UNIT OF STUDY

Title: Equations and Inequalities **Subject/Course**: Algebraic Connections **Length:** 10 days

Topic: CS3 unit 7 **Grade:** 12th **Designer:** Prado

UNIT GOALS AND EXPECTATIONS

IMPORTANT CONCEPTS/UNDERSTANDINGS:

- There are many types of algebraic equations and inequalities that can be solved.
- Algebraic equations can represent everyday life problems.
- Inequalities can represent everyday life problems
- Algebraic equations and inequalities can be graphed.

ESSENTIAL QUESTIONS:

- How do I solve an algebraic equation?
- What is an integer?
- How do I solve an equation that has rational numbers in it?
- What is an inequality?
- How do I graph an algebraic equation?
- How do I graph an inequality?

STUDENT LEARNING EXPECTATIONS:

SEI.3.AC.1 SLE.1. Solve, with and without appropriate technology, multi step equations and inequalities with rational coefficients numerically, algebraically, and graphically.

SPECIFIC DECLARATIVE KNOWLEDGE – What I know

- Explain vocabulary words: equation, distributive property, integer, rationals, symmetric property, and inequality
- Identify an equation
- Identify an inequality
- Apply distributive property to problems
- Apply symmetric of equality property to problems
- Identify an integer
- Identify a rational number
- Identify an identity equation; i.e. $(x+2)^2=x^2+4x+4$

SPECIFIC PROCEDURAL KNOWLEDGE – What I need to do

- Determine if a number is a solution to an equation
- Solve 2 step equations and inequalities with integers and rational numbers
- Solve equations of the form $ax+b=cx+d$
- Apply the distributive property to equations and inequalities that contain parenthesis to find the solution
- Solve inequalities of the form $-x>b$ or $-x<b$
- Find the solution to an equation and inequality by graphing
- Find the solution of an inequality by solving an equation and testing points.

UNIT ASSESSMENTS
(Include tasks related to Dimensions 3 and 4 and Bloom's Taxonomy)

Traditional Assessments:

Unit 7 Exam
Vocabulary quiz
Quizzes

Other Evidence of Learning:

Homework
Class work
Getting started exercises

ACTIVITIES AND LEARNING EXPERIENCES	Resources

Determine solutions to equations and distributive property ◆ S will learn vocabulary using the 4-step process: equation, distributive property ◆ S will do Getting Started activity sheet ◆ T will model how to determine if the given number is a solution to the equation ◆ S will do in-class worksheet on determining if given numbers are solutions to an equation ◆ T will go over worksheet ◆ T will model how to use the distributive property algebraically and geometrically ◆ S will do in-class worksheet on distributive property ◆ T will go over worksheet and assign homework	◆ 4-step vocabulary sheets ◆ Getting Started problems ◆ Worksheets on determining solutions to equations and distributive property ◆ Smart board
Solve 2 step equations with integers and rational numbers ◆ S will learn vocabulary words: integer, rational ◆ S will do Getting Started activity sheet ◆ T will model how to solve 2 step equations with integers ◆ S will do in-class worksheet on solving 2 step equations with integers ◆ T will go over worksheet ◆ T will model how to solve 2 step equations with rational numbers ◆ S will do in-class worksheet on solving 2 step equations with rational numbers ◆ T will go over worksheet and assign homework	◆ Getting Started problems ◆ Worksheets on solving 2 step equations with integers and rational numbers ◆ Smart board
Solve equations of the form ax+b=cx+d and equations containing parenthesis ◆ S will do Getting Started activity sheet ◆ T will model how to solve equations of the form ax+b=cx+d ◆ S will do in-class worksheet on solving equations of the form ax+b=cx+d ◆ T will go over worksheet ◆ T will model how to solve equations containing parenthesis ◆ S will do in-class worksheet on solving equations containing parenthesis ◆ T will go over worksheet and assign homework	◆ Getting Started problems ◆ Worksheets on solving equations of the form ax+b=cx+d and equations containing parenthesis ◆ Smart board
Using symmetric property and finding solutions to inequalities ◆ S will learn vocabulary words: symmetric property, inequality ◆ S will do Getting Started activity sheet ◆ T will model how to use the symmetric property ◆ S will do in-class worksheet on using the symmetric property on inequalities ◆ T will go over worksheet ◆ T will model how to determine the solutions to inequalities ◆ S will do in-class worksheet on how to determine the solutions to inequalities ◆ T will go over worksheet and assign homework	◆ Getting Started problems ◆ Worksheets on using the symmetric property and finding the solutions to inequalities ◆ Smart board
Solve 2 step inequalities with integers and rational numbers ◆ S will do Getting Started activity sheet ◆ T will model how to solve 2 step inequalities with integers ◆ S will do in-class worksheet on solving 2 step inequalities with integers ◆ T will go over worksheet ◆ T will model how to solve 2 step inequalities with rational numbers ◆ S will do in-class worksheet on solving 2 step inequalities with rational numbers ◆ T will go over worksheet and assign homework	◆ Getting Started problems ◆ Worksheets on solving 2 step inequalities with integers and rational numbers ◆ Smart board ◆ www.teachertube.com (video on this and steps to work them to reinforce the teacher's modeling)
Solve inequalities of the form –x>b, -x<b, and containing parenthesis ◆ S will do Getting Started activity sheet	

