

Math Planned Course: Honors Algebra II – Grades 9-12

Unit: **Algebra 1 Skills Review**

Content Standard: **Develop and Use Computation Concepts**, Solve equations

State Curriculum Standard:

- 2.1.11A** Use operations such as opposite, reciprocal, absolute value, raising to a power, finding roots, and logarithms.
- 2.2.11B** Use estimation to solve problems for which exact answer is not needed.
- 2.4.11E** Demonstrate mathematical solutions to problems in the physical sciences.
- 2.5.11A** Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non-routine and multi-step problems.
- 2.5.11B** Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.
- 2.5.11C** Present mathematical procedures and results clearly, systematically, succinctly, and correctly.

ISTE Standards: **1 Basic Operations and Concepts**

PSSA Anchors:

- M11.A.2.1.1** Solve problems using operations with rational numbers including rates and percent.
- M11.A.1.3.2** Compare and/or order any real numbers (rational and irrational may be mixed.)
- M11.A.1.2.1** Find the Greatest Common Factor (GCF) for sets of monomials and/or factor polynomial expressions using the greatest common monomial factor.
- M11.A.2.1.1** Solve problems using operations with rational numbers including rates and percents.
- M11.A.2.1.3** Identify and/or use proportional relationships in problem solving settings.
- M11.A.2.2.1** Simplify/evaluate expressions involving positive and negative exponents, roots and/or absolute value.
- M11.A.2.2.2** Simplify/evaluate expressions involving multiplying with exponents, powers of powers, and powers of products.
- M11.A.3.1.1** Simplify expressions using the order of operations to solve problems.
- M11.D.1.1.1** Analyze a set of data for the existence of a pattern and represent the pattern algebraically and/or graphically.
- M11.D.1.1.2** Determine if a relation is a function given a set of points or a graph.
- M11.D.1.1.3** Identify the domain, range or inverse of a relation.

Pacing Guide: **Traditional: 12 days including assessment**

BLOCK: 6 days including assessment

Math Planned Course: Honors Algebra II – Grades 9-12

Course Content	Student Performance	Resources	Assessments
<p>A. Properties of Real Numbers</p> <p>B. PEMDAS</p> <p>C. Algebraic Expressions</p> <p>D. Solving Equations and Inequalities</p> <p>E. Absolute Value</p>	<ul style="list-style-type: none"> • Simplify and evaluate expressions • Solve one step equations • Calculate sums, differences, products and quotients • Simplify absolute value 	<ul style="list-style-type: none"> • <u>Algebra 2</u> McDougal Littell, 2008) • McDougal Littell teaching resources • Calculators (graphing and/or scientific) • Software • Teacher-provided materials • PSSA math materials • Bell ringers • CPS • Measuring Up and Coach 11 • Study Island • Spiral review and project binder • Appendix 	<ul style="list-style-type: none"> • Tests/quizzes • Observation • Homework • Teacher developed Spiral Review of Algebra 1 topics • PSSA practice problems • Bell ringers <p><u>Remediation</u></p> <ul style="list-style-type: none"> • Software • Tutoring <p><u>Enrichment</u></p> <ul style="list-style-type: none"> • Challenge Problems • Supplemental worksheets • Student projects/research

Math Planned Course: Honors Algebra II – Grades 9-12

Unit: Functions and Linear Equations

Content Standard: **Organize and graph data; analyze functions and equations.**

State Curriculum Standard:

- 2.2.11C Construct and apply mathematical models, including lines and curves of best fit, to estimate values of related quantities.**
- 2.2.11F Demonstrate skills for using computer spreadsheets and scientific and graphing calculators.**
- 2.4.11E Demonstrate mathematical solutions to problems in the physical sciences.**
- 2.5.11B Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.**
- 2.5.11C Present mathematical procedures and results clearly, systematically, succinctly and correctly.**
- 2.6.11C Determine regression equation of best fit (linear, quadratic, and exponential).**
- 2.8.11M Given a set of data points, write an equation for a line of best fit.**

