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NH Farm to School 2022 Webinar Series

School Composting The Basics & What to Consider

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Presentation Overview

Why compost?

- Benefits of diverting food scraps

Basic science of composting

- What goes in the bin? Basic recipe.

Building your school composting site

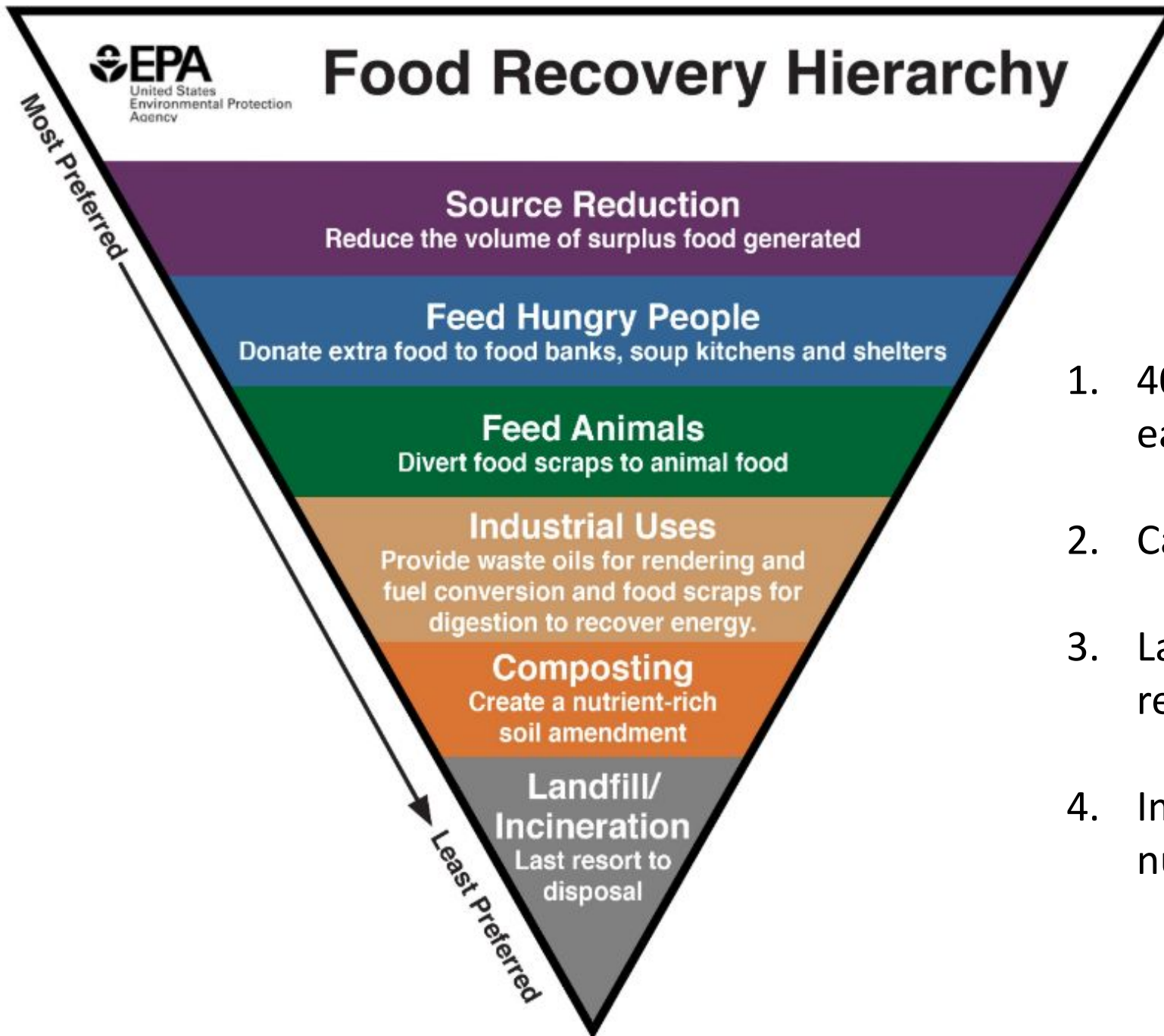
- Site considerations
- Equipment & Supplies
- Community support
- Student engagement
- Waste Audits

CASE STUDY: Brett Community School (Tamworth, NH)

- Successes/challenges

Resources/Grants

Q&A Discussion



Why Compost?

