

Astronomy Syllabus

Course Description/Goals:

The Astronomy TEKS guide students in exploring celestial patterns, processes, and relationships that shape our understanding of the universe. Students build conceptual models of the Earth-Moon-Sun system, the solar system, stellar evolution, galaxies, and the universe’s structure and scale. Through investigations and data analysis, they explore phenomena like phases, eclipses, planetary motion, and star life cycles. The course emphasizes scientific inquiry, engineering practices, and technological innovation. Students evaluate space exploration’s benefits and limitations, analyze evidence behind current theories, and consider how discoveries impact society. By the end of the course, students develop a foundational understanding of our place in space and time.

Course TEKS/Objectives:

The Astronomy TEKS guide students in exploring the universe through observation, modeling, and scientific investigation. Students examine how astronomy shaped ancient civilizations and trace its development through historical figures. They model sun-Earth-Moon interactions, including lunar phases, eclipses, tides, and seasons. The solar system is explored through scale models and comparisons of planets, moons, and other objects. Students investigate how astronomical tools—such as telescopes and spectroscopy—gather data across the electromagnetic spectrum. They study stellar properties, nuclear fusion, solar activity, and star life cycles using tools like the Hertzsprung-Russell diagram. Students explore the structure of galaxies, cosmic evolution, and evidence for dark matter, dark energy, and the Big Bang. The course concludes with current developments in space exploration and the search for habitable exoplanets. Each category contains specific standards (TEKS) that students are expected to master and can be [referenced here](#).

Course Outline:

Semester 1	Semester 2
-Astronomy Through the Ages - Observational Astronomy -Measurement and Scale in Astronomy -Modeling Moon–Earth–Sun Interactions -Planetary Motion -Spectroscopy and Telescopes in Modern Astronomy	-The Sun -All Stars -Solar System Science -Structure of the Universe -Cosmology -Space Exploration