Title	**Pre Algebra 8 (2011)**
Type	Essential
Document	Map
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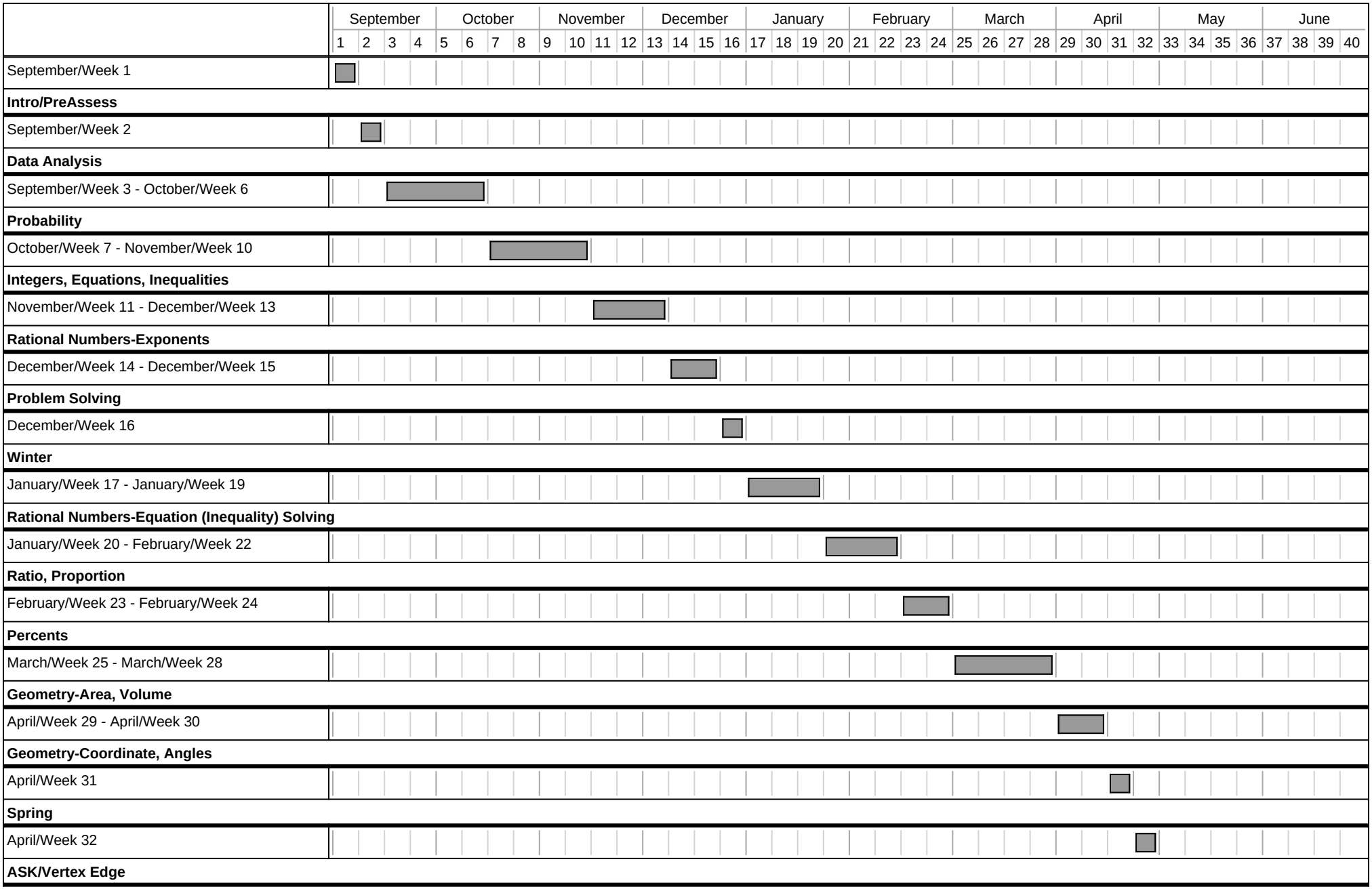
Grade(s)	08
Location	Eisenhower Middle School
Curriculum Writing History	
Notes	
Attachments	

Title : Pre Algebra 8 (2011)
Type : Essential



Title : Pre Algebra 8 (2011)
Type : Essential

May/Week 33 - May/Week 36	
Linear Functions	
June/Week 37	
Radicals	
June/Week 38	
Polynomials	

Title : Pre Algebra 8 (2011)
Type : Essential

Duration: September/Week 1				
UNIT NAME: Intro/PreAssess				
Enduring Understandings	**Essential Questions**	**Knowledge**	**Skills**	**Standards**
Plans:				

Title : Pre Algebra 8 (2011)
Type : Essential

Duration: September/Week 2				
UNIT NAME: Data Analysis				
Enduring Understandings	**Essential Questions**	**Knowledge**	**Skills**	**Standards**
1. The message conveyed by the data depends on how the data is collected, represented, and summarized. 2. The results of a statistical investigation can be used to support or refute an argument. 3. Graphical representations and statistical measures can be used to make interpretations and predictions about real world situations. 4. Graphs can be intentionally or unintentionally misleading using techniques of visual deception.	1. How can the collection, organization, interpretation, and display of data be used to answer questions? 2. What is the purpose of data displays and statistical measures? 3. How can data representation influence conclusions? 4. Why is it important to be able to identify a misleading graph?	1. Key Terms: Mean, median, mode, range, box-and-whisker plot, lower quartile, upper quartile, lower extreme, upper extreme, interquartile range, scatter plot, positive correlation, negative correlation, frequency table, bar graph, line graph, histogram, 2. The mean of a data set is the sum of the values divided by the number of values. 3. The median of a data set is the middle value when the values are written in numerical order. If a data set has an even number of values, the median is the mean of the two middle values. 4. The mode of a data set is the value that occurs most often. A data set can have no mode, one mode, or more than one mode. 5. A box-and-whisker plot displays data beneath a number line that represents the range of the data. The display divides the ordered data into four parts using three points – the median, the upper quartile, and the lower quartile. 6. The lower quartile is the median of the lower half of a data set. The upper quartile is the median of the upper half of a data set. 7. The lower extreme is the least data value in a box-and-whisker plot. The upper extreme is the greatest data value. 8. The interquartile range is the difference between the lower	1. Find the mean, median, mode, and range of a set of data. 2. Describe and analyze data using mean, median, and mode. Students will also determine which measure best represents a set of data. 3. Display, compare, and analyze data using two box and whisker plots displayed simultaneously. 4. Create and interpret bar and line graphs to represent all types of data. 5. Use and create a frequency table to help organize and interpret data. 6. Create, interpret, and analyze data displays using a histogram. 7. Determine an appropriate data display to represent and summarize data sets. 8. Collect data using a variety of data collection techniques. 9. Draw conclusions from a collected set of data. 10. Recognize and correct misleading graphs.	4.4-Data Analysis, Probability, and Discrete Mathematics: All students will develop an understanding of the concepts and techniques of data analysis, probability, and discrete mathematics, and will use them to model situations, solve problems, and analyze and draw appropriate inferences from data. (08)[State:New Jersey] 4.4.8 A-Data Analysis (08) [State:New Jersey] 4.4.8 A-Data Analysis (08) [State:New Jersey] 4.4.8 A.1-Select and use appropriate representations for sets of data, and measures of central tendency (mean, median, and mode). (08) [State:New Jersey] 4.4.8 A.1.a-Type of display most appropriate for given data (08) [State:New Jersey] 4.4.8 A.1.b-Box-and-whisker plot, upper quartile, lower quartile (08)[State:New Jersey] 4.4.8 A.1.c-Scatter plot (08) [State:New Jersey] 4.4.8 A.1.e-Finding the median and mean (weighted average) using frequency data. (08) [State:New Jersey] 4.4.8 A.1.f-Effect of additional data on measures of central tendency (08)[State:New Jersey] 4.4.8 A.4-Use surveys and

		quartile of a set of data and the upper quartile.		sampling techniques to generate data and draw conclusions about large groups. (08)[State:New Jersey] 4.4.8 A.1.d-Calculators and computer used to record and process information (08) [State:New Jersey] 4.4.8 A.2-Make inferences and formulate and evaluate arguments based on displays and analysis of data sets. (08) [State:New Jersey] 4.5-Mathematical Processes: All students will use mathematical processes of problem solving, communication, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas. (08)[State:New Jersey] 4.5 E.1.b-Pictorial representations (e.g., diagrams, charts, or tables) (08) [State:New Jersey] 4.5 E.1.d-Graphical representations (e.g., a line graph) (08)[State:New Jersey] 4.5 C.3-Recognize that mathematics is used in a variety of contexts outside of mathematics. (08)[State:New Jersey] 4.5 C.4-Apply mathematics in practical situations and in other disciplines. (08)[State:New Jersey] 4.5 D.2-Use reasoning to support their mathematical conclusions and problem solutions. (08)[State:New Jersey]

				4.5 D.4-Rely on reasoning, rather than answer keys, teachers, or peers, to check the correctness of their problem solutions. (08)[State:New Jersey] 4.5 D.5-Make and investigate mathematical conjectures. (08)[State:New Jersey] 4.5 D.5.a-Counterexamples as a means of disproving conjectures (08)[State:New Jersey] 4.5 D.5.b-Verifying conjectures using informal reasoning or proofs. (08)[State:New Jersey] 4.5 D.6-Evaluate examples of mathematical reasoning and determine whether they are valid. (08)[State:New Jersey] 4.5 E.3-Use representations to model and interpret physical, social, and mathematical phenomena. (08)[State:New Jersey] 4.5 F.1-Use technology to gather, analyze, and communicate mathematical information. (08)[State:New Jersey] 4.5 F.2-Use computer spreadsheets, software, and graphing utilities to organize and display quantitative information. (08)[State:New Jersey] 4.5 F.3-Use graphing calculators and computer software to investigate properties of functions and their graphs. (08)[State:New Jersey] 4.5 F.5-Use computer software

				to make and verify conjectures about geometric objects. (08) [State:New Jersey] 4.5 F.6-Use computer-based laboratory technology for mathematical applications in the sciences (cf. science standards). (08)[State:New Jersey]
Plans:				