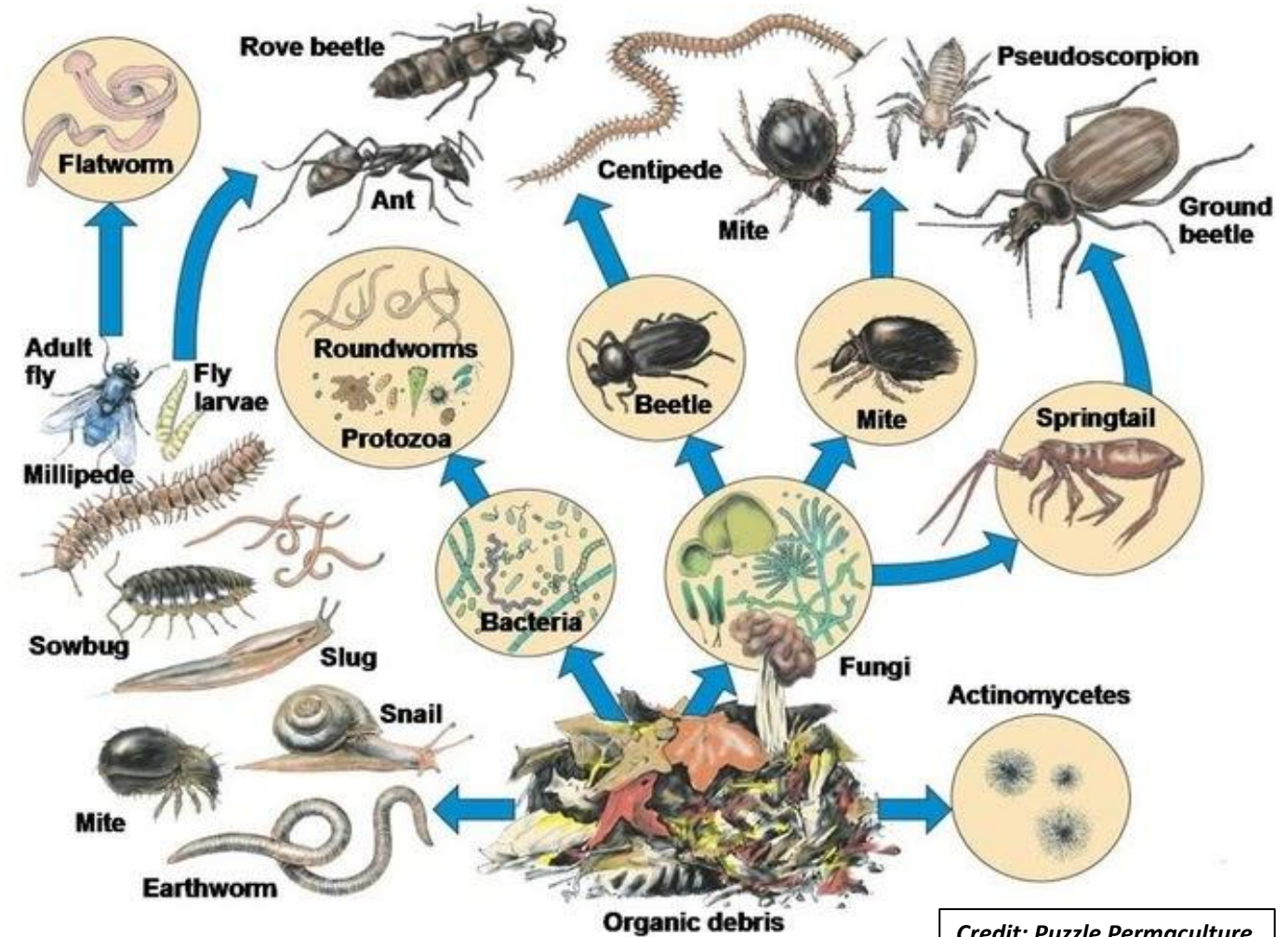
1. 40% of food produced in U.S is never eaten (lost along supply chain)
2. Captures money, time, resource inputs
3. Landfills are not sustainable and release greenhouse gas emissions
4. Improves soil health - replenishes nutrients, increases soil stability



Basic Science of Composting

Your compost pile is a mini ecosystem...

- Controlled, **aerobic** biological process
 - Landfills are **anaerobic** (lack oxygen)
- Microorganisms are the key
- Recycles organic matter
- Converts residue material into a valuable product rich in organic matter and organisms



