Subject Area___Mathematics_____ Grade Level __7_____

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: Standard 3 and Standard 6:
The seven key ideas for Standard 3 are:

1. Mathematical Reasoning
    a) apply a variety of reasoning strategies

    b) make and evaluate conjectures and arguments using appropriate language

    c) make conclusions based on inductive reasoning

    d) justify conclusions involving simple and compound (i.e., and/or) statements

2. Numbers and Numeration
    a) understand, represent, and use numbers in a variety of equivalent forms (integer, fraction, decimal, percent, exponential, expanded and scientific notation)

    b) understand and apply ratios, proportions, and percents through a wide variety of hands-on explorations

    c) develop an understanding of numbered theory (primes, factors, and multiples)

    d) recognize order relations for decimals, integers, and rational numbers

3. Operations
    a) add, subtract, multiply, and divide fractions, decimals, and integers

    b) explore and use the operations dealing with roots and powers

    c) use grouping symbols (parentheses) to clarify the intended order of operations

    d) apply the associative, commutative, distributive, inverse, and identity properties

    e) demonstrate an understanding of operational algorithms (procedures for adding, subtracting, etc.)

    f) develop appropriate proficiency with facts and algorithms

    g) apply concepts of ratio and proportion to solve problems

4. Modeling/Multiple Representation

a) visualize, represent, and transform two- and three-dimensional shapes

b) use maps and scale drawings to represent real objects or places

c) use the coordinate plane to explore geometric ideas

d) represent numerical relationships in one- and two-dimensional graphs

e) use variables to represent relationships

f) use concrete materials and diagrams to describe the operation of real world processes and systems

g) develop and explore models that do and do not rely on chance

h) investigate both two- and three-dimensional transformations

i) use appropriate tools to construct and verify geometric relationships

j) develop procedures for basic geometric constructions

5. Measurement

a) estimate, make, and use measurements in real-world situations

b) select appropriate standard and nonstandard measurement units and tools to measure to a desired degree of accuracy

c) develop measurement skills and informally derive and apply formula in direct measurement activities

d) use statistical methods and measures of central tendencies to display, describe, and compare data

e) explore and produce graphic representations of data using calculators/ computers

6. Uncertainty

a) use estimation to check the reasonableness of results obtained by computation, algorithms, or the use of technology

b) use estimation to solve problems for which exact answers are inappropriate

c) estimate the probability of events

d) use simulation techniques to estimate probabilities

e) determine probabilities of independent and mutually exclusive events

7. Patterns/Functions

a) recognize, describe, and generalize a wide variety of patterns and functions

b) describe and represent patterns and functional relationships using tables, charts and graphs, algebraic expressions, rules, and verbal descriptions

c) develop methods to solve basic linear and quadratic equations

d) develop an understanding of functions and functional relationships: that a change in one quantity (variable) results in change in another

e) verify results of substituting variables

f) apply the concept of similarity in relevant situations

g) use properties of polygons to classify them

h) explore relationships involving points, lines, angles, and planes

i) develop and apply the Pythagorean principle in the solution of problems

j) explore and develop basic concepts of right triangle trigonometry

k) use patterns and functions to represent and solve problems

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: NCTM Standards are directly in line with our State standards and can be found at www. nctm.org

Assessment:	Acceptable Performance Level
New York State Math 8 Assessment.	Level 3 or 4 as defined by NYS rubric

Scope: 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.

Sequence:

1. Problem Solving
2. Algebra
3. Integers
4. Coordinate Graphing
5. Algebra Part II
6. Geometry
7. Perimeter & Area
8. Powers of Ten
9. Ratios, Proportions, & Percents
10. Review of Fractions
11. Probability
12. Statistics

Methodology:

- Use of Assessment-type questions from a workbook organized into the seventh grade units and made into packets.
- Incorporation of Six-Traits as a method of assessing short and extended open-response questions, focusing on the traits of Organization and Ideas.
- Provide students opportunities for learning in a variety of situations by using cooperative learning and short term projects.