

# Rottin' Away

Soils

## SUPPLIES NEEDED

- Paper
- Leaves, twigs, bark
- Newspaper
- Pencils and paper
- Clipboards or pieces of sturdy cardboard and rubber bands
- Magnifying glasses
- "bug boxes" or small jars with lids
- Field guides
- Easel paper
- Yarn
- Construction paper
- Scissors
- Tape or glue
- Crayons or markers

## ACTIVITY OVERVIEW

### ACTIVITY SUMMARY

In this activity, students will go outside to explore rotting logs and the life that depends on them; then they will create a mural using pictures they made of plants and insects and other life they found in and around the logs.

### PREPARATION

1. Find a place near your school grounds where there are logs or large fallen limbs in close proximity. Or plan this activity for a field trip to a local nature park or natural area.
2. Collect some leaves, twigs, bark and any other tree materials you can find and place all of one kind of material into individual paper bags, e.g., all the leaves in one bag, all the bark in one bag, etc



### LOCATION

Inside

### TIME NEEDED

Two 30-minute sessions

### EDUCATION BENCHMARKS

- Organize evidence of change over time
- Describe the relationship between characteristics of specific habitats and the organisms that live there
- Identify and describe the factors that influence or change the balance of popula-

### OBJECTIVES

- To help students understand and define decomposition
- to help students understand how dead trees are important to wildlife.



Throughout their lives, trees collect nutrients from the environment and use them to build new bark, wood, branches, leaves and so on. When a tree dies, its nutrients are recycled back into the environment through decomposition. Many things depend on dead and dying trees for food, shelter and/or places to raise their young. These creatures may even hasten the death of a tree. Fungi, bacteria, and wood-eating insects like termites and some beetles are often the first to move into a dead tree.

They pave the way for other invaders. As they feed on the tree, they help soften the wood, and the tunnels of the wood-eating insects provide access routes through with water and other fungi, bacteria, and small animals can also move into the tree. Some of the animals lay their eggs in the wood and their larvae feed on the wood when they hatch. Others feed on the fungi or animals already living in the dead tree. And some animals make their nests or seek shelter inside decaying trees.

As all of these animals excavate, eat, and burrow through trees, they help to break them down. It takes a long time to turn a tree into humus. In the Pacific Northwest, fallen trees often serve as “nurse logs” and provide a place for new tree seedlings and other plants to root and grow. (A good book to illustrate this is Virginia Wright-Frierson’s, *A North American Rain Forest Scrapbook*, Walker Publishing Company, Inc. 1999.)

## METHODS

1. Begin by asking the students why forests aren’t piled high with fallen trees, branches, and leaves. What happens to trees after they die? Tell the students they are going to examine dead logs to find the answers to those questions.
2. Take your students outside (make sure you have set safety and behavior ground rules before you go) and explain that as a tree grows it collects minerals and other nutrients from the soil and air around it. These nutrients (carbon, nitrogen, phosphorous, and others) are used by the tree to make new bark, roots, leaves, twigs and wood. When the tree dies, the nutrients become available for animals and other plants to use. And, as the nutrients are used, the tree is slowly broken down into humus, a dark rich layer of soil. The process of breaking down a tree into its nutrients is called decomposition.
3. Now ask the students what parts of a tree might become part of the soil (answer: all parts). As they give their answers, sprinkle your samples onto the newspaper. (So if a student says “leaves”, you can empty the leaves out of the paper bag onto the newspaper.) When you have piled up all the samples, ask the students if they think the mess on the newspaper is soil. When they say “no”, ask them if they know what is needed to turn it into soil. (See background information above.)
4. Divide the students into small groups and give each student a magnifying glass and a bug box or small jar with a lid. Also hand the group pencils, markers or crayons, sheets of paper, clipboards and field guides to insects, spiders, reptiles and amphibians.
5. Explain to the students that as they examine the log they should try to find at least one creature from each of these areas: 1) on top of the log; 2) under the bark; 3) and underneath the log or on the ground nearby. They should draw the plants, animals, and fungi that they find and write down where on the log they found each one. (they can put the animals they



## METHODS

- find into the jars so they can observe and draw them—and let them go when they are finished.)
6. Now take the students over to the area with the logs or downed limbs and let each group choose one to study (or, if there are not enough, several groups can work together on one log). Explain that they will be using their drawings back in the classroom to make a mural.
  7. When they have finished examining their logs, have your students examine areas around each log.

They might look in leaf litter, under rocks, around bases of trees, and so on. Have them note the similarities and differences between these areas and the log.
  8. Inside the classroom, tape several large pieces of easel paper (or use a long length of butcher block paper) together, have the students draw a log on it and then hang the picture on a bulletin board or wall.
  9. Cut out the drawings the kids made outside and glue them onto separate pieces of construction paper.
  10. Tape the drawings around the log and then use pieces of yarn to connect each picture to the area on the log where the animals were found.

## EXTENSIONS AND ADAPTATIONS

- Have each student write a story about life in and around a fallen log
- Have the teams put together a field guide to the plants and animals of their log.
- Find a large limb or small log for your schoolyard habitat site and have the students observe it over time and measure changes, like numbers and types of animals found.

