

# Memorandum

To Dr. Francisco Durán, Superintendent, Arlington Public Schools

From Superintendent's Advisory Committee on Sustainability

Topic 2023 Annual Memorandum

Date August 2023

The Superintendent's Advisory Committee on Sustainability (SACS) is pleased to share with you some of Arlington Public Schools's sustainability highlights from the last year, including: 1) environmental performance; 2) the Sustainability Liaison Program; and 3) leadership in environmental literacy.

As you'll see in the brief summaries below, APS' environmental performance has improved in the last 4 years – with persistent reductions in energy use, greenhouse gas emissions, and water use from pre-pandemic levels. We encourage APS to continue seeking out and implementing ways to increase efficiencies and minimize waste to keep energy, emissions, and water use trending downwards.

We were delighted to see and support the now fully funded Sustainability Liaison Program expand to include liaisons in every school. The diverse portfolio of projects spearheaded by these liaisons and their students continues to be extremely impressive. We would like to see APS expand some of the more successful liaison projects into APS-wide programs whenever possible.

Finally, we applaud APS's leadership in environmental literacy as demonstrated by the fact that Dr. Dat Le and Cathy Lin were invited to speak about APS's accomplishments at the Chesapeake Bay's Environmental Literacy Forum in January.

SACS conducted a recruitment campaign this year and will welcome Isabelle Cozzarelli, Richard Derbyshire, Paul Kaplowitz, and David Sachs as new committee members in the upcoming academic year. These new members work with other environmental organizations such as the United States Geological Survey, the Master Gardeners of Northern Virginia, the Potomac River Group of the Sierra Club, and Arlington Friends of Urban Agriculture. We would also like to recognize Samantha Taggart, Levi Novey, and Kate Marshall for their 2, 8, and 12, respectively, years of service on this committee.

Please see the summaries below for additional details about APS sustainability and SACS. We look forward to working with you in the upcoming year to provide sustainability advice in the selection of building upgrades, supporting the identification of sustainability metrics for your strategic plan, and supporting the development of an Energy Career Cluster at the new Arlington Career Center.

## **Environmental Performance**

### **Energy**

In Appendix B, the site energy use intensity (EUI) can be observed for each school for years 2019 through 2022. EUI refers to the amount of energy used per square foot annually. It's calculated by

dividing the total energy consumed by the building in a year by the total gross floor area. Like miles per gallon for cars, EUI is an important indicator of a building's energy performance.

In general, energy use was higher in FY19 before covid for nearly every school compared to the following three years. Energy use in FY20 was greatly impacted by Covid-19, and continued to be impacted in FY21. Energy use in FY22 was increased compared to both FY20 and FY21, and for a handful of schools reached or exceeded the levels of consumption of FY19. However, a majority of schools still remain under FY19 levels. Lower energy use this school year was in part due to extracurricular activities, including evening and weekend activities, being paired down compared to pre-pandemic years. We anticipate the FY23 and FY24 school years to be more aligned with pre-pandemic energy usage patterns and trends.

Across the APS portfolio, site EUI **decreased by 15%** from pre-pandemic FY19 levels to post-pandemic FY22.

### **GHG Emissions**

The Greenhouse Gas (GHG) Emissions Intensity is similar to EUI, where APS measures the amount of GHG emissions per square foot to normalize data across schools of various sizes. Following the energy pattern, GHG emissions were, in general, higher in FY19 before covid for nearly every school compared to the following three years, including FY22.

In most cases, emissions did not come back to near FY19 levels (while energy did increase closer to near pre-pandemic levels) as emissions from grid-purchased electricity decreased and less "direct" emissions from on-site equipment were produced. Across the APS portfolio, GHG emissions intensity **decreased by 14%** from pre-pandemic FY19 levels to post-pandemic FY22.

Total GHG emissions, measured in metric tonnes, decreased 15%, with 2,752 metric tonnes less emissions in FY22 compared to FY19. That is equivalent to planting over 45,000 trees.

### **Water**

Similar to energy use, water use followed a pattern of decreased consumption during the pandemic years of FY2020 and FY2021 and increasing in FY22 but not reaching pre-pandemic levels. This is understandable as we were not fully operating all after school activities and clubs as we did in FY19.

The dramatic changes in consumption of water at schools like Washington-Liberty, Yorktown, and Gunston can be attributed to the cooling towers used as part of their Heating, Ventilation, and Air Conditioning (HVAC) systems. APS had challenges with cooling towers at Gunston, MPSA (Henry), W&L, and Yorktown at various times, and repairs have been made. Wakefield is equipped with a geothermal field that was being tested and repaired as APS discovered some issues/leaks in the well field due to other construction activities.

