UF|CPET

FFL Principle 9- Protect the Waterfront
"We All Live In A Watershed"
Elementary School

Don Norton, Millennium Middle School

Program Type: FFL Protect the Waterfront	**Duration:** 120 minutes

Standards:

SC.3.L.17.1: Recognize ways plants and animals, including humans, can impact the environment.
SC.4.L.17.2: Describe how environmental changes can affect plants and animals.
SC.3.E.6.6: Recognize how pollution affects air, water, and land quality.
SC.4.E.6.7: Identify ways to reduce pollution and protect natural resources
SC.3.E.6.7: Describe how human activities affect the environment.
SC.4.E.6.6: Explain ways to conserve and protect water resources.
SC.3.N.1.5: Collect and record information using tools and instruments.
SC.4.N.1.1: Use appropriate tools to measure, observe, and collect data accurately.

Learning Objectives *(extended objectives available in supplemental document)*

- Explain how waterfront areas are affected by stormwater runoff and pollution
- Identify key principles of Florida-Friendly Landscaping that help protect water quality
- Describe specific landscaping practices that reduce pollution entering waterways
- Propose landscaping solutions to protect local waterfront environments
- Design and share a model of a sustainable landscape using real-world strategies

Suggested Main Guiding Questions: *(complete list by objective available in supplemental document)*

- How does stormwater runoff affect fish, plants, and water quality in waterfront areas?
- What are Florida-Friendly Landscaping™ principles and why were they created?
- How do rain gardens, buffer zones, and native plants reduce pollution and protect waterways?
- What changes could homeowners make to reduce pollution near a lake or river?

Intended Outcomes

As a result of the program, what I want my audience to LEARN…	**As a result of the program, I want my audience to ACT by…**	**Assessment: (*How will you know* your audience has reached your intended outcomes)**
Stormwater runoff can carry pollutants into lakes, rivers, and oceans, harming water quality and aquatic ecosystems. That specific landscaping choices play a major role in keeping Florida's waterfronts clean. That simple, sustainable design strategies can be applied to real-life environments to reduce runoff and safeguard Florida's unique ecosystems.	Using or promoting native plants and low-impact landscaping techniques in their homes or communities. Educating friends, family, or neighbors about how their yard care choices can affect water quality. Designing, modeling, or recommending environmentally responsible landscape layouts based on FFL principles.	Complete and present a model of a Florida-friendly waterfront landscape Participation in guided discussions and accurately Ability to explain the environmental benefits of specific landscaping practices Exit tickets Groups articulate how their design reduces runoff and aligns with FFL principles during peer presentations.

Edited by Morgan Nielsen, Center for Precollegiate Education and Training, University of Florida

Schedule Layout:	Items Needed:
Engage (10 minutes): Introduce the topic of water pollution protection with images of FFL presentation and ways to improve landscapes using FFL principles *Ask:* "What happens to rainwater when it falls near homes or waterfronts?" Discuss stormwater runoff and its potential to carry pollutants to water bodies. Show pictures comparing waterfront areas with traditional landscaping vs. Florida-Friendly Landscaping	Presentation
Explore (15 minutes): Introduce Florida-Friendly Landscaping principles: ● Use of native plants ● Minimizing fertilizer and pesticide use ● Creating buffer zones near waterways ● Managing irrigation efficiently Discuss how these practices reduce pollution and protect aquatic habitats.	Presentation
Explain (10 minutes): Guide students to explain how each landscaping practice helps filter or reduce pollutants in stormwater before it reaches the waterfront, connecting to Florida Science Standards about pollution effects and human impacts on water quality.	
Elaborate (20 minutes): In small groups, students design a simple landscaping plan for a waterfront property using Florida-Friendly principles by drawing the outline of the waterway and surrounding land. Key Features to Include: ● Waterway (river, lake, pond) ● Shoreline or bank ● Existing trees and plants ● Pathways or walkways ● Structures (docks, benches, fences) Indicate where you will place: ● Native plants (list specific species if known) ● Buffer zones (areas to filter runoff near water) ● Rain gardens or bioswales (areas to collect stormwater) ● Mulch or ground cover areas ● Irrigation points (if any)	*(optional)* plan template, rubric- *scaffolding may be helpful for younger students* Plan Checklist Graph Paper/Blank Paper Coloring supplies
Share (30 minutes): Groups will present their plans to the class.	
Evaluate (5 minutes) *Exit ticket:* Students write one way Florida-Friendly Landscaping protects water quality and one practice they would recommend for their community	