U.S. DEPARTMENT OF EDUCATION

Green Ribbon Schools

Highlights from the 2016 Honorees

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www.ed.gov/green-ribbon-schools - www.ed.gov/green-strides

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Introduction

This is a special year. With this 2016 cohort, U.S. Department of Education Green Ribbon Schools (ED-GRS) turns FIVE! It is hard to believe that, just a few years ago, I was cooking up recognition award criteria in my kitchen based on input from many organizations and agencies. Now, we have a school award, district award, postsecondary award, Green Strides resources and webinars, and an annual tour.

Here at ED, we work with natural resource and health agencies to share effective resources for school sustainability, and, of course, spotlight the promising practices of our honorees. In the same way that we work together across federal agencies, state education authorities collaborate in exceptional ways with their state health, environment, and energy agencies. The private sector (both for profit and nonprofit) has gotten involved at federal, state, local, and school levels. In this way, ED's recognition award serves as a tool to get government working better to the benefit of students across the nation.

The ED-GRS Pillars of reduced environmental impact and costs, improved health and wellness, and effective environmental education remain the same, whether selectees are schools, districts, colleges, or universities. Increasingly, honorees' efforts are the result of the development of policies at the intersection of environment, health, and learning at state, district, and university levels. We are pleased to see that the award has prompted instructors, parents, students, and administrators nationwide to acknowledge the critical need for students to learn in a manner – and a place -- that will sustain both them and the planet. These green schools, districts, and postsecondary institutions have taught us that it's not just *what* students are learning and *how* they learn; the *where* matters too.

We've been thrilled with the collaborations at the federal, state, and local levels as a result of ED's recognition award. The collaborations that inspire us most, though, are those of our honorees themselves. Apart from progress in all three Pillars – not just one – you'll notice another common thread among our honorees: They have been tremendously resourceful in partnering with businesses, parks, farms, museums, nature centers, sporting facilities, religious institutions, townships, and countless other entities.

Our honorees are not necessarily the wealthiest institutions. In fact, over the last five years, half of our honorees have educated underserved student populations. When it comes to green schools, high-poverty schools come out on top. It is no longer a surprise to us that green school practices continue to be used as a tool to improve the built environments, health, and engagement of students of all ages that might seem to have the slimmest chances for success, and that those students are thriving as a result.

This year's selectees were confirmed from a pool of candidates voluntarily nominated and exhaustively reviewed by 27 state education authority implementation teams, including 25 states, the Department of Defense Education Activity, and the District of Columbia. While selection processes vary from state to state, members of several state agencies as well as outside experts generally comprise selection committees. At the federal level, we have selected 47 schools, 15 districts, and 11 postsecondary institutions that demonstrate promising practices to cut costs, improve health, and ensure that students learn through the most hands-on, engaging means possible.

The U.S. Department of Education Green Ribbon Schools, District Sustainability Awardees, and Postsecondary Sustainability Awardees prove that any school, district, or postsecondary institution can take steps to improve the sustainability, health, and safety of school facilities; ensure nutrition and fitness practices for a lifetime of wellness and productivity; and engage students in authentic, real-world learning.

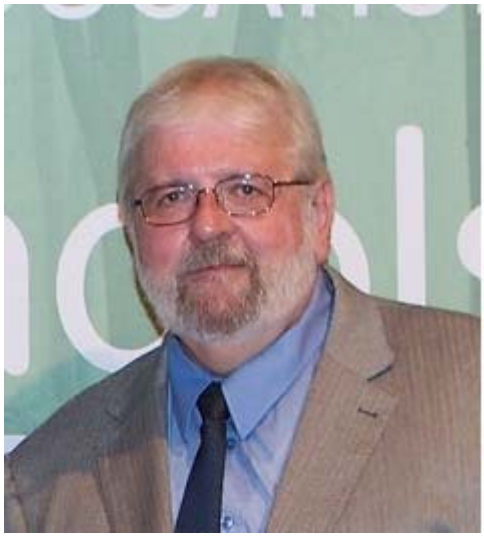
Schools use sustainability in context to teach important civic values and skills that encourage students to grow into responsible, compassionate, and contributing citizens. Furthermore, working with dynamic environmental, social, and economic systems from an early age nurtures precisely the type of thinking, collaboration, and problem-solving skills that careers of the future require, whether these students graduate from green career and technical programs, green college preparatory schools, community colleges, or liberal arts colleges.