Across the APS portfolio, water use **decreased by 12%** from pre-pandemic FY19 levels to post-pandemic FY22.

### **Sustainability Liaison**

The crown jewel of the SACS committee is the Sustainability Liaison Program led by APS's Science Supervisor Dat Le. With the recommendation of the Superintendent and approval of the School Board,

this employee stipend program has been extended to all schools inside APS. This program began in Fall of 2016 with 10 Liaisons. The program has grown to 41 Liaisons at 37 of our schools.

The Sustainability Liaison Program is the cornerstone of merging the sustainable practices in our built environment with the educational and habit building sustainability practices inside our schools. This year APS Sustainability Liaisons championed over 22 recycling/reusing projects, 23 gardening activities, and had over 16 guest speaker presentations on various sustainability projects. Liaisons and their students also created sustainability educational newsletters, videos, and posters for their communities. Liaisons also held walk to school days, stream and park clean up days, as well as grow, harvest, and donate over 2800 pounds of food! Many of our Liaisons have established environmental groups within their schools and often partner with community groups such as Eco Action Arlington, the Master Naturalists, and the World Wildlife Fund. The work these Liaisons do to embed sustainability practices into the culture of their school cannot be understated. To see the full PowerPoint presentation of this year's Liaison project highlights proceed to Appendix C.

### **Environmental literacy**

The leadership of APS in sustainability was on display front and center, literally, at the Chesapeake Bay Environmental Literacy Forum on January 18 and 19, 2023. At the forum, attended by over 200 district staff from throughout the Chesapeake Bay watershed, Dr. Dat Le and Cathy Lin presented at an opening session titled "The Big Vision: Arlington Public Schools Exemplar." SACS members Elenor Hodges and Laura Watchman attended the forum and were able to informally communicate with other delegates about sustainability at APS. Overall, other school districts were quite interested in the APS model of supporting sustainability through a committee like SACS. The forum was also an excellent way for our APS delegation to learn about efforts at other school districts and strategize improvements for APS. Some of those improvements, such as getting the word out about the sustainability liaisons and their work, have already started happening in spring 2023.

## Appendix A: SACS 2021-2022 Membership

SACS meets on the third Tuesday of each month, except for July and August. All meetings are open to the public. Members are appointed to two-year terms and participate on a volunteer basis.

### Appointed Members

Meredith Allen	Senior Instructional Technology Coordinator, Tuckahoe Elementary School
Elenor Hodges	M.Ed., Executive Director, <a href="#">EcoAction Arlington</a>
Gregory Lloyd	CCM, LEED AP BD+C, TRUE Advisor, Construction Manager, Wesley Housing
Kate Marshall	Real Estate Senior Manager, <a href="#">GDIT</a>
Leah Nichols	Executive Director, Institute for a Sustainable Earth, GMU
Levi Novey	MS, Consultant, IUCN Pangolin Specialist Group
Cynthia Palmer	JD, MPH, Senior Analyst for Petrochemicals, Moms Clean Air Force, EDF
Robin Puttock	LEED AP BD&C, AIA Architect, Architecture Faculty at Catholic University
Samantha Taggart	Teacher, H-B Woodlawn Secondary Program
Laura Watchman	LEED AP Neighborhood Development, Principal, Watchman Consulting
Eric Tilden	PE, Senior Director of ESG, Elme Communities

