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Sustainability Network

a program of the Missouri Botanical Garden

# EarthWays Center and Waste Education Case Study 2020-2021

## Flexibility in Systems: How Non-Profits, Teachers, and Students Supported Waste Reduction in Their Communities

Case Studies and Lessons Learned from the 2020-21 Waste Education Programs

*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.*

*Leadership in Environmental Action Projects (LEAP) is a student action program that reduces, reuses and recycles trash from schools and communities and informs people about local solid waste and resource issues. LEAP uses student/community partnerships and cooperative learning to achieve these goals.*

*ESN and LEAP are programs 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.*

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St. Louis-Jefferson Solid Waste Management District

Missouri Natural Resources

## PROGRAM SUMMARY

The 2020-2021 academic year challenged many schools, teachers, and students. Due to the COVID-19 pandemic, schools shifted between in-person, hybrid, and virtual learning models throughout the school year. These shifts also presented unique challenges and opportunities for the EarthWays Center education team in continuing to educate students in the St. Louis area on the topics of waste reduction, recycling, and composting. These opportunities were fitting for a year with the project name "A 3R's Refresh." The following stories will highlight those efforts across multiple program areas, including the EarthWays Sustainability Network, Leadership in Environmental Action Projects, and Student Innovation Challenge.

The EarthWays Sustainability Network (ESN) began in the 2016-2017 school year with grant funding 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 and the Missouri Department of Natural Resources, 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 through the 2020-2021 school year and the Network was able to virtually include three more schools: St. Joseph's Academy and Nerinx Hall in St. Louis County, and De Soto Junior High School in Jefferson County. This year, the focus was on providing professional development and funding to teachers for projects that could be carried out independently. Both St. Joseph's Academy and Nerinx Hall focused their work on composting programs, and De Soto Junior High enhanced their recycling program.

The Leadership in Environmental Action Projects (LEAP) Program has been continuously supported by the St. Louis-Jefferson Solid Waste Management District since 1993. Through LEAP, students are encouraged to develop their own waste reduction projects and enact change within their communities through the use of the 8-Step Action Plan problem solving framework. The LEAP Program offers yearlong support of student action projects, called Special Projects, and on-demand programs for schools looking for expertise in a specific waste area. Special Projects were supported in schools and community based organizations this year. These included work with Bryan Hill Elementary, Gotsch Intermediate, Midtown Community Services, and Unleashing Potential. EarthWays Center staff and interns also dedicated time this past year to refreshing on-demand programming and updating lessons for in-person and virtual formats.

With Midtown Community Service and Unleashing Potential, EarthWays Center provided a series of virtual lessons for the afterschool programs that centered on waste reduction, recycling, and composting. These programs did not engage in specific waste reduction projects since the students were all meeting virtually instead of in-person. Bryan Hill Elementary focused on creative reuse of materials in an outdoor garden space and on collecting data for the Mississippi River Plastic Pollution Initiative. Gotsch Intermediate focused their work on students who were learning virtually. This group looked at waste in their own homes and how that waste can impact the world around them.

While this year presented many challenges, EarthWays and partner schools met those challenge by creating new opportunities for student learning. By focusing on the "3R's Refresh," educators were able to meet the needs of their students and expand learning about waste reduction beyond the classroom. This year presented the unique opportunity to extend learning into community spaces and homes in ways other years have not. EarthWays Center and partner educators used this past school year to connect students with real world learning opportunities.

## A Time for Flexibility

Flexibility and adaptability were the keywords for the EarthWays Sustainability Network this past year. In a typical year, four teachers would join together for a professional development training in the fall, followed by a waste audit, project development, and cohort meetings. Because of the ever shifting nature of schools in the 2020-2021 academic year, teachers were unable to commit to a full year program. This meant that EarthWays Center had to adapt to meet that need by providing flexible formats for programming, training teachers to use the 8-Step Action Plan with students, and using direct communication for outreach to teachers.

In order to support teachers in a way that fit with their needs, EarthWays Center offered virtual professional development opportunities in early 2021. This workshop closely mirrored the orientation provided to EarthWays Sustainability Network teachers in the past, providing an overview of waste, recycling, and composting in St. Louis, demonstrating activities that can be used in the classroom, and walking teachers through the 8-Step Action Plan.


Since these workshops would be virtual, EarthWays Center reached out to teachers in counties that are further from Missouri Botanical Garden. This included direct invitations sent to teachers in St. Charles and Jefferson County. Historically, most teachers in the program have been at schools in St. Louis County and St. Louis City due to their close physical proximity to the to the EarthWays team. Virtual learning provided a great opportunity to expand the reach of waste education.

Between both workshops, 9 teachers were in attendance. 4 teachers attended from St. Louis County, 4 from St. Charles County, and 1 from Jefferson County. These workshops were hosted on Zoom to provide the facilitator and teachers opportunities for interaction. After attending the workshop, teachers were invited to apply for a $200 stipend to purchase materials for a waste reduction project. 3 teachers submitted applications for stipends. These teachers represented St. Joseph's Academy and Nerinx Hall in St. Louis County, and De Soto Junior High School in Jefferson County.

