DEERING ESTATE

South Florida Ecology

Lesson Breakdown

Thematic Unit	Grade Level	Lesson Summary
Hardwood Hammock	Kindergarten-2nd Grade	Students will learn to: • Identify the layers of a hardwood hammock. • Observe some of the animals that live in this habitat. • Describe the hardwood hammock habitat using the five senses. **Activity: As a class, students will hike the hardwood hammock and conduct a critter catch to closely observe the insects that live in this habitat.**
	3rd -5th Grade	Students will learn to: • Differentiate between the three layers of the hardwood hammock. • Identify three organisms that depend on this habitat. • Explain why this habitat is important. **Activity: In small groups, students will discuss the diets of different hardwood hammock animals, identify scat samples, and make edible scat.**
	6th-8th Grade	Students will learn to: • Describe the three layers of the hardwood hammock and identify an organism from each layer. • Define the limiting factors of this habitat. • Identify the impacts humans have had on this ecosystem. **Activity: In small groups, students will hike the hardwood hammock and build a diorama to represent the geochemical cycles of this habitat.**
	9th-12th Grade	Students will learn to: • Describe the biotic and abiotic factors of this habitat. • Describe changes in this ecosystem resulting from seasonal variation and human impacts. • Explain why this habitat is important and elaborate a restoration plan. **Activity: In small groups, students will conduct a sampling technique to evaluate the biodiversity of the hardwood hammock.**

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Wetlands	Kindergarten-2nd Grade	Students will learn to: • Identify three of the South Florida wetlands plants. • Observe some of the animals that live in this habitat. • Describe the wetlands habitat using the five senses. **Activity: In small groups, students will investigate how birds have evolved different beaks adapted to their wetland habitat.**
	3rd -5th Grade	Students will learn to: • Observe the plants and animals of a South Florida wetlands habitat. • Compare seasonal changes in the wetlands. • Explain the role and importance of wetlands in the water cycle. **Activity: Students will build an aquifer to model the porosity of South Florida's bedrock and to observe the process that can lead to groundwater contamination.**
	6th-8th Grade	Students will learn to: • Diagram and explain the role of wetlands in the water cycle. • Create a model to test the permeability of different surfaces, including wetlands. • Analyze the impacts humans have had on South Florida wetlands. **Activity: As a class, students will build a model watershed to observe the roles that different South Florida substrates and ecosystems, including wetlands, have in filtering what eventually becomes their drinking water.**
	9th-12th Grade	Students will learn to: • Diagram and explain the role of wetlands in a biogeochemical cycle. • Conduct water quality tests and analyze the results. • Identify the complex issues threatening South Florida wetlands and assess the efficacy of the Urban Development Boundary. **Activity: In small groups, students will sample different local water sources and conduct water quality tests to compare the impacts of different activities on water contamination.**

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Mangrove Forests	Kindergarten-2nd Grade	Students will learn to: • Identify the parts of a mangrove. • Observe some of the animals that live in this habitat. • Describe the mangrove habitat using the five senses. **Activity: As a class, students will hike through a mangrove forest, collect and compare leaves, and create patterns through leaf rubbing.**
	3rd -5th Grade	Students will learn to: • Differentiate between the three species of South Florida mangroves. • Identify five organisms that make up a mangrove food web. • Explain why this habitat is important. **Activity: Students will hike through the mangrove forest and log their observations and reflections in a nature journal.**
	6th-8th Grade	Students will learn to: • Define photosynthesis and explain its role in the food web. • Describe the role of organisms in the mangrove food web. • Identify impacts humans have had on the mangrove ecosystem. **Activity: In pairs, students will build a greenhouse using recycled materials and plant a mangrove seed to observe and track its growth.**
	9th-12th Grade	Students will learn to: • Describe the unique adaptations of the three South Florida mangrove species. • Compare and contrast the relationships of organisms in the mangrove food web. • Explain how humans have impacted our local mangrove habitats and how we can better protect this ecosystem. **Activity: Students will hike through the mangroves and advocate for this critical habitat by creating an educational poster.**

Thematic Unit	Grade Level	Lesson Summary
Seagrass Meadows	Kindergarten-2nd Grade	Students will learn to: • Identify the different parts of seagrass. • Observe some of the animals that live in this habitat. • Describe the seagrass meadow habitat using the five senses. **Activity: Explore two touch tanks to compare the sand habitat with the seagrass habitat.**
	3rd -5th Grade	Students will learn to: • Identify three of the South Florida seagrass species. • Explain how the watershed affects this habitat. • Explain why this habitat is important. **Activity: Build a watershed to explain how water flow and human impacts like runoff affect seagrass meadows.**
	6th-8th Grade	Students will learn to: • Identify 3 South Florida seagrass species and describe their distinguishing characteristics. • Describe how seagrass is affected by water clarity. • Identify the impacts humans have had on this ecosystem. **Activity: Conduct water clarity tests in different locations to measure how turbidity affects seagrass growth.**
	9th-12th Grade	Students will learn to: • Explain how seagrasses affect and are affected by excess nutrients. • Evaluate changes in this ecosystem resulting human impacts. • Explain how seagrass meadows and the other three habitats are interdependent and evaluate the Everglades Restoration Plan. **Activity: Conduct a seagrass monitoring survey and a seagrass experiment to determine the affects of fertilizer runoff on algae growth and the ability of seagrass to filter excess nutrients.**