



MASSACHUSETTS
FARM TO SCHOOL

Student Activism

Three Sustainability Projects from
Renaissance High School

January 22, 2025





Sustainability Initiatives at the Springfield Renaissance School



John Donovan - 9th Grade Envi Sci Teacher
Makaila Tete-Donkor - 10th
Kaylie Meneses Roblero - 10th
Aidan Nicely - 10th
Edward Arroyo - 10th

Agenda

1. Who are we?
2. Sustainability Efforts
 - a. Trays
 - b. Composting at Ren
 - c. Spreading composting through the district
 - d. What's next?
3. Q+A

Who are we?

The Springfield Renaissance School's mission is to provide a rigorous academic program for college-bound students in a small, personalized setting that encourages and supports them to use their minds well, care for themselves and others, and rise to the challenges and duties of citizenship.

What is EL Education

EL Education (formerly Expeditionary Learning) is a model of education that emphasizes hands-on, project-based learning with a focus on character development, collaboration, and real-world application. It encourages students to take ownership of their learning through meaningful, challenging work that connects to their communities. The model combines academic rigor with social-emotional learning, fostering students' growth as scholars and responsible citizens.

What is an expedition?

An EL learning expedition is a big project where students explore a real-world topic by asking questions, doing research, and working on hands-on activities. It combines different subjects and helps students learn by doing, working together, and creating something meaningful to share with others.

Spring 2023

The Plastic Problem:

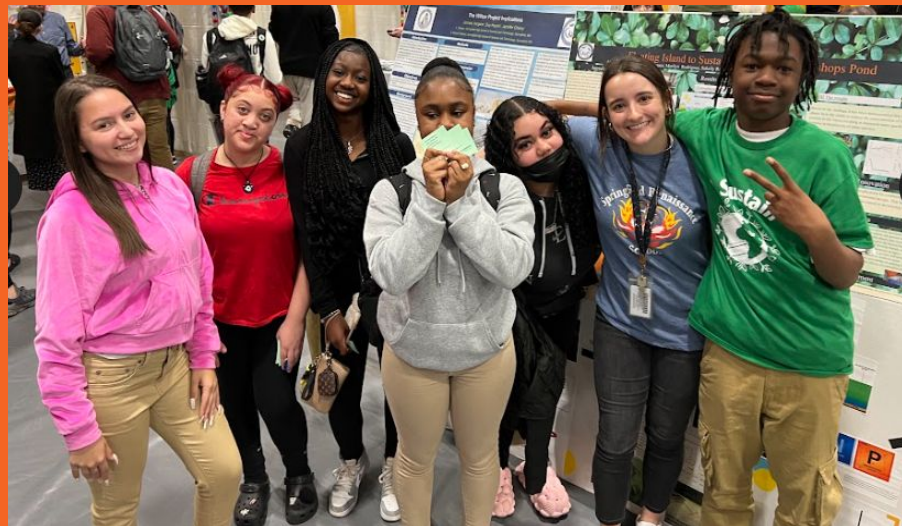
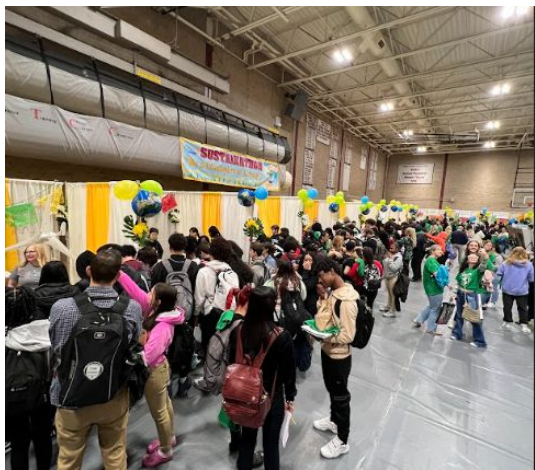
How do we reduce plastic pollution in our Renaissance community?

Results:

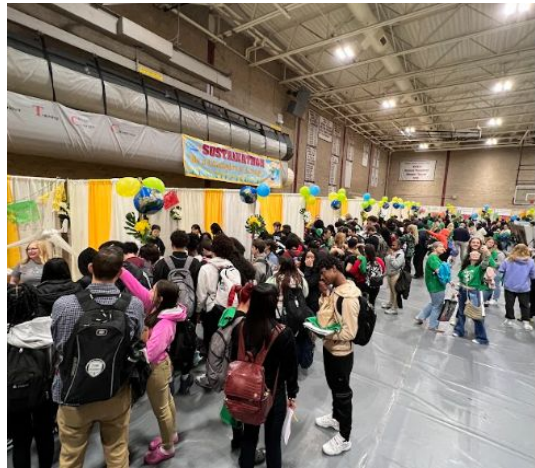


How did we get there?

