

# Algebra II, Grades 9-11

Curriculum Writers - Tracy C. Fine and Paula Morrissette

STANDARDS GSE's	Applied Learning Stand. SIP	OUTCOMES/BENCHMARKS Barrington Public Schools (NECAP GSE's)	RESEARCH-BASED INSTRUCTIONAL STRATEGIES	RESOURCES	RESEARCH-BASED ASSESSMENT EVIDENCE
<p><b>CONTENT STRANDS</b></p> <ul style="list-style-type: none"> <li>• <b>Number and Operations</b></li> <li>• <b>Geometry and Measurement</b></li> <li>• <b>Functions and Algebra</b></li> <li>• <b>Data, Statistics, and Probability</b></li> </ul> <p><b>PROCESS STRANDS</b></p> <ul style="list-style-type: none"> <li>• <b>Problem-solving, Reasoning, and Proof</b></li> <li>• <b>Communication, Connections, and</b></li> </ul>		<p><b>NECAP GRADE SPAN EXPECTATIONS</b></p> <p>All of the concepts and skills identified at a given grade level are "fair game" for large scale assessment purposes if indicated by <b>(state assessment, grade...)</b>.</p> <p>Each GSE includes three parts:</p> <ul style="list-style-type: none"> <li>• A statement in <b>bold</b>, called the "stem" is at the beginning of each GSE. Each "stem" is the same or similar across the grades for a given GSE, and is meant to communicate the main curriculum and instructional focus of the GSE across the grades.</li> <li>• The <b>unbolded</b> text within a GSE indicates how the GSE is specified at a given grade level. There are often several indicators for each GSE stem. Each indicator is coded and indicated fair game for "state" or "local" assessment.</li> <li>• Differences between adjacent grades are <b>underlined</b>. Sometimes nothing is underlined within a GSE. In these situations, differences in adjacent grades "assumes increasing text complexity" and is noted for those GSE.</li> <li>• Each <b>GSE is coded</b> for the content area, the grade level, the GLE/GSE "stem" number, and specific indicator for that GLE/GSE stem. (e.g. N&amp;O - 5-6.2 means N</li> </ul>	<p><b>DISTRICT INITIATIVES &amp; RESEARCH</b></p> <p><b>The teacher</b></p> <p>Employs strategies of "best practice" (student-centered, experiential, holistic, authentic, expressive, reflective, social, collaborative, democratic, cognitive, developmental, constructivist/heuristic, and challenging)</p> <p>Facilitates the integration of <b>Applied Learning Standards (SCANS)</b></p> <ul style="list-style-type: none"> <li>• critical thinking</li> <li>• problem solving</li> <li>• research</li> <li>• communication</li> <li>• reflection and evaluation</li> </ul> <p>Applies <b>Principles of Learning (POL) ©</b></p> <ul style="list-style-type: none"> <li>• organizing for effort</li> <li>• clear expectations</li> <li>• fair and credible evaluations</li> <li>• recognition of accomplishment</li> <li>• academic rigor</li> <li>• accountable talk</li> <li>• socializing intelligence'</li> <li>• self-management of learning</li> <li>• learning as apprenticeship</li> </ul> <p>Applies <b>Principles of Disciplinary Literacy</b></p> <p>Differentiates instruction by <b>varying the content, process, and product</b> and implementing</p> <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul>	<p><b>Textbook</b></p> <p><i>Algebra and Trigonometry Structure and Method, book 2,</i> McDougal and Littell</p> <p><b>Supplementary books</b></p> <ul style="list-style-type: none"> <li>• <i>A Collection of Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</i></li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• Scientific and graphing calculator</li> <li>• Overhead graphing scientific calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.glencoe.com">www.glencoe.com</a></li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> </ul>	<p><b>REQUIRED</b></p> <p><b>REQUIRED PROBLEMS COMMON ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-TERM EXAM</li> <li>• FINAL EXAM</li> <li>• PROFICIENCY EXAM</li> </ul> <p><b>SUGGESTED</b></p> <p>Anecdotal records</p> <p>Exhibits</p> <p>Interviews</p> <p>Graphic organizers and/or visual imagery</p> <p>Journals</p> <p><b>Multiple Intelligences assessments e.g.</b></p> <ul style="list-style-type: none"> <li>• role playing, short plays</li> <li>• (bodily kinesthetic)</li> <li>• graphic organizing, sketch journals/ cartooning (visual)</li> <li>• collaboration/ conferencing interpersonal</li> <li>• songs, lyrics (musical)</li> </ul>

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<p><b>Representations</b></p>		<p>&amp; O (numbers and operations), 5 (grade 5), 6 (6<sup>th</sup> GLE/GSE stem), 2 (the second specific indicator for the 6<sup>th</sup> GLE stem).</p> <p>If an outcome does not have a GSE number, it indicates this is an additional expectation for Barrington Public Schools.</p> <p><b>Outcomes and Benchmarks</b> are indicated for all <b>MATHEMATIC GSE's/standards</b> and are secured for this grade level unless indicated with a <b>B</b> for beginning or a <b>D</b> for developing.</p> <p>The <b>instructional strategies, resources, and assessments</b> to the right are a reference list of possible ways to teach and measure the outcomes/benchmarks. One, some, or all of these may be used for specific outcomes/benchmarks. The lists reflect research-based instructional strategies and assessments, and all of the district initiatives. Required district-wide assessments that include common local assessments (mid-term/final exams) are indicated. It is the expectation they will be used for all outcomes/benchmarks.</p> <p>When an instructional strategy, resource, or assessment is specific to an outcome/benchmark, it may be listed next to the benchmark.</p>	<p>Analyzes <b>pre-assessment</b> to direct instruction</p> <p>Provides <b>exemplars</b> and rubrics</p> <p><b>Addresses multiple intelligences and brain dominance</b> (spatial, bodily kinesthetic, musical, linguistic, intrapersonal, interpersonal, mathematical/logical, and naturalist)</p> <p>Organizes <b>exhibition of student work</b> with rubrics</p> <p>Collaborates with specialist to differentiate instruction for ALL students</p> <p><b>MATHEMATICS STRATEGIES</b></p> <p>Employs <b>Mathematics best practice strategies e.g.</b></p> <ul style="list-style-type: none"> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• using Lab Classroom strategies</li> <li>• <b>modeling functions of the graphing and scientific calculator</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>NECAP Release tasks</b></li> <li>• <b>NECompact.org</b></li> <li>• <b>BPS website</b></li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• <b>Rulers (metric), protractors</b></li> <li>• <b>Scissors, glue</b></li> </ul> <p><b>School library resources</b></p> <ul style="list-style-type: none"> <li>• <i>Classroom Instruction That Works,</i></li> </ul>	<p><b>Oral presentations</b></p> <p><b>Performance/problem-based tasks</b></p> <p><b>Rubrics</b></p> <p><b>Tests and quizzes</b></p>

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<p>1. NUMBER and OPERATIONS</p> <p>1.1 Rational Numbers</p>		<p>The student</p> <p>1.1.1 Demonstrates conceptual understanding of rational numbers by knowing that real numbers are rational if and only if the number's decimal expansion eventually repeats or terminates. M(N&amp;O)- 12- 1</p> <p>1.1.2 Understands, uses, applies appropriate technology to solve problems.</p>	<p>Teacher may model and/or facilitate the following strategies</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>using Lab Classroom strategies</li> <li>modeling functions of the graphing and scientific calculator</li> </ul> <ul style="list-style-type: none"> <li>Differentiated instruction by varying the content, process, and product and implementing               <ul style="list-style-type: none"> <li>tiered assignments</li> <li>jigsawing</li> </ul> </li> </ul>	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li><a href="#">Algebra 2, Glencoe</a></li> <li><a href="#">Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</a></li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li><a href="#">Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</a></li> </ul> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>Scientific and graphing calculator</li> <li>Overhead graphing scientific calculator</li> <li>TI Navigator</li> <li><a href="http://www.glencoe.com">www.glencoe.com</a></li> <li><a href="http://www.ri.oe.net">www.ri.oe.net</a></li> <li><a href="http://www.ri.oe.net/instruction/curriculum">www.ri.oe.net/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>BPS website</li> </ul> <p><u>Materials</u></p> <p><u>School library resources</u></p> <p><a href="#">Classroom Instruction That Works, Marzano</a></p>	<p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED ASSESMENTS</b></p> <p><b>REQUIRED PROBLEMS</b></p> <p><b>COMMON ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-TERM EXAM</li> <li>FINAL EXAM</li> <li>PROFICENCY EXAM</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Tests/quizzes</p> <p>Visual representation (e.g. Power Point™)</p>

