

Sandia Mountain Natural History Center

Ecology Field Program

Decomposition in the Forest

Lesson plan

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| Your Name: | |
| Grade Level: 5th | Subject Area: Life Science |
| Lesson Title: Decomposition in the Forest | Lesson Length: 20-25 minutes |

The Teaching Process

Lesson Overview

Focusing on decomposers, students study one or more dead trees to determine the stage of decomposition, what types of decomposers are involved, and what factors may be aiding or hindering the process.

Lesson Objectives:

1. Students will recognize the signs of decomposition and that it occurs over time.
2. Students will utilize evidence to determine if the area is favorable for decomposers.
3. Students will make connections between decomposition and both the biotic and abiotic parts of an ecosystem.

Standards addressed

NMSS: NM I- Scientific Thinking & Practice, BM I- Scientific Method 1; Scientific Thinking & Practice, BM III- Measurement & Data 3; NM II- Life Science, BM I- Ecosystems 1

NGSS disciplinary core ideas: LS 2.A, LS 2.B

NGSS crosscutting concepts: Cause & Effect; Systems & System Models; Energy & Matter

NGSS science & engineering principles: Engaging in Argument From Evidence

CCSS: RI 5.4, RF 5.3, L 5.1, L 5.2, L 5.4, SL 5.1, W 5.10

List of Materials

Decomposition in the Forest card, location with several trees in varying stages of decomposition (the Fir Forest section of Mud Spring Loop)

Instructional Sequence

Phase One: Engage the Learner

Through questioning, the instructor focuses students on the terrain and trees of the area, leading into the decomposers of the ecosystem. Students may spread out and turn in place to make a 360° observation. Students describe what they see and may compare/contrast it to a previous stop. Important observations to be discussed are shade, the valley, types of trees, and dead and fallen trees. Part of the discussion focuses on why there are so many dead trees in the area and how they are different from one another (varying stages of decomposition). Instructor may have students pick up a handful of soil and ask them what it is, leading to the product of decomposition by fungi, mold and bacteria over hundreds of years. Students are reminded how all this connects directly to the introduction from earlier in the day.

What's the teacher doing?

- Guides students through questioning and simple observation to understand what is happening in the area.
- Prompts students to explain decomposition & decomposers
- Assesses students' grasp of decomposers/ decomposition
- Models how & where to look for decomposers and their evidence

What are the students doing?

- Observe their surroundings
- Use prior and/or recently gained knowledge to actively participate in discussion.
- Prepare for the activity by distinguishing between trees in various stages of decay.

Phases Two-Four: Explore the Concept; Explain the concept and define terms; Elaborate the Concept

During this portion of the activity students explore dead standing and fallen trees while using a guide to help them classify the stages of decomposition. The classification is structured as *stages 1-9* for standing dead trees (*snags*) and *classes 1-5* for logs. With their partners, students will need to confer to arrive at a consensus. They will be checking for signs of decomposition such as fungi, mold, cavities in the wood, piles of rotted wood, etc. Students will also be looking for evidence of influential factors like shade, temperature, moisture, and insects.

What's the teacher doing?

- Explains directions and describes boundaries for activity.
- Actively monitors students by checking for understanding, guiding students and discussing finds.
- Encourages students to closely explore decomposing wood and immediate area around it.

What are the students doing?

- As partners and with *Decomposition in the Forest*, students explore the area and classify the various stages of tree decomposition.
- With close observation, students determine what types of decomposers may be involved.
- Through observation of the decomposing tree(s) and their surroundings, students determine what other factors (shade, sun, moisture, insects, etc.) may be helping or hindering the decomposition.

Phase Five: Evaluate students' Understanding of Concept

While sharing with the group, students may reference the guide, but must provide evidence to support their claim as well as use their observations to determine what decomposers are probably at work and what factors may be influencing the process.

What's the teacher doing?

- Gathers students back to meeting area.
- Leads students in sharing their finds and citing evidence.
- Assesses student understanding of decomposers' role in the ecosystem through questioning and discussion.

What are the students doing?

- As a group, students share some of the trees they've observed, focusing on its stage of decomposition. Students must back up their claim with evidence.
- Students share what factors are influencing the decomposition.
- Explain decomposers' connection to the ecosystem.

Discovery Education Science
5-E Lesson Plan Template



Revised by S. Henley, Jan., 2014
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