## Grand Island Public Schools
# CHEMISTRY

**Course Length:** Two semesters

**Grade Levels:** 10, 11, 12

**Prerequisite Courses:** Algebra 1-2

**Course Description:**
This course helps students develop an understanding of how chemistry applies to everyday life. The course uses an inquiry-based and hands-on approach to help students work with chemical concepts.

## Chemistry Course Standards

**As a result of their participation in this course, students will:**

### Strand 1: Inquiry and Other Integrated Science Components

- Use scientific inquiry to solve problems and conduct scientific investigations.
  - Formulate questions that guide scientific investigations.
  - Develop a testable hypothesis based on prior scientific knowledge.
  - Design and conduct a scientific investigation to test the hypothesis.
  - Use technology, observations and mathematics to improve investigations and communications.
  - Formulate and revise scientific explanations and models using logic and evidence.
  - Communicate and defend a scientific argument.
- Investigate and understand that scientists, past and present, have different abilities, technologies, qualities, theories, and scientific habits of mind (e.g., ethics).
- Use appropriate technology as a tool in problem solving.
- Describe the similarities and differences between science and technology and the impact they have on each other.
- Understand the role of science in making informed decisions.

### Strand 2: Physical Science

- Identify and use trends in the periodic table.
- Describe the effects of various factors on physical changes and chemical reactions.
- Describe and use atomic structure to determine reactivity, bonding, names and formulas.
- Analyze and identify evidence of chemical reactions.
- Investigate and analyze aspects of water chemistry including solubility, separation techniques, purification and treatment.
- Investigate and distinguish between physical and chemical properties.
- Write balanced chemical equations and do mass calculations.
- Examine atmospheric gases with emphasis on the gas laws and kinetic molecular theory.

### Strand 3: Life Science

- Describe and explain biological effects of environmental pollution on organisms.

### Strand 4: Earth and Space Science

- Compare and contrast the difference between renewable and nonrenewable resources.