

Backyard Composting



Granville Garden Club
7/11/2018



Compost vs Mulch

Compost is full of nutrients that we want to get down in the soil to feed the plants through their roots.

Mulch is the layer of organic materials placed on the top of the soil as a protective cover.



Why Compost?

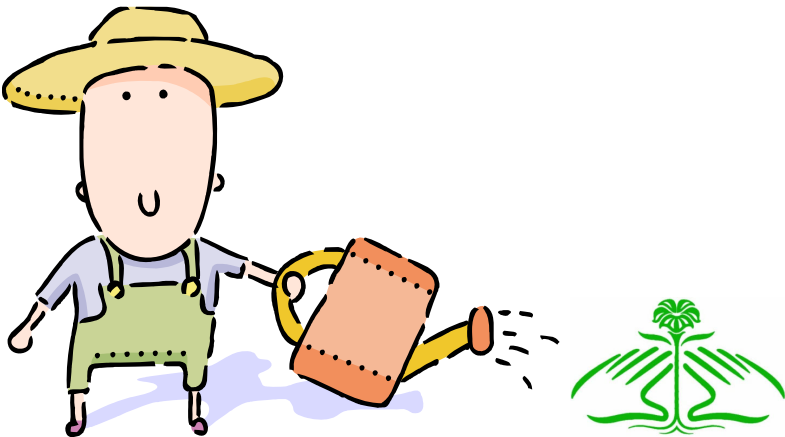


- Recycle waste materials
- Enhance soil structure
- Reduce soil losses from erosion
- Improve oxygen availability in soil
- Increase organic matter
- Increase essential plant nutrients
- Increase biological activity
- Conserve water



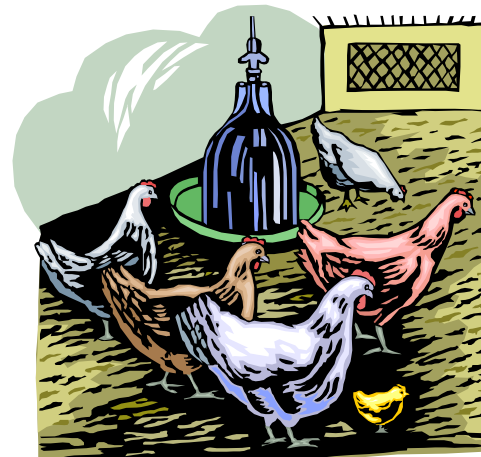
What Makes Compost?

- Raw materials (chemical composition)
- Organisms present
- Moist, oxygen-rich environment
- A dedicated space
- An observant, yet patient gardener



Raw Materials

- Kitchen waste
- Yard Waste
- Shredded paper/newspapers
- Floor sweepings
- Vacuum cleaner contents
- Wood ashes (some, not a lot)
- Shredded green yard waste
- Animal manure
- Spoiled hay
- Be creative – watch for materials



Materials NOT to Compost

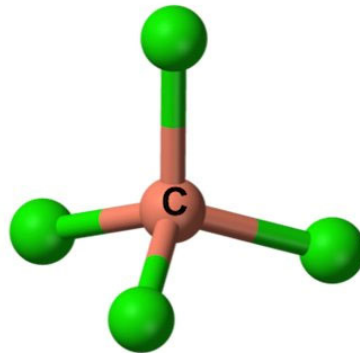
- Meat/Fat Scraps
- Grease/Oil
- Pet Waste (parasites may be present)
- Large Woody Material
- Diseased Plants
- Weeds Gone to Seed
- Toxic Materials (paint chips, etc.)



