Anoka-Hennepin Secondary Curriculum Unit Plan

Department:	Mathematics	Course:	Intermediatea PreAlgebra	Unit 3 Title:	Operating and Problem Solving with Rational Numbers	Grade Level(s):	7
Assessed Trimester:	Trimester 1	Pacing:	10-12 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?

Established Goals

Minnesota State/Local/Technology Standard(s) addressed (2007):

- **Standard (7.1.2.#):** Calculate with positive and negative rational numbers, and rational numbers with whole number exponents, to solve real-world and mathematical problems.
  Benchmark:
  7.1.2.1 Add, substract, multiply and divide positive and negative rational numbers that are integers, fractions, and terminating decimals; use effiecient and generalizable procedures, including standard algorithms; raise positive rational numbers to whole-number exponents.
  7.1.2.3 Understand that calculators and other computing technologies often truncate or round numbers.
  7.1.2.4 Solve problems in various contexts involving calculations with positive and negative rational numbers and positive integer exponents, ~~including computing simple and compound interest~~.

Transfer

Students will be able to independently use their learning to: (product, high order reasoning)

- Use rational number operations in real world situations.

Meaning

Unit Understanding(s):	Essential Question(s):
Students will understand that: ● Using calculators and other devices to solve problems truncate or round digits ● Answers need to be reasonable given the context of the problem. ● Different real life situations require answers to be expressed as fractions, decimals or percents.	**Students will keep considering:** ● How are rational numbers useful in life? ● When is it better to use a fraction, decimal or a percent in real world problems? ● Why do I need to know rational number operations? ● When is it appropriate to use an estimation?

Acquisition

Knowledge - Students will:	Reasoning - Students will:
● Recognize how calculators truncate repeating digits. ● Rational numbers can be written as fractions, decimals and percents.	● Explain how inverse operations are used to solve problems with rational numbers. ● Use estimation to determine if an answer is reasonable. ● Apply rational number to real-world situations. ● Determine when a common denominator is needed. ● Justify when it may be easier to use a fraction, when it might be easier to use a decimal, and when it may be easier to use a percent.

	Skills - Students will: ● Perform operations with rational numbers ● Raise positive and negative rational numbers to whole-number exponents ● Convert between fractions, decimals and percents.

Common Misunderstandings ● Students want to use addition to get equivalent values, not multiplication. ● Students confuse fraction operations. ● Students are unfamiliar with the word “truncate.” ● Students think when they square a decimal the answer will be larger not smaller	**Essential new vocabulary** N/A