The Green Schools Quest is a challenge issued by the U.S. Green Building Council-Missouri Gateway Chapter to public and private schools within the chapter’s territory (Missouri and southern Illinois) to devise and implement, with the help of green mentors, the most creative, effective and no or low cost sustainable practices for their schools. For more information, visit www.usgbc-mogateway.org/green-school-quest/ or contact Hope Gribble, Education & Green Schools Manager, (314) 577-0225.

2016-17 GREEN SCHOOLS QUEST SUBMISSIONS

47 school and mentor teams participated in the 2016-17 Green Schools Quest. 37 of these schools submitted results of their projects for review by an impartial panel of judges. Please join us in celebrating ALL participants of the 2016-17 challenge!

ELEMENTARY PARTICIPANTS

THE ENERGY AUDIT-TEURS, CHESTERFIELD DAY SCHOOL
School Team Sponsors: Scott McClintock (Primary) & Jeff Horwitz
Mentor: Ralph Bicknese, Hellmuth + Bicknese Architects
Recognizing that their school uses electricity generated by the burning of coal, the students at Chesterfield Day School set out to reduce their electricity consumption. Students performed an energy audit and learned how to read energy bills. To reduce energy consumption, students took two light bulbs out of every light fixture. In doing so, they saved their school over $100 in the month of February.

WASTE-WISE, CHRIST COMMUNITY LUTHERAN SCHOOL (CCLS)
School Team Sponsors: Katie Clark (Primary) & Mrs. Janet Leet
Mentor: Katherine Golden, EarthWays Center of the Missouri Botanical Garden
A year ago, Christ Community Lutheran’s Green Team did not exist. Today, one quarter of the entire student body regularly and actively engages with interest in the topic of sustainability. For this year’s Green Schools Quest project, CCLS students sought to make their cafeteria more sustainable. Older students served as “Green Ninjas,” helping younger children sort their trash. In 100 school days, the school diverted more than 4,000 pounds of waste from the landfill.

FROM A SEED GROWS THE FOREST, CHRIST, PRINCE OF PEACE SCHOOL
School Team Sponsors: Lynn Page (Primary) & Lauren Hanna
Mentor: Tammy Heat
After listening to the children’s book, The Tin Forest, by Helen Ward, students at Christ, Price of Peace, were inspired to create things from everyday items around them. Students chose to reengineer plastic bottles to serve as plant holders and growers for the school’s new water bottle vertical garden. Students used their knowledge gained in the classroom to find plants that attract pollinators to their new garden. Additionally, students found another use for the plastic bottles they collected: poinsettias.

COMMUNITY GARDENS, EAST ELEMENTARY (ALTON)
School Team Sponsors: Jen Herring (Primary) & Sarah Jones
Mentor: Kim Petzing, Madison County Government
At the start of the school year in 2016, students at East Elementary in Alton were tasked with installing raised bed gardens for community use at the school. After several field trips and visits from guest speakers, students’ interest in sustainability skyrocketed. In March, three raised bed gardens will be built by Alton High School’s Construction Trades class. When the beds are completed, they will be filled with compost from St. Louis Composting.
MILKWEEDS FOR MONARCHS AND SUNFLOWERS GARDEN, EDUCATIONAL THERAPEUTIC SUPPORT (ETS) AT MADISON SCHOOL

School Team Sponsors: Shawn A. Trent (Primary) & Sharon Martin
Mentor: Laura A. Schatzman, City of St. Louis

For their Green Schools Quest project, students at ETS at Madison planted Purple Coneflower and Sunflower seedlings in their school's butterfly garden. It is hoped that the new seedlings, coupled with already-present milkweeds, will attract Monarch butterflies in the spring and influence their cycle, migration, and pollinator role in the ecosystem. Students created art for the garden and learned about habitats and Monarch butterflies.

PLANTING A SEED TO CREATE A BETTER WORLD, HORACE MANN ELEMENTARY

School Team Sponsors: Lori Gardner & Lisa Abernathy (Primary), Kimberly Davis & Carrie Chapman
Mentor: Katie Belisle-Iffrig, Code Green Collaborative

For the kindergarteners at Horace Mann, their Green Schools Quest project took them into the world of aquaponics. The kindergarteners desired to conserve water and grow nutritious food in an indoor urban setting using as little space and as few resources as possible. Serving as the fish tank for their aquaponics garden were two-liter, plastic bottles. Students learned how to apply the scientific method to observe, collect data, and take notes just like real scientists.