Credit: Puzzle Permaculture

Raw materials

Process

Product

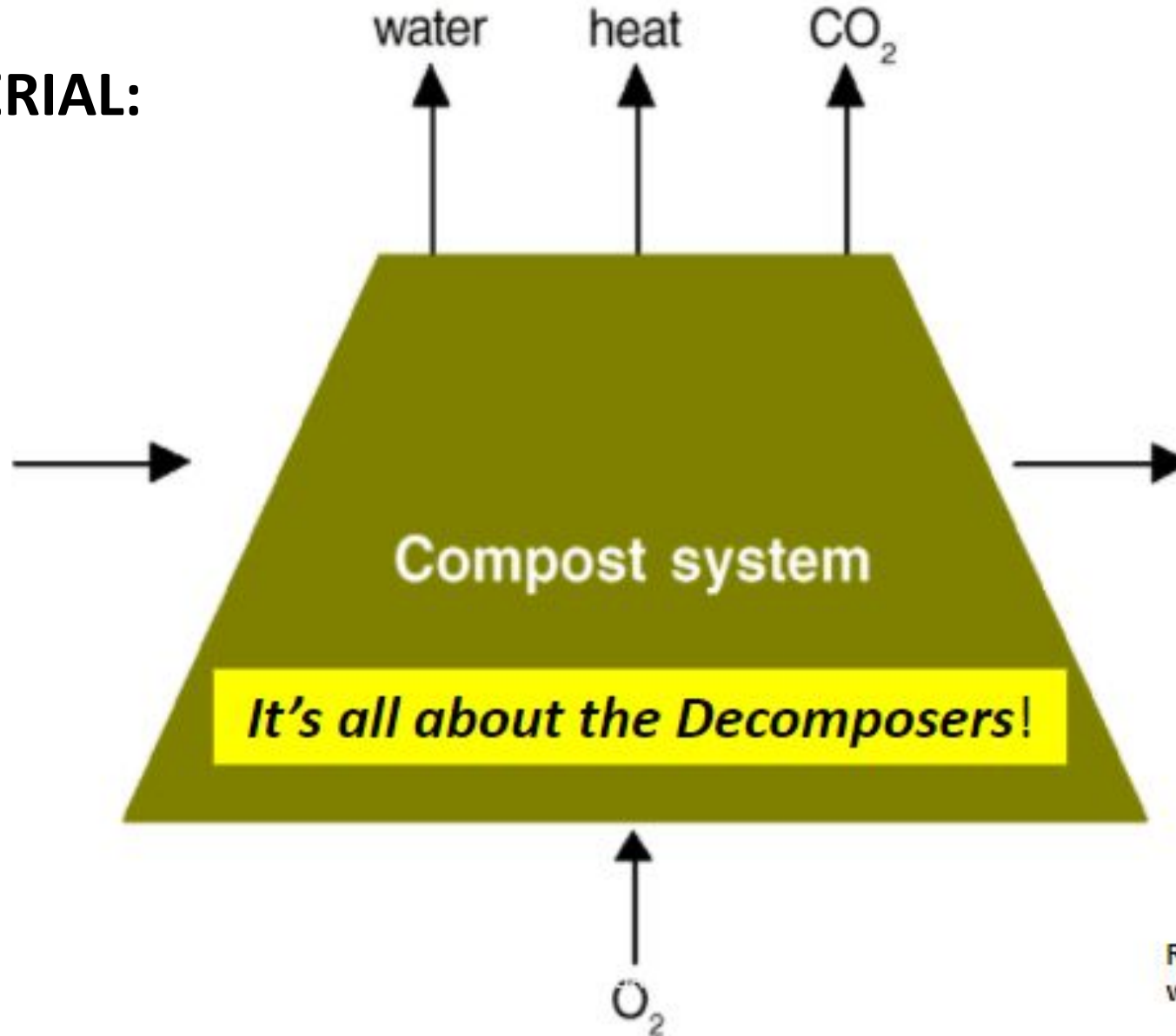
ORGANIC MATERIAL:

- GREENS
- BROWNS

AIR

Water

Microorganisms



Finished compost containing organic matter - including carbon, chemical energy, nitrogen, protein, humus, mineral nutrients, water and microorganisms

Keep your microbes happy!

Setting up the right environment and conditions is fundamental to the process

- **Carbon:** “Brown” materials (dry ingredients)
- **Nitrogen:** “Green” materials (wet ingredients)
- **An initial boost:** a little soil, finished compost, or horse manure
- **Moisture:** like a damp sponge, required to keep microorganisms alive & active
- **Keep the material small:** mowing, grinding, chipping, or shredding
- **Air flow/pockets**

PUT THESE IN THE COMPOST ✓



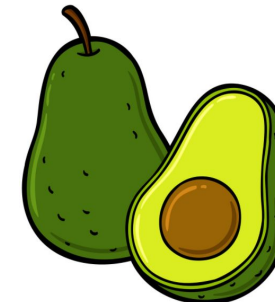
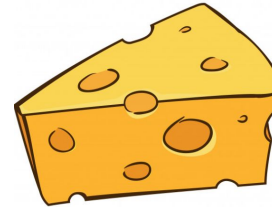
GREENS

BROWNS

	Things to consider...
Fruit & vegetable scraps, peels	Citrus in moderation (acidic)
Nuts & nut shells	Crush them up
Egg shells	
Coffee grounds/filters/tea bags	No staples
Bread/pasta/rice/beans	
Wood shavings & sawdust	Homogenous mix
Leaves/garden trimmings	
Livestock bedding	No cat/dog waste or kitty litter
Straw/hay	
Napkins & shredded paper	Not as sole carbon source (compact easily)

