



EarthWays Center SUSTAINABILITY NETWORK

a program of the  Missouri Botanical Garden

EarthWays Sustainability Network Case Study 2018-2019

Strategies to Reduce School Waste: How Teachers Strengthened Recycling in the School Community



Case Studies and Lessons Learned from the 2018-19 ESN Program Year

The EarthWays Sustainability Network (ESN) is a year-long professional development opportunity that supports educators in the St. Louis region in learning how to reduce school waste, inspire and engage students in real-world problem-solving, and launch green school initiatives to help reach school sustainability goals. ESN is a program of the EarthWays Center of the Missouri Botanical Garden with funding support from the St. Louis-Jefferson Solid Waste Management District and the Missouri Department of Natural Resources.



PROGRAM SUMMARY

The EarthWays Sustainability Network began in the 2016-2017 school year with a waste reduction grant from the St. Louis County Department of Public Health, with the stated goal “to better prepare teachers to be the leader in empowering students to take action and solve real-world problems. By connecting with professional educators in the community, EarthWays Center hopes to establish a network of educated, confident, and empowered educators that serve as champions for sustainability at their school.”

Through the support of the St. Louis-Jefferson Solid Waste Management District, the Network continued to expand in St. Louis City, St. Louis County, Jefferson County, and St. Charles County for the 2017-2018 school year. That support continued for the **2018-2019 school year** and the Network grew to include three more schools: **Bermuda Elementary in Normandy, Grand Center Arts Academy in St. Louis City, and St. Joseph Elementary in Ballwin**. One of these schools was a public school, another an urban charter, and the third was an Archdiocesan school. This year, the focus of EarthWays was to “Support Regional Recycling Goals” by engaging schools and their communities. By including three schools from three different areas of St. Louis in the Network, EarthWays supported teachers in developing solutions that met the specific needs of those schools and communities.



Through experiences in the first two years, EarthWays learned that sustainability must be part of both the culture and curriculum in order to thrive in a school. Strong relationships between staff, faculty, administration, students, and families are a key component of linking culture and curriculum in a school community. Schools are not isolated buildings where students learn, but rather intimately connected with families, neighborhoods, places of worship, and other community spaces. Teachers who catalyze change in a school can truly be forces for change in the wider community. By connecting culture and curriculum, teachers can transform sustainable choices from things “we should do” to “it’s what we do.”

The Network encountered its fair share of challenges in the 2018-2019 school year and each teacher developed a solution to meet the needs of their school community. Waste continues to be the center of the program since students encounter it every day and continually have opportunities to change how they handle waste. Especially with the current changes in recycling, the benefits of having a program focused on how to support regional recycling goals in schools is beneficial to schools and the St. Louis community.

OVERVIEW OF ESN SCHOOLS

Year 1: 2016-17 Schools

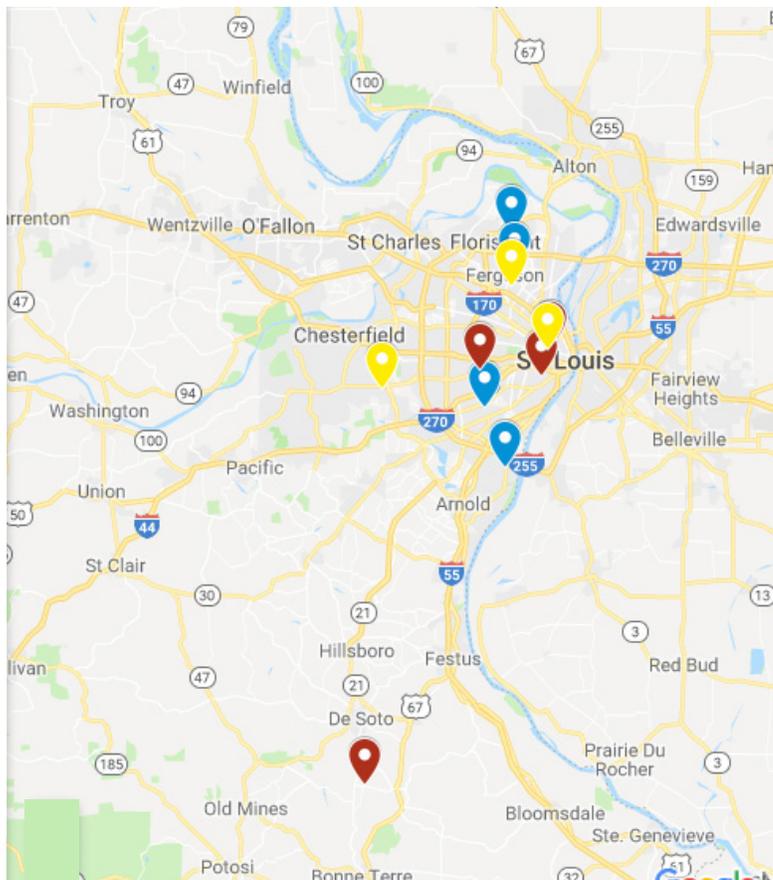
-  Gotsch Intermediate School
-  Halls Ferry Elementary School
-  St Francis of Assisi School
-  Griffith Elementary School