Title : Pre Algebra 8 (2011)
Type : Essential

Duration: September/Week 3 - October/Week 6				
UNIT NAME: Probability				
Enduring Understandings	**Essential Questions**	**Knowledge**	**Skills**	**Standards**
1. Probability is the likelihood that something will happen. 2. Experimental results tend to approach theoretical probabilities after a large number of trials. 3. The probability of an event's occurrence can be predicted with varying degrees of confidence. 4. The interaction of events affects probability. 5. The arrangement of a group of objects in a particular order affects the number of possible outcomes. 6. The odds of an event occurring is the ratio of the number of favorable outcomes to the number of unfavorable.	1. What is probability? How does probability affect our lives? 2. How many times should an experiment be conducted to make sure the conclusions are valid? 3. Why is data collected and analyzed? How can I use data to make effective predictions? 4. How can experimental and theoretical probabilities be used to make predictions or draw conclusions? 5. What do the branches of a tree diagram represent? 6. What are odds and how are they different from probablity?	1. Key Terms: Outcomes, event, sample space, favorable outcome, probability, theoretical probability, experimental probability, tree diagram, counting principal, permutation, combination, compound events, independent events, dependent events, factorial, odds 2. That the probability of an event is the measure of the likelihood that the event will occur. 3. To multiply the number of possible outcomes in successive events to determine the number of ways they can occur together. 4. That a permutation is an arrangement of a group of objects in a particular order and could be represented with and without replacement (combinations). 5. What an experiment is and how many times an experiment should be conducted.	1. Represent probability in the form of a ratio, decimal, and percent. 2. Find the probability of independent and compound events. 3. Create and evaluate diagrams to determine all possible outcomes. 4. Determine the number of ways multiple events can occur together. 5. Find the number of arrangements that could be made when grouping objects in a particular order. 6. Compare theoretical and experimental probabilities. 7. Conduct an experiment several times in order to make a conclusion. 8. Calculate odds in favor of and odds against an event occurring.	4.4.8 B.2-Determine probabilities of compound events. (08)[State:New Jersey] 4.4.8 B.3-Explore the probabilities of conditional events (e.g., if there are seven marbles in a bag, three red and four green, what is the probability that two marbles picked from the bag, without replacement, are both red). (08)[State:New Jersey] 4.4.8 B.4-Model situations involving probability with simulations (using spinners, dice, calculators and computers) and theoretical models. (08)[State:New Jersey] 4.4.8 B.5-Estimate probabilities and make predictions based on experimental and theoretical probabilities. (08)[State:New Jersey] 4.4.8 B.6-Play and analyze probability-based games, and discuss the concepts of fairness and expected value. (08)[State:New Jersey] 4.4.8 C.1-Apply the multiplication principle of counting. (08)[State:New Jersey] 4.4.8 C.1.b-Factorial notation (08)[State:New Jersey] 4.4.8 C.1.c-Concept of combinations (e.g., number of possible delegations of 3 out of 23 students) (08)[State:New Jersey]

				4.4.8 C.3-Apply techniques of systematic listing, counting, and reasoning in a variety of different contexts. (08) [State:New Jersey] 4.5 A.2-Solve problems that arise in mathematics and in other contexts. (08)[State:New Jersey] 4.5 B.1-Use communication to organize and clarify their mathematical thinking. (08) [State:New Jersey] 4.4-Data Analysis, Probability, and Discrete Mathematics: All students will develop an understanding of the concepts and techniques of data analysis, probability, and discrete mathematics, and will use them to model situations, solve problems, and analyze and draw appropriate inferences from data. (08)[State:New Jersey] 4.4.8 A-Data Analysis (08) [State:New Jersey] 4.4.8 A.1-Select and use appropriate representations for sets of data, and measures of central tendency (mean, median, and mode). (08) [State:New Jersey] 4.4.8 A.1.e-Finding the median and mean (weighted average) using frequency data. (08) [State:New Jersey] 4.1.8 B-Numerical Operations (08)[State:New Jersey] 4.4.8 B-Probability (08) [State:New Jersey] 4.4.8 B.1-Interpret probabilities

				as ratios, percents, and decimals. (08)[State:New Jersey] 4.4.8 B.4.a-Frequency, relative frequency (08)[State:New Jersey] 4.4.8 C-Discrete Mathematics—Systematic Listing and Counting (08)[State:New Jersey] 4.4.8 C.1.a-Permutations: ordered situations with replacement (e.g., number of possible license plates) vs. ordered situations without replacement (e.g., number of possible slates of 3 class officers from a 23 student class) (08)[State:New Jersey] 4.5-Mathematical Processes: All students will use mathematical processes of problem solving, communication, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas. (08)[State:New Jersey] 4.5 C.3-Recognize that mathematics is used in a variety of contexts outside of mathematics. (08)[State:New Jersey] 4.5 F-Technology (08) [State:New Jersey] 4.5 F.1-Use technology to gather, analyze, and communicate mathematical information. (08)[State:New Jersey] 4.5 F.2-Use computer spreadsheets, software, and graphing utilities to organize and display quantitative

				information. (08)[State:New Jersey] 4.5 F.3-Use graphing calculators and computer software to investigate properties of functions and their graphs. (08)[State:New Jersey] 4.5 F.5-Use computer software to make and verify conjectures about geometric objects. (08)[State:New Jersey] 4.5 F.6-Use computer-based laboratory technology for mathematical applications in the sciences (cf. science standards). (08)[State:New Jersey]
Plans:				

Title : Pre Algebra 8 (2011)
Type : Essential

Duration: October/Week 7 - November/Week 10				
UNIT NAME: Integers, Equations, Inequalities				
Enduring Understandings	**Essential Questions**	**Knowledge**	**Skills**	**Standards**
1. The magnitude of numbers affects the outcome of operations on them. 2. Integers have magnitude and direction. 3. There are rules for solving problems in math that are always true. 4. Negative numbers can be used to represent a loss in various situations. 5. An equation is an expression equated with some quantity. Equations are formulated to communicate generalizations so problems can be solved more efficiently. 6. Algebraic and numeric procedures are interconnected and build on one another to produce a coherent whole. 7. A variable holds the place of an unknown number in an expression or equation. A variable can represent any number, however in a given equation; a variable cannot represent more than one value at a given time. 8. There are many ways to solve algebraic equations, but specific rules and properties must be followed to find a solution. 9. Algebraic representations generalize patterns and relationships. 10. Mathematical models can be used to describe and quantify physical relationships. 11. An inequality is a statement	1. How do operations affect integers? 2. How do operations with integers compare to operations with whole numbers? 3. What rules exist for adding, subtracting, multiplying, and dividing integers? 4. What is the connection between negative numbers and the real world? 5. When is the difference of two numbers greater than the first number? 6. What are opposites? 7. How can algebraic expressions be transformed? 8. What is the difference between an expression and an equation? 9. How are equations useful in solving practical problems? 10. How do you solve an algebraic equation? Is one strategy for solving equations more effective than others? 11. What is the difference between a constant and a numerical coefficient? 12. How can mathematical models be used to describe physical relationships? 13. What makes an algebraic algorithm both effective and efficient? 14. When do you use inequalities? 15. How are the properties of inequalities and equations different? 16. How are equations and inequalities useful in solving	1. Key Terms: Integer, negative integer, positive integer, opposite, absolute value, variable, variable expression, evaluate, verbal model, terms, like terms, coefficient, constant term, associative property, commutative property, identity property, distributive property, inverse operations, inequality, number line, greater than, less than, solution. 2. Numbers are opposites if they are the same distance from 0 on a number line, but are on opposite sides of 0. 3. The absolute value of a number is the distance between that number and 0 on a number line. The absolute value of a number *a* is written ê*a* ê. 4. Adding an integer's opposite can be used to complete integer subtraction. 5. The product and quotient of two integers with the same sign is positive, while the product and quotient of two integers with different signs is negative. 6. The product of an integer and 0 is 0. 7. To evaluate a variable expression, you need to substitute values for the variables and simplify the resulting numerical	1. Compare and order integers 2. Perform operations including addition, subtraction, multiplication, division, and exponents of two or more integers with and without grouping symbols. 3. Apply the rules of absolute value to compare numbers and evaluate expressions. 4. Evaluate variable expressions with one or more variables by substituting a number for the given variables, then evaluating the resulting numeric expression. 5. Translate verbal phrases and sentences into variable expressions and equations. 6. Identify the coefficients, constant terms, and like terms of a variable expression. 7. Simplify expression using the distributive property and combining like terms. 8. Solve basic one step and multi-step equations involving the four basic operations with integer, fraction, and decimal coefficients using inverse operations. 9. Develop and follow a general problem-solving plan to solve problems algebraically. 10. Solve problems using multiple strategies, while explaining the effectiveness and appropriateness of each step. 11. Recognize that equations are symmetric. e.g. (-2 = x and x = -2	4.1-Number and Numerical Operations: All students will develop number sense and will perform standard numerical operations and estimations on all types of numbers in a variety of ways. (08)[State:New Jersey] 4.1.8 A.1-Extend understanding of the number system by constructing meanings for the following (unless otherwise noted, all indicators for grade 8 pertain to these sets of numbers as well): (08)[State:New Jersey] 4.1.8 A.2-Demonstrate a sense of the relative magnitudes of numbers. (08)[State:New Jersey] 4.1.8 A.4-Compare and order numbers of all named types. (08) [State:New Jersey] 4.1.8 B.1-Use and explain procedures for performing calculations involving addition, subtraction, multiplication, division, and exponentiation with integers and all number types named above with: (08) [State:New Jersey] 4.1.8 B.1.a-Pencil-and-paper (08)[State:New Jersey] 4.1.8 B.1.b-Mental math (08) [State:New Jersey] 4.1.8 B.1.c-Calculator (08) [State:New Jersey] 4.3.8 D-Procedures (08) [State:New Jersey] 4.3.8 D.1-Use graphing techniques on a number line.