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			<ul style="list-style-type: none"> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>• cubing, etc.</li> </ul>		
<p>1. NUMBER and OPERATIONS</p> <p>1.2 Relative magnitude of real numbers</p>		<p>The student</p> <p>1.2.1 Demonstrates understanding of the relative magnitude of real numbers by solving problems that involve</p> <ul style="list-style-type: none"> <li>• ordering or comparing any subset of the real numbers. M(N&amp;O)-12-2               <ul style="list-style-type: none"> <li>○ natural numbers</li> <li>○ whole numbers</li> <li>○ integers</li> <li>○ rational numbers</li> <li>○ irrational numbers</li> <li>○ real numbers</li> </ul> </li> </ul> <p>1.2.2 Demonstrates an ability to utilize appropriate technology to represent:</p> <ul style="list-style-type: none"> <li>• rational numbers</li> <li>• scientific notation</li> <li>• common irrational numbers (e.g., <math>\sqrt{2}</math>, <math>\pi</math>)</li> </ul> <p>1.2.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>1.2.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• Glencoe, p. 15, # 5</li> <li>• Glencoe, p. 16-17, # 8, 9, 10, 31</li> </ul>	<p>Teacher may model and/or facilitate the following strategies</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• using Lab Classroom strategies</li> <li>• modeling functions of the graphing and scientific calculator</li> </ul> <ul style="list-style-type: none"> <li>• Differentiated instruction</li> </ul>	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li>• <i>Algebra 2, Glencoe</i></li> <li>• <i>Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</i></li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>• <i>Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</i></li> </ul> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>• Scientific and graphing calculator</li> <li>• Overhead graphing scientific calculator</li> <li>• TI Navigator</li> <li>• <a href="http://www.glencoe.com">www.glencoe.com</a></li> <li>• <a href="http://www.ri.doe.net">www.ri.doe.net</a></li> <li>• <a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>• <i>NECAP Release tasks</i></li> <li>• <i>NECompact.org</i></li> <li>• BPS website</li> </ul> <p><u>Materials</u></p> <ul style="list-style-type: none"> <li>• index cards</li> <li>• string</li> </ul>	<p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED ASSESMENTS</b></p> <p><b>REQUIRED PROBLEMS</b></p> <p><b>COMMON ASSESMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-TERM EXAM</li> <li>• FINAL EXAM</li> <li>• PROFICENCY EXAM</li> </ul> <p><b>SUGGESTED ASSESMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Tests/quizzes</p> <p>Visual representation (e.g. Power Point™)</p>

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			by varying the content, process, and product and implementing <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• markers</li> </ul> <p><u>School library resources</u> <i>Classroom Instruction That Works</i>, Marzano</p>	
1. NUMBER and OPERATIONS  1.3 Solves problems		<p><b>The Student</b></p> <p>1.3.1 <b>Accurately solves problems</b> involving scientific notation or uses significant digits to assess the precision of an answer. M(N&amp;O)-12-4</p> <p>1.3.2 Interprets numbers given in scientific notation and carries out computations of them with and without a calculator. M(N&amp;O)-12-4</p> <ul style="list-style-type: none"> <li>• addition, subtraction, multiplication and division</li> <li>• rules of exponents</li> </ul> <p>1.3.3 Interprets rational exponents and their relation to radicals.</p> <ul style="list-style-type: none"> <li>• computes by hand in simple cases (e.g. <math>4^{3/2}</math>)</li> <li>• uses a calculator when appropriate. M(N&amp;O)-12-4</li> </ul> <p>1.3.4 Solves problems involving compound interest. M(N&amp;O)-12-4 (e.g. using quadratic techniques to solve)</p>	<p><b>Teacher may model and/or facilitate the following strategies</b></p> <p>Examples of scientific notation and compound interest in every day life</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> </ul>	<p><b>Resources, also see pages 1-2</b></p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li>• Algebra 2, Glencoe</li> <li>• Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>• Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</li> </ul> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>• Scientific and graphing calculator</li> <li>• Overhead graphing scientific calculator</li> <li>• TI Navigator</li> <li>• <a href="http://www.glencoe.com">www.glencoe.com</a></li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>• NECAP Release tasks</li> </ul>	<p><b>Assessments/evidence, also see pages 1-2</b></p> <p><b>REQUIRED ASSESMENTS</b> <b>REQUIRED PROBLEMS</b> <b>COMMON ASSESMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-TERM EXAM</li> <li>• FINAL EXAM</li> <li>• PROFICIENCY EXAM</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p>

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		<p>1.3.5 Solves real world problems from contexts outside of and within mathematics including those that cut across content strands or disciplines. Comparison among:</p> <ul style="list-style-type: none"> <li>linear</li> <li>quadratic</li> <li>exponential functions</li> </ul> <p>1.3.6 Demonstrate the ability to utilize appropriate technology (e.g. scientific and/or graphic calculator) to aid in solving real world problems.</p> <p>1.3.7 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>Penny Problem #8</li> <li>Glencoe, p. 516, example 3</li> </ul>	<ul style="list-style-type: none"> <li>using frequent assessment to modify instruction</li> <li>using Lab Classroom strategies</li> <li>modeling functions of the graphing and scientific calculator</li> <li>Differentiated instruction by varying the content, process, and product and implementing <ul style="list-style-type: none"> <li>tiered assignments</li> <li>jigsawing</li> <li>pre/post assessments</li> <li>anchoring</li> <li>think/pair/share</li> <li>cubing, etc.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>NECompact.org</li> <li>BPS website</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>rulers (metric), protractors</li> <li>scissors, glue</li> </ul> <p><b>School library resources</b> <i>Classroom Instruction That Works, Marzano</i></p>	<p>Tests/quizzes</p> <p>Visual representation (e.g. Power Point™)</p>
<p>1. NUMBER and OPERATIONS</p> <p>1.4 Appropriate estimates</p>		<p><b>The student</b></p> <p>1.4.2 Makes appropriate estimates or reasonableness in a given situation by determining the level of accuracy needed and analyzing the accuracy of results. M(N&amp;O)-12-7</p> <p>1.4.3 Interprets results to match real world situations.</p> <ul style="list-style-type: none"> <li>Is the answer reasonable? (e.g. negative length, distances, or time are not acceptable.)</li> </ul> <p>(IMPORTANT: <i>The intent of this GSE is to embed estimation throughout the instructional program, not to</i></p>	<p><b>Teacher may model and/or facilitate the following strategies</b></p> <ul style="list-style-type: none"> <li>Thinking and interpreting results</li> </ul> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> </ul>	<p><b>Resources, also see pages 1-2</b></p> <p><b>Textbook</b></p> <ul style="list-style-type: none"> <li><i>Algebra 2, Glencoe</i></li> <li><i>Algebra and Trigonometry Structure and Method, book 2, McDougal and Littel</i></li> </ul> <p><b>Supplementary books</b></p> <ul style="list-style-type: none"> <li><i>Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</i></li> </ul>	<p><b>Assessments/evidence, also see pages 1-2</b></p> <p><b>REQUIRED ASSESMENTS</b></p> <p><b>REQUIRED PROBLEMS</b></p> <p><b>COMMON ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-TERM EXAM</li> <li>FINAL EXAM</li> <li>PROFICIENCY EXAM</li> <li>COMMON TASKS <ul style="list-style-type: none"> <li>Missing the Boat</li> <li>Video games</li> <li>School Proposal Problem</li> </ul> </li> </ul>

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		<p><i>teach it as a separate unit.)</i></p> <p>1.4.4 Understands, uses, applies appropriate technology to solve problems.</p> <p>1.4.5 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• Glencoe, p. 342, # 2</li> <li>• Glencoe, p. 349, # 4</li> <li>• McDougal Littell, p. 200, # 6</li> <li>• McDougal Littell, p. 201, # 20 and 24</li> </ul> <p><b>COMMON TASKS</b></p> <ul style="list-style-type: none"> <li>• Missing the Boat #3</li> <li>• Video games #5</li> <li>• School Proposal Problem #2</li> <li>• Holiday Inn Pool Problem #1</li> <li>• The Price is Rice #4</li> </ul>	<ul style="list-style-type: none"> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• using Lab Classroom strategies</li> <li>• modeling functions of the graphing and scientific calculator</li> <li>• Differentiated instruction by varying the content, process, and product and implementing             <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul> </li> </ul>	<p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• Scientific and graphing calculator</li> <li>• Overhead graphing scientific calculator</li> <li>• TI Navigator</li> <li>• <a href="http://www.glencoe.com">www.glencoe.com</a></li> <li>• <a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>• NECAP Release tasks</li> <li>• NECompact.org</li> <li>• BPS website</li> </ul> <p><b>Materials</b></p> <p><b>School library resources</b> <i>Classroom Instruction That Works, Marzano</i></p>	<ul style="list-style-type: none"> <li>○ Holiday Inn Pool Problem</li> <li>○ The Price is Rice</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Tests/quizzes</p> <p>Visual representation (e.g. Power Point™)</p>
<p>1. NUMBER and OPERATIONS</p> <p>1.5 Properties of</p>		<p><b>The student</b></p> <p>1.5.1 Applies properties of numbers to solve problems, simplify computations, or compare and contrast the properties of numbers and number systems.</p>	<p>Teacher may model and/or facilitate the following strategies</p> <ul style="list-style-type: none"> <li>• Graphic organizers and</li> </ul>	<p>Resources, also see pages 1-2</p> <p><b>Textbook</b></p> <ul style="list-style-type: none"> <li>• <i>Algebra 2, Glencoe</i></li> </ul>	<p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED ASSESMENTS</b></p> <p><b>REQUIRED PROBLEMS</b></p>

