

# The Power of Mulch: Creating Sustainable Landscapes

Students will discover how proper mulching techniques can transform a landscape into a thriving, sustainable ecosystem while conserving resources and enhancing beauty. This lesson will explore the science, art, and environmental benefits of mulching practices that support Florida-Friendly Landscaping™ (FFL) principles.

Victoria (Vicki) Craig  
West Port HS, Ocala, FL



# Florida Standards: (Grades 9-12)

**SC.912.L.17.12** Discuss the political, social, and environmental consequences of sustainable use of land.

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

**SC.912.L.17.17** Assess the effectiveness of innovative methods of protecting the environment.

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

# Lesson Overview:



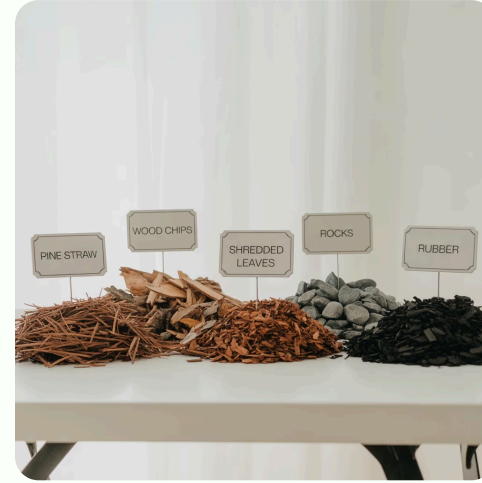
## Introduce the 9 FFL

The **9 FFL principles** briefly:  
Right Plant/Place, Water  
Efficiently, Fertilize  
Appropriately, **Mulch**, Attract  
Wildlife, Manage Pests, Recycle  
Yard Waste, Reduce Runoff, &  
Protect Waterfront  
[ffl.ifas.ufl.edu](http://ffl.ifas.ufl.edu)



## Mulch Benefits

- Moisture retention
  - Weed-blocking
  - Decomposability
  - Visual appeal
  - Sustainability
  - (avoid cypress mulch)
- [ffl.ifas.ufl.edu](http://ffl.ifas.ufl.edu)



## Mulch Activity

Provide various types of mulch to discuss properties and choose the one they like.

Samples of pine straw, wood chips, shredded leaves, rock, and synthetic ground cover like rubber.



## Class Questions/PSA

Pose questions to the class for small group and whole class discussion.

Students create a PSA about the benefits of mulch and the best types/quantity to use.

Use a rubric to score.



# Day 1 Part 1: Lesson Introduction for Students

Teachers should start the lesson with a brief overview of the **9 Florida-Friendly Landscaping™ Principles** and explain what **mulch** is, the types of mulch, and some benefits of mulch. Don't tell them which ones are best and worst yet.



# Day 1 Part 2:

## Group Brainstorming

Pose this question to the class and allow time for small group discussion (5-10 min):

**“How does mulch help plants and the environment?”**

Have groups share out with the class before moving onto the other activities.





# Day 1 Part 3: Types of Mulch:



## Organic

Mulch from a living source. Examples: Pine bark, pine straw (needles), Cypress (not recommended) Eucalyptus and Melaleuca (not recommended).



## Inorganic

Mulch from a nonliving source. Examples: gravel, crushed rock, seashells, and rubber.

Florida-Friendly Landscaping Program does not recommend inorganic mulches. Use inorganic mulch in walkways.

# Teacher Explains:

## How Mulch Supports Healthy Landscapes



### Moisture Conservation

Mulch acts as a protective barrier that reduces water evaporation from soil by up to 70%, keeping moisture available to plant roots even during dry periods. This significantly reduces irrigation needs and helps plants withstand drought conditions.



### Weed Suppression

A 2-3 inch layer of mulch prevents sunlight from reaching weed seeds, inhibiting their germination and growth. This natural weed barrier reduces the need for herbicides and time-consuming manual weeding.



### Temperature Regulation

Mulch insulates soil, moderating temperature fluctuations by keeping soil cooler in summer and warmer in winter. This temperature buffer protects sensitive root systems and extends growing seasons.





