Environmental Science Subject Group Overview

Updated SGO

Semester 1 (18 weeks) ***Units 1-3, Midterm***					***Semester 2 (18 weeks)*** ***Units 4-6, Final Exam***			
Unit Name	U1: Planet Earth	U2: Functional Ecosystems	U3: Earth's Climate	Midterm Exam Review	U4: Human Population	U5: Energy Resources	U6: Human Impact	Final Exam Review
Time Frame	4 Weeks 10 A and B Days	7 Weeks 18 A and B Days	6 weeks 15 A and B Days	1 Week 2 A and 2 B Days	5 weeks 12 A and B Days	5 weeks 12 A and B Days	7 weeks 18 A and B Days	1 Week 2 A & 2 B Days
Standards	SEV1.a.c.e	SEV1.b.d., SEV2. c, d	SEV2.a.b.	SEV1.a.c.e SEV1.b.d., SEV2. c, d SEV2.a.b.	SEV5.a.b.c, SEV4.c.	SEV3.a, b, c, d	SEV4.a.b, SEV5.d.	SEV5.a.b.c, SEV4.c. SEV3.a, b, c, d, SEV4.a.b, SEV5.d.
Approaches To Learning Instructional Strategies	**ATL** ● Organization Skills: Select and use technology effectively and productively ● Communication Skills: Collaborate with peers and experts using a variety of digital environments and media **SEP** ● Analyze and Interpreting Data ● Obtain, Evaluate and Communicate Information **CCC** ● Scale, Proportion, and Quantity	**ATL** ● Creative-thinking Skills: Create original works and ideas; use existing works and ideas in new ways ● Transfer Skills: Combine knowledge, understanding, and skills to create products or solutions **SEP** ● Analyze and Interpreting Data ● Develop and Use Models ● Plan and Carry Out Investigations **CCC** ● Patterns ● Cause and Effect	**ATL** ● Affective Skills: Mindfulness (Practice focus and concentration) ● Reflection Skills: Consider content (What did I learn about today? What don't I understand yet? What questions do I have now? **SEP** ● Developing and Using Models ● Analyze and Interpreting Data ● Engaging in Argument from evidence ● Obtaining, evaluating, and communicating information ● Collect and analyze data identify solutions and make informed decisions		**ATL** ● Research Skills: Access information to be informed and inform others ● Communication Skills: Organize and depict information logically **SEP** ● Develop and use Models ● Obtaining, evaluating, and communicating information ● Analyzing and interpreting data ● Make guesses, ask what if questions and generate testable hypotheses	**ATL** ● Research Skills: Access information to be informed and inform others ● Collaboration Skills: Listen actively to other perspectives and ideas **SEP** ● Asking Questions and Defining Problems ● Develop and use Models ● Plan and Carry Out Investigation ● Analyzing and Interpreting Data ● Constructing Explanations and Designing Solutions ● Engaging in Argument from Evidence ● Obtain, Evaluate, and Communicate Information	**ATL** ● Critical Thinking Skills: Identify obstacles and challenges ● Transfer Skills: Combine knowledge, understanding, and skills to create products or solution **SEP** ● Engaging in Argument from evidence ● Develop and using Models ● Obtaining, evaluating, and communicating information ● Analyzing and interpreting data ● Make guesses, ask what if questions and generate testable hypotheses **CCC** ● Patterns ● Cause and Effect ● Scale, Proportion, and Quantity ● Systems and System Models ● Energy and Matter: Flows, Cycles, and Conservation ● ***Structure and Function***	

Published: 8,2025 Resources, materials, assessments not linked to SGO or unit planner will be reviewed at the local school level.