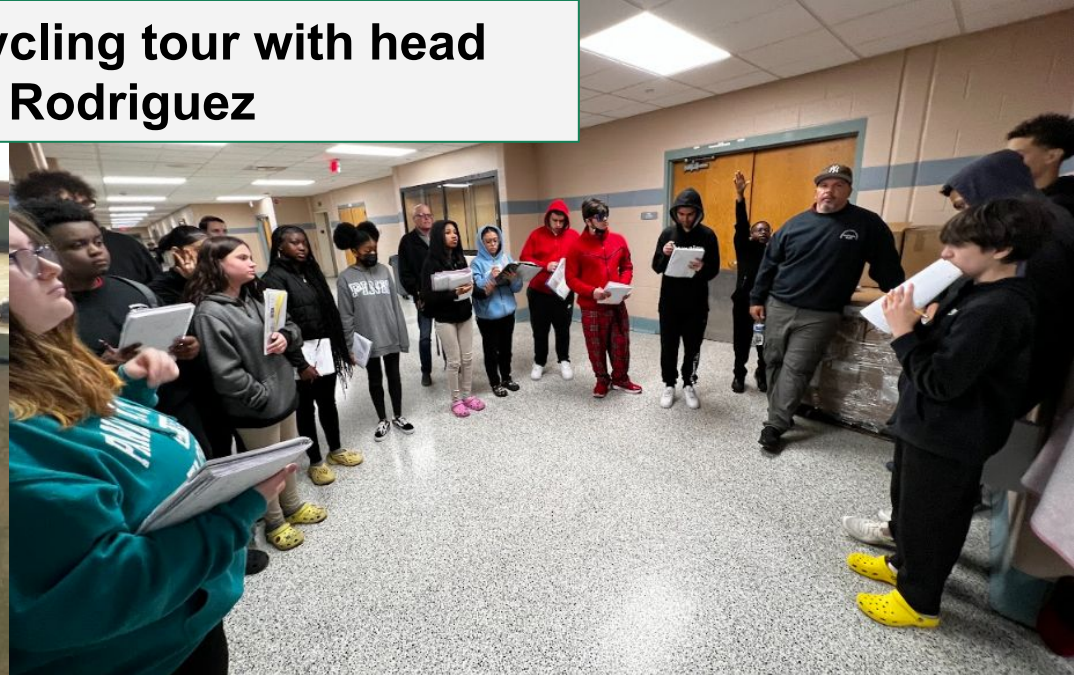
Sustainathon



Sustainathon



Trash and recycling tour with head custodian Will Rodriguez



6th + 8th grade breakfast trash analysis



9th + 10th grade breakfast trash analysis



Middle School Lunch Trash Analysis



High School Lunch Trash Analysis





Cleaning and counting breakfast trash and recycling



Collecting and cleaning lunch materials

Ren Trash Audit 5/5	Breakfast	Lunch	Total
Recycleable Items			
Juice Boxes (Paper)	230	12	242
Milk Cartons (Paper)	36	75	111
Plastic Cereal Containers	57	7	64
Plastic Bottles, Cans, containers	17	16	33
TOTAL RECYCLABLE	340	110	450
Non-Recyclable Items			
Styrofoam Trays	0	281	281
#6 Plastic Containers	0	12	12
TOTAL NON-RECYCLABLE	0	293	293
TOTAL ITEMS	743		

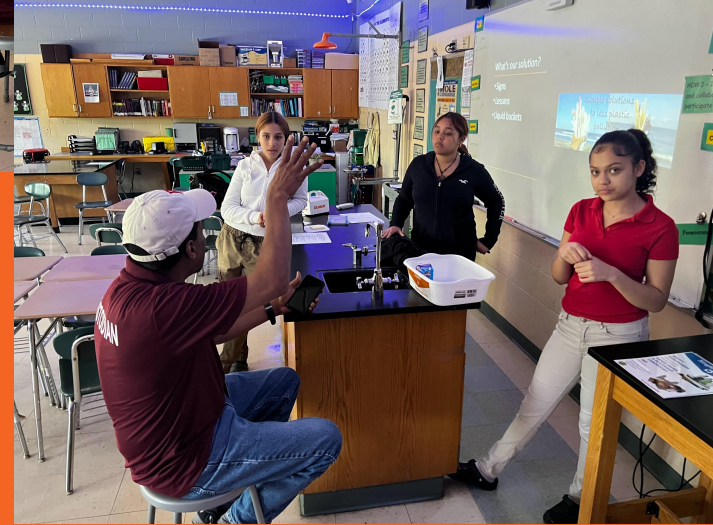
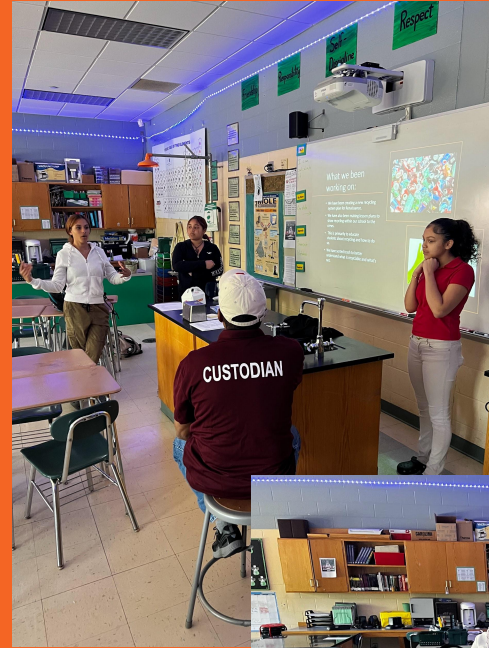


<https://drive.google.com/file/d/1k8gzQuFZQLYZsuE1rsXWYHIPVUC4MoAO/view?usp=sharing>



*All 743 of these items end up in the trash everyday based on our current recycling methods

**Bilingual students
meeting with our
custodian to discuss
the issues with
recycling in our
building - in Spanish!**



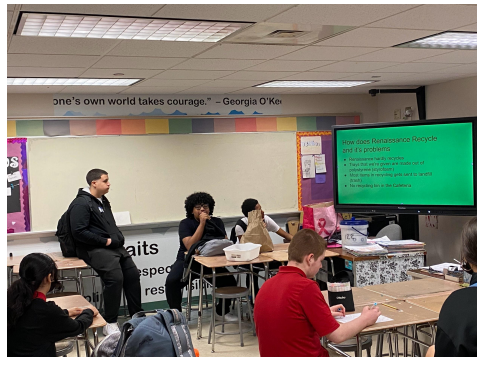
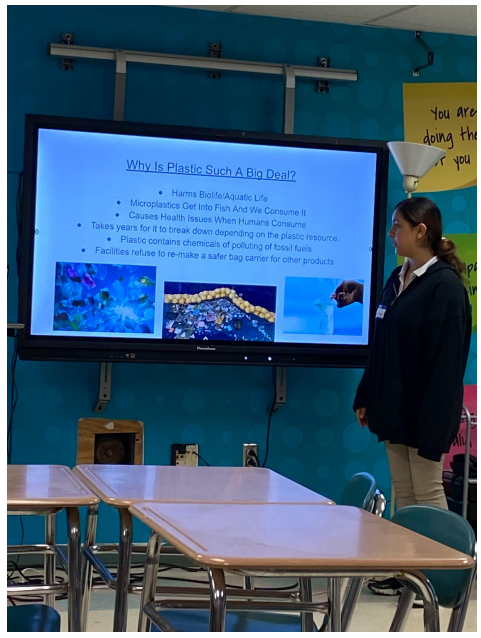


