



UNIT STUDY

Composting Science Unit

Maureen Wittmann

If you've never composted or if you live in an urban area, I encourage you to still be open to introducing composting to your homeschool studies. Composting can be a wonderful addition to your science studies, in a very natural way. Both the novice and the urbanite can pull it off. This unit study introduces all the resources necessary for success.

What is Compost?

Compost is humus, made by combining a variety of organic waste and then put through a curing process, usually of two to six months. Added to soil, it gives plants an increase of nutrients, water availability, and protection from disease. It can be used in place of peat moss, mulch, and manure.

Why Compost?

Home composting teaches children about life cycles, conservation, thriftiness, and the interconnectedness of nature. By participating in gardening and yard work, children will naturally make observations related to science

Additionally, home composting is one of the most environmentally beneficial activities you and your family can do. Yard and food waste takes up about 30% of the waste stream in the United States. Plus, organic

waste trapped in plastic garbage bags doesn't break down. Recycling organic matter into compost keeps a significant portion of your family's waste out of landfills and water treatment facilities.

Finally, your family budget and garden will benefit. If my family bagged our fall leaves, we would have to pay for special bags required by city law. Instead, we rake them into the compost pile and save a bundle. Additionally, by composting food scraps, our overall garbage removal is reduced.

If you spend money every spring buying peat moss, manure, and mulch, you will be able to eliminate that expense from your gardening budget. I till my garden with homemade compost and as a result my vegetables are tastier and my flowers are brighter. I save money, I end up with a better product, and my children learn. It is well worth the effort.

How to Compost

How you go about composting will depend mostly on where you live and the size of your yard, as well as how much effort you want to put into the project.

If you are unable to compost in your yard, you can still compost. I know of families who keep a worm bin under the kitchen sink. No, I'm not kidding. If the thought of worms living under your sink is too much for you to handle, the worm bin can go on a shaded

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balcony, garage, or other area as long as the temperature isn't too hot or cold.

Worm bins are easy and inexpensive to make. You purchase worms at your local nursery center, prepare a bin, add kitchen scraps and, every so often, have the children go through it. It makes wonderful organic fertilizer.

A worm compost needs four basic things:

1. Carbon (newspaper)
2. Nitrogen (organic waste)
3. Oxygen (air)
4. Water (from your sink above)

Add the worms and let them do their work. For more details in setting up a worm bin, see the Reading List and Websites.

If you live in the suburbs and have a nice size yard, you can compost in a bin or tumbler. Call your city or county office to see if you can buy compost bins at a discount. You can also make them almost free (see Websites). Tumblers look nice and get a lot of hype, but they are expensive and my experience is that they are not much more efficient than bins.

If you have the space to compost in the open, I encourage you to do so. We have two open compost piles, one on the east side of the yard and one on the west side. We alternate the use of these piles—while one is curing the other is feeding our gardens.



What Can Be Composted

Generally speaking, anything that was once a growing plant can be composted, with a few exceptions. So, the more important question is: what should not be placed into a home compost pile. Stay away from greasy food, dairy products, meat scraps and bones as these items will attract rodents. Keep

out human or pet excrement due to harmful bacteria. Also keep out diseased plants. Finally, citrus peels and pine needles contain natural chemicals that will slow down the composting process.

Here are some items that you can put into compost. Straw, grass clippings, leaves, plant trimmings, spoiled fruits and vegetables or scraps, hair clippings, dryer lint from natural fibers, coffee grounds and filters, tea bags, shredded newspaper, fur, feathers, shredded or chipped branches. If you are worried about raccoons or deer coming to feast on your open pile, bury the scraps when you add them.

Creating Your Unit Study

- Choose books for your children's grade levels.
- As you read together, check out some composting websites for further investigation.
- Decide what kind of composting will work best for your family.
- Have the children make a shopping list of needed supplies to get you started.
- Assign duties to children, such as watering, turning and carrying scraps to the pile.
- Choose activities to enhance your study.

Activities

- Make posters displaying life, soil, and water cycles.
- Make a chart of items that can and cannot go into the compost bin.
- Investigate where the city takes your trash and how it is disposed.
- Take a field trip to a water treatment plant.
- Research recycling options in your community.
- Take the quiz at www.ciwmb.ca.gov/Kidstuff or create your own.
- Add composting-related words to your vocabulary and spelling lists.

