Teams of Lake County teachers created the curriculum maps in order to ensure that all students throughout the district receive a common curriculum. The maps help ensure that all state requirements are taught and that the content is divided into teachable segments with appropriate pacing. The curriculum maps will guide your instruction but provide flexibility based on the individual needs of students. The maps are living documents and feedback is requested of teachers to ensure continuous improvement.

All teachers are expected to use the curriculum maps, in conjunction with data, to drive instruction. The maps were designed for the instruction to take place by quarter. There is some flexibility within the quarters for mastery and re-teaching. The expectation is that teachers will finish the content within each quarter in its entirety. The maps have been structured in such a way as to scaffold student learning.

Listed below are a few of the new or updated features common to all curriculum maps:

**Essential Question(s):**
- Provide application of the skills/concepts
- Have more than one right answer which promotes student discourse
- Increase the rigor in the classroom, by changing from teacher-centered to student-centered learning
- Are referred to at the beginning, middle, and end of the lesson
- Require you to make a decision
- Promote critical thinking and problem solving
- Encourage interdependence
- Are open-ended

**Academic Vocabulary** are:
- Unfamiliar vocabulary that are essential to understanding new content within explicit instruction
- Not necessarily the bold words in the chapter.
- Cumulative and continuously used throughout the year.
- Integrated into word walls, a research-based strategy that will facilitate vocabulary acquisition.

**Common Board Configuration Elements** (specific layouts may vary by sites, but must include each of these):
**Purpose:** For the student to know what is being taught and what the student will learn
- Date
- Benchmark
- Measurable, student-friendly objective
- Essential Question
- Bell work
- Agenda (Specific daily schedule)
- Homework
- Exit Strategy/Card
Lessons that infuse reading, writing, and discussion are imperative components of every subject area. There should be daily:

- Teacher to student and student to student discourse utilizing academic vocabulary.
- Reading and authentic writing
- Writing that includes higher-order thinking
- Incorporation of effective reading and writing instructional strategies

Maps are organized to include the following:

- Pacing
- Objective
- Essential questions, content and understanding, benchmarks, and assessment
- Appendix/ resources
Next Generation Sunshine State Standards

Math Benchmark Coding Scheme

<table>
<thead>
<tr>
<th>MA.</th>
<th>5.</th>
<th>A.</th>
<th>1.</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>Grade Level</td>
<td>Body of Knowledge</td>
<td>Big Idea / Supporting Idea</td>
<td>Benchmark</td>
</tr>
</tbody>
</table>

**Body of Knowledge Key**

- A ~ Algebra
- C ~ Calculus
- D ~ Discrete Mathematics
- F ~ Financial Literacy
- G ~ Geometry
- P ~ Probability
- S ~ Statistics
- T ~ Trigonometry

**Differentiated Instruction Strategies**

The following differentiated instruction strategies should be incorporated throughout the entire course:

- Cooperative Groups
- Computer Assisted Instruction
- Tiered Assignments
- Centers
- Flexible Grouping
- Curriculum Compacting/Contracts
- Learning Stations
- Scaffolding
- Hands-on Instruction
- Leveled Texts/Resources
- Teacher Led Small Groups
- Web Quest
Language Arts Benchmarks

These language arts benchmarks should be incorporated throughout the entire course.

**LA.1112.1.6.1** – The student will use new vocabulary that is introduced and taught directly.

**LA.1112.1.7.1** – The student will use background knowledge of subject and related content areas, prereading strategies (e.g., previewing, discussing, generating questions), text features, and text structure to make and confirm complex predictions of content, purpose, and organization of a reading selection.

**LA.1112.3.4.1** – The student will edit for correct use of spelling, using spelling rules, orthographic patterns, generalizations, knowledge of root words, prefixes.

**LA.1112.3.4.2** – The student will edit for correct use of capitalization, including names of academic courses and proper adjectives.

**LA.1112.3.4.3** – The student will edit for correct use of punctuation, including commas, colons, semicolons, apostrophes, dashes, quotation marks, parentheses, ellipses, brackets, and underlining or italics.

**LA.1112.3.4.4** – The student will edit for correct use of grammar and usage, including but not limited to parts of speech, verb tense, noun/pronoun agreement, subject/verb agreement, pronoun/antecedents agreement, parallel structure, modifier placement, comparative and superlative adjectives and adverbs, and unintended shift in person or tense.

**LA.1112.3.4.5** – The student will edit for correct use of varied sentence structure, including the elimination of dangling or misplaced modifiers, run-on or fused sentences, and unintended sentence fragments.
Reading Writing Discussion in the classroom everyday (50% RWD)

This means that during each class period the students should be reading, writing, and/or talking about Math for 50% of the time. Many of these overlap incorporating a combination of reading, writing, and discussion.

Reading Writing Discussion in the Math Classroom:
What do these look like in the Math classroom?

