# **FFL Principle 9- Protect the Waterfront**UF CPET

# **“We All Live In A Watershed”**

# **Elementary School**

*Don Norton, Millennium Middle School*

**Extended Resources: Objectives, Guiding Questions & Florida Standards**

***Learning Objectives & Guiding Questions:***

**Explain how waterfront areas are affected by stormwater runoff and pollution**

When it rains, water flows over roofs, driveways, lawns, and streets, collecting pollutants like fertilizers, pesticides, oil, and trash. This stormwater runoff can flow directly into lakes, rivers, and oceans without being filtered. As a result, it can damage aquatic ecosystems by introducing harmful substances that decrease water quality, lead to algae blooms, and harm wildlife. Waterfront areas are especially vulnerable because they receive much of this untreated runoff.

***Guiding Questions:***

* What types of pollutants might rainwater pick up as it flows across the ground?
* Why don’t many stormwater systems filter water before it reaches lakes, rivers, or oceans?
* How does stormwater runoff affect fish, plants, and water quality in waterfront areas?
* Why are waterfront areas more vulnerable to pollution than other places?
* What are some examples of things we do at home that could contribute to water pollution?

**Identify key principles of Florida-Friendly Landscaping™ that help protect water quality**

Florida-Friendly Landscaping (FFL) is based on nine guiding principles designed to create sustainable, eco-conscious yards and green spaces to keep landscapes attractive while safeguarding Florida’s water resources. The principles that most directly protect water quality include:

* **Using native and drought-tolerant plants** to reduce the need for water, fertilizer, and pesticides.
* **Creating buffer zones** near water bodies that act as filters for runoff.
* **Reducing fertilizer and pesticide use** to limit chemical pollution.
* **Managing stormwater runoff** through rain gardens, swales, and mulched areas.

***Guiding Questions:***

* What are Florida-Friendly Landscaping™ principles and why were they created?
* How can using native plants help protect the environment and reduce pollution?
* What is a buffer zone, and how does it work to protect nearby water bodies?
* Why should we reduce fertilizer and pesticide use in our yards?
* How do rain gardens, swales, or mulched areas help control runoff?

**Describe specific landscaping practices that reduce pollution entering waterways**

Certain landscaping choices significantly reduce runoff and pollution by intercepting, absorbing or filtering pollutants, including:

* **Planting buffer zones** along shorelines with deep-rooted, native plants that trap sediment and absorb nutrients.
* **Avoiding chemical overuse** by applying fertilizers and pesticides only when needed and according to guidelines.
* **Installing rain gardens or bioswales** to slow down and absorb stormwater.
* **Using mulch and ground covers** to prevent soil erosion.
* **Redirecting downspouts** to vegetated areas instead of hard surfaces.

***Guiding Questions:***

* What types of plants should we use along shorelines to trap and filter runoff?
* What happens when too much fertilizer or pesticide is used?
* How do rain gardens or bioswales prevent pollution from reaching water bodies?
* Why is it important to use mulch or ground cover on exposed soil?
* How does redirecting rain gutters away from sidewalks help protect water quality?

**Propose landscaping solutions to protect local waterfront environments**

To protect waterfronts in your community, residents and planners can:

* **Convert turfgrass lawns into native plant beds** that require less watering and fertilization.
* **Install vegetated buffer strips** between lawns and the water’s edge.
* **Use porous surfaces** like gravel paths or permeable pavers to reduce runoff.
* **Collect rainwater** in barrels for irrigation.
* **Educate neighbors** about reducing yard waste, fertilizer use, and pet waste near water bodies.

***Guiding Questions:***

* What changes could a homeowner make to reduce pollution near a lake or river?
* How can planting a buffer zone between a yard and a lake protect the water?
* What are porous surfaces and how do they help reduce stormwater runoff?
* How does collecting rainwater for irrigation benefit the environment?
* How could you encourage your family or neighbors to use water-friendly landscaping?

**Design and share a model of a sustainable landscape using real-world strategies**

Students or community members can apply their knowledge by designing a model waterfront landscape that includes:

* A visible **water body** (lake, stream, or pond)
* A **buffer zone** with native plants along the shoreline
* **Rain gardens** or swales to manage runoff
* **Mulched areas** to control erosion
* Clearly marked **irrigation systems** that conserve water
* Minimal use of turfgrass and avoidance of chemical inputs

***Guiding Questions:***

* What features would you include in a model of a clean and safe waterfront property?
* Where would you place native plants or mulch in your model design?
* How would your design help reduce pollution and protect the shoreline?
* What could you include in your design to help save water?
* How could you present your model to help teach others about Florida-Friendly Landscaping?