# Algebra II, Grades 9-11

Curriculum Writers - Tracy C. Fine and Paula Morrissette

STANDARDS GSE's	Applied Learning Stand. SIP	OUTCOMES/BENCHMARKS Barrington Public Schools (NECAP GSE's)	RESEARCH-BASED INSTRUCTIONAL STRATEGIES	RESOURCES	RESEARCH-BASED ASSESSMENT EVIDENCE
numbers		<ul style="list-style-type: none"> <li>• <b>properties of equality</b> <ul style="list-style-type: none"> <li>○ reflexive</li> <li>○ symmetric</li> <li>○ transitive</li> <li>○ addition</li> <li>○ multiplication</li> </ul> </li> <li>• <b>properties of algebra</b> <ul style="list-style-type: none"> <li>○ commutative</li> <li>○ associative</li> <li>○ distributive</li> <li>○ identity properties</li> <li>○ inverse properties</li> </ul> </li> </ul> <p>1.5.2 <b>Applies properties to</b> determine whether a given subset of numbers is closed under a given arithmetic operation. M(N&amp;O)-12-8</p> <p>1.5.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>1.5.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• Glencoe, p. 17, # 38-45 (1.5.1)</li> <li>• McDougall Littell, p. 19, # 25-32 (1.5.2)</li> </ul> <p><b>COMMON TASKS</b></p> <ul style="list-style-type: none"> <li>• Missing the Boat #3</li> <li>• Video games #5</li> <li>• School Proposal Problem #2</li> <li>• Holiday Inn Pool Problem #1</li> <li>• The Price is Rice #4</li> </ul>	<p>visual aids</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• using Lab Classroom strategies</li> <li>• modeling functions of the graphing and scientific calculator</li> <li>• Differentiated instruction by varying the content, process, and product and implementing <ul style="list-style-type: none"> <li>▪ tiered assignments</li> <li>▪ jigsawing</li> <li>▪ pre/post assessments</li> <li>▪ anchoring</li> <li>▪ think/pair/share</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <i>Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</i></li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>• <i>Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</i></li> </ul> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>• Scientific and graphing calculator</li> <li>• Overhead graphing scientific calculator</li> <li>• TI Navigator</li> <li>• <a href="http://www.glencoe.com">www.glencoe.com</a></li> <li>• <a href="http://www.ride.net">www.ride.net</a></li> <li>• <a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>• <b>NECAP Release tasks</b></li> <li>• <b>NECompact.org</b></li> <li>• <b>BPS website</b></li> </ul> <p><u>Materials</u></p> <p><u>School library resources</u> <i>Classroom Instruction That Works, Marzano</i></p>	<p><b>COMMON ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• <b>MID-TERM EXAM</b></li> <li>• <b>FINAL EXAM</b></li> <li>• <b>PROFICIENCY EXAM</b></li> <li>• <b>COMMON TASKS</b> <ul style="list-style-type: none"> <li>○ Missing the Boat</li> <li>○ Video games</li> <li>○ School Proposal Problem</li> <li>○ Holiday Inn Pool Problem</li> <li>○ The Price is Rice</li> </ul> </li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Tests/quizzes</p> <p>Visual representation (e.g. Power Point™)</p>

# Algebra II, Grades 9-11

Curriculum Writers - Tracy C. Fine and Paula Morrissette

STANDARDS GSE's	Applied Learning Stand. SIP	OUTCOMES/BENCHMARKS Barrington Public Schools (NECAP GSE's)	RESEARCH-BASED INSTRUCTIONAL STRATEGIES	RESOURCES	RESEARCH-BASED ASSESSMENT EVIDENCE
			<ul style="list-style-type: none"> <li>cubing, etc.</li> </ul>		
<b>2. GEOMETRY AND MEASUREMENT</b> 2.1 Formal proofs		<b>COVERED IN GEOMETRY</b>			
<b>2. GEOMETRY AND MEASUREMENT</b>  2.1 Concepts of congruency		<p><b>The student</b></p> <p>2.1.1 <b>Applies the concepts of congruency</b> by using matrices to represent:</p> <ul style="list-style-type: none"> <li>reflections</li> <li>translations</li> <li>rotations. M(G&amp;M)-12-4</li> </ul> <p>2.1.2 Understands, uses, applies appropriate technology to solve problems.</p> <p>2.1.3 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>Glencoe, p. 190, # 4</li> <li>Glencoe, p. 191, #26</li> <li>McDougal Littell, p. 847</li> </ul>	<p>Teacher may model and/or facilitate the following strategies</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>using Lab Classroom strategies</li> <li>modeling functions of the graphing and scientific calculator</li> </ul>	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li>Algebra 2, Glencoe</li> <li>Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</li> </ul> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>Scientific and graphing calculator</li> <li>Overhead graphing scientific calculator</li> <li>Computer lab</li> <li>TI Navigator</li> <li><a href="http://www.glencoe.com">www.glencoe.com</a></li> <li><a href="http://www.ride.net">www.ride.net</a></li> <li><a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>BPS website</li> </ul>	<p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED ASSESMENTS</b></p> <p><b>REQUIRED PROBLEMS</b></p> <p><b>COMMON ASSESMENTS</b></p> <ul style="list-style-type: none"> <li>MID-TERM EXAM</li> <li>FINAL EXAM</li> <li>PROFICENCY EXAM</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Tests/quizzes</p>

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STANDARDS GSE's	Applied Learning Stand. SIP	OUTCOMES/BENCHMARKS Barrington Public Schools (NECAP GSE's)	RESEARCH-BASED INSTRUCTIONAL STRATEGIES	RESOURCES	RESEARCH-BASED ASSESSMENT EVIDENCE
				<u>Materials</u> <ul style="list-style-type: none"> <li>rulers (metric),</li> </ul> <u>School library resources</u> <i>Classroom Instruction That Works, Marzano</i>	Visual representation (e.g. Power Point™)
<b>2. GEOMETRY AND MEASUREMENT</b>  2.2 Similarity		<b>COVERED IN GEOMETRY</b>			
<b>2. GEOMETRY AND MEASUREMENT</b>  2.3 Angles, lengths, and area of polygons		<p><b>The student</b></p> <p>2.3.1 Solves problems involving angles, lengths and area of polygons and applies the appropriate unit of measure. M(G&amp;M)-12-6</p> <p>2.3.2 Solves problems involving:</p> <ul style="list-style-type: none"> <li>perimeter, circumference, or area of two-dimensional figures (including composite figures)</li> <li>surface area or volume of three-dimensional figures (including composite figures)</li> </ul> <p>within mathematics or across disciplines or contexts. (G&amp;M)-10-6</p> <p>2.3.3 Understands, uses, applies appropriate technology to solve problems.</p> <p>2.3.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>Exploring area, perimeter, and circumference #7</li> <li>McDougal Littell, p. 200, # 6</li> <li>McDougal Littell, p. 201, # 24</li> </ul>	<p>Teacher may model and/or facilitate the following strategies</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>using Lab Classroom</li> </ul>	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li><i>Algebra 2, Glencoe</i></li> <li><i>Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</i></li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li><i>Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</i></li> </ul> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>Scientific and graphing calculator</li> <li>Overhead graphing scientific calculator</li> <li>Computer lab</li> <li>TI Navigator</li> <li><a href="http://www.glencoe.com">www.glencoe.com</a></li> <li><a href="http://www.ridoe.net">www.ridoe.net</a></li> <li><a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> </ul>	<p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED ASSESSMENTS</b> <b>REQUIRED PROBLEMS</b> <b>COMMON ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-TERM EXAM</li> <li>FINAL EXAM</li> <li>PROFICENCY EXAM</li> <li>COMMON TASK             <ul style="list-style-type: none"> <li>Holiday Inn Pool Problem</li> </ul> </li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing Journals/notebooks</p> <p>Oral presentation</p>

