Union County Educational Services Commission
High School Course Syllabus

Title: Environmental Science

Timeline: Full Year; 5 Credits

Course Description:
The Big Bang Theory; weather; climate change - all heady subjects, all integral to our study of humanity's place in the universe. Environmental science students will explore the Earth's place in the universe and human interaction. Further, they will study the impact on Earth through a unique combination of multimedia and hands-on activities designed to put students' experiences into perspective with regards to the long history of everything around them. By the end of the course, students will have practical knowledge of such varied topics as planetary motion and earthquakes.

Scope and Sequence:
I. Human Impact; Cause and Effect
II. Populations and Ecology
III. Energy – Thermodynamics
IV. Earth and Human Activity

Refer to the attached curriculum map for a detailed outline of course objectives.

Curriculum Alignment:
New Jersey Student Learning Standards - Science
Next Generation Science Standards

Grading Procedures:

Do Now	10%
Participation	20%
Class Assignments	50%
Assessments	20%

Adoption Date:
June 2024

Union County Educational Services Commission
Curriculum Mapping– Environmental Science

	Unit 1	**Unit 2**	**Unit 3**	**Unit 4**
Number of Weeks	approx. 10	approx. 10	approx. 10	approx. 10
Topic	Human Impact: Cause and Effect	Populations and Ecology	Energy - Thermodynamics	Earth and Human Activity
Standards	HS-ESS3-3. Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.	HS-ESS3-1 - Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation. LS2.A - Interdependent Relationships in Ecosystems	HS-ESS3-1 - Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation. LS2.A - Interdependent Relationships in Ecosystems	HS-ESS3-1 - Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation. HS-ESS3-5 - Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks. HS-ESS3-6 - Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth's formation and early history.
Content/ Disciplinary Core Ideas	What Is Environmental Science? What is the Goal of Environmental Science? Ecology - Ecological Footprint Biodiversity Natural Resources - Sustainability Population crisis - Consumption crisis Developed country - Developing Country Decision-making model	Biotic, Abiotic Factors Water Cycle Nutrient Cycles - Carbon Adaptation, Evolution, Coevolution - Symbiosis, Niche Natural and Artificial Selection Levels of Organization in the Biosphere Populations - Immigrant, Emigrant Carrying Capacity - Population Density - Limiting Factors Species - Endangered and Mass	Energy Flow - Energy Pyramid Food Chains - Food Webs Photosynthesis - Respiration Primary, Secondary Succession, Climax Community Legume - Nitrogen Fixation Biome, Climate - Latitude, Altitude	Types of Natural Resources Managing Natural Resources Human Impacts on Natural Resources Natural Hazards Global Climate Change Weather and Climate

		Extinctions		
Skills/ Science and Engineering Practices	Constructing Explanations and Designing Solutions Using Mathematical & Computational Thinking Engaging in Argument from Evidence	Constructing Explanations and Designing Solutions Analyzing and Interpreting Data		Constructing Explanations and Designing Solutions Using Mathematical and Computational Thinking Analyzing and Interpreting Data
Crosscutting Concepts	Stability and Change Systems and System Models	Stability and Change Cause and Effect		Stability and Change Cause and Effect Systems and System Models
Resources	https://ed.ted.com/lessons?category=earth-and-space-science https://ngss.nsta.org/Classroom-Resources.aspx https://www.nasa.gov/offices/education/programs/national/summer/education_resources/earthspacescience_grades7-9/index.html https://www.state.nj.us/education/modelcurriculum/sci/capstone.shtml https://scienceteachertribe.s3.amazonaws.com/Earth+Science/Earth-and-Space-Science-Pacing-Guide-.pdf			