Year 2: 2017-18 Schools

-  Sunrise Elementary School District
-  Carver Elementary School
-  EAGLE Prep: Tower Grove East
-  Saint Mary Magdalen Catholic School

Year 3: 2018-19 Schools

-  Bermuda Elementary School
-  St. Joseph Elementary School
-  Grand Center Arts Academy



Bermuda Elementary
5835 Bermuda Drive,
St. Louis, MO 63121

ESN Teacher: Ryan Young

Type: Public,
Ferguson-Florissant R-II

Number of Students: 236

Grades: K-5



Creative. Genius.

Grand Center Arts Academy
711 N Grand Blvd,
St. Louis, MO 63103

ESN Teacher: Cassandra Lentz

Type: Charter, St. Louis City

Number of Students: 750

Grades: 6-12



St. Joseph Elementary
555 St Joseph Ln,
Ballwin, MO 63021

ESN Teachers: Jill Mueller and
Anna Vellacott

Type: Private/Catholic,
Archdiocese of St. Louis

Number of Students: 225

Grades: PK-8

% Free and Reduced Lunch*: 100% **% Free and Reduced Lunch*:** 65.6% **% Free and Reduced Lunch*:** N/A

*<https://apps.dese.mo.gov/MCDS/home.aspx>

Adapt to Change

Ryan Young wanted to change the curriculum and culture at Bermuda Elementary. Bermuda Elementary School lies within Normandy zoning boundaries (Normandy School District) but is part of the Ferguson-Florissant School District. The entire school population receives federal and state funding due to the economic disparities that exist in that area of North St. Louis County. As a result, Mr. Young saw challenges when teaching best practices for proper disposal of “waste.” His goal was to show his students during his gym class and at lunch how to respect everything they use, eat, and throw away.

At the beginning of the school year, each classroom and the cafeteria had recycling bins that were purchased through a grant from the Missouri Foundation for Health. However, it was up to classroom teachers to monitor and practice correct procedures for separating recycling from trash. In some classrooms, food waste from snacks, used facial tissues, and pencils were filling up the recycling bins.

In the cafeteria, students were taught correct separating procedures at the beginning of the year, but the practices fell by the wayside as the school year went on and students rushed to recess. Mr. Young had to stand at the line for food disposal and remind the students daily that all the items on their tray were to be put in the proper place i.e. the unopened milk would be saved as would the unused sporks and fruit. At the first waste audit of the year, the students measured that 103 pounds of wet and food waste was created in the cafeteria at lunch.

One of the challenges at Bermuda Elementary that Mr. Young faced was the reorganization of the Ferguson-Florissant School District. Most EarthWays Sustainability Network projects have the goal of changing the culture of the school. Unfortunately, after starting the program, we learned that Bermuda was changing from a Kindergarten to 5th grade school to a preschool to 2nd grade school and that most of the teachers would be at different schools the following year. For this reason, most of the focus of Mr. Young’s project was looking at waste outside of the school.

To connect the students’ home life, Mr. Young sent the third graders home with a letter describing the lesson. The lesson for third graders was to spend a week collecting all of their single-use plastic items. They examined the single-use plastic consumer cycle using an item many students brought from home, a Capri-Sun pouch. Students extrapolated their drink container usage numbers by starting on the home scale and expanding it outward to the school, neighborhood, community, county and city area, then the region, state, country, and world. Their numbers for single waste production easily reached the trillions. Next, they dove into the spring waste audit and really began to grasp the idea of human consumption and disposal, that its magnitude is real and full of adverse effects.

