

Decomposition and Decomposers

Grade(s): 2-5	Topic: Decomposition, Worms, Soil	Season: Any
Timing: 50 minutes, including 5 minute RPK, 15 minute introductory skit, 15 minute outdoor observation, 5 minute conclusion, and 10 minute optional songs		
Objectives: <ul style="list-style-type: none">• Students can define decomposition: the breaking down of something in nature into small pieces.• Students can describe that decomposers help break down dead plants and animals to make one part of soil: humus.• Students can explain that plants, animals and people depend on good soil and decomposers. Without decomposers, soil would not have the nutrients plants need to grow, and we would not have the food we get from plants (almost all of our food).		
Materials: <ul style="list-style-type: none">• Piece of fruit, preferably one that is overripe or even rotten• <i>Decomposition Drama</i> character signs for skit (with string that students can wear over their heads). Characters: plant, raindrop, decomposer (worm), seedling, the sun.• <i>Decomposition Drama</i> text printed out for you to read (see below).• Cups or other containers for students to gather soil• Hand lenses and/or magnifying boxes (one per student)• Plastic lids or plates with high edges if possible, for soil observation• Identification sheet or field guide to common decomposers (in background information)• Decomposition song written out on board (optional)		
Degree of need for extra teacher or parent helper? Medium		
Prep Needed: <ul style="list-style-type: none">• Review <i>Decomposition Drama</i> text• Prepare character signs for skit		
Journal Prompt: What would happen if you left a fruit out on your kitchen table for a year? What if you left it on the ground for a year instead? Would any animals visit it? What would they be doing?		
Lesson Sequence: Reactivate Prior Knowledge (5 minutes) Show the students your piece of overripe or rotten fruit. Discuss the journal prompt questions. Introduction: Decomposition Drama (15 minutes) Organize children on the rug or at their desks to focus on a “stage” area, or sitting in a semi circle in the garden/orchard. Introduction: “We’re going to put on a play! This play’s about ‘decomposition.’ Let’s all say it. What’s that? It’s how dead plants and other once living stuff gets broken down into tiny pieces that make up good soil. Who does the breaking down? Well ‘Decomposers’ of course! Who are they? They’re creatures in the soil like worms and a whole bunch more. And guess what? Without them, we couldn’t survive! Let’s see how this ‘decomposition’ thing works!” Ask for volunteers to act out roles. The play can be repeated multiple times from different		

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starting points, if time allows and all students want to participate. As you call them up, give actors a sign that they hang around their neck with string or a prop telling who they are: **decomposer (worm), soil, plant, seedling, sun, and rain**. The story is narrated and the actors step up when they are mentioned, listening and acting out what they hear. The drama begins with the **plant** by itself.

Drama Narrative:

"Here we have a **plant** in *autumn*. The days are getting shorter and shorter, and the **sun** is up less and less (have sun run off and on stage). The leaves are falling from the plant and it is making hardly enough food to survive. Now it's *winter*, it's too cold for this plant, so it is starting to die. Some days it snows, some days the **rain** comes down, and the dead plant gets soggy. Some days the **sun** shines and it gets warm outside. The plant is getting withered, shrunken, and old. In the *spring*, the **decomposer** begins to crawl out from deep in the soil. It's hungry, and seems to have stumbled upon a meal! It eats the dead plant. When it eats, it breaks the plant down into tiny bits, and **make soil**. Now there's some great soil thanks to our decomposition stars! Here we happen to have a seed waiting to grow, and here comes a **seedling** growing into a new plant! Everyone, let's give a big hand to our decomposition stars!"

Ask your students what they learned from the skit. Who makes the soil? Decomposers! Who are these little creatures that we need to have soil, plants, food? Decomposers! If you have pictures of decomposers or a book about a common decomposer like a worm, now is a great chance to share them.