indicating that two quantities are not equal. 12. An inequality can be used to represent that a problem has multiple solutions. 13. Practical problems can be interpreted, represented, and solved using equations and inequalities.	practical problems?	expression. 8. Verbal phrases and sentences can be translated into variable expressions and equations to solve real-world problems. 9. An inverse operation is an operation the "undoes" another operation. Addition and subtraction, and multiplication and division are inverse operations. 10. To keep both sides of an equation equivalent, anything that is done to one side of the equal sign must also be done to the other side of the equal sign. 11. A solution to an equation can be checked by substituting the solution for the variable in the original equation. 12. Multiple strategies can be used to solve algebraic equations as long as the appropriate properties are followed. 13. An inequality is a mathematical sentence formed by placing an inequality symbol (<, >, ³, £) between two expressions. 14. The solution to an inequality is the set of numbers that you can	are the same equation) 12. Solve equations including grouping symbols by using the distributive property when necessary. 13. Solve equations that have variables on both sides of the equal sign. 14. Identify examples of where inequalities may be used in the "real world." 15. Graph inequalities on a number line to represent all solutions. 16. Solve multi-step algebraic inequalities using similar rules used to solve algebraic equations. 17. Invert the inequality symbol when multiplying or dividing by a negative integer to isolate a variable. 18. Solve inequalities that represent variables on both sides of the inequality symbol. 19. Recognize that inequalities are symmetric. e.g. (-2 < x and x > -2 are the same inequality)	(08)[State:New Jersey] 4.3.8 D.1.a-Absolute value (08) [State:New Jersey] 4.3.8 D.1.b-Arithmetic operations represented by vectors (arrows) (e.g., "-3 + 6" is "left 3, right 6") (08)[State:New Jersey] 4.3.8 D.2-Solve simple linear equations informally, graphically, and using formal algebraic methods. (08) [State:New Jersey] 4.3.8 D.3-Solve simple linear inequalities. (08)[State:New Jersey] 4.3.8 D.4-Create, evaluate, and simplify algebraic expressions involving variables. (08) [State:New Jersey] 4.3.8 D.4.a-Order of operations, including appropriate use of parentheses (08)[State:New Jersey] 4.3.8 D.4.b-Distributive property (08)[State:New Jersey] 4.3.8 D.4.c-Substitution of a number for a variable (08) [State:New Jersey] 4.3.8 D.4.d-Translation of a verbal phrase or sentence into an algebraic expression, equation, or inequality, and vice versa (08)[State:New Jersey] 4.3.8 D.5-Understand and apply the properties of operations, numbers, equations, and inequalities. (08)[State:New Jersey] 4.3.8 D.5.a-Additive inverse (08) [State:New Jersey] 4.3.8 D.5.b-Multiplicative

		substitute for the variable to make the inequality true. An inequality may have infinite solutions. 15. The graph of an inequality in one variable is the set of points on a number line that represents the solutions of the inequality. An open dot on the graph represents a number that is not part of the solution, while a closed dot indicates a number that is part of the solution.		inverse (08)[State:New Jersey] 4.3.8 D.5.c-Addition and multiplication properties of equality (08)[State:New Jersey] 4.3.8 D.5.d-Addition and multiplication properties of inequalities (08)[State:New Jersey] 4.1.8 A.1.e-Absolute values (08) [State:New Jersey] 4.1.8 B-Numerical Operations (08)[State:New Jersey] 4.1.8 B.5-Understand and apply the standard algebraic order of operations, including appropriate use of parentheses. (08)[State:New Jersey] 4.5-Mathematical Processes: All students will use mathematical processes of problem solving, communication, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas. (08)[State:New Jersey] 4.5 E-Representations (08) [State:New Jersey] 4.5 E.1-Create and use representations to organize, record, and communicate mathematical ideas. (08) [State:New Jersey] 4.5 E.1.a-Concrete representations (e.g., base-ten blocks or algebra tiles) (08) [State:New Jersey] 4.3.8 D.2.a-Multi-step, integer coefficients only (although answers may not be integers) (08)[State:New Jersey] 4.5 C.6-Understand how mathematical ideas interconnect

				and build on one another to produce a coherent whole. (08)[State:New Jersey] 4.5 E.3-Use representations to model and interpret physical, social, and mathematical phenomena. (08)[State:New Jersey] 4.5 D.6-Evaluate examples of mathematical reasoning and determine whether they are valid. (08)[State:New Jersey] 4.5 F.1-Use technology to gather, analyze, and communicate mathematical information. (08)[State:New Jersey] 4.5 D.4-Rely on reasoning, rather than answer keys, teachers, or peers, to check the correctness of their problem solutions. (08)[State:New Jersey]
Plans:				

Title : Pre Algebra 8 (2011)
Type : Essential

Duration: November/Week 11 - December/Week 13				
UNIT NAME: Rational Numbers-Exponents				
Enduring Understandings	**Essential Questions**	**Knowledge**	**Skills**	**Standards**
1. Every whole number greater than one is either a prime number or can be uniquely factored as a product of prime numbers. 2. Finding multiples of numbers in different situations can help determine when two events will occur together. 3. Exponents and roots are inverse (opposite) operations and can reverse each other's affects. 4. The laws of exponents are a set of rules that explain how to perform operations with variables that include exponents. 5. There are numbers too large and too small to be written in standard form. 6. Scientific notation is a way of shortening a large number. The laws of exponents apply to scientific notation as well. 7. Different methods can be used to find the greatest common factor and least common multiple, such as the Venn diagram method, the "birthday cake" method, factor trees, and the "listing" method	1. How can numbers be broken down into smaller factors? 2. What do the factors and multiples of numbers tell us about the situations in which they occur? 3. What is a least common multiple? 4. How do I determine which factors a number is divisible by? 5. How are factors and multiples represented? 6. How are exponents and roots related? 7. How are exponent rules useful in solving problems with polynomials? 8. Why is scientific notation used?	1. Key Terms: Common factor, greatest common factor (GCF), relatively prime, multiple, common multiple, least common multiple (LCM), prime number, composite number, Venn diagram. 2. A whole number that is a factor of two or more nonzero whole numbers is called a common factor. The greatest of the common factors is called the greatest common factor. 3. Two or more numbers are relatively prime if their greatest common factor is 1. 4. A multiple of a number is the product of the number and any nonzero whole numbers. A multiple that is shared by two or more numbers is a common multiple. The least of the common multiples is the least common multiple (LCM). 5. For algebraic expressions, the common multiple is the product of the common factors and all the prime factors that are not common. 6. Squares and Square roots are inverse operations. 7. That when multiplying two powers with the same base, add the exponents. To divide two powers with the same base, subtract the exponents. 8. Scientific notation can be used to condense a large and a small number. 9. That a number is written in scientific notation if it has the form	1. Represent numbers in multiple ways. 2. Find the greatest common factor of two or more numbers using prime factorization and other techniques. 3. Find the least common multiple of two or more number using prime factorization and other strategies. 4. Use the greatest common factor and the least common multiple to solve problems that may occur in the "real world." 5. Compare the process of finding an LCM for natural numbers and algebraic expressions. 6. Multiply and divide two powers with the same base. 7. Use formulas to predict numbers in a pattern algebraically. 8. Represent very large and small numbers in scientific notation. 9. Express numbers written in scientific notation in standard form. 10. Read and write numbers using scientific notation. 11. Multiply two numbers written in scientific notation. 12. Write numbers given in standard form in scientific notation and numbers given in scientific notation in standard form. 13. Compare and order numbers given in scientific notation.	4.3-Patterns and Algebra: All students will represent and analyze relationships among variable quantities and solve problems involving patterns, functions, and algebraic concepts and processes. (08) [State:New Jersey] 4.1.8 A.1-Extend understanding of the number system by constructing meanings for the following (unless otherwise noted, all indicators for grade 8 pertain to these sets of numbers as well): (08)[State:New Jersey] 4.1.8 A.1.c-Exponents (08) [State:New Jersey] 4.1.8 B.2-Use exponentiation to find whole number powers of numbers. (08)[State:New Jersey] 4.1.8 B.3-Find square and cube roots of numbers and understand the inverse nature of powers and roots. (08) [State:New Jersey] 4.1.8 A.1.f-Numbers represented in scientific notation (08)[State:New Jersey] 4.1.8 B-Numerical Operations (08)[State:New Jersey] 4.1.8 C-Estimation (08) [State:New Jersey] 4.1.8 C.1-Estimate square and cube roots of numbers. (08) [State:New Jersey] 4.5 C.6-Understand how mathematical ideas interconnect and build on one another to

		c x 10^*n* where *c* is greater than or equal to 1 and less than 10, and *n* is a whole number.		produce a coherent whole. (08) [State:New Jersey]
Plans:				