- Letters to Homegrown Springfield, Superintendent, and Principal

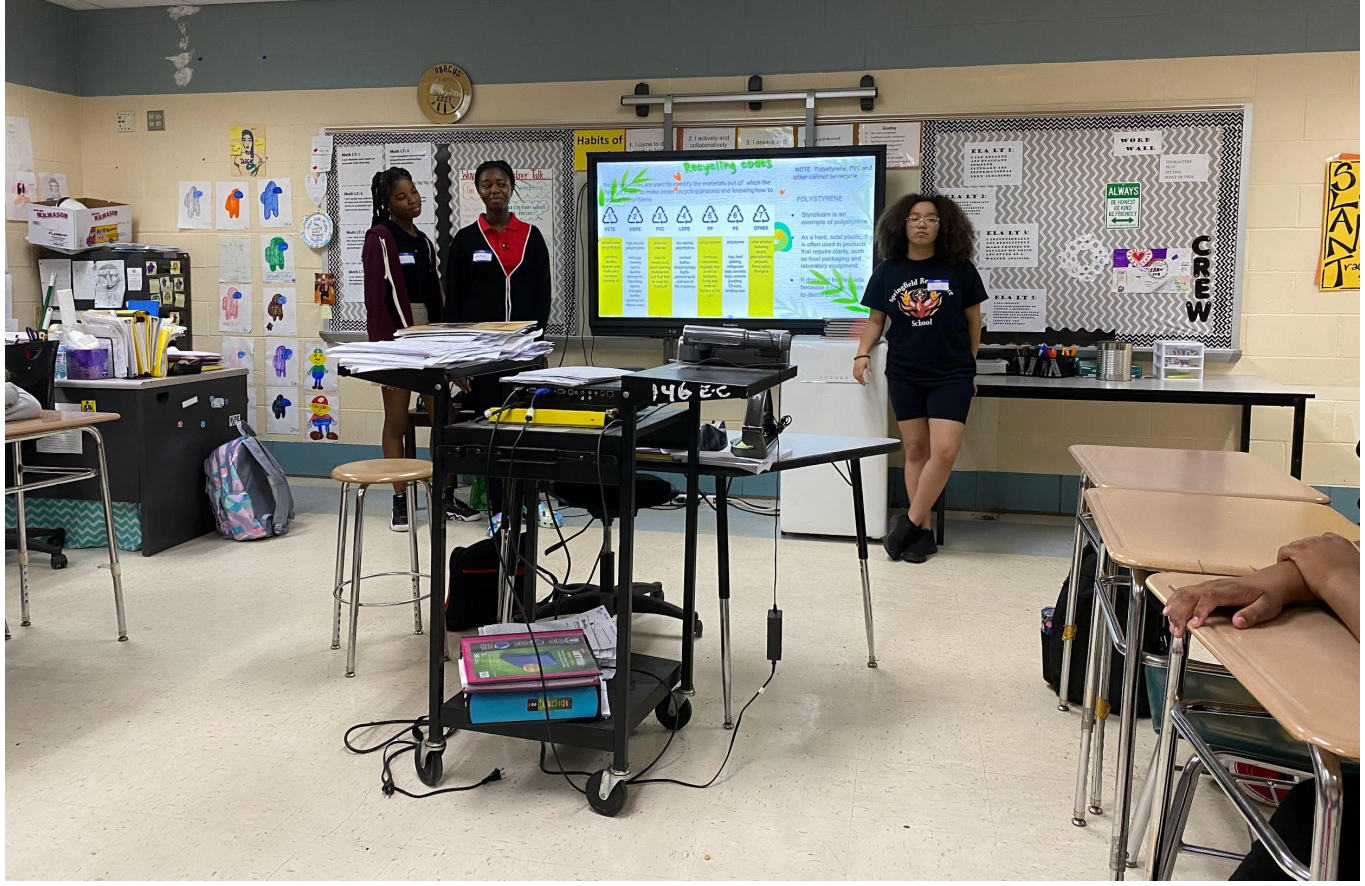


Students supporting our
new recycling efforts in
the caf

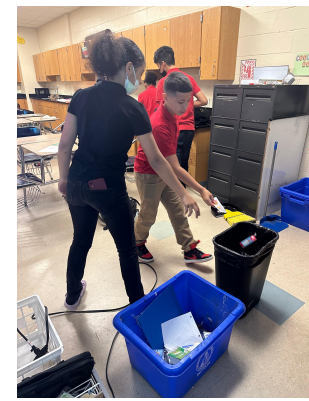
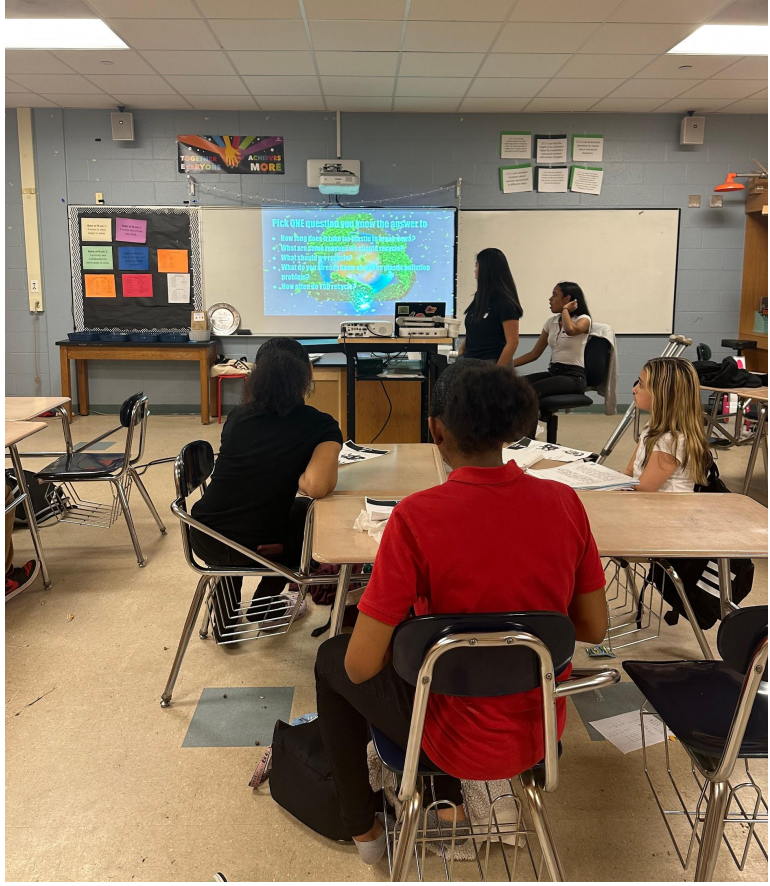
9th graders presenting their lessons on plastic pollution and recycling to the school

