

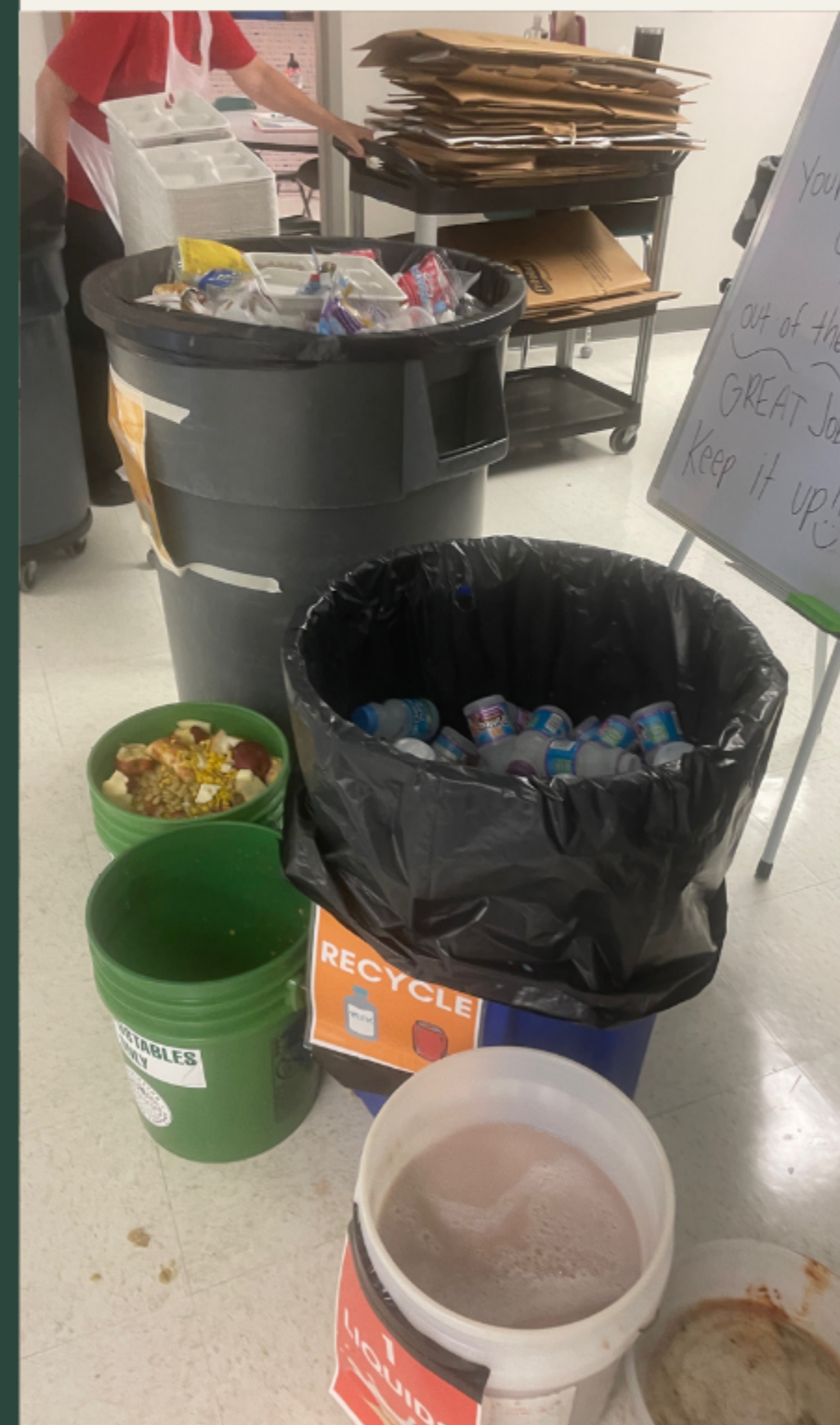


# Garbage to Gardens (G2G)

Leveraging Community  
Partnerships  
to Build School  
Sustainability Solutions

Cooperatively Funded by  
Friends of the New Hanover County Arboretum &  
the NC Cooperative Extension

Simple  
**Habits**



For Major  
**Impact**



# Garbage to Gardens Program Goals:

- 1 Divert school organics for composting
- 2 Reduce school-to-landfill waste
- 3 Support NC Standard Course of Study and integrate Environmental Education
- 4 Incorporate Systems Knowledge of Food & Waste Streams
- 5 Leverage Existing Partnerships





# Garbage to Gardens Program Support:

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Ongoing:



N.C. Cooperative Extension is an equal opportunity provider.

