

Growing Futures: Marsh Grass Restoration Curriculum for Young Environmental Stewards

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High School Curriculum- Instructor Overview

- **Summary:** The "Salt Marsh Scientists" high school curriculum (Grades 9–12) is a comprehensive, five-module, inquiry-based program that explores the biology, ecology, and restoration of coastal wetlands. Aligned with NGSS standards (HS-LS2), the curriculum uses the 5E instructional model to move students from learning the basics of how plants survive to solving big real-world environmental problems
- **Principles Alignment:** Ecosystem Principles: Nutrient cycling, habitat provision, and coastal buffering.
- **Targeted Age:** High School (HS-LS).
- **Estimated Length:** Five modules, 13 lessons total/50-minute lessons.
- **Supplies:** Activity Card sets (Plants, Animals, Toolkit, Case Files), Reference Cards (Carbon Cycle/Blue Carbon, Soil texture, Salt Marsh profile card, Salt Marsh Zones), soil/gravel/sand (Erosion lab/Engineering challenge), Jars (Dirt Shake test/optional), Water Quality Test Strips.
- **Estimated Costs:** \$20–\$25 for printing and lamination; \$18- \$20 for water quality test; \$20- \$25 for soil/gravel/sand; recycled water bottles for Erosion and Engineering Challenge lab; and glass sauce or pickle jars for the dirt shake test: \$0. Total: \$58.00-70.00. The restoration project is optional but will add to the budget.

High School Curriculum Attachments

- **Activity Cards:** Plant and Food Web Cards, Restoration Toolkit cards, and Case Study Cards
- **Reference Cards:** Blue Carbon, Carbon Cycle, Damage Marsh Map, Salt Marsh Zones, Soil Reference, Salt Marsh Soil Profile
- **Rubrics:** Summative Assessment Ecology Game
- **Instructor Guides:** Modules 1-5 Teacher Guides
- **Homework worksheets:** Blue Carbon and Water Potential homework
- **Lab worksheets:** Erosion Lab, Soil Analysis Lab, Engineering Challenge Lab
- **Activity worksheets:** Plant Adaptations, Food Web, Measuring Ecosystem Health, Salt Marsh Restoration Portfolio, The Evolution of Survival, Salt Marsh Scientist Journal

- **Assessments:** Formative: Vocabulary Check per module, Diagnostic Pre/Post-Tests with Keys, Ecology Game, Salt Marsh Scientist Journal
- **Evaluation Forms:** Diagnostic Assessment Pre and Post-Test, Teacher Self-Evaluation
- **Presentation:** Salt Marsh Presentation
- **Video:** Interactive video “Welcome to the Salt Marsh”
<https://www.thinglink.com/view/scene/2142383893993489061>