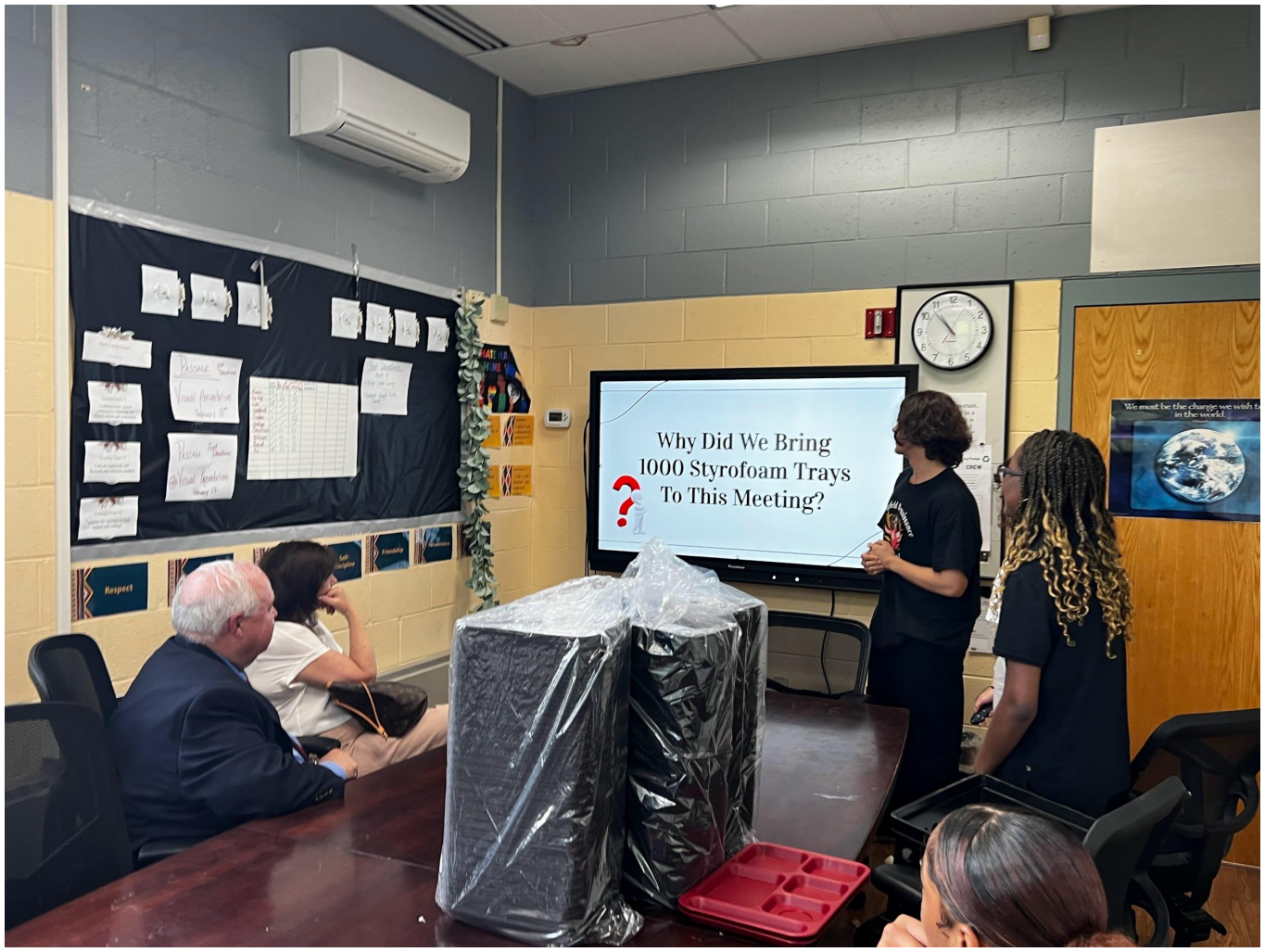


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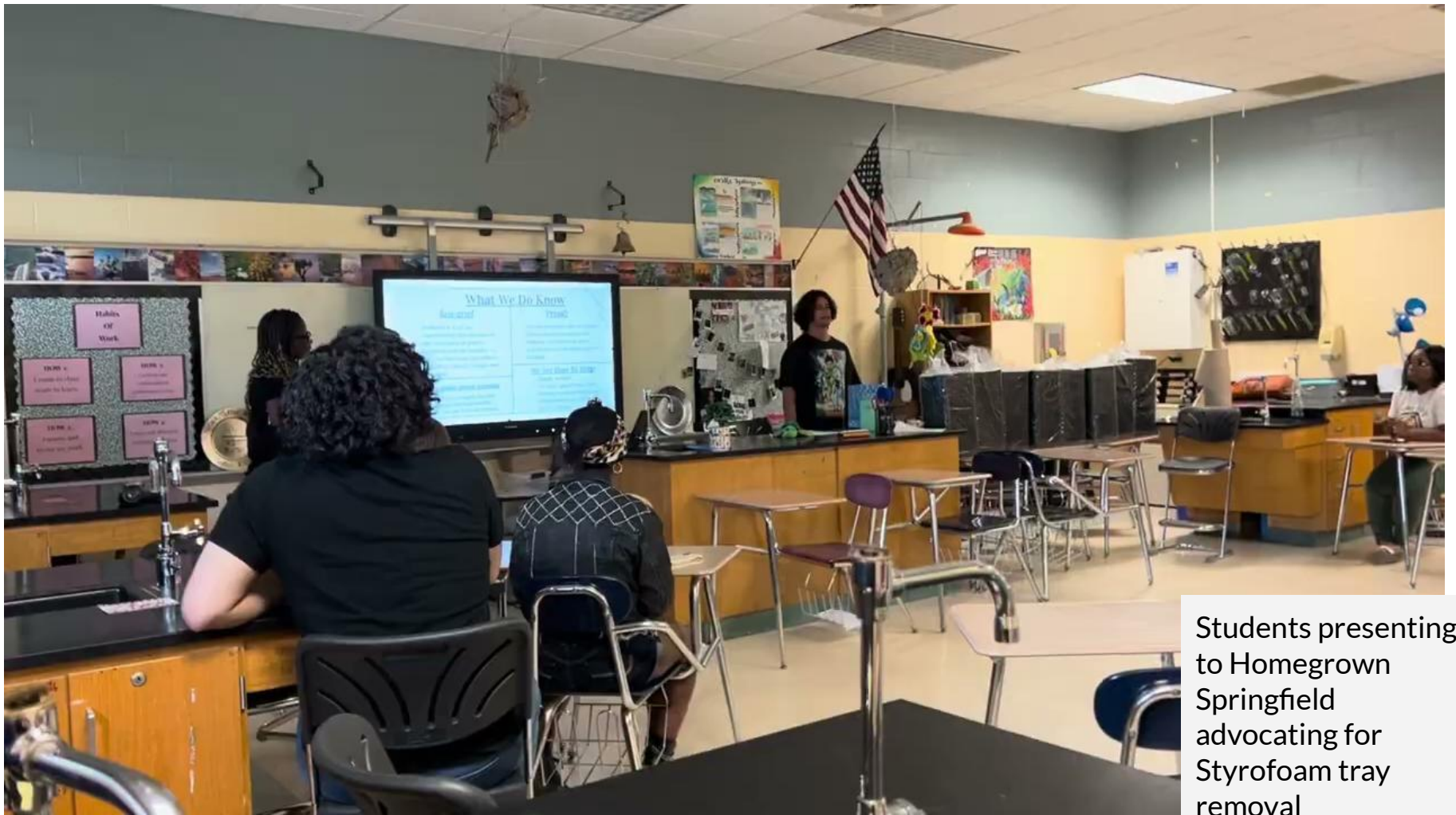