PSSA Anchors:

- M11.A.2.1.2 Solve problems using direct and inverse proportions.**
- M11.D.1.1.1 Analyze a set of data for the existence of a pattern and represent the pattern algebraically and/or graphically.**
- M11.D.1.1.2 Determine if a relation is a function given a set of points or a graph.**
- M11.D.2.1.1 Solve compound inequalities and/or graph their solution sets on a number line.**
- M11.D.2.1.2 Identify or graph functions, linear equations or linear inequalities on a coordinate plane.**
- M11.D.2.1.3 Write, solve and/or apply a linear equation.**
- M11.D.3.1.1 Identify, describe, and/or use constant or varying rates of change.**
- M11.D.3.2.1 Apply the formula for the slope of a line to solve problems.**
- M11.D.3.2.2 Given the graph of a line, 2 points on the line, or the slope and a point on a line, write or identify the linear equation in point-slope, standard, and/or slope-intercept form.**
- M11.D.3.2.3 Compute the slope and/or y-intercept represented by a linear equation or graph.**
- M11.E.4.2.1 Draw, find and/or write an equation for a line of best fit for a scatter plot.**

ISTE Standard: **1 Basic operations and Concepts**

3 Technology Productivity tools

6 Technology problem solving and decision making tools

Pacing Guide: **Traditional 14 days**

Block: 7 days

Math Planned Course: Honors Algebra II – Grades 9-12

Course Content	Student Performance	Resources	Assessments
<p>A. Coordinate Plane</p> <p>B. Vertical and Horizontal Translations</p> <p>C. Linear Equations and Inequalities</p> <p>D. Direct Variation</p> <p>E. Absolute Value Functions</p>	<ul style="list-style-type: none"> • Analyze vertical and horizontal translations of functions • Graph linear equations and inequalities • Write the equation of lines • Write lines of best fit • Graphing absolute value equations 	<ul style="list-style-type: none"> • <u>Algebra 2</u> McDougal Littell, (2008) • McDougal Littell teaching resources • Calculators (graphing and/or scientific) • Software • Teacher-provided materials • PSSA math materials • Bell ringers • CPS • Measuring Up and Coach 11 • Study Island • Spiral review and project binder • Appendix 	<ul style="list-style-type: none"> • Tests/quizzes • Observation • Homework • Projects • Journals • PSSA practice problems • Bell Ringers <p><u>Remediation</u></p> <ul style="list-style-type: none"> • Software • Tutoring <p><u>Enrichment</u></p> <ul style="list-style-type: none"> • Challenge Problems • Supplemental worksheets • Student projects/research • Internet • Spreadsheet project

Math Planned Course: Honors Algebra II – Grades 9-12

Unit: Linear Systems

Content Standard: **Solve and graph systems of linear equations and inequalities.**

State Curriculum Standard:

- 2.1.11A** Use operations such as opposite, reciprocal, absolute value, raising to a power, finding routes, and logarithms.
- 2.2.11F** Demonstrate skills for using computer spreadsheets and scientific and graphing calculators.
- 2.4.11C** Determine the validity of an argument.
- 2.5.11A** Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non routine and multi-step problems.
- 2.5.11B** Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.
- 2.5.11C** Present mathematical procedures and results clearly, systematically, succinctly, and correctly.
- 2.6.11D** Make predictions using interpolation, extrapolation, regression, and estimation using technology.
- 2.8.11D** Formulate expressions, equations, inequalities, systems of equations, systems of inequalities, and matrices to model routine and non routine problem situations.
- 2.8.11G** Analyze and explain systems of equations, inequalities, and matrices.
- 2.8.11H** Select and use appropriate strategy to solve systems of equations and inequalities using graphing calculators, symbol manipulators, spreadsheets, and other software.
- 2.8.11K** Select, justify, and apply an appropriate technique to graph a linear function in two variables, including slope-intercept, x & y intercepts, graphing by transformations, and the use of a graphing calculator.
- 2.8.11Q** Represent functional relationships in tables, charts, and graphs.
- 2.11.11B** Interpret maximum and minimum values in problem situations.