ZIPLOC, MEET TREX, ST. FRANCIS OF ASSISI SCHOOL

School Team Sponsors: Mike Herries (Primary) & Lisa Jacob
Mentor: Richard Schuessler, HM Risk

The students at St. Francis of Assisi focused their project on waste reduction and recycling awareness. In performing a waste audit one day, students discovered an unbelievable amount of Ziploc bags being sent to the landfill. The school partnered with Trex Recycling to recycle those Ziploc bags. Since January, the students have also posted monthly waste audit results of each classroom for all to see. No one wants to be on the list of poor performers. No one.

MILK CARTONS, MILK CARTONS EVERYWHERE, SUNRISE R-IX ELEMENTARY

School Team Sponsors: Tracy Brosch (Primary) & Angela Rowden
Mentor: Simon Warren, EarthWays Center of the Missouri Botanical Garden

After a waste audit revealed that milk cartons comprised over 45% of their daily trash, the students at Sunrise R-IX chose to reuse as many of their used cartons as possible. Students collected the cartons, washed them out, and repurposed them for use in the Carton 2 Garden Contest, for a new Bug Hotel in their school garden, and as planters to grow food to sell at the local farmers’ market. After repurposing milk cartons and using worms for composting wasted food, almost 1,900 pounds of waste have been diverted from the landfill since the start of the year.

BE GONE, BUSH HONEYSUCKLE, THE COLLEGE SCHOOL

School Team Sponsors: Tim Wood (Primary) & Teresa Bova
Mentor: Litzinger Road Ecology Center Staff

Students at the College School chose to continue their work with native plants and habitat restoration for their Green Schools Quest project. The students planted almost 100 trees and cut down over 500 invasive Bush Honeysuckle plants. Students also spread native wildflower seeds to create a short grass prairie.
**SENSORY GARDEN, THE EXPERIENCE, FRANK P. TILLMAN ELEMENTARY**

*School Team Sponsors:* Jaime Kelley (Primary) & Lesli Moylan  
*Mentor:* Jonathan McKee, JEMA

Embarking on their project, the Tillman Trailblazers desired to enhance their current demonstration garden to create a more kinesthetic experience for all who enter. Before this year, the garden at Tillman had tasting beds, wind chimes, colorful plants, and a greenhouse, but the garden did not have a way to connect them all. Students embarked on designing and building a sensory pathway to connect all of their discrete garden units together.

**IF YOU TEACH A SCHOOL TO RECYCLE..., UTHOFF VALLEY ELEMENTARY**

*School Team Sponsors:* Judy Sowers (Primary) & Danna Thorne  
*Mentor:* Sarah Staebell, Saint Louis County Department of Public Health

For their Green School’s Quest project, the students at Uthoff Valley chose to focus their efforts on education first, then implementation, and finally sustainability plans. After performing a waste audit in November, students discovered 40 pounds of recyclable items in the trash. What to do about this? Students created a Buddy Day competition, pairing together a younger grade student with an older grade student. Everyone in the school competed in sorting items into the appropriate waste bins. The winners received trophies as prizes but not just any trophies. These trophies were made from recyclable materials found in their waste streams.

**STRAWS? WHO NEEDS THEM, W.W. KEYSOR ELEMENTARY**

*School Team Sponsors:* Traci Jansen (Primary) & Robin Wellman  
*Mentor:* Mary Fitzgerald

For this year’s project, the students at W.W. Keysor focused on encouraging the use of reusable water bottles and food containers by the community. For lunch, students had a “No Straw Challenge”. If you were able to drink your milk without using a straw, you could sign a poster in the cafeteria, showing that you met the challenge. Further, after a presentation to the district administration and the food service director, W.W. Keysor switched from plastic packages with both spoons and forks to separate forks and separate spoons, becoming the first school in their district to do so.

