



CIY

Compost It Yourself



WHAT IS COMPOSTING AND WHY DO IT?

Composting is nature's recycling. It is the controlled, natural breakdown of organic matter.

Decomposers break down organic materials into compost.

Compost can be added to soil to improve the health of your garden, yard, or houseplants.

COMPOSTING HAS MANY BENEFITS FOR YOU AND THE ENVIRONMENT:

- Improves your yard and garden by improving soil health and fertility, which increases plants' resilience to pests, disease, and other environmental stressors.
- Helps soil hold more moisture, which reduces the need for frequent watering and minimizes erosion, runoff, and nutrient loss.
- Prevents valuable organic resources from becoming hazardous materials in the landfill, and encourages natural nutrient cycling.
- Saves money by conserving water and replacing the need to purchase commercial fertilizers.

LOOK FOR THESE ICONS TO FIND THE COMPOST INFO YOU WANT!



PASSIVE COMPOSTING



ACTIVE COMPOSTING



VERMICOMPOSTING

Composting can be practiced almost anywhere:

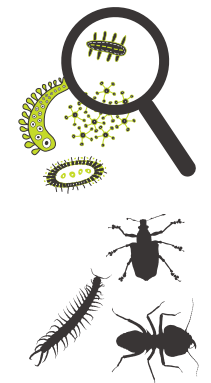
in your backyard, at work, or at school... even in an apartment! All you need to get started is a little bit of space, the basic ingredients, and an understanding of the process.

DECOMPOSERS

A handful of compost contains more decomposer organisms than there are people on the planet. These amazing little creatures are responsible for making the whole composting process happen.

MICROORGANISMS (like bacteria and fungi) do the majority of decomposition work. Although too small to see, they are on everything you throw into the compost pile.

MACROORGANISMS (like insects, worms, and grubs) are large enough to see. They usually enter the compost pile from the surrounding landscape in the later stages of decomposition.



COMPOSTING STYLES

There are several styles of composting. Some require more effort, but the compost is ready faster. Others are more passive but take longer. Many people practice multiple styles of composting to accomplish their goals. Which type of composting best fits your needs and lifestyle?



PASSIVE COMPOSTING

is a more relaxed style of composting, and involves less frequent turning and watering. The pile won't generate as much heat and may dry out at times, so the materials won't break down as quickly. Also, weed seeds may not be killed.



ACTIVE COMPOSTING

is a more engaged style of composting food scraps, yard waste and some types of manure. It involves turning the pile on a regular basis and maintaining optimal moisture and temperature levels. This method kills weed seeds and produces finished compost in the shortest period



VERMICOMPOSTING

or, composting with red wiggler worms, is a great option if you only need to recycle food scraps. It uses less space than traditional composting, and can be done indoors. This method produces worm castings, which can increase soil health in gardens, yards, and houseplants.

COMPOSTING OPTIONS

QUESTIONS TO ASK	 PASSIVE COMPOSTING	 ACTIVE COMPOSTING	 VERMICOMPOSTING
What type of materials do I want to compost?	Fresh and dried yard debris, kitchen scraps, paper products		Kitchen scraps, paper products
What type of space do I have to compost in?	Outdoor area with additional space around the bin for turning and harvesting		Apartment or condo, limited yard space
How much effort do I want to put in?	Low effort, infrequent maintenance (turning and watering when convenient)	Engaged effort, frequent maintenance (turning and watering regularly)	Low-moderate effort, moderate maintenance (maintaining consistent food and moisture supply)
How soon do I want a finished product?	Finished compost expected in 6-18 months	Finished compost expected in 3-6 months	Finished worm castings expected in 3-4 months

HOMEMADE BINS

Homemade bins can be easily constructed out of wood, wire mesh, scrap pallets, and other materials commonly found around the home. To get a set of plans for building your own traditional backyard bin or worm bin visit solanacenter.org/ciy

PURCHASED BINS

Purchased bins come in a variety of styles. They can be purchased at nurseries and garden centers, or ordered directly from the manufacturer. To see examples of the different types of composting bins, visit one of the composting demonstration gardens around the County. For a list of sites, visit solanacenter.org/resources



Unincorporated SD County residents can purchase up to two bins per residence per fiscal year at a discounted rate.