PSSA Anchor:

- M11.D.2.1.2** Identify or graph functions, linear equations or linear inequalities on a coordinate plane.
- M11.D.2.1.3** Write, solve and/or apply a linear equation.
- M11.D.2.1.4** Write and/or solve systems of equations using graphing, substitution and/or elimination.

ISTE Standard: **1 Basic operations and Concepts**
3 Technology Productivity tools
6 Technology problem solving and decision making tools

Pacing Guide: **Traditional: 14 days**

Block: 7 days

Math Planned Course: Honors Algebra II – Grades 9-12

Course Content	Student Performance	Resources	Assessments
<p>A. Systems of Two Linear Equations</p> <ul style="list-style-type: none"> • Graphing • Substitution • Elimination <p>B. Systems of Linear Inequalities</p> <p>C. Linear Programming</p> <p>D. Systems of Equations In Three Variables</p>	<ul style="list-style-type: none"> • Solve a system of linear equations by: <ul style="list-style-type: none"> • Graphing • Substitution • Elimination • Solve a system of linear inequalities by graphing • Identify the restrictions on the variables • Write a system of equations from a word problem • Find the objective function • Identify the vertices of the graph • Calculate the maximum and minimum values of the objective function • Solve linear programming problems • Solve a system of equations in three variables using elimination 	<ul style="list-style-type: none"> • <u>Algebra 2</u> McDougal Littell, (2008) • McDougal Littell teaching resources • Calculators (graphing and/or scientific) • Software • Teacher-provided materials • PSSA math materials • Bell ringers • CPS • Measuring Up and Coach 11 • Study Island • Spiral review and project binder • Appendix 	<ul style="list-style-type: none"> • Tests/quizzes • Observation • Homework • Projects • Journals • Presentations • Bell Ringers <p><u>Remediation</u></p> <ul style="list-style-type: none"> • Software • Tutoring <p><u>Enrichment</u></p> <ul style="list-style-type: none"> • Challenge problems • Supplemental worksheets • Student projects/research • Internet • Real-world linear programming problems (project)

Math Planned Course: Honors Algebra II – Grades 9-12

Unit 4: **Matrices**

Content Standard: **Add, subtract, and multiply matrices; define and use inverse matrices.**

State Curriculum Standard:

- 2.5.11A** Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non routine and multi-step problems.
- 2.5.11B** Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, and ideas and results.
- 2.5.11C** Present mathematical procedures and results clearly, systematically, succinctly, and correctly.
- 2.8.11G** Analyze and explain systems of equations, systems of inequalities, and matrices.
- 2.8.11I** Use matrices to organize and manipulate data, including matrix addition, subtraction, multiplication, and scalar multiplication.

PSSA Anchor:

- M11.A.1.1** Represent and/or use fractions as decimals and percents (item may ask for 2 of any of these 3 – change percent to fraction, change fraction to decimal, etc.)
- M11.A.1.1.1** Find the square root of an integer using either a calculator or estimation (integer may or may not be a perfect square – answer may be a range of values)
- M11.A.2.1.1** Solve problems using operations with rational numbers including rates and percents.
- M11.D.2.1** Represent and/or analyze mathematical situations using numbers, symbols, words, tables and/or graphs.
- M11.D.2.1.4** Write and/or solve systems of equations using graphing, substitution and/or elimination.