The Basics-Just Science

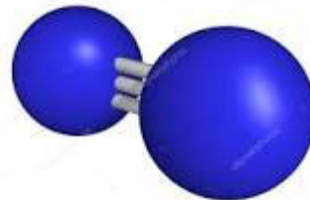
It's all about

CARBON



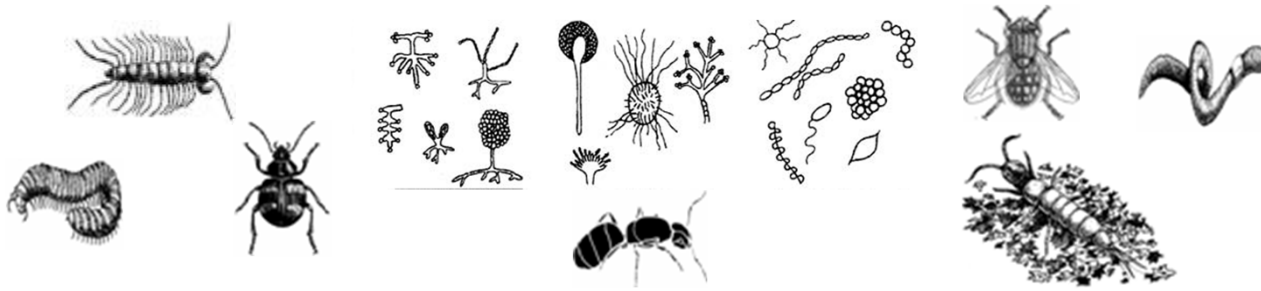
and

NITROGEN



The Basics-It's Gross!

Micro and Macro Organisms



EAT

Carbon and Nitrogen
in Decaying Materials



Factors that Impact the Process

- Materials – the “Food”
- Air – Oxygen needed for organisms
- Moisture – Water dissolves organic molecules
- Temperature – Determines speed of process
- Particle size – Affects rate of breakdown
- Volume – Determines heat retention



Impact of Low & High C:N Ratio

- Composting materials with a very low C:N ratio of 7:1 would rot very quickly, because they are high in nitrogen, eg. fish, this decomposes very quickly
- Composting materials with a very high C:N ratio of 500:1 would take a long time to decompose, because they are low in nitrogen, and need to be broken up, eg. tree branches



C:N Ratios of Some Materials

Food wastes	15:1
Sawdust, wood, paper	400:1
Straw	80:1
Grass clippings	15:1
Leaves	50:1
Fruit wastes	35:1
Rotted manures	20:1
Cornstalks	60:1
Alfalfa hay	12:1



Take Your Pick

HOT

or

COLD



Comparing Hot & Cold Composting

Cold Composting

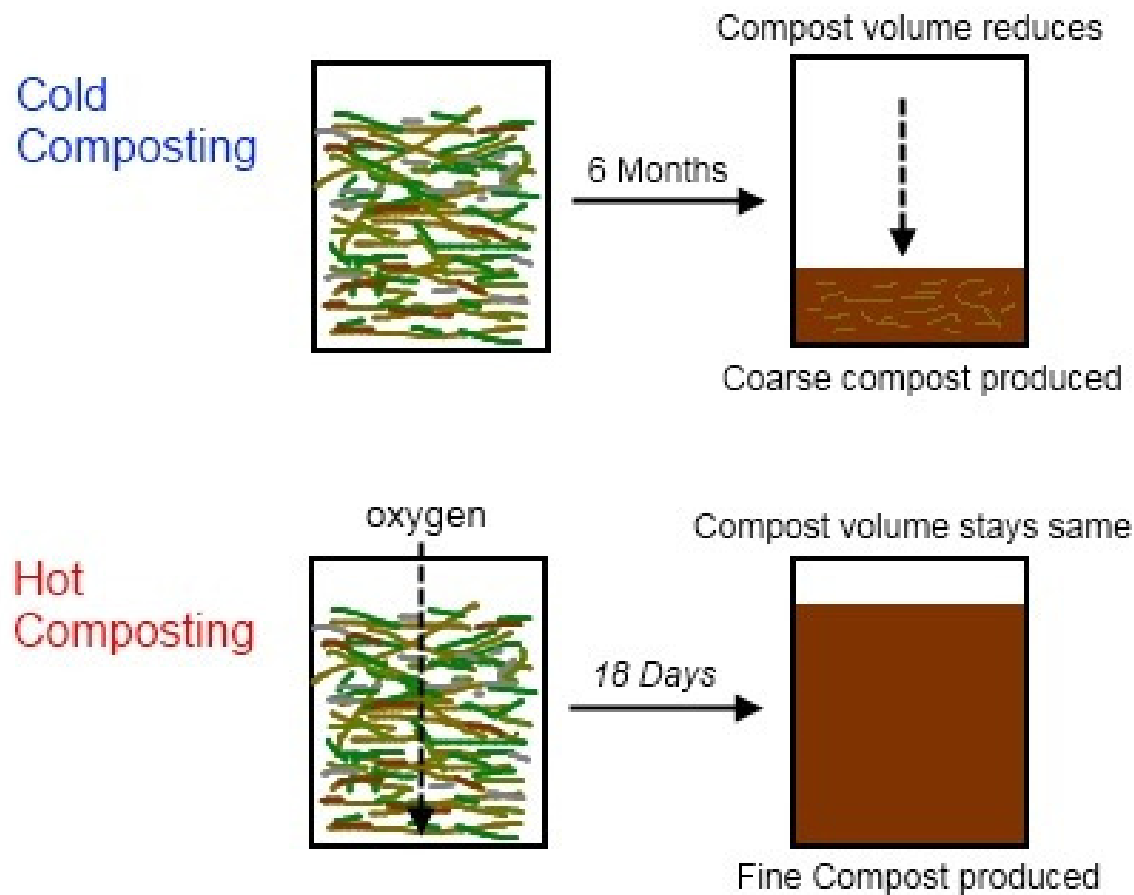
- Fast
- High Maintenance
- Pile can catch on fire
- Heat can kill bacteria that suppress soil borne diseases