<https://solanacenter.org/2023/09/10/compost-bin-discounts-and-vouchers/>



COMPOSTING BASICS

There are four basic ingredients required for composting: GREENS, BROWNS, WATER, & AIR. A good mix of ingredients will provide decomposers like bacteria the resources to turn your organic materials into compost.

GREENS + BROWNS + WATER + AIR

GREENS are fresh organic materials like food scraps, fresh grass clippings, and green yard trimmings.

BROWNS are dried or dead organic materials that serve as sources of carbon. Browns are useful for retaining moisture, creating small air pockets, and supporting a more diverse community of decomposers in the pile.

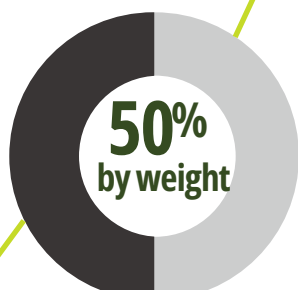
WATER Water helps decomposers process organic materials. Ideally your pile is kept as moist as a wrung out sponge. Too little moisture will slow down the composting process, but too much moisture in the pile can lead to a bad odor which may attract unwanted pests.

AIR is essential for a sweet, earthy-smelling compost pile. Turning your compost pile regularly will speed up the composting process and keep unpleasant odors at bay.

WHAT GOES IN THE COMPOST PILE?

50% GREENS

Fresh yard trimmings, fresh grass clippings, fresh or moldy fruit and vegetable scraps, coffee grinds, tea leaves, breads, certain types of manure*



50% BROWNS

Woody materials, dead or dried yard debris, chopped branches and twigs, bark, straw, sawdust, coffee filters, tea bags, shredded paper and paper products

For every bucket of greens, add the same weight in browns. An easy way to do this is to use a 5 gallon bucket to measure your materials.

WHAT STAYS OUT OF THE COMPOST PILE

- meat
- fish
- poultry
- bones
- eggs & dairy products
- charcoal
- firelog
- ashes
- treated wood products
- pet feces
- human feces
- glossy paper
- coated paper
- oils
- grease
- lard
- inorganic materials
- fresh weeds with mature seeds (unless building a hot compost pile)

*For more information on composting with manure visit solanacenter.org/ciy





COMPOSTING OPTIONS

Composting occurs on a spectrum; once you have the four ingredients, your pile's level of activity and how much you pay attention to it will determine how quickly it will produce finished compost.

MORE PASSIVE
Slower Decomposition

MORE ACTIVE
Faster Decomposition

COOL COMPOSTING

MATERIALS

You can start the process with any volume of compostables. Do not add weed seeds or diseased plants. Bury food.

MAINTENANCE

Turn and add water to your pile at your leisure. When possible, add air and moisture to speed up the composting process. The temperature of your pile may be 80F or cooler.

BIOLOGY

There may be no heat-loving bacteria present, but your pile will host a diverse community of macroorganisms. You may even notice some seeds sprouting in the pile.

TIMELINE

Stop adding material several months before you plan to harvest. Expect finished compost in 6-18 months, correlated to your time and labor investments in the pile.

ACTIVE COMPOSTING

MATERIALS

The more materials you start with, the more heat will be produced. Do not add weed seeds or diseased plants. Bury food scraps in the core of pile to deter pests.

MAINTENANCE

Turning should be done with some regularity (approx. once or twice a month), water as needed to ensure even dampness. An efficient active pile operates between 80°F-130°F.

BIOLOGY

As pile temperature rises, populations of heat-loving microorganisms will grow. As the pile cools, you will notice more macroorganisms and possibly some seed sprouts.

TIMELINE

Stop adding material 2-3 months before you plan to harvest. Expect finished compost in 5-6 months, correlated to your time and labor investments in the pile.

HOT COMPOSTING

MATERIALS

A hot pile will kill weeds. Start with a large amount of material (try filling the bin) to get a high enough temperature.

MAINTENANCE

Routine turning and watering (approx. once a week). A pile is considered "hot" at 131°F and above. As the pile cools, aerate and add water to re-spike the temperature.

BIOLOGY

Hot piles are dominated by hard-working, but short-lived, communities of heat-loving bacteria. You will not see macroorganisms in the pile until it reaches a cooler phase.

TIMELINE

You will add almost all of your materials at the initial set-up of the bin. Expect finished compost in 3-4 months.

