

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:

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
2. Numbers and Numeration
3. Operations
4. Modeling/Multiple Representation
5. Measurement
6. Uncertainty
7. Patterns/Functions

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.

1. Systems Thinking
2. Models
3. Magnitude and Scale
4. Equilibrium and Stability
5. Patterns of Change
6. Optimization

Performance Indicators: Description of the levels of student achievement pertaining to standard.

Standard 3

Mathematical Reasoning

- 1A. Use models, facts, and relationships to draw conclusions about mathematics and explain their reasoning.
- 1B. Use patterns and relationships to analyze mathematical situations.
- 1C. Explain their answers and solution processes.

Number and Numeration

- 2A. Use whole numbers to determine number positions and quantify groups of objects.
- 2B. Use concrete materials to model numbers and number relationships for whole numbers and fractions.
- 2C. Relate counting to grouping and place value.
- 2D. Recognize the order of whole numbers.

Operations

- 3A. Develop strategies for selecting the appropriate computational and operational methods in problem solving.
- 3B. Develop readiness for single-digit addition and subtraction facts.
- 3C. Understand the commutative and associative properties.

Modeling/Multiple Representation

- 4A. Use concrete materials to model spatial relationships.
- 4B. Construct charts and graphs to display and analyze real-world data.
- 4C. Use multiple representations (manipulative materials, pictures, diagrams) as tools to explain the operation of everyday procedures.
- 4D. Use physical materials, pictures, and diagrams to explain mathematical ideas and processes and to demonstrate geometric concepts.

Measurement

- 5A. Select appropriate standard and nonstandard measurement tools in measurement activities.
- 5B. Understand the attributes of length, capacity, weight, time, money, and temperature.
- 5C. Estimate measures such as length and volume, using both standard and nonstandard units.
- 5D. Collect and display data.

5E. Use statistical methods such as graphs and charts to interpret data.

Uncertainty

6A. Recognize situations in which only an estimate is required.

6B. Develop a variety of estimation skills and strategies.

6C. Predict experimental probabilities.

Patterns/ Functions

7A. Recognize, describe, extend, and create a wide variety of patterns.

7B. Represent and describe mathematical relationships.

7C. Use a variety of manipulative materials to explore patterns.

7D. Interpret graphs.

7E. Explore and develop relationships among two-and three-dimensional geometric shapes.

7F. Discover patterns in nature, art, music, and literature.

Standard 6

Systems Thinking

1A. Observe and describe interactions among components of simple systems.

1B. Identify common things that can be considered to be systems (eg. a plant population, a subway system, human beings).

Models

2A. Analyze, construct, and operate models in order to discover attributes of the real thing.

2B. Discover that a model of something is different from the real thing but can be used to study the real thing.

2C. Use different types of models, such as graphs, sketches, diagrams, and maps, to represent various aspects of the real world.

Magnitude and Scale

3A. Provide examples of natural and manufactured things that belong to the same category yet have very different sizes, weights, ages, speeds, and other measurements.

3B. Identify the biggest and the smallest values as well as the average value of a system when given information about its characteristics and behavior.

Equilibrium and Stability

4A. Cite examples of systems in which some features stay the same while other features change

4B. Distinguish between reasons for stability---from lack of changes to changes that counterbalance one another to changes within cycles.

Patterns of Change

- 5A. Use simple instruments to measure such quantities as distance, size, and weight and look for patterns in the data.
- 5B. Analyze data by making tables and graphs and looking for patterns of change

Optimization

- 6A. Determine the criteria and constraints of a simple decision making problem
- 6B. Use simple quantitative methods, such as ratios, to compare costs to benefits of a decision problem.

