

## Schoolyard Composting

Brochure description: Do you ever wonder why leaves don't just pile up under the trees? Have you seen that green scum in the lakes and ponds? Did you know that the green scum (called algae) kills the fish in the lakes? But the same stuff that makes the lakes green, can also make our gardens green and healthy. In this class we learn about making compost out of leaves, grass and food scraps, and we'll start a compost pile of our own.

Age Level: Grades 3-6

MN Academic Standards for Science:

3rd Grade I A, IV C; 4th Grade III A, 5th Grade III A, IV F

Program Length: 45 minutes to 1 hour

Key Concepts:

1. The environmental benefits of composting.
2. The basics of composting; nutrients provided by different compostable materials; the four basic requirements of a good compost pile.
3. Ingredients that are right for composting, and those that aren't
4. How to get started and keep the compost working
5. Visit the schoolyard compost bin, and begin adding ingredients

Supply List:

- Handouts for students outlining the basics
- Several one quart containers of finished compost
- One or two containers of kitchen scraps
- One garbage bag of brown leaves
- Compost bin in the schoolyard
- Shovel for turning compost
- Pitcher or other container for adding water to the bin

**Introduction: Start with conversation**

Ask if students have any ideas about why leaves don't just make bigger and bigger piles under the trees in the forest. Discuss the possibilities, and then move to a discussion of the decomposers. Using the handouts, talk about brown leaves, and the good benefits that decomposing "brown stuff" gives to the soil. Then talk about the benefits of "green stuff" – the nitrogen that feeds the plants.

Continuing to use the handout, move to a discussion of the problems that these decomposing materials cause when they get into the wrong places – especially the storm sewers that carry them directly to our rivers and lakes.

**Composting is Recycling:**

The great thing about composting is we recycle the leaves, grass and food scraps, keeping them out of the sewers and lakes – and at the same time, we get really great food for our gardens. Everybody wins!

Talk through the compost recipe: (all covered in the handout)

Brown stuff

Green stuff

Water (but not too much – otherwise, it might get smelly)

Soil

Brainstorm with the class about the kinds of food scraps that will be good for the compost bin.

Pass the containers of food scraps around the classroom. (Lots of Yuck's here)

Pass the containers of finished compost around the classroom. Ask students to smell it. Does it smell like garbage?

### **Getting Started:**

Talk about the layers – like a lasagna. Decide when students will add to the compost, and who will be in charge of turning it. You can also have a discussion about where they will get the “brown stuff” to add in with the vegetable scraps and grass clippings.

Point out the ingredients that should not be put into the compost bin, and why.

Talk about where to locate the compost bin – not too shady, not up against a building (it can cause mold to grow).

Take the class outdoors to the compost location. Add the food scraps and leaves that have been brought to the class as “starters”. Add the finished compost as well, and point out that microorganisms in the compost will give the compost and quick start.

### **Related Activity:**

Bring a small food scale to class, and have the students weigh their lunch waste before they start the composting project. Then have them weigh their waste (minus the composted scraps) after the project begins. Adding a math component to the project, have them calculate how much waste has been recycled into compost for each day, month and year that their class participates in composting. Have them calculate what it would mean if the whole school recycled food waste into compost.

### **What to do with Finished Compost:**

In just a few weeks, the students will be able to see finished compost at the bottom of their pile. At this point, they should start putting their food scraps into another bin or compost pile close by. This will allow the first pile to finish decomposing. When the compost looks just like soil, and there are no recognizable bits of food in it, it's finished. It can be added to the garden beds for fertilizer and soil conditioner, or used around plants as a mulch to keep weeds down and the soil damp. All the plants in the garden will love it.

The class handout follows:

## Composting Leaves, Grass And Food Scraps

### Leaves in Nature

**Why don't leaves just pile  
Up under the trees?**

- After they fall they fall apart – they *decompose*
- They become part of the soil
- They add *organic matter* to the soil to help it hold water and keep the soil loose so roots can grow more easily.



**Other things feed the plants:**

- Green plants that decompose add *nitrogen*, which is important for other plants to grow.

**Good stuff can cause pollution:**

- Grass clippings and leaves in the street go into the rivers and lakes
- When they decompose there, they create algae (green scum).
- The scum on the lakes uses up oxygen, kills fish, and makes them bad for people.

## Composting is Recycling

When we compost, we recycle the good stuff – and use it to help our plants. At the same time we keep it from polluting our rivers and lakes.

We are using a compost bin to hold all the good ingredients. Just like when you make a cake, compost has a recipe – a list of important things that go into making it.

There are four basic kinds of things to use:

**Brown stuff:** dead dried brown plant parts, like leaves, dried grass, pine needles, and sawdust.

(Even though it's not brown, shredded up newspaper can work, too. It's from plants.)

The important thing it has is *carbon*.

**You will need 2 or 3 times as much brown stuff as green stuff.**

**Green stuff:** Green stuff is fresh, like grass clippings, vegetable scraps, weeds and leftovers from dinner (but not milk, cheese or meat). The important thing it has is *nitrogen*.



**Water:** Water lets all the creatures like bugs and worms start to work on decomposing everything. They need water just like we do.

**Soil:** A shovel full of soil contains all of the living critters that decompose the food and leaves. We add one or two as we add other stuff to the compost bin.

## How to get going

The recipe is pretty easy – we just make layers of the brown and green stuff, with a little soil and water sprinkled in. We will take a shovel and turn the compost every week or so to make it decompose faster. But you can do it at home without doing the turning part – it will just take longer.

When we are done, we will have crumbly brown stuff that looks like dirt. But its really good dirt!! You can:

- Add it to your garden to help your plants
- Use it to mulch around your plants to keep them from drying out
- Add it to plants in pots to give them extra food



## Don't Use these ingredients

- No meat scraps, bones or raw eggs – they will attract too many animals that will come and dig them out of your compost bin.
- No milk, cheese or yogurt – also attract a lot of animals.
- Don't use cooking oil or grease
- Nothing that isn't "organic" – like motor oil, glass, metal, plastic
- Don't compost diseased plants or weeds that have seeds on them. They will cause problems later when you put the compost on your garden.
- No big twigs or sticks – they take too long to break down.
- No pet droppings – poop! They can spread disease.

References:

“Composting and Mulching: A Guide to Managing Organic Yard Wastes” (Extension Publication BU-03296) available online at [www.extension.umn.edu](http://www.extension.umn.edu).

Junior Master Gardener Teacher / Leader Guide, “Building Bins and Compost Sandwiches”, pp31-34.