Additional project based support  
provided by:





# Collaborating Partners

- New Hanover County Environmental Management
- New Hanover County Schools
  - Winter Park Elementary School (NHCS) & DC Virgo Academy (UNCW)
- North Carolina Composting Council
- Coastal Composting Council
- Wilmington Compost Company
- New Hanover Soil & Water Conservation
- Boot Scrap Productions
- Extension Master Gardener Volunteers

... and counting!!



Master Gardener | Volunteer Association





# Huckleberry

## Commercial Composter at the New Hanover County Landfill



- 2017, \$400,000+ investment by NHC
- Piloted in Nov. 2017 with UNCW & Aramark, opened to public July 2018
- In-vessel system eliminates odors and wastewater issues
- Drop in the bucket; more than 50% of landfill inputs are organic/compostable
- Resident access to free compost
- Expansion & private industry



# G2G started in 2019 at Winter Park Elementary School & in 2021 at DC Virgo Preparatory Academy



Waste diversion stations set-up  
in the cafeteria include:

- a 5 gallon bucket for dumping liquids
- a 45-60 gallon recycling bin
- a 45-60 gallon trash bin
- 15 to 30 gallon compost bin
- a tray stacking area, such as a desk or cart







# Prepare Your School Community

## Parent Volunteers : In the Cafeteria, Garden, and Classroom

Parents are a valuable resource for schools to increase their capacity when operating a Garbage to Gardens program. When parents can offer a few hours a week to help students sort in the cafeteria, to lead a lesson in the classroom, or help upkeep the school garden, they can have a big impact on their school and student's education.

## Parent Association or Organization Support

Sometimes a Parent Association has room in their budget to assist with the costs of the Garbage to Gardens program. Organized parent groups can also assist with a school-community volunteer sign-up for cafeteria waste-diversion and other program support.





## School Administration

Establish your school's composting practice. Set up color coded waste diversion bins in the cafeteria (and ideally classrooms too). It is not recommended for schools to compost their own school food-waste; plan to contract with a compost hauler.



## Faculty: Teachers, Assistants Specialists

It is important to have an adult available to answer students' sorting questions during the waste diversion process at the end of the lunch period. Plan to have an adult or educated leader nearby to support students so the bins do not become contaminated.



## Custodial Staff

Properly trained and involved cafeteria custodians help ensure the success of the waste diversion program. Custodial staff set up and maintain stations in the cafeteria for compost, recycling, liquids, trays, trash, and unopened items.



## Students

Most classes utilize a daily leader to help clean tables at the end of lunch- a similar system can be set up for student ambassadors to answer peers' questions during the waste diversion process in the cafeteria. Students can collect items from the table or help at the waste stations.



# School Options for Starting Sustainability Efforts:

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- Cafeteria Recycling
- Cafeteria Tray Stacking
- Cafeteria Liquid Dumping
- Cafeteria Composting
- Cafeteria Share Table
- Sustainable Purchasing
- Classroom Recycling
- Classroom Composting
- Classroom Enrichment:  
Environmental Education &  
Community Field Trips
- School Gardening





**G2G Schools divert 75-95% of their average cafeteria waste in one day of the program!**





# The Average Cafeteria Waste Stream



Winter Park Elementary		331 students
<b>February Average</b>		
Compost volume	20	gallons
Liquids volume	4.75	gallons
Recycling Volume	43.75	gallons
Trash volume	30	gallons
Trays weight	8.68	pounds

DC Virgo Academy		212 students
<b>February Average</b>		
Compost volume	17.5	gallons
Liquids volume	3.125	gallons
Recycling Volume	45.5	gallons
Trash volume	13.5	gallons
Trays weight	12.35	pounds





In 2022,  
212 students at DC Virgo Academy  
Composted 15,360 pounds,  
saving an estimated  
15 cubic yards of landfill space  
(a pile 16' x 7.5' x 4.5' high)





In 2022, 331 students at  
Winter Park Elementary School  
Composted 2,240 pounds  
on 'Waste Free Wednesdays',  
saving an estimated  
2 cubic yards of landfill space  
(a pile 6' x 3' x 3' high).

