IRVINE UNIFIED SCHOOL DISTRICT

Year at a Glance – Eleventh Grade Science (Integrated Science 3)

Guiding Crosscutting Concept: Students will analyze systems and system models, including orbits of celestial bodies, living organisms, and ecosystems, to better undestand how humans have impacted these systems and the mechanisms that drive extinction of life.

Official 2019-20 Version

What Students Learn
The Integrated Science 3 course is designed to allow students the opportunity to discover Earth's place in the universe. Students will be focused on studying the systems that govern the formation of the universe and Earth, the one planet students know supports life. Using chemistry and physics concepts, students will gain an understanding of the history of the universe, determine how objects orbit within a galaxy, analyze data for the chemical makeup of celestial bodies, and use their knowledge to make predictions about the nature of our changing universe. On Earth there are physical and biological systems in which students will comprehend to determine the impact human beings have had on these natural systems. Examples include the ocean currents and weather patterns that affect climate, the creation and support of diverse species through genetic diversity and natural selection, the hierarchy of the different structures within an organism, and the mechanisms which drive extinction of life.

Units	Key Learning Outcomes
1. Cosmic Evolution	HS-PS3-5:Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction. HS-PS2-1:Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration. HS-PS2-3:Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision. HS-ESS2-6:Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere. HS-ESS3-6:Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity. HS-PS3-3:Design, build and refine a device that works within given constraints to convert one form of energy into another form of energy. HS-ESS3-2:Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.
2. Habitable Worlds	
3. Complexities of Life on Earth	
4. Human Impact/Sustainability	
5. Summary Unit: Sending a Message (into outer space)	