**SUSTAINABLE CHICKEN FARMERS: EGG-CELENT, WESTCHESTER ELEMENTARY**

*School Team Sponsors:* Stefanie Limpert (Primary) & Andrea Beckerle  
*Mentor:* Alice Kranz Kauss

Students of Westchester’s Green Team have been hard at work, raising chickens on their school’s grounds. After renovating an underused shed into a chicken coop, they now have 15 chickens. Students planted fruits and vegetables near the shed for the chickens to eat and enjoy. Not only will the chickens provide eggs for the students to donate away, but the chickens will also teach the students about responsibility, compassion, and empathy.

**OUR PARK, EVERYONE’S PARK, WILKINSON EARLY CHILDHOOD CENTER**

*School Team Sponsors:* Kelly Hahn (Primary) & Yvette A. Levy  
*Mentor:* Jaclyn Davis, Interface

Students at Wilkinson pledged to beautify a local park that borders the school grounds by ridding the park of litter. Students hosted cleanup days during school hours, and all grade levels participated. During the cleanup sessions, students discussed and learned about the importance of keeping the park clean. Of the trash collected during each session, the students looked at what could be recycled and how.
2017, A RECYCLING ENDEAVOR, COORDINATED YOUTH AND HUMAN SERVICES (CYHS)

School Team Sponsors: Emily Pingsterhaus (Primary) & Stephanie Worthen
Mentor: Eve Drueke, Madison County, Illinois Government

Participating for the first time in the Green Schools Quest, the students at CYHS chose to focus on education and to implement basic practices in the areas of waste reduction and recycling. Students formed a Green Club and acted to create a recycling center for paper, plastic bottles, and aluminum cans. Previously, there was no building-wide recycling initiative. The Green Club was also able to convince the entire school to use one paper towel after washing hands, to print on both sides of the paper, and to bring reusable water bottles to school.

STANDING UP FOR COMPOSTING, CROSSROADS COLLEGE PREPARATORY SCHOOL

School Team Sponsors: Julia Batz (Primary) & Howard Granok
Mentor: Steve Raskin, AIA, FGM Architects

Students at Crossroads College Prep focused on several projects. Students removed Johnson grass, an invasive species, from their native plant rain garden. They started a Recycling Awareness campaign to educate the school on what can and cannot be recycled. Since the school has tried composting several times but was unsuccessful and since the students discovered that the school’s eco-friendly products are compostable but not recyclable, students are working hard to convince the school to partner with Total Organics Recycling.

WATER, WHO’S WASTING IT AND WHY?, FORSYTH SCHOOL

School Team Sponsors: Susan Zareh (Primary) & Christine Torlina
Mentor: Jim Moler, Jacobs Engineering

Students at the Forsyth School focused on water efficiency, education, and conservation. At the beginning of their project, students performed a water audit on all six of the school’s buildings. This year will serve as their benchmarking phase. After implementing some changes, they will look at their data for the next 12 months, to see if the school is using less water. In October 2016, a rain barrel was installed to hold water for their garden bed.

CONSERVE, COMMUNICATE, CHALLENGE..., HANCOCK PLACE

School Team Sponsors: Mrs. Tracey Bidlack (Primary) & Sandy Munton
Mentor: Jane Bruss

Students at Hancock Place performed a conservation study, delivered a communication lesson, and implemented a recycling challenge. For the conservation study, students monitored the cafeterias waste stations and sorted waste into three tubs: fruits/vegetables, milk, and entrees. After educating the school, students started taking items with them or not taking excess items altogether. For the communication lesson, students taught younger ones about recycling through a relay race. Finally, the students challenged the preschool and the central office to start their own recycling programs.

THE RUN TO ZERO WASTE, HOLY REDEEMER CATHOLIC SCHOOL

School Team Sponsors: Jim Biggs (Primary) & Jaime Hassemeier
Mentor: Jim Biggs, Holy Redeemer School

After adding commercial composting services this year, students in Holy Redeemer’s Sustainability Club, the Green Machines, set out to maximize the amount of waste being diverted from the landfill. Students created waste posters and served as Green Ambassadors to assist with the sorting of items into three waste streams: composting, recycling, and landfill. Lastly, students also started a pop-up shop offering reusable sandwich bags and lunch containers.

www.usgbc-mogateway.org/green-school-quest
CONSERVATION LED-ERS, LITTLE FLOWER CATHOLIC SCHOOL

School Team Sponsors: Lisa Eppert (Primary) & Rose Duncan  
Mentor: Franklin P. Eppert, PE, ABNA Engineering

After performing an energy savings analysis that determined how much money would be saved in switching the school’s light bulbs from fluorescent to LEDs, students at Little Flower discovered that LEDs used 41% less amperage and output 46% more light, compared to fluorescent bulbs. Assuming an electricity rate of $0.11 per kilowatt-hour and a bulb life-span of 29 years, the switch to LEDs would save the school over $20,000.

