

2.4 Dead Leaf Storyboards —

Performance Assessment






Action Synopsis

Students work in groups to create displays that show what happens to a dead leaf over time.




Session 1

40 minutes

- | | | |
|--|---|--------------------|
| 1. Present the challenge of making a dead leaf storyboard. |  | posing a challenge |
| 2. Discuss criteria for high quality work. |  | setting standards |
| 3. Plan storyboards in groups. |  | planning |

Session 2

1 hour

- | | | |
|---|---|--------------------|
| 1. Make storyboards in groups. |  | applying knowledge |
| 2. Display and view storyboards. |  | communicating |
| 3. Summarize and discuss the decomposition process. |  | reflecting |

Desired Outcomes

By the end of this assessment activity, students should:

- ✓ Know how the appearance a dead leaf changes during decomposition.
- ✓ Understand that the primary cause of decomposition is decomposers that use dead material as food.
- ✓ Know that the matter a leaf is made of does not vanish during decomposition; it all can be accounted for even though it is in new forms and places.
- ✓ Be able to communicate their knowledge of decomposition in a way that engages and teaches others.

What You'll Need



Sessions 1 & 2

For each group of 3–4 students:

- materials for making storyboards (see "Getting Ready")
- copy of "Challenge Sheet" (page 213)
- copy of "Scoring Sheet" (page 214)

For each student:

- copy of "Group Work Evaluation" (page 42)
- copy of "Reflections" (page 41)
- copy of "Scoring Sheet" (page 214)

Getting Ready

Session 1

- ◆ Gather materials for groups to use to make storyboards, such as poster board, markers, paints, construction paper, leaf samples, glue, and tape.
- ◆ If you'd like students to share their storyboards with an audience beyond their classmates, make arrangements to display the projects in a public space within or outside of school, or invite guests to your classroom to view them.
- ◆ If possible, make arrangements with the art teacher for students to spend additional time working on their storyboards in art class.
- ◆ Plan groups of 3–4 students.

Action Narrative

Session 1

We're going to spend the next couple of days on an activity to see how much you've learned about what makes a dead leaf disappear. You're going to make Dead Leaf Storyboards. A storyboard is a display that uses pictures and words to tell a story, sort of like a comic strip. Here is your challenge.

Give a copy of the "Challenge Sheet" to each group and discuss the activity. Tell students where they'll display their work and/or who their audience will be. Emphasize that they should use the storyboards as an opportunity to show you and others everything they've learned so far about the causes of decomposition.

What are some different ways you've seen pictures and words used to explain something or tell a story?

Students might mention museum displays, science fair project backboards, comic strips, and textbook illustrations. Discuss the style and purpose of these examples.

What do you think would make a storyboard effective?

Help students establish standards and a vision for their final products. They might suggest that the storyboards should be eye-catching, make information easy to understand, and teach people something.

Your storyboards will be evaluated using several criteria.

Give a copy of the "Scoring Sheet" to each group and go over the scoring so students know what is expected of their finished storyboards. Point out that Objective 2 ("Correctly explains what causes a leaf to change") is worth three times as many points as the other criteria.

You can use the rest of this period to plan your storyboards in groups. Later you'll have more time to make them.

Show students the materials you have on hand, and let them know where, when, how, and if they can get other materials (e.g., by going outside to collect leaf samples, getting supplies from the art teacher, or bringing things from home).



Students' initial planning will probably focus on the physical characteristics of their storyboards. You might want to help groups brainstorm formats (e.g., a poster or a three-dimensional display), size, and materials. Remind them that their knowledge and ideas about decomposition are important "raw materials" for constructing their boards, too. Suggest that they appoint a notetaker to record everyone's ideas.

? Help students come up with questions that they can ask each other to generate the content for their boards, such as:

Who knows how the looks of a decomposing leaf change?

What makes leaves decompose?

Where does the stuff the leaf was made of end up?

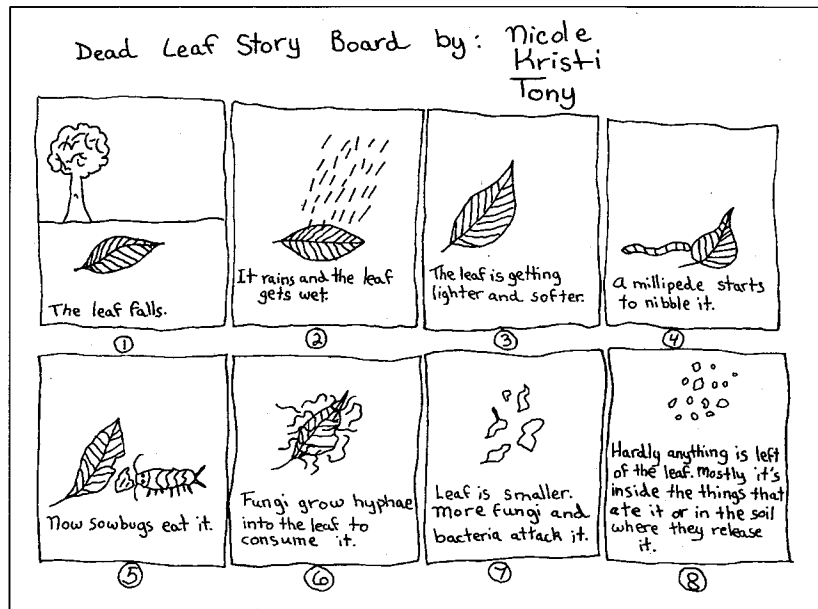
Creating a storyboard is as much a learning experience as an assessment, so encourage students to look up or ask for information they don't have.