KEEP THESE OUT OF THE COMPOST

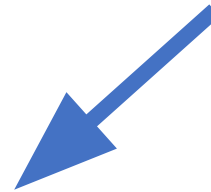
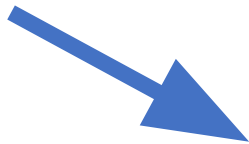
- Meat & bones
- Dairy
- Oils, fats, grease
- Seafood shells
- Cat/dog waste
- Weeds that have gone to seed
- “Tough” food scraps & pits
- Fruit stickers



BASIC Recipe – “Easy as 1 : 3”

“Greens” (Nitrogen)
1 volume

“Browns” (Carbon)
3 volumes



More information and resources about all of today's topics will be available through the shared **GOOGLE DRIVE: [School Composting & Community Tidbits](#)*

Building your school composting site

- **SITE CONSIDERATIONS**
- **EQUIPMENT/SUPPLIES**
- **COMMUNITY SUPPORT**



*What is the **primary purpose** of this compost site?*

- Science lab/hands on activities?
- Food systems education?
- Sustainability?
- Classroom collaboration?
- Efficient food scrap composting to lower carbon footprint & costs?

SMART (**S**pecific, **M**easurable, **A**chievable, **R**ealistic, **T**imely) Goal Setting

Where do I set up my composting system?

- Year-round accessibility
- Away from trash/dumpsters
- Partial sunlight
- Along a tree line, building, shrubbery, fence
 - Wind impacts smell & pile temp.



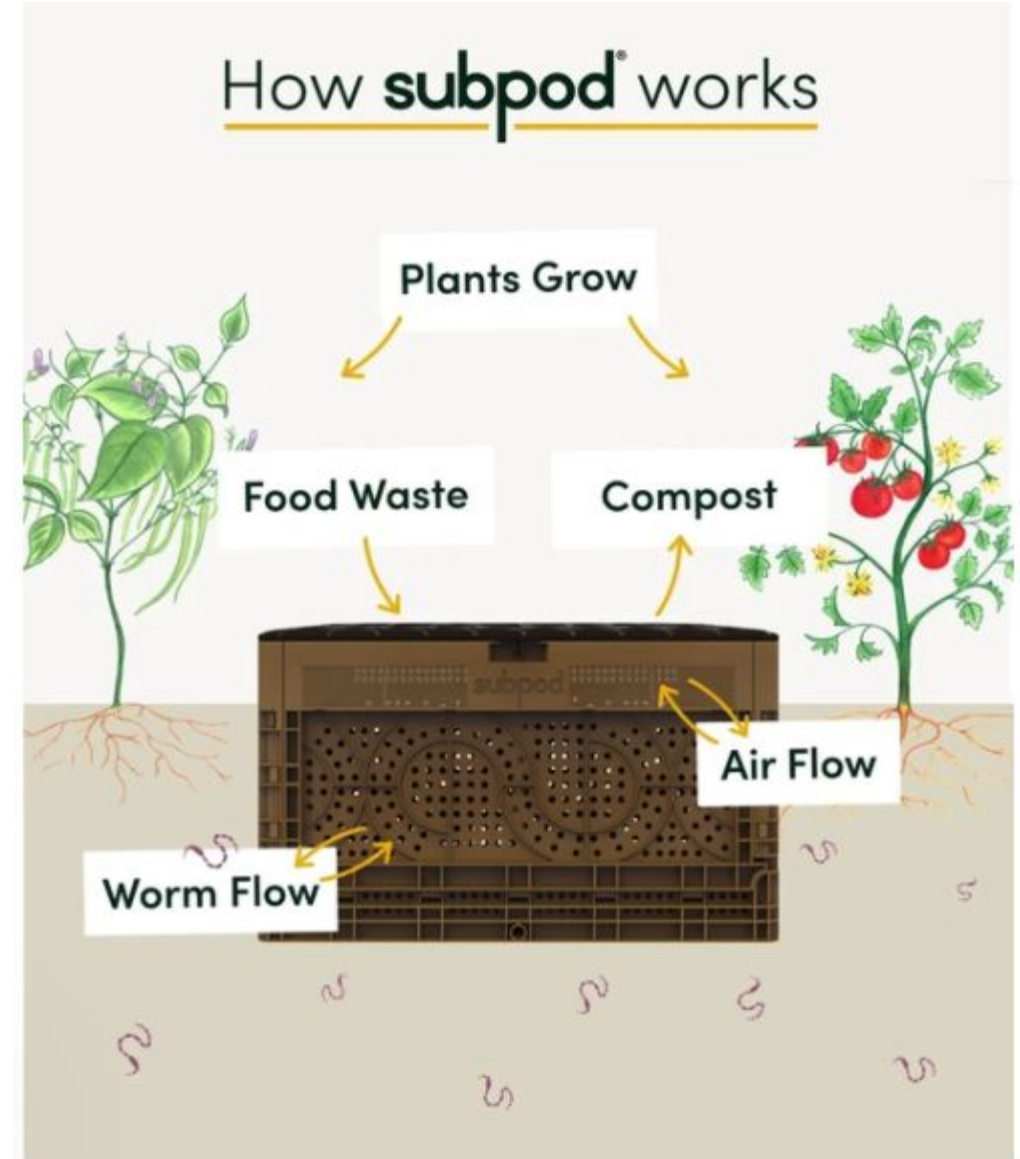
HEAP/PILE



BINS



VERMICOMPOSTING (WORMS)