9th graders presenting their lessons on plastic pollution and recycling to the school





Students presenting to Superintendent Warwick advocating for Styrofoam tray removal



Students presenting to Homegrown Springfield advocating for Styrofoam tray removal

—

**Sodexo returns to
Renaissance in
October '23**



Homegrown Springfield presenting paper tray pilot option to students, 4 months after initial meeting

Cost Comparison of Lunch Trays



Foam



Biodegradable



Reusable

Unit Cost	\$0.073	\$0.149	\$6.68
Annual District Cost	\$210,000	\$428,000	\$15,000 Tray Replacement
Annual Incidentals	-	\$\$ Composting Fees	\$120,000
Annual Labor	-	-	\$504,000
Transition Investment	-	-	\$127,000
Environmental Cost	500 years in a landfill	20-40 years in a landfill	3 year Lifespan

SPS District Vision

• Reusable Lunch Trays:

- ➔ The district is envisioning a time in the near future when schools will be chosen to begin using reusable lunch trays.
- ➔ Springfield has nineteen schools with dishwashers. A program evaluation is underway to review the cost of transitioning to reusable trays without diminishing meal quality.

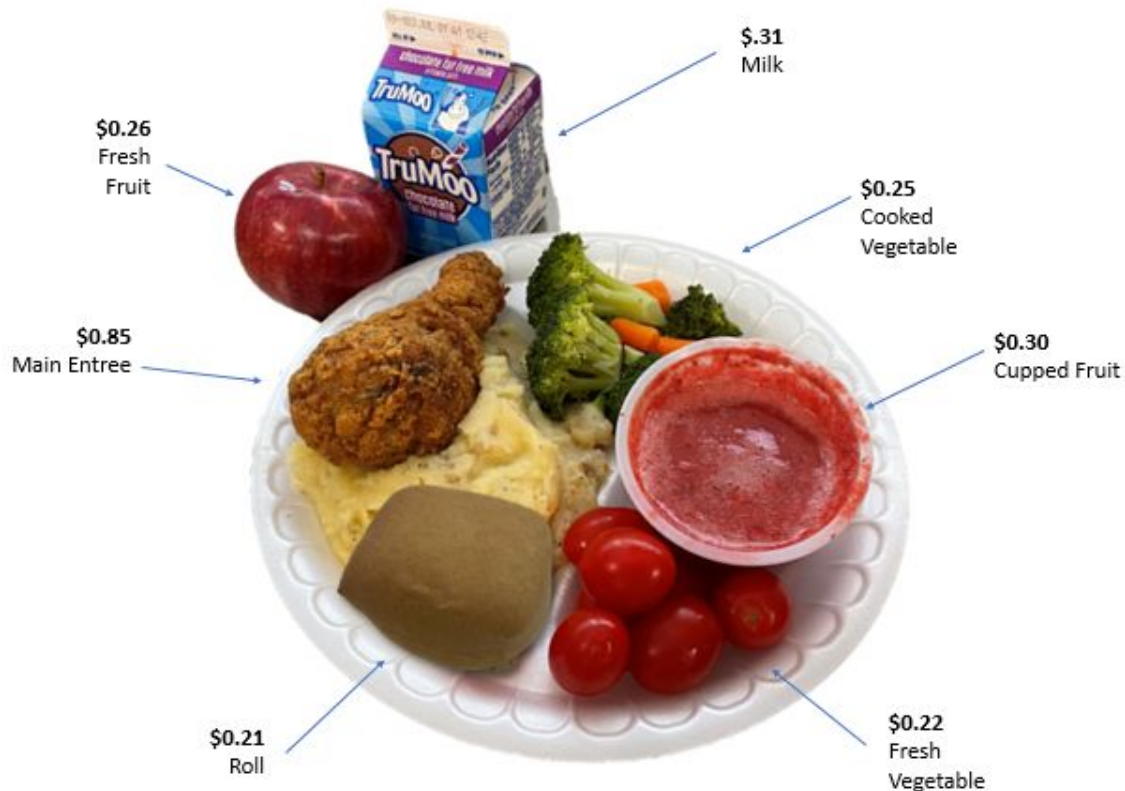
• Current Foam Tray Alternatives:

- ➔ Rebecca Johnson Elementary School is using and washing five hundred reusable trays each day.
- ➔ Secondary Schools are using paper boats to reduce foam tray usage.



Continue Research Into Alternatives and Creative Recycling Options

Impact Evaluation



Item costs are subject to change. The cost depicted above is an estimate that best represents the current cost of goods.

\$4.49 DESE Meal Reimbursement

- \$0.31 Milk
- \$0.22 Fresh Vegetables
- \$0.25 Cooked Vegetables
- \$0.21 Roll
- \$0.30 Fruit Cup
- \$0.26 Fresh Fruit
- \$0.85 Main Entrée
- \$1.67 Labor
- \$0.42 Other



Mission: To eliminate student hunger by increasing the quality, sustainability, and efficiency of the child nutritional programs in our schools and community.

Goals:

- To improve food quality served to students,
- To increase student participation in food programs
- To increase student-learning opportunities



Contact DESE & USDA to Increase Federal Reimbursement Rates

Capital Improvements

Typically, replacing a single dishwasher and bringing it up to code requires a new electrical feed, chemical injectors, salt injectors, and grease interceptors.

Quote to replace a dishwasher: \$85,000

Plumbing - \$18,745

- includes grease interceptor and cutting of floor

Repair Floor - \$5,000

- includes backfilling and replacing tile

Dishwasher - \$47,000

- includes removal and disposal of the old dishwasher

Electrical - \$15,000

- New dishwashers have a single-point connection, not two (existing)



Warner Elementary School
Summer 2023 Dishwasher Install



**Compostable trays are now
in 50% of SPS schools and
growing...**

Maddie:

What was that experience like for you? How does it feel seeing the change you made?

Winter 23-24 - Composting Expedition

Guiding Question: How can we make our Renaissance community more environmentally sustainable?

Results:



How'd we get there?

Expedition Kickoff

Conducted a waste audit of the school (breakfast and lunch trash)

Cafeteria Trash Audit - 11/7/23					
Plastics	Sossa	Demicco	Donovan	Loughlin	TOTAL
Plastic containers	13	2	5	74	94
Styrofoam Lunch Trays	100	42	44	0	186
Wrappers / Bags	didn't count	didn't count	didn't count	didn't count	
Plastic Bottles	10	6	4	21	41
Straws	6	3	1	6	16
Knives, Spoons, Forks	44	7	34	5	90
Other	51	28	0	0	79
Total Plastic					321
Paper/Cardboard	Sossa	Demicco	Donovan	Loughlin	TOTAL
Juice Boxes	4	0	4	3	11
Milk Cartons	49	13	21	17	100
Paper Lunch Trays	0	30	0	0	30
Other		283	0	0	283
Total Paper					424
Metal	Sossa	Demicco	Donovan	Loughlin	
Cans	0	0	1	10	11
Items by weight	Sossa	Demicco	Donovan	Loughlin	TOTAL
All food waste (lbs)	17.1	4.4	17.3	2.5	41.3



Expedition Kickoff

What do you remember about the trash audit day?