National Standards: Instructional programs from prekindergarten through grade 12 should enable all students to—

Number and Operations

Understand numbers, ways of representing numbers, relationships among numbers, and number systems

Understand meanings of operations and how they relate to one another

Compute fluently and make reasonable estimates

Algebra

Understand patterns, relations, and functions

Represent and analyze mathematical situations and structures using algebraic symbols

Use mathematical models to represent and understand quantitative relationships

Analyze change in various contexts

Geometry

Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships

Specify locations and describe spatial relationships using coordinate geometry and other representational systems

Apply transformations and use symmetry to analyze mathematical situations

Use visualization, spatial reasoning, and geometric modeling to solve problems

Measurement

Understand measurable attributes of objects and the units, systems, and processes of measurement

Apply appropriate techniques, tools, and formulas to determine measurements

Data Analysis and Probability

Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them

Select and use appropriate statistical methods to analyze data

Develop and evaluate inferences and predictions that are based on data

Understand and apply basic concepts of probability

Problem Solving

- * build new mathematical knowledge through problem solving;
- * solve problems that arise in mathematics and in other contexts;
- * apply and adapt a variety of appropriate strategies to solve problems;
- * monitor and reflect on the process of mathematical problem solving.

Reasoning and Proof

- * recognize reasoning and proof as fundamental aspects of mathematics;
- * make and investigate mathematical conjectures;
- * develop and evaluate mathematical arguments and proofs;
- * select and use various types of reasoning and methods of proof.

Communication

- * organize and consolidate their mathematical thinking through communication;
- * communicate their mathematical thinking coherently and clearly to peers, teachers, and others;
- * analyze and evaluate the mathematical thinking and strategies of others;
- * use the language of mathematics to express mathematical ideas precisely.

Connections

- * recognize and use connections among mathematical ideas;
- * understand how mathematical ideas interconnect and build on one another to produce a coherent whole;
- * recognize and apply mathematics in contexts outside of mathematics.

Representation

- * create and use representations to organize, record, and communicate mathematical ideas;
- * select, apply, and translate among mathematical representations to solve problems;
- * use representations to model and interpret physical, social, and mathematical phenomena.

Assessment:	Acceptable Performance Level
A measure of student progress on performance indicators.	Based on pre-established criteria.
(any kind of test you are giving that is testing the performance indicator - formal or informal)	

Scope:

Sorting and Classifying
 Geometry/Patterns
 Number Readiness and Graphing
 Counting/One to One Correspondence/Numerical Recognition
 Spatial Relationships and Position
 Money and Time
 Comparing and Measuring
 Exploring Addition and Subtraction

Sequence:

Fall

- Sorting and Classifying (ex. color, size, shape etc.,)
- Identify geometric shapes (circle, square, triangle)
- Recognize an A,B pattern
- Recognize equality and inequality
- Verbalize comparisons using data on a graph
- Count by 1's to 10
- Recognize numerals 0-5
- Demonstrate one to one correspondence to 5
- Identify and describe positional words (Ex. Inside, outside, top, middle, bottom, left, right)
- Recognize a penny and nickel
- Identify days of the week
- Explore the Fall months
- Explore the concept of size

Winter

- Sort by size
- Identify geometric shape (rectangle, oval)
- Identify and create patterns
- Copy and extend an existing pattern
- Identify groups of more and less
- Make and interpret a graph
- Count by 1's to 20

- Count by 10's to 100
- Recognize numerals 0-10
- Demonstrate one to one correspondence to 10
- Identify and describe positional words (before, after, between, first ,next, last)
- Recognize a dime and quarter
- Explore the Winter months
- Read a clock and say time to the hour
- Compare daily temperatures
- Compare weight of objects
- Measure length in arbitrary units
- Measure capacity of containers
- Writing numerals 0-10
- Introduce concept words (Horizontal, vertical, diagonal)

Spring

- Identify geometric shape (diamond, cone)
- Recognize numerals 0-20
- Demonstrate one to one correspondence to 20
- Order groups of objects from least to greatest
- Identify ordinal positions to fifth
- Use a graph to solve a problem
- Recognize and extend a number pattern
- Identify the value of penny, nickel, dime
- Introduce the value of a group of coins
- Explore the Spring months
- Read a clock and say time to the half hour
- Write numerals 0-20
- Identify whole and half
- Introduce concept of addition and subtraction under 10

Methodology: Best Practices

