

Course Title:	Environmental Physics & Chemistry
Grade(s):	9

Course Description
This course explores the fundamental principles of Earth and Space science, including the structure of atoms, the formation and evolution of the universe and stars, and the ways energy and radiation travel through space. Students will investigate Earth's interior, plate tectonics, landform formation, natural hazards, the cycling and management of Earth's resources, distinguishing between renewable and nonrenewable energy types, and evaluating human impacts. The course also examines climate systems, extreme weather, and climate change, including causes, consequences, and practical solutions. By the end of the course, students will be able to analyze scientific data, explain natural processes, and develop evidence-based solutions to challenges facing Earth and its environment.
Approved Curricular Materials/Textbook(s)

Unit Title	Unit Description (Include Unit Objectives)	Unit Pacing
Unit 1: Introduction to Science & the Scientific Method	This unit introduces students to the foundations of scientific inquiry. Students explore the skills involved in thinking like a scientist, including developing claims and supporting them with evidence and reasoning. They learn how to design experiments, collect and analyze data, and present their results graphically. The unit also emphasizes collaboration, communication, and understanding the classroom community as a learning environment.	4 weeks (September)
Unit 2: Energy in the Universe (Astronomy)	This unit introduces students to the structure of atoms, the behavior of sound and light waves, and the electromagnetic spectrum. Students will investigate how the sun produces energy, how that energy reaches Earth, and the formation and evolution of the universe and stars, developing skills to evaluate scientific evidence and explain cosmic phenomena. The course also examines how waves	10 weeks (October - November)

	and radiation interact with matter and how technology harnesses these principles to capture, transmit, and utilize energy and information. By the end of the course, students will be able to analyze wave behavior, interpret astronomical data, and explain how scientific evidence supports the theory that our universe began with a “big bang”.	
Unit 3: Plate Tectonics	In this unit, students will explore the structure and composition of Earth’s interior and examine how matter and energy are cycled within the planet. They will investigate the evidence for plate tectonics and understand how the movement of Earth’s crust shapes mountains, plateaus, valleys, and ocean trenches. Students will explore why some regions on Earth are more susceptible to earthquakes and volcanic activity, and they will explore theories regarding the formation and early conditions of Earth. By the end of the unit, students will be able to describe Earth’s internal structure, explain the processes driving plate tectonics and landform formation, evaluate geological hazards, and interpret scientific evidence about Earth’s early history.	10 weeks (December - February)
Unit 4: Earth Systems	In this unit, students will explore the variety of natural resources Earth provides and how these resources are cycled and renewed within Earth’s systems. They will compare renewable and nonrenewable resources and analyze the ways human activity has impacted the quality, availability, and sustainability of these resources. Students will investigate strategies to mitigate negative environmental effects, considering practical approaches to conservation, resource management, and sustainable use. By the end of the unit, students will be able to identify and classify Earth’s resources, explain natural recycling processes, evaluate human impacts, and propose evidence-based solutions to support sustainable resource use. This unit focuses on the factors that influence Earth’s climate and weather patterns. Students analyze natural drivers, such as orbital shifts and solar variability, as well as human influences, including carbon emissions. Topics include hurricanes, extreme weather events, and climate change impacts on ecosystems and human societies. Students explore strategies for mitigating climate change and adapting to its effects, developing both scientific understanding and practical problem-solving skills. By the end of the unit, students will be able to explain natural and human factors that influence Earth’s	10 weeks (March - April)

	climate, describe the causes and effects of extreme weather events, evaluate the role of carbon emissions and other human activities in climate change, and propose evidence-based strategies to mitigate or adapt to climate change.	
Unit 5: Earth and Human Activity	This unit examines the relationship between human activity and Earth's natural systems, highlighting how people impact the geosphere, hydrosphere, atmosphere, and biosphere. Students will explore topics such as resource use, pollution, land development, climate change, and conservation, analyzing how human actions can alter Earth's environments. The unit emphasizes the cause-and-effect connections between human activity and natural processes, encouraging students to evaluate environmental challenges and consider sustainable solutions. Through case studies and data analysis, learners will investigate real-world examples of environmental change and human intervention. By the end of the unit, students will be able to explain the impact of human activity on Earth's systems, assess environmental risks, and propose strategies for minimizing negative effects while promoting sustainability.	5 weeks (May-June)