

Integrated Physics and Chemistry Syllabus

Course Description/Goals:

Integrated Physics and Chemistry (IPC) combines foundational concepts from both physics and chemistry into a single, cohesive course. Students explore topics including force, motion, energy, and matter through hands-on investigations and real-world applications. Emphasis is placed on the development of scientific and engineering practices such as modeling, analyzing data, and problem solving. IPC helps students build a strong foundation in the physical sciences and prepares them to make informed decisions based on evidence and critical thinking. Through this course, students examine recurring themes like systems, patterns, and interactions that connect scientific concepts across disciplines.

Course TEKS/Objectives:

The Integrated Physics and Chemistry (IPC) TEKS are structured around key scientific concepts that merge foundational principles of both physical sciences. Students investigate the relationships between force and motion, explore energy transfer and conservation, and examine the structure and properties of matter as well as how changes in matter impact the environment and daily life. These concepts are taught through hands-on investigations and real-world problem-solving scenarios that emphasize modeling, data analysis, and critical thinking. Topics include Newton's laws of motion, energy systems (thermal, electrical, and wave-based), periodic trends, atomic structure, chemical reactions, and the environmental effects of chemical and nuclear changes. Each category contains specific standards (TEKS) that students are expected to master and can be [referenced here](#).

Course Outline:

Semester 1	Semester 2
<ul style="list-style-type: none">-Composition of Matter-Properties of Matter and the Periodic Table-Stable and Unstable Nuclei and Reactivity and Nuclear Reactions-Chemical Reactions-Compounds and Solutions-New Materials Through Chemistry	<ul style="list-style-type: none">-Force and Motion-ADI Lab: Humanitarian Airdrop-Energy-Electricity and Magnetism-Energy Sources-Waves-Light and Lenses