Course Title: Intro to College Math   Unit Name: The Real Number System & Numerical Operations
Grade Level: 12

Content Statements	NJSLS:
In this unit, students will be able to perform the arithmetic operations of addition, subtraction, multiplication, division, and apply the Order of Operations on integers, fractions and decimals, using an appropriate level of accuracy.	N-RN.3 A-CED.1,4 A-REI.1,3,10 N-Q.1-3 A-SSE.1-2 FIF.1,2,4
Overarching Essential Questions What are some ways to represent, describe, and analyze patterns that appear in the real world? How can we use numerical representation to analyze patterns? Why are number and numerical patterns important as rules? How are arithmetic operations related to functions? How can numeric operations be extended to algebraic objects? Why is it useful to represent real-life situations numerically?	**Overarching Enduring Understandings** Logical patterns exist and are a regular occurrence in mathematics and the world around us. Algebraic representation can be used to generalize patterns and relationships. The same pattern can be found in many different forms. Relationships can be described and generalizations made for mathematical situations that have numbers or objects that repeat in predictable ways. Functions are a special type of relationship or rule that uniquely associates members of one set with members of another set. Algebraic and numeric procedures are interconnected and build on one another to produce a coherent whole. Rules of arithmetic and algebra can be used together with (the concept of) equivalence to transform equations and inequalities so solutions can be found to solve problems.
Unit Essential Questions How are verbal and numerical models used to represent real life situations? How can a problem be translated into a numerical equation? How can you apply the rules of multiplication and division? What are number operations and algebraic expressions? How can numbers be represented using scientific notation? Why does dividing by zero create an undefined result? How can fractions be multiplied and divided? What is prime factorization? What does GCF mean?	**Unit Enduring Understandings** Use properties of number systems within the set of real numbers to verify or refute conjectures or justify reasoning. Adding and subtracting matrices. Multiplying a matrix by a scalar. Apply the laws of exponents to numerical and algebraic expressions with integral exponents to rewrite them in different but equivalent forms or to solve problems. Use the properties of radicals to convert numerical expressions containing square roots in different but equivalent forms or to solve problems. Add, subtract and multiply numerical expressions.

Unit Rationale	Unit Overview
This unit covers a number of discrete skills and concepts, each related to broader mathematical principles. In teaching and learning Algebra, it is important for students to comprehend the following big ideas and to connect the individual skills and concepts of Algebra to these broad principles: Representing patterns and functions include tables, graphs, symbolic and verbal expressions, sequences, and formulas.	Students will be able to comprehend and solve problems dealing with: number sense and operations, reasoning with real numbers, matrices, numerical exponential expressions, and numerical radical expressions.

Resources

Basic Mathematical Skills with Geometry by Hutchison, Baratto & Bergman, 8th Ed.

Math Fundamentals - A Review by Freedman, Jackson, Licata and Sparks, 4th edition

Kuta Software

Fluid Math

Tutorials on www.brightstorm.com

Suggested Student Activities

Defining, giving examples of, distinguishing between, and using numbers, and their properties, from each of the following number sets: Whole numbers, Integers, Rationals, and Reals.

Determining whether the square roots of whole numbers are rational or irrational.

Comparing and ordering real numbers, including determining between which two consecutive whole numbers the value of a square root lies.

- Identifying Rational and Irrational numbers on a number line:

  Showing that a given interval on the real number line, no matter how small, contains both rational and irrational numbers.

Establishing simple facts about rational and irrational numbers using logical arguments and examples.

Providing counterexamples to refute a false conjecture.

Using dimensional analysis for unit conversion.

Identifying and explaining equality of matrices.

Representing, computing, and solving problems using numbers in scientific notation.

Translating to expressions with only positive exponents.

Adding, subtracting, multiplying, dividing, and manipulating numerical expressions with square roots. Results may be required to be given in exact form.

