City of Davis Composting Class

- Backyard composting
- Worm composting
- In-ground composting
- Food digesters
ORGANICS

FOOD SCRAPS
FOOD-SOILED PAPER
YARD TRIMMINGS

YES
- fruits & vegetables
- bones
- eggshells
- rice, beans & pasta
- meat, poultry & seafood
- dairy products (no liquids)
- milk cartons, ice cream cartons
- and other cartons found in the refrigerated section of stores
- greasy pizza boxes
- wadded papers
- tea bags
- coffee grounds & filters
- paper products & paper towels
- facial tissue
- paper plates
- paper take-out food packaging
- plants & flowers
- yard trimmings

NO
- plastics
- glass
- metals
- dirt, rock & concrete
- cutlery
- non-compostable material

Place food scraps in paper bags, compostable bags or compostable containers BEFORE placing them in the organics cart.

PLACE ALL FOOD SCRAPS IN PAPER OR COMPOSTABLE BAGS OR CONTAINERS

NO PLASTIC, GLASS OR METALS
What is compost?

- Nature’s own way of recycling
- The controlled decomposition of organic material
  - The process includes bacteria, fungi, and other macro and micro organisms
- A soil amendment product that results from proper composting
Why should we compost?

- Healthy soil
  - Return nutrients to the soil
  - Natural fertilizer
- Reduce waste

- Are you composting already?
- What are you composting?
  - Yard materials
    - Backyard composting
  - Food scraps
    - Backyard composting?
    - Worm composting
    - Food digester
    - In-ground composting
Grasscycling

- Leaving lawn clippings on the grass
- Mulch mower
- Follow the “1/3 rule”
  - Never remove more than 1/3 the height of the grass blade in any one mowing.
- Reduces the need for fertilizer
- Increases water retention
Backyard Composting

- The compost bin
  - Hoop bin
  - Store-bought bins
- Reuse bins
  - Pallet bin
  - Chicken wire
  - Nursery flats
- Multiple bins
- Pile composting
Presto Geo Bin

- Size is adjustable
- Made from recycled plastic
- Available for $10 to Davis residents in single-family homes
Placing your compost bin

- **Must have contact with soil**
  - Do NOT place on concrete

- **Do not place against structures**
  - Wood fencing, buildings, etc.

- **Sun**
  - Helps maintain heat
  - Dries out faster

- **Shade**
  - Helps maintain moisture
  - No warming effect
What to compost?

- Aim for a mix of 50/50 mix of greens and browns
- Do not add invasive weeds, diseased plants, or large pieces of wood

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>- dry leaves</td>
<td>- fresh grass clippings</td>
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<td>- sticks</td>
<td>- green leaves</td>
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<td>- dried grass</td>
<td>- coffee grounds</td>
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<td>- hay</td>
<td>- fresh pulled weeds</td>
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<td>- sawdust</td>
<td>- chicken manure</td>
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Carbon: - dry leaves, sticks, dried grass, hay, sawdust
Nitrogen: - fresh grass clippings, green leaves, coffee grounds, fresh pulled weeds, chicken manure
Adding Food Scraps

- Food scraps should never be more than 10% of the total pile volume
- Bury them deep
- Chop them up for faster decomposition
- Do not add meat, bones, dairy products, pet feces, fats, oils, or grease
Adding material to your pile

- **Size matters**
  - Think about the surface area
    - Small stuff breaks down faster than large pieces
  - Minimum 3’ x 3’ x 3’ pile
    - To retain heat in the pile

- **Mix the material**
  - Layer greens and browns
  - Balanced “diet”
  - Always make sure food scraps are buried

- It’s OK to continually add material to your pile
Moisture in your compost pile

- 40% moisture is ideal
- Test your pile
  - Pull out material from the center and squeeze
    - Dripping water = too wet
    - Dry and prickly = too dry
    - A few drops of water in your palm = perfect!
- Rainy season - cover your pile
- Hot, dry weather - add water
Temperature

- Evidence of activity - metabolic heat
- 120° - 140°
- Maintain the heat for several days
- Heat kills weed seeds, pathogens
- Increase temperature
  - Add water
  - Turn the pile
  - Add greens
  - Keep the pile at least 3’ x 3’ x 3’
Turning your pile

- Adds oxygen
  - aerobic decomposition
- Mixes materials
- Deters pests
- Turn every 1 to 2 weeks for maximum aeration
  - Required if you add food scraps
- More turning = faster composting
Harvesting your compost

- Compost should be ready in 3 - 6 months
- Turn pile - remove the brown “dirt” at the bottom
- Cure it first!
  - Lay it out in the sun to dry
- Using compost
  - Mulch
  - Soil amendment
    - Top dressing or work it into the soil
  - Potting mix
Troubleshooting

- **Smelly Pile/ Pest Problems**
  - Too much food waste
    - Stop adding food scraps and greens
  - Too wet
    - Add dry, brown material
  - Anaerobic
    - Turn your pile

- **No Heat/Slow Decomposition**
  - Too dry
    - Add moisture
    - Add green material
  - Pile too small
    - Add material
Food Scrap Composting

- Vermicomposting (worm composting)
- Food digester
- In-ground composting
Food Scrap Composting

**YES**
- Fruit & vegetables
- Bread, rice, & pasta
- Tea bags
- Coffee grounds & filters

**NO**
- Meat & bones
- Fish
- Dairy
- Fats, oils and grease
- Salad w/ dressing
- Pet feces (dogs & cats)
  - Horse, cow, chicken, rabbit manure is OK in backyard compost pile only
Worm Composting

- Ideal for apartments, small places
- Only for food scraps
- Getting started
  - Bin
  - Location
  - Bedding
  - Worms
  - Food scraps
Why Worms?