Hot Composting

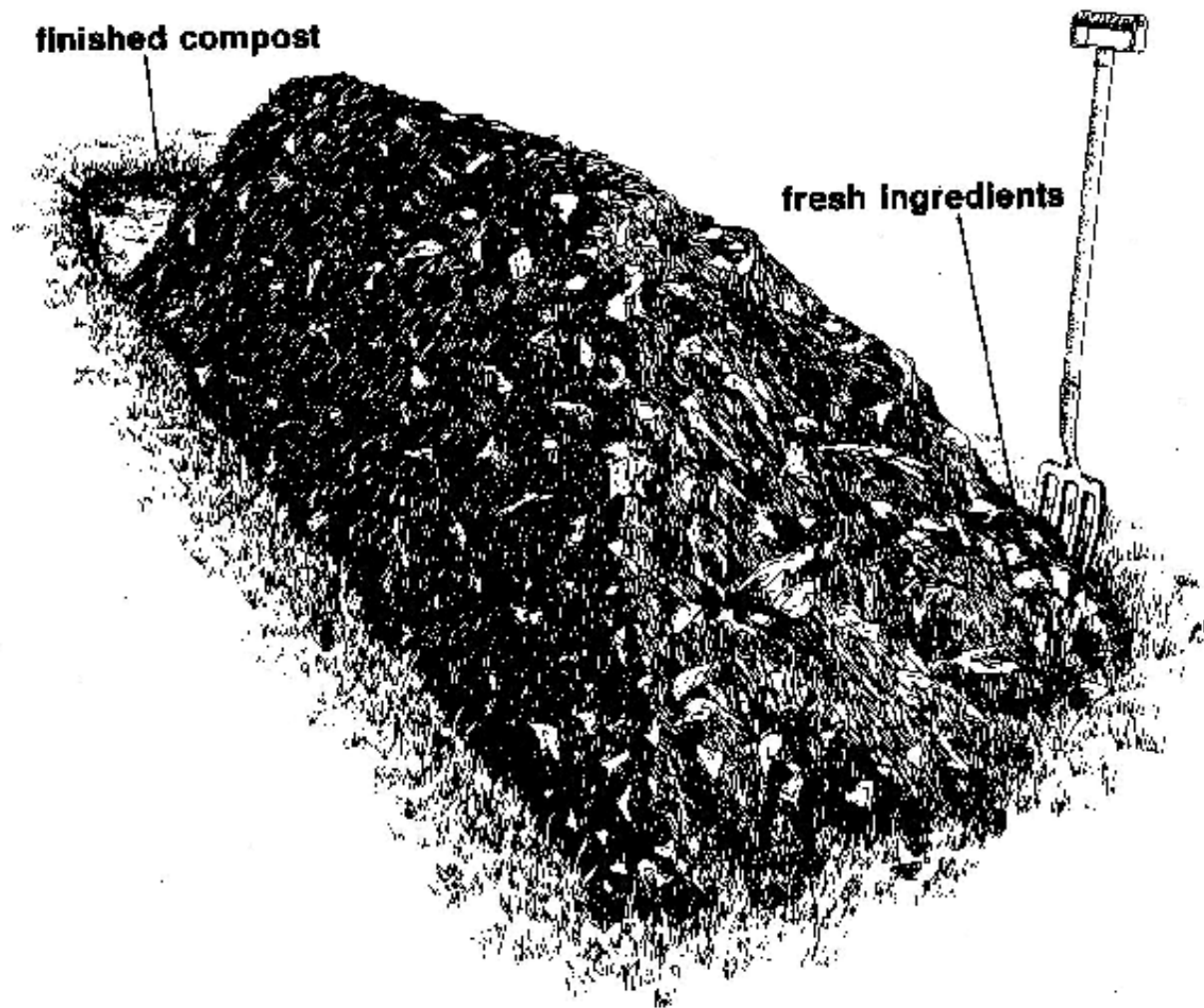
- Slow
- Low maintenance
- Can be added to over time
- Vulnerable to weeds
- Can become smelly