ISTE Standard: **1 Basic operations and Concepts**
3 Technology Productivity tools
6 Technology problem solving and decision making tools

Pacing Guide: **Traditional 10 days**

Block: 5 days

Math Planned Course: Honors Algebra II – Grades 9-12

Course Content	Student Performance	Resources	Assessments
<p>A. Organize Data Into Matrices</p> <p>B. Matrix Operations</p> <ul style="list-style-type: none"> • Addition • Subtraction • Multiplication • Scalar Multiplication <p>C. Determinants</p> <p>D. Inverse and Identity Matrices</p> <p>E. Cramer's Rule</p>	<ul style="list-style-type: none"> • Create matrices from given data • Name the dimensions of a given matrix • Solve for a variable in equal matrices • Calculate the sum, difference and product of two or more matrices • Calculate the product of a scalar and a matrix • Calculate the determinant of a 2x2 and 3x3 by hand and with graphing calculator • Define an identity matrix • Calculate the inverse of a 2x2 matrix • Use inverse matrices to solve matrix equations • Solve a system of equations using inverse matrices • Solve 2x2 and 3x3 systems using Cramer's Rule and graphing calculators 	<ul style="list-style-type: none"> • <u>Algebra 2</u> McDougal Littell, (2008) • McDougal Littell teaching resources • Calculators (graphing and/or scientific) • Software • Teacher-provided materials • PSSA math materials • Bell ringers • CPS • Measuring Up and Coach 11 • Study Island • Spiral review and project binder • Appendix 	<ul style="list-style-type: none"> • Tests/quizzes • Observation • Homework • Projects • Journals • PSSA practice problems • Bell ringers <p><u>Remediation</u></p> <ul style="list-style-type: none"> • Software • Tutoring <p><u>Enrichment</u></p> <ul style="list-style-type: none"> • Challenge problems • Supplemental worksheets • Student projects/research

Math Planned Course: Honors Algebra II – Grades 9-12

Unit: Quadratic Equations and Functions

Content Standard: **Examine quadratic equations and parabolas.
Solve quadratic equations.**

State Curriculum Standard:

- 2.1.11A Use operations such as opposite, reciprocal absolute value, raising to a power, finding roots, and logarithms.
- 2.2.11F Demonstrate skills for using computer spreadsheets and scientific and graphing calculators.
- 2.3.11A Select and use appropriate units and tools to measure to the degree of accuracy required in particular measurement situations.
- 2.4.11C Determine the validity of an argument.
- 2.4.11E Demonstrate mathematical solutions to problems in the physical sciences.
- 2.5.11A Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non-routine and multi-step problems.
- 2.5.11B Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.
- 2.5.11C Present mathematical procedures and results clearly, systematically, succinctly, and correctly.
- 2.8.11A Analyze a given set of data for the existence of a pattern and represent the pattern algebraically and graphically.
- 2.8.11D Formulate expressions, equations, inequalities, systems of equations, systems of inequalities, and matrices to model routine and non-routine problem situations.
- 2.8.11K Select, justify, and apply an appropriate technique to graph a linear function in two variables, including slope-intercept, x & y intercepts, graphing by transformations, and the use of a graphing calculator.
- 2.8.11N Solve linear, quadratic, and exponential equations both symbolically and graphically.
- 2.8.11Q Represent functional relationships in tables, charts, and graphs.
- 2.8.11R Create and interpret functional model.
- 2.11.11B Interpret maximum and minimum values in problem situations.

PSSA Anchors:

- M11.A.1.1.1 Find the square root of an integer using either a calculator or estimation (integer may or may not be a perfect square – answer may be a range of values)
- M11.A.1.2.1 Find the Greatest Common Factor (GCF) for sets of monomials and/or factor polynomial expressions using the greatest common monomial factor.
- M11.A.2.2. Use exponents, roots and/or absolute value to solve problems.
- M11.D.2.1 Represent and/or analyze mathematical situations using numbers, symbols, words, tables and/or graphs.
- M11.D.2.2 Simplify expressions involving polynomials.
- M11.D.2.1.5 Solve quadratic equations using factoring.
- M11.D.2.2.2 Factor algebraic expressions, including difference of squares and trinomials.
- M11.D.2.1.2 Identify or graph functions, linear equations or linear inequalities on a coordinate plane.
- M11.D.4.1 Interpret and/or use linear, quadratic and/or exponential functions and their equations, graphs or tables.

