Algebra I

Diocese of Greensburg Curriculum

Unit	Standards	Content	Skills
Introduction to Algebra	**CCSS: Mathematics** **CCSS: HS: Algebra** **Seeing Structure in Expressions** **HSA-SSE.A. Interpret the structure of expressions.** HSA-SSE.A.1. Interpret expressions that represent a quantity in terms of its context. HSA-SSE.A.1a. Interpret parts of an expression, such as terms, factors, and coefficients. HSA-SSE.A.2. Use the structure of an expression to identify ways to rewrite it. **HSA-SSE.B. Write expressions in equivalent forms to solve problems.** HSA-SSE.B.3. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. **Mathematical Practice** **MP.The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.** MP.1. Make sense of problems and persevere in solving them. MP.2. Reason abstractly and quantitatively.	• Absolute Values • Inverse Operations • Order of Operations • Operations with Integers • Prime Number • Words to Expressions with Variables ○	**Knowledge** • Match equations and expressions to their written descriptions. • Define a coefficient, composite number and constant. • Define the Additive and Multiplicative Inverse. • Identify and recall prime numbers. **Comprehension** • Locate points on a coordinate plane. • Use the Estimation Strategy to predict a solution. • Utilize Inverse Operations to solve an equation. • Add/subtract/multiply/divide integers. **Application** • Relate equations to real world issues. • Calculate the absolute value. • Use Order of Operations to simplify an expression. **Analysis** • Construct equations based on a written prompt. **Synthesis**

Unit	Standards	Content	Skills
	MP.3. Construct viable arguments and critique the reasoning of others. MP.4. Model with mathematics. MP.5. Use appropriate tools strategically. MP.6. Attend to precision. MP.7. Look for and make use of structure. MP.8. Look for and express regularity in repeated reasoning. **NCTM: Mathematics** **NCTM: Grades 9 - 12** **Algebra** **Understand patterns, relations, and functions** understand and perform transformations such as arithmetically combining, composing, and inverting commonly used functions, using technology to perform such operations on more-complicated symbolic expressions **Represent and analyze mathematical situations and structures using algebraic symbols** understand the meaning of equivalent forms of expressions, equations, inequalities, and relations;		• Formulate Expressions and Equations from written words.

Unit	Standards	Content	Skills
	Use mathematical models to represent and understand quantitative relationships use symbolic expressions, including iterative and recursive forms, to represent relationships arising from various contexts; **Data Analysis & Probability** **Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them** understand the meaning of measurement data and categorical data, of univariate and bivariate data, and of the term variable 		

Solving Equations	**CCSS: Mathematics**
	CCSS: HS: Algebra
	Creating Equations
	HSA-CED.A. Create equations that describe numbers or relationships.
	
	HSA-CED.A.1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.
	
	HSA-CED.A.2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
		• Properties of Equality
		  ○ Consecutive Integers
		  ○ Associative Property
		  ○ Commutative Property
		  ○ Distributive Property
		  ○ Reflexive Property
		  ○ Symmetric Property
		  ○ Transitive Property
		• One-Step Equations
		• Two-Step Equations
		• Multi-Step Equations
		• Equations with Variables on both Sides
			Knowledge
			
			• Point out the different transformations being applied in an equation.
			• Identify the Properties of Equality
			• Identify what properties are being used to solve equations.
			• Recognize properties of equations.
			
			Comprehension
			
			• Explain the process for solving equations.
			• Set and Solve a proportion.
			
			Application
			
			• Solve multi-step equations

Unit	Standards	Content	Skills
	HSA-CED.A.4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. **Reasoning with Equations & Inequalities** **HSA-REI.A. Understand solving equations as a process of reasoning and explain the reasoning.** HSA-REI.A.1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. **HSA-REI.B. Solve equations and inequalities in one variable.** HSA-REI.B.3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. **NCTM: Mathematics** **NCTM: Grades 6 - 8** **Number & Operations** **Understand numbers, ways of representing numbers, relationships among numbers, and number systems** work flexibly with fractions, decimals, and percents to solve problems; develop meaning for integers and represent and compare quantities with them. **Understand meanings of operations and how they relate to one another**	• Arithmetic Sequence • Inverse Operation • Solving Proportions • Translating and Solving Literal Equations	• Apply properties of equations. **Analysis** • Understand and Interpret the use of ratios and proportions to compare and represent quantitative relationships. **Synthesis** • Synthesize information to set up a proportion and solve. • Translating and solving literal equations. • Transform equations using the four operations. • Write equations to represent relationships among integers.