What does the READING process look like?
- Modeling - reading and thinking out loud
- Students in small groups or pairs
- Whole group when referring to a specific portion of the text
- Use of graphic organizers
- Incorporation of word wall activities/vocabulary strategies
- Reading word problems and translating to mathematical problem by analyzing key vocabulary words

What does the WRITING process look like?
- Journal writing
- Literacy logs
- Student created word problems
- Written responses to word wall activities
- Written answer to essential questions
- Cornell Notes
- Summarizing hands-on activities
- Exit cards
- Writing the steps needed to work a problem
- Quick writes
- Three-column vocabulary
- Graphic Organizers
- Cartoons
- Question stems
- Math poems, jingles, or raps
- Student created math stories
- Reports

What does the DISCUSSION process look like?
- Student discourse – discussion among and between the students. (Could be in small group, pair share, hands-on activity)
- Student to teacher discourse - responses to open ended questions, essential questions, higher order thinking prompts, etc.
- Imbedding vocabulary terms/word wall, academic vocabulary, into the discussion
<table>
<thead>
<tr>
<th>Quarter 1</th>
<th>Quarter 2</th>
<th>Quarter 3</th>
<th>Quarter 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Review for CPT throughout the course as bell work without calculators</strong></td>
<td><strong>II. Linear Equations and Functions – (5 days)</strong>&lt;br&gt;A. Linear Equations and Graphs&lt;br&gt;B. Piecewise Functions&lt;br&gt;C. Absolute Value Functions&lt;br&gt;D. Translations and Composition of Functions</td>
<td><strong>V. Rational Equations and Functions – (9 days)</strong>&lt;br&gt;A. Evaluate and Apply Direct, Inverse, and Joint Variation&lt;br&gt;B. Multiplying and Dividing Rational Expressions&lt;br&gt;C. Addition, Subtraction and Complex Fractions&lt;br&gt;D. Solving Rational Equations&lt;br&gt;E. Graphing Rational Functions&lt;br&gt;F. Applications of Rational Equations&lt;br&gt;*College Planning and Scheduling Project – (3 days)</td>
<td><strong>VII. Quadratic Functions – (5 days)</strong>&lt;br&gt;A. Graph Quadratic Functions&lt;br&gt;B. Approximate Solutions of Quadratic Equations using Technology&lt;br&gt;C. The Quadratic Formula and the Discriminant&lt;br&gt;D. Real-world Quadratic Equation Applications&lt;br&gt;*College Experience Interview</td>
</tr>
<tr>
<td>I. Equations and Inequalities – (18 days)&lt;br&gt;A. Real Numbers and Number Operations&lt;br&gt;B. Algebraic Expressions and Models&lt;br&gt;C. Rewriting Equations and Formulas&lt;br&gt;D. Solving Linear Inequalities</td>
<td><strong>III. Linear Systems and Matrix Operations – (6 days)</strong>&lt;br&gt;A. Solving Linear Systems by Graphing&lt;br&gt;B. Matrix Operations&lt;br&gt;C. Solving Systems by Using Inverse Matrices and Calculators&lt;br&gt;D. Solving Non-Linear Systems</td>
<td><strong>VI. Powers, Roots, and Radicals – (8 days)</strong>&lt;br&gt;A. nth Roots and Rational Exponents&lt;br&gt;B. Properties of Rational Exponents&lt;br&gt;C. Power Functions and Function Operations&lt;br&gt;D. Graph Square and Cube Root Functions&lt;br&gt;E. Solving Radical Equations&lt;br&gt;F. Operations with Complex Numbers</td>
<td><strong>VIII. Exponential and Logarithms Functions – (5 days brief overview)</strong>&lt;br&gt;A. Exponential Growth&lt;br&gt;B. Exponential Decay&lt;br&gt;C. The Number e&lt;br&gt;D. Logarithmic Functions&lt;br&gt;E. Properties of Logarithms&lt;br&gt;F. Solving Exponential and Logarithmic Equations&lt;br&gt;*College Planning and Application Portfolio Project – (2 days)</td>
</tr>
<tr>
<td>* College Planning and Application Portfolio Project – (2 days)</td>
<td><strong>IV. Polynomials and Polynomial Functions – (9 days)</strong>&lt;br&gt;A. Multiply and Divide Polynomials&lt;br&gt;B. Factoring and Solving Polynomial Functions&lt;br&gt;C. The Remainder &amp; Factor Theorem.&lt;br&gt;D. Finding Rational Zeros&lt;br&gt;E. Using the Fundamental Theorem of Algebra</td>
<td><strong>IX. College Testing – (10 days)</strong>&lt;br&gt;A. PERT Test Review&lt;br&gt;B. MAT 1033 Review</td>
<td></td>
</tr>
</tbody>
</table>
Mathematics for College Readiness

I. Equations and Inequalities – 18 days

Objectives: Simplify mathematical expressions using order of operations and laws of exponents. Produce math models to represent real world problems by translating verbal statements into mathematical statements. Utilize formulas to solve simple interest and linear growth and explain the relationship between them. Solve linear inequalities by using inverse operations. Solve and sketch absolute value equations by converting to linear inequalities.