Comparing Cold & Hot Composting



Methods: Wandering Pile



Methods: Add-As-You-Go



Methods: University of CA

Berkley Method (Quick-Hot)

- Build compost heap
- 4days – no turning
- Then turn every 2nd day for 14 days



GENERAL STEPS

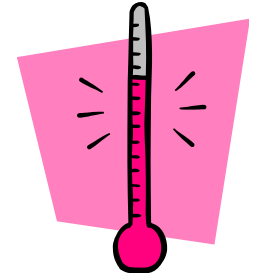


Initial Pile Construction

- **1st layer:** 3-4" of chopped brush or other coarse material (air circulation)
- **2nd layer:** 6-8" of mixed scraps, leaves, grass clippings, etc.
- **3rd layer:** 1" of soil serves as an microbial inoculant
- **4th layer:** (optional) 2-3" of manure to provide the nitrogen needed by microorganisms
- Repeat until desired height/volume



Compost Temperature

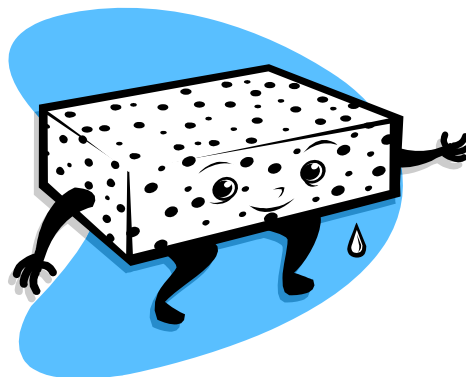


- Well constructed piles will reach 140 degrees F in four or five days
- Decomposition will occur between 50 and 105 degree F (cool compost)
- Temperatures ranging 110 to 150 degrees F will kill many pathogens and weed seeds (hot compost)
- Spontaneous combustion can occur at higher temperatures – be careful



Compost Moisture

- Too much limits oxygen and can leach nutrients from the pile
- Too little prevents microbial activity
- Ideally, the materials are as moist as a wrung out sponge



Compost Aeration and Turning

- Piles can be turned after 3-4 weeks
- Periodic turning will result in faster composting
- Piles that have stopped working may need additional nitrogen (manure)
- Turning tools are available



Compost Application

- If limited, use compost as a soil amendment
- If abundant, use compost as a top dressing or mulch

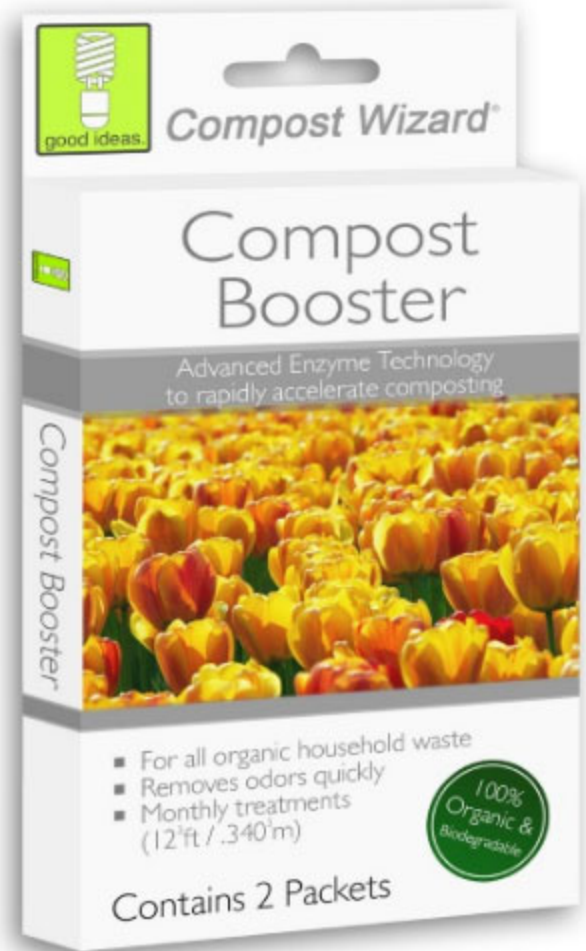


Tips (again) on Heating up the Mix

- Make sure you have enough “green”. Ratio should be 4 brown to 1 green
- Is the pile wet enough? Should feel like a damp sponge when squeezed
- A cool pile may mean low bacteria. Toss on a handful of dirt
- When did you last turn it? Aeration is critical!
- Use a compost “helper” or accelerator



