Mission Statement: It is the mission of the Elba Central School District to actualize the phrase "Elba Equals Educational Excellence for Everyone." We are committed to providing both quality and equity. Every student will have the opportunity to develop to the best of his/her ability.

Elba Standards: In addition to the knowledge and basic skills they need in order to participate in society, graduates of Elba Central School will develop:
1. Empowering skills: decision making, goal setting, creative thinking and problem solving abilities;
2. Communication and social interaction skills;
3. Technological literacy;
4. Total wellness (social, physical, emotional health and self-esteem);
5. The values necessary to participate in society.
As a result of achieving these outcomes, our students will embrace lifelong learning.

New York State Standards and Performance Indicators (Description of the levels of student achievement pertaining to standard):
Standard 3 - *Students will understand mathematics and become mathematically confident by communicating and reasoning mathematically, by applying mathematics in real-world settings, and by solving problems through the integrated study of number systems, geometry, algebra, data analysis, probability, and trigonometry*; but also the seven key ideas.

1. Mathematical Reasoning

        a) construct simple logical arguments

        b) follow and judge the validity of logical arguments

        c) use symbolic logic in the construction of valid arguments

        d) construct proofs based on deductive reasoning

2. Numbers and Numeration

        a) understand and use rational and irrational numbers

        b) recognize the order of real numbers

        c) apply the properties of the real numbers to various subsets of numbers

3. Operations

   a) use addition, subtraction, multiplication, division, and exponentiation with real numbers and algebraic expressions

   b) develop an understanding of and use the composition of functions and transformations

   c) explore and use negative exponents on integers and algebraic expressions

   d) use field properties to justify mathematical procedures

   e) use transformations on figures and functions in the coordinate plane

4. Modeling/Multiple Representation

   a) represent problem situations symbolically by using algebraic expressions, sequences, tree diagrams, geometric figures, and graphs

   b) manipulate symbolic representations to explore concepts at an abstract level

   c) choose appropriate representations to facilitate the solving of a problem

   d) use learning technologies to make and verify geometric conjectures

   e) justify the procedures for basic geometric constructions

   f) investigate transformations in the coordinate plane

   g) develop meaning for basic conic sections

   h) develop and apply the concept of basic loci to compound loci

   i) use graphing utilities to create and explore geometric and algebraic models

   j) model real-world problems with systems of equations and inequalities

5. Measurement

   a) derive and apply formulas to find measures such as length, area, volume, ` weight, time, and angle in real-world contexts

   b) choose the appropriate tools for measurement

c) use dimensional analysis techniques

d) use statistical methods including measures of central tendency to describe and compare data

e) use trigonometry as a method to measure indirectly

f) apply proportions to scale drawings, computer-assisted design blueprints, and direct variation in order to compute indirect measurements

g) relate absolute value, distance between two points, and the slope of a line to the coordinate plane

h) understand error in measurement and its consequence on subsequent calculations

i) use geometric relationships in relevant measurement problems involving geometric concepts

6. Uncertainty

a) judge the reasonableness of results obtained from applications in algebra, geometry, trigonometry, probability, and statistics

b) judge the reasonableness of a graph produced by a calculator or computer

c) use experimental or theoretical probability to represent and solve problems involving uncertainty

d) use the concept of random variable in computing probabilities

e) determine probabilities using permutations and combinations

7. Patterns/Functions

a) use function vocabulary and notation

b) represent and analyze functions using verbal descriptions, tables, equations, and graphs

c) translate among the verbal descriptions, tables, equations and graphic forms of functions

d) analyze the effect of parametric changes on the graphs of functions

e) apply linear, exponential, and quadratic functions in the solution of problems

f) apply and interpret transformations to functions

g) model real-world situations with the appropriate function

h) apply axiomatic structure to algebra and geometry

j) use computers and graphing calculators to analyze mathematical phenomena

Standard 6—*Interconnectedness: Common Themes. Students will understand the relationships and common themes that connect mathematics, science, and technology and apply the themes to these and other areas of learning.*

The Key Ideas for Standard Six are
1. Systems Thinking—Through systems thinking, people can recognize the commonalities that exist among all systems and how parts of a system interrelate and combine to perform specific functions.

2. Models—Models are simplified representations of objects, structure, or systems used in analysis, explanation, interpretation, or design.

3. Magnitude and Scale—The grouping of magnitudes of size, time, frequency, and pressures or other units of measurement into a series of relative order provides a useful way to deal with the immense range and the changes in scale that affect the behavior and design of systems.

4. Equilibrium and Stability—Equilibrium is a state of stability due either to a lack of changes (static equilibrium) or a balance between opposing forces (dynamic equilibrium).

5. Patterns of Change—Identifying patterns of change is necessary for making predictions about future behavior and conditions.

6. Optimization—In order to arrive at the best solution that meets criteria within constraints, it is often necessary to make trade-offs.