Vocabulary: Real Number, Evaluate, Simplify, Expression, Equation, Simple Interest Formula, Absolute Value, Inequality, Inverse, Distributive

<table>
<thead>
<tr>
<th>Essential Questions</th>
<th>Essential Content &amp; Understandings</th>
<th>Essential Skills &amp; Benchmarks</th>
<th>Assessment</th>
</tr>
</thead>
</table>
| How does one evaluate algebraic expressions? | A. Real Numbers and Number Operations  
1. Operations of Real Numbers  
2. Properties of Real Numbers  
3. Order of operations and exponents  
4. Simplify exponential expressions and use them in scientific notation conversions  
B. Algebraic Expressions and Models  
1. Evaluating expressions  
2. Simplifying expressions  
3. Math models  
C. Rewriting Equations and Formulas  
1. Equations with more than one variable  
2. Rewriting common formulas (supplement to show relationship) | MA.912.F.1.1, MA.912.F.1.3 MA.912.A.5.7 | Formal: 
Chapter Test  
Vocabulary Test  
Mini-quizzes  
Informal: 
Check for understanding with the use of 5-minute checks  
FCAT style bell ringers  
Word Wall activity: 
Use writing strategies to display the connection between the various |
### Mathematics for College Readiness

#### Essential Questions

- How are the procedures for solving inequalities different than for solving equations?

#### Essential Content & Understandings

- Between simple interest and linear growth

#### Essential Skills & Benchmarks

- **D. Solving Linear Inequalities**
  1. Use of equation solving techniques
  2. Graphs and test values for shading
  3. Compound inequalities

#### Assessment

- Vocabulary terms.
## Mathematics for College Readiness

### II. Linear Equations and Functions – 5 Days

**Objectives:** Generate tables and graphs to evaluate linear functions. Sketch graphs for piecewise functions and absolute value functions with and without calculators.

**Vocabulary:** Domain, Range, Function, Slope-Intercept, Linear, Intersection, Piecewise functions, Absolute Value Functions, Discontinuity

<table>
<thead>
<tr>
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<th>Essential Skills &amp; Benchmarks</th>
<th>Assessment</th>
</tr>
</thead>
</table>
| How does one identify the domain and range for mathematical functions? | A. Linear Equations and Graphs  
1. Table of Values and Midpoint  
2. Slope of a Line  
3. Linear Equation and Inequalities  
4. Solve real-world problems involving relations and functions | MA.912.A.2.4,  
MA.912.A.2.6,  
MA.912.A.2.13 | Formal:  
Chapter Test  
Vocabulary Test  
Mini-quizzes |
| How does one calculate a table of values for a given function? | B. Piecewise Functions – Overview with graphing calculator.  
1. Tables  
2. Graphs  
3. Key features  
   a. Domain and range  
   b. Discontinuities | MA.912.A.2.9 | Informal:  
Check for understanding with the use of 5-minute checks |
| What key features can be anticipated in the graphs of piecewise and absolute value functions? | C. Absolute Value Functions - Overview with graphing calculator.  
1. Tables  
2. Graphs  
3. Key features  
   a. Domain and range  
   b. Kinks | MA.912.A.2.5  
MA.912.A.2.6  
MA.912.A.2.8  
MA.912.A.2.10 | FCATstyle bell ringers  
Word Wall activity:  
Use writing strategies to display the connection between the various vocabulary terms. |
Mathematics for College Readiness

II. Linear Equations and Functions – 5 Days

Objectives: Generate tables and graphs to evaluate linear functions.

Sketch graphs for piecewise functions and absolute value functions with and without calculators.

Vocabulary: Domain, Range, Function, Slope-Intercept, Linear, Intersection, Piecewise functions, Absolute Value Functions, Discontinuity

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<tbody>
<tr>
<td>D. Translations and Composition of Function-Overview with graphing calculator.</td>
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</tbody>
</table>
III. Linear Systems and Matrix Operations – 6 Days

Objectives: Determine solutions for linear systems by graphing with and without calculators. Perform matrix operations including addition, subtraction, multiplication, and scalar multiplication. Use the inverse matrix capability of graphing calculators to solve linear systems.

Vocabulary: System of equations, Consistent, Dependent, Matrix, Scalar, Determinant, Inverse Matrix

<table>
<thead>
<tr>
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<th>Essential Skills &amp; Benchmarks</th>
<th>Assessment</th>
</tr>
</thead>
</table>
| What is meant by the solution of a linear system? | A. Solving Linear Systems by Graphing  
   1. Graphing to determine intersections  
      a. x & y intercepts  
      b. Tables of values  
      c. Slope-intercept  
      d. Graphing calculators | MA.912.A.5.7 | Formal: 
Chapter Test  
Vocabulary Test  
Mini-quizzes |
| What types of problems can be solved using linear systems? | B. Matrix Operations - Overview with graphing calculator.  
   1. Addition and subtraction  
   2. Scalar multiplication  
   3. Multiplication  
   4. Applications to real world problems | MA.912.D.8.1, MA.912.D.8.2 | Informal: 
Check for understanding with the use of 5-minute checks |
| How can a graphing calculator be used to solve systems of equations and non-linear systems? | C. Solving Systems by Using Inverse Matrices-Overview with graphing calculator.  
   1. Solving Systems using Matrices  
   2. Graphing calculators | MA.912.D.8.4 | FCAT style bell ringers |
| | D. Solve Non-Linear Systems - Overview with graphing calculator. | MA.912.A.7.7  
MA.912.A.7.10 | Word Wall activity: 
Use writing strategies to display the connection between the various vocabulary terms. |
### Mathematics for College Readiness

#### IV. Polynomials and Polynomial Functions -9 Days

**Objectives:** Evaluate, analyze, and graph a polynomial function using t-tables, transformations, and technology.

Use factoring to solve polynomial equations. Divide polynomials and relate the result to the remainder and factor theorems.