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STANDARDS GSE's	Applied Learning Stand. SIP	OUTCOMES/BENCHMARKS Barrington Public Schools (NECAP GSE's)	RESEARCH-BASED INSTRUCTIONAL STRATEGIES	RESOURCES	RESEARCH-BASED ASSESSMENT EVIDENCE
		<b>COMMON TASK</b> <ul style="list-style-type: none"> <li>Holiday Inn Pool Problem #1</li> </ul>	strategies <ul style="list-style-type: none"> <li>modeling functions of the graphing and scientific calculator</li> </ul>	<ul style="list-style-type: none"> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>BPS website</li> </ul> <u>Materials</u> <ul style="list-style-type: none"> <li>rulers (metric),</li> </ul> <u>School library resources</u> <i>Classroom Instruction That Works, Marzano</i>	Portfolio (samples of process and products)  Tests/quizzes  Visual representation (e.g. Power Point™)
<b>3. GEOMETRY AND MEASUREMENT</b> 2.4 Informal concepts of successive approximation		<b>COVERED IN PRE CALCULUS AND CALCULUS</b>			.
<b>2. GEOMETRY AND MEASUREMENT</b> 2.5 Circles as loci of points		<b>The student</b>  2.6.1 Solves problems involving circles as loci of points in the plane satisfying certain distance requirements (e.g. center and radius). M(G&M)--12-9  2.6.2 Uses the distance formula to obtain equations for circles. M(G&M)--12-9  2.6.3 Solves problems on and off the coordinate plane involving: <ul style="list-style-type: none"> <li>distance</li> <li>midpoint</li> <li>transformation of the circle</li> <li>inequalities.</li> </ul> 2.6.4 Solves a system of equations which incorporates a line, circle, and/or a parabola.	<b>Teacher may model and/or facilitate the following strategies</b>  <b>Mathematics best practice e.g.</b> <ul style="list-style-type: none"> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment</li> </ul>	Resources, also see pages 1-2  <u>Textbook</u> <ul style="list-style-type: none"> <li>Algebra 2, Glencoe</li> <li>Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</li> </ul> <u>Supplementary books</u> <ul style="list-style-type: none"> <li>Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</li> </ul> <u>Technology</u> <ul style="list-style-type: none"> <li>Scientific and graphing calculator</li> <li>Overhead graphing scientific calculator</li> <li>Computer lab</li> <li>TI Navigator</li> <li>www.glencoe.com</li> </ul>	<b>Assessments/evidence, also see pages 1-2</b>  <b>REQUIRED ASSESMENTS</b> <b>REQUIRED PROBLEMS</b> <b>COMMON ASSESSMENTS</b> <ul style="list-style-type: none"> <li>MID-TERM EXAM</li> <li>FINAL EXAM</li> <li>PROFICIENCY EXAM</li> </ul> <b>SUGGESTED ASSESSMENTS</b> Anecdotal record (e.g. defends student generated conjectures in class)  Conferencing  Journals/notebooks  Oral presentation

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		<p>2.6.5 Understands, uses, and applies appropriate technology to solve problems.</p> <p>2.6.6 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• Glencoe, p. 424, #1 (2.6.1-2.6.3)</li> <li>• Glencoe, p. 428, #56 (2.6.1-2.6.3)</li> <li>• Glencoe, p. 464, #6 (2.6.4)</li> </ul>	<p>to modify instruction</p> <ul style="list-style-type: none"> <li>• using Lab Classroom strategies</li> <li>• modeling functions of the graphing and scientific calculator</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="http://www.rido.net">www.rido.net</a></li> <li>• <a href="http://www.rido.net/instruction/curriculum">www.rido.net/instruction/curriculum</a></li> <li>• <a href="#">NECAP Release tasks</a></li> <li>• <a href="http://NECompact.org">NECompact.org</a></li> <li>• <a href="#">BPS website</a></li> </ul> <p><u>Materials</u></p> <ul style="list-style-type: none"> <li>• rulers (metric), compasses</li> <li>• graph paper</li> </ul> <p><u>School library resources</u> <i>Classroom Instruction That Works, Marzano</i></p>	<p>Portfolio (samples of process and products)</p> <p>Tests/quizzes</p> <p>Visual representation (e.g. Power Point™)</p>
<p><b>2. GEOMETRY AND MEASUREMENT</b></p> <p>2.7 Spatial reasoning and visualization</p>		<p><b>COVERED IN GEOMETRY</b></p>			
<p><b>3. FUNCTIONS AND ALGEBRA</b></p> <p>3.1 Arithmetic and geometric sequence</p>		<p><b>The student</b></p> <p>3.1.1 Identifies, extends, and generalizes a variety of patterns:</p> <ul style="list-style-type: none"> <li>• linear</li> <li>• nonlinear (quadratic, exponential)</li> </ul> <p>represented by models, tables, sequences, or graphs to solve problems. (F&amp;A)-10-1, 8-1</p> <p>3.1.2 Identifies arithmetic and geometric sequences and finds the nth term; then uses the generalization to find a specific term. M(F&amp;A)-12-1</p> <p>3.1.3 Understands, uses, and applies appropriate technology to solve problems.</p>	<p>Teacher may model and/or facilitate the following strategies</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving</li> </ul>	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li>• <i>Algebra 2, Glencoe</i></li> <li>• <i>Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</i></li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>• <i>Algebra I Dolciani</i></li> <li>• <i>Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</i></li> </ul> <p><u>Technology</u></p>	<p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED ASSESMENTS</b></p> <p><b>REQUIRED PROBLEMS</b></p> <p><b>COMMON ASSESMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-TERM EXAM</li> <li>• FINAL EXAM</li> <li>• PROFICENCY EXAM</li> <li>• COMMON TASKS             <ul style="list-style-type: none"> <li>○ The Price is Rice</li> <li>○ Penny Problem</li> <li>○ Square Tile Pattern Task</li> </ul> </li> </ul> <p><b>SUGGESTED ASSESMENTS</b></p>

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STANDARDS GSE's	Applied Learning Stand. SIP	OUTCOMES/BENCHMARKS Barrington Public Schools (NECAP GSE's)	RESEARCH-BASED INSTRUCTIONAL STRATEGIES	RESOURCES	RESEARCH-BASED ASSESSMENT EVIDENCE
		<p>3.1.4 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• McDougall Littell, p. 150, #23</li> <li>• Glencoe, p. 81, #2</li> </ul> <p><b>COMMON TASK</b></p> <ul style="list-style-type: none"> <li>• The Price is Rice #4</li> <li>• Penny Problem #8</li> <li>• Square Tile Pattern Task #6</li> </ul>	<p>approach to instruction</p> <ul style="list-style-type: none"> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• using Lab Classroom strategies</li> <li>• modeling functions of the graphing and scientific calculator</li> </ul>	<ul style="list-style-type: none"> <li>• Scientific and graphing calculator</li> <li>• Overhead graphing scientific calculator</li> <li>• <a href="http://www.glencoe.com">www.glencoe.com</a></li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>• NECAP Release tasks</li> <li>• NECompact.org</li> <li>• BPS website</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• rulers (metric), protractors</li> </ul> <p><b>School library resources</b> <i>Classroom Instruction That Works, Marzano</i></p>	<p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Tests/quizzes</p> <p>Visual representation (e.g. Power Point™)</p>
<p>3. FUNCTIONS AND ALGEBRA</p> <p>3.2 Linear and non linear functions and relations</p>		<p>The student demonstrates conceptual understanding of linear and nonlinear functions and relations by</p> <p>3.2.1 Representing and analyzing functions in several ways:</p> <ul style="list-style-type: none"> <li>• graphs</li> <li>• tables</li> <li>• equations</li> </ul> <p>3.2.2. Recognizing and analyzing functions</p> <ul style="list-style-type: none"> <li>• average rates of change</li> <li>• x and y intercepts</li> <li>• roots and zeros</li> <li>• domain</li> <li>• range</li> <li>• maximum and minimum values</li> </ul>	<p>Teacher may model and/or facilitate the following strategies</p> <p>Discovery lessons</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> </ul>	<p>Resources, also see pages 1-2</p> <p><b>Textbook</b></p> <ul style="list-style-type: none"> <li>• <i>Algebra 2, Glencoe</i></li> <li>• <i>Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</i></li> </ul> <p><b>Supplementary books</b></p> <ul style="list-style-type: none"> <li>• <i>Algebra I Dolciani</i></li> <li>• <i>Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</i></li> </ul> <p><b>Technology</b></p>	<p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED ASSESSMENTS</b></p> <p><b>REQUIRED PROBLEMS</b></p> <p><b>COMMON ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-TERM EXAM</li> <li>• FINAL EXAM</li> <li>• PROFICIENCY EXAM</li> <li>• COMMON TASK             <ul style="list-style-type: none"> <li>• Holiday Inn Pool Problem</li> </ul> </li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures</p>

