

 **Decomposer Garden Lab**

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

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

Class: \_\_\_\_\_

**My level:**   ☐  Explorer   ☐  Investigator   ☐  Legend

**Mission:** The school garden wants to know if compost is worth it. Compare two sealed garden boxes of fallen leaves: one with decomposers and one without. Then plant seeds and see which soil grows better beans.

**Big question:** How do decomposers help matter cycle back to plants?

★

**Warm-up: Estimation station**

Estimate, then explain.

How long does it take a banana peel to decompose in a compost pile: 2 days, 2 weeks, or 2 years?

\_\_\_\_\_

What happens to leaves that fall in the forest every year?

\_\_\_\_\_

| Key vocabulary |                                                                           |
|----------------|---------------------------------------------------------------------------|
| Decomposer     | An organism that breaks down dead material.                               |
| Nutrients      | Materials in the soil that plants need to grow.                           |
| Compost        | Decomposed plant material used to enrich soil.                            |
| Matter cycle   | Matter moving from living things back to the soil and air, over and over. |
| Control        | The part of an experiment you leave unchanged to compare against.         |

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**Box 1**

**Predict**

**PREDICTION** After 10 weeks, which box will have fewer leaves left?

☐ Box A (with decomposers)   ☐ Box B (no decomposers)   ☐ Both the same

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**Let time pass**

In the simulator: Run the boxes for at least **10 weeks**.

What percent of leaves is left in Box A?

Answer: \_\_\_\_\_ %

2

**Box 2**

**Where did the leaves go?**

The leaves in Box A disappeared, but the box is sealed. Where did the matter go?

☐ Decomposers broke it down into soil nutrients   ☐ It vanished   ☐ The worms took it out of the box

☐ It turned into sunlight

### 3 Box 3

#### Test one decomposer

In the simulator: Run Box A with **only 1 kind** of decomposer for 10 weeks.

Compared to all three decomposers, what happened with only bacteria?

- ☐ Leaves broke down more slowly   ☐ Leaves broke down faster   ☐ Nothing broke down at all

#### Why use a control?

Why does the experiment include Box B with NO decomposers?

- ☐ To compare and prove the decomposers caused the change   ☐ Because we ran out of worms  
☐ To make the test faster

### 4 Box 4

#### Plant the seeds

In the simulator: Plant seeds and let them grow for at least **8 weeks**.

Record the bean plant heights.

| Box                 | Plant height (cm) |
|---------------------|-------------------|
| Box A (decomposers) |                   |
| Box B (none)        |                   |

### 5 Box 5

#### Connect it

Put the matter cycle in order.

Put in order: A new plant uses those nutrients · A plant grows using nutrients from the soil · Decomposers break it down · Nutrients return to the soil · The plant dies and falls to the ground

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

### 6 Box 6

#### Legend: garden advice Legend only

A gardener throws away all leaves and grass clippings every week. What is the best science-based advice?

- ☐ Compost them so decomposers return nutrients to the garden soil   ☐ Burn them to make the soil hotter  
☐ Leave them on the sidewalk

**7 Box 7**

**Is compost worth it? (CER)**

How do decomposers help plants grow?

**Claim** Start: "Decomposers help plants grow by..."

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**Evidence** Start: "In Box A,..."

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**Reasoning** Start: "This happens because..."

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**Exit ticket: answer the big question in your own words**

How do decomposers help matter cycle back to plants?

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**Completion code:**

Shown on the last screen of the simulator.