SAVE THE SALAMANDERS!, MAPLEWOOD RICHMOND HEIGHTS MIDDLE SCHOOL

School Team Sponsors: Bill Henske (Primary) & Melissa Breed-Parks  
Mentor: Susannah Fuchs, American Lung Association in Missouri, & Michael Keller, Bond Architects

After discovering that the Ozark Hellbender salamanders are near threatened, students at Maplewood Richmond Heights chose to do something for them by focusing on aquaponics and sustainable food production. Through much perseverance, the students now have a fully functioning and operational aquaponics system, raising fathead minnows to fertilize produce to be sold at a local farmers’ market. The minnows will also serve as food for the salamanders at the St. Louis Zoo.

LITTLE THINGS, BIG DIFFERENCES, MARIAN MIDDLE SCHOOL

School Team Sponsors: Kathy Winfrey (Primary) & Sarah Heger  
Mentor: Shelley Simon, AIA LEED AP BD+C, FGM Architects

The students at Marian Middle chose to focus their project on temperature, lights, and indoor air quality. The students learned that simply putting a reflective material between a room’s radiator and the outside wall can help retain heat. Students learned about the importance of furniture in retaining heat and learned that simply relocating a door mat to a main walkway can help reduce the dust floating in the air.

GREEN TEAM TAKES ON RECYCLING, NAHED CHAPMAN NEW AMERICAN ACADEMY

School Team Sponsors: Nelver Brooks (Primary) & Donnie Harris  
Mentor: Beatriz Juan, Hellmuth + Bicknese Architects

29 middle school students started a school-wide recycling program with plans to introduce composting in the coming summer months. This “Green Team” of students keep records and write reports on the effects of their recycling. They reached out to the City of St. Louis to acquire 70 recycling bins for each classroom and office in their school. Before implementing the recycling program, the school hired speakers to discuss the potential reduced cost of recycling for the school district.

A COLORFUL CAMPAIGN, NIPHER MIDDLE SCHOOL

School Team Sponsors: Ellen Holley (Primary) & Mark Banaszak  
Mentor: Thomas Bruns, PE, The Green House

20 8th grade students decided to change the way they sorted waste in the school cafeteria. They determined that most waste ended up in the trash, and devised a way to organize recycling, compost, and trash bins effectively, so that students would be more likely to use them properly. They educated their fellow students on proper waste disposal before the new bin organization was implemented to ensure proper usage. The students later decided to compost paper towels used in the art classroom, and signed Nipher Middle School up for the Crayola Colorcycle recycling program, which got the school and community involved in recycling old markers and highlighters. Finally, they sold donuts to fundraise for their “Donuts for Drinks” campaign, with the end goal of installing refillable drink stations in the school.
MIDDLE SCHOOL PARTICIPANTS

REFILL SUSTAINABILITY, NORTH KIRKWOOD MIDDLE SCHOOL
School Team Sponsors: Chris Hooker (Primary) & Jason Moore
Mentor: Mike Everhardt, Holophane Lighting
Over 50 7th and 8th grade students contributed to this project, which had seven focus areas: Plastic Water Bottle Ban, Reusable Drink Cup, Recycling Bins, Monarch Waystations, No Idling Campaign, Air Quality Flags, and Honeysuckle Removal. Each of the projects was carried out by one of four groups (Red, Blue, White, and Green) and involved substantial student research and involvement. Much of the action centered around student concern for plastic’s environmental impact. A particularly successful and innovative program was Reusable Drink Cup, also known as the “gREenFILL Project,” which implemented a reusable drinking cup program within five local Kirkwood businesses.