# Algebra II, Grades 9-11

Curriculum Writers - Tracy C. Fine and Paula Morrissette

STANDARDS GSE's	Applied Learning Stand. SIP	OUTCOMES/BENCHMARKS Barrington Public Schools (NECAP GSE's)	RESEARCH-BASED INSTRUCTIONAL STRATEGIES	RESOURCES	RESEARCH-BASED ASSESSMENT EVIDENCE
		<ul style="list-style-type: none"> <li>• increasing and decreasing intervals</li> <li>• rates of change (e.g., the height is increasing at a decreasing rate) M(F&amp;A)-12-2</li> </ul> <p>3.2.3 Applying knowledge of functions to interpret, model, and solve problems. M(F&amp;A)-12-2</p> <p>3.2.4 Representing functions numerically, algebraically, graphically, and verbally (i.e. in written words). M(F&amp;A)-12-2</p> <p>3.2.5 Recognizing properties of a function from these representations, and transferring information from one representation to another. M(F&amp;A)-12-2</p> <p>3.2.6 Graphing polynomial, rational and exponential functions, including vertical and horizontal shifts, stretches, and compressions (<i>shrinking</i>) as well as reflections across vertical and horizontal axes. M(F&amp;A)-12-2</p> <p>3.2.7 Applying knowledge of functions to interpret and understand situations, design mathematical models, and solve problems in mathematics as well as in natural and social sciences. M(F&amp;A)-12-2</p> <p>3.2.8 Understands, uses, and applies appropriate technology to solve problems.</p>	<ul style="list-style-type: none"> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• using Lab Classroom strategies</li> <li>• modeling functions of the graphing and scientific calculator</li> </ul>	<ul style="list-style-type: none"> <li>• Scientific and graphing calculator</li> <li>• Overhead graphing scientific calculator</li> <li>• Computer lab</li> <li>• TI Navigator</li> <li>• <a href="http://www.glencoe.com">www.glencoe.com</a></li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>• <a href="#">NECAP Release tasks</a></li> <li>• <a href="http://NECompact.org">NECompact.org</a></li> <li>• <a href="#">BPS website</a></li> </ul> <p><u>Materials</u></p> <ul style="list-style-type: none"> <li>• rulers (metric)</li> <li>• graph paper</li> </ul> <p><u>School library resources</u> <a href="#">Classroom Instruction That Works</a>, Marzano</p>	<p>in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Tests/quizzes</p> <p>Visual representation (e.g. Power Point™)</p>

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		<p>3.2.1 REQUIRED PROBLEMS</p> <ul style="list-style-type: none"> <li>• McDougal Littell, p. 838</li> <li>• Discovery Vertex Form of the Equation of a Parabola #15</li> <li>• McDougal Littell, p. 231, #1-9</li> <li>• Glencoe, p. 342, # 2</li> <li>• Glencoe, p. 349, # 4</li> <li>• McDougal Littell, p. 200, # 6</li> <li>• McDougal Littell, p. 201, # 20 and 24</li> </ul> <p>COMMON TASKS</p> <ul style="list-style-type: none"> <li>• Holiday Inn Pool Problem #1</li> <li>• The Price is Rice #4</li> <li>• Missing the Boat #3</li> <li>• School Proposal #2</li> </ul>			
<p>3. FUNCTIONS AND ALGEBRA</p> <p>3.3 Linear and non linear functions and relations</p>		<p>The student</p> <p>3.3.1 Demonstrates conceptual understanding of algebraic expressions by:</p> <ul style="list-style-type: none"> <li>• manipulating, evaluating, and simplifying algebraic and numerical expressions</li> <li>• adding, subtracting, multiplying and dividing polynomials</li> <li>• adding, subtracting, multiplying and dividing rational expressions</li> <li>• simplifying complex fractions</li> <li>• factoring quadratic and higher degree polynomials, including difference of squares</li> <li>• translating situations into algebraic equations in order to solve problems</li> <li>• determining extraneous solutions and restrictions on the domain</li> <li>• applying properties of logarithms e.g. <math>\log_a b^n</math></li> </ul>	<p>Teacher may model and/or facilitate the following strategies</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> </ul>	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li>• Algebra 2, Glencoe</li> <li>• Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>• Algebra I Dolciani</li> <li>• Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</li> </ul> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>• Scientific and graphing calculator</li> <li>• Overhead graphing</li> </ul>	<p>Assessments/evidence, also see pages 1-2</p> <p><u>REQUIRED ASSESMENTS</u></p> <p><u>REQUIRED PROBLEMS</u></p> <p><u>COMMON ASSESSMENTS</u></p> <ul style="list-style-type: none"> <li>• MID-TERM EXAM</li> <li>• FINAL EXAM</li> <li>• PROFICIENCY EXAM</li> <li>• COMMON TASKS <ul style="list-style-type: none"> <li>○ The Price is Rice</li> <li>○ Missing the Boat</li> <li>○ Holiday Inn Pool Problem</li> <li>○ School Proposal</li> </ul> </li> </ul> <p><u>SUGGESTED ASSESSMENTS</u></p> <p>Anecdotal record (e.g. defends</p>

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STANDARDS GSE's	Applied Learning Stand. SIP	OUTCOMES/BENCHMARKS Barrington Public Schools (NECAP GSE's)	RESEARCH-BASED INSTRUCTIONAL STRATEGIES	RESOURCES	RESEARCH-BASED ASSESSMENT EVIDENCE
		<p>= <math>n \log_a b</math>, <math>a^{\log_a b} = b</math>) and converting between logarithmic and exponential forms (B) (ALGEBRA II HONORS/PRE-CALCULUS)</p> <ul style="list-style-type: none"> <li>manipulating, evaluating, and simplifying expressions involving rational exponents and radicals</li> <li>converting between expressions with rational exponents and expressions with radicals. M(F&amp;A)-12-3</li> </ul> <p>3.3.1 Understands, uses, applies appropriate technology to solve problems.</p> <p>3.3.2 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>True and False Task for the Laws of Exponents #7</li> <li>True and False Task for Radicals/fractional Exponents #10</li> <li>McDougall Littell, p. 246, # 12 and 13</li> <li>Glencoe, p. 342, # 2</li> <li>Glencoe, p. 349, # 4</li> <li>McDougal Littell, p. 200, # 6</li> <li>McDougal Littell, p. 201, # 20 and 24</li> <li>McDougal Littell, p. 315, #8</li> <li>Glencoe, p. 304, # 2</li> </ul> <p><b>COMMON TASKS</b></p> <ul style="list-style-type: none"> <li>The Price is Rice #4</li> <li>Missing the Boat #3</li> <li>Holiday Inn Pool Problem #1</li> <li>School Proposal #2</li> </ul>	<ul style="list-style-type: none"> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>using Lab Classroom strategies</li> <li>modeling functions of the graphing and scientific calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>tiered assignments</li> <li>jigsawing</li> <li>pre/post assessments</li> <li>anchoring</li> <li>think/pair/share</li> <li>cubing, etc.</li> </ul>	<p>scientific calculator</p> <ul style="list-style-type: none"> <li>Computer lab</li> <li><a href="http://www.glencoe.com">www.glencoe.com</a></li> <li><a href="http://www.ridoe.net">www.ridoe.net</a></li> <li><a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>BPS website</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>Algebra tiles</li> <li>rulers (metric), protractors</li> </ul> <p><b>School library resources</b> <i>Classroom Instruction That Works</i>, Marzano</p>	<p>student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Tests/quizzes</p> <p>Visual representation (e.g. Power Point™)</p>

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<p>3. FUNCTIONS AND ALGEBRA</p> <p>3.4 Equality</p>		<p>The student</p> <p>3.4.1 <b>Demonstrates conceptual understanding of equality by</b></p> <ul style="list-style-type: none"> <li>solving equations and systems of equations or inequalities and interpreting the solutions algebraically and graphically</li> <li>factoring, completing the square, using the quadratic formula, and graphing quadratic functions to solve quadratic equations</li> <li>solving and interpreting solutions of equations involving polynomial, rational, and radical expressions</li> <li>simplifying radical or rational expressions on the solution set of equations (e.g. <math>x^2/x=x</math> for <math>x \neq 0</math>)</li> <li>finding approximate solutions to equations by graphing each side as a function using technology. [Understand that any equation in <math>x</math> can be interpreted as the equation <math>f(x) = g(x)</math> and interpret the solutions of the equation as the <math>x</math> value(s) of the intersection point(s) of the graphs of <math>y=f(x)</math> and <math>y=g(x)</math> (B) <b>STRONGER FOCUS IN PRE-CALCULUS</b>]</li> <li>solving 2x2 and 3x3 systems of linear equations and graphically ( NOT FOR 3x3) interprets the solutions</li> <li>solving systems of linear and quadratic inequalities</li> <li>solving systems of equations involving nonlinear expressions and graphically interpret solutions. M(F&amp;A)- 12-4</li> </ul>	<p>Teacher may model and/or facilitate the following strategies</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>using Lab Classroom strategies</li> <li>modeling functions of the graphing and scientific calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>tiered assignments</li> <li>jigsawing</li> <li>pre/post assessments</li> </ul>	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li><i>Algebra 2, Glencoe</i></li> <li><i>Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</i></li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li><i>Algebra I Dolciani</i></li> <li><i>Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</i></li> </ul> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>Scientific and graphing calculator</li> <li>Overhead graphing scientific calculator</li> <li>Computer lab</li> <li><a href="http://www.glencoe.com">www.glencoe.com</a></li> <li><a href="http://www.ridoe.net">www.ridoe.net</a></li> <li><a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>BPS website</li> </ul> <p><u>Materials</u></p> <ul style="list-style-type: none"> <li>rulers (metric), protractors</li> <li>Algebra tiles</li> </ul> <p><u>School library resources</u></p> <p><i>Classroom Instruction That Works, Marzano</i></p>	<p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED ASSESMENTS</b></p> <p><b>REQUIRED PROBLEMS</b></p> <p><b>COMMON ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-TERM EXAM</li> <li>FINAL EXAM</li> <li>PROFICIENCY EXAM</li> <li>COMMON TASKS <ul style="list-style-type: none"> <li>School Proposal Problem</li> <li>Missing the Boat</li> <li>Holiday Inn Pool Problem</li> </ul> </li> </ul> <p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Tests/quizzes</p> <p>Visual representation (e.g.</p>