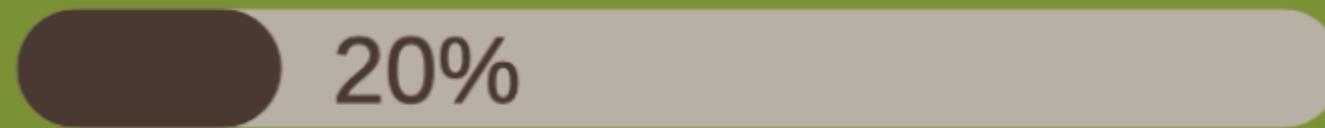




## THE AVERAGE CAFETERIA WASTE STREAM INCLUDES:



RECYCLABLE MATERIALS



FOOD & COMPOST (TRAYS)



LIQUIDS



LANDFILL TRASH

# 24,841

STUDENTS IN NEW HANOVER  
COUNTY SCHOOLS  
PRODUCE

# 1,250 LBS

OF TRASH PER DAY





# The Worst Offenders: Plastics & Styrofoam

*Plastics numbered 5 or higher are often too difficult to recycle, and unfortunately comprise a majority of school cafeteria waste. Styrofoam is another common cafeteria product and material that takes an extreme amount of time to break down.*

*Schools should transition away from these materials as soon as possible.*

## Plastic Cafeteria Waste Consists of...





# Food for thought: The Predictable & Consistent Trash Inputs in School Cafeterias

Winter Park Elementary School	
Day 1 (2/1/23)	
Top 10 Trash Items Discarded:	Quantity
Snack Wrappers	63
Sauce Packets	62
Cutlery Packs (plastic fork and wrappers)	51
#5 plastic apple sauce containers	29
Ziplock Bags	16
Plastic Lunchable Containers	11
String Cheese Wrappers	10
Capri suns	6
#6 plastics (yogurt containers)	4
Yogurt Sticks	3

Day 2 (2/8/23)	
Top 10 Trash Items Discarded:	Quantity
Forks/Cutlery Packs	128
Sauce Packets	75
Snack Wrappers	68
Styrofoam soup cups & lids	61
Gloves	12
chicken tortilla wrappers	11
Ziplock Bags	4
Lunchables	3
Capri suns	2
Yogurt Sticks	2

Day 3 (2/15/23)	
Top 10 Trash Items Discarded:	Quantity
Forks/Cutlery Packs	183
Snack Wrappers	115
Sauce Packets	113
Clear Plastic Wrappers (59 peppers and 9 cookies)	68
4 oz plastic pear cups & lids	49
PBJ Wrappers	41
String Cheese Wrappers	34
2 oz cups with lids	28
12 oz plastic salad cups with lids	28
Zip Lock Bags	25

Day 4 (2/22/23)	
Top 10 Trash Items Discarded:	Quantity
Sauce Packets	229
Forks/Cutlery Packs	163
Snack Wrappers	119
4 oz plastic pear cups (#5)	49
PBJ Wrappers	45
String Cheese Wrappers	44
Zip Lock Bags	43
12 oz plastic salad cups #1	27
Other #5 plastics (apple sauce, etc.)	17
Clear Plastic Cookie Wrappers	14



# What's in the cafeteria waste stream?





# Food for thought: The Predictable & Consistent Trash Inputs in School Cafeterias

\* UNCW Recycling Depot accepts #4, #5, #6 (stryofoams), clear plastics and plastic bags

DC Virgo Preparatory Academy		UNCW School & Recycling
Day 1 (2/2/23)		*
Top 10 Trash Items Discarded:	Quantity	
Forks (clear wrappers recycled)	81	
Sauce Packets	50	
Snack Wrappers	41	
Chicken Sandwich Wrappers (tin foil with lining)	15	
2 oz plastic cups (pickles)	10	
Ziplocks (recycled)	4	
Lunchables	2	
yogurt sticks	1	
#5 apple sauce container (recycled)	1	
Juice box (recycled)	1	

Day 2 (2/9/23)	
Top 10 Trash Items Discarded:	Quantity
Forks	128
Sauce Packets	75
Snack Wrappers	68
Foam Soup Cup and Lids	61
Latex Gloves	12
Chicken Sandwich Wrappers (tin foil with lining)	11
Ziplock Bags	4
Lunchables	3
#6 plastics (oreo and pringle containters)	3
Yogurt Sticks	2

Day 3 (2/16/23)	
Top 10 Trash Items Discarded:	Quantity
Sauce Packets	150
Forks	104
Clear Wrappers (cookies, oranges, 1 boba tea wrap)	56
Snack Wrappers	36
Clear Carrot Bags	10
#5 plastics	4
Plastic bags	3
Ziplock Bags	3
Capri Suns	3
Lunchables	2

Day 4 (2/24/23)	
Top 10 Trash Items Discarded:	Quantity
Forks	118
4 oz peach cups with lids	114
4 oz water cups	65
Sauce Packets	64
Snack Wrappers	43
Clear plastic cookie Wrappers	19
#6 Plastic Yogurt Containers	18
Clear plastic Apple Wrappers	16
String Cheese Wrappers	15
Carrot Plastic Bags	11



# Three S's for Success!!!

## Sourcing

Replacing plastic and styrofoam products is a priority for G2G schools. Even if a school can only switch a single cafeteria item, it has a tremendous impact on the school's daily waste stream.