- Translate words into symbols

  List vocabulary words with their operations and symbols

  Have students match word phrases with correct symbols;

  Have students write phrases and pass to a partner to write symbols

- Translate problems into equations

  Write word problems and pass to a partner to write equations

Key Terms

constant - number

consecutive integers - whole numbers that are all in a row

inequality - contains numbers and/or variables and uses four inequality symbols

integer - positive or negative whole number

Monomial - variable or number or both separated only by multiplication

numerical expression - numbers separated by mathematical operations

Order of operations - order that must be followed when there is more than 1 mathematical operation present;

PEMDAS - Parenthesis, Exponents, Multiplication/Division, Addition/Subtraction

scientific notation - easier way to write really big or really small numbers

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Written By: Ronald Latham
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Course Title: Intro to College Math   Unit Name: Ratios & Proportions, Percents, & Measurement
Grade Level: 12

Content Statements	NJSLS:
In this unit, students will be able to identify the order relation between two fractions, two decimals, or between a decimal and a fraction. Students will analyze, interpret, model, solve and verify real world problems involving whole numbers, fractions, decimals, rates, ratios, proportions, percents, metrics, graphs, and charts while working individually and collaboratively.	N-RN.3 A-CED.1,4 A-REI.1,3,10 N-Q.1-3 A-SSE.1-2 FIF.1,2,4
Overarching Essential Questions	**Overarching Enduring Understandings**
What are the benefits to converting to percents? How do you solve various percent problems? What are unit rates and how are they useful?	Percents allow us to determine savings from sales. The ability to convert, simplify and perform operations with fractions, decimals and percents is a core skill, essential to solving basic and advanced math problems.
Unit Essential Questions	**Unit Enduring Understandings**
How can a percent be converted to a decimal? How can a fraction be converted to a percent? How can percent problems be expressed as ratios? Why do whole numbers get larger when divided by proper fractions? How can adding one to a percent, expressed as a decimal, make it easier to calculate sales tax or percent increase? How is the "is over of" technique used to solve percent word problems? How can rates, ratios, percents, and proportions be applied to problem solving?	Any fraction can be converted to a decimal or percent and any decimal can be expressed as fractions or percents.
Unit Rationale	**Unit Overview**
This unit covers making conversions, expressing fractions or ratios in simplest form, and applying knowledge to solving percents, ratios and proportions problems.	Students will be able to understand that fractions, decimals and percents are all expressions of parts of a whole. The ability to convert, simplify and perform operations with fractions, decimals and percents is a core skill, essential to solving basic and advanced math problems.

Resources
Basic Mathematical Skills with Geometry by Hutchison, Baratto & Bergman, 8th Ed.
Math Fundamentals - A Review by Freedman, Jackson, Licata and Sparks, 4th edition
Kuta Software
Fluid Math
Tutorials on www.brightstorm.com

Suggested Student Activities
Converting among decimals, percents, and fractions with and without calculator.

Calculating 10% and 50% using mental math.
- Setting up word problems using "is over of" or "part over whole" ratio format.
    Have students create and translate word problems with a partner
Using rulers to measure halves, quarters, and eights.
Adding and subtracting using the fractions on a ruler.
- Calculating sales tax.
    Have students look through shopping catalogs
    Create an order, then calculate tax
- Calculating sales tax with tip.
    Have students look through a menu
    Create an order, then calculate tax and tip
Finding percent increase and decrease by adding or subtracting the percentage from 100.

Key Terms
percent - something out of 100
percent of change – ratio of change of an amount compared to the original and expressed as a percent
percent increase - comparison of how much a value has increased compared to the original
percent decrease - comparison of how much a value has decreased compared to the original
proportion - two fractions set equal to each other
ratio - comparison between two values
simple interest - percentage of every dollar the bank pays as a reward for allowing them to hold your money
tax - percentage added on to every dollar for the government
tip - percentage added on to every dollar for a service performed
unit rate - ratio that contains the number one

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Course Title: Intro to College Math   Unit Name: Data Analysis, Statistics
Grade Level: 12

Content Statements	**NJSLS:**
In this unit, students will be able to convert units in the metric and English system of measurement and model and solve their applications. Students will also find the mean median, mode and midrange of a set of numbers.	S-IC.1-6 S-CP.1-9 S-ID.2-3,5

Overarching Essential Questions	**Overarching Enduring Understandings**
How can the collection, organization, interpretation, and display of data be used to answer questions? How can the representation of data influence decisions? When does order matter? How can probability be used to solve real-world problems? How can data analysis and probability help us predict what will happen and make the best decisions?	The results of a statistical investigation can be used to support or counter an argument. Tables, charts, tree diagrams, and multiplication can be used to determine how many ways an event can occur. Probability is about predictions over the long term rather than predictions of individual events. Data analysis and probability skills will allow students to make better or correct decisions about real world problems.

