Anoka-Hennepin Secondary Curriculum Unit Plan

Department:	Mathematics	Course:	Intermediate PreAlgebra	Unit 1 Title:	Integers and Exponents	Grade: Level(s):	7
Assessed Trimester:	Trimester 1	Pacing:	10-17 Days (not including testing days)	Date Created:	5/31/2014	Last Revision Date:	6/17/2014

Course Understandings: *Students will understand that:*

A. There are multiple strategies and representations that can be used to solve real world problems involving rational numbers.

G. There are appropriate uses for various technologies and that limitations may exist with them.

DESIRED RESULTS (Stage 1) - WHAT WE WANT STUDENT TO KNOW AND BE ABLE TO DO?

Establ	Established Goals				
Minnesota State/Local/Technology Standard(s) addressed (2007):					
• Standard (7.1.1.#): Read, write, represent and compare positive and negative rational numbers, exp	andard (7.1.1.#): Read, write, represent and compare positive and negative rational numbers, expressed as integers, fractions and decimals.				
 7.1.1.3 Locate positive and negative rational numbers on a number line, understand the conce 7.1.1.4 Compare positive and negative rational numbers expressed invarious forms using the 	pt of opposites, and plot pairs of positive and negative ratio symbols $<$, $>$, $=$, \ge , \le .				
• Standard (7.1.2.#): Calculate with positive and negative rational numbers, and rational numbers with Benchmark:	whole number exponents, to solve real-world and mathema				
7.1.2.1 Arithmetic Procedures Add, subtract, multiply and divide positive and negative rational including standard algorithms; raise positive rational numbers to whole-number exponents.	I numbers that are integers, fractions and terminating decima				
 7.1.2.2 Use real-world contexts and the inverse relationship between addition and subtraction 7.1.2.4 Solve Problems with Rational Numbers Including Positive Integer Exponents Solve problems in various contexts involving calculations with positive and negative rational num 7.1.2.6 Determine greatest common factors and least common multiples. Use common factor 	to explain why the procedures of arithmetic with negative rat mbers and positive integer exponents, including computing s is and common multiples to calculate with fractions and find o				
Transfer					
 Students will be able to independently use their learning to: (product, high order reasoning) Use and apply integers in the real world. 					
M	Meaning				
Unit Understanding(s): Students will understand that: Integers are all whole numbers and their opposites. Number lines can be used to order and compare integers. Absolute value is the distance from zero on a number line. Models (such as number lines, two-color counters, acting it out, etc.) can be used to show integer operations. Integer operations can be applied to real-world situations.	Essential Que Students will keep considering: • How can we use inverse operations to help solving • When subtracting integers how can you make sen • If you add integers with different signs, how do you • When multiplying or dividing two or more integers negative, or zero? • What is the relationship between a negative numb • When combining integers, how do you know if you • Why are integers used in the real world?				

onsal numbers on a coordinate grid.

atical problems.

als; use efficient and generalizable procedures,

tional numbers make sense.

simple and compound interest. equivalent fractions.

uestion(s):

ng integer operation problems? nse of subtracting? u find the sign of the sum? s, how can you tell if the product or quotient is positive,

ber and its position on the number line? ur answer will be negative or positive?

Αϲϥι	Acquisition		
 Knowledge - Students will: Define integers. Identify the absolute value symbol. Understand absolute value as a distance from zero. Understand inverse operations. 	 Reasoning - Students will: Explain how inverse operations are used to solve Demonstrate awareness, knowledge, and use of t Use estimation to determine if an answer is reaso Apply integers to real-world situations. Use manipulatives or models to demonstrate integers Skills - Students will: complete integer operations. evaluate numerical expressions within absolute value Plot integers on a number line. Evaluate numerical expression with integers and a 		
 Common Misunderstandings Absolute value means the opposite. Students may think that adding two negatives equals a positive (confusion of procedures with multiplication). Subtracting integers is the same as adding integers. Students often think that when they subtract opposites the answer will also be 0. Students have a hard time "seeing" negative numbers unless real world applications are used, such as temperatures, money, elevation, etc. Students mistakenly think that -2 - 2 = 0 because when they add opposites they get 0. Having one negative in an expression will result in a negative answer. Larger digit is a larger number. For example: -8 is larger than 3. Mixing up meaning of < and > symbols Student may think that bars {absolute value notation} make things positive. For example, -4 - 5 becomes -4 + 5 . When ordering integers, student sometimes write a greater negative integer as being less than a smaller negative integer, because they look at the number without its sign to order the integers. Adding two negatives vs. multiplying two negatives. Students have a hard time "seeing" negative numbers unless real world applications are used, such as temperatures, money, elevation, etc 	<pre>Essential new vocabulary</pre>		

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alue notation.

absolute value