### Staff

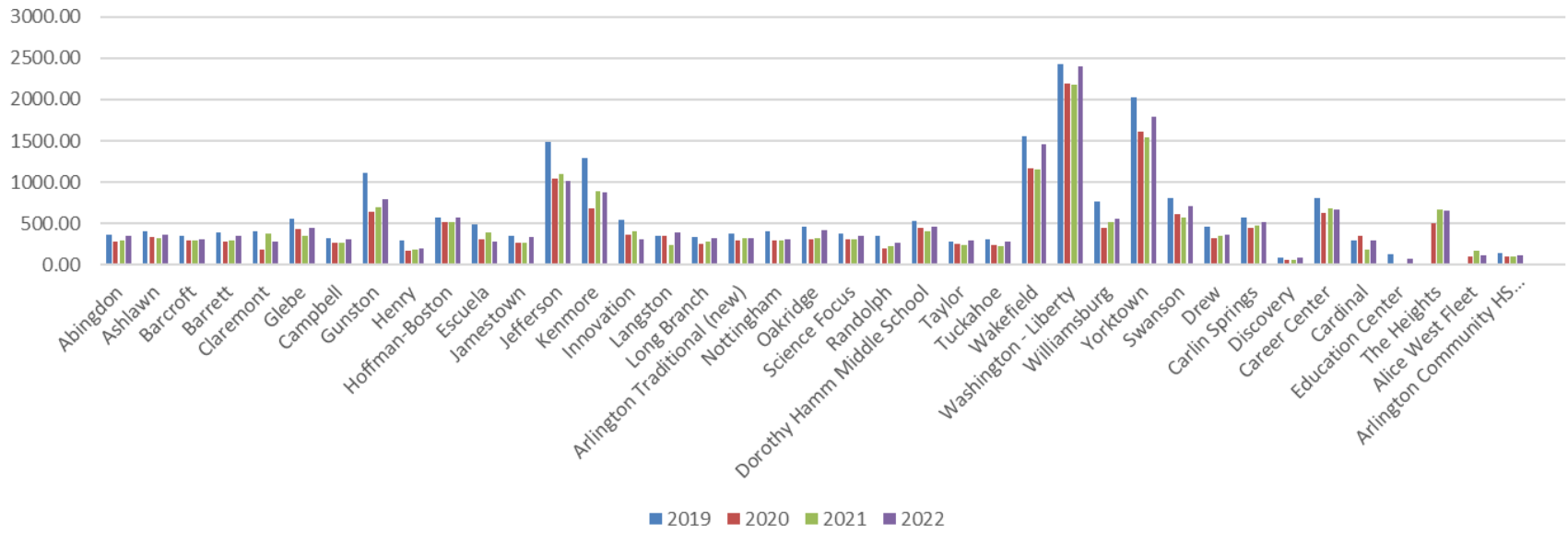
Cathy Lin	CEM, APS Director, Facilities and Operations
Dat Le	Ph.D., APS Science Supervisor
Tanner Prime	APS Energy/Stormwater Program Manager

### Liaisons to Other Committees

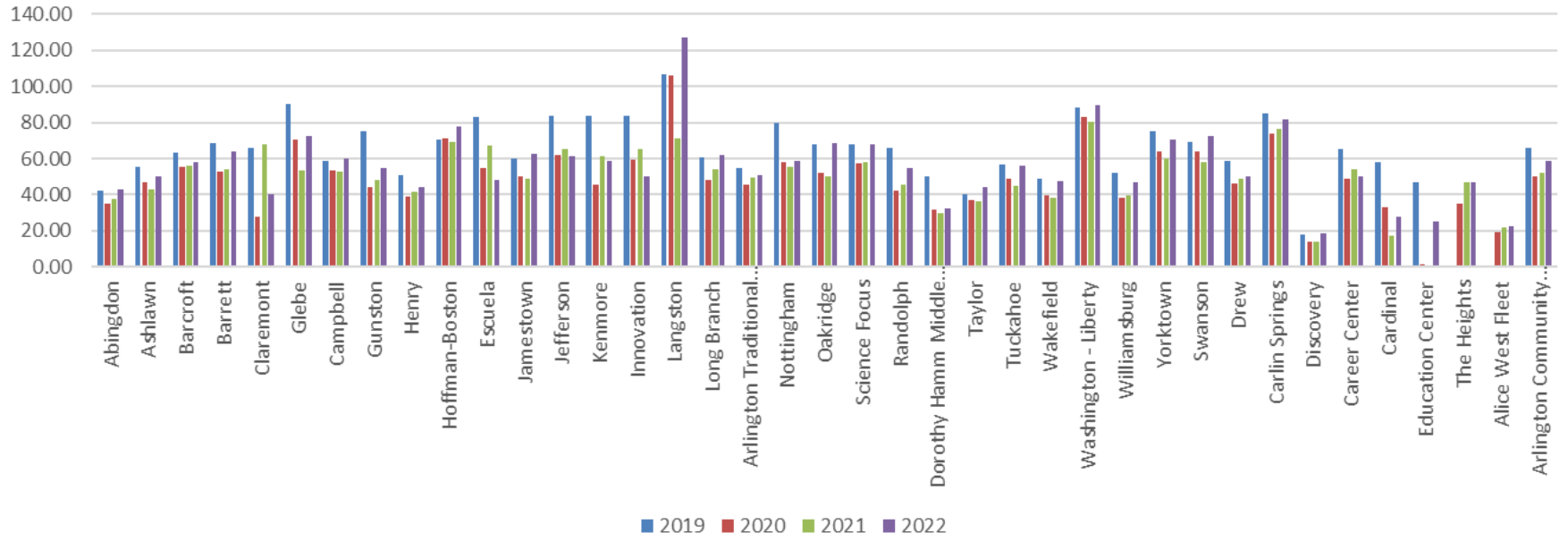
Gregory Lloyd	Advisory Council on School Facilities and Capital Programs
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**Appendix B: Energy, GHG Emissions, and Water Graphs**