Title : Pre Algebra 8 (2011)
Type : Essential

Duration: December/Week 14 - December/Week 15				
UNIT NAME: Problem Solving				
Enduring Understandings	**Essential Questions**	**Knowledge**	**Skills**	**Standards**
1. There are five steps to the problem-solving plan. 2. More than one problem-solving strategy can be used to solve a particular problem. 3. Reflection is an important part of the problem-solving process. 4. Collaboration and communicating coherently to teachers and peers to express mathematical ideas is an important part of the problem-solving process 5. Patterns and relationships can be represented graphically, numerically, symbolically, and verbally. 6. Sometimes there is too little information to solve a problem. 7. Perseverance is an important part of the problem-solving process.	1. What are the problem-solving strategies? 2. How do you select an appropriate problem-solving strategy? 3. What are the steps involved with problem-solving? 4. How do you identify the information necessary to solving a real-world problem? 5. How can I monitor and reflect on the process of problem-solving?	1. Key Strategies: Draw a Diagram; Find a Pattern; Make a Graph, Table, List, Chart; Write an Equation; Guess & Check; Use Logic; Estimate; Solve a Simpler Problem 2. The five steps to the problem-solving plan include: understanding the problem, picking an appropriate strategy, carrying out the strategy to answer the problem, checking the answer, and making a final statement and reflecting.	1. Identify key information and when there is too little or too much information. 2. Distinguish relevant from irrelevant information. 3. Identify missing information. 4. Select and apply appropriate problem-solving strategies. 5. Monitor and reflect on the process of problem-solving. 6. To recognize when one strategy is not successful and to identify a better approach.	4.5 A-Problem Solving (08) [State:New Jersey] 4.5 A.1-Learn mathematics through problem solving, inquiry, and discovery. (08) [State:New Jersey] 4.5 A.2-Solve problems that arise in mathematics and in other contexts. (08)[State:New Jersey] 4.5 A.2.a-Open-ended problems (08)[State:New Jersey] 4.5 A.2.b-Non-routine problems (08)[State:New Jersey] 4.5 A.2.c-Problems with multiple solutions (08)[State:New Jersey] 4.5 A.2.d-Problems that can be solved in several ways (08) [State:New Jersey] 4.5 A.3-Select and apply a variety of appropriate problem-solving strategies (e.g., “try a simpler problem” or “make a diagram”) to solve problems. (08)[State:New Jersey] 4.5 A.4-Pose problems of various types and levels of difficulty. (08)[State:New Jersey] 4.5 A.5-Monitor their progress and reflect on the process of their problem solving activity. (08)[State:New Jersey] 4.5 A.6-Distinguish relevant from irrelevant information, and identify missing information. (08) [State:New Jersey] 4.5 B-Communication (08) [State:New Jersey]

				4.5 B.1-Use communication to organize and clarify their mathematical thinking. (08) [State:New Jersey] 4.5 B.1.a-Reading and writing (08)[State:New Jersey] 4.5 B.1.b-Discussion, listening, and questioning (08)[State:New Jersey] 4.5 B.2-Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing. (08)[State:New Jersey] 4.5 B.3-Analyze and evaluate the mathematical thinking and strategies of others. (08) [State:New Jersey] 4.5 B.4-Use the language of mathematics to express mathematical ideas precisely. (08)[State:New Jersey] 4.5 C-Connections (08) [State:New Jersey] 4.5 C.1-Recognize recurring themes across mathematical domains (e.g., patterns in number, algebra, and geometry). (08)[State:New Jersey] 4.5 D-Reasoning (08) [State:New Jersey] 4.5 D.1-Recognize that mathematical facts, procedures, and claims must be justified. (08) [State:New Jersey] 4.5 E-Representations (08) [State:New Jersey] 4.5 E.1-Create and use representations to organize, record, and communicate

				mathematical ideas. (08) [State:New Jersey] 4.5 F.4-Use calculators as problem-solving tools (e.g., to explore patterns, to validate solutions). (08)[State:New Jersey] 4.1.8 C.3-Recognize the limitations of estimation and assess the amount of error resulting from estimation. (08) [State:New Jersey] 4.2.8 B.2-Use iterative procedures to generate geometric patterns. (08) [State:New Jersey] 4.2.8 B.2.a-Fractals (e.g., the Koch Snowflake) (08) [State:New Jersey] 4.2.8 B.2.b-Self-similarity (08) [State:New Jersey] 4.2.8 B.2.c-Construction of initial stages (08)[State:New Jersey] 4.2.8 B.2.d-Patterns in successive stages (e.g., number of triangles in each stage of Sierpinski's Triangle) (08) [State:New Jersey] 4.3.8 A.1.b-Finite and infinite sequences (08)[State:New Jersey] 4.3.8 A.1.c-Arithmetic sequences (i.e., sequences generated by repeated addition of a fixed number, positive or negative) (08)[State:New Jersey] 4.3.8 A.1.d-Geometric sequences (i.e., sequences generated by repeated multiplication by a fixed positive ratio, greater than 1 or less than

				1) (08)[State:New Jersey] 4.3.8 A.1.e-Generating sequences by using calculators to repeatedly apply a formula (08)[State:New Jersey] 4.3.8 C.2.b-Growth situations, such as population growth and compound interest, using recursive (e.g., NOW-NEXT) formulas (cf. science standard 5.5 and social studies standard 6.6) (08)[State:New Jersey] 4.3.8 D.2.c-Using paper-and-pencil, calculators, graphing calculators, spreadsheets, and other technology (08)[State:New Jersey] 4.5 E.2-Select, apply, and translate among mathematical representations to solve problems. (08)[State:New Jersey] 4.4.C.2.-Explore counting problems involving Venn diagrams with three attributes (e.g., there are 15, 20, and 25 students respectively in the chess club, the debating team, and the engineering society; how many different students belong to the three clubs if there are 6 students in chess and debating, 7 students in chess and engineering, 8 students in debating and engineering, and 2 students in all three?). (08)[State:New Jersey] 4.4.8 C.2-Explore counting problems involving Venn diagrams with three attributes (e.g., there are 15, 20, and 25 students respectively in the

				chess club, the debating team, and the engineering society; how many different students belong to the three clubs if there are 6 students in chess and debating, 7 students in chess and engineering, 8 students in debating and engineering, and 2 students in all three?). (08) [State:New Jersey] 4.5 C.3-Recognize that mathematics is used in a variety of contexts outside of mathematics. (08)[State:New Jersey] 4.5 C.4-Apply mathematics in practical situations and in other disciplines. (08)[State:New Jersey] 4.5 C.5-Trace the development of mathematical concepts over time and across cultures (cf. world languages and social studies standards). (08) [State:New Jersey] 4.5 D.4-Rely on reasoning, rather than answer keys, teachers, or peers, to check the correctness of their problem solutions. (08)[State:New Jersey] 4.5 D.3-Select and use various types of reasoning and methods of proof. (08)[State:New Jersey] 4.5 E.3-Use representations to model and interpret physical, social, and mathematical phenomena. (08)[State:New Jersey]
Plans:				

Title : Pre Algebra 8 (2011)
Type : Essential

Duration: December/Week 16				
UNIT NAME: Winter				
Enduring Understandings	**Essential Questions**	**Knowledge**	**Skills**	**Standards**
Plans:				

Title : Pre Algebra 8 (2011)
Type : Essential

Duration: January/Week 17 - January/Week 19				
UNIT NAME: Rational Numbers-Equation (Inequality) Solving				
Enduring Understandings	**Essential Questions**	**Knowledge**	**Skills**	**Standards**
1. Equivalent forms of algebraic expressions provide different information for solving problems. 2. An equation is an expression equated with some quantity. Equations are formulated to communicate generalizations so problems can be solved more efficiently. 3. Practical problems can be interpreted, represented and solved using equations. Patterns and relationships can be represented graphically, numerically, symbolically, and verbally. 4. Algebraic and numeric procedures are interconnected and build on one another to produce a coherent whole. 5. A variable holds the place of an unknown number in an expression or equation. A variable can represent any number, however in a given equation; a variable cannot represent more than one value at a given time. 6. There are many ways to solve algebraic equations, but specific rules and properties must be followed to find a solution. 7. Algebraic representations generalize patterns and relationships. 8. Clearing decimals and fractions to produce an equivalent equation. 9. Using the multiplicative inverse produces an equivalent equation.	1. How can algebraic expressions be transformed? 2. What is the difference between an expression and an equation? 3. How are equations useful in solving practical problems? 4. What makes an algebraic algorithm both effective and efficient? 5. Why use variables? When defining the variable, can you let the same variable represent two different numbers? Why or why not? 6. How do you solve an algebraic equation? Is one strategy for solving equations more effective than others? 7. What is the difference between a constant and a numerical coefficient? 8. How can you simplify an equation involving decimals and fractions?	1. Key Terms: Variable, variable expression, evaluate, verbal model, terms, like terms, coefficient, constant term, distributive property, multiplicative inverse, inverse operations. 2. That a variable is a letter used to represent one or more numbers. 3. To evaluate a variable expression, you need to substitute values for the variables and simplify the resulting numerical expression. 4. Verbal phrases and sentences can be translated into variable expressions and equations to solve real-world problems. 5. An inverse operation is an operation the “undoes” another operation. Addition and subtraction, and multiplication and division are inverse operations. 6. To keep both sides of an equation equivalent, anything that is done to one side of the equal sign must also be done to the other side of the equal sign. 7. A solution to an equation can be checked by substituting the solution for the variable in the original equation. 8. Multiple strategies can be used to solve algebraic equations as long as the appropriate properties are followed.	1. Evaluate variable expressions with one or more variables by substituting a number for the given variables, then evaluating the resulting numeric expression. 2. Translate verbal phrases and sentences into variable expressions and equations. 3. Identify the coefficients, constant terms, and like terms of a variable expression. 4. Simplify expression using the distributive property and combining like terms. 5. Solve basic one step and multi-step equations involving the four basic operations with integer, fraction, and decimal coefficients using inverse operations. 6. Develop and follow a general problem-solving plan to solve problems algebraically. 7. Solve problems using multiple strategies, while explaining the effectiveness and appropriateness of each step. 8. Recognize that equations are symmetric. e.g. (-2 = x and x = -2 are the same equation) 9. Solve equations including grouping symbols by using the distributive property when necessary. 10. Solve equations that have variables on both sides of the equal sign. 11. Solve equations involving decimals and fractions by clearing the decimals and fractions or using	4.1-Number and Numerical Operations: All students will develop number sense and will perform standard numerical operations and estimations on all types of numbers in a variety of ways. (08)[State:New Jersey] 4.1.8 A-Number Sense (08) [State:New Jersey] 4.1.8 A.1-Extend understanding of the number system by constructing meanings for the following (unless otherwise noted, all indicators for grade 8 pertain to these sets of numbers as well): (08)[State:New Jersey] 4.1.8 A.1.a-Rational numbers (08)[State:New Jersey] 4.1.8 A.5-Use whole numbers, fractions, decimals, and percents to represent equivalent forms of the same number. (08) [State:New Jersey] 4.1.8 A.6-Recognize that repeating decimals correspond to fractions and determine their fractional equivalents. (08) [State:New Jersey] 4.1.8 B.1-Use and explain procedures for performing calculations involving addition, subtraction, multiplication, division, and exponentiation with integers and all number types named above with: (08) [State:New Jersey] 4.1.8 B.1.a-Pencil-and-paper (08)[State:New Jersey]

			the multiplicative inverse.	4.1.8 B.1.b-Mental math (08) [State:New Jersey] 4.1.8 B.1.c-Calculator (08) [State:New Jersey] 4.1.8 A.6.a-5/7 = 0. 714285714285 = 0.714285 repeating (08)[State:New Jersey] 4.1.8 B-Numerical Operations (08)[State:New Jersey] 4.1.8 C.2-Use equivalent representations of numbers such as fractions, decimals, and percents to facilitate estimation. (08)[State:New Jersey] 4.5-Mathematical Processes: All students will use mathematical processes of problem solving, communication, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas. (08)[State:New Jersey]
Plans:				