It is with tremendous pleasure that we present the 2016 U.S. Department of Education Green Ribbon Schools, District Sustainability Awardees, and Postsecondary Sustainability Awardees. These honorees are ensuring that their students learn to live, work, and play with sustainability and health in mind, not as an afterthought, but as an integral part of everything they undertake, from cradle to career.

The 2016 Green Ribbons are here. Prepare to be amazed! When you recover, go to our http://www.greenstrides.org page and get started using some of the same tools these awardees employ.

Andrea Suarez Falken
Director, U.S. Department of Education Green Ribbon Schools and Facilities, Health, and Environment Liaison

2016 Director's Award



The Director's Award recognizes a state education official's exemplary efforts to administer the U.S. Department of Education Green Ribbon Schools (ED-GRS) recognition award. The ED-GRS Director's Award is given annually to the state education agency official who does the most to advance green schools in his or her state by running a robust competition and nomination process; connecting schools to resources in all three Pillars; amplifying the stories of honorees; helping schools learn from one another; partnering with a variety of entities to bring more resources and expertise into schools; and exhibiting a dedication to exceptional school facilities, health, and environmental education through activities outside of the administration of the award.

ED is delighted to have selected Director of the Office of School Facilities at the New Jersey Department of Education **Bernard E. Piaia, Jr.** as the 2016 U.S. Department of Education Green Ribbon Schools Director's Award Recipient.

Piaia, known to all as "Bernie," piloted ED-GRS in New Jersey and gave the award a permanent home in his state. He hosted a leg of the 2013 Green Strides Tour, and developed mechanisms to incentivize more schools to move toward the ED-GRS Pillars. Piaia has built lasting partnerships with numerous state entities and encouraged his state to participate in the postsecondary competition, in addition to the prekindergarten through 12th grade competition. Every year, Piaia submits his nominees and then immediately looks for opportunities to improve his process in subsequent cycles. Bernie's leadership, dedication, and long-time expertise in school facilities have been integral to the award's success in New Jersey. He has modeled excellence in ED-GRS implementation for other state education authorities to follow.

We commend Piaia for his work to promote environmental stewardship, health, and sustainability, and for inspiring even more schools, districts, and postsecondary institutions to aim high.

Honorees at a Glance

- 73 U.S. Department of Education Green Ribbon Schools
- 25 states, plus the District of Columbia and the U.S. Department of Defense Education Authority presented nominees
- 47 prekindergarten through 12th grade schools
- 15 districts
- 11 postsecondary institutions
- 41 public schools
- 6 private schools
- 3 charter schools
- 8 magnet schools
- 27 elementary schools
- 18 middle schools
- 14 high schools
- 2 community colleges
- Over 50 percent of institutions serving disadvantaged students

2016 U.S. Department of Education Green Ribbon Schools

Alabama

A.H. Watwood Elementary School, Childersburg, Ala.

Greening Club Participation to Develop Young Leaders

A.H. Watwood Elementary School is a place where students are leading the learning. The school's unique culture and climate are the result of "Leader In Me" program paradigm shifts, which demonstrate that everyone can be a leader. The school serves approximately 375 students, in preschool through fourth grade. Watwood is a *Title I* school, and part of the Talladega County School system.

Watwood is committed to energy efficiency, and has been recognized annually as an Environmental Protection Agency (EPA) ENERGY STAR school. Watwood has demonstrated a reduction of greenhouse gas emissions by 16 percent over nine years, and now has a score of 95 in Portfolio Manager for the 45,301 square foot facility, which was built in 1954. Watwood recycles or reuses newspapers, two-liter soda bottles, cans, cardboard, and bottle caps.

Statistics consistently reveal families living in poverty often are food insecure, have higher rates of obesity, and die at an earlier age due to health-related illness. One of Watwood's goals is to combat these startling statistics through education. The school develops healthy eating habits in its population, and promotes a lifestyle that includes fitness among students and faculty. It offers dental health education and vision screening to students, 80 percent of whom are eligible for free and reduced price lunch. Students are served healthy snacks and meals, and the school has received the USDA HealthierUS Schools Challenge Gold award. Teachers who embrace physical fitness and health sponsor the Trailblazers running club and the iFit fitness club. Students in these clubs participated in Club Days at the school, as well as in the Color Me Rad five-kilometer race in Birmingham. Other sustainability and health-minded clubs include Retro Repurposing Club, Let's Move It Club, First Tee Club, Awesome Archers Club, and Kiwanis K-Kids.

