Course: 8th Grade Science
Instructor: Mrs. Noyen

Instructional Plan

Course Content Description Template
Provide a brief overview of the course content, including key topics and themes covered throughout the course.

This course provides a comprehensive exploration of physical science, life science, and Earth and space science, designed to build foundational scientific understanding and inquiry skills. Key topics include:

- **Matter and Energy:** Physical properties of matter and atoms involved in chemical reactions. Specific units are detailed below:
  - Classification of Matter
  - Atoms in Chemical Reactions
  - Law of Conservation Mass
- **Force, Motion, and Energy:** Motion, forces, energy forms and transformations, along with the principles of electricity and magnetism.
  - Newton's Second Law of Motion
  - Simultaneous Action of Newton's Three Laws of Motion
  - Characteristics of Waves
  - Applications of Electromagnetic Waves
- **Organisms and Environments:** Cell structure and function, genetics and heredity, ecosystems, and the interdependence of organisms.
  - Functions of Organelles
  - Functions of Genes
  - Variations and Adaptations
  - Disruptions of Energy Transfer in Food Webs
  - Ecological Succession
  - Impact of Biodiversity on Stability of Ecosystems

- **<u>Earth and Space Science</u>:** Earth's systems, weather and climate, the solar system, and the universe.
    - Stars: Life Cycle and Classification
    - Categorization of Galaxies
    - Theories of the Origin of the Universe
    - Energy Systems, Weather, and Climate
    - Global Patterns of Air and Weather
    - Tropical Cyclones
    - Impact of Natural Events on Global Climate
    - Impact of Human Activity on Global Climate
    - The Carbon Cycle

Throughout the course, students engage in scientific investigations using critical thinking and problem-solving skills. Emphasis is placed on applying the scientific method, analyzing data, and communicating results effectively.

Major Assignments and Projects Template
List the major assignments and projects for the course, including their purpose and any relevant deadlines or evaluation criteria.

Throughout the course, students will engage in a variety of assignments and projects designed to deepen their understanding of scientific concepts and develop critical thinking skills. These activities will include hands-on investigations, research-based presentations, and creative demonstrations aligned with key topics in physical, life, and Earth sciences.

Each assignment will encourage exploration, collaboration, and application of the scientific method, with clear evaluation criteria communicated in advance to support student success. Specific projects and deadlines will be planned and shared as the course progresses, and may be adjusted to best meet students' knowledge levels and ensure understanding of the topics.

Required Textbooks and Instructional Materials Template
List the textbooks and other instructional materials required for the course, including authors, publication dates, and any additional resources needed for successful completion.

Students will use a variety of textbooks and instructional materials to support their learning throughout the course that will be provided by the school. These resources include:

- The designated 8th grade dynamic science textbook (SummitK12) aligned with Texas TEKS standards
- A science journal for recording observations, reflections, and class notes..
- Designated supplementary reading materials, including articles and digital resources
- Laboratory equipment and safety materials for hands-on experiments
- Access to technology tools for research, presentations, and interactive activities

Additional materials may be provided as needed to enhance understanding and engagement with course content. Students are expected to come prepared to fully participate in all learning activities.