City of Davis
Composting Class

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City of Davis Public Works Department
Reminder: Kitchen Food Scrap Pail Giveaway!

To enter the drawing:
Please sign in with your name and address.

Winners will be chosen at the end of the class
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?
  – Yard materials on the street
  – Backyard composting
  – Worm bin
  – Food Digester
  – Others?
Types of Composting

• What are you composting?
  – Yard materials
    • Backyard composting
  – Food scraps
    • Backyard composting?
    • Worm composting
    • Food digester
    • In-ground composting
Backyard Composting

• The compost bin
  – Hoop bin
  – Store-bought bins
  – Reuse bins
    • Pallet bin
    • Chicken wire
    • Nursery flats
• Multiple bins
• Pile composting
Pallet Bins

Free pallets are available from the City of Davis Stores Services. Call 757-5657 on Mondays or Wednesdays to request pallets. Bring gloves!
Nursery flats

• Zip-tie flats together
• Flats available from:
  – Local nurseries
  – Farmers Market
  – Landscape companies
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 from the sun 🙁
What to compost?

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>- dry leaves</td>
<td>- fresh grass clippings</td>
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<tr>
<td>- sticks</td>
<td>- green leaves</td>
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<tr>
<td>- bread</td>
<td>- coffee grounds</td>
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<tr>
<td>- coffee filters</td>
<td>- fresh pulled weeds</td>
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<tr>
<td>- dried grass</td>
<td>- fruits and vegetables?</td>
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<td></td>
<td>- no more than 10%</td>
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<td>- bury deep in the pile</td>
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<td>- chop them up</td>
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- 50/50 mix of greens and browns
- Do NOT compost
  - meat, bones, grease, fat, oil, pet feces, invasive weeds, diseased plants, large pieces of wood
Adding material to your pile

• Size matters
  – Small stuff breaks down faster than large pieces
  – Surface area
  – Min 3’ x 3’ x 3’ pile

• Mix the material
  – Layer greens and browns
  – Balanced “diet”
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
  - 3’ x3’ x 3’
  - Insulate in cold weather
Turning your pile

- Adds oxygen
  - aerobic decomposition
- Mixes materials
- Turn every 1 to 2 weeks for max aeration
- More turning = faster composting
- Not in a hurry?
  - Turn when you need compost
Harvesting your compost

- Compost 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
  - Fertilizer
  - 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
Questions?

Reminder:
Kitchen Food Scrap Pail Giveaway!
Food Scrap Composting

• Vermicomposting
  – a.k.a. worm composting
• Food digester
• In-ground composting
Food Scrap Composting

- fruit
- vegetables
- bread
- rice
- pasta
- tea bags
- coffee grounds & filters
Do NOT Compost

- Meat
- Bones
- Fish
- Dairy
- Fats, oils and grease
  - Salad w/ dressing
- Pet feces (dogs & cats)
  - Horse, cow, rabbit OK
Worm Composting

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

- Compost is highly nutritious fertilizer
- Worm tea?
- Fun method of composting food scraps
- Pest resistant
Think like a worm

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

• 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
- $$$
Make your own worm bin

• Plastic storage tote with tight fitting lid
  – Opaque
  – 12 – 18 inches deep is best
    • Deeper—no oxygen
    • Shallower—no insulation
  – Punch holes
    • in the bottom
    • In the lid
    • NO LARGER than 1/16”!
– Will your bin be located indoors?
  • Buy 2 bins
  • don’t punch holes in one
Make your own worm bin

• Wooden box
  – Hinged lid
  – Holes in bottom
  – Permanent location
Summer Location

• MUST be in complete shade!
  – Keep out of direct sun
• Be wary of asphalt and concrete
  – Heat conduction
• Suggested locations
  – Against a building in the shade
  – Under a porch
  – Garage
  – Under the sink
  – Deep shade under a bush or tree
• You may need to move the worm bin occasionally
  – Think about the size of your worm bin
Winter Location

- Keep out of direct sun
- Protected area where there is no frost
- Insulate your bin
  - Wrap with blanket, straw bales
  - Bury in ground or compost pile
- Asphalt and concrete
  - Heat conduction
- Suggested locations
  - Against a building in the shade
  - Under a porch
  - Garage
  - Under the sink
  - NOT out in the open—frost!
Worm Bedding

• Bedding is a food source and an environment
• Suggested bedding materials
  – Shredded newspaper
    • this is the best!
  – Shredded paper
  – Coconut hulls
  – Decomposing leaves
  – Peat moss
• Dampen the bedding FIRST
How much bedding?

- Bedding is for worms like water is for goldfish
- At least 6 inches
- More bedding = more insulation
- Leave 2-3” of air
- Add more bedding as needed
  - Worms will eat it
- Add some dirt
Composting Worms

• Red wigglers
  – *Eisenia foetida* or *Lumbricus rubellis*

• Locally available
  – City of Davis Public Works ($5)
    • Call first—talk to Jennifer G. directly
    • Arrange a time
    • Bring your worm bin!
      – Bedding, holes prepared
  – UC Davis Project Compost
  – Davis Ace Hardware
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!!

Tip: Are your worms indoors? Add several sheets of damp newspaper on top of your worm bin to keep down flies and odors.
Feeding your worms

• Don’t overfeed your worms!
• Feed only once a week
Feeding your worms

- Chop food up for faster composting
- Watch the pH level
  - Citrus, coffee grounds
- Feed one side of the bin at a time
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

“Best way to compost food scraps in a pest-free environment.”
- Martin Guerena
  City of Davis IPM Coordinator
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
  – 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
• Hard to harvest the compost
Food Digesters

The double-walled solar cone creates a heat trap of circulating air to encourage bacteria growth.

Over 90% of the organic waste in your Green Cone will be absorbed as water by the soil.
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
- Should take 4-12 months to fill the digester
Harvesting your compost

Option 1:
• Remove the un-composted material on the top
  – shovel out the composted material
• Replace un-composted material
  – in-ground composting or curing

Option 2:
• Let it sit for 3-6 months until composted

Option 3:
• Two digesters
  – One with freshly added material
  – One full digester in active composting

When harvesting, watch out for jagged metal around holes!
Food waste compost

• Cure your compost
  – May be wet, soggy & stinky
  – Dry in the sun

• Using your compost
  – More nutrients in composted food waste—use sparingly
  – In-ground composting
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
THANK YOU!

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