One very popular practice at Watwood is Club Day, in which everyone participates. Activities are centered on fitness; promoting healthy lifestyles; and teaching students to reduce, reuse, and recycle. This year, all clubs have projects centering on a green theme. For example, the Curb Appeal Club is responsible for campus enhancements, such as the outdoor classroom area. The Green Thumb Club takes care of all the planters and gardens on campus, and learns about the ecological benefits of gardening. Students are learning how to conserve water, along with the

health benefits of growing your own fruits and vegetables. Projects teach the dangers and risks of chemicals used for cleaning and pesticides. Students have opportunities to explore other healthy options for cleaning, and ways to create natural pesticides. Each club has a different recycling project.

After receiving extensive professional development in project-based learning (PBL), Watwood teachers create projects that infuse environmental awareness, health, and wellness, and teach sustainability as it relates to environmental education. The PBL model provides experiences filled with communication and collaboration challenges, and involves community partners. For example, Home Depot is a community partner that provided supplies and assisted in building raised beds and planting a vegetable garden. A local business, Blair Block, donated a concrete table, and the Sylacauga Arts Council awarded a $500 grant for the project. This enabled students to create a collaborative mosaic tile masterpiece on a concrete table in an outdoor classroom area in the school courtyard.

Environmental concepts are integrated into Watwood's literacy program. The school's reading program provides students the opportunity to learn about topics including health, environmental sustainability, and environmental challenges. Students learn to investigate, collaborate, form opinions, and take ownership of their learning. Through their readings, students learn where fresh, clean water comes from, the importance of recycling and re-purposing, and how objects grow and change over time. Teachers use these texts along with other resources that they find on their own to engage students in the close reading process as described in the Alabama College and Career Ready Standards.

Students participate in the Green Apple Day of Service, cleaning up school grounds; visit tree farms as a field trip; develop, market, and sell recycled products for charity; and build and regularly tend to butterfly and vegetable gardens. Watwood embarked on a one-to-one iPad initiative, which will drastically reduce the need for pencils and paper. Club sponsors purposefully integrate state standards and digital tools in projects. Teachers met the challenge of redesigning traditional tasks to incorporate a new level of rigor and to create new environmental tasks. It is not uncommon to see students using an iPad while working outside on Club Day projects. The school's outdoor classroom features raised beds, bird feeders, and butterfly gardens.

University of Montevallo, Montevallo, Ala.

From 19th-Century Beginnings to 21st-Century Stewardship

Founded in 1896, today the University of Montevallo (UM) is advancing green strategies that reflect all three pillars of ED-GRS. UM was the first university in the state to implement a Green Fund: proposed by the school's Environmental Club, supported by the Student Government Association, and approved by the student body, the Green Fund supports grants to help reduce UM's ecological footprint through a $5 per semester student fee. This effort, which generates approximately $30,000 per year, funds projects that cut energy costs, decrease the school's carbon footprint, and reduce waste.

UM has made significant improvements in managing energy use on campus, which has lowered environmental impact and costs. From the use of energy management software, to major upgrades to the central plant, to solar-powered pedestrian crossing signage, the University uses strategies of all magnitudes to reduce effect on the environment.

Renovations and upgrades in existing buildings — including some historic sites — including heating, ventilation, and air conditioning (HVAC) changes; window, lighting, and solar shade installation; and roof and insulation replacements — have resulted in numerous efficiencies and improvements in electricity, gas, and steam savings, as well as reductions in water usage, heat gain, and energy loss. Energy efficient LED lights have been installed on several campus streets, residence hall common areas, and stairwells where lights operate 24 hours a day. The physical plant's use of Green Seal Certified cleaning products also reduces environmental impact. Facilities and security staff employ a growing fleet of electric vehicles.

UM has initiated a project to reactivate an old water well for nonpotable use. This project will save 1.2-1.5 million gallons of water per month. In addition to usage savings, UM is working to prevent plastic waste from water bottles. Water bottle filling stations have been added to help eliminate plastic waste and encourage the reuse of bottles.

