



Saltmarsh Explorers: Unveiling Estuarine Wonders

SUBJECT AREA: Science – Environmental Science, Biology.

GRADE LEVEL: Ninth through tenth.

DURATION: One hour.

AUDIENCE SIZE: 30 students.

OVERVIEW: This program will take students on an exciting journey as our experienced instructors dive into salt marsh estuaries and the intricate food webs within them. Designed to engage students in understanding the importance of salt marshes and impacts that threaten these ecosystems, students will first learn about the various ecosystem services that salt marsh estuaries provide and the department's role in maintaining these valuable ecosystems. Second, students will create a live-action food web that will undergo different impacts. Lastly, students will explore the subsequent trophic cascades and brainstorm solutions to mitigate these impacts.



OBJECTIVES:

The student will:

- Identify ecosystem services associated with salt marsh estuaries and their value to local economies.
- Understand how a marine food web works.
- Describe specific threats to a salt marsh estuary food web, specifically in Florida.
- Model a salt marsh estuary food web and predict subsequent trophic cascades.
- Collaborate on brainstorming and implementing strategies to protect and restore salt marsh habitats.
- Interact with subject matter experts, who specialize in wetlands and salt marsh estuaries, to learn the department's role in maintaining these vital habitats.



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SUNSHINE STATE STANDARDS:

SC.912.L.17.6 - Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.

SC.912.L.17.9 - Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.

SC.912.L.17.17 - Assess the effectiveness of innovative methods of protecting the environment.

SC.912.N.3.5 - Describe the function of models in science, and identify the wide range of models used in science.

SC.912.N.4.1 - Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.

SC.912.N.4.2 - Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.

SS.912.C.5.4 - Analyze case studies of how humans impact the diversity and productivity of ecosystems.

ADVANCED PLACEMENT COURSE CURRICULUM:

Topic 1.8 - Primary Productivity - Explain how solar energy is acquired and transferred by living organisms.

Topic 1.9 - Trophic Levels - Explain how energy flows and matter cycles through trophic levels.

Topic 1.11 - Food Chains and Food Webs - Describe food chains and food webs, and their constituent members by trophic level.

Topic 8.4 - Anthropogenic Impacts on Wetlands and Mangroves - Describe the impacts of human activities on wetlands and mangroves.

Topic 9.10 - Anthropogenic Impacts on Biodiversity - Explain how human activities affect biodiversity and strategies to combat the problem.

Science Practice 2 - Analyze visual representations of environmental concepts and processes.

Science Practice 7 - Propose and justify solutions to environmental problems.