Title : Pre Algebra 8 (2011)
Type : Essential

Duration: January/Week 20 - February/Week 22				
UNIT NAME: Ratio, Proportion				
Enduring Understandings	**Essential Questions**	**Knowledge**	**Skills**	**Standards**
1. A quantity can be represented numerically in various ways. 2. A ratio is a multiplicative comparison of two quantities. 3. A rate is a ratio of two quantities. A unit rate must have a denominator of 1 and can be used to find the cost of one item or a single quantity of an item. 4. Proportional reasoning involves comparisons of the relationships among ratios. 5. Geometric properties can be used to construct geometric figures. 6. Proportional reasoning involves comparisons of the relationships among ratios. 7. Geometric figures can change size and/or position while maintaining proportional attributes. 8. Figures are similar when all of their corresponding sides have an equal ratio. 9. Figures are congruent when all of their angles and sides are congruent.	1. How can we compare and contrast numbers? 2. What is a ratio? 3. What is a rate/unit rate? 4. How are comparisons used in proportional reasoning? 5. What kinds of questions can be answered using proportional reasoning? 6. How can spatial relationships be described by careful use of geometric language? 7. How are comparisons used in proportional reasoning? 8. How is proportional reasoning of geometric figures used to solve real-world problems (i.e. scale drawings/models)? 9. How is proportionality of geometric figures used to solve problems? 10. What conclusions can be drawn between similar and congruent figures?	1. Key Terms: Ratio, equivalent ratio, rate, unit rate, proportion, scale, scale drawing, scale model, similar, congruent, proportion, indirect measurement, cross products property. 2. That a ratio uses division to compare two numbers. There are three ways to write a ratio of two numbers *a* and *b* (*a* to *b*, *a* : *b*, or *a* / *b*). 3. Two or more ratios that have the same value are equivalent ratios. 4. A rate is a ratio of two quantities measured in different units. A unit rate is a rate that has a denominator of 1 unit. 5. A proportion is an equation that states that two quantities are equal. 6. A scale drawing is a diagram of an object in which the dimensions are in proportion to the actual dimensions of the object. The scale of a scale drawing tells how the drawing's dimensions and the actual dimensions are related. 7. That polygons are congruent when they have the same shape and size. Their corresponding sides are congruent. 8. That polygons are similar if they have the same shape but not necessarily the same size. The ratios of their corresponding sides are equal. 9. Corresponding angles of similar and congruent figures are congruent.	1. Write ratios in simplest form using all three ways. 2. Compare ratios to determine which is greater or less. 3. Find a unit rate by dividing the numerator and the denominator while still representing each unit of measurement. 4. Compare unit rates to determine which quantity would represent a better buy. 5. Solve proportions using the *Cross Products Property*. 6. Develop ratios based on classroom statistics. 7. Interpret and create scale drawings using proportions to determine an appropriate scale factor. 8. Identify polygons as similar or congruent by determining if the ratios of the lengths of the corresponding sides are equal. 9. Identify corresponding sides and angles of similar and congruent polygons. 10. Find the missing side measurements of similar and congruent polygons by using the ratios of the lengths of corresponding sides to write and solve a proportion involving the unknown length. 11. Use properties of similarity to make indirect measurements of problems in "real-life."	4.1.8 A-Number Sense (08) [State:New Jersey] 4.1.8 A.1-Extend understanding of the number system by constructing meanings for the following (unless otherwise noted, all indicators for grade 8 pertain to these sets of numbers as well): (08)[State:New Jersey] 4.1.8 A.1.a-Rational numbers (08)[State:New Jersey] 4.1.8 A.3-Understand and use ratios, rates, proportions, and percents (including percents greater than 100 and less than 1) in a variety of situations. (08) [State:New Jersey] 4.2.8 A.4-Understand and apply the concept of similarity. (08) [State:New Jersey] 4.2.8 A.4.a-Using proportions to find missing measures (08) [State:New Jersey] 4.2.8 A.4.b-Scale drawings (08) [State:New Jersey] 4.2.8 A.4.c-Models of 3D objects (08)[State:New Jersey] 4.2.8 D.6-Solve problems that involve compound measurement units, such as speed (miles per hour), air pressure (pounds per square inch), and population density (persons per square mile). (08) [State:New Jersey] 4.1.8 B.4-Solve problems involving proportions and percents. (08)[State:New Jersey]

		10. Properties of similarity can be used to find lengths that are difficult to measure directly. 11. The *Cross Products Property* states that a/b = c/d is equivalent to ad * bc.		4.2-Geometry and Measurement: All students will develop spatial sense and the ability to use geometric properties, relationships, and measurement to model, describe and analyze phenomena. (08)[State:New Jersey] 4.4.8 B.1-Interpret probabilities as ratios, percents, and decimals. (08)[State:New Jersey] 4.5-Mathematical Processes: All students will use mathematical processes of problem solving, communication, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas. (08)[State:New Jersey] 4.2.8 D.3-Recognize that the degree of precision needed in calculations depends on how the results will be used and the instruments used to generate the measurements. (08)[State:New Jersey] 4.5 E.3-Use representations to model and interpret physical, social, and mathematical phenomena. (08)[State:New Jersey]
Plans:				

Title : Pre Algebra 8 (2011)
Type : Essential

Duration: February/Week 23 - February/Week 24				
UNIT NAME: Percents				
Enduring Understandings	**Essential Questions**	**Knowledge**	**Skills**	**Standards**
1. A part of a whole can be expressed as a percent, fraction, or decimal. 2. Different forms of numbers may be more helpful than others; and, used together, multiple representations give a fuller understanding of a problem. 3. Computational estimation produces approximate results. 4. Fractions, decimals, and percents express a relationship between two numbers. 5. Percents can be used to show how much a quantity has increased or decreased in comparison with an original amount. 6. Percents can be used to explain numerous real-world situations.	1. How do mathematical ideas interconnect and build on one another to produce a coherent whole? 2. What is the relationship between percents, fractions, and decimals? How many ways can you model parts of a whole? 3. What is the purpose of estimation and what determines a reasonable estimation for a situation? 4. When is it appropriate to use percents, decimals, and fractions? 5. How can you find a percent of change? 6. How do percents simplify our lives?	1. Key Terms: Percent, proportion, decimal, fraction, percent of change (increase or decrease), simple interest, compound interest, principal, wholesale, retail, markup, tax, discount, tip. 2. That a percent is a ratio whose denominator is 100. 3. A percent of change shows how much a quantity has increased or decreased in comparison with the original amount. 4. A decrease in a cost of an item is a discount, while an increase in a cost of an item is a markup. 5. That when determining the total cost of a meal, tip should not be included when calculating tax, and tax should not be included when calculating tip. 6. Understanding the relationship between wholesale, retail, markup, discount, and sale price.	1. Represent percents as fractions and decimals and represent fractions and decimals as percents. 2. Solve problems involving percents using multiple strategies. 3. Represent percent problems as equations to find a missing base, part of a base, or percent. 4. Find the percent of increase or decrease of a quantity by finding the quotient of the amount of change and the original amount. 5. Analyze graphs using percents to represent statistics. 6. When working with wholesale, retail, markup, discount, and sale price, being to able to determine the value if one is missing.	4.1-Number and Numerical Operations: All students will develop number sense and will perform standard numerical operations and estimations on all types of numbers in a variety of ways. (08)[State:New Jersey] 4.1.8 A-Number Sense (08) [State:New Jersey] 4.1.8 A.1-Extend understanding of the number system by constructing meanings for the following (unless otherwise noted, all indicators for grade 8 pertain to these sets of numbers as well): (08)[State:New Jersey] 4.1.8 A.1.b-Percents (08) [State:New Jersey] 4.1.8 A.3-Understand and use ratios, rates, proportions, and percents (including percents greater than 100 and less than 1) in a variety of situations. (08) [State:New Jersey] 4.1.8 A.5-Use whole numbers, fractions, decimals, and percents to represent equivalent forms of the same number. (08) [State:New Jersey] 4.1.8 B.4-Solve problems involving proportions and percents. (08)[State:New Jersey] 4.1.8 C.2-Use equivalent representations of numbers such as fractions, decimals, and percents to facilitate estimation. (08)[State:New Jersey] 4.3.8 C.2.b-Growth situations,

				such as population growth and compound interest, using recursive (e.g., NOW-NEXT) formulas (cf. science standard 5.5 and social studies standard 6.6) (08)[State:New Jersey] 4.5-Mathematical Processes: All students will use mathematical processes of problem solving, communication, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas. (08)[State:New Jersey]
Plans:				