ISTE Standard: **1 Basic operation and concept
3 Technology productivity tools
6 Technology problem solving and decision making tools**

Pacing Guide: **Traditional: 25-30 days** **Block: 12-18 days**

Math Planned Course: Honors Algebra II – Grades 9-12

Course Content	Student Performance	Resources	Assessments
<p>A. Modeling Data With Quadratic Functions</p> <p>B. Properties of Parabolas</p> <p>C. Transforming Parabolas</p> <p>D. Factoring Quadratic Expressions</p> <p>E. Quadratic Equations</p> <p>F. Complex Numbers</p> <p>G. Completing the Square</p> <p>H. Quadratic Formula</p>	<ul style="list-style-type: none"> • Recognize quadratic functions and parabolas • Identify whether data is linear or quadratic • Identify vertex and axis of symmetry • Find maximum or minimum value of a quadratic function • Graph a parabola in vertex form • Write the equation of a parabola in vertex form • Write the equation of a parabola in standard form • Re-examine the factoring methods learned in Algebra I • Solve quadratic equations by factoring, finding square roots, and graphing • Identify complex numbers • Add, subtract, multiply complex numbers • Solve quadratic equations by completing the square • Calculate the discriminant • Determine the types of solutions using the discriminant • Solve quadratic equations using the quadratic formula 	<ul style="list-style-type: none"> • <u>Algebra 2</u> McDougal Littell, (2008) • McDougal Littell teaching resources • Calculators (graphing and/or scientific) • Software • Teacher-provided materials • PSSA math materials • Bell ringers • CPS • Measuring Up and Coach 11 • Study Island • Spiral review and project binder • Appendix 	<ul style="list-style-type: none"> • Tests/quizzes • Observation • Homework • Projects • Journals • PSSA practice problems • Bell ringers <p><u>Remediation</u></p> <ul style="list-style-type: none"> • Software • Tutoring <p><u>Enrichment</u></p> <ul style="list-style-type: none"> • Challenge problems • Supplemental worksheets • Student projects/research • Internet • Projects

Math Planned Course: Honors Algebra II – Grades 9-12

Unit: **Polynomials and Polynomial Functions**

Content Standard: **Solve polynomial equations and divide polynomials.**

State Curriculum Standard:

- 2.2.11F** Demonstrate skills for using computer spreadsheets and scientific and graphing calculators.
- 2.4.11C** Determine the validity of an argument.
- 2.5.11A** Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non-routine and multi-step problems.
- 2.5.11B** Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.
- 2.5.11C** Present mathematical procedures and results clearly, systematically, succinctly, and correctly.
- 2.8.11A** Analyze a given set of data for the existence of a pattern and represent the pattern algebraically and graphically.
- 2.8.11Q** Represent functional relationships in tables, charts, and graphs.

PSSA Anchors:

- M11.A.2.2.2** Simplify/evaluate expressions involving multiplying with exponents, powers of powers, and powers of products.
- M11.D.1.1.2** Determine if a relation is a function given a set of points or a graph.
- M11.D.2.1.2** Identify or graph functions, linear equations or linear inequalities on a coordinate plane.
- M11.D.2.1.5** Solve quadratic equations using factoring.
- M11.D.2.2** Simplify expressions involving polynomials.
- M11.D.2.2.1** Add, subtract, and/or multiply polynomial expressions.
- M11.D.2.2.2** Factor algebraic expressions, including difference of squares and trinomials.
- M11.D.2.2.3** Simplify algebraic fractions.
- M11.D.4.1** Interpret and/or use linear, quadratic and/or exponential functions and their equations, graphs or tables.