Why do you think this was an important part of the expedition?

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We used math to figure out how much Renaissance and the whole district might throw away in a year

Renaissance		
Estimate	Pounds	Equivalent to
One Day	80 lbs	A big dog
One Week	402 lbs	A small grand piano
One year	14,472 lbs	A male African Elephant

Springfield Public Schools		
Estimate	Pounds	Equivalent to
One Day	3919 lbs	Kia Sorento
One Week	19,567 lbs	Presidential Limo
One year	704,429 lbs	50 male elephants

[List of schools and populations](#)

Checked our work using a separate math algorithm

	Average Measurement		Material
Students [Elementary School]	1.13	lbs/student/week	Food Waste
Students [Middle School]	0.73	lbs/student/week	Food Waste
Students [High School]	0.35	lbs/student/week	Food Waste

Whole District - Food Waste	Based off our collected data (80.4 pounds)	Using <i>Recycling Works Massachusetts</i> estimator for food waste in schools
Day	3,919 lbs	3,441 lbs
Month	19,567 lbs	17,207 lbs
Year	704,429 lbs	619,469 lbs

Food Waste Survey

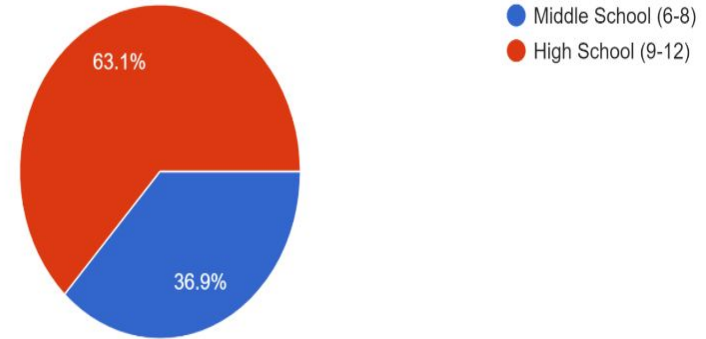
Why?

- To see why students were throwing away so much food each day

How?

- We came up with questions and then asked science teachers to have their students take the survey in class

339 responses



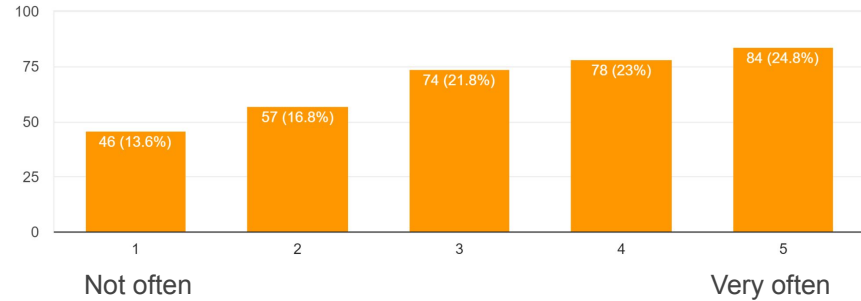
Full survey results

Our biggest takeaway

- We throw away more food at school than at home
- We thought that may be because we have more choice at home over:
 - When we eat
 - Portion size
 - What we eat
 - We can save leftovers at home
 - Cultural Preferences

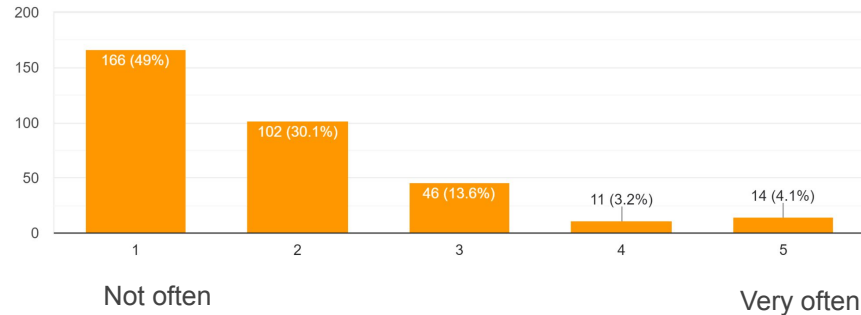
How often do you throw away unfinished food at school?

339 responses



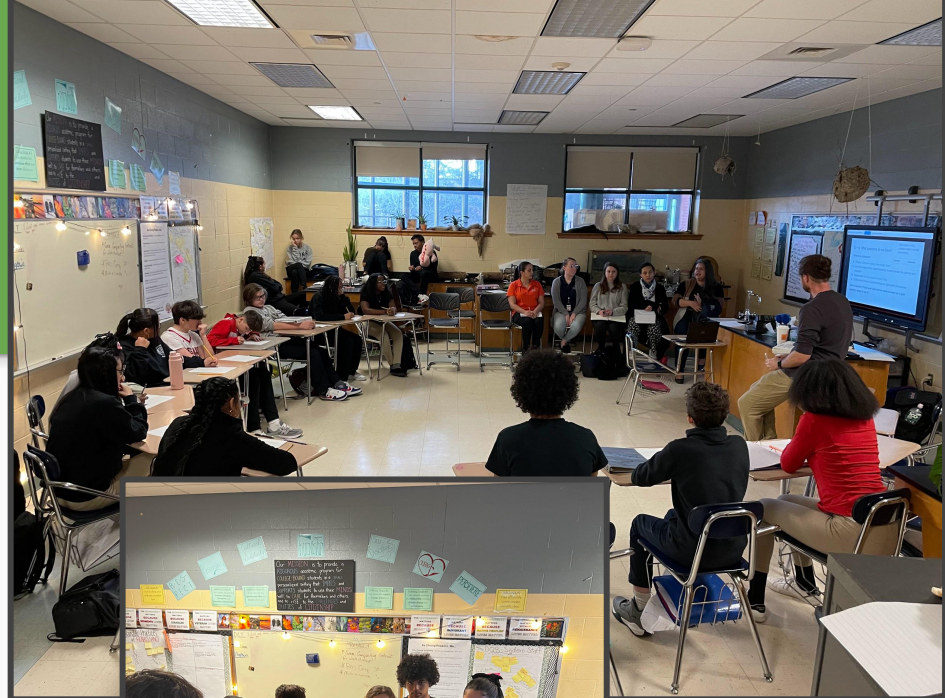
How often do you throw away unfinished food at home?