Title : Pre Algebra 8 (2011)
Type : Essential

Duration: March/Week 25 - March/Week 28				
UNIT NAME: Geometry-Area, Volume				
Enduring Understandings	**Essential Questions**	**Knowledge**	**Skills**	**Standards**
1. Grouping by attributes (classification) can be used to answer mathematical questions. 2. Relationships exist among angles, sides, lengths, perimeters, areas, and volumes of geometric figures. 3. Regular polygons have congruent sides and angles, and multiple lines of symmetry. 4. Relationships that exist between the angles and sides of geometric figures can be proven. 5. Right triangles have a special relationship between the lengths of their legs and hypotenuse. 6. When the lengths of the sides of a right triangle are all natural numbers, the lengths are called a Pythagorean triple. 7. Physical models can be used to clarify mathematical relationships. 8. Everyday objects have a variety of attributes, each of which can be measured. 9. What we measure determines the units we use to measure in. 10. Measurements can be used to describe, compare, and make sense of our world. 11. Pi is the relationship of a circles circumference to its diameter. 12. Like area, surface area is a two dimensional measurement representing the sum of the areas of a figure's outside surfaces. 13. A three-dimensional figure can be constructed from a	1. How can spatial relationships be described by careful use of geometric language? 2. How can attributes be used to classify polygons? 3. How does a polygon being regular affect other properties and characteristics of the polygon? 4. Why is a square always a rectangle, but a rectangle is only sometimes a square? 5. How are properties of geometric figures related to their measurable attributes? 6. How do you know when to use the Pythagorean theorem? 7. How do you perform the Pythagorean theorem? 8. How are the lengths of the sides of a right triangle related? 9. How can physical models be used to clarify mathematical relationships? 10. How can measurements be used to solve problems? 11. How can understanding the properties of polygons help determine how we find the area? 12. How do dimensions of a geometric figure affect area and perimeter? 13. How are the diameter of a circle, pi, and the circumference of a circle related? 14. How is surface area similar/ different to area? 15. How is the formula to find the surface area of a cylinder related to	1. Key Terms: Acute triangle, obtuse triangle, right triangle, equilateral triangle, isosceles triangle, scalene triangle, exterior angle, interior angle, congruent, edges, faces, vertices, quadrilateral, rectangles, square, trapezoid, parallelogram, rhombus, polygon, regular polygon, pentagon, hexagon, heptagon, octagon, hypotenuse, legs, Pythagorean theorem, square root, Pythagorean triple, perimeter, area, base, height, circle, center, radius, diameter, circumference, pi (Π), solid, prism, cube, net, volume, cylinder, rectangular prism, pyramid, cone, sphere, hemisphere 2. Triangles can be classified using the length of their sides and by the measure of their angles. 3. The angles of every triangle make up a total of 180 degrees. 4. A regular polygon is a polygon with all congruent angles and sides. 5. A quadrilateral is a geometric figure that is made up of four line segments, called sides, which intersect only at their endpoints. 6. A polygon is a geometric figure that is made up of three or more line segments that intersect only at their endpoints. The number of sides determines the name of the polygon. 7. Squares and square roots are inverse operations. 8. The hypotenuse is the longest side of a right triangle.	1. Find the value of a missing angle in a triangle by finding the difference of the two angles you know and 180 degrees. Students will also be able to use the measures of interior angles to find the measures of exterior angles. 2. Classify triangles by their angle measures and side lengths. 3. Classify quadrilaterals and other polygons based on the characteristics of their sides and angles. 4. Identify differences and similarities between special quadrilaterals and other polygons. 5. Determine missing sides and angles of quadrilaterals given their characteristics. 6. Compare side lengths and angle measures of a triangle. Calculate squares and square roots, as well as recognize perfect squares. 7. Represent the Pythagorean theorem in model, pictorial, and formula form. 8. Solve problems in indirect measurement using the Pythagorean theorem. Students will find the missing length of a leg or hypotenuse of a right triangle. 9. Use formulas to find the perimeter, area, and circumference of various figures, such as rectangles, parallelograms, triangles, trapezoids, and circles. 10. Use the Pythagorean theorem to find the area and perimeter of a	4.2.8 E-Measuring Geometric Objects (08)[State:New Jersey] 4.2.8 E.1-Develop and apply strategies for finding perimeter and area. (08)[State:New Jersey] 4.2.8 E.1.a-Geometric figures made by combining triangles, rectangles and circles or parts of circles (08)[State:New Jersey] 4.2.8 E.1.c-Impact of a dilation on the perimeter and area of a 2-dimensional figure (08) [State:New Jersey] 4.2.8 E.2-Recognize that the volume of a pyramid or cone is one-third of the volume of the prism or cylinder with the same base and height (e.g., use rice to compare volumes of figures with same base and height). (08) [State:New Jersey] 4.2.8 E.3-Develop and apply strategies and formulas for finding the surface area and volume of a three-dimensional figure. (08)[State:New Jersey] 4.2.8 E.3.a-Volume - prism, cone, pyramid (08)[State:New Jersey] 4.2.8 E.3.b-Surface area - prism (triangular or rectangular base), pyramid (triangular or rectangular base) (08) [State:New Jersey] 4.2.8 E.3.c-Impact of a dilation on the surface area and volume of a three-dimensional figure

corresponding net. 14. The volume of a solid is the amount of space that the solid contains. Volume is measured in cubic units.	the formula to find the surface area of a prism? 16. How do dimensions of a geometric figure affect area, surface area, and volume? 17. How are one, two, and three dimensional measurements related/ different? 18. How are the formulas for the volume of a cylinder and the volume of a prism similar? 19. How is the volume of a pyramid or cone related to the volume of a prism or cylinder? 20. Where/how can the concepts of surface area and volume be applied to the context of our lives?	9. For any right triangle, the sum of the squares of the lengths of the legs equals the square of the length of the hypotenuse. 10. The perimeter of a polygon is the sum of the lengths of its sides. Perimeter is measured in linear units. 11. The area of a figure is the number of square units needed to cover the entire figure. Area is measured in square units. 12. The height of triangles, parallelograms, and trapezoids must be perpendicular to its base. 13. A circle is a set of all points in a plane that are the same distance from a fixed point called the center. 14. The distance from the center to any point on the circle is the radius. The distance across the circle through the center is the diameter. The diameter is twice the radius (d = 2r). 15. The circumference of a circle is the distance around the circle. 16. The ratio of a circle's circumference to its diameter is represented by the Greek letter **Π** (pi). The exact value of pi is a non-repeating, non-terminating decimal. 3.14 and 22/7 are often used as approximations of the irrational number pi. 17. A solid is a three-dimensional figure that encloses a part of space. 18. A cube is a rectangular prism with all congruent side lengths. 19. A two-dimensional representation of a solid is called a net. 20. The surface area of a solid is	right triangle when given the length of two sides. 11. Determine the missing base or height of rectangles, triangles, parallelograms, and trapezoids when given the base or height and the area by using appropriate area formulas. 12. Determine the radius and diameter of a circle given the area or circumference. 13. Find the area of geometric figures made by combining triangles, rectangles, parallelograms, trapezoids, and circles or parts of circles. 14. Identify real world situations in which it may be necessary to use the geometric formulas for finding perimeter, area, circumference, surface area, and volume. 15. Classify solids and identify their parts. Students should determine the number of edges, faces, and vertices of solids, if any. 16. Find the surface area of all types of prisms and cylinders using appropriate geometric formulas. 17. Find the surface area of geometric figures created by combining solids such as prisms and cylinders. 18. Find the volume of all types of prisms and cylinders using the appropriate geometric formulas. 19. Determine the length, width, or height of a rectangular prism when given the volume along with two of the three other dimensions (length, width, or height). 20. Find the volume of a pyramid or cone using the fact that its volume is 1/3 the volume of a prism	(08)[State:New Jersey] 4.2.8 E.4-Use formulas to find the volume and surface area of a sphere. (08)[State:New Jersey] 4.1.8 A.7-Construct meanings for common irrational numbers, such as pi and the square root of 2. (08)[State:New Jersey] 4.2.8 A.2-Understand and apply the Pythagorean theorem. (08)[State:New Jersey] 4.2.8 A.3-Understand and apply properties of polygons. (08)[State:New Jersey] 4.2.8 A.3.a-Quadrilaterals, including squares, rectangles, parallelograms, trapezoids, rhombi (08)[State:New Jersey] 4.2.8 A.3.b-Regular polygons (08)[State:New Jersey] 4.2.8 A.5-Use logic and reasoning to make and support conjectures about geometric objects. (08)[State:New Jersey] 4.2.8 A.6-Perform basic geometric constructions using a variety of methods (e.g., straightedge and compass, patty/tracing paper, or technology). (08)[State:New Jersey] 4.2.8 A.7-Create two-dimensional representations (e.g., nets or projective views) for the surfaces of three-dimensional objects. (08)[State:New Jersey] 4.2.8 A.6.a-Congruent angles or line segments (08)[State:New Jersey] 4.2.8 A.6.b-Midpoint of a line segment (08)[State:New Jersey]

		the sum of the areas of its outside surfaces. 21. That the volume of a pyramid or cone is one-third of the volume of the prism or cylinder with the same base and height. 22. The volume of a sphere is four-thirds the product of pi and the cube of its radius. 23. The volume of a cylinder and the volume of a prism are both found by multiplying the area of the base by the height of the solid.	or cylinder with the same base and height. 21. Find the volume of a sphere given its radius or diameter. 22. Find missing dimensions of a solid given its volume.	4.2.8 E.1.b-Estimation of area using grids of various sizes (08) [State:New Jersey] 4.5-Mathematical Processes: All students will use mathematical processes of problem solving, communication, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas. (08)[State:New Jersey] 4.5 E.1.c-Symbolic representations (e.g., a formula) (08)[State:New Jersey] 4.2.8 A.1.e-Intersection of plane with cube, cylinder, cone, and sphere (08)[State:New Jersey]
Plans:				

