

EARTHWAYS CENTER  
AND WASTE EDUCATION

## CASE STUDY 2021–2022



## Recycling Refresh: Supporting Schools in Cutting Recycling Contamination

*August 24, 2022*



**MISSOURI BOTANICAL GARDEN**

# CASE STUDIES AND LESSONS LEARNED FROM THE 2021-22 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. This project was funded by the St. Louis–Jefferson Solid Waste Management District and the Missouri Department of Natural Resources.

## EARTHWAYS CENTER



## Summary

The 2021–2022 academic year challenged schools, teachers, and students to shift back to in-person learning. Due to the COVID-19 pandemic and having virtual schooling, many students and teachers were re-learning how to sort their waste into recycling and landfill. This learning fit well with the theme of “Cutting Contamination through Education.” The following stories will highlight the efforts to reduce recycling contamination across multiple program areas, including the EarthWays Sustainability Network and Leadership in Environmental Action Projects.

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, 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 2021–2022 school year and the Network was able to include three more schools: Hixson Middle School and Maplewood Richmond Heights Elementary in St. Louis County, and Flance Early Learning Center in St. Louis City. This year, EarthWays Center staff supported schools in identifying areas in the school where small, flexible waste reduction practices could be implemented. Due to the unique challenges with staffing and starting in-person learning, two schools could not complete their projects this year.

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. Two Special Projects were supported in schools and community based organizations this year. These included work with Bryan Hill Elementary and Columbia Elementary, and LifeWise STL’s Freedom School.

Bryan Hill and Columbia Elementary worked towards improving the outdoor spaces around the school, including working to improve the trash pick-up and refuse in the alley. LifeWise STL completed a full waste audit of their lunch waste and examined ways to reduce that waste and clean up litter in the neighborhood.

With pressure to help students catch up on learning while managing students who may not have been in a classroom for 18 months this was another challenging year for teachers. By focusing on “Cutting Contamination Through Education,” schools were able to set reasonable waste reduction and learning goals by focusing on the quality of their recycling stream. EarthWays Center and partner educators used this school year to focus on student learning and waste practices in schools.

## **EarthWays Sustainability Network: Re-Learning Waste Practices**

The 2021–22 academic year was the first school year since 2018–19 students and teachers spent as a full year in-person, in the classroom. There was pressure for teachers to help students catch-up on any learning they missed during the COVID-19 pandemic. Students and teachers were learning how to spend a full day in school again. In this atmosphere, three schools took on the challenge of examining their waste and recycling practices through the EarthWays Sustainability Network (ESN) program: Flance Early Learning Center, Maplewood Richmond Heights Elementary School, and Hixson Middle School.

### **Flance Early Learning Center**

Flance Early Learning Center develops partnerships and educational outreach to the St. Louis community. They are a diverse, intentional early childhood community that nurtures children and adults in a loving culture of trust, respect, accountability, compassion, and consistency. Over the 2021–2022 school year, Flance developed new skills and knowledge in reducing waste, recycling, and composting to integrate new strategies among their staff so they can become capable of sharing this information among a vast audience. Flance utilized the information gathered to create a presentation that focused on health and economic benefits from reducing waste. After realizing they throw away roughly \$8,000 worth of materials (paper towels and plastic ware) each year, they became more aware of the global consequence of their actions and decided to implement changes across their school. For the students and teachers themselves, they swapped single-use plastic for more eco-friendly products that can be reused such as wheat grass plates and other reusable cookware. It may seem the amount of waste was painfully eye opening to them, but the rise in health concerns with hot products used in plastic ware and UV exposure to plastic was another reason to discontinue the use of plastic all together. The Sustainability Specialist at Flance, Erin McFarland, did have to leave the school mid-year and had to leave the program at that time.

### **Maplewood Richmond Heights Elementary School**

Maplewood Richmond Heights (MRH) Elementary School began the year with a focus on Health, Wealth, and Happiness in their Seed to Table program. Chef

Almut Marino, the Seed to Table teacher, had the goal of changing attitudes towards waste and instilling a sense of stewardship at MRH.

Students at MRH played the Sustain Game, a hands-on version of the “Tragedy of the Commons.” Through this game, students learned about the natural resources and the limits of those systems. This helped them develop their own “Rs,” similar to “Reduce, Reuse, and Recycle.” 5th graders spent much of the year focusing on recycling and waste while 6th graders focused on food issues. Students engaged in a lesson about healthy lunches and an activity where students explored topics such as waste-free packaging and food waste.

