

## FFL Principle 2- Water Efficiently

### Middle School

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<b>Program Type:</b> Classroom Activity		<b>Duration:</b> 100 minutes
<b>Standards:</b> <b>SC.7.E.6.6-</b> Identify the impact that humans have had on Earth, such as deforestation, urbanization, and pollution. <b>SC.7.L.17.3-</b> Describe and investigate various limiting factors in ecosystems and their impact on population size. <b>SC.6.N.1.4-</b> Discuss how scientific knowledge changes as new information becomes available		
<b>Learning Objectives:</b> <ul style="list-style-type: none"> <li>Recognize that human actions impact water availability and quality.</li> <li>Describe basic strategies to reduce water use in their community.</li> <li>Explore how landscape practices affect Florida's freshwater systems.</li> <li>Propose ways to make landscapes more water-efficient using Florida-Friendly Landscaping™ principles.</li> </ul>		
<b>Guiding Questions:</b> <ol style="list-style-type: none"> <li>Where does our water come from in Florida?</li> <li>How do our choices affect the quality and availability of water?</li> <li>What can we do in our neighborhoods and schools to protect Florida's water?</li> </ol>		
<b>Intended Outcomes</b>		
<b>As a result of the program, what I want my audience to LEARN...</b> <ul style="list-style-type: none"> <li>Identify and explain a few key Florida-Friendly Landscaping™ principles.</li> <li>Describe real-world practices that reduce water waste.</li> <li>Analyze common landscaping problems and suggest improvements.</li> <li>Create a simple plan to make a landscape more water-efficient.</li> </ul>	<b>As a result of the program, I want my audience to ACT by...</b> <ul style="list-style-type: none"> <li>Identify Florida-Friendly Landscaping principles in the community.</li> <li>Analyze a landscape (real or imagined) for water efficiency and environmental impact.</li> </ul>	<b>Assessment: (How will you know your audience has reached your intended outcomes)</b> <ul style="list-style-type: none"> <li>Completed group project</li> <li>Students have presented their project and demonstrated understanding</li> <li>Completed student worksheet/exit ticket</li> </ul>
<b>Schedule Layout:</b>		<b>Items Needed:</b>
<b>Day 1: (50 min)</b> <b>5 min:</b> Students complete bell work answering questions about where their water comes from.  <b>20 min:</b> Lecture on Florida's water <ul style="list-style-type: none"> <li>Florida's freshwater sources: rivers, aquifers, lakes, springs</li> <li>Common uses: drinking, farming, lawns, tourism</li> <li>Threats: pollution, overuse, runoff, saltwater intrusion</li> <li>Solutions: saving water, using native plants, smarter irrigation</li> </ul>		Printed FFL principle summaries (simplified for middle school)  Student worksheets or drawing paper  Markers, colored pencils, or access to digital tools
<b>20 min:</b> Article Reading & Discussion "Improving Water Resilience Through Environmental Education"		Printed article

Source: Journal of Sustainability Education (2020), a study of Project FLOW in Southwest Florida classrooms *licensed under the Creative Commons Attribution License*.

[https://www.susted.com/wordpress/content/improving-water-resilience-through-environmental-education\\_2020\\_03/](https://www.susted.com/wordpress/content/improving-water-resilience-through-environmental-education_2020_03/)

- Students read individually or in pairs, highlighting or annotating key points about water sources, problems, and solutions.

#### *Student Discussion/Reflection Questions*

- What is one problem Florida is facing with water?
- Why does it matter how we water our yards?
- What's one way to help save water at home or school?
- What role do plants play in protecting our water?

**5 min:** *Exit Ticket-* What is one thing YOU can do to help protect water in Florida?

#### **Day 2: (50 Minutes)**

**5 min:** Bell Work: Why is it important to save water in Florida?

**30 min:** Group Activity: Divide students into 9 groups, each assigned one of the FFL principles.

Each group reads a short summary and answers the following questions (summary made from IFAS Website).

1. What does this principle mean?
2. How does it help save water?
3. Can you give an example?

#### **20 min:** Water efficient design challenge

Your school wants to redesign part of its lawn to save water and protect Florida's environment. Create a plan using 3–4 FFL principles.

Plan must include:

- At least 2 Florida-friendly plants
- A way to reduce water use
- A method to reduce runoff (mulch, rain garden, etc.)
- Drawings or labels explaining each part
- Students can draw their design on paper or use basic drawing tools on a computer.

**5 min:** Exit ticket- Describe one change that would help your school save water in the landscape