ISTE Standard: **1 Basic operations and concepts**
3 Technology productivity tools
6 Technology problem solving and decision making tools

Pacing Guide: **Traditional 15** **Block 8**

Math Planned Course: Honors Algebra II – Grades 9-12

Course Content	Student Performance	Resources	Assessments
<p>A. Properties of Exponents</p> <p>B. Perform Operations with Polynomials</p> <p>C. Solving Polynomial Equations</p> <p>D. Dividing Polynomials</p> <p>E. Remainder and Factor Theorems</p>	<ul style="list-style-type: none"> • Use properties of exponents • Add, subtract, multiply polynomials • Solve polynomial equations by factoring and graphing • Divide polynomials using long division • Divide polynomials using synthetic division • Solve higher powered equations using theorems 	<ul style="list-style-type: none"> • <u>Algebra 2</u> McDougal Littell, (2008) • McDougal Littell teaching resources • Calculators (graphing and/or scientific) • Software • Teacher-provided materials • PSSA math materials • Bell ringers • CPS • Measuring Up and Coach 11 • Study Island • Spiral review and project binder • Appendix 	<ul style="list-style-type: none"> • Tests/quizzes • Observation • Homework • Projects • Journals • PSSA practice problems • Bell ringers <p><u>Remediation</u></p> <ul style="list-style-type: none"> • Software • Tutoring <p><u>Enrichment</u></p> <ul style="list-style-type: none"> • Challenge problems • Supplemental worksheets • Student projects/research • Internet • Projects

Math Planned Course: Honors Algebra II – Grades 9-12

Unit: **Rational Exponents and Radical Functions**

Content Standard: **Simplify radicals and solve radical equations.**

State Curriculum Standard:

2.4.11B Construct valid arguments from stated facts.

2.5.11A Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non routine and multi-step problems.

2.5.11B Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.5.11C Present mathematical procedures and results clearly, systematically, succinctly, and correctly.

PSSA Anchors:

M11.A.2.2.1 Simplify/evaluate expressions involving positive and negative exponents, roots and/or absolute value.

M11.A.2.1.2 Solve problems using direct and inverse proportions.

M11.D.1.1.3 Identify the domain, range or inverse of a relation.

M11.D.2.1.2 Identify or graph functions, linear equations or linear inequalities on a coordinate plane.

ISTE Standards: **1 Basic operations and concepts**

3 Technology productivity tools

6 Technology problem solving and decision making tools

Pacing Guide: **Traditional: 8 days**

Block: 4 days

Math Planned Course: Honors Algebra II – Grades 9-12

Course Content	Student Performance	Resources	Assessments
<p>A. Rational Exponents</p> <p>B. Inverse Functions</p> <p>C. Radical Equations</p>	<ul style="list-style-type: none"> • Evaluate rational powers • Find and graph inverse functions • Solve radical equations by squaring 	<ul style="list-style-type: none"> • <u>Algebra 2</u> McDougal Littell, (2008) • McDougal Littell teaching resources • Calculators (graphing and/or scientific) • Software • Teacher-provided materials • PSSA math materials • Bell ringers • CPS • Measuring Up and Coach 11 • Study Island • Spiral review and project binder • Appendix 	<ul style="list-style-type: none"> • Tests/quizzes • Observation • Homework • Projects • Journals • PSSA practice problems • Bell ringers <p><u>Remediation</u></p> <ul style="list-style-type: none"> • Software • Tutoring <p><u>Enrichment</u></p> <ul style="list-style-type: none"> • Challenge problems • Supplemental worksheets • Student projects/research • Internet • Projects

