



# Forest Floor Investigation

## ALABAMA OUTDOOR CLASSROOM ACTIVITY

### Grade Levels

3-7

### Overview

While exploring the forest floor, the students will learn about the various organisms that live in and under the leaf litter, including a variety of decomposers.

### Subject Areas

Biology, Mathematics and Environmental Sciences

### Duration

1 period of 45 minutes

### Learning Objectives

- 1) Students will discover a variety of organisms that live on the forest floor while conducting an investigation.
- 2) Students will identify and draw sketches of organisms that they find during this activity.
- 3) The students will learn about the role that decomposers play in the environment.

### Alabama Course of Study Objectives (on page 2)

### Vocabulary:

Fungi, fungi strands, decomposers, organic, compost

### Materials

- One hula-hoop per group of students (4 students per group works well)
- One clipboard per student or team of students
- Copies of Worksheets (two different worksheets attached)
- One magnifying glass or loupe per person
- Trowels or other digging tools
- Clear containers for holding moving organisms until activity is finished

### Background Info

Leaves, sticks, logs and other organic materials are constantly being added to the forest floor. With this constant flow of organic material being added to the forest floor, it would be impossible within a short period of time to even walk around under the forest canopy. Thanks to a host of small organisms (decomposers), this layer of organic material is constantly being broken down (composted) into soil. If we look closely at the forest floor, we will discover that there are a lot of organisms living right under our feet. This activity will have the students examine the forest floor for signs of life through a “hands-on” investigation. At the end of this activity, the students will discover that there is an abundance of biodiversity inside an area the size of a hula-hoop and that this biodiversity is vital to the health of a forest.

### Preparation

Before doing this activity, find a place that has a tree canopy and room under the trees to spread out several hula hoops. It will be even better if there is a nice layer of leaves as well as rotting wood in the form of sticks, or logs scattered about. If an area of trees is not available, then this activity may be done anywhere on the school-grounds or surrounding area. You will also want to make copies of the attached Nature Journal Work Page.

### Grade Level Variations

*Grades K-2:* This activity can be easily adapted for this age group. Have them focus on the decomposition of leaves and how this helps enrich the soil by moving nutrients from the leaves back into the soil where they are used by the tree again. Stress cycles such as the life cycle and seasonal cycle with this age group.

*Grades 3-5:* This activity can be used *as written* with this age group. Stress cycles such as the nutrient cycle, life cycle, and water cycle.

*Grades 6-7:* This activity can be used *as written* with this age group. Stress cycles such as the nutrient cycle, life cycle, carbon-oxygen cycle, nitrogen cycle, and water cycle.

### Procedure

1. Introduce cycles to the class such as the Life Cycle, Carbon-Oxygen Cycle, Nitrogen Cycle, Water Cycle, Seasonal Cycle, etc. What are some constant cycles that take place in the forest environment? List these cycles on a chart for further study if possible.

2. Today, we want to focus on the nutrient cycle. Begin this discussion by asking the students what happens each fall to the trees in a forest or their front yard? Why isn't there a huge pile of leaves and other forest material under the trees? What happens to all of this organic material? What kinds of organisms do you think live in the forest that reduce this layer of organic material? What happens to the nutrients that were used to produce this material?

3. Place the students into groups of approximately four students. Give each group a hula-hoop, clipboard, and pencil. Give each student a magnifying glass to use for a closer look at the living organisms they discover.





# Forest Floor Investigation

## ALABAMA OUTDOOR CLASSROOM ACTIVITY

### Alabama Course of Study

#### Objectives

##### Science:

- Kindergarten: 6, 7, 8
- First: 1, 4, 7, 10
- Second: 5, 6, 7
- Third: 2, 7, 8, 10, 13
- Fourth: 5, 6
- Fifth: 9
- Sixth: 3, 7
- Seventh: 1, 4, 5, 7

#### Literature Connections:

Cooper, Sharon Katz, **Rotten Logs and Forest Floors**

ISBN-978-1-4109-3501-4

Pascoe, Elaine, **Nature Close-Up**

**Juniors: Forest Floor**,

ISBN-10:1410303144

#### Outdoor Classroom Connection

Students will learn about the forest floor and the various organisms that can be found living there, including decomposers.