Utilize the Fundamental Theorem of Algebra to determine the number of zeros, and find the rational zeros of a polynomial using Descartes Rule of Signs.

**Vocabulary:** Polynomial Function, Remainder Theorem, Factor Theorem, Rational Zero Theorem, Descartes Rule of Signs, Fundamental Theorem of Algebra

#### Essential Questions

- How can synthetic substitution be used to find the value of a polynomial function?
- What does the end behavior tell you about the graph of a polynomial function?
- What information is provided by the factors of a polynomial function?
- What is the Fundamental Theorem of Algebra?

<table>
<thead>
<tr>
<th>Essential Questions</th>
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<th>Essential Skills &amp; Benchmarks</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>How can synthetic substitution be used to find the value of a polynomial function?</td>
<td>A. Multiply and Divide Polynomials</td>
<td>MA.912.A.4.7</td>
<td>Formal:</td>
</tr>
<tr>
<td></td>
<td>B. Factoring &amp; Solving Polynomial Functions</td>
<td></td>
<td>Chapter Test</td>
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<tr>
<td></td>
<td>1. Dividing Polynomial Functions</td>
<td></td>
<td>Vocabulary Test</td>
</tr>
<tr>
<td></td>
<td>C. The Remainder and Factor Theorems</td>
<td>MA.912.A.4.6</td>
<td>Mini-quizzes</td>
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<tr>
<td></td>
<td>– Overview with graphing calculator.</td>
<td>MA.912.A.4.7</td>
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<tr>
<td></td>
<td>D. Finding Rational Zeros - Overview with graphing calculator.</td>
<td>MA.912.A.4.7</td>
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<td></td>
<td>E. Using the Fundamental Theorem of Algebra</td>
<td>MA.912.A.4.8</td>
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<tr>
<td></td>
<td>- Overview with graphing calculator.</td>
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<tr>
<td>What does the end behavior tell you about the graph of a polynomial function?</td>
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<tr>
<td>What information is provided by the factors of a polynomial function?</td>
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<tr>
<td>What is the Fundamental Theorem of Algebra?</td>
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</tbody>
</table>

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V. Rational Equations and Functions – 9 Days

Objectives: Determine direct, inverse, and joint variations using formulas.
Graph rational functions using tables, transformations, and technology.
Use factoring to simplify rational expressions and solve rational equations.

Vocabulary: Rational Functions, Reciprocal, Complex Fraction, Vertical & Horizontal Asymptotes

<table>
<thead>
<tr>
<th>Essential Questions</th>
<th>Essential Content &amp; Understandings</th>
<th>Essential Skills &amp; Benchmarks</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the graph of a rational function called? What special characteristics occur in these graphs?</td>
<td>A. Evaluate and Apply Direct, Inverse, and Joint Variations</td>
<td>MA.912.A.2.12</td>
<td>Formal:</td>
</tr>
<tr>
<td>What types of real life problems can be modeled by rational functions?</td>
<td>B. Multiplying and Dividing Rational Expressions</td>
<td>MA.912.A.5.1, MA.912.A.5.2</td>
<td>Chapter Test</td>
</tr>
<tr>
<td>Since rational expressions involve fractions, how do we go about adding, subtracting, multiplying and dividing them?</td>
<td>1. Working with rational expressions</td>
<td>MA.912.A.5.1, MA.912.A.5.2, MA.912.A.5.3</td>
<td>Vocabulary Test</td>
</tr>
<tr>
<td>What is the best way to solve a rational equation? What is important to keep in mind when doing so?</td>
<td>2. Using rational expressions in real life</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>C. Addition, Subtraction and Complex Fractions</td>
<td>MA.912.A.5.1, MA.912.A.5.5, MA.912.A.5.7</td>
<td>Mini-quizzes</td>
</tr>
<tr>
<td></td>
<td>1. Working with rational expressions</td>
<td></td>
<td>Informal:</td>
</tr>
<tr>
<td></td>
<td>2. Simplifying complex fractions</td>
<td></td>
<td>Check for understanding with the use of 5-minute checks</td>
</tr>
<tr>
<td></td>
<td>D. Solving Rational Equations</td>
<td></td>
<td>FCAT style bell ringers</td>
</tr>
<tr>
<td></td>
<td>1. Solving a rational equation</td>
<td></td>
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<tr>
<td></td>
<td>2. Using rational expressions in real life</td>
<td></td>
<td>Word Wall activity:</td>
</tr>
<tr>
<td></td>
<td>E. Graphing Rational Functions</td>
<td></td>
<td>Use writing strategies to display the connection between the various vocabulary terms.</td>
</tr>
<tr>
<td></td>
<td>1. Graphing a rational function</td>
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<tr>
<td></td>
<td>2. Using rational functions in real life</td>
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<tr>
<td></td>
<td>F. Applications of Rational Equations</td>
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</tbody>
</table>
VI. Powers, Roots, and Radicals – 8 Days

Objectives: Use the properties of nth roots, powers, and radicals to simplify radicals and equations with radicals including real-life application problems.
Graph square and cube root functions using t-tables, transformations, and technology.