TUMBLERS

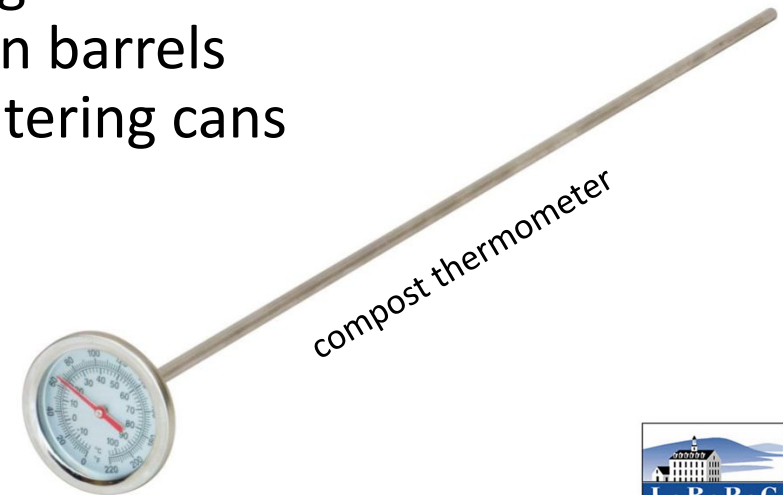
Vertical vs. Horizontal Design



INTEGRATED SYSTEMS

Equipment, Tools, Supplies

- Untreated wood (bins) & building tools
 - Compost turner
 - Thermometer
 - Pitch fork, shovel, trowels
 - Gloves
 - Disposable for handing food scraps
 - Garden gloves for compost management
 - Masks (children/adults with asthma)
 - Wheelbarrow(s)
- Food scrap collection buckets
 - Carbon supply bins w/ lids
 - Log books
 - Locks to secure equipment
 - Watering system
 - Spigot & hose
 - Rain barrels
 - Watering cans



Building Momentum & Community Support

School

- Discuss with Principal/School Board
- Cafeteria staff
- Identify other faculty & staff

Parents

- Send a letter home - describe project
- Identify parent volunteers



Contact stakeholders with mutual objectives

- Partner up! Businesses & community groups can sustain the project
- Donations - time and/or equipment



Things to Consider...



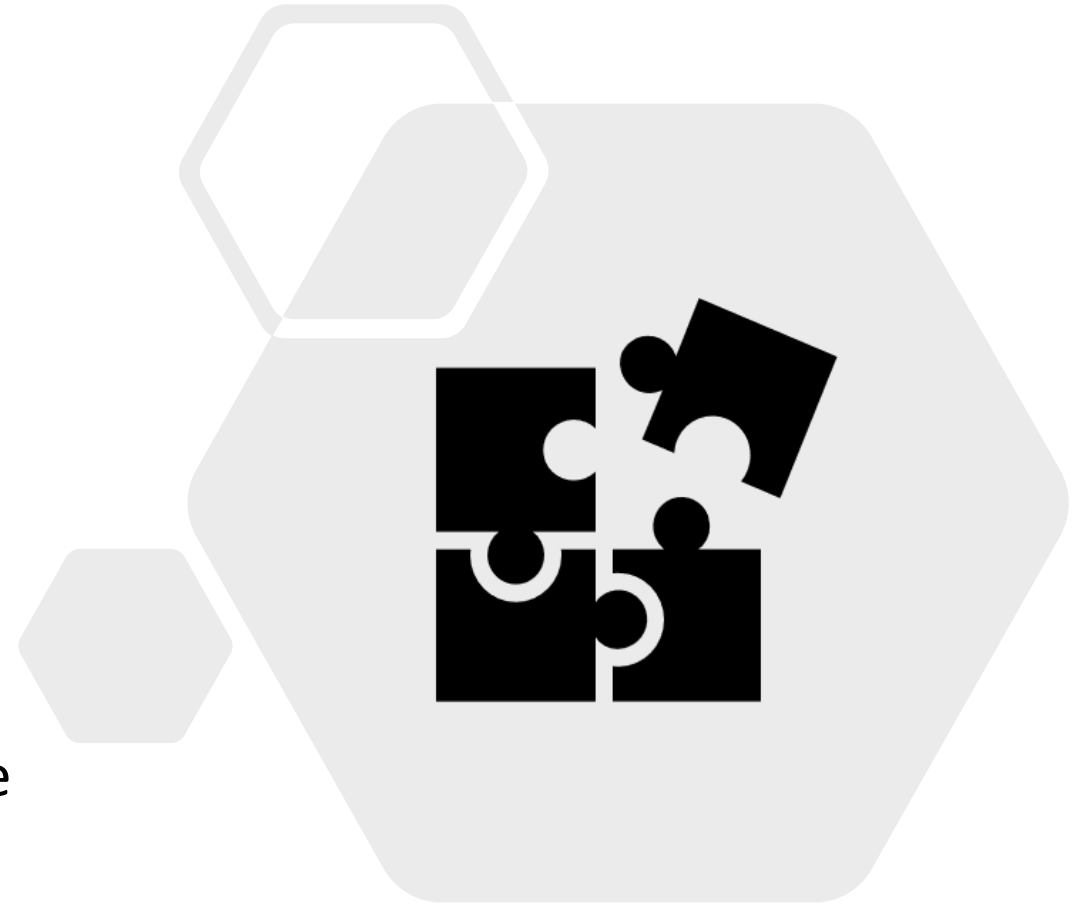
Understand the Best Management Practices