Unit Essential Questions	Unit Enduring Understandings
How can I analyze a set of data? What is statistics? What is probability? How can we determine what is the best measure of central tendency? What is an outlier? What is range and how does it differ with each set of data? What is a box and whisker plot? What is the probability of an event? What is the total number of possible outcomes of an event? What is the difference between dependent and independent events? What is the difference between a combination and a permutation? How can I show the distribution of a data set? How do you find the mean, median, mode, range of a data set?	Interpret and compare linear models for data that exhibit a linear trend in the context of a problem. Use measures of center and spread to compare and analyze data sets. Evaluate the reliability of reports based on data published in the media. Use counting principles to determine the number of ways an event can occur. Interpret and justify solutions.
Unit Rationale	**Unit Overview**
This unit covers real-world examples of data and probability. It is necessary for students to be able to extract information from real life situations as well as organized data and develop organizers. The unit also enhances problem solving skills and decision-making skills. Probability can be used to make decisions, determine reasonable and unreasonable situations.	Students not only will be able to analyze and determine data from plots, graphs and tables, but will also be able to construct a plot, given a set of data. Students will be able to use probability concepts to make informed decisions in real-life situations.

Resources
Basic Mathematical Skills with Geometry by Hutchison, Baratto & Bergman, 8th Ed.
Math Fundamentals - A Review by Freedman, Jackson, Licata and Sparks, 4th edition
Kuta Software
Fluid Math
Tutorials on www.brightstorm.com

Suggested Student Activities
Creating scatter plots and estimating a line of best fit.
Interpreting the slope and *y*-intercept of the regression line (line of best fit) in the context of the model.
Using lines of best fit to extrapolate or interpolate within the range of the data and within the context of the problem.
Determining when, within the context of a problem, it may be unreasonable to extrapolate beyond a certain point.
Evaluating the use of data in authentic scenarios with regard to the concepts of correlation versus causation.
Analyzing data sets and using summary statistics to compare the data sets and to answer questions regarding the data.
Determining the effect outliers have on various measures of center and spread.
Explain what happens to the mean, median and mode when a value, *x*, is added to each data point.
Explaining the impact of bias and the phrasing of questions asked during data collection.
Identifying and explaining misleading uses of data and data displays.
Analyzing the appropriateness of a data display and the reasonableness of conclusions based on statistical studies.
Explaining the difference between randomized experiments and observational data.
Media includes any report or data display that might be used in any published format, professional or student newspaper, student report at school, etc.
Using an understanding of permutations and combinations to solve problems with and without replacement.
- Perform experiments with coins and spinners

Determining, exactly or approximately, the probability that an event will occur based on simple experiments counting principles, or data.

Making predictions based on experimental and theoretical probabilities and comparing results.
- Employing multiple representations to analyze and summarize information concerning compound events.
    Venn diagrams, trees, tables, and area methods

Mutually exclusive or not

Complementary events

Dependent or independent

Multiplication rule

Determining conditional probability.

Recognizing that simulation results are likely to differ from one run of the simulation to the next; observe that the results of the simulation tend to converge as the number of trials increases (Law of Large Numbers).
- Evaluating medical test results and treatment options
    Analyzing risk in situations where anecdotal evidence is provided
    Interpreting media reports and evaluate conclusions.
    Employ Venn diagrams to summarize information concerning compound events.

Key Terms

Best Fit Line- using regression and scatterplots

Combination- an arrangement of objects where the order is not important

Permutation- an arrangement of objects where the order is importation

Central tendency – Way of identify the "average" or "middle" of a piece of data

Mean – This is the average of data.

