ZERØWASTEMARIN

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PROTECTING OUR RESOURCES TOGETHER

# HOME COMPOSTING PROGRAM

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# WHY COMPOST AT HOME ?

- To reduce the solid waste that gets trucked to the landfill facility, which saves energy and reduces your carbon footprint.
- To save time by reducing the need to bag and haul yard waste.
- To conserve water that would be used with an in-sink garbage disposal.
- To save money by eliminating the need to buy commercial fertilizers.
- **Most importantly**: to help protect the watershed and our environment by eliminating the use of pest control products and chemical fertilizers that can harm people, pets, wildlife, local creeks and the beautiful San Francisco Bay.

# WHY IS COMPOSTING GOOD FOR YOUR GARDEN?

- Compost improves soil texture and friability.
- Compost improves the water retention capabilities of the soil.
- Compost balances the soil PH levels.
- Compost increases the heat absorption of the soil.
- Top-dressing with compost eliminates the need to turn the soil.
- Compost provides nutrients in the form, and as needed, by plants.

- Compost helps create and maintain a healthy ‘soil food web’ which:
- Helps plants utilize the available nutrients, and
- Helps control plant pathogens.

# OTHER GREAT REASONS TO COMPOST AT HOME

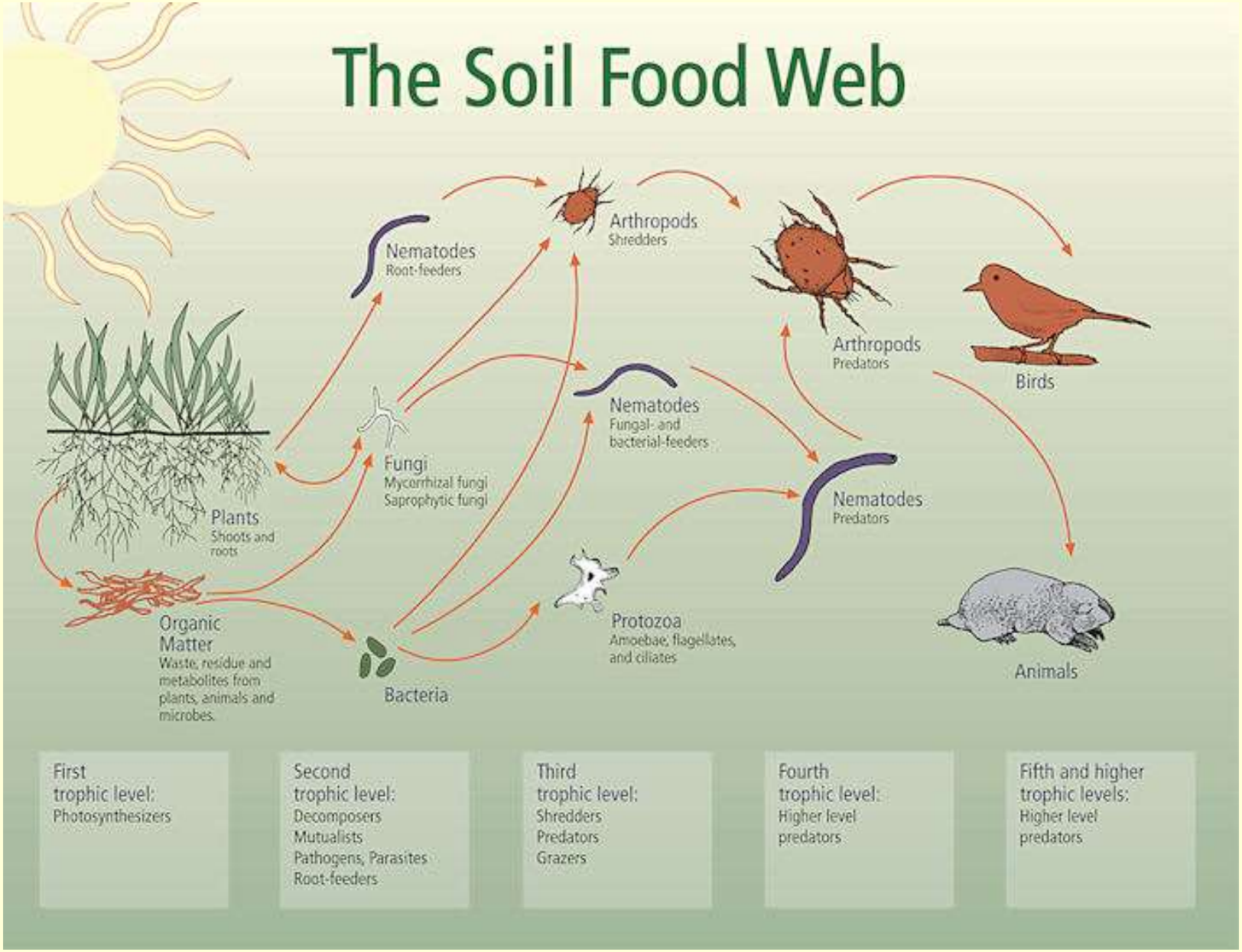
The single most important thing you can do to create a great garden is to focus on taking care of the soil!