Title : Pre Algebra 8 (2011)
Type : Essential

Duration: April/Week 29 - April/Week 30				
UNIT NAME: Geometry-Coordinate, Angles				
Enduring Understandings	**Essential Questions**	**Knowledge**	**Skills**	**Standards**
1. Shape and area can be conserved during mathematical transformations. 2. Geometric figures could be represented in the coordinate plane. 3. Geometric figures can change position and maintain the same attributes on a coordinate plane. 4. Line and angle relationships represent aspects of the world we inhabit. 5. Points, lines, and planes are the foundation of geometry. 6. Two intersecting lines form angles with specific relationships. 7. Parallel lines cut by an intersecting line form angles with specific relationships.	1. What situations can be analyzed using transformations and symmetries? 2. Why graph geometric figures and transformations on a coordinate plane? 3. How are transformations performed on graphed geometric figures? 4. How can properties of geometric figures be verified by using the coordinate plane? 5. How do line relationships affect angle relationships? 6. How can you find the sum of the interior angles of a polygon? 7. How are interior angles and exterior angles related? 8. What are the relationships between angles formed by two intersecting lines and what is the measure of those angles? 9. How can you find the measure of an interior angle of a regular polgon? 10. What is the sum of the exterior angles of a polygon? 11. How can you find the measure of an exterior angle of a regular polygon?	1. Key Terms: x-axis, y-axis, transformation, translation, reflection, rotation, line of reflection, center of rotation, acute angle, obtuse angle, right angle, straight angle, complementary, supplementary, adjacent angles, vertical angles, alternate exterior angles, alternate interior angles, congruent angles, intersecting lines, parallel lines, transversal, perpendicular lines, corresponding angles, protractor, line of symmetry. 2. A transformation is a movement of a figure in the coordinate plane. 3. A translation is a “slide” of a figure in a coordinate plane in which each point of a figure is moved the same distance in the same direction. 4. A reflection is a “flip” of a figure over a line called the line of reflection creating a mirror image of the original figure. 5. A rotation is a “turn” of a figure through a given angle and in a given direction about a fixed point called the center of rotation. A 180 rotation can be performed using the rule (-x, -y). A 90 clockwise rotation can be performed using the rule (y, -x) and 90 counter-clockwise using (-y, x). 6. Enlarging or reducing a figure proportionally is called a dilation. The image after a dilation	1. Perform translations, reflections, rotations, and dilations of objects in a coordinate plane, labeling the new objects accordingly. 2. Identify the transformation of an object. 3. Perform a reflection over one axis, and then reflect the new image over the other axis. 4. Identify the pre-image given a transformation. 5. Determine if a pair of angles are complementary, supplementary, or neither. 6. Find an angle complementary and/or supplementary to a given angle. 7. Identify adjacent, vertical, and corresponding angles when given a diagram of intersecting lines. 8. Determine angle measurements based on the properties of vertical angles, complementary and supplementary angles, adjacent, alternate exterior and alternate interior angles , and corresponding angles. 9. Find measures of angles displayed with a variable by setting up and solving equations. 10. Calculate the sum of the interior angles of any polygons. 11. Apply the fact that the sum of the exterior angles of any polygon is 360 to find a missing angle.	4.2.8 A-Geometric Properties (08)[State:New Jersey] 4.2.8 A.1-Understand and apply concepts involving lines, angles, and planes. (08)[State:New Jersey] 4.2.8 A.1.a-Complementary and supplementary angles (08) [State:New Jersey] 4.2.8 A.1.b-Vertical angles (08) [State:New Jersey] 4.2.8 A.1.d-Parallel, perpendicular, and intersecting planes (08)[State:New Jersey] 4.2.8 A.3.c-Sum of measures of interior angles of a polygon (08) [State:New Jersey] 4.2.8 B-Transforming Shapes (08)[State:New Jersey] 4.2.8 B.1-Understand and apply transformations. (08)[State:New Jersey] 4.2.8 B.1.a-Finding the image, given the pre-image, and vice-versa (08)[State:New Jersey] 4.2.8 B.1.b-Sequence of transformations needed to map one figure onto another (08) [State:New Jersey] 4.2.8 B.1.c-Reflections, rotations, and translations result in images congruent to the pre-image (08)[State:New Jersey] 4.2.8 B.1.d-Dilations (stretching/ shrinking) result in images similar to the pre-image (08) [State:New Jersey] 4.2.8 C-Coordinate Geometry

		is similar to the original figure. 7. Two angles that share a common side and a vertex and do not overlap are called adjacent angles. 8. When two lines meet at a point, the angles that are opposite each other are called vertical angles. Vertical angles are congruent. 9. Two lines in the same plane that do not intersect are called parallel lines. 10. A line intersecting two others in two separate places is called a transversal. 11. Perpendicular lines intersect to form four right angles. 12. Angles that occupy corresponding positions when a line intersects two other lines are called corresponding angles. When a line intersects two parallel lines, corresponding angles are congruent.	12. Find the measure of an interior angle of a regular polygon. 13. Find the sum of the interior angles of a polygon using (n - 2)*180 . 14. Find the measure of an interior angle of a regular polygon using [(n-2)*180]/n. 15. Find the measure of an exterior angle of a regular polygon using 360/n. 16. Alternate exterior angles can be found outside the parallel lines and on opposite sides of the transversal. 17. Alternate interior angles can be found inside the parallel lines and on opposite sides of the transversal.	(08)[State:New Jersey] 4.2.8 C.1-Use coordinates in four quadrants to represent geometric concepts. (08) [State:New Jersey] 4.2.8 C.2-Use a coordinate grid to model and quantify transformations (e.g., translate right 4 units). (08)[State:New Jersey] 4.2-Geometry and Measurement: All students will develop spatial sense and the ability to use geometric properties, relationships, and measurement to model, describe and analyze phenomena. (08)[State:New Jersey] 4.5-Mathematical Processes: All students will use mathematical processes of problem solving, communication, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas. (08)[State:New Jersey] 4.2.8 A.1.c-Bisectors and perpendicular bisectors (08) [State:New Jersey] 4.2.8 A.3.d-Which polygons can be used alone to generate a tessellation and why (08) [State:New Jersey]
Plans:				

Title : Pre Algebra 8 (2011)
Type : Essential

Duration: April/Week 31				
UNIT NAME: Spring				
Enduring Understandings	**Essential Questions**	**Knowledge**	**Skills**	**Standards**
Plans:				

Title : Pre Algebra 8 (2011)
Type : Essential

Duration: April/Week 32				
UNIT NAME: ASK/Vertex Edge				
Enduring Understandings	**Essential Questions**	**Knowledge**	**Skills**	**Standards**
1. Optimization is finding the best solution within given constraints. 2. Possible combinations can be determined by counting possible outcomes in a systematic way. 3. An algorithm is a set of step-by-step instructions for doing something, such as solving a problem.	1. How can visual tools such as networks (vertex-edge graphs) be used to answer questions? 2. What strategies can be used to determine the most effective (shortest) way to get from point A to point B?	1. Key Terms: Vertex, edge, network. 2. A vertex is a point at which two or more edges (or sides) of a graph meet. We refer to more than one vertex as vertices. Edges are the lines between the vertices. 3. Paths are mapped along edges and vertices. You often can determine the shortest route by counting the number of edges and vertices that must be traveled. 4. An algorithm is a set of step-by-step instructions for doing something; for example, solving a problem.	1. Determine the shortest route on a map or graph from one site to another by counting the number of edges and vertices along a specific route. 2. Find the shortest network connecting specified sites. 3. Find the shortest circuit on a map that makes a tour of specified sites.	4.4.8 D-Discrete Mathematics—Vertex-Edge Graphs and Algorithms (08)[State:New Jersey] 4.4.8 D.1-Use vertex-edge graphs and algorithmic thinking to represent and find solutions to practical problems. (08) [State:New Jersey] 4.4.8 D.1.a-Finding the shortest network connecting specified sites (08)[State:New Jersey] 4.4.8 D.1.b-Finding a minimal route that includes every street (e.g., for trash pick-up) (08) [State:New Jersey] 4.4.8 D.1.c-Finding the shortest route on a map from one site to another (08)[State:New Jersey] 4.4.8 D.1.d-Finding the shortest circuit on a map that makes a tour of specified sites (08) [State:New Jersey] 4.4.8 D.1.e-Limitations of computers (e.g., the number of routes for a delivery truck visiting n sites is n!, so finding the shortest circuit by examining all circuits would overwhelm the capacity of any computer, now or in the future, even if n is less than 100) (08)[State:New Jersey] 4.2.8 D-Units of Measurement (08)[State:New Jersey] 4.2.8 D.1-Solve problems requiring calculations that involve different units of

				measurement within a measurement system (e.g., 4’3” plus 7’10” equals 12’1”). (08) [State:New Jersey] 4.2.8 D.2-Use approximate equivalents between standard and metric systems to estimate measurements (e.g., 5 kilometers is about 3 miles). (08) [State:New Jersey] 4.2.8 D.2-Use approximate equivalents between standard and metric systems to estimate measurements (e.g., 5 kilometers is about 3 miles). (08) [State:New Jersey] 4.2.8 D.4-Select and use appropriate units and tools to measure quantities to the degree of precision needed in a particular problem-solving situation. (08)[State:New Jersey] 4.2.8 D.5-Recognize that all measurements of continuous quantities are approximations. (08)[State:New Jersey] 4.5-Mathematical Processes: All students will use mathematical processes of problem solving, communication, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas. (08)[State:New Jersey]
Plans:				