My pile is inactive...

- **New pile?** Add a few scoops of finished compost/soil to kickstart bacteria & microbes
- **Too dry?** Add greens and mix well to aerate

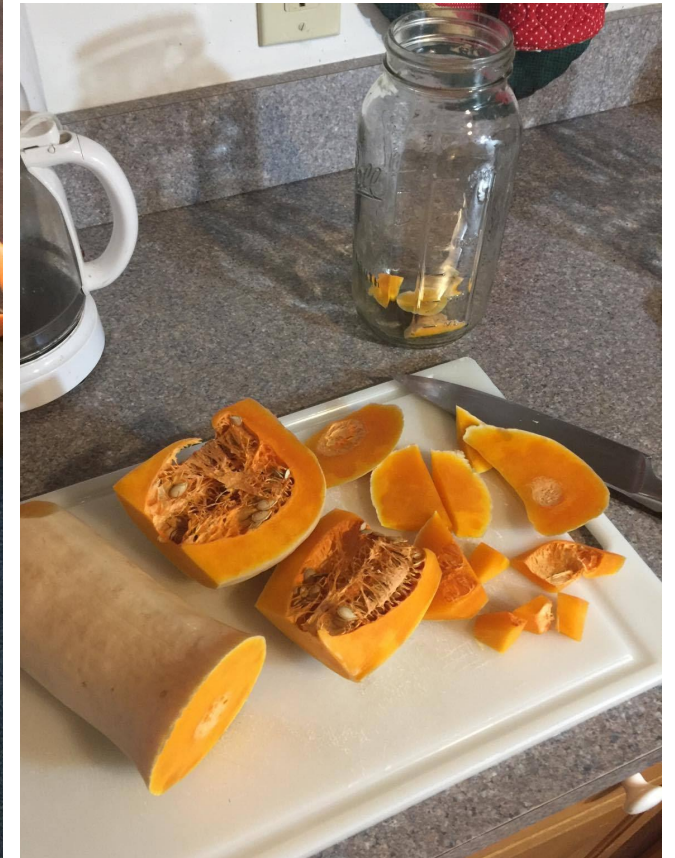
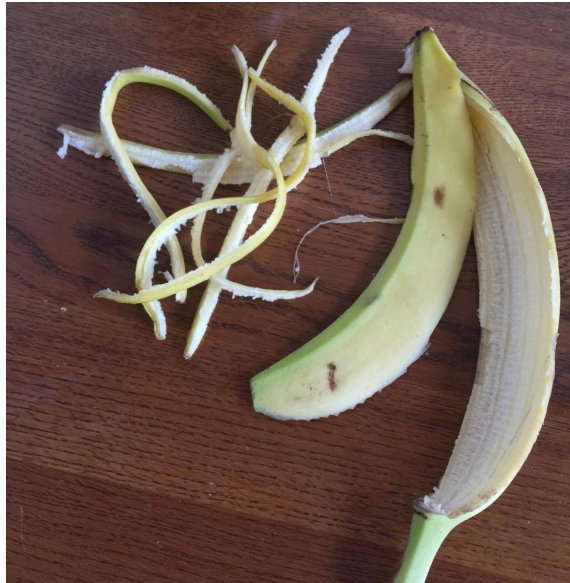
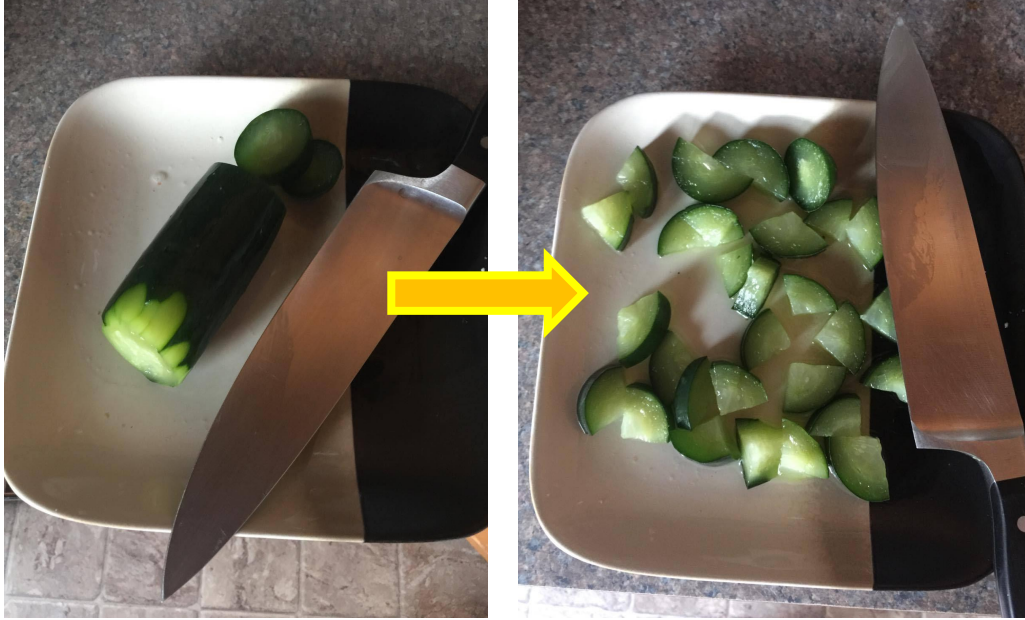
I smell a bad odor...