Unit	Standards	Content	Skills
	understand the meaning and effects of arithmetic operations with fractions, decimals, and integers; use the associative and commutative properties of addition and multiplication and the distributive property of multiplication over addition to simplify computations with integers, fractions, and decimals; understand and use the inverse relationships of addition and subtraction, multiplication and division, and squaring and finding square roots to simplify computations and solve problems. **Compute fluently and make reasonable estimates** develop and analyze algorithms for computing with fractions, decimals, and integers and develop fluency in their use; **Algebra** **Represent and analyze mathematical situations and structures using algebraic symbols** use symbolic algebra to represent situations and to solve problems, especially those that involve linear relationships; recognize and generate equivalent forms for simple algebraic expressions and solve linear equations **Use mathematical models to represent and understand quantitative relationships** model and solve contextualized problems using various representations, such as graphs, tables, and equations.		

Unit	Standards	Content	Skills
	Measurement **Apply appropriate techniques, tools, and formulas to determine measurements** solve simple problems involving rates and derived measurements for such attributes as velocity and density. 		
Inequalities	**CCSS: Mathematics** **CCSS: HS: Algebra** **Creating Equations** **HSA-CED.A. Create equations that describe numbers or relationships.** HSA-CED.A.1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. HSA-CED.A.2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. **Reasoning with Equations & Inequalities** **HSA-REI.A. Understand solving equations as a process of reasoning and explain the reasoning.** HSA-REI.A.1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution.	• Problem Solving Strategies • Inequalities with One Variable • Solution Sets of Inequalities • Absolute Value • Inequalities with Two Variables • Systems of Linear Inequalities	**Comprehension** • Identify methods for solving inequalities **Application** • Graph inequalities in one variable • Graph inequalities with two variables • Graph systems of inequalities. • Graph solution sets for absolute value problems **Analysis** • Apply knowledge to real world problems • Explain the solution set of a system of inequalities **Evaluation** • Relate systems of inequalities to real world problems.

Unit	Standards	Content	Skills
	Construct a viable argument to justify a solution method. HSA-REI.A.2. Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise. **HSA-REI.B. Solve equations and inequalities in one variable.** HSA-REI.B.3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. **HSA-REI.C. Solve systems of equations.** HSA-REI.C.5. Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions. HSA-REI.C.8. (+) Represent a system of linear equations as a single matrix equation in a vector variable. **HSA-REI.D. Represent and solve equations and inequalities graphically.** HSA-REI.D.10. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). **NCTM: Mathematics** **NCTM: Grades 9 - 12** **Algebra** **Represent and analyze mathematical situations and structures using algebraic symbols** write equivalent forms of equations, inequalities, and systems of equations and solve them with fluency-mentally or with		

Unit	Standards	Content	Skills
	paper and pencil in simple cases and using technology in all cases; 		
Linear Equations	**CCSS: Mathematics** **CCSS: HS: Algebra** **Creating Equations** **HSA-CED.A. Create equations that describe numbers or relationships.** HSA-CED.A.1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. **NCTM: Mathematics** **NCTM: Grades 9 - 12** **Algebra** **Understand patterns, relations, and functions** understand relations and functions and select, convert flexibly among, and use various representations for them; analyze functions of one variable by investigating rates of change, intercepts, zeros, asymptotes, and local and global behavior; understand and perform transformations such as arithmetically combining, composing, and inverting commonly used functions, using technology to perform such operations on more-complicated symbolic expressions	• Slope of a line • X and Y Intercepts • Linear Equations and their Graphs • Standard Form of Linear Equation • Slope Intercept Form of a Linear Equation • Point Slope Form of a Linear Equation • Parallel and Perpendicular lines • Function Rules, Tables, and Graphs • Direct Variation • Distance/Time • Relating Graphs to Events	**Knowledge** • Understand the difference between a relation and a function. • Define Functions, Tables and Graphs • Identify a linear function. • Identify the x and y intercepts of a graph. **Comprehension** • Calculate direct variation. • Calculate the x and y intercepts given an equation. **Application** • Graph a linear equation. • Calculate the slope of a line given a graph. • Calculate the perimeter and area as a function of length/width • Calculate the slope of a line from two points **Analysis** • Develop the equation of a line using slope, x-intercept, and point-slope form.