339 responses



Interview with Sodexo + Homegrown Springfield

- Interviewed them for a full hour!
- Takeaways
 - They offer surveys 3 times a year asking for input on food options etc.
 - They are supportive of working with us to improve food experience in the future
 - Focus is not on reducing food waste created in schools, but on school nutrition



Resolution Writing

- In ELA, we organized our thoughts and recommendations by writing a school committee resolution
- We know that this is not a document that you all use to vote on specifically, but it was helpful for us to formally gather our ideas

Food Waste at Renaissance Whereas Clause:

Whereas, the springfield renaissance school discards over 80 lbs of food per day;

Whereas, at the Springfield renaissance school the majority of students throw away food very often at school;

Whereas, very few students at the springfield renaissance school are satisfied with the breakfast and lunch options;

Whereas, the springfield renaissance school has nothing to combat the food waste issue at their school;

Whereas, the food doesn't look appetising at the springfield renaissance school;

Food Waste at Renaissance Resolved Clause:

Now, therefore, be it resolved, the springfield renaissance school will partner up with the springfield commercial composting system at renaissance, to help reduce the amount of food waste, preferably.

Be it further resolved, the springfield school of renaissance will find out why their students throw away food waste at school compared to at home to help reduce that amount, we can do this by creating a survey. The survey should include the opinions of the students;

May it also be resolved that the students have a voice in what food is served to them at school;

Be it further resolved, the springfield renaissance school will come up with a composting system for the school.

Therefore it be resolved, the food options at the springfield renaissance school will be modified.

How does it work?

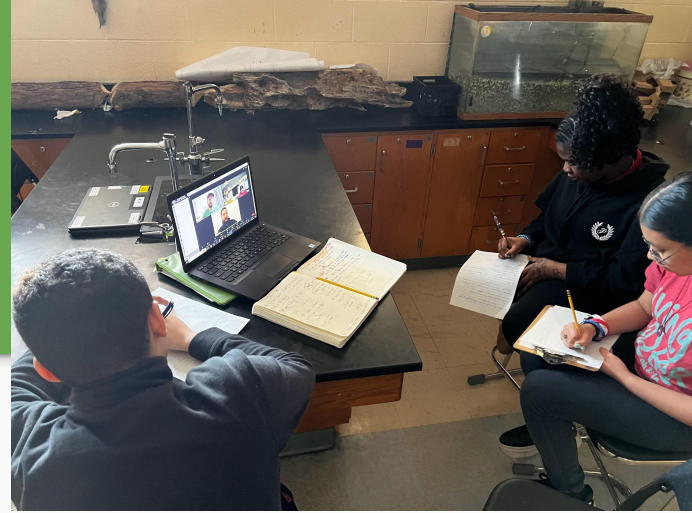
- We sort out our food waste and other compostable material instead of throwing it in the trash
- A company comes and picks up the food waste
- We help the environment!



Renaissance Recommends:

Commonwealth Sustainability - Ludlow, MA (Commercial Composting Company)

- Interviewed them
- Local
- Already servicing multiple school districts (East Longmeadow and Belchertown)
- Big emphasis on education and collaborating with schools
- Ready to start planning with school committee / decision makers



COMMONWEALTH
SUSTAINABILITY



"We Make Composting A-Peeling!"

Pricing



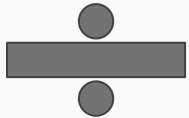
Pricing is based on the number of students in the school.

- \$10.5 for every 100 students (roughly 24,000 students = roughly \$2,520 per week)
- Tote Cleaning= \$2 per tote
- No Tip Fees (tip fees are fees institutions are charged by their hauler to get rid of their waste, typically by charged by the ton)
- Roughly 1 tote per 100 students
- District Total estimate for 240-350 totes need (\$15,000-\$25,000) (Grants available to help with this)
- District Total estimate for services over 44 weeks (\$111,000-\$130,000)

Costs?



\$111,000-\$130,000 per year



~24,000 students



= \$4-\$6 per student
for the whole school year

Money that won't be
going towards trash
pickup anymore :)

*Costs less for year two since we don't have to buy all the totes again

What are we asking for?

1. Commercial Composting for all schools in the district ASAP
2. Pilot a composting program at Renaissance during this school year (23-24 school year)
3. Work with Sodexo / Homegrown Springfield and the students and staff of SPS to find ways to reduce food waste and improve the breakfast and lunch experience
4. Continue to remove styrofoam trays from ALL schools in SPS

Why should we do this?

- Lots of school districts and cities already have
- Costs
- Aligns with Portrait of a Graduate
- Positive press for the district
- Supports our compostable tray initiative
- Better for the environment
- **Equity**



School

Committee Clip

Results:

- Commonwealth Sustainability offered us free composting starting in April!
- Student volunteers supported composting for the rest of the school year
- Principal agreed to sign contract with Commonwealth Sustainability for next school year

10th graders

- How did that feel accomplishing this?
- Did your compost program work end the moment we got it going at our school?

Compost Program Successes

- Diverted over 6000 pounds of food waste in less than a year
- Over 50 students have volunteered to support
- Over 100 hours of community service generated for students
- Spreading compost to an elementary school in Springfield

Compost Program Challenges

- Funding
- Multiple schools in our building
- Scheduling volunteers for composting
- Lack of participating by some students

Massachusetts Career Innovation Pathway Grant



Massachusetts Career Innovation Pathway Grant

Q1: Ecology and Activism



Q1: Ecology and Activism I

Goal 1: Make our compost system more sustainable

Goal 2: Spread composting to another school in the district



Q1: Ecology and Activism I

Goal 1: Make our compost system more sustainable

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How do we schedule our compost volunteers right now?



A	B	C	D	E	F	G	H	I	J		
HS						MS					
Week of 1/7 - 1/10											
Thursday	Kaylie	Keybert				Thursday	Edward	Aidan			
Friday	Humberto	Alex Colon	Kane			Friday	Humberto	Kane			
HS						MS					
Week of 1/7 - 1/10											
Monday	No School->					Monday	No School->				
Tuesday	Lad	Kaylie				Tuesday	Chippy	Jazz	Jaeden.F	Na	
Wednesday	Lad	Kaylie	Ed			Wednesday	Chippy	Jazz	Katelyn.R-no sh	Au	
Thursday	Jazz	Chippy	Mariah			Thursday	Jazymn Grey	Carlos	Jaeden.F	Gi	
Friday	Kaylie	Chippy	Ed	Humberto	Liz	Friday	Kaylie	Chippy	Suzanna		
HS						MS					
Week of 1/13- 1/17											
Monday	Kaylie	Ed	Liz			Monday	Kenji	Lad	ed	ka	
Tuesday						Tuesday					
Wednesday	Synasia	Jocelyn	jasmine T			Wednesday	ed	Jasmine gray	Liz	ka	
Thursday	ed	kaylie	liz	lad		Thursday	jason	remy			
Friday	Justice					Friday	SY'nye	Jasmine gray			
HS						MS					
Week of 1/20- 1/24											
Monday	NO SCHOOL					Monday	No School				
Tuesday	Jocelyn	Jazzmin T	mariah			Tuesday	Carlos	Sy'Nye			
Wednesday	Liz	Ed	Kaylie			Wednesday	Aidan	Junior			
Thursday	Carlos	Makalia	Jocelyn			Thursday	Liz	Kaylie	Makalia		
Friday	Iadainian	Junior	Kaylie			Friday	Iadainian	Aidan	Ed		

Q1: Ecology and Activism I

Goal 1: Make our compost system more sustainable

Goal 2: Spread composting to another school in the district

How did we go about achieving this 2nd goal?