The University encourages recycling on campus, collecting approximately 3,000 pounds of aluminum, 18,000 pounds of plastic, and 65,000 pounds of paper annually. Water bottle filling stations have been added to help eliminate plastic waste and encourage the reuse of bottles. UM also recycles other waste including computers and electronics, metal, glass, batteries, and light bulbs. The "Table to Garden to Table" initiative reduces food waste on the UM campus by composting

unused vegetable matter from the cafeteria to fertilize the UM organic community garden, established as a project of the Environmental Club. Gardeners turn the materials, render them usable, and fertilize the garden with the compost. This generates 50 gallons a week in composted materials.

The garden is available for both students and community members. Produce grown in the community sections of the garden is donated to Shelby Emergency Assistance (SEA) to be given to local families in need. More than 1,200 pounds of produce was donated to SEA in 2014. Two mason bee hives were installed in 2014 to encourage local pollinators.

The University operates facilities and offers services for the health and well-being of the UM community, from a host of employee health benefits and wellness programs, to a Falcon Foods program that promotes health and sustainability in UM's dining venues, to a Balanced U online nutrition site. UM's Student Health Center, staffed with a full-time nurse and a licensed physician assistant, provides health services and wellness programs. Through the Hand in Paw program, the center hosts visits from therapeutic animals for stress relief during exams. The Student Activity Center, featuring fitness equipment, an indoor pool, racquetball courts, and fitness classes, is available for all students and employees. UM recently added wellness amenities at University Lake, including canoes, kayaks, and a 1.3-mile fitness trail with 10 exercise stations. UM and the city of Montevallo partnered in 2011 to create the first citywide bike sharing program in the state of Alabama.

Montevallo offers a minor in Environmental Studies (ES) with an option to major through the Interdisciplinary Studies Program. ES incorporates perspectives from the natural and social sciences, the arts and humanities, and business. A total of 610 students have enrolled in ES courses since the program's establishment. Since 2011, the university's Environmental Stewardship Award has honored students for their academic achievement, service, and leadership potential. Efforts like an active Environmental Club, educational summer camps, and a Students' Institute for area youth, help to promote experiential learning and awareness on campus and in the broader community.

The James Shepherd Wylie Observatory (JWSO) is the region's premiere, completely accessible telescope, in a complex designed to meet LEED Platinum standards. JSWO is a model for sustainability: built on a reclaimed construction landfill, it features a 1.4 kilowatt solar generator and a rainwater collection and purification system with a reverse osmosis filter. The restroom facilities include self-composting toilets. JSWO hosts programs that celebrate different sustainability initiatives in the community.

These are just some of the efforts that demonstrate an institutionwide commitment to green policies and practices; together, they make the University of Montevallo a higher education leader for environmental stewardship and sustainability, both in Alabama and in the nation.

California

Bay Farm School, Alameda, Calif.

In Pursuit of Zero Waste

What began as a program to increase recycling and build a school garden has become a school culture. Efforts to build sustainability into educational programming are like threads running through the fabric that is Bay Farm School. The entire school community works to prove that a school can increase in size and population and still reduce the size of its carbon footprint. Bay Farm School does this by systematically integrating sustainability and outdoor learning into the curriculum, focusing on health and wellness, reducing waste, and engaging students and parents as part of the solution.

In 2008, Bay Farm was a kindergarten through fifth-grade school with 450 students diverting 20 percent of its solid waste by recycling paper, cans, and bottles. Every day after lunch, 250-300 gallons of trash went to the landfill dumpster. The following spring, Bay Farm agreed to be one of five Alameda Unified schools to pilot a program to increase recycling and add composting. As members of the steering committee, Bay Farm teachers helped create a lesson and posters to teach staff and students how to sort trash into three streams: recycling, compost, and landfill. These materials were implemented in the 2009-10 school year to teach students and staff how to sort trash at lunch into new green, blue, and gray bins. Bay Farm's custodian became a champion of the effort, and reported that lunch trash was reduced from 8-10 bags to only one each day.