Compost Helpers



Compost Helpers

Recipe 1:

In a 5 gallon bucket put:

- 2 shovelfuls of good garden soil
- one packet of dry
- 1/4 cup of molasses

Add warm water to fill the bucket within 3 inches of the top and stir. Place the bucket in the sun and stir every few hours for 24 to 48 hours. Once the accelerator is brewed, pour the mixture over the compost pile.



Compost Helpers

Recipe 2:

In a 5 gallon bucket put:

- 1 gallon of warm water
- 1 can of flat, warm beer
- 1 can of cola
- Mix in $\frac{1}{2}$ cup of household ammonia

Stir well, until all of the ingredients are thoroughly blended and then pour the solution slowly over the compost heap.

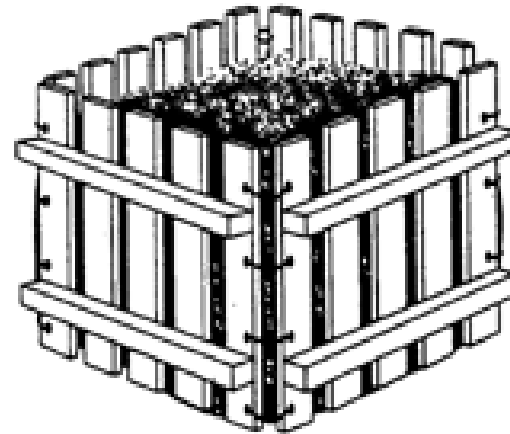
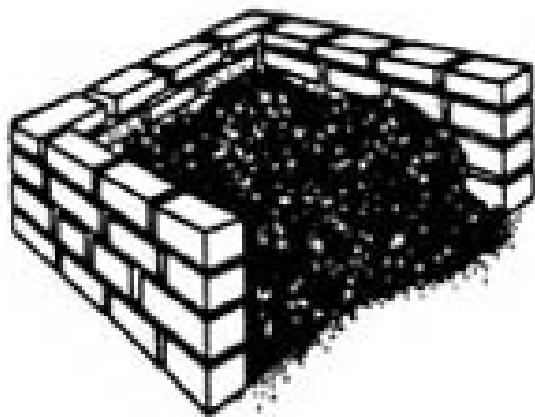
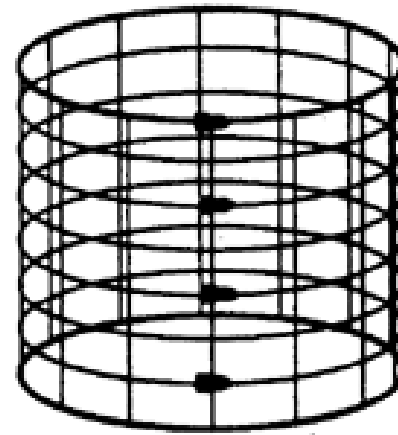
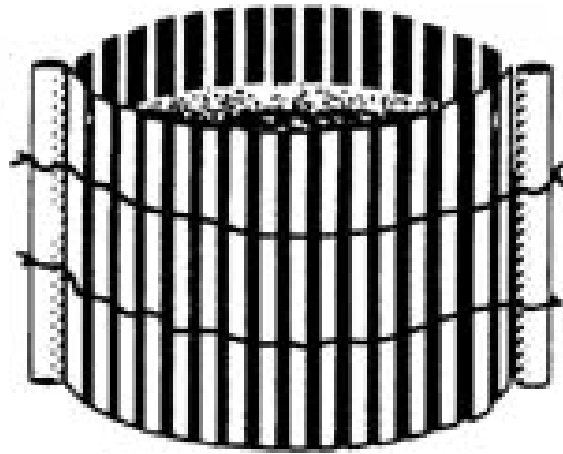


Composting Tools

- Essential
 - Spading or Pitch Fork
 - Water Source
- Optional
 - Thermometer
 - Bin(s)
 - Chipper
 - Turning Tool