National Standards: National Standards (published by the National Council of Teachers of Mathematics) are directly in line with our state standards and can be found at NCTM.ORG.

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Assessment:	Acceptable Performance Level
MathA Regents Exam	65%

Scope: Topics covered are aligned under the 7 key ideas published by the state. The topics are covered in 1.5 years for Math 1 students, and 2 years for Math 1A/1B students.

Sequence:

1. Mathematical Reasoning   (5-10% of Regents Exam)

Logic - Constructing Valid Arguments
- **Venn Diagrams**
- **Truth Values: and, or, implies, if and only if**
- **Related Conditionals: converse, inverse, contrapositive**
- **Truth Value of Compound Sentences**
- **Truth Value of Open Sentences**

2. Numbers & Numeration   (5-10% of Regents Exam)

- **Rational & Irrational Numbers**
- **Approximations of Irrational Numbers**
- **Properties of Real Numbers**

3. Operations   (15-20% of Regents Exam)

Algebraic Skills
- **Signed Numbers** *
- **Order of Operations & Evaluating Expressions**
- **Addition & Subtraction of Polynomials**
- **Multiplication of Polynomials** *
- **Division of Polynomials by Monomials**
- **Operations with Radicals**
- **Scientific Notation**
- **Algebraic Fractions**
- **Factoring**

Exponents

Transformations

- **Line Reflection**
- **Translation**
- **Rotation**
- **Dilation**
- **Line & Point Symmetry**

Applications of Mathematics

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4. Modeling/Multiple Representation (15-25% of Regents Exam)

Problem Solving with Algebra & Geometry
- **Algebraic Representations**
- **Triangle Inequalities**
- **Formulas & Literal Equations**
- **Types of Angles**
- **Sum of Interior & Exterior Angles of Polygons**
- **Study of Triangles**
- **Study of Quadrilaterals**

Geometric Constructions
- **Basic Constructions**
- **Congruence**
- **Similarity**

Transformations in Coordinate Geometry
- **Reflection in a Line**
- **Reflection in a Point**
- **Translations** *
- **Dilations**

Locus
- **At a Fixed Distance from a Point**
- **At a Fixed Distance from a Line**
- **Equidistant from Two Points**
- **Equidistant from Two Parallel Lines**
- **Equidistant from Two Intersecting Lines**
- **Compound Locus**

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5. Measurement (15-25% of Regents Exam)

Application of Formulas
- **Perimeter of Polygons & Circumference of Circles**
- **Area of Polygons & Circles**
- **Volume of Solids**
- **Pythagorean Theorem**

Apply Appropriate Units & Tools

- **Metric/English Conversions**
- **Use of Tools**

Analyzing in 3-D

Statistics
- **Collecting & Organizing Data**
- **Measures of Central Tendency: Mean-Mode-Median**
- **Quartiles & Percentiles**

Right Triangle Trigonometry

Proportions
- **Ratio**
- **Proportions**
- **Scale Drawing**
- **Percent**
- **Similar Figures**
- **Similar Polygons: Ratio of Perimeters & Areas**
- **Comparison of Volumes of Similar Solids**
- **Direct Variation**

Applications in Coordinate Geometry
- **Absolute Value**
- **Length of a Line Segment - Distance**
- **Midpoint of a Segment**
- **Equation of a Line**
- **Parallel & Perpendicular Lines**

Error in Measurement

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6. Uncertainty (Probability) (5-10% of Regents Exam)

Theoretical versus Empirical Probability

Problems Involving Probability
- **Single & Compound Events**
- **Problems Involving AND & OR**

Computing Probabilities
- **Mutually Exclusive & Independent Events**
- **Counting Principle**
- **Sample Space**
- **Tree Diagrams**

Permutations & Combinations
- **Factorial Notation**
- **Permutations: nPn & nPr**
- **Combinations: nCn & nCr**

7. Patterns & Functions (15-25% of Regents Exam)

Represent & Analyze Functions
- **Solve Linear Equations with Integral, Fraction, or Decimal Coefficients**
- **Solve Linear Inequalities**
- **Solve Factorable Quadratic Equations**
- **Graphs of Linear Equations: Slope & Intercept** *
- **Graph Inequalitites** *
- **Solve Systems of Linear Equations** *
- **Solve Systems of Inequalities** *
- **Graphs of Conics: Circles & Parabolas** *
- **Solve Quadratic-Linear Pair** *

Modeling Real World Situations with Functions

Methodology:
- ➢ Incorporation of Six-Traits as a method of assessing short and extended open response question, focusing on the traits of Ideas and Organization.
- ➢ Employment of Graphing and Scientific Calculators.
- ➢ Use of previous Regents questions and those similar to questions on Math A exams in the form of worksheets and booklets.
- ➢ Provide students opportunities for learning in a variety of situations by employing Cooperative Learning Strategies and Short/Long Term Projects.