BEFORE

AFTER

# More Benefits of Mulching

## Improved Soil Structure

Organic mulches naturally break down over time, enriching the soil with vital organic matter. This process significantly enhances:

- Soil texture and aeration
- Microbial activity and biodiversity
- Nutrient cycling and availability
- Root development and overall plant health

## Enhanced Aesthetics & Sustainability

Beyond its ecological advantages, mulch elevates your landscape's visual appeal while delivering crucial environmental benefits:

- Creates a uniform, attractive appearance
- Clearly defines garden spaces and pathways
- Effectively prevents soil erosion and compaction
- Promotes sustainability by recycling local organic materials

**Caution:** Always avoid cypress mulch, as it is sourced from threatened wetland ecosystems.



# Proper Mulching Techniques

1

## Correct Depth

Apply 2-3 inches of mulch for most applications. Too shallow won't provide benefits; too deep can suffocate roots and create moisture problems.

- Coarse mulches: up to 4 inches
- Fine mulches: 2 inches maximum

2

## Proper Placement

Keep mulch 2-3 inches away from tree trunks and plant stems to prevent rot and pest issues. Avoid "volcano mulching" which can kill trees.

- Create a donut shape around trees
- Extend mulch to drip line when possible

3

## Maintenance

Refresh mulch annually or as needed, but don't accumulate excessive layers. Remove old mulch if depth exceeds recommendations.

- Top off when reduced to 1 inch
- Fluff compacted mulch periodically

Source: Florida-Friendly Landscaping™ Program

# Common Mulching Mistakes to Avoid



## "Volcano" Mulching

Piling mulch against tree trunks creates moist conditions that promote disease, attract pests, and can girdle the trunk. This is the most common and damaging mulching mistake.



## Excessive Depth

Mulch layers deeper than 4 inches can block oxygen and water from reaching roots, create habitat for rodents, and cause roots to grow upward into the mulch instead of outward.



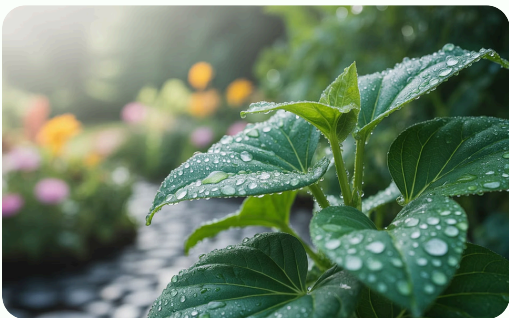
## Using Synthetic Materials

Using synthetic materials like rubber chips can leach harmful toxins into the soil and also can increase heat and they don't retain moisture as well as organic material. **Inorganic mulch is not recommended.**





# Mulching and Florida-Friendly Landscaping™ Principles Work Together



## Water Efficiency

Mulch reduces evaporation by 25-50%, minimizing irrigation needs. This supports the FFL principle of "Water Efficiently" by conserving water and reducing utility costs.



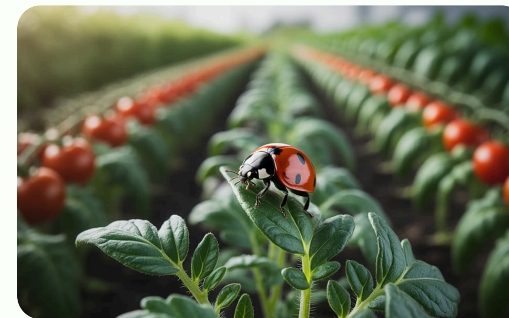
## Yard Waste Recycling

Using yard waste as mulch (fallen leaves, pine needles, etc.) exemplifies the "Recycle Yard Waste" principle, closing the nutrient loop in your landscape.



## Stormwater Management

Mulch slows water runoff, increases absorption, and filters pollutants, supporting the "Reduce Stormwater Runoff" principle by protecting water quality.



## Pest Management

Proper mulching creates habitat for beneficial insects and reduces plant stress, aligning with "Manage Yard Pests Responsibly" by minimizing pesticide needs.