Median – This is the middle term when data is organized from largest to smallest.

Mode – This is the most frequent occurring term in data.

Range – This is the difference between the maximum data point and the minimum data point.

Outlier- data value far apart from the rest that skews the overall data

Population – all the members of a group of interest

Sample – small group or subset sometimes used to represent a population

Experiment – sample split into 2 groups and effect of experimental group is compared to the control group

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Written By: Ronald Latham
Reapproved June 2017

Course Title: Intro to College Math   Unit Name: The Language of Algebra
Grade Level: 12

Content Statements	**NJSLS:**
In this unit students will learn about variables and symbols how to manipulate them, solve multiple step equations, and translate problems using algebraic symbols.	N-RN.3 A-CED.1,4 A-REI.1,3,10 N-Q.1-3 A-SSE.1-2 FIF.1-2,4
Overarching Essential Questions	**Overarching Enduring Understandings**
How can problems be modeled using algebraic symbols? How can algebraic symbols be manipulated? How do you solve single variable equations with multiple steps?	Algebra is all about manipulating variables. This unit introduces students to that concept and builds upon solving problems and equations involving unknowns.

Unit Essential Questions	Unit Enduring Understandings
How are verbal and algebraic models used to represent real life situations? How can a problem be translated into an equation? How can you apply the rules of multiplication and division? How can variables be used to solve problems dealing with consecutive integers? How is the distributive property used in an algebraic equation or expression? What are number operations and algebraic expressions? What are linear equations and inequalities?	Algebra techniques can be used to set up equations, translate words into symbols, and translate problems into equations. The variables represent the unknown information in each problem. A set of steps will be used to solve for each unknown.
Unit Rationale	**Unit Overview**
This unit covers an introduction to solving an equation with an unknown factor, steps for solving equations, and algebraic properties which provide students with a variety of ways to solve for an unknown.	Students will be able to use the language of Algebra in a natural way to express mathematical ideas. The core skill in the study of algebra is the use of variables and symbols to model situations and find solutions to the situations.

Resources
Beginning Algebra by Baratto/Bergman 8th Edition
Elementary Algebra Review by Freedman, Jackson, Licata and Sparks, 4th edition
Kuta Software
Fluid Math
Tutorials on www.brightstorm.com

Suggested Student Activities
- Translate words into symbols in equations
    Have students form equations and have their partners translate the equations to words
    Have students form sentences and have their partners translate the sentences to equations
Translate problems into equations
Set up and solve word problems
Apply the distributive property to simplify an expression
- Set up word problems with consecutive integers as well as consecutive odd and even integers.
    Have students create consecutive integer problems and share and solve as a class
Apply the distributive property to find the area and perimeter of figures with sides of variable lengths.
Justify each step in the solution of an equation
Generalize solutions of equations to solve literal equations involving physical, geometric, and scientific formulas.
- Use tables and graphs to organize data
    Have students choose a word problem and then create a form of presentation showing each of the steps used to solve the problem including organizing data with charts and graphs.

Key Terms
constant - number
consecutive integers - whole numbers that are all in a row
equation - contains numbers and/or variables and Must contain an Equal sign
inequality - contains numbers and/or variables and uses four inequality symbols
integer - positive or negative whole number
numerical expression - numbers separated by mathematical operations
Order of operations - order that must be followed when there is more than 1 mathematical operation present; PEMDAS - Parenthesis, Exponents, Multiplication/Division, Addition/Subtraction
variable - letter or symbol that stands for a number

variable expression -variable or number or both separated by mathematical operations

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Course Title: Intro to College Math   Unit Name: Functions, Equations & Inequalities
Grade Level: 12