REDUCE, REUSE, REWASH, PREMIER CHARTER
School Team Sponsors: Nakiesia Daugherty (Primary) & Laura Hirschman
Mentor: Michael Rodney, m2 Architecture Studio, Inc.
Eight 6th grade students explored the possibilities of switching over from the disposable polystyrene trays and utensils provided by their food service program to reusable trays and utensils. The students did research to estimate the actual volume of polystyrene waste and then researched the cost of reusable items and a dishwasher. They determined that a reusable system would cost about as much as 9 years on the disposable system, and are currently looking into ways to afford the new system.

THANK A POLLINATOR: BIODIVERSITY EDUCATION, ROGERS MIDDLE SCHOOL
School Team Sponsors: Alison Nixon (Primary) & Krista Bernreuter
Mentor: Joyce Gorrell, EarthWays Center of the Missouri Botanical Garden
7th grade students in Krista Bernreuter’s “Just Wing It” science enrichment class established a pollinator garden in the spring of 2016 and took strides to improve the garden and general campus biodiversity in the year that followed. They hosted a “Pollinator Day” to educate students and faculty about the importance of pollinators and received a $5,000 grant from Lowes to begin construction on an outdoor classroom.

BUDDY PACK ECO SNACKS, THOMAS JEFFERSON MIDDLE SCHOOL (TJMS)
School Team Sponsors: Ms. Emily Rogers (Primary) & Mr. David Bray
Mentor: Hwei-Yiing Johnson, Lincoln University
Students at TJMS cycled through several project ideas before deciding to grow their own produce through hydroponics to be used in the buddy pack program. With the help of grants, donations, student fundraisers, and innovative recycling and food waste management, the project cost the school nothing, and no money is required to sustain it. The students are presently looking to start a monarch habitat and have been growing air-quality plants for friends and family.

www.usgbc-mogateway.org/green-school-quest
HIGH SCHOOL PARTICIPANTS

2016-17 Green Schools Quest

GOLD STAR FOR A NEW START, COLLEGIATE SCHOOL OF MEDICINE AND BIOSCIENCE
School Team Sponsors: Anthony Cantu (Primary) & Frederick Steele
Mentor: Ed Choklek, Construction Forum Education Foundation
The Collegiate School chose to measure their school’s energy usage in pursuit of eventual Energy Star certification. They measured each room in the school building to determine its area, and after doing so, determined that their energy usage put them at a score of about 15 for certification—and a minimum of 70/100 points are required. The students shared their findings with principal Frederick Steele, who is committed to taking changes to a district level. This is an ongoing project and its supporters are optimistic about the future.

RAIN, RAIN, HERE TO STAY, GOVERNOR FRENCH ACADEMY (GFA)
School Team Sponsors: Jeff Redman (Primary) & Christine Stewart
Mentor: Kevin Greer and Dana Wynn, Southern Illinois University Edwardsville
The Governor French Academy is taking strides to construct a rain garden to capture, clean, and absorb storm water runoff. The garden is designed in such a way that the garden would need very little, if any, water aside from what it would get from excess rainwater. A rain garden would provide the GFA with a green space within walking/biking distance, as well as increasing biodiversity (due to the wide variety of native plants to be included in the garden) and reducing CO2 emissions.

WINDOW TO A GREENER FUTURE, JENNINGS SENIOR HIGH SCHOOL
School Team Sponsors: Dr. Theresa L. Badgett (Primary) & Cherron White
Mentor: Cornelius Weaver, Saint Louis University
Because heat loss through windows represents 10-20% of a building’s energy leaks, the students at Jennings High School decided to weatherize the school’s older windows in order to save on school costs and heat/cool rooms more efficiently. The students raised money to purchase a weather seal for the windows, and volunteered their time to install it properly. While there are no records of energy saved, students and teachers say that the classrooms feel significantly warmer with the newly sealed windows.

SYNTHESIZING SUSTAINABILITY, KIRKWOOD HIGH SCHOOL (KHS)
School Team Sponsors: Mandy Melton (Primary) & Joe Bartin
Mentor: Greg Williams, Siemens
Students in the Environmental Sustainability class at KHS took on an ambitious, multi-layered sustainability project that started with the plan to revamp an old school greenhouse. Ultimately, their project succeeded in growing food for their Family and Consumer Science (FACS) department, growing plants hydroponically, growing algae to make biofuel, growing air quality plants for use in classrooms, and creating a successful vermicomposting system to reduce waste. Ultimately, the students saved an average of 2.5lbs of food waste per month, provided over 900g of food to the FACS department, and harvested over 200L of rainwater.