- Take a trash survey. See how much of your family's trash is recyclable, reusable, or biodegradable.
- Look for references in the Catechism of the Catholic Church on the environment (Creation), such as paragraphs 299, 341, 2415.
- Older students can investigate the moral implications of conservation, or environmental extremism, and write a theme paper.
- Most importantly, encourage observation of the compost pile. Keep a journal of observations.

Finally, tie this unit study together with a delicious compost-related dessert. See the sidebar for a recipe for Incredible Dirt Cake.

God's design is perfect—waste decays and gives rise to new life. It is a gift to be able to share this part of God's creation with children.

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Dirt Cake

Ingredients:

20 oz. Oreos or other chocolate sandwich cookies

8 oz. softened cream cheese

1/4 c. margarine, softened

1 small package instant vanilla or chocolate pudding

3 c. cold milk

16 oz. Cool Whip or other whipped topping

1 package Gummi Worms

Directions:

You'll need a new plastic flowerpot, one plastic flower, and one new gardening trowel.

To make the dirt: In a food processor or blender, process the cookies until they resemble . . . dirt! Set aside.

To make the mud: Mix cream cheese and margarine together in a small bowl and set aside. In a medium bowl, combine pudding with milk and let set a few minutes. Add the mixture of cream cheese and margarine to pudding. Fold in whipped topping.

Putting it all together: In a new, clean pot, starting with dirt, alternate layers of dirt and mud, adding a couple of gummi worms in each dirt layer. End with dirt on top. Add a few more gummi worms. Chill 3 or 4 hours. When ready to serve, insert flower and serve with a new

Reading List

I found all of these books at my local public library:

Let It Rot! The Gardeners Guide to Composting by Stu Campbell. This is the book that I used when I started composting. Easy-to-read and informative for both adults and students.

Worms Eat My Garbage by Mary Appelhof. A must-read if you want to explore the possibility of setting up and maintaining a worm composting system inside. It's as easy as it looks. This little chapter book could be read by students of all ages.

Compost Critters, written and photographed by Bianca Lavies. My boys loved the photos of the icky bugs that came to visit the author's compost pile. Easy read for grade school children.

Squirmy Wormy Composters by Bobbie Kalman and Janine Schaub. Learn all about those recycling wonders, worms, as well as how to get started vermicomposting. Grade school.

Re-Cycles by Michael Elsohn. Tells the story of the soil cycle, water cycle, and what it means to decomposition and composting. Early grade school.

An Earthworm's Life written and illustrated by John Himmelman. An interesting picture book for preschool and early grade school.

Compost! Growing Gardens from Your Garbage by Linda Glaser. Lovely picture book about how your garbage can be turned into fall's harvest. Preschool or early grade school.

Wiggling Worms at Work (Let's Read and Find Out Science Series) by Wendy Pfeffer. Learn all about worms. A good read for preschool and early grade school children. Very nice illustrations.

Make an Earthworm Farm by Meredith Costain (Little Green Readers Series). How-to book for preschoolers.

A Catholic Homeschool Treasury by Rachel Mackson and Maureen Wittmann. This book is now out of print, but if you own it or can borrow it, read my essay "Playing in the Dirt" which is related to composting and homeschool science.

Websites

Instructions: Build a Compost Bin: www.mastercomposter.com/equip/buildbin.html

How to Make Compost: <http://compostguide.com/index.html>

School Composting: Journey to Forever: http://journeytoforever.org/edu_compost.html, Excellent site for learning about soil composition.

City Farmer: www.cityfarmer.org/wormcomp61.html, Lots of information about composting with red wiggler worms.

The Wonderful World of Composting: www.cce.cornell.edu/tompkins/ithacachildrengarden/worm.html, Tells how to make a worm compost bin.

Kid's Stuff About Waste Reduction: www.ciwmb.ca.gov/Kidstuff/, Has an online (or download) game to introduce the kids to vermicomposting. Fun!

Garbage Soup

Combine chopped kitchen waste with equal amounts of water in the blender. Bury this soup round the outer edges of plants or place directly into a garden trench. Fill with soil and water well. Seeds or transplants can be added immediately.

"For God willed creation as a gift addressed to man, an inheritance destined for and entrusted to him."

—*Catechism of the Catholic Church*, 299