EFFICIENCY TIPS ACROSS THE SPECTRUM

- LOCATION** Placing your bin on soil allows critical decomposers to access the pile. A shady location for the bin helps to conserve water, as pile contents won't dry out as rapidly.
- MIX IT UP** A greater diversity of inputs will produce a greater diversity of nutrients in the finished product. Don't be afraid to experiment with unconventional compostables (i.e. pet hair/fur/feathers)!
- CHOP IT UP** Smaller particle size (approx. 1 in.³) increases surface area of materials, and encourages faster decomposition, especially useful with woody and fibrous materials.
- "CAP" IT** Keeping a layer of browns (pine needles, burlap, straw, or cardboard) on top of the pile seals in moisture and deters pests like fruit flies and rodents from accessing food scraps.

THE BASICS OF COMPOSTING WITH WORMS

Composting with worms, otherwise known as vermicomposting, uses Red Wiggler worms that are different from earthworms commonly found burrowing in San Diego. They are smaller, have a big appetite and are well adapted to the conditions in a worm bin. Red worms must be intentionally added to a worm bin. They create castings, a nutrient rich product that can be added to soil. Besides the bin itself, four basic ingredients are required for vermicomposting: BEDDING, FOOD, WATER & AIR. These ingredients create an environment where red worms and other decomposers will thrive.

BEDDING + FOOD + WATER + AIR

BEDDING The primary materials added to the bin during set-up, bedding provides a medium for the worms to move through that will not get compacted, can hold moisture, and is easily digestible. All bedding material will eventually be processed into castings.

FOOD The majority of inputs should be fruit and vegetable scraps (chopped small), which will eventually be processed into castings. Food should be provided regularly and always buried in the bedding. See *What to Feed Your Worms* below for more details.

WATER Worms require a moist environment to survive. While building, slowly add water to the bin until you achieve the moisture level of a wrung-out sponge. Use a spray bottle to add moisture as needed.

AIR Worms and supportive microbial populations need air in order to survive. Too little air or too much water results in unpleasant odors.

SETTING UP YOUR BIN

Start by making or purchasing a bin specifically designed for vermicomposting. These bins are generally 10" to 15" deep, opaque, have a tight fitting lid, and have holes drilled in the bottom and sides for drainage and ventilation. Create a damp bedding for your worms by soaking and wringing out torn newspaper, napkins, paper towels, and/or coconut coir. The amount of bedding you add will determine the amount of castings you will receive, but aim for at least 6 inches of depth. Add your worms and a handful of food scraps to the bedding, burying food below the surface. Feed your worms slowly at first, and gradually increase the amount of food scraps you provide. With good conditions, the worms will eat and reproduce rapidly. Worm communities will adapt their population size to available space and food resources. Worm bins operate optimally at an internal temperature of 55°F-75°F, but must be kept between 35°F-90°F to ensure worm survival. Keeping a bin indoors or locating an outdoor bin in the shade will help moderate temperature.

WHAT TO FEED YOUR WORMS

REGULARLY ADD	ADD IN SMALL PORTIONS	AVOID ADDING
Fruit and vegetable pieces and peels (chopped)	Citrus pieces and peels	Inorganic materials (i.e. plastic, metal, glass)
Coffee grounds and filters, tea bags	Spicy foods (i.e. onions, hot peppers)	Meat, poultry, fish, and bones
Moldy fruits, vegetables, and breads	Plain bread, cereal, and pasta	Dairy products
Egg shells	Miscellaneous plate scrapings	Very oily foods
Shredded paper products	Leaves and yard waste	Very salty foods

WORM BIN DECOMPOSERS

Your bin will host not just Red Wiggler worms, but an entire community of decomposer organisms. Bacteria, fungi, and other microorganisms will naturally enter the bin and assist with decomposition. All of these organisms are beneficial and will co-exist with the worm community. Red centipedes are the exception and should be removed to prevent predation on the resident worms.

HARVESTING & USING YOUR COMPOST



HARVESTING FINISHED COMPOST

CURING Your compost is almost finished when the original inputs are unrecognizable, having been transformed into a dark brown, crumbly soil product with a pleasant, earthy aroma. Even when the materials appear to be fully decomposed, allow 2-4 weeks for the compost to cure. The curing phase is a period of rest during which compost contents stabilize and mature. While curing, aim to keep the pile contents evenly moist, but do not add any new compostables.