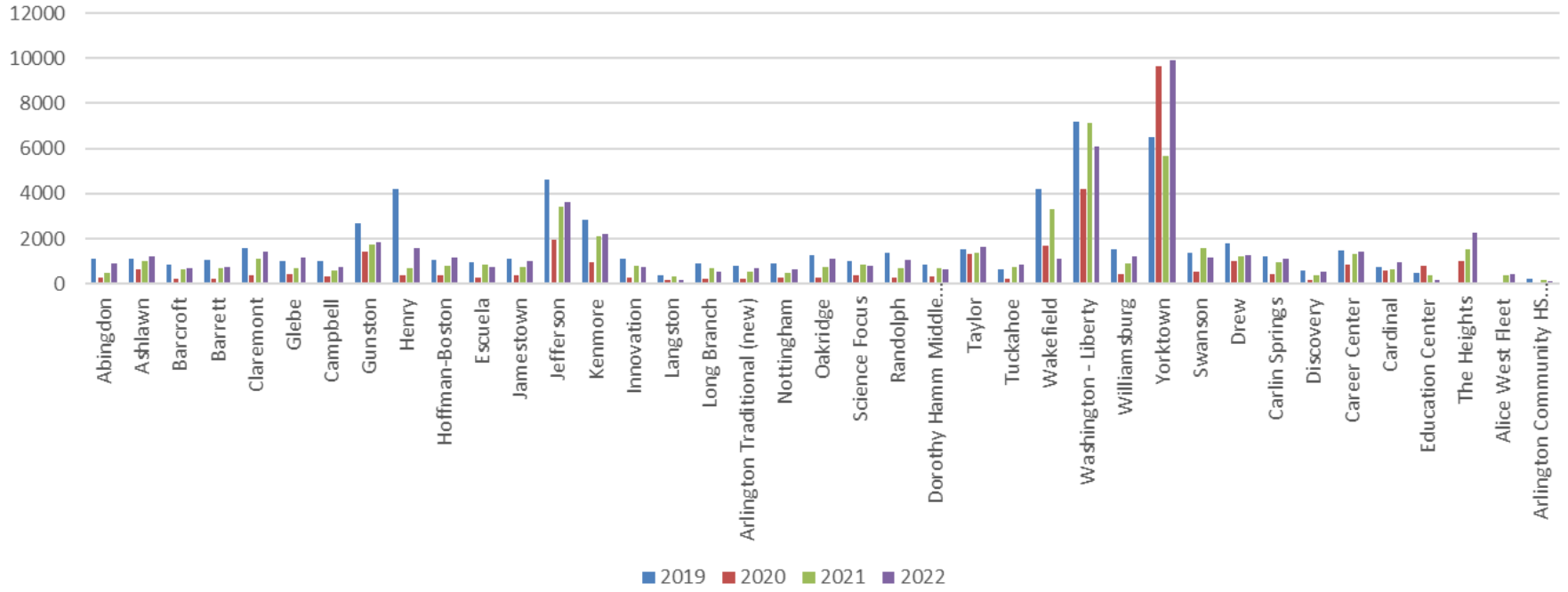
### GHG Emissions Intensity (kgCO<sub>2</sub>e/SF)



### Site Energy Use Intensity (kBtu/SF)



Water Use (in kgals)



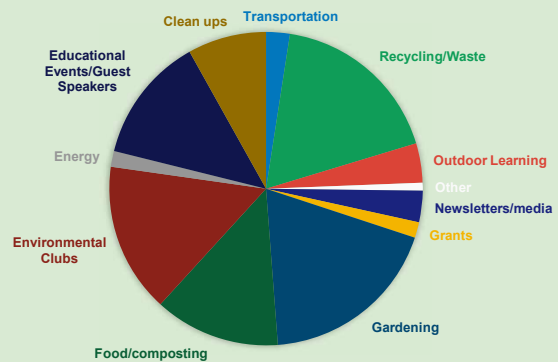
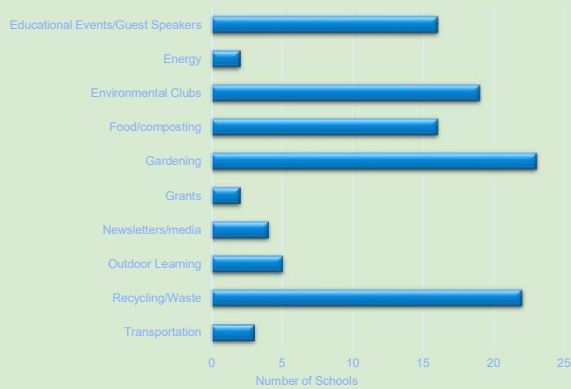


