

Astronomy Scope & Sequence

Days	Unit	Standard(s)/Outcome(s)	Essential/Guiding Questions
9	Unit 1: History of Astronomy and Foundational Concepts	Students will be able to: - Describe the contributions of early astronomers to our modern understanding. - Illustrate the different distance units commonly used in astronomy. - Compare and contrast nuclear fusion and nuclear fission as it relates to powering stars.	<i>Who are some of the most important early astronomers and what were their contributions?</i> <i>What are the similarities and differences between ancient cultures and their views on astronomy?</i> <i>What are common units of distance in astronomy, and what situations are appropriate for each unit?</i>
10	Unit 2: Solar System and Planetary Formation	Students will be able to: - Describe the process of solar system formation. - Classify different bodies given information such as size, orbits, and orbital radius. - Diagram the structure of both gaseous and rocky planets.	<i>How does a solar system form?</i> <i>What similarities and differences exist between rocky and gaseous planets?</i> <i>What characteristics lead to a body being classified as a planet, a dwarf planet, or moon?</i>
10	Unit 3: Stellar Properties and Evolution	Students will be able to: Classify stars using an HR	<i>What is a Hertzsprung-Russell (HR) diagram and what role</i>

		diagram. • Calculate different characteristics of a star using the Stefan-Boltzmann Law. • Explain how Earth's position in the universe leads to the phenomenon of absolute and apparent brightness.	<i>does it play in classifying stars?</i> • <i>What is peak intensity?</i> • <i>What is the difference between absolute and apparent brightness?</i>
7	Unit 4: Galactic Structure	Students will be able to: • Describe the process of galactic formation. • Classify different galaxies based on information like age, structure, or star formation. • Explain the role dark matter and dark energy play in shaping both galaxies and the universe at large.	• <i>How can we tell the age of a galaxy?</i> • <i>What kinds of interactions can shape galaxies?</i> • <i>What is the future of the Milky Way Galaxy?</i> • <i>What is dark matter?</i> • <i>What is dark energy?</i>
9	Unit 5: Modern Astronomy	Students will be able to: • Evaluate the scientific importance of current and planned NASA missions. • Analyze how different telescopes gather data and what information they can convey.	• <i>What are planned or ongoing missions headed by NASA?</i> • <i>What types of data can be gathered by different telescopes?</i>