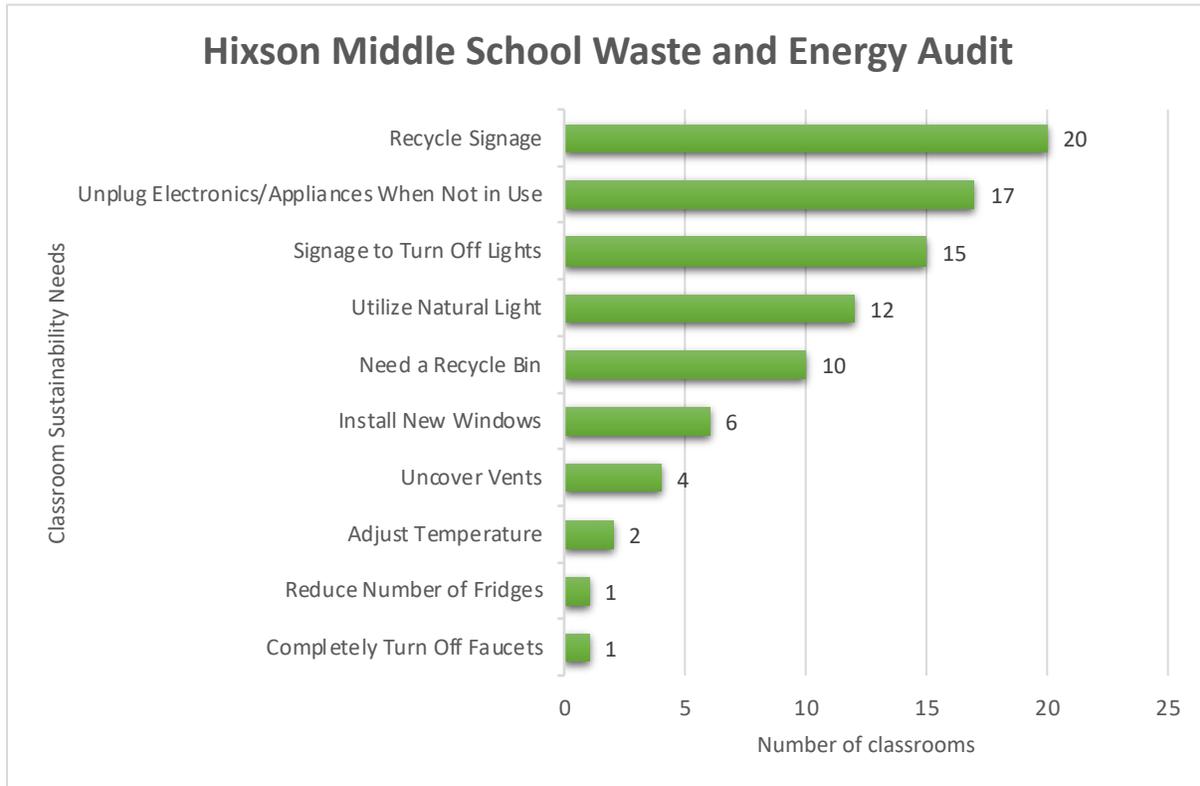
EarthWays Center staff did a walk-through of the MRH building, examining current recycling processes, and doing a visual audit of the dumpster to help prioritize waste challenges and projects. Staff also helped Chef Marino outline a curriculum around waste and recycling. Unfortunately, due to class scheduling challenges and having class time reduced in early 2022, MRH had to leave the ESN program. Their goal is to rejoin for the 2022–23 school year.

### **Hixson Middle School**

Hixson Middle School is located in St. Louis County and partnered with the EarthWays Sustainability Network to help manage waste, recycle, and reduce plastic use within their school during the 2021–2022 program year. The students were comprised of 6th through 8th graders and their teacher, Mr. Eric Hayes, assisted in helping the students achieve their goals in creating a children’s book to share their knowledge of sustainable ideas to fellow elementary students. The student’s lesson plan is titled, “Children’s Book Project,” and will reveal the challenges faced prior to conducting waste audits, initiatives taken to reduce waste within their school, and will exhibit the results and benefits from participating in the ESN program.

Prior to contributing to this program, Hixson Middle School was faced with the misuse of recycle bins across their school and loss of energy efficiency. Although Hixson provided recycling bins in many of the classrooms, students and teachers were placing non-recyclable items in the bin. Due to the contamination, most recycling went to the landfill. Mr. Hayes and the Sustainability Students identified their school’s

## Hixson Middle School Waste and Energy Audit



biggest waste management obstacles as, “recycling and electrical use. Not enough staff to run the recycling program and people are not using recycle bins correctly. Too many lights and electronics are continuously operating in rooms when not in use and too many windows are not sealed properly.” The main goal of the project was for Mr. Hayes’ sustainability students to conduct a waste and energy audit of the school to determine a plan to improve school sustainability and bring about a culture change within the school. Mr. Hayes stated, “I want the students to develop the audit, conduct, and analyze it and develop a plan to address a major issue that they identified as a result of the audit.”

Before the waste audit, the layout of the school was examined to determine the number of rooms students would be investigating. The students created a list of barriers to becoming more sustainable. Barriers included a lack of recycling bins in the classrooms, improper use of recycling, and no signage to turn off lights. Mrs. Sarah Magruder, Hixson’s Principal Secretary, stated, “Approximately 100,000 sheets of paper are being used per month”, making it crucial that each classroom recycled appropriately.

