8th Grade Syllabus

Course Description/Goals:

In Middle School Science, students build on prior knowledge through hands-on exploration and critical thinking as they investigate natural phenomena across life, earth, and physical science. Students engage in 3D science instruction, which integrates science and engineering practices, crosscutting concepts, and disciplinary core ideas. Through the 5E instructional model, students ask questions, plan and conduct investigations, and design solutions to real-world problems. Across the three years, students study topics such as matter and energy, force and motion, Earth systems, space, ecosystems, and the structure and function of organisms. Emphasis is placed on analyzing data, building and using models, and developing evidence-based explanations that reflect the nature and processes of science.

Course TEKS/Objectives:

The 8th Grade Science TEKS are organized into reporting categories that support deeper understanding of key scientific concepts: Matter and Energy; Force, Motion, and Energy; Earth and Space; and Organisms and Environments. Students model chemical reactions and mixtures, analyze the periodic table, and investigate conservation of mass. In physical science, students apply Newton's Laws of Motion and explore how energy moves through waves and electromagnetic applications. Earth and space concepts include star life cycles, galaxies, weather and climate systems, and human impact on climate change. Life science instruction focuses on cellular functions, genetic traits, adaptation, biodiversity, and ecosystem stability. Students use scientific practices to model systems, analyze evidence, and make sense of complex interactions in the natural world. Each category contains specific standards (TEKS) that students are expected to master and can be referenced here.

Course Outline:

Semester 1	Semester 2
-Matter & Chemical Reactions -Force, Motion, & Acceleration -Waves & the Electromagnetic Spectrum -The Universe -Weather & Climate	-Functions of Cell Structures -Variations, Adaptations, & Survival -Ecosystems & Population Change -Impacts on Global Climate -Characteristics of Matter