Quarter 2 - Nov - Jan



- New group of 9th graders, new expedition, new guiding question:

*How do we make our **school** community more environmentally sustainable?*

Same start:

- *Trash Audit*
- *Press Conference*
- *Learn about waste, composting as a solution*



Cafeteria Trash Audit - 11/8/24					
Plastics	Blackman	Demico	Donovan	Loughlin	TOT
Plastic containers	1	5	4	1	11
Styrofoam	0	0	0	0	0
Plastic Bottles	2	0	3	4	9
Straws	2	2	2	1	7
Knives, Spoons, Forks	9	1	20	5	35
Plastic Bags/Wrappers	23	5	20	8	56
Other	0	0	5	0	5
Paper/Cardboard	Blackman	Demico	Donovan	Loughlin	TOT
Lunch Trays	38	40	58	63	200
Juice Boxes	2	2	2	3	9
Milk Cartons	21	14	18	4	57
Pieces of paper (estimate)	14	1	20	0	35
Other Cardboard	0	0	5	0	5
Metal	Blackman	Demico	Donovan	Loughlin	TOT
PLANK	1	1	1	2	5

White Street food waste data:

When?	Pounds per class	Whole School	Whole year estimate
Dec. Visit	5.6	106 pounds	19,080
Jan. Visit	5.3	100 pounds	18,000

Quarter 2 - Nov - Jan

- December:
 - Ren students observe White Street students in class, help them compost during lunch



Quarter 2 - Nov - Jan

- **January:**
 - ELA: Ren students write letters to head of custodial staff in SPS, asking for a training program for custodians who support composting

Quarter 2 - Nov - Jan

- **January:**
 - Ren students create lesson plans to teach White Street students about composting

The ENTIRE first grade at White Street throws away 15 pounds of FOOD EVERY DAY! That means that in a whole year, first grade throws away 2,700 pounds of food! That is almost the weight of a hippo!





The ENTIRE school throws away 106 pounds of FOOD in ONE DAY! That means that in a whole YEAR, your school throws away 19,000 POUNDS OF FOOD!! That is the same as 38 GRIZZLY BEARS!





**Do Now: Where do
you think your
trash goes?**

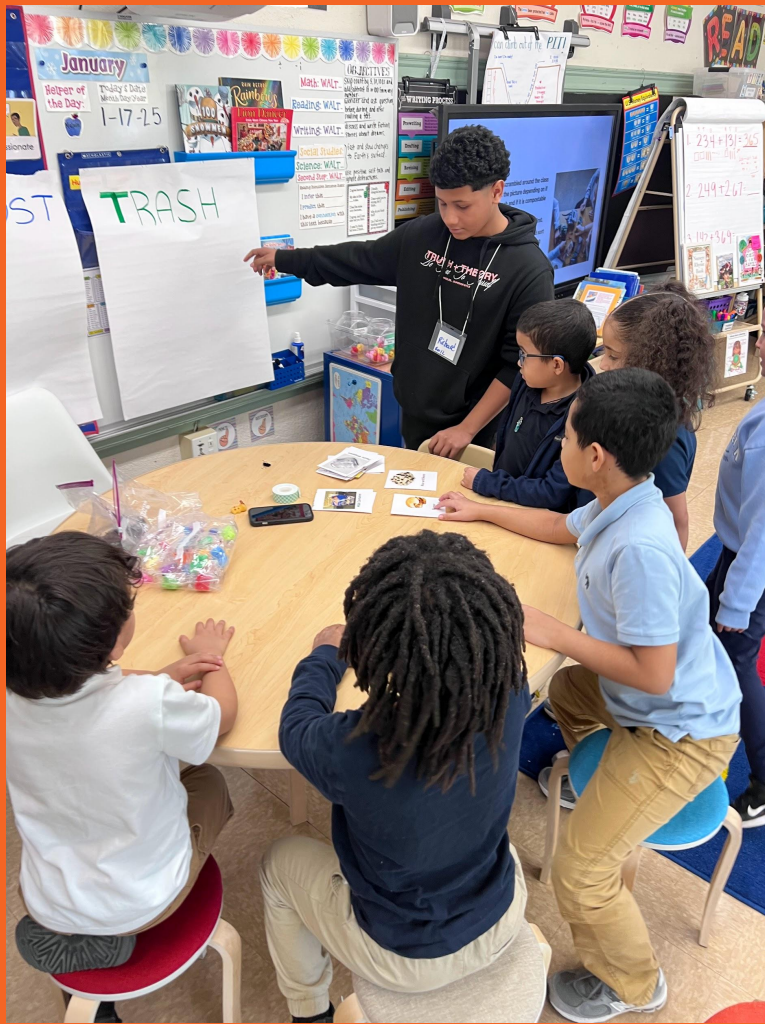
LANDFILL

**Your trash
goes to a place
called a**



**9th graders: what did you
like about creating your
lesson plan? What was
challenging?**

**Last Friday: Ren students
teach at White Street!**



**How did this go? What did
you like about it? Were you
effective?**

What's next?

Yesterday: presented to staff at White Street

Next week: White Street starts composting

Q3: Work on passing district wide compost legislation through school committee

Next year:

Spread composting to other schools?

City wide residential compost pickup in Springfield?

What are we working on outside of school?

Kaylie: YCLP

Makaila: Mass Climate Resilient Schools Coalition (and other stuff?)

Maddie: Goals for after high school?

A framework for creating change:

1. Identify a problem
2. Contact school committee / decision makers and inform them you are looking to address the problem and are requesting a meeting to share your findings in the future
3. Collect initial data
4. Learn about the problem
5. Learn about solutions
6. Present to decision makers / stakeholders in your community where you describe the problem, share your data and your process, and make recommendations
7. Hold them accountable by requesting follow up meetings / checkins!
8. Revise and repeat!

—

**What questions do
you have for us?**