# Comparing Mulch Types: Sustainability & Benefits

Mulch Type	Environmental Impact	Longevity	Benefits
Pine Bark/Straw	Sustainable byproduct	6-12 months	Acidifies soil slightly; ideal for acid-loving plants
Eucalyptus	Sustainable plantation-grown	1-2 years	Repels insects; attractive reddish color
Yard Waste/Compost	Excellent - closes waste loop	3-6 months	Adds nutrients; improves soil most rapidly
⚠ Rubber/Synthetic	Mixed - recycles tires but doesn't decompose	5+ years	Not recommended due to toxins and high heat
⚠ Cypress	Poor - often harvested from wetlands	1-3 years	Not recommended due to habitat destruction

**Economic Benefits:** Mulch reduces water bills by 25-50%, eliminates most weeding labor costs, and can reduce fertilizer needs by 25% through improved soil biology.



# Activity 1: Collaborative Discussion

Students will work in groups to evaluate each mulch type below for the following properties and then share out with the class which mulch type they like the best and why.

- Moisture retention
- Weed-blocking
- Decomposability
- Visual appeal
- Sustainability



**Pine needle mulch**



**Pine bark mulch**



**Rock mulch**



**Rubber mulch**

# Student Worksheet

Students will answer questions on their own and discuss in groups and with the class.

Students will answer worksheet questions [LINK](#)

## Florida-Friendly Landscaping: Mulching Worksheet

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### Part 1: Vocabulary & Key Concepts

Match the terms to their correct definitions. Write the letter next to each number.

**Terms:**

- A. Organic Mulch
- B. Inorganic Mulch
- C. Mulch Volcano
- D. Florida-Friendly Landscaping
- E. Soil Moisture

#	Definition	Answer
1	Landscaping approach that protects natural resources through 9 guiding principles	
2	Material made from natural sources that decomposes over time	
3	Non-biodegradable ground cover such as rubber or stone	
4	Excessive piling of mulch around a plant or tree base	
5	The amount of water retained in the soil after watering or rain	

### Part 2: Mulch Comparison Activity

Work with your group to examine the mulch samples. Write your observations.

Mulch Type	Moisture Retention (High/Med/Low)	Weed Suppression (Good/Fair/Poor)	Breaks Down? (Yes/No)	Sustainable Choice? (Yes/No/Depends)
------------	-----------------------------------	-----------------------------------	-----------------------	--------------------------------------



# Activity 2: Mulching PSA (if want to use)

Students will create a 1-2 minute video or an infographic using Canva about the importance of including mulch in Florida Friendly Landscapes and the types of mulch to use. Take one or two class periods to create it and then present to the class. PSA Rubric [LINK](#)



## Video PSA Option

Students can create engaging video content to share mulching benefits with their community.



## Infographic Option

Students can design visually appealing infographics to communicate mulching best practices.

# Differentiation:



## ELL Learners

Pair students with a partner or use Google Translate to help with language barriers. ELL students can also make their own PSAs in a different language using Canva, which could be great!



## ESE and Gifted Learners

Pair students with a buddy to help them if necessary and scaffold information as needed. For gifted students, assign them jobs as group leader or use them as a TA.



# Class Discussion and Wrap-up

**1**

## Discussion

After groups looked at the list of the beneficial properties of mulch and chose the one they like best, have groups share out with the class.

**2**

## Wrap-up

Pose some reflection questions to the class:

1. What are three key reasons we use mulch in landscaping?
2. Which FFL principles do you think mulch also supports, and how
3. Organic vs synthetic mulch: Which is a better choice and why?

**3**

## PSA Projects

Have students present their PSA projects to the class and score using the rubric.

Allow students to give constructive feedback on other student's PSAs.

# Thank You!

Thank you for joining us to learn about the power of mulch in creating sustainable landscapes. By implementing these **Florida-Friendly Landscaping™ Principles**, you're contributing to healthier ecosystems and more resilient communities.

Remember: proper mulching is one of the most impactful steps you can take toward sustainable landscaping in Florida.

For additional resources and support, visit [ffl.ifas.ufl.edu](https://ffl.ifas.ufl.edu) or contact your local Extension office.

