Course: Algebra I **Unit # and Name:** Unit #6 Radicals	**Year of Implementation:** 2019-2020

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Stage One - Desired Results

Link(s) to New Jersey Student Learning Standards for this course:
https://www.state.nj.us/education/cccs/2016/math/standards.pdf

Unit Standards:

The Real Number Systems N.RN.3

- Use properties of Rational and Irrational Numbers

21st Century Themes:

_x_Global Awareness
_x_Financial, Economic, Business and Entrepreneurial Literacy
___Civic Literacy
___Health Literacy
___Environmental Literacy

21st Century Skills:

Learning and Innovation Skills:
_x_Creativity and Innovation
_x_Critical Thinking and Problem Solving

_x_Communication and Collaboration

Information, Media and Technology Skills:
_x_Information Literacy
_x_Media Literacy
_x_ICT (Information, Communications and Technology) Literacy

Life and Career Skills:
_x_Flexibility and Adaptability _x_Productivity and Accountability
_x_Initiative and Self-Direction
___Social and Cross-Cultural Skills

Transfer Goal(s): Students will be able to independently use their learning to...solve problems and determine when precision is necessary.

Enduring Understandings	*Essential Questions*
Students will understand that... EU1 there are many ways to represent a number. EU2 in certain situations, an estimate is as useful as an exact answer.	EU1 Why do we have rational and irrational numbers? EU2 When is it appropriate to use estimation and/or approximation?
Knowledge Students will know... EU1 ● irrational numbers cannot be represented in fractional form and that square roots of positive non-perfect	*Skills* Students will be able to... EU1 ● identify rational and irrational numbers. ● simplify irrational numbers that are square roots of

squares are irrational numbers ● the sum, difference, product or quotient of irrational numbers can be simplified under certain circumstances ● the sum or difference of an irrational number and a rational number cannot be simplified ● the product or quotient of an irrational number and a rational number can be simplified under certain circumstances EU2 ● a situation determines the best numerical representation for a solution.	positive non-perfect squares. ● perform calculations involving irrational numbers and rational numbers. ● rationalize expressions with irrational square roots in the denominator of a fraction. EU2 ● use the Pythagorean Theorem to solve real world problems and determine when estimations are important.
Stage Two - Assessment	
Other Evidence: ● Quiz on Simplifying Radicals ● Quiz on Operations with Radicals ● Assessed Elements from Recommended Performance Task ● Unit 7 Test	
Stage Three - Instruction	

Learning Plan: **Suggested Learning Activities to include Differentiated Instruction and Interdisciplinary Connections. Each learning activity listed must be accompanied by a learning goal of A=Acquiring basic knowledge and skills, M=Making meaning and/or a T=Transfer.**

Activities:

- Twin Reunion – Hand Index cards to each student – with simplified and un-simplified radicals. Find their match. https://www.teacherspayteachers.com/Product/Algebra-1-Simplifying-Radicals-Matching-Cards-2397845 **(A – EU2)**
- Perfect 10 – Students will complete problems of various difficulties to make 10 points. **(A – EU2)**
- Rational or Irrational –That is the question! — Have students make and defend a conjecture about the sum and product of each of the following: a) 2 rational numbers / b) 2 irrational numbers / c) 1 irrational and 1 rational **(T – EU1)**

Critical Vocabulary: *The following terms should be utilized...*

- conjugate
- radical
- index
- irrational number
- perfect square
- radicand
- rational number
- rationalize
- square root

The following is the suggested sequence of learning activities for the Algebra I ACC class. Adjustments should be made accordingly for other levels.

- Distinguish between Rational and Irrational numbers
- Simplify Radicals
- Multiply Radicals
- Divide Radicals
- Rationalize Radicals
- Add & Subtract Radicals

- Use the Pythagorean Theorem to find the missing sides of right triangle