Unit	Standards	Content	Skills
	understand and compare the properties of classes of functions, including exponential, polynomial, rational, logarithmic, and periodic functions; interpret representations of functions of two variables **Represent and analyze mathematical situations and structures using algebraic symbols** use a variety of symbolic representations, including recursive and parametric equations, for functions and relations; **Use mathematical models to represent and understand quantitative relationships** identify essential quantitative relationships in a situation and determine the class or classes of functions that might model the relationships; use symbolic expressions, including iterative and recursive forms, to represent relationships arising from various contexts; **Geometry** **Apply transformations and use symmetry to analyze mathematical situations** understand and represent translations, reflections, rotations, and dilations of objects in the plane by using sketches, coordinates, vectors, function notation, and matrices; **Data Analysis & Probability** **Select and use appropriate statistical methods to analyze data**		• Construct the equation of a line in standard form, slope intercept form, or point slope form. • Distinguish whether a relation is a function given a table or graph. **Synthesis** • Develop and Linear Equation given data. (Best fit line) • Match a graph to an event. **Evaluation** • Summarize data to solve Distance/Time problems •

Unit	Standards	Content	Skills
	recognize how linear transformations of univariate data affect shape, center, and spread; identify trends in bivariate data and find functions that model the data or transform the data so that they can be modeled. 		
Systems of Linear Equations	**CCSS: Mathematics** **CCSS: HS: Algebra** **Creating Equations** **HSA-CED.A. Create equations that describe numbers or relationships.** HSA-CED.A.1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. HSA-CED.A.2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. **Reasoning with Equations & Inequalities** **HSA-REI.B. Solve equations and inequalities in one variable.** HSA-REI.B.3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. **HSA-REI.C. Solve systems of equations.**	• Applying Linear Functions • Parallel and Perpendicular Lines • Graphing Method of Solving Equations • Substitution Method of Solving Equations • Addition/Subtraction Method of Solving Equations • Problem Solving Strategies • Scatter Plots • Solve and Graph Absolute Value Equations	**Knowledge** • Define slope, point and line. • Identify different methods of solving linear equations **Comprehension** • Calculate the slope given two points or an equation. • Understand which method to use to solve a system of equations **Application** • Solve absolute value equations • Graph absolute value equations • Graph a system of equations • Identify solutions set of a system of equations **Analysis** • Explain when a system of equations will have no solution or infinite solutions.

Unit	Standards	Content	Skills
	HSA-REI.C.6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables. **HSA-REI.D. Represent and solve equations and inequalities graphically.** HSA-REI.D.10. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). **NCTM: Mathematics** **NCTM: Grades 9 - 12** **Algebra** **Understand patterns, relations, and functions** generalize patterns using explicitly defined and recursively defined functions; understand and perform transformations such as arithmetically combining, composing, and inverting commonly used functions, using technology to perform such operations on more-complicated symbolic expressions interpret representations of functions of two variables **Use mathematical models to represent and understand quantitative relationships** draw reasonable conclusions about a situation being modeled. **Analyze change in various contexts** approximate and interpret rates of change from graphical and numerical data.		**Synthesis** • Develop a Parallel or Perpendicular line given a point and an equation. • Predict the line of best-fit, given a scatter plot.

Unit	Standards	Content	Skills
Mid Term Exam			

Polynomials and Exponents	**CCSS: Mathematics**
	CCSS: HS: Algebra
	Arithmetic with Polynomials & Rational Functions
	HSA-APR.A. Perform arithmetic operations on polynomials.
	HSA-APR.A.1. Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.
	HSA-APR.B. Understand the relationship between zeros and factors of polynomials.
	HSA-APR.B.2. Know and apply the Remainder Theorem: For a polynomial p(x) and a number a, the remainder on division by x – a is p(a), so p(a) = 0 if and only if (x – a) is a factor of p(x).
	HSA-APR.B.3. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.
	HSA-APR.C. Use polynomial identities to solve problems.
		• Adding and Subtracting Polynomials
		• Degree of Polynomial
		• Integer Exponents
		• Multiplying
		  ○ Monomials
		  ○ Monomial by a Polynomial
		  ○ Polynomials
		  ○ Binomials
		• Polynomial Function
		• Problem solving strategies
			Knowledge
			• Identify the degree of a polynomial.
			• Define an exponent.
			• List components of expressions as like terms.
			Comprehension
			• Simplify expressions involving monomial-monomial and monomial-polynomial multiplication.
			• Write and simplify expressions involving exponents.
			Application
			• Multiply monomials, binomials and polynomials.
			• Use rules of exponents to solve equations.
			Analysis
			• Use different strategies to solve problems