**Feed your soil to feed your plants!**

It's simple, and it's satisfying to let nature do the work.

**Healthy soil is teeming with life,** and all those life forms work symbiotically to recycle dead organic materials. The 'soil food web' helps create soil that provides all the elements, stored in plant-available forms; which allows vigorous, healthy, productive, and beautiful plant growth.

# The Soil Food Web



# PLEASE DON’T CALL IT DIRT!

**Soil is a Living Ecosystem** which is home to host of creatures known as the ‘Soil Food Web’. Their life cycle activities, along with other natural forces, help create the essential growth medium known as topsoil.

**Topsoil; a mere 2 to 8 inches**, is where all plant growth occurs;
human beings and all other life depend on plants; which convert nutrients from the earth and energy from the sun into food !

**Soil equals Life !**

Healthy soil also provides water storage, filtration and purification systems. Soil is also a recycling system for organic materials, and a storage and cycling system for plant nutrients.

Plants are meant to live and shed plants parts which then decay right where that plant was growing; replenishing the nutrients that the plants pulled from the soil. It’s a beautiful closed system!

# WHAT IS COMPOSTING ?

- **Simply put:** composting is a pile of organic materials deliberately assembled for fast decomposition.
- In building a compost pile **we are creating the perfect habitat** for a host of creatures (the ‘decomposers’ or ‘the FBI’ – fungi, bacteria and invertebrates) that make their living by recycling organic materials.

- **We are providing these creatures with their basic needs:**
- Browns – carbon-rich materials that are the ‘building blocks’ of all life
- Greens – nitrogen-rich materials that provide the energy for life
- Air – proper aeration encourages aerobic decomposition which creates a fresh, earthy smell as materials decompose.
- Water – just the right amount to favor aerobic decomposition.

BROWNS GREENS

AIR WATER

# WHERE TO COMPOST ?

- First choose a composting system that works for your situation.
- Then set up a collecting pail in the kitchen for food scraps.
- A composting system needs to be placed where it is easy to tend and you know you won't mind going to it regularly with materials.

- If you plan to build hot compost piles; it's also a good idea to create collection sites for yard waste; one bin to store greens, another to store browns, until you have enough materials stored to build a pile.
- It does not matter whether your composting system is placed in sun or shade; the heat of the compost pile is generated by the metabolic energy of the 'decomposers' – **F**ungi, **B**acteria and **I**nvertebrates!

- **The only exception:** an upward-migration worm bin needs to be placed in the shade, and also needs protection from extreme temperatures. A north or east facing covered porch is ideal; and some people keep their worm bins in a shed or in a garage.

# HOW TO COMPOST

**There are as many ways to compost as there are Composters!**

Composting happens in nature all the time**; it's not rocket science!**

We are simply harnessing a natural process, and you can keep it as simple as you want with a passive pile; or sheet mulching to create healthy soil in place; **and just let it rot!**

Or you can build hot piles in plastic bins or elaborate three-bin systems; create finished compost within weeks in tumbler batches, or raise worms to make vermicompost; and have nutrient rich products ready for each new planting season.

We'll show you how in the Hands-on Workshops.

A Pile of Compost that can be passively managed;
adding materials as you have them, turning from time to time,
and keeping it moist as a ‘wrung-out’ sponge.

# HOW IT WORKS

We humans gather up organic materials, cut or shred them to expose more surface areas, and then layer these materials up; alternating between carbon-rich ‘browns’ and energy-rich ‘greens’.

We water as we build the pile; mix it up a little, and then let the decomposers go to work on it!

Different organisms work in succession;

**The first group are the macro-organisms**;

snails, slugs, sowbugs, pillbugs, earwigs, millipedes, and earthworms; all decomposers simply reducing plant materials as they feed, and creating still more surface area for micro-organisms.

Decomposition occurs slowly in this ‘steady zone’ where temperatures stay at about 80 to 100 degrees. When the pile starts to heat up the macro-organisms move to the cooler edges of the compost pile.