Content Statements	NJSLS:
In this unit, students will be able to determine the difference between an expression and an equation, perform arithmetic operations and order operations on signed numbers, polynomials, rational expressions and radical expressions, and analyze, interpret, model, solve and verify algebraic expressions and equations and their applications both individually and collaboratively. Also, students will analyze, model and solve systems of equations by using graphing, elimination and substitution methods both individually and collaboratively.	A-REI.2,4 F-BF.4 F-IF.4,7 N-RN.2-3 A-CED.2.
Overarching Essential Questions What are rational functions? What is a rational number and an irrational number? What is a radical and how can it be used to solve equations and inequalities? What are rational functions and rational equations and inequalities?	**Overarching Enduring Understandings** Working with rational and irrational functions, determining rational vs. irrational numbers, and working with radical expressions, are essential algebraic skills.
Unit Essential Questions In what ways can the skill of solving equations be applied to solve real world problems? How can the result of an equation be checked? How can a variable be used to represent an unknown in the real world? How can an equation be solved when there is a variable on both sides? What are the steps to solving an equation that involves one or more transformations? Why does dividing by zero create an undefined result? Why do you need a common denominator to work with some algebraic fractions and rational expressions? How can long division be applied to rational functions? How do you perform operations on rational functions? How do you solve rational equations? How can we determine the difference between rational and irrational numbers? How do you graph and transform radical functions?	**Unit Enduring Understandings** A variable can be used to represent an unknown value, and a sequence of steps can be used to solve for an unknown. Some numbers are irrational, meaning that they cannot be expressed as terminating or repeating decimals, those that terminate or repeat are rational.

How do you perform operations on radical functions? How do you solve radical equations?	

Unit Rationale This unit covers solving multiple variable equations and inequalities. The unit also covers manipulating fractions, working with rational functions, and working with both rational and irrational numbers and radicals.	**Unit Overview** The core skill in the study of algebra is using variables and symbols to model situations and answer questions about them. Students will be able to evaluate and simplify numerical functions, equations and inequalities containing rational numbers, irrational numbers, and square roots.

Resources
Beginning Algebra by Baratto/Bergman 8th Edition
Elementary Algebra Review by Freedman, Jackson, Licata and Sparks, 4th edition
Kuta Software
Fluid Math
Tutorials on www.brightstorm.com

Suggested Student Activities
Decide whether a given value is a solution of an equation
Justify each step in the solution of an equation
Generalize solutions of equations to solve literal equations involving physical, geometric, and scientific formulas.
- Experiment with rational numbers and fractions
    Scale up/down recipes to work with fractions
- Represent numerical and algebraic operations
    Draw pictures to represent operations and fractions
- Scientific Notation
    Find or crate really big or really small numbers and pass them to a partner to write in scientific notation
Divide a polynomial by a monomial or binomial
Add and subtracting fractions
Simplify algebraic fractions and rational functions
Multiply algebraic fractions and rational functions
Divide algebraic fractions and rational functions
Write mixed expressions as fractions in simplest form
Divide polynomials
Create or find examples of rational and irrational numbers
Evaluate radical equations and inequalities
Use radical expressions to solve quadratic equations and inequalities
Solve radical equations and inequalities
Perform operations on radical functions
Solve rational equations and inequalities
Perform operations on rational functions

Key Terms
Constant - number
Consecutive integers - whole numbers that are all in a row
Equation - contains numbers and/or variables and Must contain an Equal sign
Inequality - contains numbers and/or variables and uses four inequality symbols
Integer - positive or negative whole number
Numerical Expression - numbers separated by mathematical operations
Order of Operations - order that must be followed when there is more than 1 mathematical operation present;
PEMDAS - Parenthesis, Exponents, Multiplication/Division, Addition/Subtraction
Variable - letter or symbol that stands for a number
Variable Expression -variable or number or both separated by mathematical operations

Radical Equations – equations with variables in the radicand
Rational Number - can be written as a fraction

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Course Title: Intro to College Math   Unit Name: Polynomials & Factoring
Grade Level: 12