- **Too damp?** Add browns
- **Compacted material?** Fluff for more air space



CONSIDER MAKING AN **OPERATING PLAN** - refer to [Google Drive](#) resources

BMP: Create space and
different surface areas
fruit salad bite sizes



Engagement

- Napkin holders
- Make a mascot!
- Signs
- Stickers
- Badges/Composter Sash
- “Trash on the Lawn Day” (Waste Audit)



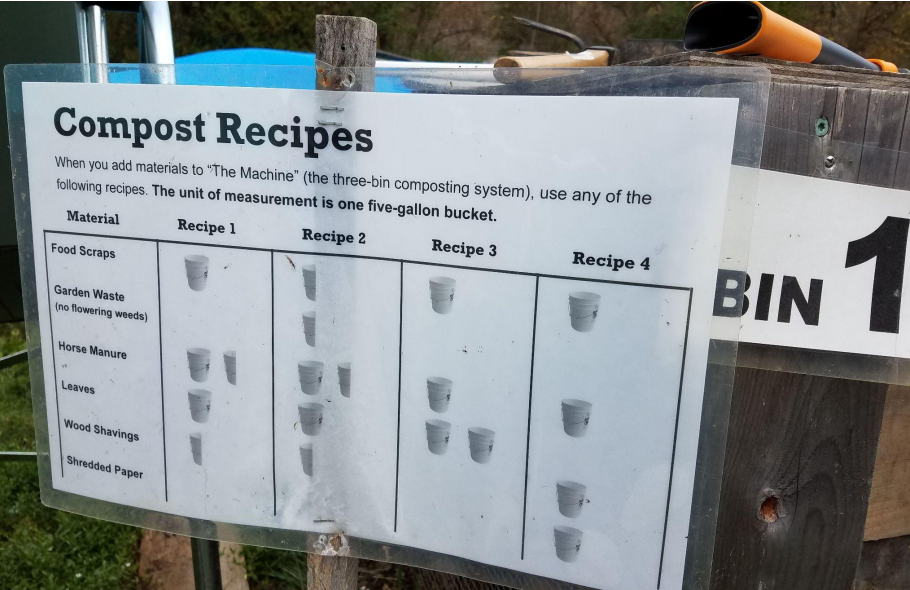
“Pack-a-lina”

Transfer Station Mascot
(Hollis, NH)

Signage/Labeling



Wellfleet Elementary School, N. Truro, MA ; Image: Athena Lee Bradley, WSWMD



Photos by Athena Bradley (VT)