## Appendix C: 2022-2023 Sustainability Liaison Project Presentation

# APS Sustainability Liaison Projects 2022-2023



## School-wide Snapshot





# Alice West Fleet

## The 4th Grade Recycling Ranger Accomplishments!



- Scientist in the classroom!
- Added school yard litter



### Still to come in 2023!

- RR are finalizing plans to launch our first Fleet AFAC food bus!
- RR will lead **April School Wide Morning Meeting** with an emphasis on Earth Month
- More **read alouds** to younger grades!
- **Setting up the outdoor learning space** with help from the PTA.
- **3/22 First Walk to School Wednesday!**





### Arlington Community High School

ELD Science students examined microscopic organisms in local stream water.



Students maintain the hydroponic garden.




Grant application



Staff and students continued sharing gently used items.

**Mrs. Clinger Shows Us How to Compost**

Have you wondered how you can reduce waste in Arlington AND help the environment?

Do you have a bin that looks like this? 

Line it with a compostable paper bag or a certified compostable plastic bag (certified compostable by either the Biodegradable Products Institute (BPI) or the Compost Manufacturing Alliance (CMA)).

You can use the GREAT cans and then use it to make compost. Composting makes healthy soils for plant growth!

This is a GREAT video to help you: <https://youtu.be/rocDQSPi7sE> (video link from Arlington County Virginia website.)

**Newsletter section with focus on sustainability**

Picture from the Arlington County Virginia website



### NO PLACE FOR HATE ARLINGTON SCIENCE FOCUS SCHOOL



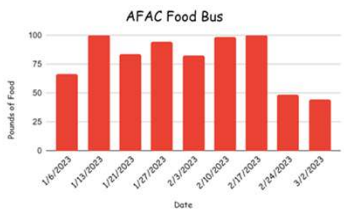
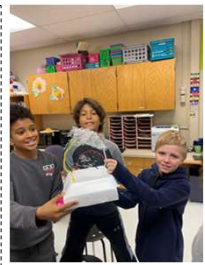
**\*Fall Gardening:** During the science block, students helped weed, mulch, and added new plants to the school grounds.



**\*AFAC Food Bus:** Since October, we have collected over 1,700 pounds of food to donate.



**\*Outside the Box Day:** This is a school-wide event where students use household recyclables to complete different STEM challenges.



**\*Eco Club:** This club is run by our science lead, Stephanie Lin. Students help keep our courtyard looking beautiful and even harvest some of the vegetables.

**Sustainability at ATS! – 2022-23**



**Invasive Plant Removal**



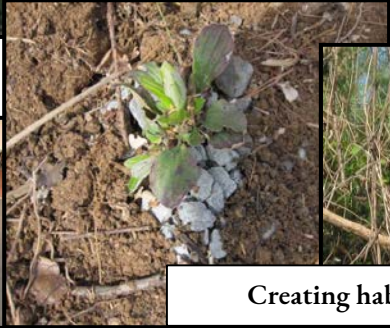
**Planting native plants**



**New gardens!**



**Clothing Recycling at ATS!**



**Creating habitat**



- ❖ **INCLUSIVITY** is the word of the year. We have made sure to include ALL Ashlawn students including our fantastic Functional Life Skills classes.
- ❖ Reevesland Planting and Harvesting multiple times throughout the year with all grades!
- ❖ Parents and students brainstorming and fixing runoff issues with our Gaga Ball Court.
- ❖ Understanding the importance of our environment every day!

## ***Ashlawn Sustainability***









# Barrett's Sustainability Club

**What can be recycled**

PAPER	Plastic	Metal	Glass
Juice boxes Milk cartons Cereal boxes Mixed Paper Books	Plastic bottles and jugs #1-7 (with lids) Containers Wide mouth plastics Rigid plastics	Metal cans Aluminum foil Soda cans Metal trays	All bottles and jars

**Thing that harm trees**

- Staking or Guying a Tree Too Much.
- Girdling a Tree.
- Putting Mulch Too Close To A Tree's Trunk.
- Hanging Bird Feeders with Screws or Nails.
- Tying Your Dog To A Tree.
- Pruning Your Tree in the Wrong Season.
- Filling Tree Cavities with Concrete.
- Power Lines.

Mrs.Han,

Factory farms contribute to global warming. The animals suffer their whole life being locked up in cages and aren't able to move around. When animals are slaughtered they feel pain and may even cry. Do you really want to think about this while eating meat?