By spring 2010, compost bins were in every classroom, kitchen, and bathroom. A student club, The Tree Musketeers, made monthly announcements about recycling and saving energy. By 2012, the waste diversion rate at Bay Farm had grown to 69 percent, but the school decided its goal should be 90 percent (meeting the definition of zero waste). Some recycling and organics were still going into the trash. The green team set to work reviewing waste diversion procedures in every classroom. They also worked with staff and parents to reduce waste at large school events. Additional compost bins were placed near the playgrounds.

In January 2013, Bay Farm achieved 73 percent diversion. The school then swapped its 4-cubic-yard dumpster for a 3-cubic-yard model, and increased the size

and number of recycling and organic waste containers. Between fall 2014 and spring 2015, students in the upper grades conducted six different waste audits, focused on keeping recyclables out of classroom and playground trash. By spring 2015, these efforts reduced the school's landfill waste to such a degree that classroom trash cans were replaced with 1-gallon mini waste bins. Today, Bay Farm serves almost 600 students in kindergarten through eighth grades and maintains a diversion rate of 85 percent.

The school garden program at Bay Farm was developed to be an outdoor learning center (OLC) from the outset in 2003, but with mostly volunteers running the program, not all students were benefiting from it. The school's Parent-Teacher Association (PTA) increased investment in the OLC program in 2008 in order to create a staff position for a full-time garden teacher. With renewed interest and increased capacity, teachers and parents planted more gardens. Now, every student in kindergarten through fifth grade receives dedicated garden instruction. All students regularly work, learn outdoors, and eat food they grow in the OLC.

Bay Farm has engaged staff, students, and parents in school greening efforts beginning in kindergarten. Teachers and parent volunteers use songs, games, and puppets to teach these youngest learners how to sort their trash and be "Green Guardians." At an early age, students have ownership for the success of environmental and sustainability programs through service learning. Classroom recycling is a student -- not custodian -- job. All fourth graders serve on teams that monitor lunchtime recycling. In 2005, Bay Farm School was awarded ENERGY STAR certification with a score of 80.

In summer 2013, Bay Farm was chosen to participate in the district's cool roofs program. The entire school had its roof replaced with cool metal roofing, reducing heating and cooling use by approximately 20 percent, while also saving costs. A 2016 lighting retrofit funded by California's Proposition 39 will replace florescent lights with LED lighting in the school auditorium and around the site.

Turf abandonment is a hands-on learning experience for sixth graders. Annually since 2012, students have mulched approximately 1,200 square feet of school property. Working in partnership with educators from the nonprofit Stop Waste, these student action projects include sheet-mulching designated areas of the school, conducting research, collecting data, and then applying the lessons learned by doing educational outreach at home. In February 2016, students will help plan and launch a fourth action project in which areas of school grounds are replaced with mulch, natives, and drought tolerant plants.

Teachers have been effective in increasing health and wellness through the use of outdoor classrooms, increased physical activity, and nutrition education. School

lunch includes a Farm-to-Fork program with a fresh fruit and salad bar, and as many locally-sourced choices as feasible. A local fruit of the month is featured, and 20-25 percent of produce is organic. Staff is provided fresh fruit at meetings, and the PTA provides healthy snack buffets for teachers. Every student regularly tastes and cooks food grown in school gardens. Teachers give extra recess minutes instead of sweet treats as rewards. Physical activity has increased with walking and biking field trips. All students have from 45 to 55 minutes of daily recess in which their play is self-directed and student-led, in addition to 200 minutes of weekly physical education classes. Nearly 100 percent of recess and physical education is outside.

Grades four through seven developed a series of overnight field trips that emphasize outdoor experiences, sustainability, and student action that benefits the community. These include Coloma, Marin Headlands, Motherlode Outdoor Discovery Camp, and Yosemite. The widespread use of public transportation, biking, and walking field trips all have contributed to reduced car use. The PTA has embraced programs that include Paperless PTA, Zero Waste parties, a Go Green website, and installation of a PTA Go Green committee with a budget.

Bishop O'Dowd High School, Oakland, Calif.

First Full-time High School Sustainability Director in Northern California

Bishop O'Dowd High School is a Catholic, coeducational, college preparatory high school administered by the Diocese of Oakland. As part of its mission to prepare skilled leaders committed to justice, peace, and the values of the Catholic Church, O'Dowd is committed to being a sustainable school, and was recognized as a California Green Ribbon School at the Gold Level (2015) and the Silver Level (2014).

