

GPP 7: Practice Good Environmental Stewardship

Subject: Composting Activity

Elizabeth Share, OSUE 4-H Educator Lorain County

Objectives: Participants will be able to:

1. Understand and observe composting.
2. Appreciate the importance of a balanced ecosystem.
3. Compare and contrast biodegradable and non-biodegradable resources in nature.

Length: varies.

Preparation: Mini-compost that is already done ahead of time, to show the participants what happens after 1 month. 2 months, 3 months if possible.

Poster Activity: What do we put into Compost?

Optional: Create mini-composts

Questions for students to answer after activity (10 minutes)

1. How can you help protect our natural resources?
2. What are some advantages of composting and recycling waste?
3. How do you think the results of this experiment will affect how you dispose of your waste?
4. How does composting affect the size of your Ecological Footprint?



Introduction: Why Compost? (10 minutes)

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What IS Compost?

The rich, dark brown, crumbly, soil-like material that results from organic material (grass, leaves, animals) breaking down or decomposing is called compost.

What can be put into compost?

(See poster activity where participants choose what to put into compost)

Microorganisms (such as bacteria and fungi) do much of the work of breaking down organic materials to form compost. Animals living in the soil help (ex. worms) microorganisms break down organic materials.

Compost is one of nature's best mulches and soil amendments. The organic materials provide many of the nutrients that the microorganisms and plants need for growth and activity. Eventually, these nutrients are returned to the soil, to be used again by trees, grass, and other plants.

Why Compost?

The organic waste you put back into the environment can be used by other living things. Compost allows the soil to hold more water and adds nutrients to the soil. Flowers, vegetables, trees, shrubs, houseplants, lawns, and container gardens grow better in soil mixed with compost.

Yard waste and food scraps make up 20% to 30% of garbage. By composting yard and kitchen waste, you can effectively use waste instead of sending garbage to landfills. You can also save money by reducing your fertilizer and landscaping bills, lowering your water bill, and spending less on trash pickups or disposal.

How Does Composting Work?

Composting takes place through organic decomposing but you can help it along the way.

A mixture of wastes high in nitrogen and carbon is crucial to your compost pile. Some wastes that are high in carbon include paper, sawdust, wood chips, straw, leaves, weeds, and other garden wastes. Wastes that are high in nitrogen include food, grass clippings, and manure, vegetable peels, fruit peels, seeds, coffee grounds and filters, eggshells, nutshells, and other food scraps.

The decomposition process requires fresh air. If possible, stir or turn your compost pile every week to expose all parts of the pile to the air.

The decomposition process requires water so don't let the compost pile dry out (40-60% moisture content). The compost pile should be about as moist as a sponge that has just been wrung out.

The compost pile should not get too hot or too cold (110-150 degrees Fahrenheit). The decomposition process will generate some heat.

The larger the surface area, the better microorganisms can utilize the material. The compost process works best if the waste is broken down into small sizes. The waste will decompose faster.

If you supply all these things - food, air, and moisture in a good-sized pile – the compost pile will decompose nicely. The process can take anywhere from six weeks to three years, depending on how you care for it.

Poster Activity: What Do We Put In Compost?

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Julie Mackey, OSUE 4-H Program Assistant

Need:

Poster Board

Velcro

Compost:

Leaves

Grass clippings

Vegetable scraps

Fruit scraps

Coffee grounds

Coffee filters

Tea bags

Wood chips

Straw

Small twigs

Manure

Newspaper

Trash:

Gummy worms

Candy

Meat scraps

Cake

Mayonnaise

Oils

Butter

Lard

Margarine

Dairy products

Bones

Metal

Example

WHAT DO WE PUT IN:
COMPOST??



TRASH ??



Optional: Create a mini-compost pile (30 minutes)

Credit: Classroom Composting, Earth Day Network

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(Recommend having mini-compost that is already done ahead of time, to show the participants what happens after 1 month, 2 months, 3 months if possible)

Break students into groups.

A clear and clean two-liter bottle

A spray bottle of water

Scissors

Tape

One sandwich bag full of organic food waste like vegetable peels, fruit peels, seeds, coffee grounds and filters, eggshells, nutshells, and other food scraps (Do not use dairy or meat products – they will smell and attract bugs!)

One sandwich bag full of organic garden waste like grass clippings, sawdust, wood chips, straw, leaves, weeds, paper, and other garden wastes

A few small non-biodegradable items like glass, aluminum foil, and Styrofoam.

Two pounds of rich, dark, healthy soil

Steps to Creating a Mini Compost Pile

1. Predict what will happen to various items going into the mini compost pile. Note the predictions of each student for comparison after the project is complete.
2. Cut the top off the plastic two-liter bottle where it begins to curve in.
3. Fill the bottom of the bottle with some soil.
4. Add layers of organic waste, kitchen waste, and non-biodegradable items. Place a layer of dirt between layers. Place items near the edge of the bottle so students can see what happens to different items in the mini compost pile.
5. Poke the side of the bottle with the scissors to create SMALL holes – not large enough for the contents of the mini compost pile to spill. It is important for the compost pile to receive air, so

the compost pile should not be too dense. Carefully arrange the layers loosely so that air may circulate.

6. Moisten the mini compost pile by spraying it with water after filling the bottle and after adding each layer. Do not flood the pile, just moisten it.

7. Make sure to keep your mini compost pile in equilibrium. In order for it to work, you will need the right amount of carbon and nitrogen waste, moisture, air, healthy dirt (even layers).

8. After creating the mini compost pile, cover the top of the bottle with aluminum foil or plastic wrap and secure the mini-compost pile by placing a rubber band around the bottle. Poke a few holes in the roof.

10. Let Mother Nature do its business. Occasionally stir the mini compost piles by shaking the bottles a little bit in order to circulate air. The composting process will take between one and three months.