Sorting Stations & Friendly Competitions



Photo by Impact Earth, Keene, NH

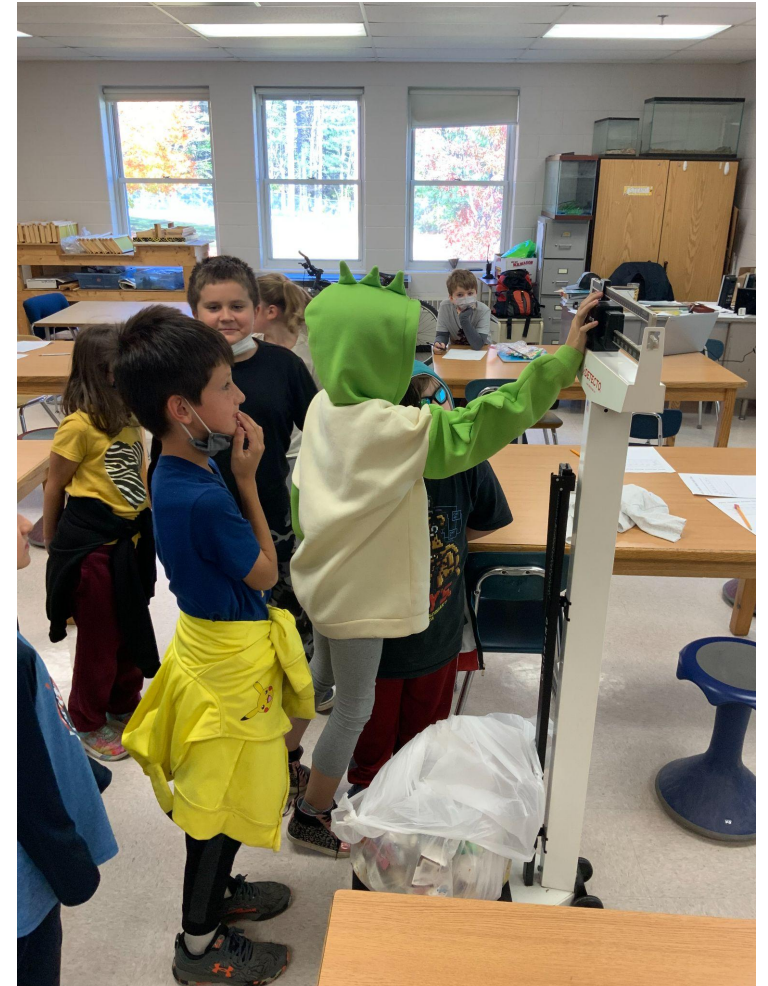


ORT = "Our Remaining Tidbits"
Camp Merrowvista (Tuftonboro, NH)



Waste Audit

- Cafeteria, classrooms, office spaces...
- Separate: Breakfast & Lunch wastes
- Identify quantity and types of waste generated.
 - “Trash on the Lawn” Day
 - **Collect, weigh, record, act**
- **Focus action:**
 - Composting, food waste prevention, recycling, waste reduction



*STEAM (3rd graders)
Southwick School Northfield, NH*

Waste Audit Example

Southwick Elementary School (Northfield, NH)

Southwick School (Northfield, NH) - STEAM Waste Audit by 3rd Graders								
	Food Scraps	Kitchen Scraps	Napkins	Plastic	Milk Cartons	Unopened Food	Trash Bin	TOTAL WASTE PER DAY (pounds)
Wednesday 10/20/2021	21	-	0.5	2.5	4.5	11	8.25	47.75
Thursday 10/21/2021	13	6.5	0.5	3	6	6	9	44
Friday 10/22/2021	20	14	0.5	1	5	0	15	55.5
3-DAY TOTALS								
BY WASTE TYPE (pounds)	54	20.5	1.5	6.5	15.5	17	32.25	147.25
AVG. POUNDS/DAY								
BY WASTE TYPE	18	10.25	0.5	2.2	5.2	5.7	10.75	49 pounds/day

Southwick School STEAM Program

<https://sites.google.com/wrsdsau59.org/southwick-school-steam/home>





Composting at Brett School (Tamworth, NH)

CASE STUDY EXAMPLE



Three Bin System

Bin 1 -This years food

Bin 2- Water is added matures over the summer

Bin 3- Finished compost to be used in the gardens





- Use 5 gallon buckets to bring out food scraps
- Compost all food scraps in one pile
- 8,000 pounds of food contributed annually
 - 230 Students
 - 52 Staff



HELPFUL LINKS

Google Drive - Resource Folders (Public)

- [School Composting & Community Tidbits](#)
- [Camp Composting BMPs](#) - *funded by LRPC EPA 2020 Healthy Communities Grant*

New Hampshire

- LRPC [Solid Waste Management](#) webpage
- [NH Farm to School](#)
- [UNH Cooperative Extension](#)



HELPFUL LINKS

Regional/Out-of-State

- [Northeast Recycling Council](#) – tip sheets with [Composting Association of Vermont](#)
- [Northeast Waste Management Officials Association](#)
- [Northeast Resource Recovery Association](#)
 - [School Recycling Club](#) - “Trash on the Lawn Day”
- [Center for EcoTechnology Wasted Food Solutions](#)
 - Toolbox of factsheets/guidance documents for food system stakeholders
- [ReFED – Rethink Food Waste](#) - Roadmap to 2030

GRANTS - may need to partner with local organization(s)

Start ups...

- [New England Grassroots Environmental Fund](#) - Seed & Grow Grants
- [NH Charitable Foundation](#)
- [NH Electric Coop](#)

Food system projects..

- [Community Heart & Soul Grants](#)
- [Kids Gardening](#)
- [Whole Kids Foundation](#)
- [U.S EPA Environmental Education Grant](#)
- [U.S EPA Healthy Communities Grant](#) - “Clean, Green, Healthy Schools”
- [USDA Community Food Systems Project](#)

Questions/Comments

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USDA Rural Development - Disclaimer

Lakes Region Planning Commission

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