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		<p>3.4.2 Understands, uses, applies appropriate technology to solve problems</p> <p>3.4.3 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>• Cal's Dinner Card Deals #11</li> <li>• Making the Most of It #12</li> <li>• Bracelets and Necklaces #13</li> <li>• Blending Problem (pizza and dough) #14</li> <li>• Glencoe, p. 402, # 2</li> <li>• Glencoe, p. 464, # 1-5</li> <li>• McDougal Littell, p. 439, #1</li> <li>• McDougal Littell, p. 244, #4</li> </ul> <p><b>COMMON TASKS</b></p> <ul style="list-style-type: none"> <li>• School Proposal Problem #2</li> <li>• Missing the Boat #3</li> <li>• Holiday Inn Pool Problem #1</li> </ul>	<ul style="list-style-type: none"> <li>▪ anchoring</li> <li>▪ think/pair/share</li> <li>▪ cubing, etc.</li> </ul>		Power Point™)
<p><b>4. DATA, STATISTICS, AND PROBABILITY</b></p> <p>4.1 Given representation</p>		<p><b>The student</b></p> <p>4.1.1 <b>Interprets a given representation(s)</b> e.g., regression function including linear, quadratic (B), and exponential (B) to analyze the data to make inferences and formulate, justify, and critique conclusions. M(DSP)-12-1</p> <p>IMPORTANT: Analyze data consistent with concepts and skills in M(DSP)-11-2).</p> <p>4.1.2 <b>Interprets a given representation</b> (e.g., scatter plots, bar graphs, line graphs, circle graphs, histograms, frequency charts) to:</p> <ul style="list-style-type: none"> <li>• make observations</li> <li>• answer questions</li> </ul>	<p>Teacher may model and/or facilitate the following strategies</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving</li> </ul>	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li>• Algebra 2, Glencoe</li> <li>• Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>• Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</li> </ul> <p><u>Technology</u></p>	<p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED ASSESMENTS COMMON ASSESMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-TERM EXAM</li> <li>• FINAL EXAM</li> <li>• PROFICIENCY EXAM</li> <li>• COMMON TASK               <ul style="list-style-type: none"> <li>○ Video Games</li> </ul> </li> </ul> <p><b>SUGGESTED ASSESMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p>

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		<ul style="list-style-type: none"> <li>analyze the data to formulate or justify conclusions, critique conclusions</li> <li>make predictions, or</li> <li>solve problems within mathematics or across disciplines or contexts (e.g. media, workplace, social and environmental situations). (DSP)-10-1</li> </ul> <p>4.1.3 Understands, uses, applies appropriate technology to solve problems</p> <p>4.1.4 COMMON TASK</p> <ul style="list-style-type: none"> <li>Video Games #5</li> </ul>	<p>approach to instruction</p> <ul style="list-style-type: none"> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>using Lab Classroom strategies</li> <li>modeling functions of the graphing and scientific calculator</li> </ul>	<ul style="list-style-type: none"> <li>Scientific and graphing calculator</li> <li>Overhead graphing scientific calculator</li> <li>Computer lab</li> <li><a href="http://www.glencoe.com">www.glencoe.com</a></li> <li><a href="http://www.ride.net">www.ride.net</a></li> <li><a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>BPS website</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>rulers (metric), protractors</li> <li>scissors, glue</li> <li>Unifix cubes</li> <li>dice</li> <li>spinners</li> <li>two-colored chips</li> <li>coins</li> </ul> <p><b>School library resources</b> <i>Classroom Instruction That Works, Marzano</i></p>	<p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Tests/quizzes</p> <p>Visual representation (e.g. Power Point™)</p>
<p>4. DATA, STATISTICS, AND PROBABILITY</p> <p>4.2 Patterns, trends, distributions</p>		<p>The student</p> <p>4.2.1 Analyzes patterns, trends, or distributions in data in a variety of contexts by calculating and analyzing measures of:</p> <ul style="list-style-type: none"> <li>central tendency (mean, median, or mode)</li> <li>outliers</li> <li>estimated line of best fit</li> <li>regression line</li> <li>correlation (strong positive, strong negative, or no correlation)</li> <li>dispersion</li> <li>standard deviation (PRE-CALCULUS)</li> </ul>	<p>Teacher may model and/or facilitate the following strategies</p> <p>Wave problem</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> </ul>	<p><b>Resources, also see pages 1-2</b></p> <p><b>Textbook</b></p> <ul style="list-style-type: none"> <li><i>Algebra 2, Glencoe</i></li> <li><i>Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</i></li> </ul> <p><b>Supplementary books</b></p> <ul style="list-style-type: none"> <li><i>Performance Tasks and Rubrics High School Mathematics Charlotte Danielson,</i></li> </ul>	<p><b>Assessments/evidence, also see pages 1-2</b></p> <p><b>REQUIRED ASSESMENTS</b></p> <p><b>REQUIRED PROBLEMS</b></p> <p><b>COMMON ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-TERM EXAM</li> <li>FINAL EXAM</li> <li>PROFICENCY EXAM</li> <li>COMMON TASK <ul style="list-style-type: none"> <li>Video Games</li> </ul> </li> </ul>

# Algebra II, Grades 9-11

Curriculum Writers - Tracy C. Fine and Paula Morrissette

STANDARDS GSE's	Applied Learning Stand. SIP	OUTCOMES/BENCHMARKS Barrington Public Schools (NECAP GSE's)	RESEARCH-BASED INSTRUCTIONAL STRATEGIES	RESOURCES	RESEARCH-BASED ASSESSMENT EVIDENCE
		<ul style="list-style-type: none"> <li>variance (PRE-CALCULUS)</li> <li>percentiles (PRE-CALCULUS). M(DSP)-12-2 to solve problems involving conceptual understanding of <b>the sample</b> from which the statistics were developed.</li> </ul> <p>4.2.2 Understands, uses, applies appropriate technology to solve problems</p> <p>4.2.3 <b>REQUIRED PROBLEMS</b></p> <ul style="list-style-type: none"> <li>McDougal Littell, p. 71, #7</li> </ul> <p><b>COMMON TASK</b></p> <ul style="list-style-type: none"> <li>Video Games #5</li> </ul>	<ul style="list-style-type: none"> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>using Lab Classroom strategies</li> <li>modeling functions of the graphing and scientific calculator</li> </ul>	<p><i>ASCD</i></p> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>Scientific and graphing calculator</li> <li>Overhead graphing scientific calculator</li> <li>Computer lab</li> <li><a href="http://www.glencoe.com">www.glencoe.com</a></li> <li><a href="http://www.ridoe.net">www.ridoe.net</a></li> <li><a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>BPS website</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>rulers (metric), protractors</li> <li>scissors, glue</li> <li>manipulatives</li> <li>Unifix cubes</li> <li>dice</li> <li>spinners</li> <li>two-colored Chips</li> <li>coins</li> </ul> <p><b>School library resources</b> <i>Classroom Instruction That Works, Marzano</i></p>	<p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Tests/quizzes</p> <p>Visual representation (e.g. Power Point™)</p>
<p>4. DATA, STATISTICS, AND PROBABILITY</p> <p>4.3 Representations or elements of representations</p>		<p>The student</p> <p>4.3.1 Organizes and displays one- and two variable data using a variety of representations (e.g.,</p> <ul style="list-style-type: none"> <li>scatter plots</li> <li>linear</li> <li>quadratic (B)</li> <li>exponential regression functions (B)</li> <li>box-and-whisker plots (PRE-CALCULUS)</li> <li>bar graphs (PRE-CALCULUS)</li> <li>line graphs (PRE-CALCULUS)</li> </ul>	<p>Teacher may model and/or facilitate the following strategies</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> </ul>	<p><b>Resources, also see pages 1-2</b></p> <p><b>Textbook</b></p> <ul style="list-style-type: none"> <li><i>Algebra 2, Glencoe</i></li> <li><i>Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</i></li> </ul> <p><b>Supplementary books</b></p> <ul style="list-style-type: none"> <li><i>Performance Tasks</i></li> </ul>	<p><b>Assessments/evidence, also see pages 1-2</b></p> <p><b>REQUIRED ASSESMENTS</b></p> <p><b>COMMON ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>MID-TERM EXAM</li> <li>FINAL EXAM</li> <li>PROFICIENCY EXAM</li> <li>COMMON TASKS <ul style="list-style-type: none"> <li>Video Games</li> <li>The Price is Rice</li> </ul> </li> </ul>

