UF|CPET

FFL Principle 8- Reduce Stormwater Runoff
Stormwater SOS (Students On Solution)
High School

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Program Type: Storm water Management Activity (PBL Model)	**Duration:** 50 minutes (Two days)

Standards:

SC.912.L.17.8 Recognize the consequences of the loss of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.

SC.912.L.17.20 Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.

Learning Objectives:

- Understand how stormwater ponds function in Florida.
- Analyze "secondary benefits" such as habitat support, access, and aesthetics.
- Evaluate a local pond using simplified criteria.
- Propose improvements using low-impact design concepts (e.g., vegetation, access paths).

Guiding Questions:

1. How does stormwater runoff affect the environment and communities in Florida?
2. What features make a stormwater pond both effective and beneficial to the public?
3. Why might some neighborhoods have better stormwater infrastructure than others?
4. How can we redesign a stormwater pond to improve water quality, support wildlife, and serve the community?

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)**
Understand how stormwater ponds function to manage runoff and reduce pollution. Identify key features that make a stormwater pond ecologically and socially effective. Analyze environmental equity issues related to stormwater infrastructure in different communities. Apply scientific and engineering principles to design practical improvements for a stormwater pond.	Observing and evaluating their local stormwater systems for environmental and community benefits. Advocating for improvements to stormwater infrastructure in their school or neighborhood. Designing and proposing realistic, research-informed solutions to reduce runoff and pollution. Making environmentally conscious choices that reduce their personal contribution to stormwater pollution (e.g., reducing litter, planting native vegetation, conserving water).	*Pond Observation Checklist:* Completed field observations with accurate notes and reflections on environmental and social features. *Group Pond Redesign:* A labeled drawing or model demonstrating understanding of stormwater functions and integration of ecological and community-based improvements. *Presentation/Pitch:* Clear and concise communication of the problem, proposed solution, and justification based on research and observation.

Schedule Layout:	**Items Needed:**
Day 1: Introduction Show a short video or images of stormwater runoff or flooding in Florida. Discuss: "Where does stormwater go and why does it matter?"	**Source article:** Fitch, E.R., Tyrna, A. & Lusk, M.G. A comparative study of the secondary benefits of stormwater ponds in economically distinct

Introduce simplified findings from the **Tampa study** (vegetation, trash control, access, aesthetics). Small group discussion on what makes a pond effective or problematic. Students visit a school pond or review photos/maps. Complete Stormwater Pond Observation Checklist (plants, trash, erosion, safety, features). One insight + one concern they observed.	neighborhoods of Tampa, Florida USA. *Discov Water* 4, 83 (2024). https://doi.org/10.1007/s43832-024-00144-3 Article summary Review worksheet Pond observation checklist Exit ticket sheet
Day 2: In teams, students sketch a redesigned pond: Include at least 2 ecological features (e.g., buffer plants, erosion control). Include 1 social/community improvement (e.g., bench, sign, path). Annotate features with labels and reasoning based on the research. Each group gives **a 1-minute pitch:** "Here's what we observed and how our redesign solves it."- peers give feedback with sticky notes *Individual written reflection:* What did you learn about stormwater management? What is one action we could take to improve our school/community pond?	Observation checklist (completed on Day 1) Redesign planning sheet or blank paper (for sketching pond redesign) Colored pencils, markers, or highlighters (for labeling features in sketches) Ruler or straightedge (optional, for neat sketch layout) Stormwater Pond Design Criteria Handout (optional guide with example features)