It is Mr. Young’s passion to continue teaching all students, no matter their economic status, that our role as visitors and guests of our planet is to leave the place better than we found it.



Small Steps Forward

Cassandra Lentz's Green Machine class at Grand Center Arts Academy was already in motion when the EarthWays Sustainability Network became involved. The students in the class knew they needed to order recycling bins for the school and divert more waste from the landfills. What they did not know was how much waste was being produced at GCAA on a daily basis.

Their goal became to "Reduce Waste and Begin Recycling" in their school and teach students how to positively impact the earth. A student describes the results of their waste audit.

"The numbers were scary! So much waste is produced! The Earthways Center came in October to help tally our day to day waste: we sorted over 88 pounds of waste. By the time we "crunched the numbers" (as our teacher kept saying) we discovered we produce approximately 616 pounds of waste a day! Over 400 is just from food and contaminated items with food on them such as paper and plastics."



Students put recycling bins in classroom, but noticed that nobody was using them. The Green Machine team got together and decided to present information about recycling to the school at an assembly. Students put together talks and presentations about what to recycle, what not to recycle, and why they should recycle. They also created a Recycling Pledge Tree using materials from STL City Recycles.

In December, Ms. Lentz's students noticed there was a lot of wish-cycling happening in their bins. Many people placed things in the bins that could not be recycled in single stream recycling. They started looking for places where they could recycle these items. These included makeup containers, markers and crayons, pill bottles and inhalers, toothbrushes, glue bottles, and plastic bags. People really connected with the plastic bags since GCAA collected for the Plastic Film Recycling Challenge through TREX. This year, the students collected over 100 pounds of plastic bags.

Throughout the year, Ms. Lentz's student consistently took small steps forward in diverting waste from the landfill. In January 2019, high school students began helping to monitor recycling at lunch. They started by only collecting milk and juice containers, but plan to add more items. The hope is that by only collecting two items in the cafeteria at first, the students can minimize contamination. They toured the Republic Services material recovery facility in February. Students continued to measure and collect data on how much was being recycling and put in the trash. By March, students were recycling about 70% of their daily waste from classrooms and cafeterias; 62% from the classrooms and 8% from the cafeteria, which included almost 40 pounds of milk and juice cartons. They had about a 12% contamination rate.

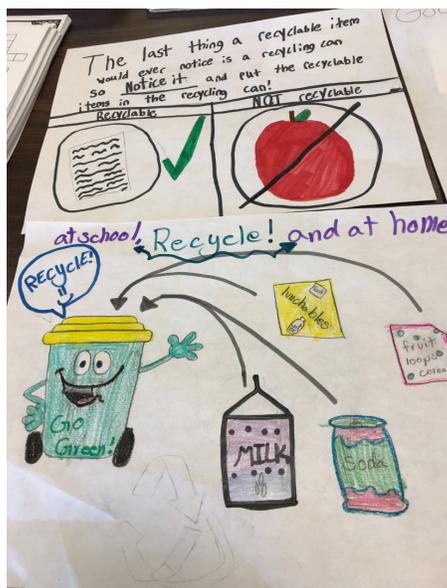
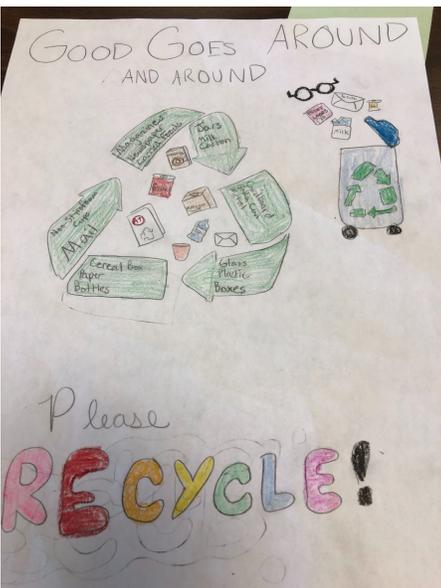
Being a teacher at an arts academy, Ms. Lentz and her students brought creativity into their waste reduction projects. They hosted a Recycled Materials Fashion Show in the fall of 2018 and are currently working on composing *Compost the Musical*. They created reusable tote bags out of old t-shirts and the money raised is going towards a school compost program. Students have used the daily announcements as a time to remind others about the recycling and waste reduction efforts at GCAA.