Unit	Standards	Content	Skills
	HSA-APR.C.4. Prove polynomial identities and use them to describe numerical relationships. **HSA-APR.D. Rewrite rational expressions.** HSA-APR.D.6. Rewrite simple rational expressions in different forms; write a(x)/b(x) in the form q(x) + r(x)/b(x), where a(x), b(x), q(x), and r(x) are polynomials with the degree of r(x) less than the degree of b(x), using inspection, long division, or, for the more complicated examples, a computer algebra system. **NCTM: Mathematics** **NCTM: Grades 9 - 12** **Algebra** **Understand patterns, relations, and functions** understand and compare the properties of classes of functions, including exponential, polynomial, rational, logarithmic, and periodic functions; 		

Factoring	**CCSS: Mathematics**
	CCSS: HS: Algebra
	Seeing Structure in Expressions
	HSA-SSE.B. Write expressions in equivalent forms to solve problems.
		• Factoring
		  ○ Binomials
		  ○ Difference of Two Square
		  ○ Perfect Square Trinomials
		  ○ Trial and Error
		  ○ Trinomials
		• Factoring by Grouping
			Knowledge
			
			• List factors to solve a polynomial equations.
			
			Comprehension

Unit	Standards	Content	Skills
	HSA-SSE.B.3a. Factor a quadratic expression to reveal the zeros of the function it defines. **Arithmetic with Polynomials & Rational Functions** **HSA-APR.B. Understand the relationship between zeros and factors of polynomials.** HSA-APR.B.2. Know and apply the Remainder Theorem: For a polynomial p(x) and a number a, the remainder on division by x – a is p(a), so p(a) = 0 if and only if (x – a) is a factor of p(x). HSA-APR.B.3. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial. **Reasoning with Equations & Inequalities** **HSA-REI.B. Solve equations and inequalities in one variable.** HSA-REI.B.4b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a ± bi for real numbers a and b. **NCTM: Mathematics** **NCTM: Grades 9 - 12** **Algebra** **Represent and analyze mathematical situations and structures using algebraic symbols** use symbolic algebra to represent and explain mathematical relationships;	• Greatest Common Factor • Prime Factorization • Solving Equations by Factoring • Zero Product Property • Explore patterns for Factoring	• Describe the process of "Factoring by Grouping" and explain why it works. **Application** • Apply the FOIL method to check answers. • Factor expressions and equations. • Solve an equation by factoring. **Analysis** • Identify the appropriate method to factor an expression or equation. • Identify the GCF of polynomial expressions. • Examine patterns for factoring

Unit	Standards	Content	Skills
	judge the meaning, utility, and reasonableness of the results of symbol manipulations, including those carried out by technology. **Use mathematical models to represent and understand quantitative relationships** draw reasonable conclusions about a situation being modeled. 		
Rational and Irrational Numbers	**CCSS: Mathematics** **CCSS: Grade 8** **Geometry** **8.G.B. Understand and apply the Pythagorean Theorem.** 8.G.B.6. Explain a proof of the Pythagorean Theorem and its converse. 8.G.B.7. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions. **CCSS: HS: Algebra** **Reasoning with Equations & Inequalities** **HSA-REI.A. Understand solving equations as a process of reasoning and explain the reasoning.** HSA-REI.A.2. Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise. **NCTM: Mathematics**	• Multiply and Divide Radicals • Perfect Squares • Rational and Irrational Numbers • Simplify Radicals Including Variables Assumed to be Positive • Rational Numbers as Decimals and Fractions • Pythagorean Theorem • Radical Equations	**Knowledge** • Identify perfect squares. • Identify rational and irrational numbers • Identify repeating decimals **Comprehension** • Simplify expressions involving radicals including variables assumed to be positive. • Multiply and Divide Radicals • Add and Subtract Radicals **Analysis** • Simplify and rationalize radicals **Application** • Solve variable equations involving radicals, including rational and irrational solutions.

Unit	Standards	Content	Skills
	NCTM: Grades 9 - 12 **Algebra** **Understand patterns, relations, and functions** understand relations and functions and select, convert flexibly among, and use various representations for them; **Represent and analyze mathematical situations and structures using algebraic symbols** understand the meaning of equivalent forms of expressions, equations, inequalities, and relations; judge the meaning, utility, and reasonableness of the results of symbol manipulations, including those carried out by technology. 		• Use the Pythagorean theorem to solve problems
Quadratic Equations	**CCSS: Mathematics** **CCSS: HS: Algebra** **Creating Equations** **HSA-CED.A. Create equations that describe numbers or relationships.** HSA-CED.A.1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. **Reasoning with Equations & Inequalities** **HSA-REI.B. Solve equations and inequalities in one variable.**	• Quadratic Formula • Quadratic Equations with Perfect Squares • Methods of Solving Quadratic Equations • Graphs of Quadratic Equations	**Knowledge** • Identify quadratic formula • Identify components of a quadratic graph • Identify perfect squares • Explain why the quadratic formula can be used to solve all quadratic equations **Comprehension** • Understand which method to use to solve a quadratic equation