## Support

Educate all team players involved-- faculty, staff, and students. For example, recycle only plastics labeled #1-2, aluminum, cardboard, and glass items without food residue. Share that plastic wrappers, single-use silverware, and condiment packaging often contaminate recycling and compost bins— these items should be discarded into the trash.

Keep trash pickers close by for teachers, assistants, custodial staff, and student leaders to use to prevent contamination in the compost & recycling bins. Establish a Compost Patrol of students to help peers sort and discard compost, recyclables & trash (at the lunch table or waste-diversion stations).

## Signage

Let students make signs to show what can and cannot go in the waste-diversion bins. Rotate hanging student-made signs in the cafeteria and by classroom waste bins.





# Environmental Education



- Garbage to Gardens educates students to conserve resources and understand our interconnected food and waste streams
- Students experience hands on learning to explore the world of decomposers and compost to study Physical, Life, and Earth Sciences.





# Integrating Environmental Education with Science & Math

- Resource Conservation 101
- Food life cycles and composition
- Soil Your Undies Activity
- Field Trips:
  - Landfill
  - Compost Farm
  - Water Treatment Plant
  - Waste Water Treatment Plant

## Garbage to Gardens Lesson Plan #1

An Introduction to Recycling, ComPost, & T

oup:

Timeframe for Activity:  
45 minutes

### Objectives [for teachers]

ience conducting simple investigations and working in small groups, ask  
redictions that can be tested. Students engage in inquiry-based instructi  
bing conceptual understanding of science content that is vital for success

structure properties of matter before and after they undergo a change.  
e effects of environmental changes, adaptations and behaviors that enab  
ng humans) to survive in changing habitats.  
interdependence of plants and animals with their ecosystem.  
flow of energy through ecosystems and the responses of populations to  
ic factors in their environment.  
v the cycling of matter (water and gases) in and out of the atmosphere re  
osphere, weather and climate and the effects of the atmosphere on huma  
environmental implications associated with the various methods of obtaining  
using energy resources.

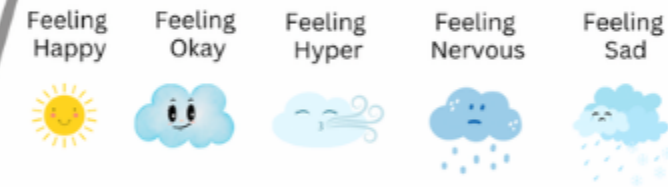
### for students)

investigate, classify, and sort human-made materials and landfill waste.  
o conserve natural resources through recycling and compost education.  
understand our ecosystem & the impact of humans on our environment  
oduced to the physical and chemical processes involved to create comp  
middle school students- especially 7th graders).

## Soil Your Undies

E:  
E:

### MY INNER WEATHER TODAY:



### TODAYS OUTSIDE WEATHER



DAY'S TEMPERATURE: \_\_\_\_\_

HES OF RAINFALL TODAY: \_\_\_\_\_

SERVATIONS OR HYPOTHESIS:

### HOW I AM FEELING NOW:





# Additional Considerations & Lessons Learned

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## Sustainable Product Purchasing

- Order Compostable Trays
- Replace #5+ plastics with more sustainable options
- Replace styrofoam products with paper when available.
- Use compostable spork dispensers and paper ramekins

## Reduce & Reuse

- Reuse old 5 gallon bins for compost
- Consider finding a sponsor to donate water bottles for each student at the beginning of the year.
- Only give condiments when students ask.

## Sustainable Behavior Change

- Stack trays before discarding
- If you can hose down bins, skip bags on compost bins.
- Switch to reusable silverware & trays if the cafeteria has a dishwasher.

## Motivate

- Share Diversion rates and motivating messages with students.
- Let students be a part of weighing the food waste diverted for compost.
- Incorporate a message board behind the waste station.