Vocabulary: Rational Exponent, nth Root, cube roots

<table>
<thead>
<tr>
<th>Essential Questions</th>
<th>Essential Content &amp; Understandings</th>
<th>Essential Skills &amp; Benchmarks</th>
<th>Assessment</th>
</tr>
</thead>
</table>
| What is the relationship between powers and radicals? | A. nth Roots and Rational Exponents  
1. Convert between rational exponents and radicals | MA.912.A.6.1, MA.912.A.6.4 | Formal: |
| What are the rules that govern exponents and radicals? | B. Properties of Rational Exponents  
| How does one perform operations involving functions that contain powers or radicals? | C. Power Functions and Function Operations  
|  | D. Graph Square Root & Cube Root Functions |  | Mini-quizzes |
|  | E. Solving Radical Equations- Teach Briefly |  | Informal: |
|  | F. Operations with Complex Numbers |  | Check for understanding with the use of 5-minute checks |
|  |  |  | FCAT style bell ringers |
|  |  |  | Word Wall activity: |
|  |  |  | Use writing strategies to display the connection between the various vocabulary terms. |
Mathematics for College Readiness

VII. Quadratic Functions – 5 Days

Objectives: Calculate sums, differences, products, and quotients for complex numbers by combining like terms. Solve quadratic equations with complex solutions by completing the square and the Quadratic Formula.

Vocabulary: Quadratic Function, Complex Number, Pure Imaginary Numbers, Imaginary Unit, Complex Conjugates, Discriminant

<table>
<thead>
<tr>
<th>Essential Questions</th>
<th>Essential Content &amp; Understandings</th>
<th>Essential Skills &amp; Benchmarks</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>How are complex numbers defined?</td>
<td>A. Graph Quadratic Functions</td>
<td>MA.912.A.2.6</td>
<td>Formal:</td>
</tr>
<tr>
<td>How does one perform operations with complex numbers?</td>
<td>B. Approximate Solutions of Quadratic</td>
<td>MA.912.A.7.10</td>
<td>Chapter Test</td>
</tr>
<tr>
<td>What types of equations may have complex solutions?</td>
<td>Equations Using Technology</td>
<td></td>
<td>Vocabulary Test</td>
</tr>
<tr>
<td></td>
<td>C. The Quadratic Formula &amp; the Discriminant</td>
<td></td>
<td>Mini-quizzes</td>
</tr>
<tr>
<td></td>
<td>1. Solving equations with the quadratic formula</td>
<td></td>
<td>Informal:</td>
</tr>
<tr>
<td></td>
<td>2. Using the quadratic formula in real-world problems</td>
<td></td>
<td>Check for understanding with the use of 5-minute checks</td>
</tr>
<tr>
<td></td>
<td>3. Solve quadratic equations with complex solutions</td>
<td>MA.912.A.7.5</td>
<td>FCAT-style bell ringers</td>
</tr>
</tbody>
</table>
| | D. Real-world Quadratic Equation Applications | MA.912.A.7.8 | Word Wall activity:
| | | | Use writing strategies to display the connection between the various vocabulary terms. |
Mathematics for College Readiness

VIII. Exponential and Logarithmic Functions – 5 Days brief overview

**Objectives:** Graph inverse, exponential, and logarithmic functions using tables, transformations, and technology. Define and use properties of logarithms to simplify and solve logarithmic expressions and equations including compound interest and exponential growth and decay problems.

**Vocabulary:** Inverse Function, Exponential Function, Logarithmic Function, Compound Interest, Natural Logarithm, Common Logarithm, Natural Base e, Change of Base

<table>
<thead>
<tr>
<th>Essential Questions</th>
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<th>Essential Skills &amp; Benchmarks</th>
<th>Assessment</th>
</tr>
</thead>
</table>
| How is the exponential growth model related to the compound interest formula? | A. Exponential Growth – Brief Overview  
1. Graphing Exponential Growth Functions  
Chapter Test  
Vocabulary Test  
Mini-quizzes |
| How can the exponential decay model be used to predict the decline of record sales? | B. Exponential Decay – Brief Overview  
1. Graphing Exponential Decay Functions  
2. Using Exponential Decay Functions | MA.912.A.8.3 | Informal:  
Check for understanding with the use of 5-minute checks  
FCAT style bell ringers |
| What is the number e? Where does it occur? How does it relate to the compound interest formula? | C. The Number e – Brief Overview  
1. Using the Natural Base e  
2. Using e in Real Life | MA.912.F.1.1, MA.912.F.1.2, MA.912.F.1.4, MA.912.F.2.1 |  
| What is a logarithmic function and how is it related to an exponential function? | D. Logarithmic Functions – Brief Overview  
1. Evaluating Logarithmic Functions  
| How are the properties of logarithms similar to the rules for working with exponents? | E. Properties of Logarithms – Brief Overview  
| How can we use the properties of exponents and logarithms to solve those types of equations? | F. Solving Exponential and Logarithmic Equations – Brief Overview  
1. Solving Exponential Equations  