SIFTING Once your compost has finished curing, it is ready to harvest. There may be a few chunks of woody material left in your finished compost, as these are generally slower to break down. Large pieces can be screened out and used as mulch or placed in the next batch of compost to continue decomposing. Screening can be done by hand or with the use of hardware mesh.



USING FINISHED COMPOST

For new or poor soil, mix in compost. Spread 2 to 4-inches of compost over the soil and turn it in with a shovel to a depth of about 6 inches. For healthy soil, opt for the top dressing (see below).

Top dress your planters by spreading compost to a depth of 3-inches around the base of plants and shrubs.

Finished and sifted compost can be used to make a healthy potting mix, along with a few other ingredients. A good starting mixture is equal parts finished compost, coconut coir, and sandy soil.

For more information on leachate, compost tea and worm tea, visit <https://solanacenter.org/resources/#soil-compost>

The nutrients in compost and worm castings can be applied to plants in liquid form. Leachate, or liquid traveling through unfinished decomposing matter, can be diluted to the color of iced tea, and used as a soil drench. Tea is made by soaking or steeping finished compost or castings in water. Water your houseplants, transplants, and seedlings with the liquid to give them a good start and keep them healthy.



HARVESTING FINISHED WORM CASTINGS

VERMICOMPOST VS. CASTINGS Vermicompost is a mixture of worm castings and decomposed or partially decomposed organic matter that has not been digested by the worm. Castings are worm manure. If none of the original materials are recognizable, the bin composition is mostly castings, and is ready to harvest. Both vermicompost and castings are viable soil amendments.

SEPARATING WORMS Your finished castings will be ready to harvest in about 3-4 months. To separate your worms from the castings, place food in one area of the bin only. The worms will move to the food-rich side of the bin, leaving the rest of the bin full of ready-to-harvest castings. Remove those castings, and leaving as many worms in the bin as possible. Add fresh bedding and food to the empty side of the bin to start again!



USING FINISHED CASTINGS

Worm castings are very nutrient dense. A little goes a long way! Castings are generally mixed into the soil at a 4:1 or 5:1 soil to castings ratio. Castings can be added to the bottom of a transplant hole, or worked into the soil surrounding

Castings can be added near the soil surface, but exposed castings will dry, harden and become less accessible to the root systems. Instead, crumble up the castings, and water them into the surface soil.

Worm castings can be used to make a healthy potting mix, along with a few other ingredients. A good starting mixture is equal parts worm castings, coconut coir, and sandy soil.

For more information on a variety of methods to harvest castings, visit <https://solanacenter.org/resources/#soil-compost>

TROUBLESHOOTING

THE PROBLEM	THE CAUSE	THE SOLUTION
Compost smells offensive	Anaerobic conditions (not enough air)	Turn the pile, add more browns to the pile
Pile doesn't heat up	Pile too small, too dry and/or not enough greens	Add more greens to the pile, add water while turning
Material isn't breaking down quickly	Not enough moisture and/or large material size	Add water, chop materials into smaller pieces
Pile is attracting ants	Pile too dry, food scraps not buried	Add water, bury all food scraps in core of pile
Excessive flies and/or rodent foraging	Food scraps exposed, wrong ingredients	Bury food scraps in core, do not add meat, dairy, or oils

Composting is a very forgiving process, and any problems that arise are often easily corrected.

COMPOSTING COMPLEMENTS

Composting or Manure Consultation If you live in an unincorporated area of San Diego County, join a knowledgeable Solana Center educator for a 30-minute consultation to get personalized composting or manure composting advice and answers to all your questions about backyard composting, vermicomposting, bokashi, and odorless, convenient manure management systems.

Visit <https://solanacenter.org/soil-regeneration/> to learn more.

Compost Bin Discounts and Vouchers Unincorporated SD County residents can purchase up to two bins per residence per fiscal year at a discounted rate.

Visit <https://solanacenter.org/soil-regeneration/> to learn more.



ADDITIONAL RESOURCES

COMPOSTING IS BEST LEARNED BY DOING. WITH EXPERIENCE, YOU WILL LEARN WHAT WORKS BEST FOR YOU. FOR FURTHER EXPLORATION...

Call the Hotline

(760) 436-7986 ext 700

A hotline for all your composting questions!

FOR MORE RESOURCES

Visit Solana Center's composting demo site at **137 N. El Camino Real, Encinitas, CA 92024**

or check out our website www.solanacenter.org/ciy