I think we should use family farms meat for the school lunches because even though it's more expensive it's better for the animals. So we can (1) have a fundraiser to fundraise for family farms meat. (2) Make a deal with the family farms company to not have to pay the full amount of money. (3) we can use family farms meat only a few days a week so it's not as expensive. Please give me permission to use factory farms meat. 🙏

Sincerely,  
Natalie from Mrs.Fleenor's class

Students have been researching various sustainable topics such as recycling plastics and papers, deforestation, factory farming, and recycling clothing. Students have taken various actions surrounding their topics. Many have chosen to create a short clip for Barrett's Tiger TV, others have hung posters around the school, one has petitioned to use more sustainable meats in the cafeteria, and others have organized a clothing drive.

**Our idea**

Our idea is to collect old clothing or clothing that we don't need and donate them to ThredUp a store that sells recycled clothing. We will put bins outside that say's:

" Donate clothes, your old is their new"



**We have a very active Environmental Club!**

- Two fundraising events for composting
- Monthly excursions to clean up local parks
- Members attended a school board meeting and are working with Arlington Echo to advocate that the planned new building for the Career Center be a zero emissions building.
- Recruit students to help care for and maintain our native plants garden (planted last spring)
- Planned: special event for Earth Day

**Arlington Tech and Career Center**



**EIGHT classes participating in the Plant the Moon Challenge! To test out growing food in simulated lunar regolith for the Artemis mission.**



**Guest speaker: U.S. Geological Survey biologist shares about restoring Florida Bay.**

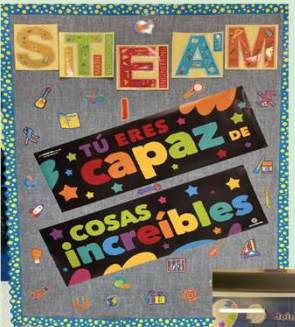


Recycled Toy Project

**Claremont Immersion School**

STEAM Night

Trash Club







Garden work days

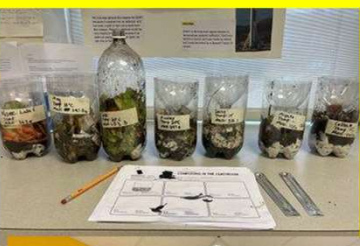


# Discovery Elementary

Sustainable food for our cafeteria from our hydroponic gardens



Guest Speakers at Eco Action Meetings



# Dorothy Hamm Middle School

The Dorothy Hamm community has been working hard on developing a sustainable mind-set. We started by quizzing the school on it's recycling knowledge, and distributed recycling posters to every classroom so teachers could teach about and show what could and could not be recycled. We've learned about composting by building micro-composters. We participated in the Global Battery Challenge and learned about the challenges of energy storage. We "tried" making reusable bags out of plarn (yarn made from plastic bags.) We made cat-toys out of recycled t-shirts for the Arlington Animal Welfare League and we're currently holding a clothing drive for the organization "Clothesline." We are excited to hold our first Earth Hour on March 24 where we will turn out the lights for 1 hour and participate in activities about climate and sustainability. And the week of April 17 - we're planning a week of Earth Week activities.



**60 EARTH HOUR**

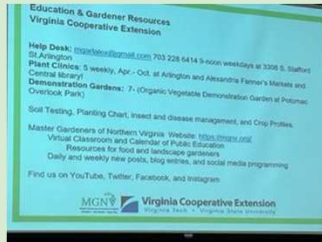
[Click here to learn about Earth Hour](#)

Since Earth Hour's beginnings in 2007, Earth Hour has been known for the "lights off" moment, with individuals from around the globe switching off their lights to show symbolic support for the planet and to raise awareness of the environmental issues affecting it. This year, Earth Hour is calling on supporters across the globe to switch off their lights and give an hour for Earth, spending 60 minutes doing something - anything - positive for our planet.

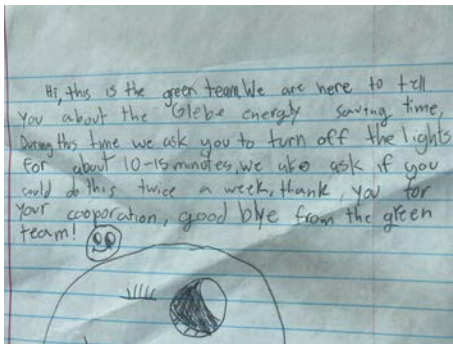
Earth Hour is happening worldwide on March 25 from 8:30 p.m. to 9:30 p.m. But here at DHMS, we're holding our own Earth Hour on Friday, March 24. What will you do for 60 minutes for the Earth? Learn more by visiting [earthhour.org](#).



