.HSA.APR.A.1* • Use the structure of an expression to	**T1** (T50) Based on an understanding of any problem, initiate a plan, execute it and evaluate the reasonableness of the solution. **T2** (T53) Articulate how mathematical concepts relate to one another in the context of a problem or in the theoretical sense. **T3** (T51) Examine alternate methods to accurately and efficiently solve problems. **T4** (T52) Use appropriate tools strategically to deepen understanding of mathematical concepts. **T5** (T20) Compose and decompose numbers to establish relationships, perform operations, and solve problems. **T6** (T21) Perform operations in a conventional order within the real and complex number system. **T7** (T22) Describe and/or solve problems using algebraic expressions, equations, inequalities, and functions.

identify ways to rewrite it. For example, see x4 - y4 as (x2)2 - (y2)2, thus recognizing it as a difference of squares that can be factored as (x2 - y2)(x2 + y2). *CCSS.MATH.CONTENT.HSA.SSE.A.2*
- Look for and express regularity in repeated reasoning. *CCSS.MATH.MP.8*
- Make sense of problems and persevere in solving them. *CCSS.MATH.MP.1*
- Reason abstractly and quantitatively. *CCSS.MATH.MP.2*

Meaning	
Understandings	**Essential Questions**
U1 (U201) The same value can be represented in multiple ways. **U2** (U202) The application of specific properties and order of operations can simplify expressions, solve equations, and combine functions. **U3** (U203) Certain mathematical manipulations preserve the relationship in an expression or equation, even though they change the representation. **U4** (U502) Effective problem solvers identify and apply an appropriate model, tool, or strategy. **U5** (U503) Effective problem solvers try multiple strategies when struggling. **U6** (U511) Placing a problem in a category gives you a familiar approach to solving it. **U7** (U561) Recognition of patterns and structures fosters efficiency in solving problems.	**Q1** (Q200) What rule or pattern can help me simplify the expression or solve this problem? **Q2** (Q207) How do I classify, interpret, and compare functions or equations? (Gr. 8-12) **Q3** (Q503) What strategies/approaches are best for this problem? **Q4** (Q504) What do I do when I get stuck? **Q5** (Q511) What characteristics/attributes define this type of problem? **Q6** (Q570) How can the repeated application of a process/structure help me solve problems more efficiently?
Acquisition of Knowledge and Skill	
Knowledge	**Skills**
	S1 classify polynomials using appropriate terminology (naming by number of terms, determining degree, etc) **S2** re-write polynomials in descending order **S3** operate with polynomials (adding/subtracting/multiplying/dividing

		(including long division)
		S4
		factor polynomials including perfect square trinomials, greatest common factor, grouping, trinomials, and difference of two squares

Stage 3: Learning Plan		
Coding	**Code**	**Description of Learning Activity**