Quenching the Thirst of Florida's Yards

GRADE LEVEL
9-12

Sunshine State Standards:
SCIENCE:

Processes that Shape the Earth
Standard 2:
The student understands the need for protection of the natural systems on Earth. (SC.D.2.4)

How Living Things Interact with their Environment
Standard 2:
The student understands the consequences of using limited natural resources. (SC.G.2.4)

SOCIAL STUDIES:

People, Places, and Environments
Standard 2:
The student understands the interactions of people and the physical environment. (SS.B.2.4

MATHEMATICS:

Measurement Standard 1:
The student measures quantities in the real world and uses themeasures to solve problems.)

BACKGROUND INFORMATION

Throughout Florida, yards and landscaping make our communities beautiful. However, there's a price to pay in terms of environmental impact of more than three million lawns and yards in Florida.

The typical Florida household consumes hundreds of gallons of water each day, and a substantial portion of all water consumed is used to irrigate lawns and landscaping. Many homeowners use non-native plants and grasses in their yards; these plants often require excessive watering, fertilizers and pesticides to keep them healthy and disease free.

The impact of lawns on the environment, the aquifer and springs is significant. The Floridan Aquifer, our primary source of drinking water, is stressed by the large amount of water being removed, much of it for the purpose of watering lawns. Tons of chemical fertilizers and pesticides applied to lawns are leaching into the soil and eventually making their way into the aquifer and springs as well as running off properties during rainstorms into lakes, rivers, streams and bays.

However, there are ways to have lawns and beautiful landscaping without negatively impacting the environment. The use of native, drought-tolerate plants is known as xeriscaping. Using plants that require less water to live and little or no fertilizers is better for the environment. There is a movement in Florida to encourage residents to landscape with native plants and reduce the size of their lawns in order to conserve water and minimize the use of fertilizers and pesticides.

ACTIVITY:
Objective:
Students will examine and calculate current water use for irrigation of school grounds and propose changes that will result in reduced water consumption for irrigation. This activity can be done on an individual basis, in groups or as a class.

I. Establishing a Benchmark

1) Print out the yardstick checklist on the Florida Yards and Neighborhoods website (http://hort.ufl.edu/fyn/) and use it to evaluate the current "height" or quality of the school grounds. Use this as your reference point or benchmark.

II. Calculate water consumption

2) Have students map the area on their school grounds (or portion of their school grounds) that are currently irrigated. Students should use existing maps of school grounds, and draw polygons or circles around areas that receive irrigation. Based on these observations, students should calculate the area that is currently irrigated.

3) Students should work with grounds keepers or maintenance personnel to determine what data or information is available to calculate total water use for irrigation of landscaping or athletic fields.

4) Have students develop and use water collecting devices to determine the amount of water discharged per minute by irrigation devices. (Obtain a copy of "What You Need to Know about Fertilizing and Watering…" from the Southwest Water Management District or your local Water Management District Office.
See pages 21-25 for sample water measurement tests and guidelines for appropriate watering techniques).

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Students should take into consideration time of year and evaluate water saving devices that the school has put in place such as rain sensing devices, use of rain collection containers, or other water saving initiatives.

5) Using information from groundskeepers, students should determine the amount of time that sprinklers are used during a month when regular irrigation is required. Using the information collected in previous steps, calculate the amount of water consumed per day for the school grounds.

Note: This activity may focus on school landscaping or watering practices for athletic fields. Students should establish total water use, assessing whether water use is appropriate or excessive and then make recommendations to the grounds keepers or school administration that changes are needed.

III: Creating a Florida Friendly schoolyard

6) Develop a plan for a Florida friendly schoolyard using the recommendations and suggestions on the Florida Yards and Neighborhoods web site. Develop a landscaping plan that would replace "non-native" plants and grasses with plants that are either native to Florida or drought-tolerant and do not require fertilizers, pesticides or regular watering. On a chart or presentation, list the original plant with its replacement. Use both common names and species names. Calculate the amount of water that will be saved by the new plan and estimate the FYN score (yardstick height) under the new plan.

The plan should include a landscape architectural-style drawing to indicate what the new landscaping will look like.

Depending on the area to be studied, this may include a complete overhaul of the landscaping or improvement of specific areas of the landscaping.

7) Identify a local nursery that specializes in or carries many varieties of native or drought-tolerant plant species. With your itemized list of plants and supplies, develop a budget, identifying nurseries where you can obtain Florida-friendly plants and landscaping for your yard. (Students may also be given specific budgets within which to work).

ASSESSMENT:

Depending on whether this is conducted as a group or individual activity, final presentations may be in the form of poster presentations supported by a written plan, budgets, etc. Group projects may include a bulletin board presentation or demonstration as part of a school wide Earth Day activity or similar event.

EXTENSIONS:

Service Learning:
Have students create a demonstration garden or landscaped area working in collaboration with the Florida Yards and Neighborhoods program through the County Extension. The demonstration garden could be developed at the school or another public place. This may include working with a local landscape design architect or landscaping company to obtain professional guidance and support with financial, equipment or other resources.

RESOURCES:

There are many great resources to assist students in their research. Have students explore **Florida's Springs: Protecting Nature's Gems** at **www.FloridaSprings.org** to learn about human activities that impact the aquifer and springs. Visit links section under **Educational Resources**. The local Water Management District office can provide free brochures and booklets on xeriscaping and water conservation. Contact your County Extension office for information on the **Florida Yards and Neighborhoods program**, which helps communities create environmentally friendly yards and landscaping.

- **Florida Yards and Neighborhoods Program**
http://hort.ufl.edu/fyn/
- **Southwest Florida Water Management District - Xeriscaping**
http://www.swfwmd.state.fl.us/watercon/xeris/swfxeris.html
- **University of Florida Wildlife Extension**
http://www.wec.ufl.edu/extension/landscaping.htm
- **Florida Plants Online**
http://www.floridaplants.com/native.htm
- **Florida Native Plants**
http://www.nsis.org/garden/garden-native.html

PRINTED RESOURCES

For these publications, contact your local Water Management District in Florida:

- **"What you need to know about fertilizing and watering your lawn and landscape to protect Florida's Springs,"** 30-page booklet produced by the Nutrient Remediation Workgroup, www.watermatters.org
- **"A Guide to Environmentally Friendly Landscaping,"** Univ. of Florida, Cooperative Extension Service, 1996.
- **"Waterwise Florida Landscapes,"** produced by Florida's Water Management Districts
- **"Rain Barrels: A Homeowner's Guide,"** Southwest Water Management District and Hillsborough County Florida.
- **"Florida Waters: A water resources manual from Florida's Water Management Districts,"** 2002