

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: MST Standards

Standard 1: Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions.

Standard 2: Students will access, generate, process, and transfer information using appropriate technologies.

Standard 5: Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.

Standard 6: 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.

Standard 7: Students will apply the knowledge and thinking skills of mathematics, science, and technology to address real-life problems and make informed decisions.

National Standards:

Standard 1: Students will develop an understanding of the characteristics and scope of technology.

Standard 2: Students will develop an understanding of the core concepts of technology.

Standard 3: Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.

Standard 8: Students will develop an understanding of the attributes of design.

Standard 9: Students will develop an understanding of engineering design.

Standard 10: Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.

Standard 11: Students will develop abilities to apply the design process.

Standard 12: Students will develop abilities to use and maintain technological products and systems.

Standard 13: Students will develop abilities to assess the impact of products and systems.

Performance Indicators:

1. Demonstrate the safe and correct method to using woodworking tools and equipment.
2. Identify and demonstrate several methods to machine and separate wood, such as sawing, drilling, and sanding.
3. Identify and demonstrate several methods to fasten wood, both mechanically and chemically.
4. Identify and demonstrate several methods to finish wood, using abrasives, stains, and finishes.
5. Demonstrate problem-solving techniques in the construction of a wood project.

Assessment:	Acceptable Performance Level
Local Technology Exams	Score of 70% or higher
Woodworking Projects	Score of 70% or higher

Scope: Students will get an introduction to woodworking both by following project plans and by designing a woodworking project of their choice and producing it for themselves.

Safety is emphasized, as students will learn to operate the different pieces of power equipment needed in modern woodworking. Approximately 90% of the students' time will be spent in the lab doing hands-on activities through the production of their projects.

Other areas of discussion in woodworking will include: joinery, finishing materials, turnings, abrasives, adhesives, fasteners, and careers in woodworking.

Sequence:

I. Safety

- A. General Rules and regulations for developing safe work habits
- B. Handtool Safety
- C. Machine operating safety rules

II. Handtools

- A. Identification
- B. Safe and correct usage
- C. Maintenance
- D. Relation to machine operations

III. Machines

- A. Identification
- B. Safe and correct usage
- C. General Maintenance
- D. Machine operations for:
 1. Surface Planer
 2. Jointer
 - a. surface joining
 - b. edge jointing
 - c. end grain jointing
 3. Table Saw
 - a. ripping
 - b. crosscutting
 - c. miter cuts

- d. dado head cuts
- e. moulding head cuts
- 4.Radial Arm Saw
 - a. crosscutting
 - b. miter cuts
- 5.Band Saw
 - a. crosscutting
 - b. ripping
 - c. irregular curve cuts
- 6.Disc/Belt Sander
- 7.Drill Press
- 8.Lathe

IV. Power Hand Tools

- A. Safety, operation and adjustment
- B. Care and maintenance
- C. Use of:

1.Router

- a. Edge routing
- b. Plow cutting
- c. Cutting rabbets
- d. Sharpening bits

2.Electric drill

3.Orbital sander

4.Belt sander

5.Cutoff saw

6.Sabre saw

V. Wood

A. Types

1.Identification of:

- a. cherry
- b. oak
- c. maple
- d. walnut
- e. pine
- f. butternut
- g. ash
- h. cedar
- i. poplar

2.Definition of:

- a. hardwood
- b. softwood
- c. open grain
- d. closed grain
- e. thickness
- f. width
- g. length

3.Characteristics of each wood

B. Uses

C. Tree section identification

- D. Methods used to season wood
- E. Lumber Grades
- F. Shrinkage and Distortion
- VI. Fastening Wood Together
 - A. Wood Joints
 - 1. Uses of
 - 2. Strength of
 - 3. Construction of
 - 4. Identification of
 - a. butt joints
 - b. rabbet joints
 - c. dado joints
 - d. dowel joints
 - e. miter joints
 - f. mortise and tenon joints
 - g. blind dado
 - h. blind mortise and tenon
 - B. Adhesives
 - 1. Characteristics and properties
 - 2. Definitions
 - a. water resistant
 - b. moisture resistant
 - c. waterproof
 - d. pot life
 - e. shelf life
 - f. clamping/setting time
 - C. Screws
 - 1. Sizes, Materials, Uses
 - 2. Types
 - a. flat head
 - b. round head
 - c. oval
 - 3. Using
 - a. pilot holes
 - b. shank holes
 - c. counterbore holes
 - d. countersink
 - e. furniture buttons
 - f. plugs
 - D. Nails
 - 1. Sizes, Materials, usage
 - 2. Types
 - a. finishing
 - c. brad
 - d. common
 - e. wire

VII. Abrasives

A. Types

1. garnet
2. silicon carbide
3. aluminum oxide
4. flint

B. Uses

C. Cost

D. Papers

1. flint
2. cabinet
3. finishing
4. wet/dry

E. Backing Materials, weights

1. paper
2. cloth
3. screen
4. plastic

F. Steel Wool

1. uses
2. grades

VIII. Stains

A. Types

1. water
2. oil
 - a. penetrating
 - b. pigment
 - c. preservative

B. Use

C. Characteristics

D. Application of stains

IX. Finishes

A. Types

1. shellac
2. varnish
3. deft
4. oil
 - a. linseed oil
 - b. Watco oil
 - c. Minwax oil

5. Lacquer

B. Characteristics

C. Uses

D. Solvents

1. denatured alcohol
2. turpentine
3. mineral spirits
4. paint thinners
5. lacquer thinners

- E. Application of finishes
- F. Application of wood fillers

X. Application of a Finish

- A. Procedure for finishing wood with:
 1. stain
 2. varnish
 3. shellac
 4. deft
 5. lacquer
 6. oil finish

Methodology: 75-90% hands-on and visual learning. Remaining learning will take place through reading, lectures and discussions.