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		<ul style="list-style-type: none"> <li>• circle graphs (PRE-CALCULUS)</li> <li>• histograms (PRE-CALCULUS)</li> <li>• frequency charts (PRE-CALCULUS)</li> </ul> <p>to analyze data to formulate or justify conclusions, make predictions, or to solve problems with or without using technology. M(DSP)-12-3</p> <p>4.3.2 Understands, uses, applies appropriate technology to solve problems</p> <p>4.3.3 COMMON TASKS</p> <ul style="list-style-type: none"> <li>• Video Games #5</li> <li>• The Price is Rice #4</li> </ul>	<ul style="list-style-type: none"> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• using Lab Classroom strategies</li> <li>• modeling functions of the graphing and scientific calculator</li> </ul>	<p><i>and Rubrics High School Mathematics Charlotte Danielson, ASCD</i></p> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• Scientific and graphing calculator</li> <li>• Overhead graphing scientific calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.glencoe.com">www.glencoe.com</a></li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>• NECAP Release tasks</li> <li>• NECompact.org</li> <li>• BPS website</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• rulers (metric), protractors</li> <li>• scissors, glue</li> <li>• manipulatives</li> <li>• Unifix cubes</li> <li>• dice</li> <li>• spinners</li> <li>• two-colored Chips</li> </ul> <p><b>School library resources</b> <i>Classroom Instruction That Works, Marzano</i></p>	<p><b>SUGGESTED ASSESSMENTS</b></p> <p>Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Tests/quizzes</p> <p>Visual representation (e.g. Power Point™)</p>
<p>4. DATA, STATISTICS, AND PROBABILITY</p> <p>4.4 Counting techniques</p>		<p>COVERED IN PRE CALCULUS AND CALCULUS</p>			

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4. DATA, STATISTICS, AND PROBABILITY 4.4 Probability event		COVERED IN PRE CALCULUS AND CALCULUS			
4. DATA, STATISTICS, AND PROBABILITY 4.5 Experimental or theoretical probability		COVERED IN PRE CALCULUS AND CALCULUS			
5. PROBLEM SOLVING, REASONING, AND PROOF  5.1 Problem Solving strategies		<p>Students will use problem-solving strategies to investigate and understand increasingly complex mathematical content and be able to:</p> <p>5.1.1 Use <b>problem-solving strategies</b> appropriately and effectively for a given situation. (PRP)- 8-1</p> <ul style="list-style-type: none"> <li>• identify the problem/question/task</li> <li>• make a list</li> <li>• create a diagram</li> <li>• determine, collect and organize the relevant information needed to solve real-world problems. (PRP)- 8-1</li> <li>• organize data with graph and/or table</li> <li>• determine a pattern</li> <li>• identify and use formulas</li> <li>• create algebraic representation               <ul style="list-style-type: none"> <li>○ define variables</li> <li>○ write an equation</li> <li>○ simplify the equation</li> <li>○ solve the equation</li> <li>○ identify the appropriate</li> </ul> </li> </ul>	<p>Teacher may model and/or facilitate the following strategies</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> </ul>	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li>• <i>Algebra 2, Glencoe</i></li> <li>• <i>Algebra and Trigonometry Structure and Method, book 2, McDougal and Littel</i></li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li>• <i>Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</i></li> </ul> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>• Scientific and graphing calculator</li> <li>• Overhead graphing scientific calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.glencoe.com">www.glencoe.com</a></li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> </ul>	<p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED ASSESMENTS</b> <b>REQUIRED PROBLEMS</b> <b>COMMON ASSESMENTS</b></p> <ul style="list-style-type: none"> <li>• MID-TERM EXAM</li> <li>• FINAL EXAM</li> <li>• PROFICENCY EXAM</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b> Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p> <p>Oral presentation</p>

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		<p style="text-align: center;">solution(s)</p> <ul style="list-style-type: none"> <li>use technology when appropriate to solve problems. (PRP)- 8-1</li> </ul> <p>5.1.2 Apply integrated problem-solving strategies to solve problems in the physical, natural and social sciences, and in pure mathematics. (PRP)- 8-1</p> <p>5.1.3 <i>Analyze and</i> reflect on solutions and the problem-solving process for a given situation and refine strategies as needed. (PRP)- 8-1</p> <ul style="list-style-type: none"> <li>contain accurate and appropriate data/responses</li> <li>apply conventions of mathematics:               <ul style="list-style-type: none"> <li>labeling, money two decimal places</li> <li>correct estimations</li> <li>accurate level of precision (rounding off)</li> <li>reasonable domain</li> </ul> </li> <li>proper execution of selected strategies</li> </ul>	<ul style="list-style-type: none"> <li>using Lab Classroom strategies</li> <li>modeling functions of the graphing and scientific calculator</li> </ul> <p>Differentiated instruction by varying the content, process, and product and implementing</p> <ul style="list-style-type: none"> <li>tiered assignments</li> <li>jigsawing</li> <li>pre/post assessments</li> <li>anchoring</li> <li>think/pair/share</li> <li>cubing, etc.</li> </ul>	<ul style="list-style-type: none"> <li><a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>BPS website</li> </ul> <p><u>Materials</u></p> <ul style="list-style-type: none"> <li>rulers (metric), protractors</li> <li>scissors, glue</li> </ul> <p><u>School library resources</u> <i>Classroom Instruction That Works, Marzano</i></p>	<p>Portfolio (samples of process and products)</p> <p>Tests/quizzes</p> <p>Visual representation (e.g. Power Point™)</p>
<p><b>5. PROBLEM SOLVING, REASONING, AND PROOF</b></p> <p>5.2 Mathematical reasoning and proof</p>		<p><b>Students will use mathematical reasoning and proof</b> and be able to:</p> <p>5.2.1 Draw logical conclusions and make generalizations (<i>inductively and/or deductively</i>) from</p> <ul style="list-style-type: none"> <li>patterns</li> <li>graphs</li> <li>tables</li> <li>equations</li> <li>geometric representation (PRP)-8-2</li> </ul>	<p><b>Teacher may model and/or facilitate the following strategies</b></p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> </ul>	<p><b>Resources, also see pages 1-2</b></p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li><i>Algebra 2, Glencoe</i></li> <li><i>Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</i></li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li><i>Performance Tasks and Rubrics High</i></li> </ul>	<p><b>Assessments/evidence, also see pages 1-2</b></p> <p><b>REQUIRED ASSESMENTS</b> <b>REQUIRED PROBLEMS</b> <b>COMMON ASSESMENTS</b></p> <ul style="list-style-type: none"> <li>MID-TERM EXAM</li> <li>FINAL EXAM</li> <li>PROFICENCY EXAM</li> </ul> <p><b>SUGGESTED ASSESMENTS</b></p>

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		5.2.2 Formulate, test, and justify mathematical conjectures and arguments. (PRP)-8-2  5.2.3 Construct an argument and determine the validity of a mathematical solution. (PRP)-8-2  5.2.4 Apply mathematical reasoning in other disciplines. (PRP)-8-2	<ul style="list-style-type: none"> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>using Lab Classroom strategies</li> <li>modeling functions of the graphing and scientific calculator</li> </ul>	<p><i>School Mathematics Charlotte Danielson, ASCD</i></p> <p><u>Technology</u></p> <ul style="list-style-type: none"> <li>Scientific and graphing calculator</li> <li>Overhead graphing scientific calculator</li> <li>Computer lab</li> <li><a href="http://www.glencoe.com">www.glencoe.com</a></li> <li><a href="http://www.ride.net">www.ride.net</a></li> <li><a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>BPS website</li> </ul> <p><u>Materials</u></p> <ul style="list-style-type: none"> <li>Rulers (metric), protractors</li> <li>scissors, glue</li> </ul> <p><u>School library resources</u> <i>Classroom Instruction That Works, Marzano</i></p>	Anecdotal record (e.g. defends student generated conjectures in class)  Conferencing  Journals/notebooks  Oral presentation  Portfolio (samples of process and products)  Tests/quizzes  Visual representation (e.g. Power Point™)
<b>6. COMMUNICATION, CONNECTIONS, AND REPRESENTATION</b>  6.1 Communicate understanding		<p>Students will communicate their understanding of mathematics and be able to:</p> 6.1.1 Articulate ideas clearly and logically in both written and oral form. (CCR)-8-1  6.1.2 Present, share, explain, and justify thinking with others and build upon the ideas of others to solve problems. (CCR)-8-1  6.1.3 <b>Correctly</b> use mathematical terminology, labels, symbols, and notation. (CCR)-8-1	<p>Teacher may model and/or facilitate the following strategies</p> <p>Mathematics best practice e.g.</p> <ul style="list-style-type: none"> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the</li> </ul>	<p>Resources, also see pages 1-2</p> <p><u>Textbook</u></p> <ul style="list-style-type: none"> <li><i>Algebra 2, Glencoe</i></li> <li><i>Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</i></li> </ul> <p><u>Supplementary books</u></p> <ul style="list-style-type: none"> <li><i>Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</i></li> </ul>	<p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED ASSESMENTS</b> <b>REQUIRED PROBLEMS</b> <b>COMMON ASSESMENTS</b></p> <ul style="list-style-type: none"> <li>MID-TERM EXAM</li> <li>FINAL EXAM</li> <li>PROFICENCY EXAM</li> </ul> <p><b>SUGGESTED ASSESMENTS</b> Anecdotal record (e.g. defends student generated conjectures</p>