During the waste audit, students gathered data from twenty-two classrooms, four hallways, the library, main entrance lobby, old gym and new gym, cafeteria, orchestra, the counselor’s office, and auditorium. The included graphic shows a summary of the sustainability actions needed for classrooms in the school. Most classrooms needed recycling signage, reminders to unplug appliances when not in use, and increased use of natural light

After conducting their audit and implementing solutions, students presented their findings to fellow students and teachers. This enables Hixson to have a more consistent approach to recycling. It taught students how to properly recycle, be responsible for their actions, and become more aware of ways to reduce waste.

Hixson Middle School implemented a successful recycling program in their school with plans to continue adding new solutions to every room. Students gained knowledge about reducing waste, increased confidence in public speaking, integrated waste reduction solutions into their community, and helped spread awareness within their own families to make for a cleaner community.



## **Leadership in Environmental Action Projects (LEAP)**

The Leadership in Environmental Action Projects (LEAP) Program had to be very flexible during the 2021–22 school year. At the beginning of the year, programs could only be done virtually or outdoors. The COVID surge in the winter brought about a decline in programs, but schools were ready for indoor, in-person programs by the spring. Due to the unpredictability of the school year, there were no fully completed LEAP Special Projects, but many schools examined their waste and booked our most popular programs. Garden staff used this time to pilot new programs and work on improving already existing programs.

### **LEAP Special Projects**

Columbia and Bryan Hill Elementary in St. Louis Public Schools participated in Green Schools Quest this year and were supported as a LEAP Special Project. The schools focused on Health and Wellness this year as students live and attend school near highways, pollutants, illegal dumping issues, and building demolitions that stir up harmful matter into the air. These issues, plus many others, have contributed to the community suffering from various health conditions, primarily asthma. The school devoted energy into providing the healthiest environments, discussing nutrition, advocating for healthy green spaces, and working with local stakeholders to protect the neighborhoods surrounding the schools. Their waste related project this year focused on advocating for the cleanup of illegal dumping in the alleys near the schools and surrounding neighborhoods.

LifeWise StL's Freedom School also participated in the LEAP Program. The Freedom School Program, "seeks to build strong, literate and empowered children prepared to make a difference in themselves, their families, communities, nation and world today." Scholars are encouraged to develop a social or community action project. The scholars and LifeWise StL completed a waste audit of their lunchroom and brainstormed ideas about actions that could be taken to reduce waste. During the planning stage, many students brainstormed solutions to the litter they saw in their neighborhood and identified barriers to implementing those solutions.

## **LEAP Lessons: New and Improved**

EarthWays Center piloted new lessons this past school year that were developed during the 2020–21 program year. These lessons updated old versions of lessons or introduced new topics to the LEAP Program. EarthWays Center introduced Recycling Science at St. Joseph's Academy. Recycling Science is geared for middle and high school students and gives them a hands-on experience of how recycling is sorted at a material recovery facility (MRF). Students use magnets and an aluminum can to demonstrate an eddy current and separate plastic nurdles by density. Staff piloted Full Circle Stories at Griffith Elementary. Full Circle Stories is a literacy program that encourages students to write persuasively about waste solutions in their community or tell a story about waste. Students read a story about waste for inspiration and then develop their own stories.

EarthWays staff focused on streamlining and improving the most popular LEAP lessons. These include Living the 3Rs, Decomposer Detectives, and Making Recycled Paper. For younger audiences, Decomposer Detectives focuses on having students make observations and ask questions about what they see in an active vermicomposting bin. This inquiry leads them to deeper hands-on engagement with the worms and a better understanding of how compost works as a living system. To improve student experience, new supplies were purchased or created for Making Recycled Paper. New screens and plastic bins make it much easier for students to create their own piece of recycled paper.

## Challenges and Next Steps

The 2021–22 academic year was full of challenges for implementing waste reduction projects in schools. Many students were back in person for the first time since March 2020, so teachers were doing extra work helping students adjust to being in the classroom. Schools were not eager to have indoor programs until spring 2022. Teachers felt very pressured to spend class time covering core content instead of integrating sustainability education. A COVID wave interrupted learning during the winter. Schools continued to have extra packaging for food. Many schools shut down their recycling programs during COVID. Overall, it was a particularly challenging year for teachers. EarthWays Center is looking forward to future school years and planning for next steps in response to these challenges.

A goal of this year is to continue helping schools re-establish sustainable waste practices. This includes refreshing all students, teachers, administrators, and support staff on what items should be recycled and what should go to the landfill. It also includes supporting school green teams in examining their purchasing procedures as a way of reducing waste.

Another goal is to help teachers and sustainability champions within larger school districts network with each other to create broader changes. Schools in the same district may be facing similar issues and challenges and can support each other and create district level change by working with each other.

The ESN and LEAP programs will be re-focusing on helping schools create green teams that include teachers, students, administrators, and custodial staff. Having all these stakeholders involved in the creation of waste reduction procedure helps to ensure the longevity of recycling and sustainability policies within schools. If one person leaves, the team can continue to implement sustainable waste practices. Too often, schools lose momentum on projects because the sustainability champion in the school leaves. Having a strong green team is essential to creating lasting and meaningful change.



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