Content Statements In this unit, students will be able to understand and apply the properties of exponents as they pertain to polynomials, identify and factor polynomials by determining which methods to use, and solve quadratic equations by factoring.	**NJSLS:** A-APR.1 A-SSE.1-3 A-REI.4,7,11 F-IF.3-4,6-8 N-RN.1-2 F-BF.2-3 F-LE.1-2 S.ID.6.
Overarching Essential Questions What are polynomials and how do you factor them? What is a greatest common factor and how do you find it? How do you work with variables when they have exponents? How do you perform operations on polynomials? How do you solve quadratic equations?	**Overarching Enduring Understandings** Working with polynomials is an essential algebra skill. Factoring is essential to solving quadratic equations
Unit Essential Questions How do you perform operations on polynomials? How can general quadratic trinomials be factored? How can factoring help us to solve equations? How can factoring quadratic equations solve problems? What is prime factorization? How do you solve quadratic equations? How do you graph exponential functions? How are the laws of exponents applied in solving real-world problems? What is the quadratic formula and how is it used to solve quadratic equations?	**Unit Enduring Understandings** A quadratic function can be factored by breaking it down into two binomials in parentheses, or by removing the greatest common factor (GCF). There are simple rules for multiplying and dividing exponential expressions. When adding and subtracting monomials, you can only combine like terms.
Unit Rationale The unit covers finding and factoring out a greatest common factor and factoring a polynomial into a product of two binomials. The unit also covers manipulating polynomials and working with exponents.	**Unit Overview** Students will be able to simplify polynomials and find the quotient of monomials to make algebraic expressions easier to work with, which also makes complex higher-math problems more comprehensible and manageable.
Resources Beginning Algebra by Baratto/Bergman 8th Edition	

Elementary Algebra Review by Freedman, Jackson, Licata and Sparks, 4th edition
Kuta Software
Fluid Math
Tutorials on www.brightstorm.com

Suggested Student Activities
Apply operations with polynomials to find area and perimeter
Apply the rules of exponents and distributive property to multiply polynomials
Simplify expressions with exponents
- Adding and subtracting polynomials
    Draw a series of pictures to represent addition or subtraction problems then have a partner write the variable
    expression and then solve the problem.
Multiplying a polynomial by a monomial
Multiplying polynomials
Solving uniform motion problems
Transforming formulas
Recognizing problems that do not have solutions
Solve quadratic expressions
Apply the a/c rule
Formulate solutions to real world quadratic problems
Factor polynomials completely
Use GCF and prime factorization
Solve open ended questions dealing with factoring and quadratics
Factor trinomials
Factor using the difference of two squares
Factor perfect square trinomials
- Solve quadratic equations by graphing
    Graph quadratic equations on Big paper with a partner; discuss results as a class to make connections with
    graphs and solutions
- Solving uniform motion problems
    Have students write their own $D = RT$ problem and pass to a partner to solve

Key Terms
base - big number next to an exponent - it is the number being multiplied
exponent - little number next to a regular number - means repeated multiplication
power - base and exponent together form a power
Binomial - polynomial with exactly two terms
Factor - process by which a polynomial is broken down into a product of smaller polynomials
GCF - greatest common factor which is the largest term that can be divided out of all parts of a polynomial
Monomial - variable or number or both separated only by multiplication
Polynomial - one or more monomials separated by addition or subtraction
Term - a piece of a polynomial
Trinomial - polynomial with exactly three terms
Standard form of a polynomial – written with terms in order of degree from greatest to least
Leading coefficient – coefficient of first term in a polynomial
Quadratic Function – non-linear functions $f(x) = ax^2 + bx + c$, where a does not equal 0
Quadratic Formula – used to solve quadratic equations without factoring; $x = -b + sqrt(b^2 – 4ac)/2a$

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Course Title: Intro to College Math   Unit Name: Functions & Linear Equations
Grade Level: 12