Title : Pre Algebra 8 (2011)
Type : Essential

Duration: May/Week 33 - May/Week 36				
UNIT NAME: Linear Functions				
Enduring Understandings	**Essential Questions**	**Knowledge**	**Skills**	**Standards**
1. The symbolic language of algebra is used to communicate and generalize the patterns in mathematics. 2. Algebraic representations can be used to generalize patterns and relationships. 3. Patterns and relationships can be represented graphically, numerically, symbolically, or verbally. 4. Linear relationships are characterized by a constant rate of change. 5. Functions are used to solve real world problems and show how a change in one event, can cause a change in another event. 6. Slope explains the ratio of vertical change to horizontal change. 7. There are key differences between linear functions and exponential functions. 8. One can obtain a function rule from various data representations. 9. Two non-parallel, unique linear equations have a unique solution because the	1. How can change be best represented mathematically? 2. How can patterns, relations, and functions be used as tools to best describe and help explain real-life situations? 3. How are patterns of change related to the behavior of functions? 4. What makes a relationship linear? 5. Why are linear functions useful? 6. How can a line have a negative slope? 7. How do changes in one variable affect changes in a related variable? 8. How can an equation be used to answer questions about a relationship of two variables? 9. How do slopes of parallel and perpendicular lines differ? 10. What is the slope of a horizontal and vertical line? 11. What is a system of linear equations? How is a system solved? What does its solution represent?	1. Key Terms: Function, input, output, domain, range, linear equation, linear function, ordered pair, coordinate plane, x-intercept, y- intercept, slope, slope intercept form, function notation, system of linear equations. 2. A function is a pairing of each number in a given set with exactly one number in another set. A function associates the input with exactly one number called the output. 3. The domain of a function is the set of all input values, while the range of a function is the set of all output values. 4. Functions can be graphed on a coordinate plane by creating an input/ output table, forming ordered pairs, and plotting the ordered pairs. 5. A linear function is a function whose graph is a line or part of a line. In a linear equation, variables occur only to the first power. 6. The x and y-intercepts	1. Evaluate a function by creating an input/output table with a given domain. 2. Determine a function rule given a domain and range. 3. Graph a function by creating an input/output table, forming ordered pairs, and plotting the ordered pairs on a coordinate plane. 4. Determine if a function is linear by evaluating a representation of the function on a coordinate plane and by analyzing the powers of given variables. 5. Write, graph, and analyze functions given as a “real world” situation. 6. Find the x and y-intercept of a line by substituting 0 for the appropriate variable in an equation, and solving for the other variable. 7. Quickly sketch a graph of a linear equation by plotting the intercepts of the line and drawing a line through the points. 8. Find the slope of a non-vertical line by finding the ratio of the change in y to the change in x for two ordered pairs located on the line. 9. Put a linear equation into slope-intercept form to determine the slope and y-intercept of a line. 10. Quickly sketch a graph of a linear equation by plotting the y-intercept and slope. 11. Graph two linear equations and use it to determine the solution	4.3-Patterns and Algebra: All students will represent and analyze relationships among variable quantities and solve problems involving patterns, functions, and algebraic concepts and processes. (08) [State:New Jersey] 4.3.8 A-Patterns (08)[State:New Jersey] 4.3.8 A.1-Recognize, describe, extend, and create patterns involving whole numbers, rational numbers, and integers. (08)[State:New Jersey] 4.3.8 A.1.a-Descriptions using tables, verbal and symbolic rules, graphs, simple equations or expressions (08)[State:New Jersey] 4.3.8 B-Functions and Relationships (08)[State:New Jersey] 4.3.8 B.1-Graph functions, and understand and describe their general behavior. (08) [State:New Jersey] 4.3.8 B.1.a-Equations involving two variables (08)[State:New Jersey] 4.3.8 B.1.b-Rates of change (informal notion of slope) (08) [State:New Jersey] 4.3.8 B.2-Recognize and describe the difference between linear and exponential growth, using tables, graphs, and equations. (08)[State:New

lines they represent intersect at a single point.		of a graph is the coordinate of the point where the graph crosses each axis. 7. To find the x-intercept of a line, substitute y = 0 into the equation and solve for x. To find the y-intercept of a line, substitute x = 0 into the equation and solve for y. 8. The slope of a line is the ratio of the rise (change in y) to the run (change in x). 9. Putting a linear equation into slope-intercept form is an easy way to determine the slope and y-intercept of a line. 10. The slope of a horizontal line is 0 and the slope of a vertical line is undefined. 11. The point where two linear equations intersect is a solution to a system. A system may have 1 solution, no solution (parallel lines), or an infinite number of solutions (same line).	to a system. 12. Recognize function notation and use it to represent a linear change.	Jersey] 4.3.8 C-Modeling (08) [State:New Jersey] 4.3.8 C.1-Analyze functional relationships to explain how a change in one quantity can result in a change in another, using pictures, graphs, charts, and equations. (08)[State:New Jersey] 4.3.8 C.2-Use patterns, relations, symbolic algebra, and linear functions to model situations. (08)[State:New Jersey] 4.3.8 C.2.a-Using concrete materials (manipulatives), tables, graphs, verbal rules, algebraic expressions/equations/ inequalities (08)[State:New Jersey] 4.3.8 D.2-Solve simple linear equations informally, graphically, and using formal algebraic methods. (08) [State:New Jersey] 4.3.8 D.2.b-Simple literal equations (e.g., A = lw) (08) [State:New Jersey] 4.4.8 A.3-Estimate lines of best fit and use them to interpolate within the range of the data. (08) [State:New Jersey] 4.5-Mathematical Processes: All students will use mathematical processes of problem solving, communication, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas. (08)[State:New Jersey] 4.5 C.2-Use connections among

				mathematical ideas to explain concepts (e.g., two linear equations have a unique solution because the lines they represent intersect at a single point). (08)[State:New Jersey] 4.5 F.1-Use technology to gather, analyze, and communicate mathematical information. (08)[State:New Jersey] 4.5 F.2-Use computer spreadsheets, software, and graphing utilities to organize and display quantitative information. (08)[State:New Jersey] 4.5 F.3-Use graphing calculators and computer software to investigate properties of functions and their graphs. (08)[State:New Jersey] 4.5 F.5-Use computer software to make and verify conjectures about geometric objects. (08)[State:New Jersey] 4.5 F.6-Use computer-based laboratory technology for mathematical applications in the sciences (cf. science standards). (08)[State:New Jersey]
Plans:				

Title : Pre Algebra 8 (2011)
Type : Essential

Duration: June/Week 37				
UNIT NAME: Radicals				
Enduring Understandings	**Essential Questions**	**Knowledge**	**Skills**	**Standards**
1. A radical in simplest form is one in which the radicand has no perfect square factors other than 1. 2. Radicals can be manipulated in the same manner as variable expressions. 3. The square root of a product is equivalent to the product of the square roots. 4. The square root of a quotient is equivalent to the quotient of the square roots. 5. The square roots of a non-perfect square root lies between two integers.	1. What does it mean to take the square root of a number? 2. How are radicals simplified? 3. How are performing operations with variables related to operation with radicals?	1. Key terms: rational number, irrational number, perfect square, non-perfect square, radical 2. Rules for adding, subtracting, multiplying, and dividing radical expressions and equations.	1. Estimate the square root of a non-perfect square to the nearest integer. 2. Express the square root of a whole number in simpest radical form. 3. Add, subtract, multiply, and divide radicals.	4.1.8 A-Number Sense (08) [State:New Jersey] 4.1.8 A.1-Extend understanding of the number system by constructing meanings for the following (unless otherwise noted, all indicators for grade 8 pertain to these sets of numbers as well): (08)[State:New Jersey] 4.1.8 A.1.c-Exponents (08) [State:New Jersey] 4.1.8 A.1.d-Roots (08) [State:New Jersey] 4.1.8 B.2-Use exponentiation to find whole number powers of numbers. (08)[State:New Jersey] 4.1.8 B.3-Find square and cube roots of numbers and understand the inverse nature of powers and roots. (08) [State:New Jersey] 4.1.8 A.7-Construct meanings for common irrational numbers, such as pi and the square root of 2. (08)[State:New Jersey] 4.1.8 C-Estimation (08) [State:New Jersey] 4.1.8 C.1-Estimate square and cube roots of numbers. (08) [State:New Jersey] 4.5-Mathematical Processes: All students will use mathematical processes of problem solving, communication, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas. (08)[State:New Jersey]

Title : Pre Algebra 8 (2011)
Type : Essential

Plans:

Title : Pre Algebra 8 (2011)
Type : Essential

Duration: June/Week 38				
UNIT NAME: Polynomials				
Enduring Understandings	**Essential Questions**	**Knowledge**	**Skills**	**Standards**
1. Monomials are the building blocks of polynomials. 2. Polynomials are classified by the number of terms, which are divided by plus and minus signs. 3. Polynomial expressions can be simplified by combining like terms. 4. Polynomial equations can be solved by factoring. 5. The characteristics of polynomial functions and their representations are useful in solving real-world problems (i.e. medicine, astronomy, and architecture).	1. What role does the variable playin adding and subtracting polynomials? 2. How can I classify polynomials? 3. How do like terms help me to solve problems with polynomials? 4. How are exponent rules useful in solving problems with polynomials? 5. How do polynomial (exponential) functions model real-world problems and their solutions?	1. Key Terms: Polynomial, monomial, binomial, trinomial, standard form, like terms, degree. 2. A polynomial is an expression that has one or more terms of the form ax^n where the coefficient a is any real number and the exponent n is a whole number. 3. A polynomial is written in standard form if the powers of the variable decrease from left to right. 4. To multiply a polynomial by a monomial, multiply each term of the polynomial by the monomial. 5. To simplify a polynomial one must combine like terms.	1. Rewrite original polynomials to be represented in standard form. 2. Simplify polynomials by identifying like terms and adding their coefficients. 3. Use polynomials to solve real-life problems algebraically. 4. Add and subtract polynomials by combining like terms and using the distributive property. 5. Multiply polynomials by monomials and binomials using the FOIL method.	4.3.8 D.4-Create, evaluate, and simplify algebraic expressions involving variables. (08) [State:New Jersey] 4.3.8 D.4.a-Order of operations, including appropriate use of parentheses (08)[State:New Jersey] 4.5-Mathematical Processes: All students will use mathematical processes of problem solving, communication, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas. (08)[State:New Jersey]
Plans:				