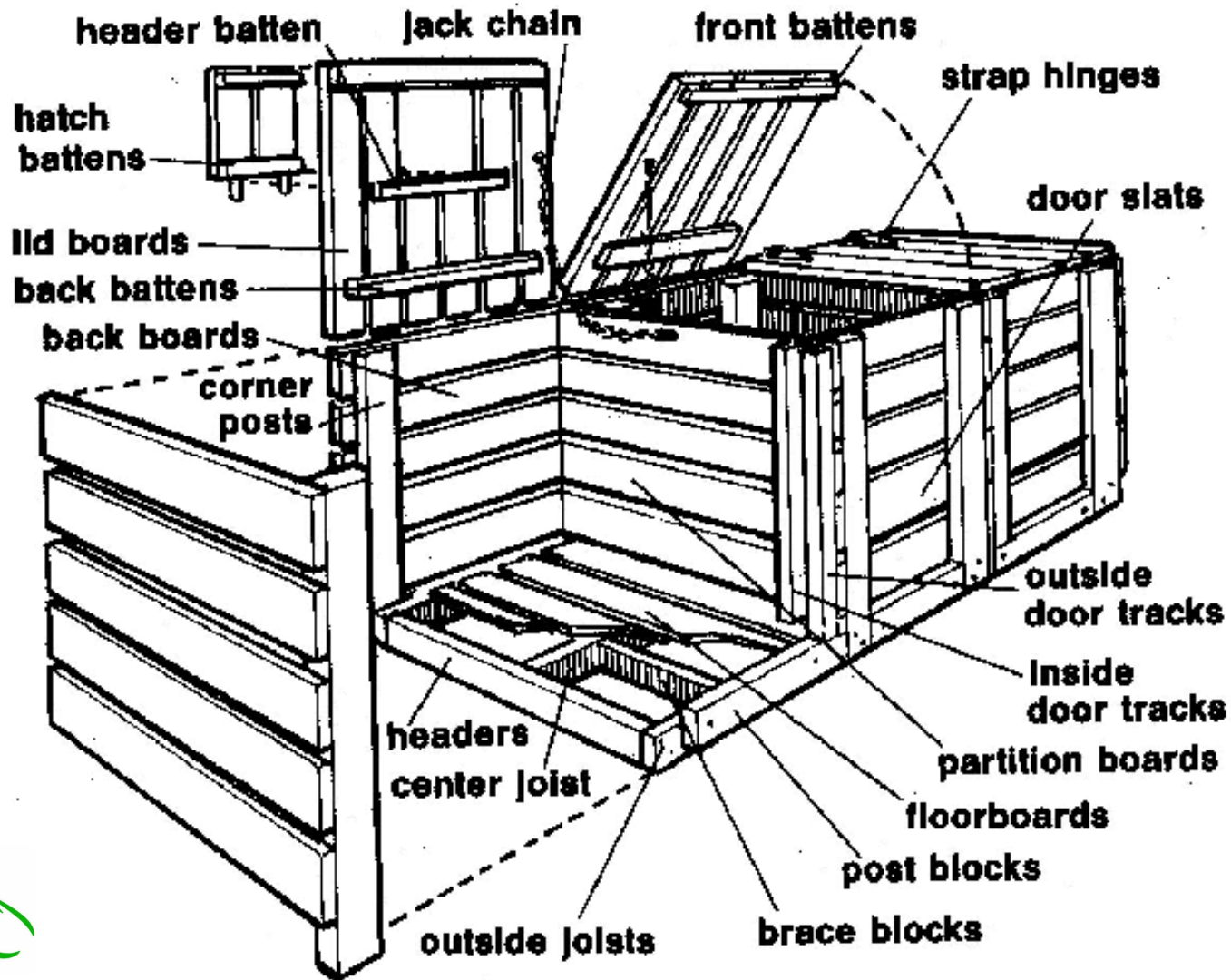
Containers: Homemade Bins



Containers : Prefab Bins



Containers : Three Bins



Containers : Rotating Drum



Chippers and Shredders



Electronic



Hand crank



Home made





My composters



Vermicomposting

- Manure worms, red wigglers, or brandlings are used
- Need a protected environment and regular monitoring
- Covered bins limit odors and unwanted insects
- Material should be ground up or blended before feeding
- Worm castings are super-charged compost





Final Thoughts on Composting

- Use method that fits your style
- Don't make it too complicated
- Vegetable gardens can rarely have too much organic matter
- There are few valid excuses for not composting