COMPOSTING IN SESSION, METRO ACADEMIC AND CLASSICAL HIGH SCHOOL
School Team Sponsors: Larisa Selimovic-Milosavljevic (Primary) & Alex Boehm
Mentor: Courtnie Kidd, Independent / Inventor Forge Makerspace
Students in the Environmental Club started a composting program with help from a grant they received from Webster University. The students partnered with St. Louis Composting in the implementation of their program and organized a school-wide assembly where a representative from the organization educated students about composting. Their implementation of the program has been successful and requires cooperation from student volunteers to move waste from the cafeteria to the outdoor bins after lunch period. The students are currently seeking more funding to sustain their composting program.
STANDBY FOR ENERGY EFFICIENCY, PARKWAY NORTH HIGH SCHOOL

**School Team Sponsors:** Brian Kramer (Primary) & Elegan Kramer  
**Mentor:** Steve O’Rourke, Microgrid Energy

Students at Parkway North decided to reduce energy consumption with the end goal of saving money and lessening CO2 emissions. They began by putting all of the school’s projectors on an eco-friendly setting, which decreased the projectors’ energy usage by about 15%. The students spoke with Erik Leuders, the district sustainability and purchasing director, about how to best reduce energy consumption. In the end, the students developed a plan that would keep computers on “standby” mode when not in use; the students project annual savings of $3,337 and 34.15 metric tons of CO2.

CLEAN PLATE CLUB, PRINCIPIA UPPER SCHOOL

**School Team Sponsors:** Lynne Scott (Primary) & Ross Furbush  
**Mentor:** John Allen, Straight Up Solar

High school students in a sustainability class decided to reduce the amount of food waste produced by the student body by at least 10%. Components of their project included raising awareness about food waste through video presentations and school-wide announcements and getting fellow students excited about composting. To increase incentive for lowering food waste, students started a composting competition between the school’s highly competitive “houses.” A sub-project involved the creation of an Instagram account that featured photos of students who had no food waste at the end of a meal—the “Prin Clean Plate Club.” The students estimate that they have cut around 21lbs of food waste per week since the start of the program in October 2016.

SUSTAINING MINDFULNESS, SOLDAN INTERNATIONAL STUDIES

**School Team Sponsors:** Michael A. Copple (Primary) & Maria Munoz  
**Mentor:** Lana Feix, McCormack Baron Salazar

Students in grades 9–12 participated in a three-part program in an effort to reduce waste: mindfulness, eating healthy, and living sustainably. Mindfulness was the core philosophy behind the project, and the main goal was to incorporate recycling to reduce waste by 20%. They partnered with St. Louis City Recycles to incorporate a functional recycling program and to better educate the student body about recycling. They plan to improve the program in the coming year and hope to implement a composting program for cafeteria food waste.

SUSTAINABILITY COOK-OFF, ST. LOUIS UNIVERSITY HIGH SCHOOL (SLUH)

**School Team Sponsors:** Anne Marie Lodholz (Primary) & Tom Zinselmeyer  
**Mentor:** Jennifer Thomas, Washington University

SLUH’s project made efforts to learn more about eating sustainably. Students visited Earth Dance Farms, which brings organic food to the St. Louis community, and the St. Patrick Center, which operates McMurphy’s Café, a service that trains/supports the homeless who are interested in culinary jobs and sustainable food. Finally, they hosted Iron Chef SLUH, a cook-off which raised awareness about eating sustainably. At the event, the school made an effort to showcase local chefs, farmers, and culinary experts.

The Green Schools Quest is a challenge issued by the U.S. Green Building Council-Missouri Gateway Chapter to public and private schools within the chapter’s territory (Missouri and southern Illinois) to devise and implement, with the help of green mentors, the most creative, effective and no or low cost sustainable practices for their schools. For more information, visit www.usgbc-mogateway.org/green-school-quest/ or contact Hope Gribble, Education & Green Schools Manager, (314) 577-0225.