♦ T will model how to solve inequalities of the form –x>b and –x<b ♦ S will do in-class worksheet on solving inequalities of the form –x>b and –x<b ♦ T will go over worksheet ♦ T will model how to solve inequalities containing parenthesis ♦ S will do in-class worksheet on solving inequalities containing parenthesis ♦ T will go over worksheet and assign homework **Setting equations equal to zero and solving equations by graphing (with and without calculators)** ♦ S will do Getting Started activity sheet ♦ T will model how to set equations to zero and solve ♦ S will do in-class worksheet on solving equations by setting them to zero ♦ T will go over worksheet ♦ T will model how to solve equations by graphing (with and without calculators) ♦ S will do in-class worksheet on solving equations by graphing (with and without calculators) ♦ T will go over worksheet and assign homework **Solving 2 step equations with rational numbers and containing parenthesis by using graphing** ♦ S will do Getting Started activity sheet ♦ T will model how to solve 2 step equations with rational numbers by using graphing (with and without calculators) ♦ S will do in-class worksheet on solving 2 step equations with rational numbers by using graphing (with and without calculators) ♦ T will go over worksheet ♦ T will model how to solve equations containing parenthesis by graphing (with and without calculators) ♦ S will do in-class worksheet on solving equations containing parenthesis by graphing (with and without calculators) ♦ T will go over worksheet and assign homework **Solve equations of the form ax+b=cx+d and 2 step inequalities with integers by using graphing** ♦ S will do Getting Started activity sheet ♦ T will model how to solve equations of the form ax+b=cx+d by using graphs (with and without calculators) ♦ S will do in-class worksheet on solving equations of the form ax+b=cx+d by using graphs (with and without calculators) ♦ T will go over worksheet ♦ T will model how to solve 2 step inequalities by graphing (with and without calculators) ♦ S will do in-class worksheet on solving 2 step inequalities by graphing (with and without calculators) ♦ T will go over worksheet and assign homework **Solve 2 step inequalities with rational numbers and containing parenthesis by using graphing** ♦ S will do Getting Started activity sheet ♦ T will model how to solve 2 step inequalities with rational numbers by using graphing (with and without calculators) ♦ S will do in-class worksheet on solving 2 step inequalities with rational numbers by using graphing (with and without calculators) ♦ T will go over worksheet ♦ T will model how to solve inequalities containing parenthesis by graphing (with	♦ Getting Started problems ♦ Worksheets on solving inequalities of the form –x>b, -x<b, and containing parenthesis ♦ Smart board ♦ Getting Started problems ♦ Worksheets on setting equations equal to zero and solving and solving equations by graphing ♦ Smart board ♦ Calculators ♦ Graphmatica ♦ Getting Started problems ♦ Worksheets on solving 2 step equations with rational numbers and containing parenthesis by using graphing ♦ Smart board ♦ Calculators ♦ Graphmatica ♦ Getting Started problems ♦ Worksheets on solving equations of the form ax+b=cx+d and 2 step inequalities with integers by using graphing ♦ Smart board ♦ Calculators ♦ Graphmatica ♦ Getting Started problems ♦ Worksheets on solving 2 step inequalities with rational numbers and containing parenthesis by

and without calculators) ◆ S will do in-class worksheet on solving inequalities containing parenthesis by graphing (with and without calculators) ◆ T will go over worksheet and assign homework	using graphing ◆ Smart board ◆ Calculators ◆ Graphmatica
Career Connections	
Code creators, heavy equipment operators, steel workers, and food processors	