Word Wall activity: Use writing strategies to display the connection between the various vocabulary terms.
IX. College Testing – PERT/SAT/ACT/MAT 1033

Objectives: Determine the mean, median, and mode from a given list of numbers.
Demonstrate accuracy and precision solving real number operations.
Review additional algebra topics such as quadratic functions.
Learn and implement test taking strategies.

<table>
<thead>
<tr>
<th>Essential Questions</th>
<th>Essential Content &amp; Understandings</th>
<th>Essential Skills &amp; Benchmarks</th>
<th>Assessment</th>
</tr>
</thead>
</table>
| How are statistics used to represent and misrepresent information? | A. PERT test review  
1. Statistics – Measures of Central Tendency  
2. Operations on Real Numbers without Calculators  
3. Review Basic Algebra Concepts  
a. Identify elements of number sets  
b. Write inequalities using interval notation  
c. All aspects of graphing a linear function  
d. Systems of equations using substitution and elimination methods  
e. Extended practice of factoring  
f. Solve quadratic equations by factoring  
g. Solve quadratic equations by completing the square  
h. Extended practice solving radical problems using all basic operations | MA.912.S.3.3 | Formal:  
Chapter Test  
Vocabulary Test  
Mini-quizzes |
| How has your confidence level about taking the PERT changed? | B. Extended Practice on MAT 1033 Objectives | | Informal:  
Check for understanding with the use of 5-minute checks  
FCATstyle bell ringers  
Word Wall activity:  
Use writing strategies to display the connection between the various vocabulary terms. |
Mathematics for College Readiness
Curriculum Map Appendix
for High Schools

Scope and Sequence Correlated to Textbook Pages
State Approved Course Descriptions
## Math for College Readiness

### Scope and Sequence
Correlated to Intermediate Algebra Ninth Edition and NGSSS

<table>
<thead>
<tr>
<th>Topic</th>
<th>Chapter-Section, Resources</th>
<th>NGSSS</th>
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</thead>
<tbody>
<tr>
<td>I. Equations and Inequalities (18 days)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Real Numbers and Number Operations</td>
<td>1.1-1.4, 6.1</td>
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<tr>
<td>B. Algebraic Expressions and Models</td>
<td>1.2, 6.2</td>
<td>MA.912.F.1.1</td>
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<td></td>
<td></td>
<td>MA.912.F.1.3</td>
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<tr>
<td>C. Rewriting &amp; Solving Equations and Formulas</td>
<td>2.1</td>
<td>MA.912.A.5.7</td>
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<tr>
<td></td>
<td>2.2, 2.3, 2.4</td>
<td></td>
</tr>
<tr>
<td>D. Solving Linear Inequalities</td>
<td>3.1, 3.3</td>
<td></td>
</tr>
<tr>
<td>• College Planning and Application Portfolio Project</td>
<td>Supplemental Material Provided by County</td>
<td></td>
</tr>
<tr>
<td>II. Linear Equations and Functions (5 days)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Linear Functions and Graphs</td>
<td>4.1, 4.2, 4.3, 4.4, 4.5</td>
<td>MA.912.A.2.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MA.912.A.2.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MA.912.A.2.13</td>
</tr>
<tr>
<td>B. Piecewise Functions</td>
<td>12.1 with graphing calculator</td>
<td>MA.912.A.2.9</td>
</tr>
</tbody>
</table>
C. Absolute Value Functions 12.1 with graphing calculator MA.912.A.2.5
MA.912.A.2.6
MA.912.A.2.8

D. Translations and Composition of Functions 12.1 with graphing calculator MA.912.A.2.10

* College Experience Interview Supplemental Material Provided by County

III. Linear Systems and Matrix Operations (6 days)

A. Solving Linear Systems by Graphing 5.1 MA.912.A.5.7
5.3 with graphing calculator

B. Matrix Operations 5.4 with graphing calculator MA.912.D.8.1
MA.912.D.8.2

C. Solving Systems Using Inverse Matrices and TI-83s Supplement with graphing calculator MA.912.D.8.4

D. Solving Non-Linear Systems with & without technology 12.4 with graphing calculator MA.912.A.7.7
MA.912.A.7.10
IV. Polynomials and Polynomial Functions (9 days)

A. Multiply and Divide Polynomials 6.4, 6.5

B. Factoring and Solving Polynomial functions 7.1-7.5 MA.912.A.4.7

C. Write a polynomial for a given set of roots. Teach as a check step in the TI-83 calculator MA.912.A.4.6

D. Zeros of polynomial functions Teach as a check step in the TI-83 calculator MA.912.A.4.6

E. Using the Fundamental Theorem of Algebra Teach as a check step in the TI-83 calculator MA.912.A.4.6 MA.912.A.4.7 MA.912.A.4.8