# G2G School Responsibility Agreement

Garbage to Gardens- School Commitment & Responsibility Agreement			
<i>The Garbage to Gardens' (G2G) program coordinator works alongside schools to reduce food and other landfill waste from cafeterias. G2G also connects cafeteria waste-reduction efforts to enhanced environmental education opportunities. This form is a 10-month commitment and responsibility agreement that must be completed before a school partners with G2G. School administrators, custodial staff, kitchen staff, and teachers must commit as a G2G partner to make every reasonable effort to help the G2G program become sustainable long-term within your school community.</i>			
School Information:			
School Name:			
School Affiliation/Type (circle) public, charter, private, UNCW, other:			
School Address:			
Grade Levels in school:			
# of students in school:			
Title 1: yes or no			
School G2G Contact Name & Title			
Phone:			
Email			
G2G Teacher Liason(s):			
Phone(s):			
Email(s):			
School Commitment:			
Activity	Timeline	G2G	School
Complete school intake survey :	Before start		X
Contract compost services	Before start		X
Send school home waste survey to families & a newsletter introducing the G2G program	By 2nd week		X
Expose all students/faculty to cafeteria waste diversion orientation	by 4th week	X	X
Custodial Staff will set up waste diversion stations in cafeteria	routinely		X
Clear signage will be maintained by waste diversion stations in cafeteria at all times	regularly		X
Cafeteria trays will be stacked before dumping	regularly		X
Custodial staff will aim to eliminate waste/plastic usage at all times	routinely		X
Schools will aim to source more sustainable products	ongoing	X	X
The school will educate faculty about why it's important and how to implement G2G cafeteria stations	Before start		X
Teachers will introduce the process to students and educate them about how to do it/why it's important	1st week		X

Oversight will be provided in the cafeteria and trash pickers will be used to reduce contamination (custodian, specialists, assistants, students, volunteers, etc.)	regularly		X
At least one grade-level will be exposed to an educational food-loop, soil health lesson	first semester	X	X
The school will educate its school community/families about the program, its purpose and the cafeteria process/impact	by 5th week		X
The school/teachers will work to build student ambassadors for the program	by 8th week		X
A G2G rep will be welcomed to audit and track waste diversion efforts	routinely		X
Garbage to Gardens Will Provide:			
Document files for waste station signage		X	Prints/Hangs
Curriculum, lessons and materials		X	Implements
Program Consulting: pilot experience, tips learned, overcoming challenges, etc.		X	Requests Help
Competitive volume rates with WCC		X	Incurs Cost
Cafeteria sourcing and procurement support		X	Leads
Sample budgets		X	Chooses
Enhancement learning and fieldtrip options		X	Implements
Multidisciplinary connections and cross-grade level support		X	Implements
Surveys, newsletter write ups, volunteer sign up forms, etc. (when available)		X	Sends