#### Other Related Conservation Education Activities

##### Project Learning Tree

- ⇒ *The Forest of S.T. Shrew*
- ⇒ *The Fallen Log*
- ⇒ *Nature's Recyclers*

##### Access Nature

- ⇒ *Compost Crazy*

##### Project WILD

- ⇒ *Eco Enrichers*

### Procedure continued...

4. Instruct the students that their job today is to help count the types and numbers of organisms that live in an area the size of their hula-hoop.
5. Have the students place the hula-hoop on the forest floor. Once they have placed the hoop and have started the activity, do not let them move the hoop to a new location as this is their survey area.
6. (Observation #1) Begin the activity by having the students take the observation worksheet and begin observing the area inside the hoop. They are to record all of the organisms (living and not living anymore) that they see inside the hoop on the worksheet. While doing the first step of the activity, do not let them touch or move anything inside the hoop. This step will take between 5 and 10 minutes. If they find any moving organisms, they may place them in the plastic collection containers.
7. (Observation #2) Once they have observed the surface, have the students carefully remove the leaves and sticks without digging in the soil and tell them to watch for living things. **Caution the students not to harm any of the living organisms and do not step inside the hoop.** Have them lay the items around the outside of the circle. When they see an organism, they need to record its presences on the worksheet. If it is something they have already seen they will need to make a tally mark beside the organism so that they can record a population total. They also need to list at least three adjectives about each of the organisms they find. They also need to observe how the structure of the leaves changes as they move from the top layer to the bottom layer.
8. (Observation #3) Once the leaves have been removed, they may use the digging tools to carefully excavate the soil to a depth of about 4-6 inches. As they do the digging, have the students record any organisms that they see in the soil.
9. Once all three observations are completed, have the students return the soil, organisms and leaves to the area.
10. Have the students describe what they see and have them share their observations. For example, they should have noticed that the leaves are being broken down as you move from the top layer to the soil surface. They should also notice that the color of the soil may change as you dig downward into the soil. They will also notice that digging in the forest is very hard due to the roots that are located in the soil.
11. Have the students construct graphs to show what and how many organisms they found in their area.

### Extensions

1. Have the students repeat this activity in other areas that have a different use. For example, repeat the activity in a grassy yard or on a bare ground playground.
2. Have each student write a descriptive paragraph about one of the organisms (they could do research about that organisms) that they discovered, using the adjectives that they recorded earlier.

*The Alabama Outdoor Classroom Program is a partnership between:*



Alabama Cooperative  
Extension System



Alabama Wildlife Federation

[www.alabamawildlife.org/classrooms/](http://www.alabamawildlife.org/classrooms/)




Alabama Department of  
Conservation & Natural Resources



Date: \_\_\_\_\_

Name of Naturalist: \_\_\_\_\_

## Forest Floor Investigation Activity Page

Please complete the sections marked with a millipede  first, before completing the rest of the page. Please include sketches of what you observe and use tally marks beside you drawings if you find more than one member of each specimen.



**What do you think you will find on the surface (don't disturb the area) of your sample area?**

**List what you observe in your sample area without disturbing the surface area.**



**What do you think you will find under the leaf litter in your sample area?**

**List what you observe while carefully removing the leaf litter, but don't disturb the soil.**



**What do you think you will find in the soil once you start digging in your sample area?**

**List what you observe while digging below the surface.**

Date: \_\_\_\_\_

Name: \_\_\_\_\_



## Getting Down and Dirty With Nature

*Forest Floor Investigation*



*While examining the forest floor, complete a specimen data square for each specimen that you discover during your investigation. There are more spaces on the back of the work page.*

<p><b>Description:</b></p>          <p><b>Drawing:</b></p>	<p><b>Description:</b></p>          <p><b>Drawing</b></p>
<p><b>Description:</b></p>          <p><b>Drawing:</b></p>	<p><b>Description:</b></p>          <p><b>Drawing:</b></p>
<p><b>Description:</b></p>          <p><b>Drawing:</b></p>	<p><b>Description:</b></p>          <p><b>Drawing:</b></p>

<p><b>Description:</b></p>   <p><b>Drawing:</b></p>	<p><b>Description:</b></p>   <p><b>Drawing</b></p>
<p><b>Description:</b></p>   <p><b>Drawing:</b></p>	<p><b>Description:</b></p>   <p><b>Drawing:</b></p>
<p><b>Description:</b></p>   <p><b>Drawing:</b></p>	<p><b>Description:</b></p>   <p><b>Drawing:</b></p>
<p><b>Description:</b></p>   <p><b>Drawing:</b></p>	<p><b>Description:</b></p>   <p><b>Drawing:</b></p>

The Alabama Outdoor Classroom Program is a partnership between:



*Alabama Cooperative Extension System*



*Alabama Wildlife Federation*



*Alabama Department of Conservation & Natural Resources*