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		6.1.4 Formulate questions, conjectures, definitions, and generalizations about data, information, and problem situations. (CCR)-8-1	student's mathematics <ul style="list-style-type: none"> <li>• facilitating problem solving approach to instruction</li> <li>• integrating content with other core subjects</li> <li>• using appropriate technology</li> <li>• using frequent assessment to modify instruction</li> <li>• using Lab Classroom strategies</li> <li>• modeling functions of the graphing and scientific calculator</li> </ul>	<u>Technology</u> <ul style="list-style-type: none"> <li>• Scientific and graphing calculator</li> <li>• Overhead graphing scientific calculator</li> <li>• Computer lab</li> <li>• <a href="http://www.glencoe.com">www.glencoe.com</a></li> <li>• <a href="http://www.ridoe.net">www.ridoe.net</a></li> <li>• <a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>• <a href="#">NECAP Release tasks</a></li> <li>• <a href="http://NECompact.org">NECompact.org</a></li> <li>• BPS website</li> </ul> <u>Materials</u> <ul style="list-style-type: none"> <li>• rulers (metric), protractors</li> <li>• scissors, glue</li> </ul> <u>School library resources</u> <i>Classroom Instruction That Works, Marzano</i>	in class)  Conferencing  Journals/notebooks  Oral presentation  Portfolio (samples of process and products)  Tests/quizzes  Visual representation (e.g. Power Point™)
<b>6. COMMUNICATION, CONNECTIONS, AND REPRESENTATION</b>  6.2 Create and use representations		Students will create and use representations to communicate mathematical ideas and to solve problems and be able to:  6.2.1 Use models and technology to develop equivalent representations of the same mathematical concept.  6.2.2 Create and use representations to solve problems and organize thoughts and ideas.  6.2.3 Convert between representations (e.g., a table of values, an equation, and a graph may all be representations of the same function). (CCR)-8-2	Teacher may model and/or facilitate the following strategies  <b>Mathematics best practice e.g.</b> <ul style="list-style-type: none"> <li>• facilitating cooperative group work</li> <li>• discussing mathematics</li> <li>• questioning and making conjectures</li> <li>• justifying of thinking</li> <li>• constructing written responses defending the student's mathematics</li> <li>• facilitating problem solving approach to instruction</li> </ul>	<b>Resources, also see pages 1-2</b>  <u>Textbook</u> <ul style="list-style-type: none"> <li>• <i>Algebra 2, Glencoe</i></li> <li>• <i>Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</i></li> </ul> <u>Supplementary books</u> <ul style="list-style-type: none"> <li>• <i>Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</i></li> </ul> <u>Technology</u> <ul style="list-style-type: none"> <li>• Scientific and graphing calculator</li> </ul>	<b>Assessments/evidence, also see pages 1-2</b>  <u>REQUIRED ASSESSMENTS</u> <u>REQUIRED PROBLEMS</u> <b>COMMON ASSESSMENTS</b> <ul style="list-style-type: none"> <li>• MID-TERM EXAM</li> <li>• FINAL EXAM</li> <li>• PROFICIENCY EXAM</li> </ul> <u>SUGGESTED ASSESSMENTS</u> Anecdotal record (e.g. defends student generated conjectures in class)  Conferencing

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			<ul style="list-style-type: none"> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> <li>using frequent assessment to modify instruction</li> <li>modeling functions of the graphing and scientific calculator</li> </ul>	<ul style="list-style-type: none"> <li>Overhead graphing scientific calculator</li> <li>Computer lab</li> <li><a href="http://www.glencoe.com">www.glencoe.com</a></li> <li><a href="http://www.ridoe.net">www.ridoe.net</a></li> <li><a href="http://www.ridoe.net/instruction/curriculum">www.ridoe.net/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>BPS website</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>Rulers (metric), protractors</li> <li>Scissors, glue</li> </ul> <p><b>School library resources</b> <i>Classroom Instruction That Works, Marzano</i></p>	<p>Journals/notebooks</p> <p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Tests/quizzes</p> <p>Visual representation (e.g. Power Point™)</p>
<p><b>6. COMMUNICATION, CONNECTIONS, AND REPRESENTATION</b></p> <p>6.3 Mathematical connections</p>		<p>Students will recognize, explore, and develop mathematical connections and be able to:</p> <p>6.3.1 Connect new mathematical ideas to those already studied and build upon them.</p> <p>6.3.2 Understand that many real-world applications require an understanding of mathematical concepts (e.g., personal finance, running a business, building a house, following a recipe, or sending a rocket to the moon).</p> <p>6.3.3 Explain in oral and written form the relationships between a real-world problem and an appropriate mathematical model.</p> <p>6.3.4 Explain in oral and written form the relationships among various mathematical concepts (e.g., the relationship between</p>	<p>Teacher may model and/or facilitate the following strategies</p> <p><b>Mathematics best practice e.g.</b></p> <ul style="list-style-type: none"> <li>facilitating cooperative group work</li> <li>discussing mathematics</li> <li>questioning and making conjectures</li> <li>justifying of thinking</li> <li>constructing written responses defending the student's mathematics</li> <li>facilitating problem solving approach to instruction</li> <li>integrating content with other core subjects</li> <li>using appropriate technology</li> </ul>	<p>Resources, also see pages 1-2</p> <p><b>Textbook</b></p> <ul style="list-style-type: none"> <li><i>Algebra 2, Glencoe</i></li> <li><i>Algebra and Trigonometry Structure and Method, book 2, McDougal and Littell</i></li> </ul> <p><b>Supplementary books</b></p> <ul style="list-style-type: none"> <li><i>Performance Tasks and Rubrics High School Mathematics Charlotte Danielson, ASCD</i></li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>Scientific and graphing calculator</li> <li>Overhead graphing scientific calculator</li> <li>Computer lab</li> </ul>	<p>Assessments/evidence, also see pages 1-2</p> <p><b>REQUIRED ASSESMENTS</b> <b>REQUIRED PROBLEMS</b> <b>COMMON ASSESMENTS</b></p> <ul style="list-style-type: none"> <li>MID-TERM EXAM</li> <li>FINAL EXAM</li> <li>PROFICENCY EXAM</li> </ul> <p><b>SUGGESTED ASSESSMENTS</b> Anecdotal record (e.g. defends student generated conjectures in class)</p> <p>Conferencing</p> <p>Journals/notebooks</p>

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Curriculum Writers - Tracy C. Fine and Paula Morrissette

STANDARDS GSE's	Applied Learning Stand. SIP	OUTCOMES/BENCHMARKS Barrington Public Schools (NECAP GSE's)	RESEARCH-BASED INSTRUCTIONAL STRATEGIES	RESOURCES	RESEARCH-BASED ASSESSMENT EVIDENCE
		exponentiation and multiplication). (CCR)-8-3	<ul style="list-style-type: none"> <li>using frequent assessment to modify instruction</li> <li>modeling functions of the graphing and scientific calculator</li> </ul>	<ul style="list-style-type: none"> <li><a href="http://www.glencoe.com">www.glencoe.com</a></li> <li><a href="http://www.ride.net">www.ride.net</a></li> <li><a href="http://www.ride.ri.gov/instruction/curriculum">www.ride.ri.gov/instruction/curriculum</a></li> <li>NECAP Release tasks</li> <li>NECompact.org</li> <li>BPS website</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>Rulers (metric), protractors</li> <li>Scissors, glue</li> </ul> <p><b>School library resources</b> <i>Classroom Instruction That Works, Marzano</i></p>	<p>Oral presentation</p> <p>Portfolio (samples of process and products)</p> <p>Tests/quizzes</p> <p>Visual representation (e.g. Power Point™)</p>