St. Joseph's Academy focused on two waste reduction projects - reducing the use of paper and worm composting. Students who participated in these projects were part of the Environmental Science class and the environmental club, Earth Angels. Part of the stipend went towards purchasing a paper recycling kit. The goal was to give students a hands-on experience with how paper is recycled, learn why it cannot be recycled endlessly, and to become better stewards of the materials they choose to use. The other part of the stipend was for a vermicomposting bin. This was to give students experience with managing a compost bin and to create a little compost to mix with soil for their Earth Angels annual plant sale.

Nerinx Hall High School had the goal of making the composting visible for the students. Nerinx has school wide composting through St. Louis Composting, but that does not give students the opportunity to observe the process up close or see how composting could fit in to their lives at home. For their project, Nerinx purchased vermicomposting bins so that students could observe the process of composting.

De Soto Junior High School wanted to focus on how COVID-19 had affected their waste streams and on methods for reducing that waste. They purchased new recycling bins and a compost bin as part of their project. These items will help students develop good habits around sorting waste at school and at home.

While this year was very different for the EarthWays Sustainability Network, staying flexible provided opportunities for schools to expand their waste reduction programs. The schools involved in the program this year really focused on the education portion and how students could really carry this knowledge and these practices into their homes and community. The focus shifted from the school building to where students live, but teachers and students made progress towards reducing their waste.

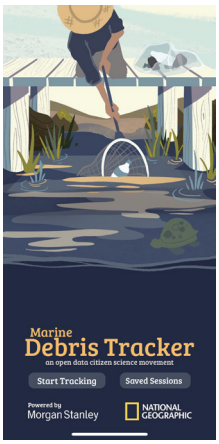
## LEADERSHIP IN ENVIRONMENTAL ACTION PROJECTS (LEAP)

**A Time for Reflection at Outreach**

The Leadership in Environmental Action Projects (LEAP) Program had the opportunity to refresh and grow this year. With reduced class numbers due to COVID-19, EarthWays spent time updating the class offerings, including creating virtual options. Work concentrated on improving programs and reaching out to new audiences. Support for Special Projects occurred virtually, but was still really impactful for students and teachers. Strategies to achieve this goal included embracing technology options that were available and focusing on environmental literacy.

Once EarthWays Center staff confirmed classes would be taught virtually, development of virtual options began. This included updating our most popular programs on recycling basics and composting. Living the 3Rs and Decomposer Detectives both transformed into interactive virtual programs, with book reading, activities around the home or classroom, and question and answer opportunities. Staff also developed a Google Earth tour of the local Champ Landfill to complement the Garbology 101, which uses an interactive landfill model to demonstrate how landfills work.


Staff and interns also set aside time to evaluate what previous LEAP programs worked really well as on-demand options, and which could benefit from an update. Three new programs were developed that work in-person and virtually. Green or Greenwashing focused on product claims about sustainability, including whether materials are recyclable or not. Full Circle Stories asks students to think about how creative writing can be used to persuade readers to engage in sustainability practices. Shark Tank: Sustainability Edition provides students the opportunity to design a new product from “trash” and pitch it as a business idea. These programs will complement other offerings to expand how students think about waste reduction.



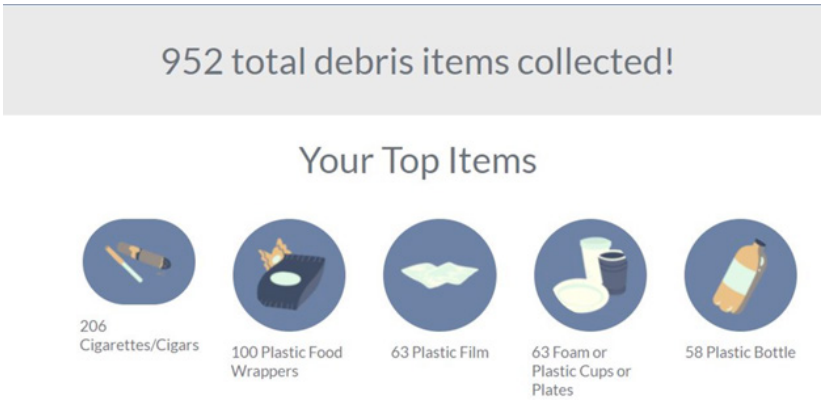

EarthWays Center engaged in two categories of Special LEAP Projects this year. One set was with community organizations, including Midtown Community Services and Unleashing Potential. These programs with community based organizations were not focused on reducing the waste at the organization since all the students were virtual. Rather, these projects provided a series of programs on the topic of waste so that students could learn about waste issues and reduce waste in their own home. Program topics included Living the 3Rs, Decomposer Detectives, and a tutorial of the Marine Debris Tracker App. Students were asked to use the Marine Debris Tracker app while they did a cleanup in their neighborhood to collect data on what kind of waste they found.