By the end of the session, each group should have a sketch of each frame of their storyboard. Make sure they agree on the final format and the things they'll need to finish the project during the next session.

Session 2

Review your plans for your storyboards, then gather your materials and get started.

You might need to remind students not to leave any information off their boards in the excitement of creating an attractive display.



After the storyboards are finished, display them, and give students and any invited guests time to view everyone's work. Have each group leave a "Scoring Sheet" with their names on it by their storyboard for you to fill out later.



Conclude the activity by posing questions such as:

What changes in decomposing leaves do the storyboards show?

Leaves might dry up and wither, get holes in them, get nibbled around the edges, get skeletonized so that only the veins and stem are left, break into smaller pieces, get brown, get black spots on them, get slimy, get white fuzz on them, smell rotten or pungent, etc.



What causes of decomposition did different groups illustrate?

The major cause of decomposition is the organisms that use dead leaves as food. Invertebrates such as earthworms, termites, beetles, sow bugs, and millipedes consume leaves, and also leave behind pieces of the leaves they've chewed. Bacteria and fungi attack the leaf particles in the soil organisms' droppings and leftovers, breaking them down further. The direct effects of physical factors such as wind, rain, and trampling are minuscule compared to the biological factors that cause decomposition. However, physical conditions such as warmth and moisture do make it easier for microbes to eat dead material and multiply.

Do the materials that a decomposed leaf was made of still exist?

Students' responses will reveal whether or not they understand the conservation of matter. Students who have not yet grasped that matter can neither be created nor destroyed are likely to say that only the "bits of the leaf that have gone into the soil" still exist, and that in one way or another the rest of the leaf vanishes during decomposition.

Do dead leaves really "disappear"?

Decomposing leaves might disappear from sight, but the material they were made of does not disappear from existence. Decomposition is a good example of the conservation of matter. The leaf matter becomes part of the organisms that ate it, or is released from the organisms as waste into the soil, water, or air. Help students realize that all of the matter can be accounted for; nothing has vanished.

Ongoing Assessment

Student Reflections

Have students fill out a "Group Work Evaluation" (page 42) to reflect on their group process. They could also complete a "Scoring Sheet" for their own or another group's work. This is also a good time for them to complete a "Reflections" sheet (page 41).

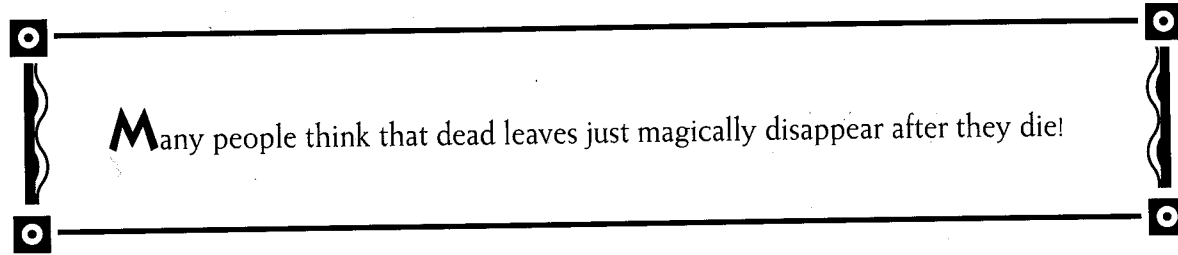
Teacher Reflections

As you evaluate students' work, look for storyboards that show that leaves decompose because animals and microbes use them for food. These should receive higher scores than those that emphasize physical wear and tear. All of the storyboards should illustrate the role of microbes, but whether they include invertebrate decomposers depends on if your students observed them during earlier field trips.

NAME(S) _____

DATE: _____

DEAD LEAF STORYBOARDS



YOUR CHALLENGE:

Make a storyboard that shows people what causes a dead leaf to break down.
Your storyboard should have:

- ① Drawings, paper cut-outs, and/or samples to show how a dead leaf looks from the time it falls, until it is too tiny to see.
- ② Words that explain what is making the leaf change.

GOOD LUCK!

NAME(S) _____ DATE _____

DEAD LEAF STORYBOARDS

OBJECTIVES	POINTS				SCORE
	3 High Quality	2 Meets Objectives	1 Falls Short	0 Not Done	
CONTENT					
1. Shows how a dead leaf looks at a variety of points in time.	_____	_____	_____	_____	_____ x 2 = _____
2. Correctly explains what causes the leaf to change.	_____	_____	_____	_____	_____ x 2 = _____
CLARITY					
3. Made with care and attention to detail.	_____	_____	_____	_____	_____ = _____
4. Presents a clear, easy-to-follow sequence.	_____	_____	_____	_____	_____ = _____
5. Captures interest with creative use of materials and layout.	_____	_____	_____	_____	_____ = _____
COMMENTS:					FINAL SCORE: _____
					Total Possible Score: 21
					Overall Achievement:
					18-21 High
					14-17 Sound
					8-13 Limited
					0-7 Inadequate