# FFL Principle 4- The Power of “Mulch” UF CPETUF CPET

# Elementary School

# Detailed Lab Instructions- Mulch and Moisture Retention

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## Objective:

To investigate how different types of mulch affect soil moisture retention under heat lamps, and to determine which material best conserves water.

## 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

## Lab Setup & Procedures:

1. Label each pot: No Mulch, Pine Bark, Pine Needles, Gravel.

2. Add 4 cups of the same potting mix soil into each pot.

3. Leave the 'No Mulch' pot uncovered.

4. Cover the 'Pine Bark' pot with 3 inches of pine bark mulch.

5. Cover the 'Pine Needle' pot with 3 inches of pine needles.

6. Cover the 'Gravel' pot with 3 inches of decorative rock or gravel.

7. Water each pot with 16 oz of water using the watering can or bottle.

8. Place each pot under a separate heat lamp to simulate sunlight. Ensure they are equidistant and receive equal light exposure.

9. At 15-minute intervals (15, 30, 45, 60 minutes), use the moisture meter and/or ruler to record the soil moisture level in each pot.

10. Record all data in the Student Lab Report handout.

11. After all measurements are taken, write a short narrative in your lab report summarizing your findings:

- Which mulch retained the most moisture?

- Which dried out the fastest?

- Why do you think that happened?

12. Participate in a class discussion about what was learned and how mulch affects water conservation.

**Reminders:**

- Be sure to measure carefully and accurately.  
- Only test one variable (mulch type); keep everything else the same.  
- Work as a team and divide responsibilities (timer, measurer, recorder, setup).