The other set of Special LEAP Projects were with participants in Green Schools Quest. These schools were engaged in a 6 month no or low cost sustainability project. The two schools EarthWays worked with were Bryan Hill Elementary and Gotsch Intermediate.

Bryan Hill focused much of the year on creating an outdoor Sound Garden and Makerspace out of upcycled materials. They are hoping to extend their waste reduction projects next year into eliminating foam trays from the cafeteria. This is an on-going project that was in progress before 2020. Bryan Hill also participated in the Mississippi River Plastic Pollution Initiative. During this project, students cleaned up trash around their school neighborhood and recorded what items were found and the location. This data was contributed to a citizen science project through the Marine Debris Tracker App. Students observed what kind of waste was in the neighborhood and brainstormed potential sources of waste. This process of collecting data and analyzing its source is integral to being able to solve larger waste issues.

Gotsch Intermediate was working with a group of virtual learners so they focused entirely on projects that could be done at home. Students reviewed the basics of recycling and the value of reducing and reusing. Teachers asked students to track how much trash their families threw away for one week to raise this awareness. Students also explored ways that the material could be reused instead of going directly in the trash. Afterwards, students learned about projects developed by peers around the world to reduce trash, especially plastic waste. This connected them with the idea that they could make a difference now.

In addition to these Special Projects with schools, EarthWays Center also helped to publicize and connect educators to the Mississippi River Plastic Pollution Initiative through the Student Innovation Challenge. The Initiative was a collaboration between the UN Environment Programme, the Mississippi River Cities and Towns Initiative, University of Georgia, and National Geographic. The goal is to have citizen scientists use the Marine Debris Tracker app to record data about pollution along the Mississippi River that would generate a map aimed at helping policymakers, businesses and citizens take action on pollution issues. EarthWays Center helped to promote this event to schools using the annual Student Innovation Challenge. Students, families, and community groups were encouraged to collect data during the Initiative and then suggest solutions to the pollution issue. Bryan Hill, a LEAP Special Project School, and St. Joseph's Academy, an ESN School, both collected data for the project. St. Joseph's Academy also submitted their solution for the Student Innovation Challenge.




Finally, EarthWays worked with education staff at Missouri Botanical Garden to develop animated books about waste, recycling, and compost. Staff chose popular titles that would normally be lent out to classrooms from the EarthWays library. Then, these books were animated, recorded, and posted on a YouTube channel so that anyone could access them. Books chosen included Adventures of an Aluminum Can and Compost Stew. These were incredibly popular offerings and many people engaged in watching these story time opportunities and integrating them into their classroom. Staff is continuing to develop storybooks to expand this option for teachers and students.

This year included far fewer in-person programs as part of LEAP. EarthWays took advantage of this opportunity to review programs, connect waste reduction learning to student homes, and expand virtual options that can be used long after a return to in-person program. This past year has provided EarthWays with a chance to reflect on the LEAP program and improve it for the future.

## CHALLENGES AND NEXT STEPS

The new academic year begins with challenges, as did the last year. Addressing these challenges will be a focus of upcoming ESN and LEAP projects. While schools are returning to in-person learning, interactions with students and teachers may still be limited to virtual programs. Many educators who normally would have an interest in participating will be facing barriers in committing to a full year program, including new COVID-19 protocols and an increased focus on helping students catch up on learning.

Students and teachers will be returning to school buildings where well-established waste practices involving recycling and composting were disrupted in the past 18 months. Anecdotally, many teachers and schools have reported that there is a huge increase in waste, especially with individually packaged food items, and a greater reliance on single-use items that cannot be recycled. Schools may also be reluctant to invest in waste reduction practices when other curricular and logistical challenges are presenting themselves.

**Next Steps |** With these challenges in mind, EarthWays Center is planning to continue to support teachers and school sustainability champions in this upcoming year in a way that is flexible with changing circumstances.

Since many programs will still be virtual, this presents another opportunity to reach out to schools that are located further away from Missouri Botanical Garden that might not normally use EarthWays as a resource. This will include targeted outreach for ESN, LEAP programs, and teacher professional development. Being virtual means that teachers will have to provide most of the physical support for these student programs while EarthWays staff will serve as mentors. A focus of professional development will need to be on how to develop projects within schools considering all the pressures that will be on teachers this year.

Another focus will be on helping schools reestablish waste reduction habits. A number of teachers have told EarthWays staff that more waste is being generated in their schools due to COVID-19. In addition to that, many students and teachers have not been in the habit of recycling and composting in school for the past year. Many well established habits will have to be retaught and reintegrated into the school culture.

The last key component is providing resources for schools to devote towards waste reduction projects. Part of this is mentoring teachers and students through the process of developing waste reduction projects and recruiting other stakeholders to engage in waste reduction goals. Part is providing financial resources for schools to purchase supplies. Both ESN and LEAP Special Projects fulfill these needs for schools.

EarthWays Center staff will have to remain flexible as regulations and rules with in schools change. With many of the experiences and tools developed in the past academic year, EarthWays is well equipped to support schools who are striving to reduce waste in their schools and create sustainable systems.