



Fall in the Forest Lessons and Activities

| In this Section | Grade Levels | Objectives |
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| Decomposition Lesson Activities , Page 25 | K-4 | Learn the basic processes of decomposition and nutrient cycling, the role worms play in decomposition, and the process and benefits of composting. |
| Leaf Identification , Page 26 | PreK-5 | Through three interactive leaf identification games, identify the trees growing in the Troy Community Forest. Be able to match fallen leaves with their trees. |
| Goldenrod and Leaf Galls , Page 27 | PreK-12 | Get to know a gall! Search for, closely inspect, and discuss galls formed by common tree and plant insects. |
| Insects , Page 28 | PreK-12 | Discover hidden insect habitats. Identify and inspect insect larvae and adult insects up-close. |
| Forest Memory Activity , Page 29 | PreK-5 | Sharpen memory skills and discover interesting forest items. |
| <i>Suggested Nature Crafts:</i> | | |
| Leaf Prints: See Appendix III, Page 37 | | |
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Decomposition

Activities below are shared in a full lesson format. Please construct your lesson to your needs. Activities require advanced preparation time. May require additional teacher, student, or class research.

This is a ‘hands-on’ lesson, in which students participate in discussion, observation, inquiry, song, and feeding a worm bin.

This lesson allows students to explore the theme of the nutrient cycle by teaching them how nutrients enter soil through the process of decomposition. Students are introduced to compost and decomposition through a series of exploratory activities. Access to a compost pile and worm bin is necessary for two of the activities in this lesson.

1. Learning from the Forest

Encourage students to observe the falling leaves and to hypothesize what happens to the leaves as they lay on the forest floor. Encourage students to dig through the leaf litter and test their hypotheses. Introduce concept of decomposition (i.e., leaves break down and eventually turn back into soil). Introduce the nutrient cycle—explain that as the leaves decompose they release nutrients into the soil which are then utilized by plants and trees in the forest. Also explain that humans learned how to garden more successfully by watching decomposition and nutrient cycling in the forest and prairies.

2. Three Stages of Compost

Show students a few items from a compost pile representing different stages of decomposition. Ask students to identify the items.

- Some things 2-3 days old
- 2-3 weeks old
- Months old, from the bottom of the pile

Tell students that the composting items are turning to soil. We used banana peels, melon rind, eggshells, and leaves from a home compost pile.

2. Decomposition Theater

Six students volunteer to hold photos representing different stages of plant life and decomposition. We used six photos of a growing pumpkin plant and a decomposing pumpkin, from the book Pumpkin Circle, by George Levenson . Line up students in random order and ask the rest of the class to put the stages in proper order. Since this represents a cycle, there is no necessary beginning or end. Discuss this with students after they line up the photos.

3. Decomposition Song

Listen and sing along to “Decomposition” by “Solar” Steve Van Zandt of the Banana Slug String Band. Many great food and plant related songs, including “Decomposition” are available on CD from the Banana Slug String Band at www.bananaslugstringband.com.

4. Worm Bin Observation

Students sit in a circle around the worm bin. Give them some small pieces of food such as cabbage and ask students to feed the worms. Allow students, a couple at a time, to dig around in worm bin with hands or spoons. Explain that the worms eat the fruit and vegetable scraps we give them and return the nutrients to the soil. Worms and other insects play an important role in creating healthy soil, which in turn helps produce healthy food and people.

Grade level: PreK-5

Wisconsin Model Academic Standards Addressed:

Agricultural Education: E.4.1;
Environmental Education:
A.4.1, A.4.2, A.4.3, A.4.4,
A.8.5, B.8.8; Science: C.4.1,
C.4.2, C.4.6, F.4.3, F.4.4;
English Language Arts: C.4.3,
C.8.3

Activity Time: 50 minutes

Supplies:

- Decomposing Items From Compost Pile –3 Stages
- Worm Bin
- Photos – 6 Stages of Pumpkin Decomposition

Vocabulary:

1. Decomposition: Living, or organic, things break down after they have died. Plants, fruits, and other food items break down into nutrients that replenish the soil. We can encourage and learn about this process by **composting**, or adding our organic matter to brown and green natural matter, and allowing it to heat and break down with the additional help of invertebrate organisms.

2. Nutrient Cycle: Nutrients from living things return to the soil after they have died. The nutrients in the soil help produce healthy plants, trees, and foods.

3. Vermicomposting: Composting with the help of worms.

Helpful & Inspiring Resources:

1. *Pumpkin Circle* by George Levenson
2. “Decomposition” by “Solar” Steve Van Zandt, Banana Slug String Band

Grade level: PreK-5

Wisconsin Model Academic Standards Addressed:

Agricultural Education: E.4.1;
Environmental Education: A.4.1,
A.4.2, A.4.3, A.4.4, A.8.4, A.8.5;
Science: C.4.1, C.4.2, C.4.6, F.4.4;
English Language Arts: C.4.3,
C.8.3; Art & Design Education:
A.4.1, A.8.1, C.4.5, C.4.8, C.8.7,
C.8.9, E.4.4, E.8.4, H.4.1, H.4.3,
K.4.3, K.8.3

Activity Time: 10-60 minutes

Supplies:

- Leaf Identification Cards
- Tree Field Guides

Variation 1:

- Leaf-O Cards
- Crayons or Pencils
- Tree Field Guides

Variation 2:

- Large Leaf Identification Cards
- Tree Field Guides

Variation 3:

- Scissors
- Cardboard
- Newspaper
- Paper
- Crayons, Markers, Pencils
- Glue
- Colored Yarn, String, Twine
- Tree Field Guides

Helpful & Inspiring Resources:

1. *Crinkleroot's Guide to Knowing the Trees* by Jim Arnosky
2. "Drying and Pressing Flowers"
<http://www.dotflowers.com/pressing-flowers.html>
3. *Geography Fun* by Joe Rhatigan and Heather Smith

Leaf Identification

Activities require advanced preparation of materials and familiarity with site.