- Worm castings are highly a nutritious fertilizer
- Worm tea?
- Fun method of composting food scraps
- Pest resistant
“Concerning worms...”

- Where do you find worms?
  - Cool, damp soil
  - Near the top 2 feet of soil
  - Soft, aerated soil
  - Never in the sun

- Ectotherms (cold-blooded)
  - Active when warm

- Hermaphroditic
  - Each worms creates a cocoon

- Porous skin
  - Absorbs moisture
  - Sensitive to pH
Purchasing a worm bin

- Different styles
- Most have spigot to collect leachate
- Range of prices available
Make your own worm bin

Plastic storage tote with lid

- Opaque
- 18 inches deep is best
  - Deeper—no oxygen
  - Shallower—no insulation
- Punch holes
  - In the bottom & lid
  - NO LARGER than 1/16”!
- Will your bin be located indoors?
  - Buy 2 bins
  - don’t punch holes in one
Location

- MUST be in complete shade!
- Be wary of asphalt and concrete
- Protected area where there is no frost
- You may need to move the worm bin occasionally
  - Think about the size of your worm bin
- Winter: Insulate your bin
  - Wrap with blanket, straw bales
  - Bring it indoors to a garage
- Suggested locations
  - Against a building in the shade
  - Under a porch
  - Garage
  - Under the sink
  - Deep shade under a bush or tree
Worm Bedding

- Bedding is a food source and an environment
  - Think of it as water in the fish bowl
- Suggested bedding materials
  - Shredded newspaper
  - Shredded paper
- Dampen the bedding FIRST

It takes a LOT of paper to fill a bin.
How much bedding?

- Bedding is for worms like water is for goldfish
- Fill the worm bin up to the top, leaving only 2-3” of space left for air
- More bedding = more insulation
- Add more bedding as needed
  - Worms will eat it
- Add a small amount of dirt
Composting Worms

- Red wigglers
  - *Eisenia foetida* or *Lumbricus rubellis*
- Locally available
  - City of Davis Public Works ($5)
    - Not currently available
    - Call first—talk to Jennifer G. directly
    - Arrange a time
    - Bring your worm bin!
      - Bedding, holes prepared
  - UC Davis Project Compost
  - Local hardware stores
Feeding your worms

- Move back the bedding
- Place the food scraps in the bin
- Cover the food scraps with the bedding
  - Always cover with at least 2 inches of bedding!!
Feeding your worms

► Don’t overfeed your worms!
► Feed only once a week
► Feed on one side of the bin at a time
► Chop food up for faster composting
► Watch the pH level
  ► Citrus, coffee grounds
When can I harvest the compost?
Harvesting the worm compost

- Put your worms on a diet for a few weeks
- Feed on one side of the bin
- Remove the compost from the other side
  - Only remove ½ of the compost
    - Worms
    - Cocoons
- Spread remaining compost evenly in bin
Harvesting the worm compost

- Make a pile of compost
- Keep removing the upper layer
  - Worms dig down to avoid light
- Place worms back in bin
- Sift out un-composted material
Using worm compost

- Dry it out in the sun and cure it first
- Caution: seeds remain viable!
- Use as a fertilizer, not a mulch
  - Nutrient content varies depending on diet
- Worm tea?
In-Ground Composting

- Find a well-drained area in your garden
  - Garden bed or outside of tree drip-line
- Dig a hole or trench at least 12” deep
- Add 2-3” of food scraps
  - Chop and mix into the soil
- Cover with at least 8” of soil
In-Ground Composting

- Watch for signs of digging animals
  - Not a good composting method with dogs
- Food scraps will be composted in 1-6 months
  - Soil type, season, material added, moisture
- Seeds can be planted immediately
- Large transplants—wait for finished compost
In-Ground Composting Tips

- Best in fall and winter
  - Prepare soil for spring
- Great for vegetable garden beds
- Worms!
  - If you build it, they will come
- Challenges
  - Hard to harvest the compost
  - There may not be places to dig year round
Food Digesters
Make your own food digester

- 32 gallon galvanized garbage can with tight fitting lid
- Drill 1/4”-1/8” holes
  - Approx. 20 holes in the bottom
  - Approx. 20 holes in the lower 1/3
Make your own food digester

- Find a well-drained area in your yard
- Dig a hole to fit the digester
  - 1/2 - 1/3 of digester should be below the ground
  - NO HOLES should be above ground
Using your food digester

- Add food scraps and replace the lid
  - Add scraps daily or weekly as needed
- **Tight fitting lid!**
- No need to add worms
- May take 4-12 months to fill the digester
Beware!

- If left too long...a digester **may** become cockroach breeding grounds.
- Try using the digester as a densifier, or pretreatment to in-ground composting
  - Empty every few months
  - Spray down with vinegar
- **MONITOR** the bug population
- If roaches continue to be a problem...try another method.
Harvesting your compost

► Shovel out the material

1. Dry the composted material out in the sun
   ► Use sparingly - there are more nutrients in composted food waste
   ► Replace the un-composted material in the digester

2. Move all of the material to an in-ground composting system
Troubleshooting your food digester

- Smell and fruit flies
  - Flies and smell *inside* is OK, but not outside
  - Add sawdust, dry grass, shredded newspaper
  - Hang strips of flypaper in your digester

- Pests getting in your digester
  - Secure the lid—tie it to the handles
  - No meat, dairy, fish, or greasy foods
  - Roaches? Use only as a densifier or try a different system
THANK YOU!

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