**Drew E.S.**  
 -organizing a compost program  
 -building compost bins  
 -rebuilding raised garden beds  
 -attending Saturday garden events  
 -connecting with a Master Gardener and our neighborhood community garden organizers



## Glebe Sustainability Projects 2022-2023



Glebe Energy Saving Time



Educational Recycling Video



Garden Box Maintenance



This year, the HBW Green Club designed & created a living "green wall" that is being piloted in our science classroom! We hope to make a larger one in the future in the entrance to the school!

# H-B Woodlawn



Upcoming activities:  
 Earth Week 2023 -  
 Plant Sale  
 Green clothing swap  
 Pinecone bird feeders  
 Seed balls!



## 3rd Grade Green Team Trash Clean up



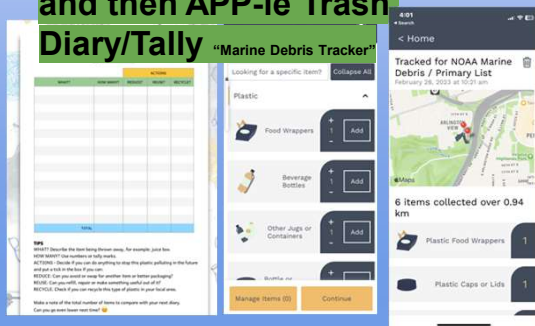
## HOFFMAN BOSTON ALL STARS



HFB outdoor learning space located in our school garden-ready this spring!

Bulletin Boards/Morning News Ads on outdoor learning spaces/recycling tips

## Keeping Track of our garbage using clipboard and then APP-ie Trash Diary/Tally



## Creating Environmental Yoga Poses in PE





Check out the amazing video the rangers created to support recycling school



# Innovation



Drafting their grant application for boot brushes in order to prevent invasive species from spreading



Recycling and re-using by building lunar modules!



Third graders tackle food waste through a media campaign by providing a spot for uneaten whole fruits



## Jamestown Elementary



Fifth Grade Green team removing sucker branches from cherry trees and students learning the Master Naturalist



Grown Up Green Team maintains our hydroponic garden and clearing garden beds



M. Leonberger  
@LeonbergerTJMS  
Last week students investigated vermicomposting and practiced their experimental design skills! Hope some of these students come to #TJMSCompostClub on Tuesday! 🍌 🍌 🍌 #APSGreen #TJMSRocks

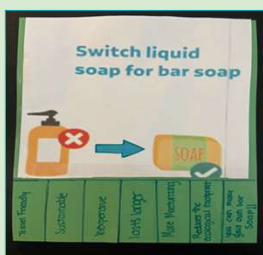


# Thomas Jefferson Middle School

Kaila Leonberger, Sustainability Liaison

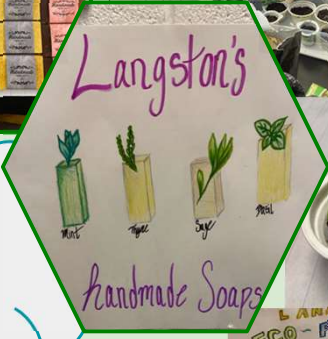
## Compost Club

The TJMS Compost Club did a great job preparing the compost bins for the Winter this afternoon!  
#TJMSRocks #APSGreen



Video → [Langston's Sustainability PBL Project](#)

## langston's



3 teachers. Mrs. Matus, EL specialist. Mrs. Gibson, business education teacher and Mrs. Gaither Env. Sci teacher collaborated in this PBL project. Students learned to collaborate, problem-solve, market, communicate and apply real world workplace skills.



# Long Branch Elementary



**Recycling Rangers:**  
4<sup>th</sup> and 5<sup>th</sup> Grade Students support our school's recycling program by sorting each room's recycling to make sure only recyclable materials are in the bins!



**Coming Soon:**  
**Sustainability Pen Pals with Jamestown Elementary!**  
My Kindergarten class and a class at Jamestown will read the same sustainability themed book and write to each other!



# Sustainability at MPSA

The Importance of Pollinators and Food Waste Reduction

**Can we live without pollinators?**



Smithsonian Pollinator Exhibit



Gold Star Butterfly Sanctuary Project



Writing and Sharing Books about Pollinators

**Can we use data to reduce our food waste at MPSA?**



Learning About Food Waste



Conducting a Food Audit



Sharing Food



Composting

Still to come... Students will give presentations about How to Reduce Food Waste to the LEM and Primary students followed by a Second Food Audit.



