UF|CPET

# FFL Principle 4- The Power of "Mulch"
# What's the Best Choice?
# Elementary School

*Don Norton, Millennium Middle School*

| **Program Type: Interactive** Lecture/Discussion, Activity, Lab Activity | **Duration:** 120 minutes |
|---|---|

**Standards:**

**SC.5.N.1.1:** Define a problem, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types…
*Application:* Students define the problem (water retention in soils), plan and conduct an experiment using different mulch types, collect data, and interpret results.

**SC.5.N.1.2:** Explain the difference between an experiment and other types of scientific investigations.
*Application:* Students identify their mulch moisture test as an experiment involving variables and measurable data.

**SC.5.L.17.1:** Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments.
*Application:* Understanding how mulch can help plants adapt to hot, dry Florida conditions by reducing evaporation and retaining moisture.

**SC.5.E.7.1:** Create a model to explain the parts of the water cycle.
*Application:* Students relate evaporation and transpiration to soil moisture and mulch's effect on these processes.

**Learning Objectives:**

- Understand the Florida Friendly Landscaping (FFL) principle of using mulch.
- Identify types of mulch: pine needles, pine bark, rock/gravel, and homemade mulch.
- Learn how mulch helps retain soil moisture and benefits plant health.
- Use the scientific method to investigate mulch effectiveness through an experiment.
- Explore how natural mulch options support sustainable landscaping.

**Guiding Questions:**

- What is mulch and how does it work?
- Why is mulch important in Florida Friendly Landscaping?
- How do different mulch types affect soil moisture?
- How can we make mulch from natural materials?

**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)** |
|---|---|---|
| - The benefits and types of mulch.<br>- The role of mulch in conserving water and supporting plant health.<br>- How to conduct a fair scientific investigation. | - Choosing environmentally friendly mulch options.<br>- Considering water conservation in gardening and landscaping.<br>- Sharing knowledge with family or school about mulch benefits. | - Completion and accuracy of student lab report.<br>- Participation in discussion about mulch benefits and FFL.<br>- Ability to explain experiment results and draw conclusions. |

| **Schedule Layout:** | **Items Needed:** |
|---|---|
| ***School Walk Mulch Observation (20 min):*** Before beginning the experiment, students will visit an outdoor area on school grounds to observe ground conditions (dry, moist, compacted, sandy, etc.), presence and type of mulch (pine bark, needles, wood chips, gravel, etc.), soil | Landscape Observation Sheet |

*Edited by Morgan Nielsen, Center for Precollegiate Education and Training, University of Florida*

| | |
|---|---|
| condition and nearby plant health, signs of erosion or water runoff and other environmental details. Students will record their observations. | |
| ***Classroom Instructor Introduction (15 min):*** Why Mulch in Florida?<br>What is unique about Florida's climate and soil challenges- high temperatures, humidity, sandy soils, and frequent rainfall<br>**Benefits of Mulch:** moisture retention, weed suppression, soil temperature regulation, soil health improvement, erosion control, aesthetic appeal | Slide Presentation |
| ***Lab Activity (30 min)- details on supplemental lab set-up sheet*** | Lab Observation Sheet |
| ***Lab Report Writing (25 min)*** | Lap Report Sheet |
| ***Facilitator Lead Summary Classroom Discussion (30 min)*** - suggested discussion prompts below. | Slide Presentation |

**Details:**

**Lab Experiment**

**Materials (Per Group):**

- 4 (6.0" W x 5" H x 6" D) pots or containers
- Potting mix soil (4 cups per pot)
- Pine bark mulch (3 inches for 1 pot)
- Pine needle mulch (3 inches for 1 pot)
- Gravel/decorative rocks (1"–1.5" size, 3 inches for 1 pot)
- Watering can or bottle (16 oz per pot)
- Moisture meter and ruler
- Student lab report handout
- Access to 4 heat lamps

**Suggested Discussion Prompts:**

**Discussion Goal:** To help students reflect on their experiment and apply what they learned about mulch, soil moisture, and Florida Friendly Landscaping.

1. What did you observe during the experiment?
   - Which pot dried out the fastest?
   - Which pot stayed moist the longest?
   - Were your hypotheses correct? Why or why not?

2. Why do you think some mulches worked better than others?
   - What characteristics helped them retain moisture?

3. How does this experiment relate to real-world gardening or landscaping?
   - Why is mulch important for plants, especially in Florida's climate?

4. What would happen if people didn't use mulch in their gardens or yards?

5. Why is water conservation important? How does mulch help save water?

6. Which mulch would YOU recommend and why?

**Wrap-Up Message:**

Mulch is more than just decoration – it's a powerful tool for conserving water, protecting soil, and helping plants thrive. By understanding the importance of mulch, we can make better choices in how we care for gardens and the environment.