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	● Systems and System Models ● Energy and Matter ● Stability and Change ● Structure and Function	● Scale, Proportion, and Quantity ● Systems and System Models ● Energy and Matter: Flows, Cycles, and Conservation ● Structure and Function ● Stability and Change	**CCC** ● Patterns ● Cause and Effect ● Scale, Proportion, and Quantity ● Systems and System Models ● Energy and Matter: Flows, Cycles, and Conservation ● ***Structure and Function*** ● Stability and Change			**CCC** ● Cause and Effect ● Scale, Proportion, and Quantity ● Systems and System Models ● Energy and Matter: Flows, Cycles, and Conservation ● ***Structure and Function***	● Stability and Change	
Statement of Inquiry	By exploring the relationships between Earth's geosphere, hydrosphere, atmosphere, and biosphere, students will investigate how natural and anthropogenic activities influence these systems, leading to both short-term and long-term environmental changes. **Phenomena**: Climate change, driven by natural and anthropogenic activities, significantly impacts these reefs, leading to both short-term and long-term environmental changes..	The intricate interactions within ecosystems are essential for maintaining balance and biodiversity. The decline of pollinator populations demonstrates how changes in one part of an ecosystem can disrupt energy flow and impact global sustainability. By investigating these relationships, we can design and implement solutions to promote an ecosystem's resilience. **Phenomena**: The decline in pollinator populations highlights the intricate interactions within ecosystems and demonstrates how disruptions can impact energy flow and global	The rapid melting of Arctic ice highlights the interconnectedness of Earth's atmospheric and climate systems and the significant impact of human activities on global climate change. **Phenomena**: The rapid melting of Arctic ice serves as a critical indicator of global climate change, illustrating the interconnectedness of Earth's atmospheric and climate systems.		The different stages of human population growth during and before the Industrial Revolution led to an increase in demand for resources, particularly food. These innovations led to the increased food production, they have also had significant ecological consequences, both locally and globally. **Phenomena**: Innovations in agriculture have met the demands of a growing population, but have also led to significant ecological consequences both locally and globally.	The city of Atlanta is experiencing an energy crisis due to a combination of factors, including aging infrastructure, increased demand, and extreme weather events. The city council is considering various options to address this crisis, yet each option has potential risks and benefits, and the decision will have significant environmental, economic, and social implications for the city's residents. **Phenomena**: The city of Atlanta is facing an energy crisis driven by aging infrastructure, increased demand, and extreme weather events.	The Great Pacific Garbage Patch, an area in the North Pacific Ocean where marine debris accumulates, has grown exponentially in recent decades. This accumulation of plastic and other waste poses a significant threat to marine life and ecosystems. International groups, governments, local businesses and individuals are looking for solutions to reduce their impact and increase sustainability. **Phenomena**: The Great Pacific Garbage Patch, a mass of plastic garbage twice the size of Texas, has expanded dramatically over recent decades.	

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		sustainability.						
Global Context	● *Identities and relationships*	● *Orientation in space and time*	● *Orientation in space and time*		● *Scientific and technical innovation*	● *Globalization and sustainability*	● *Globalization and sustainability*	
Key Concepts	● *Relationship*	● *Systems*	● *Change*		● *Change*	● *Systems*	● *Relationships*	
Related Concepts	● *Environment* ● *Balance*	● *Models* ● *Interactions*	● *Interactions* ● *Environment*		● *Transformations* ● *Interactions*	● *Interactions* ● *Energy*	● *Energy* ● *Transformation*	
Design Cycle Trans-disciplinary	**Core Ideas** ● Levels of Biological Organization ● Biogeochemical Cycles ● Earth as a Closed System ● Aquatic Biomes in Georgia	**Core Ideas** ● Energy Transfers in Ecosystems ● Physical Factors and Organismal Adaptations ● Ecological Succession ● Value of Biodiversity in Ecosystem Resilience	**Core Ideas** ● Natural Cyclic Fluctuations and Climate Change ● Changes in Atmospheric Chemistry and the Greenhouse Effect		**Core Ideas** ● Quality of Life and Historical Human Impact on Ecosystems ● Global Patterns of Population Growth ● Ecological Effects of Mankind's Innovations ● Human Population Growth and Food Demand	**Core Ideas** ● Renewable and Nonrenewable Energy Sources ● Risks and Benefits of Energy Sources ● Sustainability Potential of Energy Resources ● Designing a Sustainable Energy Plan	**Core Ideas** ● Human Activities and Natural Resources ● Solutions to Reduce Human Impact ● Personal Sustainability Plans ● Designing a Sustainable Energy Plan	
MYP Assessments/ Performance Tasks	**Unit 1 CSA** **MYP Criterion Bi.** explain a problem or question to be tested by a scientific investigation **MYP Criterion Cii.** interpret data and explain results using scientific reasoning **CFA**	**Unit 2 CSA** **MYP Criterion Ai.** outline scientific knowledge **MYP Criterion Di**. explain the ways in which science is applied and used to address a specific problem or issue **CFA**	**Unit 3 CSA** **MYP Criterion Bii**. outline a testable prediction using scientific reasoning **MYP Criterion Cii.** interpret data and explain results using scientific reasoning **CFA**	**Midterm**	**Unit 4 CSA** **MYP Criterion Aiii.** interpret information to make scientifically supported judgments**.** **MYP Criterion D ii.** describe and summarize the various implications of using science and its application in solving a specific problem or issue **CFA**	**Unit 5 CSA** **MYP Criterion Cii.** interpret data and outline results using scientific reasoning **MYP Criterion Bi.** outline an appropriate problem or research question to be tested by a scientific investigation **CFA**	**Unit 6 CSA** **MYP Criterion Aii.** apply scientific knowledge and understanding to solve problems set in familiar situations and suggest solutions to problems set in unfamiliar situations **MYP Criterion Di.** summarize the ways in which science is applied and used to address a specific problem or issue **CFA**	**Final Exam**

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Differentiation For Tiered Learners	Marietta City Schools teachers provide specific differentiation of learning experiences for all students. Details for differentiation for learning experiences are included on the district unit planners.	
Course Levels	**Marietta City Schools offers Enhanced, Honors, Accelerated, and AP classes to provide differentiated learning experiences for students.**	