V. Rational Equations and Functions (9 days)

A. Evaluate and Apply Direct, Inverse and Joint Variation 8.6 MA.912.2.12

B. Multiplying and Dividing Rational Expressions 8.1 MA.912.A.5.1 MA.912.A.5.2

C. Addition, Subtraction and Complex Fractions 8.2, 8.3 MA.912.A.5.1 MA.912.A.5.2 MA.912.A.5.3
D. Solving Rational Equations 8.4 MA.912.A.5.1
MA.912.A.5.5
MA.912.A.5.7

E. Graphing Rational Functions 8.4 MA.912.A.2.6
MA.912.A.5.6
MA.912.A.5.7

F. Applications of Rational Equations 8.5 MA.912.A.5.7

VI. Powers, Roots, and Radicals (8 days)
A. nth Roots and Rational Exponents 9.1 MA.912.A.6.1
MA.912.A.6.4

B. Properties of Rational Exponents 9.2 MA.912.A.6.1
MA.912.A.6.2
MA.912.A.6.3

C. Power Functions and Function Operations 9.3, 9.4, 9.5 MA.912.A.2.8
MA.912.A.2.13

D. Graphing Square and Cube Root Functions 9.1 MA.912.A.2.6
MA.912.A.6.2
E. Solve Radical Equations 9.6 Teach briefly MA.912.A.6.5

F. Operations with Complex Numbers 9.7

* College Planning and Scheduling Projects Supplemental Material Provided by the County

VII. Quadratic Functions (5 days)

A. Graph Quadratic Functions 10.5, 10.6 MA.912.A.2.6

B. Approximate Solutions with Technology 10.5, 10.6 MA.912.A.7.10

C. The Quadratic Formula and the Discriminant 10.1, 10.2 MA.912.A.7.5

D. Real-world Quadratic Equation Applications 10.3, 10.4 MA.912.A.7.8

VIII. Exponential and Logarithmic Functions – 5 days Teach Briefly

A. Exponential Growth 11.2 MA.912.A.8.3

2011-2012 Math for College Readiness
Lake County Schools
B. Exponential Decay 11.6 MA.912.A.8.3

C. The Number e 11.5 MA.912.F.1.1
MA.912.F.1.2
MA.912.F.1.4
MA.912.F.2.1

D. Logarithmic Functions 11.3 MA.912.A.8.2
MA.912.A.8.3

E. Properties of Logarithms 11.4 MA.912.A.8.2
MA.912.A.8.6

F. Solving Exponential and Logarithmic Equations 11.2 MA.912.A.8.3
MA.912.A.8.5

IX. College Testing – PERT/SAT/ACT/MAT 1033

A. PERT Test Review Supplemental Material
PERT Practice Test Provided by the County
Accuplacer Sample Questions for Students
PBCC MAT 0020 Basic Algebra II Comprehensive Review
Florida College Basic Skills Exit Test SPECS

B. MAT 1033 Review Materials Supplemental Material
Provided by LSCC
Math for College Readiness

This curriculum map is designed to cover the core curriculum for your math course. If your students are not successful per the specifications of RtI please use the RtI materials provided with your textbook, for Intensive Math classes, or other additional math resources that are available at your school for RtI interventions.
State Approved Mathematics for College Readiness Course Description

**GENERAL INFORMATION**

<table>
<thead>
<tr>
<th>Course Number:</th>
<th>1200700</th>
</tr>
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<tbody>
<tr>
<td>Course Path:</td>
<td>Section: Basic and Adult Education » Grade Group: Secondary Grades 9-12 » Subject: Mathematics » SubSubject: Algebra »</td>
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<tr>
<td>Course Title:</td>
<td>Mathematics for College Readiness</td>
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<tr>
<td>Course Section:</td>
<td>Basic and Adult Education</td>
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<tr>
<td>Abbreviated Title:</td>
<td>MATH COLL READINESS</td>
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<tr>
<td>Number of Credits:</td>
<td>One credit (1)</td>
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<td>Course Length:</td>
<td>Year</td>
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<td>Course Type:</td>
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<tr>
<td>Course Level:</td>
<td>2</td>
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<tr>
<td>Course Status:</td>
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**RELATED BENCHMARKS (47):**

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Descriptor</th>
<th>DOK Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA.1112.1.6.1</td>
<td>The student will use new vocabulary that is introduced and taught directly;</td>
<td></td>
</tr>
<tr>
<td>LA.1112.1.7.1</td>
<td>The student will use background knowledge of subject and related content areas, prereading strategies (e.g., previewing, discussing, generating questions), text features, and text structure to make and confirm complex predictions of content, purpose, and organization of a reading selection;</td>
<td></td>
</tr>
<tr>
<td>LA.1112.3.4.1</td>
<td>The student will edit for correct use of spelling, using spelling rules, orthographic patterns, generalizations, knowledge of root words, prefixes, suffixes, knowledge of Greek, Latin, and Anglo-</td>
<td></td>
</tr>
</tbody>
</table>
Saxon root words, and knowledge of foreign words commonly used in English (laissez faire, croissant);