The Ripple Effect

Jill Mueller and Anna Vellacott at St. Joseph had been recycling paper for a number of years. Students were already practiced at using both sides of the paper and the 8th graders had their route around the school to collect any paper for recycling. They and their students wanted to expand their recycling program beyond paper and make their school a better environment for students and families.

The waste audit was an eye opening process. Even though the school had been recycling paper for years, there was still over 15 pounds of paper in the trash instead of in recycling. Mrs. Mueller and Ms. Vellacott’s students also discovered other recyclable items such as plastic bottles and milk cartons. The teachers wanted to make sure that the students knew what happened to trash once it was thrown away. The EarthWays Center did a presentation for the students on how landfills work. The students also read and did projects about the book Here Comes the Garbage Barge by Jonah Winter.

After investigating, the teachers and students learned that they did have single-stream recycling on campus, so they started looking for ways to collect a wider range of items. They purchased two large recycling bins for the school, one for the teacher’s workroom and one for the lunch room. Before putting them in the different areas, Mrs. Mueller and Ms. Vellacott had their students create posters with information about what could go into single-stream recycling. The students presented to each classroom about what could and could not be recycled in the new bins. They also created brochures on other ways to save the Earth.



The school hosted an Earth Day prayer service and activity day on April 23, 2019. After the prayer service each student got to plant a flower, have a relay race on what goes in the trash and what goes in the recycling, learn about reforestation, and do an Earth craft. At the final waste audit, most of the recyclable items were actually in recycling as opposed to being in the trash.

This program has benefitted the larger community because students are taking the knowledge they have learned to their CYC sporting events, weekend mass and parish events, and families. Many students are teaching their families at home about how to recycle. Mrs. Mueller and Ms. Vellacott are making a difference at St. Joseph and their work is having a ripple effect. They are teaching their students about forming good waste habits and passing those along. The EarthWays Sustainability Network was a catalyst of change in this school, one that the teachers plan on continuing with student next year.

CHALLENGES AND NEXT STEPS

This year, the Network projects were successful, with many plans for next steps. As in previous years, EarthWays staff and schools encountered challenges in these three core areas: Continuity and Consistency, Communication, and Champions, Communities, and Administration Support.

Continuity and Consistency | There was a staffing change at EarthWays during the recruitment and orientation phase of the projects this year. In this transition, some teachers who had expressed interest decided not to pursue the program. New teachers had to be recruited so the beginning of the program was different than in years past. Another challenge resulted from the reorganization of the Ferguson-Florissant School District. Bermuda Elementary had wanted to make building level change, but learned in the fall that the grade levels in the building would change and that most of the faculty, staff, and administration would be moving. This meant that they changed the focus of their project to be on waste at home versus in the school.

Communication | Clear communication between all stakeholders is vital in order to create school wide change. All of the schools had to develop ways of clearly communicating what could and could not be recycled – a challenge the whole St. Louis community is grappling with this year. Each school developed a different way to overcome this challenge, through making posters, brochures, speaking in classes, leading presentations, having reminders on morning announcements, and having students or staff monitor waste stations at lunch.

Champions, Communities, and Administration Support | Each school had a different experience with administrative support this year. One school had an administrator who really wanted the teachers to move more quickly and develop a larger project, partly because he had experience with the Network at another school. One school did not have a lot of administrative support since the district was reorganizing. One school was able to use the experience this year in the Network to triple the number of sections of the class for next year. Each teacher was driven to make a change in the school, but varying levels of support from administrators certainly affected the outcomes of the project.

Next Steps | The goal this year was to help strengthen the connection between teachers within cohorts and from year to year so that sustainability champions can be recognized. Due to the change in staffing, this connection between cohorts was not well implemented this year. It is certainly a goal for the 2019-2020 school year. Personal relationships between EarthWays and teachers or amongst the teachers are the foundation of the EarthWays Sustainability Network. Much of the work in the future should be focused on building and strengthening these relationships.

At least two of the 2019-2020 schools have a goal of focusing on food waste and composting. The focus on food seems to be growing and will provoke interesting projects that not only look at how to manage waste, but how to reduce it in the first place. Being able to share the success of schools with innovative projects will only help to strengthen the Network and its efforts.