

Mulch Evidence Meeting

Use data, models, and respectful discussion to recommend a garden solution.

6.3 “Scientific and engineering practices. The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions...”

NAME _____ DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each claim or proposed explanation, circle every water measurement in the passage or table, and number the sentences that use a model, respond respectfully, or plan a next test.

Which Garden Cover Helps?

- ① In a school garden, a science team asked whether mulch helps soil keep water. They filled four identical trays with the same soil and water. Two trays were covered with dry leaves, called mulch. Two were left bare. The trays sat under the same lamp for three days. Each day, the team measured how much water remained in every tray.

WATER REMAINING AFTER THREE DAYS

Tray cover	Water at start	Water after 3 days
Leaf mulch A	500 mL	420 mL
Leaf mulch B	500 mL	410 mL
Bare soil A	500 mL	270 mL
Bare soil B	500 mL	280 mL

- ② Both mulch trays held more water than either bare tray. The team proposed that the leaf layer slowed evaporation. In their particle model, water particles at the soil surface gained energy from the lamp. The mulch blocked heat and trapped moist air, so fewer particles escaped. This explanation connected the measurements to the idea that evaporation happens at a surface.
- ③ During discussion, Diego said the leaves might have added water to the soil. Mina replied, “The leaves could have been damp, but both covered trays ended with over 400 mL. The bare trays had under 300 mL.” The group agreed to test dry and wet mulch next time and to share a short claim-evidence-reasoning report with the garden club.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What claim did the team make about mulch? Give two table values that support the claim.

2 Use the team's particle model to explain how mulch could slow evaporation.

3 What other explanation did Diego offer, and how did Mina respond with evidence?

4 What should the group test next? What format will they use to communicate with which audience?

3 YOUR TURN _____ Your own words

A new garden test began with 500 mL of water in each tray. After three days, bare soil had 260 mL, leaf mulch had 405 mL, and wood chips had 390 mL. Write exactly five sentences for the principal that recommend a solution. Include a claim, at least two data values, a particle-model explanation, one fair next test, and a respectful sentence that considers a different idea.

PART 1 • READ AND MARK

Underline each claim or proposed explanation, circle every water measurement in the passage or table, and number the sentences that use a model, respond respectfully, or plan a next test. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What claim did the team make about mulch? Give two table values that support the claim.	The team claimed that mulch helps soil keep water. The mulch trays ended with 420 mL and 410 mL, compared with 270 mL and 280 mL in the bare trays.
2	Use the team's particle model to explain how mulch could slow evaporation.	Water particles at the soil surface gain energy from the lamp. The mulch blocks heat and traps moist air, so fewer water particles escape into the air.
3	What other explanation did Diego offer, and how did Mina respond with evidence?	Diego suggested that the leaves might have added water because they were damp. Mina acknowledged that possibility, then pointed out that both covered trays had over 400 mL while both bare trays had under 300 mL.
4	What should the group test next? What format will they use to communicate with which audience?	They should test dry mulch and wet mulch. They will share a short claim-evidence-reasoning report with the garden club.

PART 3 • YOUR TURN (SAMPLE ANSWER)

I recommend using leaf mulch in the garden beds. After three days, the leaf-mulch tray had 405 mL of water, while bare soil had 260 mL. In a particle model, the leaf layer reduces heating at the surface, so fewer water particles escape as vapor. Next, we should test leaf mulch and wood chips in identical trays for more days. Wood chips may also work, and their tray held 390 mL, so we should compare cost and water results respectfully.

Accept claims that accurately use the data to recommend leaf mulch or cautiously compare leaf mulch with wood chips. The response should connect evidence to evaporation through a particle model and include a fair test plus respectful consideration of an alternative.