



Module 1 – Foundations of Sustainable Agri-Food Systems & Circular Economy

Hands-On Activity B: Bottle Compost & Decomposition Challenge

Data Collection & Reflection Worksheet for Module 1 HOA B

Group Name/Number:

Our Assigned Variable: (e.g. “No Aeration”, “Flipped Green/Brown Ratio”, etc.)

Our Testable Question: “Does

.....?”

Our Hypothesis/Predictive Claim: “We think that

.....”

Initial Setup Data (Day 1)

● **Date & Time:**

● **Initial Compost Height:** cm (mark this level on bottle)

● **Materials Added:**

○ Approx. ___ cups “Greens” (food scraps) and ___ cups “Browns” (dry matter) used

○ Notable ingredients: (list a few, e.g. apple peels, lettuce, dry leaves, paper)

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○ Any special additions? (soil, manure, etc.)

.....

● **Moisture Level at Start:**

Just damp (like wrung sponge)

Dry spots present

Soggy/water pooling

● **Bottle Aeration:** Holes? Yes / No.

Lid cap off or on? Off/loose (aerated) On/taped (sealed)

● **Initial Temperature:** °C (if measured)

● **Initial Observations:** (appearance, any smell, etc. right after setup)

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Observation Log

Record your observations on each check-in day. Include quantitative data (measurements) and qualitative notes.

Day / Date	Temp (°C)	Compost Height (cm)	Moisture Level	Odor Description	Visual Observations (color, fungi, etc.)
Day 1 (Setup)			e.g. <i>Damp, just right</i> <i>No notable odor</i> <i>Mix of green & brown layers visible.</i>
Day 3			<input type="checkbox"/> too dry <input type="checkbox"/> moist <input type="checkbox"/> too wet <i>(e.g. earthy, mild; or no smell; or slight ammonia)</i> <i>(e.g. some white fuzz on leaves; scraps look a bit soft; slight settling)</i>
Day 6			<input type="checkbox"/> too dry <input type="checkbox"/> moist <input type="checkbox"/> too wet <i>(e.g. strong odor? sweet, rotten?)</i> <i>(e.g. mold spots increasing; volume reduced by half; condensation on walls)</i>
Day 10 (Final)			<input type="checkbox"/> too dry <input type="checkbox"/> moist <input type="checkbox"/> too wet



Module 1 – Foundations of Sustainable Agri-Food Systems & Circular Economy

Hands-On Activity B: Bottle Compost & Decomposition Challenge

3

Use additional paper if you need to record daily observations beyond these days. You can also sketch the bottle's appearance or take photos to document changes.

Final Analysis Measurements (Day 10)

- **Final Compost Height:** cm
- **Total Height Reduction:** cm (difference between start and final height)
- **Color/Texture of Final Compost:** (Describe – e.g. “dark brown, some soft mushy pieces, a few recognizable bits like a corn cob, lots of fibrous material, etc.”)
.....
- **Final Odor:** (Describe – e.g. “no smell/earthy”, “slightly ammonia”, “rotten egg stink”, etc.)
.....
- **Temperature Change:** Did the compost feel warmer than room temp at any point? **Max temp observed:** °C on Day ____ (if applicable).
- **Other Notes:** Any insects present (fruit flies, etc.)? Any mold or fungi observed (color)?
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Optional – Chemical Tests: *(if performed)*

- **Nitrate (NO_3^-) test result:** ppm
- **Ammonium (NH_4^+) test result:** ppm



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Post-Experiment Reflection

1. **What happened in our bottle?** Summarize how your compost changed and what effect your modified factor had.

○ Our variable was: “.....”

○ Compared to a normal compost, we observed:

.....

○ This shows that

.....

.....

.....

(Explain in terms of decomposition: e.g. lack of shredding left larger pieces intact, slowing the process.)

2. **Was our hypothesis supported?** Why or why not?

.....

.....

.....

3. **Compare to other groups:** Which compost condition decomposed the fastest? Which had the worst problems (odor, mold)? What does that tell us about the best conditions for composting?

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4. **Connection to circular systems:** How does composting turn “waste” into something useful? Give one example of how this small experiment relates to real-world farming or waste management.

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