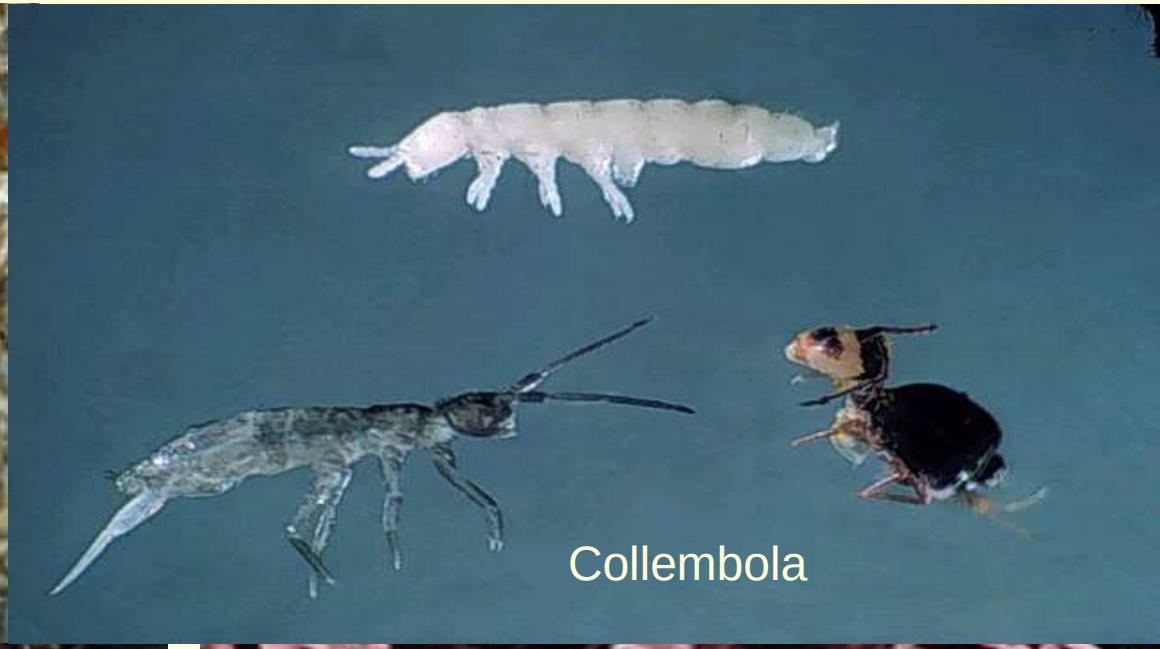
Some of the Macro-organisms you can find in the compost pile

# THE SECOND WAVE OF DECOMPOSITION

The next group of organisms that go to work on the pile are much smaller creatures; some like collembola and springtails, small, white ‘pot worms’, molds and some fungi, can be seen with a hand lens; but many are micro-organisms like actinomycetes, protoza, and bacteria. These organisms live and work at temperatures of 100 to 130 degrees, and decomposition process starts to accelerate.

When the pile starts to cool it’s time to mix up the materials a bit; check on the moisture levels and the balance of greens to browns. The reshuffling of matter will get the next group of organisms started.

# The second wave of decomposers



# THE THIRD WAVE OF DECOMPOSITION

This group of micro-organisms are called ‘thermophiles’; heat-loving bacteria that work at temperatures of 150 to 160 degrees. At this temperature most weed seeds, and some pathogens are killed.

Really hot piles are created with careful building and monitoring of the conditions of the compost pile.

Keeping the pile moist allows all these processes to work; decomposition slows considerably in dry conditions.

When the center of the pile stays at ambient temperatures, and most of the original materials are no longer in a recognizable form;

the compost is finished!

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# Sheet Mulching – creating fertile soil in place!

Passive Piles
Just Let it Rot!

# 3 – BIN SYSTEMS

Custom-built bins

Bins made from recycled pallets

# Wire and Plastic Bins

# Soil Saver Bin

With this bin style you can keep adding materials, monitoring the decomposition process, and harvest finished compost anytime by lifting the bottom panel.

# BIO-STACKS

Bio-stacks can also be set up to function as small 3-bin systems.

# GARDEN GOURMET

Slightly narrower and taller than a Bio-Stack or Soil Saver – great for smaller gardens.

# COMPOST TUMBLERS

Tumblers are designed to make a ‘batch’ of finished compost in a short period of time.


# UPWARD – MIGRATION WORM BINS

Red Wiggler Worms

*Eisenia fetida* – mature worms above – ‘baby’ below -

Red Wiggler Worms – sometimes also called ‘Manure Worms’ can digest most vegetable matter.
**The worms eat the parts of food that humans don’t, such as;**
Banana peels
Melon rinds
Potato peels
Apple cores and peelings
Coffee grounds and filters
Tea bags
Moldy veggies and spoiled fruits

You can also feed worms;
Comfrey
Alfalfa pellets
Chicken mash
Crushed egg shells

And those giant zucchini that seem to grow overnight!

# HOW TO USE COMPOST

- Compost is ephemeral – it needs to be re-applied on a regular basis.
- Compost – applied from the top-down in garden areas – provides established plants with all the nutrients needed.
- Compost can be mixed into the soil when planting.
- Compost can be added into a planting hole.
- Compost can be applied to plants growing in containers.
- Some vegetable plants – such as squashes and tomatoes – like to grow in compost piles!
- Finished compost – or vermi-compost – can be used to make special ‘compost teas’ that can be used as a ‘soil drench’ or a ‘foliar spray’ to improve the health and vigor of both the soil and plants.
- Compost = healthy soil = healthy plants = beautiful, healthy gardens.

# Make the Most of ALL the Natural Resources available in your Home and Garden

To remove these organic materials from around plants, and your land, is similar to ‘mining the soil’; just taking the product you want, but leaving the land in a degraded condition.

Let plant materials Recycle on Site; enriching the land by with a sustainable practice of replenishing nutrients and facilitating the natural re-cycling processes.