

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

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.

Standard 17: Students will develop an understanding of and be able to select and use information and communication technologies.

Standard 18: Students will develop an understanding of and be able to select and use transportation technologies.

Performance Indicators:

Construct and operate a mechanical arm.

Construct and operate an hydraulic arm.

Create (program) a line picture using (x,y) coordinates.

Construct and program FischerTechnik models using step-by-step instructions.

Solve problems using FischerTechnik robotics kits.

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

Scope: Students will explore the components of robots, from simple to complex, including simple machines, parts, and programming. Many types of robots will be built, such as a hydraulic arm, mechanical arm, and motorized robots.

Sequence:

- I. History and Application of Robots
- II. Simple Machines and Structures
- III. Mechanical Robots, Machine Automation
- IV. Hydraulic and Pneumatic Robots
- V. Programming, Computer Control Systems
- VI. Electric Robots
- VII. Problem-Solving

Methodology: 85-95% Hands on and visual learning. Remaining learning will take place through reading, lectures and discussions.