**LA.1112.3.4.2** The student will edit for correct use of capitalization, including names of academic courses and proper adjectives;

**LA.1112.3.4.3** The student will edit for correct use of punctuation, including commas, colons, semicolons, apostrophes, dashes, quotation marks, parentheses, ellipses, brackets, and underlining or italics;

**LA.1112.3.4.4** The student will edit for correct use of grammar and usage, including but not limited to parts of speech, verb tense, noun/pronoun agreement, subject/verb agreement, pronoun/antecedent agreement, parallel structure, modifier placement, comparative and superlative adjectives and adverbs, and unintended shift in person or tense; and

**LA.1112.3.4.5** The student will edit for correct use of varied sentence structure, including the elimination of dangling or misplaced modifiers, run-on or fused sentences, and unintended sentence fragments.

**MA.912.A.2.4** Determine the domain and range of a relation. Moderate

**MA.912.A.2.5** Graph absolute value equations and inequalities in two variables. Moderate

**MA.912.A.2.6** Identify and graph common functions (including but not limited to linear, rational, quadratic, cubic, radical, absolute value). Moderate

**MA.912.A.2.8** Determine the composition of functions. Low

**MA.912.A.2.9** Recognize, interpret, and graph functions defined piece-wise with and without technology. Moderate

**MA.912.A.2.10** Describe and graph transformations of functions Moderate
MA.912.A.2.11 Solve problems involving functions and their inverses.  High

MA.912.A.2.12 Solve problems using direct, inverse, and joint variations.  High

MA.912.A.2.13 Solve real-world problems involving relations and functions.  High

MA.912.A.4.6 Use theorems of polynomial behavior (including but not limited to the Fundamental Theorem of Algebra, Remainder Theorem, the Rational Root Theorem, Descartes' Rule of Signs, and the Conjugate Root Theorem) to find the zeros of a polynomial function.  Moderate

MA.912.A.4.7 Write a polynomial equation for a given set of real and/or complex roots.  Moderate

MA.912.A.4.8 Describe the relationships among the solutions of an equation, the zeros of a function, the x-intercepts of a graph, and the factors of a polynomial expression with and without technology.  Moderate

MA.912.A.5.1 Simplify algebraic ratios.  Moderate

MA.912.A.5.2 Add, subtract, multiply, and divide rational expressions.  Moderate

MA.912.A.5.3 Simplify complex fractions.  Moderate

MA.912.A.5.5 Solve rational equations.  Moderate

MA.912.A.5.6 Identify removable and non-removable discontinuities, and vertical, horizontal, and oblique asymptotes of a graph of a rational function, find the zeros, and graph the function.  Moderate
MA.912.A.5.7  Solve real-world problems involving rational equations (mixture, distance, work, interest, and ratio).  High

MA.912.A.6.1  Simplify radical expressions  Moderate

MA.912.A.6.2  Add, subtract, multiply, and divide radical expressions (square roots and higher).  Moderate

MA.912.A.6.3  Simplify expressions using properties of rational exponents.  Low

MA.912.A.6.4  Convert between rational exponent and radical forms of expressions.  Low

MA.912.A.6.5  Solve equations that contain radical expressions.  Moderate

MA.912.A.7.5  Solve quadratic equations over the complex number system.  Moderate

MA.912.A.7.7  Solve non-linear systems of equations with and without using technology.  High

MA.912.A.7.8  Use quadratic equations to solve real-world problems.  Moderate

MA.912.A.7.10  Use graphing technology to find approximate solutions of quadratic equations.  Low

MA.912.A.8.2  Define and use the properties of logarithms to simplify logarithmic expressions and to find their approximate values.  Low

MA.912.A.8.3  Graph exponential and logarithmic functions.  Moderate

MA.912.A.8.5  Solve logarithmic and exponential equations.  Moderate
| MA.912.A.8.6   | Use the change of base formula. | Low       |
| MA.912.D.8.1   | Use matrices to organize and store data. Perform matrix operations (addition, subtraction, scalar multiplication, multiplication) | Low       |
| MA.912.D.8.2   | Use matrix operations to solve problems. | Moderate  |
| MA.912.D.8.4   | Find the inverse of a matrix, and use the inverse to solve problems with and without the use of technology. | High      |
| MA.912.F.1.1   | Explain the difference between simple and compound interest. | Moderate  |
| MA.912.F.1.2   | Solve problems involving compound interest. | High      |
| MA.912.F.1.3   | Demonstrate the relationship between simple interest and linear growth. | Moderate  |
| MA.912.F.1.4   | Demonstrate the relationship between compound interest and exponential growth. | Moderate  |
| MA.912.F.2.1   | Calculate the future value of a given amount of money with and without technology. | Moderate  |
| MA.912.S.3.3   | Calculate and interpret measures of the center of a set of data, including mean, median, and weighted mean, and use these measures to make comparisons among sets of data. | Moderate  |