Unit	Standards	Content	Skills
	HSA-REI.B.4. Solve quadratic equations in one variable. HSA-REI.B.4b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a ± bi for real numbers a and b. 		**Application** • Apply the quadratic formula to solve equations • Identify solutions set of a quadratic equation **Analysis** • Select the best method for solving a quadratic equation • Analyze a quadratic function
Rational Expressions (Algebraic Fractions)	**CCSS: Mathematics** **CCSS: HS: Algebra** **Arithmetic with Polynomials & Rational Functions** **HSA-APR.D. Rewrite rational expressions.** HSA-APR.D.7. (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions. **NCTM: Mathematics** **NCTM: Grades 9 - 12** **Algebra** **Understand patterns, relations, and functions** understand and compare the properties of classes of functions, including exponential,	• Adding and Subtracting Rational Expressions • Multiplying and Dividing Rational Expressions • Polynomial Long Division • Simplifying Rational Expressions	**Knowledge** • Recognize the possible values of a variable in the denominator of a variable expression. • Use Polynomial Long Division to calculate a quotient. **Comprehension** • Simplify rational expressions. **Application** • Use knowledge of a LCD to add or subtract rational expressions. • Use knowledge of factoring to multiply and divide rational expressions **Analysis**

Unit	Standards	Content	Skills
	polynomial, rational, logarithmic, and periodic functions; 		• Defend whether rational expressions have been correctly simplified, using their knowledge of fraction manipulation.

Statistics & Probability	**CCSS: Mathematics**
	CCSS: HS: Stats/Prob
	Interpreting Categorical & Quantitative Data
	HSS-ID.A. Summarize, represent, and interpret data on a single count or measurement variable
	HSS-ID.A.1. Represent data with plots on the real number line (dot plots, histograms, and box plots).
	
	HSS-ID.A.2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.
	
	NCTM: Mathematics
	NCTM: Grades 9 - 12
	Data Analysis & Probability
	Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them
	understand histograms, parallel box plots, and scatterplots and use them to display data;
	
	compute basic statistics and understand the distinction between a statistic and a parameter.
		• Display of Data
		  ○ Bar Graph
		  ○ Box & Whisker Plot
		  ○ Circle Graph (Pie Graph)
		  ○ Stem & Leaf Plot
		• Concepts of Probability:
		  ○ Odds
		  ○ Simple Event
		  ○ Independent Events
		  ○ Dependent Events
		  ○ Independent Variable
		  ○ Dependent Variable
		  ○ Compound Event
		• Concepts of Statistics
		  ○ Domain
		  ○ Range
		  ○ Measure of Central Tendency
		  ○ Line of Best Fit
		  ○ Quartile
		  ○ Interquartile
		  ○ Outlier
			Knowledge
			• Interpret various statistical graphs. (Bar, Box & Whisker, Stem & Leaf, Pie chart)
			
			Application
			• Calculate the Measure of Central Tendency (Mean, Median and Mode)
			• Calculate the probability of event.
			• Given the domain calculate the range and interquartile range.
			
			Analysis
			• Calculate and/or make predication based upon measures of central tendency
			• Apply probability to practical situations, including compound even.
			
			Synthesis
			• Recognize and evaluate random processes underlying statistical experiments

Unit	Standards	Content	Skills
	Develop and evaluate inferences and predictions that are based on data use simulations to explore the variability of sample statistics from a known population and to construct sampling distributions; understand how sample statistics reflect the values of population parameters and use sampling distributions as the basis for informal inference; evaluate published reports that are based on data by examining the design of the study, the appropriateness of the data analysis, and the validity of conclusions; understand how basic statistical techniques are used to monitor process characteristics in the workplace. **Understand and apply basic concepts of probability** understand the concepts of sample space and probability distribution and construct sample spaces and distributions in simple cases; use simulations to construct empirical probability distributions; compute and interpret the expected value of random variables in simple cases; understand the concepts of conditional probability and independent events; understand how to compute the probability of a compound event. 		

Unit	Standards	Content	Skills
Final Term Exam			