The Knights are busy this year!  
Food Drive for AFAC  
Treats for Troops  
Holiday Toy, Coat & Book Drive  
Path Forward – Walk for Homelessness



Before



# Oakridge



Midway.....More to come

Spring Mulching Day



# Randolph Elementary

April- Earth Day Options

EARTH DAY

Randolph Elementary April 2023  
Sustainability Committee

Randolph Elementary Sustainability Committee Formed



### Student iRide Sign-Up

Over 100 students registered for iRide cards!



### Green Team Clean-Up Days


Monthly trash pickup on Swanson grounds with student volunteers.



### Bike, Walk, and Roll to School Day


Upcoming Green Team Projects: Earth Week (April 17-21), vegetable planting, plastic bag recycling program, "Food Bus" in cafeteria - students can leave/take unopened/whole foods to reduce food waste.






# Taylor Elementary School


**Share Table  
Pilot Program with  
DC Food Project**




**School Garden  
Planning!**



Virginia Cooperative Extension  
Virginia Tech • Virginia State University



**Kids Giving Projects**







## Tuckahoe ELEMENTARY SCHOOL



2022-2023 Highlights:

- ✓ Outdoor Learning @ every grade level
- ✓ 5<sup>th</sup> Grade Green Team meets weekly
- ✓ AFAC Food Bus
- ✓ Cardboard Night
- ✓ Vermicomposting
- ✓ Growing over 200lbs of food to donate
- ✓ Monthly Community Garden Days
- ✓ Salad Day
- ✓ Student Led Litter Clean-up
- ✓ Earth Day Tree Plantings



## SCIENCE TALKS

Join us for virtual visiting researchers talking about their professional experiences and the journey that got them there.

**Malcolm Barnard, Baylor University**  
Harmful Algal Blooms

**Wed, Nov. 30**  
3:15 - 4:15 pm  
Room B-213

# Wakefield High School

Garden Club sprouting seeds

Upcoming

Garden Club planting  
Next Newsletter  
Earth Day Clean up  
City Nature Challenge  
Next Science Talk

Campus clean up Oct 18

## SCIENCE TALKS

Join us for virtual visiting researchers talking about their professional experiences and the journey that got them there.

**Neil Hurwitz, Founder: Eco-Statistics**  
Plant evolution & game design

**Tue, Dec 13**  
3:15 - 4:15 pm  
Room B-213

Science Talks!

Visiting researchers talking about what they do and how they got there:

- Nov 30 - Harmful Algal Blooms
- Dec 13 - Plant Evolution and Game Design
- Jan 24 - Climate Change, Poverty, and Human Health
- Apr 25 - Metrology and Photonics

## SCIENCE TALKS

Join us for visiting researchers discussing their professional experiences and the journey that got them there.

**Kristen Patterson, Project Drawdown**  
Climate change, poverty, and human health

**Tue, Jan 24**  
3:15 - 4:15 pm  
Room B-213

Science Talk Dec 13

## Washington-Liberty HS

- **Hydroponic Plant Project**
- **Proposing Alternative Green Cleaners to APS School Board**
- **Clothes Drive for Turkey**
- **Composting in the Cafeteria**



## Williamsburg MS

### TerraCycle Oral Care Recycling Program

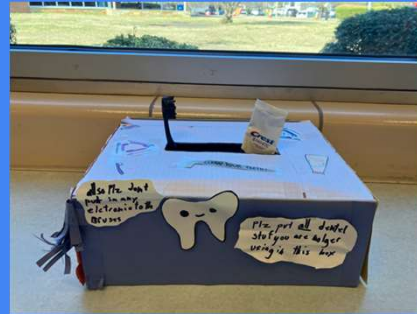
Science teachers have placed collection boxes for old oral care products to be recycled (toothbrushes, empty toothpaste tubes, floss containers). Supplies will be sent away to be recycled.



### GotSneakers? Recycling/Fundraising Program

Unused shoes were collected and donated/recycled depending on the condition. As of mid-March, we have filled four bags (~40 pairs of shoes) to be recycled or donated to those in need.

Proceeds from GotSneakers? will be donated to EcoAction Arlington.



## Yorktown High School's Environmental Club



Our projects have included:

1. Continuing a composting program along with the Life Skills classes.
2. Fundraising for EcoAction Arlington.
3. Removing invasive species from Chestnut Hill Park near Yorktown HS and planting native species.
4. Continuing Donaldson Run Stream Cleanups
5. Had Alonso Abugattas come to speak to the club. He is Natural Resources Manager for Arlington County.