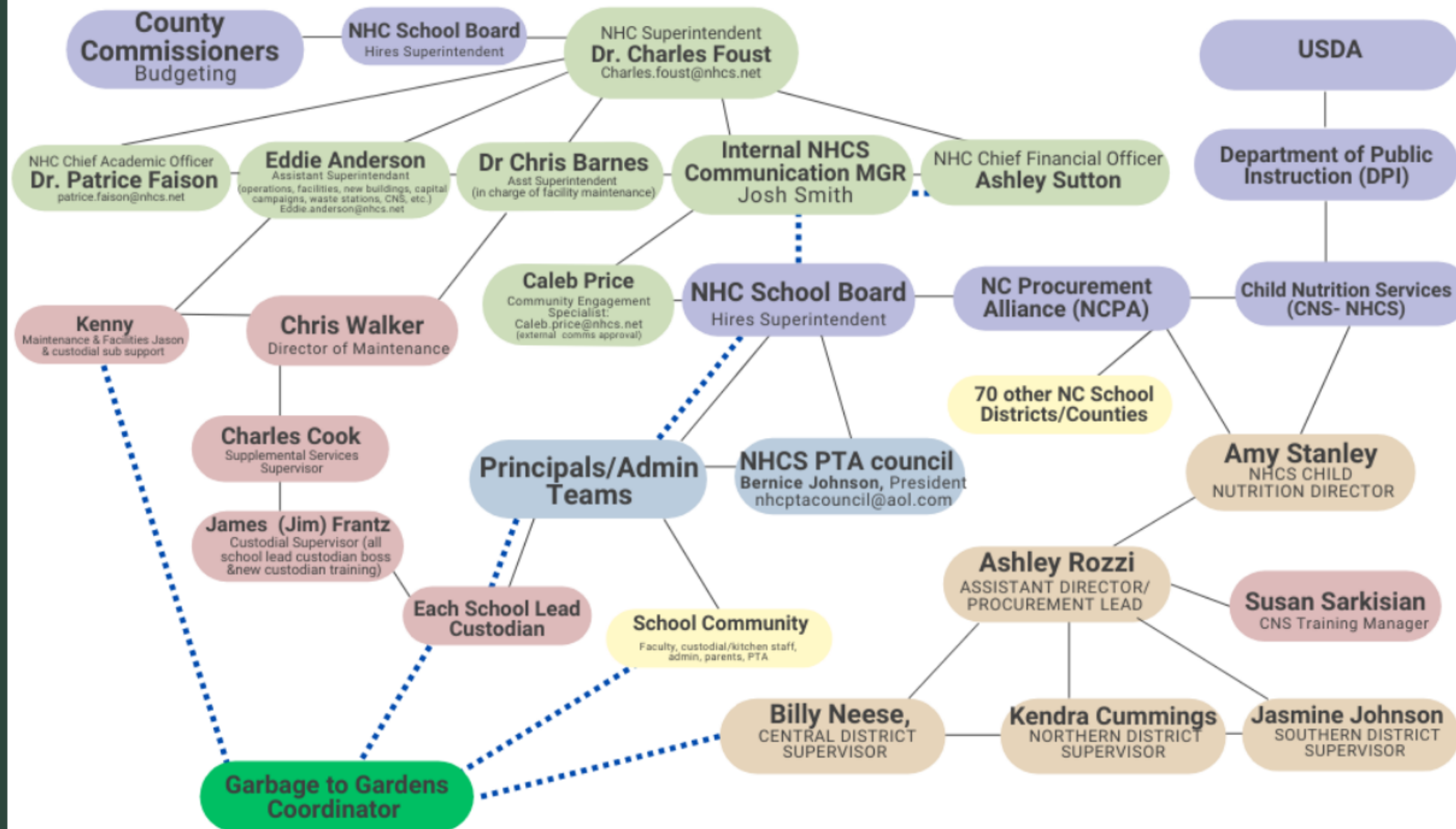
School Representrtative Name:	_____	Date:	_____
School Representative Signature:	_____	Date:	_____
Garbage to Gardens Program Coordinator Signature:	_____	Date:	_____
Contract Period:	_____	_____	
	(Start Date)	(End Date)	
Date Contract Terminated:	_____		
Post-Program Notes:	_____		
	_____		

## School Responsibility Agreement



# Working Together for a Sustainable Future

## Garbage to Gardens Contact Flow Chart



- The blue dotted lines show G2G Connections
- pink bubbles show people who train staff connected to G2G roles (cafeteria, custodians) & maintain custodian/cafeteria handbooks.



# Sample G2G Budget & Supplies

Service/ Supplies	Cost
96-Gallon Compost Bin & Weekly Haul	\$1,500
Compostable Bags (500 count- 5 gallon)	\$80 per case/ \$480 per year
Compostable Bags (200 count- 33 gallon)	\$158 per case/ \$316 per year
30 Gallon Compost bin (green) with wheels	\$260
Fifteen 5-gallon Bins	\$75
Trash Picker & 5-gallon Bin Screen Lid	\$30
Sustainably Cutlery Packs	\$400
<b>Annual School Year Total Cost:</b>	<b>\$3,061</b>

*This is a sample budget. Costs will vary depending on each school's unique needs, existing assets, and sourcing decisions. This budget represents a school with 331 students.*



# Check Out These Garbage to Gardens Informational Videos

" We do this because this is the right way to live, it's the right thing to do. There is a problem out there and we can be a part of the solution. We can reduce the amount of compostable material we're sending into the landfill. We're running out of space and this is something that anyone from 5 to 95-years old can contribute to the solution.

*- Paul Slovik, Former Principal at Winter Park Elementary School (the first G2G school)*



<https://youtu.be/zq4LBqkueAA>  
<https://www.youtube.com/watch?v=OV1aleRiBTA>





# Connect With Us



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Find us on Facebook @Garbage To Gardens



@GarbagetogardensNC (Instagram)



<https://newhanover.ces.ncsu.edu/garbage-to-gardens/>



Photograph this QR code to access the link for our website, social media accounts, newsletter sign up and more!

**TIP:** G2G Curriculum Materials are posted on our website.