Math Planned Course: Honors Algebra II – Grades 9-12

Course Content	Student Performance	Resources	Assessments
<p>A. Inverse Variation</p> <p>B. Rational Expressions</p> <p>C. Rational Equations</p>	<ul style="list-style-type: none"> • Solve problems involving inverse variation • Simplify rational expressions by factoring • Multiply and divide rational expressions • Calculate the sum and difference of rational expressions with like and unlike denominators • Solve rational equations using cross-products and least common denominators 	<ul style="list-style-type: none"> • <u>Algebra 2</u> McDougal Littell, (2008) • McDougal Littell teaching resources • Calculators (graphing and/or scientific) • Software • Teacher-provided materials • PSSA math materials • Bell ringers • CPS • Measuring Up and Coach 11 • Study Island • Spiral review and project binder • Appendix 	<ul style="list-style-type: none"> • Tests/quizzes • Observation • Homework • Projects • Journals • PSSA practice problems • Bell ringers <p><u>Remediation</u></p> <ul style="list-style-type: none"> • Software • Tutoring <p><u>Enrichment</u></p> <ul style="list-style-type: none"> • Challenge problems • Supplemental worksheets • Student projects/research • Internet • Projects

Math Planned Course: Honors Algebra II – Grades 9-12

Unit: **Probability and Statistics** (Statistics & Probability)

Content Standard: **Calculate probabilities of events; analyze and interpret data.**

State Curriculum Standard:

- 2.5.11** Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.
- 2.5.11C** Present mathematical procedures and results clearly, systematically, succinctly, and correctly.
- 2.5.11D** Conclude a solution process with a summary of results and evaluate the degree to which the results obtained represent an acceptable response to the initial problem and why the reasoning is valid.
- 2.6.11A** Design and conduct an experiment using random sampling, describe the data as an example of a distribution using statistical measures of center and spread, and organize and represent the results with graphs. (Use Standard Deviation)
- 2.7.11E** Solve problems involving independent simple and compound events.

PSSA Anchors:

- M11.A.3.1** Apply the order of operations in computation and in problem-solving situations.
- M11.A.3.2** Use estimation strategies in problem-solving situations.
- M11.A.2.1.1** Solve problems using operations with rational numbers including rates and percents.
- M11.A.2.2.** Use exponents, roots and/or absolute value to solve problems.
- M11.E.1.1.1** Create and/or use appropriate graphical representations of data, including box-and-whisker plots, stem-and-leaf plots, scatter plots, line/double line, bar/double bar and circle graphs.
- M11.E.1.1.2** Answer questions based on displayed data .
- M11.E.2.1.1** Calculate or select the appropriate measure of central tendency of a set of data given or represented on a table, line plot, or stem-and-leaf plot.
- M11.E.2.1.2** Calculate and/or interpret the range, quartiles and interquartile range of sets of data.
- M11.E.2.1.3** Describe how outliers affect measures of central tendency.
- M11.E.3.1.2** Find, convert and/or compare the probability and/or odds of a simple event.
- M11.E.4.1.2** Use probability to predict outcomes.

ISTE Standard: **1 Basic operations and Concepts**
3 Technology Productivity tools
6 Technology problem solving and decision making tools

Pacing Guide: **Traditional 12 days**

Block: 7 days

Math Planned Course: Honors Algebra II – Grades 9-12

Course Content	Student Performance	Resources	Assessments
<p>A. Probability</p> <p>B. Analyzing Data</p> <p>C. Standard Deviation</p>	<ul style="list-style-type: none"> • Identify independent and mutually exclusive events • Calculate the probabilities of multiple events • Calculate the mean, median, and mode of a set of data • Draw and interpret box and whisker plots • Calculate the standard deviation of a set of data • Assess the value of standard deviation in real-world problems 	<ul style="list-style-type: none"> • <u>Algebra 2</u> McDougal Littell, (2008) • McDougal Littell teaching resources • Calculators (graphing and/or scientific) • Software • Teacher-provided materials • PSSA math materials • Bell ringers • CPS • Measuring Up and Coach 11 • Study Island • Spiral review and project binder • Appendix 	<ul style="list-style-type: none"> • Tests/quizzes • Observation • Homework • Projects • Journals • PSSA practice problems • Bell ringers <p><u>Remediation</u></p> <ul style="list-style-type: none"> • Software • Tutoring <p><u>Enrichment</u></p> <ul style="list-style-type: none"> • Challenge problems • Supplemental worksheets • Student projects/research • Internet • Projects