



## MICROHABITATS: THE HABITAT OF THE ROTTING LOG

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**Grade Level:** 6-8

**Introduction:** Students will explore the life that is supported by the microhabitat provided by a fallen tree as they consider the question: *Why does a rotting log make a desirable home for certain plants and animals?* Students will examine rotting logs first-hand and will record data about the condition of the wood as well as the animals and plants found on/in/under the log.

**Major Themes:** Decomposition, microhabitats

**Connections to National Science Education Standards:** Regulation and behavior (C); populations and ecosystems (C); diversity and adaptations of organisms (C); use appropriate tools and techniques to gather, analyze, and interpret data (A); use of mathematics in all aspects of scientific inquiry (A).

**Time:** 60 minutes\* (5 minutes for Opening, 15 minutes for “Microhabitats in the Cloud Forest”, 35 minutes for “Microhabitats in Your Local Environment”, 5 minutes for Closing.)

*\*Note that this activity can be completed by bringing students to the field, which may require more time, or by bringing rotting log examples back to the classroom.*

**Materials:** Students will need to view the following *Canopy in the Clouds* videos:

Panorama 2: Ground video 5

Panorama 3: Ground video 5

Panorama 5: Ground video 3

Computer with internet access

LCD projector

Student handouts (*Microhabitats*, *Rotting Log Data Table*, and *Microhabitats: Student Assessment*)

Clipboards, Plain white paper, Hand lenses, Flashlights

Collection jars (optional)

**Objectives:** Students will be able to: (1) describe the microhabitat provided by a rotting log, (2) identify organisms found within a rotting log microhabitat, (3) relate the needs of organisms to the resources provided within a microhabitat.



### **Potential Misconceptions:**

(1) Organic material is any matter that is living or used to be living. Students may think that once an organism is no longer living, it ceases to be organic. Students may also think that if an object is manmade, it cannot be considered organic. A rotting log and a piece of wood that is used to make a ruler *are* organic, because they originated from once-living trees.

(2) Decomposition is not always a slow process. It all depends on what is decomposing and the factors that are contributing to its decomposition. For example, a fruit that has fallen to the ground in a hot tropical rainforest would decompose rather quickly due to the high temperature, high humidity, etc. In contrast, the carcass of an animal that died in the Arctic will decompose very slowly, being exposed to low temperatures, low humidity, and fewer organisms to contribute to its decomposition.

(3) Students do not always think of worms, insects, and other invertebrates as animals. Be sure students know that when they are looking for animals, they are looking for creatures of all shapes and sizes.

## **PROCEDURE**

**Note:** Before you begin this activity, be sure you have identified a nearby area that has rotting logs that are accessible to students. An area with multiple rotting logs in a relatively small area is ideal. It is also prudent to alert students ahead of time that they will be conducting field work and need to wear appropriate clothing and footwear on the designated day.

**Opening:** Ask students what words come to mind when they hear the word “rotting”. Go around the room, ask each student to share a word, and record their ideas on the board. If a student repeats a word that has been said, put a tick mark next to that word on the board, then encourage him/her to come up with another one. Take a look at the list together and see if any themes emerge. Often the terms have a negative connotation (e.g., “gross”, “slimy”), or are related to the death of the organism. Tell students that while death and decay are a part of rotting, or decomposition, rotting organisms can also sustain a surprising amount of life.

**Development:** Distribute *Microhabitats* student handout and solicit a volunteer to read the introduction aloud. Address any student questions or comments. Move on to the first part of the handout, “Microhabitats in the Cloud Forest”. Read the short introduction then use the computer and LCD projector to watch Panorama #2 (mid elevation forest), ground video #5 together. Allow time for students to answer the handout question, share responses, then move on to the next video (Panorama #3, ground video #5). Again, allow



students to answer the handout question, share responses, and move on to the last video (Panorama #5, ground video #3).

When students have answered all of the questions for the last video, proceed to the “Microhabitats in Your Local Environment” section of the handout. Read the brief introduction aloud. Explain that everyone will be going outside to examine a rotting log, and that students will have ~30 minutes to conduct their examinations while in the field. Review the questions/prompts and data table. If you live in an area with known populations of poisonous plants, insects, or snakes, take proper precautions. Have each student assemble his/her *Microhabitats* handout, *Rotting Log Data Table*, clipboard, an extra sheet of plain white paper, and a pencil. Bring hand lenses, flashlights, and any other supplies you need (for example, you might want to bring several collection jars so that students may collect invertebrates for closer inspection while in the field).

Lead your class to the area you have selected. Ideally there will be multiple rotting logs so that students can gather in small groups around a specimen. Get students situated and have them begin their work right away. Circulate among the groups. If students are squeamish about interacting with the log, model appropriate techniques for them. When students seem stuck, ask guiding questions (e.g., *Why is this part of the log softer than other parts?*). Remind them to use the extra blank paper for illustrations or other data that will not fit on the data table. Allow students enough time to complete their data tables, then gather students together for the closing activity.

**Closing:** When students have had enough time to examine their rotting logs and fill in their data tables, ask them to look around the environment for other possible microhabitats. Allow students to wander and search in the immediate area, and call out when they think they have located one. Stop and visit the sites that students identify and discuss how those sites might serve as microhabitats in this environment.

**Suggested Student Assessment:** Have students complete the *Microhabitats: Student Assessment* assignment for homework. On the following morning, have students share their ideas with a partner and then discuss with the class.

**Extending the Lesson:** (1) Provide insect, amphibian, and other wildlife guides and ask students to try to identify the plants and animals they found in the field. (2) Collect invertebrates and bring them back to the classroom for immediate viewing. Students might use hand lenses, microviewers, or dissecting scopes to examine the animals in greater detail. Please be mindful that you will be removing the animals from their habitat and they will need to be handled very carefully. Ethical treatment of all organisms is paramount. If you do not think your students can handle this activity, do not undertake it.

**Vocabulary:** habitat, microhabitat, decomposition, tree core sample, growth ring



***WORKSHEETS: Microhabitats, Rotting Log Data Table, Microhabitats: Student Assessment***