Content Statements	NJSLS:
In this unit, students will be able to interpret, plot ordered pairs and graph linear equations on the Cartesian coordinate plane and compare consistent, inconsistent, and dependent lines, and analyze, interpret, model, solve and verify functions and linear equations and their applications both individually and collaboratively.	A-CED.1-3 A-REI.3,5-6,10-12 F-IF.1-2,4,6-7 S-ID.6-9 N.Q.1 F-BF. 1-4 F-LE.1-2
Overarching Essential Questions	**Overarching Enduring Understandings**
What is a system of linear equations and how do you solve it? What does it mean when the system does not have a single solution? What is slope and how is it related to solutions of a system of linear equations? How many solutions does a linear equation with 2 variables have? How do you graph the solutions of a linear equation in 2 variables?	Solving systems of equations and graphing the functions and linear equations is an essential algebra skill. Strategies of solving and graphing are used in many situations in algebra.
Unit Essential Questions	**Unit Enduring Understandings**
How do you solve and graph a linear equation? What does it mean if two lines intersect? What method would be most appropriate to solve the system of equations? What is the slope of the line? Does the system have one, no or infinitely many solutions?	Systems of linear equations can be solved by substitution, elimination, and other methods. Linear equations can have zero, one, or two solutions. Linear Equations in two variables have infinitely many solutions, which can be graphed on the coordinate plane.
Unit Rationale	**Unit Overview**
This unit covers solving functions and systems of linear equations and how to determine their solutions.	Students will be able to solve systems of linear equations and understand how slope is connected to the number of solutions of a system.

Resources
Beginning Algebra by Baratto/Bergman 8th Edition
Elementary Algebra Review by Freedman, Jackson, Licata and Sparks, 4th edition
Kuta Software
Fluid Math
Tutorials on www.brightstorm.com

Suggested Student Activities
Explain how the graphical intersection of 2 lines relates to the algebraic solution of all systems.

- Use substitution, elimination and graphing to solve a system of equations.
    Have students form a system of equations and trade with their partner to solve the system
Decide which method is the most appropriate for a given problem.
Conclude whether a system has one, no or many solutions.
Find slope and midpoint given 2 points
Translating among representations of linear relationships.
Generating and describing arithmetic sequences recursively (e.g., NEXT = NOW + A); identifying arithmetic sequences expressed recursively.
Interpreting slopes of given lines to determine whether lines are parallel, perpendicular, intersecting or coincident.
Identifying and distinguishing among parameters and the independent and dependent variables in a linear relationship.
Interpreting slope and y-intercept in the context of a problem.
Using and interpreting appropriate units of measurement, estimation and the appropriate level of precision for applications.
- Interpreting solutions in terms of the context of the problem.
    Using and interpreting appropriate units of measurement, estimation and the appropriate level of precision for applications.
- Develop graphs by hand
    Graph multiple equations on graph paper and discuss results with a partner

Key Terms
linear equation - two variable equation whose graph is a straight line
x-intercept – point at which a graph of an equation crosses the x-axis
y-intercept – point at which a graph of an equation crosses the y-axis
linear function – function for which the graph is a line
parallel lines - have same slope; are everywhere equidistant and never intersect
slope - rise over run; steepness of a line
slope-intercept form – $y = mx + b$ where m is slope and b is y-intercept
point-slope form – $y - y1 = m(x - x1)$ where (x1, y1) is a point on the line and m is the slope
solution of a system of equations - x and y value that makes all equations in the system true
system of linear equations - two or more linear equations
linear equation - two variable equation whose graph is a straight line
parallel lines - have same slope; are everywhere equidistant and never intersect
slope - rise over run; steepness of a line
solution of a system of equations - x and y value that makes all equations in the system true
system of linear equations - two or more linear equations

Appendix

Differentiation

Enrichment	- Utilize collaborative media tools - Provide differentiated feedback - Opportunities for reflection - Encourage student voice and input - Model close reading - Distinguish long term and short term goals
Intervention & Modification	- Utilize "skeleton notes" where some required information is already filled in for the student - Provide access to a variety of tools for responses - Provide opportunities to build familiarity and to practice with multiple media tools - Leveled text and activities that adapt as students build skills - Provide multiple means of action and expression - Consider learning styles and interests - Provide differentiated mentors - Graphic organizers
ELLs	- Pre-teach new vocabulary and meaning of symbols - Embed glossaries or definitions - Provide translations - Connect new vocabulary to background knowledge - Provide flash cards - Incorporate as many learning senses as possible - Portray structure, relationships, and associations through concept webs - Graphic organizers

21st Century Skills

- Creativity
- Innovation
- Critical Thinking
- Problem Solving
- Communication
- Collaboration

Integrating Technology

- Chromebooks
- Internet research
- Online programs
- Virtual collaboration and projects
- Presentations using presentation hardware and software