Finding and Observing Decomposers Outdoors (15 minutes)

Take students outside to an area that is covered with fallen leaves, preferably wet and rotting ones. Have each student take a cupful of leaves and soil and put it on a their observation tray. Examine the compost by spreading it out and sorting through it. Watch closely for small living things (such as worms, grubs, snails, insects, spiders). Have the students see if they can recognize any of the non-living parts of the soil. Encourage careful observation.

When the students discover living things in the soil sample, stress that we can study these animals, but we need to respect them. We may not hurt the living things because they have an important job. Tell students to try to count the number of each different animal they find, using the identification sheet or field guide to help them. Circle or tally the animals you find on the worksheet. If you have magnifying boxes, students can put the decomposers in boxes to observe and draw. Afterwards, return the compost and animals to their home outside.

Conclusion (5 minutes)

Ask the children to talk about the different living things that they observed. Share some of your own observations, being sure to mention things that the children did not. Talk about the animals you found in your soil sample. These small critters aid in the decomposition of leaves and dead animal matter by eating it and moving it around. This process leads to the creation of new soil. Decomposition also returns nutrients to the soil. People often think of worms, insects, spiders and other small animals as bad or disgusting, but in nature all things have a place and an important job.

Decomposer Song(s) (10 minutes)

Boston Natural Areas Network SLUG (Students Learning in Urban Gardens) program has created a few wonderful songs for teaching students about plants and animals in gardens; recordings can all be found at <http://bnan.wikispaces.com/Garden+Activities>. Students will love the Decomposition song, especially the chorus with the actions. If you don't have time to do the whole song, you can have students sing the chorus; divide them into three groups and have each group take one part. Sing simultaneously after the groups have each practiced. Click on "[Listen to Decomposition](#)" to hear the song and see the lyrics below.

THE DECOMPOSITION SONG

(by Steve Van Zandt of the Banana Slug String Band)

Is there waste? Well I don't know.
One thing dies to let another grow.
We see this circle almost every day,
And the name that we call it is... **decay!**

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Chorus: Well come on all you people, gather 'round
Break down and listen...to **decomposition!**

Group 1: Muncha, muncha, muncha.... (Action: Students make a mouth with their hand)

Group 2: Decomposition, decomposition, decomposition.... (Students tap their knees)

Group 3: I get *down*, I break *down*, I get *down*, I break *down*.... (Students wave their arms down on the word "down")

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There are many kinds of bugs,
Worms and snails and banana slugs.
They are useful for me and you.
They help to make the soil... **renew.**

--Chorus--

Decomposition is a useful game
A tree drops its leaves, but they don't stay the same
A bug chews them up and spits them back out
Making the soil for a new tree to... **sprout.**

--Chorus--

OTHER (EASIER) DECOMPOSITION SONG

Sing to the tune of *Frère Jacques*:

*Decomposer, decomposer,
On the log,
On the ground.
Breaking down the plant bits,
Making special nutrients.
Eat them up! Eat them up!*

Vocabulary

Decompose
Decomposition
Humus
Nutrient

Vocabulario

Descomponer
Descomposición
Humus
Nutriente

Extensions / Homework Ideas:

Leaf Raking

Explain that many decomposers live in the fallen leaves. While they do great work for the soil, they can harm the tree if they are insect larvae grow into pests that will harm the trees or fruit! To help guard against this problem, the class is going to rake up the leaves. Students will love helping to rake, form a big pile, jumping on the pile, and putting the leaves into leaf bags for disposal and you might be surprised how few have ever had a chance to do these activities before!

Decomposer Who Am I? Game

Have a child choose a sign with a decomposer for you to be (make signs with simple drawings and names of several decomposers beforehand). Hang the sign around your neck so that you cannot see it (having it on your back works well). The students are going to try and help you figure out the decomposer that you are by answering your yes/no questions about the critter (ex. Do I have 4 legs? Do I have wings? Etc). Students may also enjoy wearing the signs and having their classmates guess.