**Subject Area__Physical Setting/_Chemistry_____ Grade Level _____11th__**

**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 1- Analysis, Inquiry, and Design
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 usig appropriate technologies.

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.

Standard 4- The physical setting
Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.

1. Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.
2. Energy exists in many forms, and when these forms change energy is conserved.
3. Energy and matter interact through forces that result in changes in motion.

Performance Indicators:

1. Explain the properties of materials in terms of the arrangement and properties of the atoms that compose them.
2. Use atomic and molecular models to explain common chemical reactions.
3. Apply the principle of conservation of mass to chemical reactions.
4. Use kinetic molecular theory to explain rates of reactions and the relationships among temperature, pressure, and volume of a substance.
5. Observe and describe transmission of various forms of energy.
6. Explain heat in terms of kinetic molecular theory.
7. Explain the benefits and risks of radioactivity.
8. Explain chemical bonding in terms of the behavior of electrons.
9. Compare energy relationships within an atom's nucleus to those outside the nucleus.

**National Standards:**

| **Assessment**: | **Acceptable Performance Level** |
|---|---|
| 1. NYS Physical Setting /Chemistry Regents exam | Students must achieve a 65 or better |
| 2. Teacher made exams including quizzes, exams, midterms, final. (any kind of test you are giving that is testing the performance indicator - formal or informal)<br>3. Homework, labs | A passing score of 70 or better |

**Scope**: Chronologically organized study of scientific concepts, principles, and theories pertaining to the physical setting/Chemistry divided into 12 units of study. Concepts, principles, and theories ranging from basic matter and energy to nuclear chemistry.

**Sequence**:
Unit 1: Intro to Matter and Energy
Unit 2: States of Matter and Changes of State
Unit 3: Gases
Unit 4: Naming Compounds, Formulas, and Equations
Unit 5: Periodic Table
Unit 6: Chemical Bonding
Unit 7: Stoichiometry
Unit 8: Solutions
Unit 9: Thermodynamics and Kinetics
Unit 10: Equilibrium
Unit 11: Acids, Bases, and Salts
Unit 12: Organic Chemistry

Unit 13:  Nuclear Chemistry

**Methodology**:

1. Use of lecture strategies in order to present scientific concepts and theories.
2. Presentation of demonstrations in order to enhance student thinking and problem-solving skills.
3. Collaboration in groups to analyze new concepts and principles.
4. Homework assignments consisting of regents based questions.
5. Use of labs to enhance understanding