Give students cards with leaf rubbings or images and have them collect as many matching leaves as they can. Perhaps split up into small groups to search for leaves. Rejoin as a group and discuss the different species and their characteristics.

Variation 1: Leaf-O

Create bingo cards for students; bingo cards should display either the name or a small image of the leaf. Next, have students go out and find these leaves either on ground or in trees. Mark each leaf box with a crayon or have each student bring a sample of the leaf (if on the ground) to leader to confirm a bingo.

Variation 2: Leaf Memory

Create large memory cards and arrange them on the ground. Have students work in pairs allowing each pair to choose one card. Allow them to look at the card for a minute or two and then have them go find the leaf using only their memory of the leaf structure, bark structure etc. Reconvene in a circle and try to match up their leaf with identification/memory card. Allow group to share what leaves have been found.

Variation 3: Tree and Leaf Identification Books

Inspiration for this activity came from <http://searchwarp.com/swa94402.htm>.

Press leaves into a cardboard press. We recommend following instructions for "The Easiest Flower Press to Make" from <http://www.dotflowers.com/pressing-flowers.html>. You may wish to decorate your presses with natural materials and designs. Label each leaf by the tree species it comes from. Include additional information such as description of the bark, height of the tree, tree species nearby, where the leaf was found and the tree is located, and the date. You may also want to include the following information: tree seeds, animal dispersers, leaf diseases, and leaf categorization. Later, you may choose to transfer your leaves into a crafty tree and leaf identification book. We recommend following instructions for an adaptable nature journal from *Geography Fun* by Joe Rhatigan and Heather Smith.



Goldenrod and Leaf Galls

May require teacher, student, or class research to encourage discussion.

Find a goldenrod plant in the prairie with a gall (see photo on left) or a tree leaf in the forest (see photo on right). Inspect the gall. Cut it open if possible. Discuss!



Record Your Observations:

Date: _____

Grade level: PreK-12

Wisconsin Model Academic Standards Addressed:

Agricultural Education: E.4.1; Environmental Education: A.4.1, A.4.2, A.4.3, A.4.4, A.8.4, A.8.5; Science: C.4.1, C.4.2, C.4.6; English Language Arts: C.4.3, C.8.3

Activity Time: 15 minutes

Supplies:

- Magnifying Glasses
- Small Knife



Vocabulary:

1. Gall: A plant-created encasement of an insect or insect egg.

Helpful & Inspiring Resources:

1. "Galls on Plants" from Insect Diagnostic Laboratory, Cornell University



Insects!

May require teacher, student, or class research to encourage discussion.

Fall is a good time of year to find insect larvae underneath old logs. Turn a log over and look for worms, slugs, spiders, and even centipedes! Use magnifying glasses to get a closer look. Have students describe, draw, and identify what they see.

Record Your Observations: _____ Date: _____


Grade level: PreK-12

Wisconsin Model Academic Standards Addressed:

Agricultural Education: E.4.1;
Environmental Education:
A.4.1, A.4.2, A.4.3, A.4.4,
A.8.5, B.4.4; Science: C.4.1,
C.4.2, C.4.6, F.4.1, F.4.4,
C.4.3, C.8.3

Activity Time: 10-20 minutes

Supplies:

- Magnifying Glasses 
- Photo Identification Cards
- Paper
- Pencils
- Crayons and Markers
- Clipboards

Vocabulary:

- 1. Insect:** Small, invertebrate animal with a segmented body
- 2. Larvae:** The immature, first stage of a developing insect.



Forest Memory Activity

This activity requires advanced preparation. Teacher should collect forest items prior to lesson.

Lay down a bandana on the forest floor and put several commonly found items on the bandana (e.g., maple leaf, acorn, piece of bark). Lay a second bandana on top of the items.

Have students gather around, unveil the items for a couple of seconds, and lay the bandana back down.

Encourage students to walk around forest looking for similar objects to the ones they saw, to bring them back to the bandana, and lay them down near the objects they remembered seeing under the bandana.

After 10 minutes, gather students back to bandana and unveil the objects again to see which were remembered correctly.

If student interest is there, this could be run again with new objects, or one or two students could run it a second time for their peers.

Grade level: PreK-5

Wisconsin Model Academic Standards Addressed:

Agricultural Education: E.4.1;
Environmental Education:
A.4.1, A.4.2, A.4.3, A.4.4,
A.8.5, B.8.3; Science: C.4.1,
C.4.2, C.4.6

Activity Time: 15 minutes

Supplies:

- 2 Bandanas or Large Pieces of Cloth
- Collected Forest Items

A Year in the Forest