Sustainability programs and initiatives at O'Dowd are built around a clear vision for what sustainability is, and how it connects to a Catholic identity. O'Dowd has adapted the Nested Triple Bottom Line framework to connect directly with its core values, which are rooted in charism. O'Dowd also uses the Four-Cs Sustainability Framework (adapted from the Sustainable Schools Project and Plymouth University) to guide their approach to greening the campus and operations, infusing sustainability into the curriculum and educational programming, engaging the community, and integrating sustainability into the overall culture. Ultimately, O'Dowd's approach to sustainability aims to equip students with the tools, resources, and life experiences to create an environmentally sustainable, socially just, and economically viable world.

Despite having a long history of being committed to environmental education, with the 2013 hiring of the first full-time high school sustainability director in Northern California, O'Dowd's commitment to sustainability has become more tangible every year. Campus initiatives outlined in the 2014 Sustainability Management Plan (SMP) point to concrete examples of how O'Dowd has begun to shift behavior and culture so that students, faculty, and staff are able to "walk the talk" of sustainability each day.

The SMP identifies schoolwide benchmarking, long- and short-term goals, implementation steps, evaluation metrics, and responsible parties. Energy is part of the SMP's Resource Conservation section, with a goal to be zero net energy by 2025. Currently, nearly 250 onsite solar panels meet approximately 10 percent of the energy demand. In 2015, O'Dowd partnered with Carbon Lighthouse to do a comprehensive energy audit and to create an energy action plan to be carbon neutral; the plan is scheduled to be implemented in 2016.

O'Dowd's Center for Environmental Studies, completed in 2014, is a LEED Platinum certified building. The campus also supports a four-acre "Living Lab" that has undergone ecological restoration annually since 2000, and has received Bay Friendly certification and Wildlife Habitat Certification. The Living Lab features four different local ecosystems—chaparral, oak woodland, redwood, and riparian pond zone—along with beehives, chickens and rabbits, edibles, and water catchment systems. It is used for field research, experiential learning, and spiritual meditation. The rainwater harvesting capacity at the school exceeds 25,000 gallons.

Large and small sustainability projects help O'Dowd reduce its ecological footprint, save money, and create lasting social change. The 2015-16 school year has been about moving beyond the low-hanging fruit (e.g., sorting waste correctly, implementing a green cleaning program, et cetera), and going after the harder-to-tackle objectives such as shifting purchasing habits and engraining sustainability decision-making into the smallest of renovation projects. Green Gloves, a 2015 partnership with Clean Water Action's ReThink Disposable project, replaced disposable plates and bowls in the cafeteria with reusable baskets, reducing solid waste by 3,376 pounds per year.

The commitment to weaving Education for Sustainability (EfS) throughout the O'Dowd curriculum also has begun to take form as the ninth grade curriculum transitions to taking a deeper look at sustainability topics and issues through the lens of multiple subject areas, and as teachers at multiple grade levels begin experimenting with different EfS techniques and topics. In 2013 and 2014, community engagement on sustainability topics and issues sometimes was met with resistance, but 2015 was a turning point in these efforts. More teachers and staff members have seen the rewards from transforming programs and curriculum and

attendance by students and parents at sustainability-related activities and events has increased significantly.

All ninth graders at O'Dowd take a course called Science and the Environment, which is an interdisciplinary science course that teaches biology, physics, earth science, and chemistry through the lens of environmental science. O'Dowd's Sustainability Certificate Program has place-based environmental education at its core. Students do this hands-on learning in three different tracks: Community Impact Certificates are focused on initiatives on campus or in the greater Bay Area community; Living Lab Certificates make use of the four-acre Living Lab to establish a strong foundation in ecology and provide intense training, knowledge, and skills related to edible and wildlife gardening, animal husbandry, and resource systems; and Junior Ranger Certificates focus on students becoming well-versed in local hiking trails, basic wilderness and outdoor survival training, and wildlife restoration.

The O'Dowd school community has stepped forward eagerly to serve as leaders of a sustainable paradigm shift, and is excited to see what can be accomplished in the future.

Los Angeles Unified School District, California

Large District Exemplifies Urban Sustainability

The Los Angeles Unified School District (LAUSD) is the second largest school district in the nation, serving an extremely diverse population of more than 650,000 students, 76 percent of whom are eligible for free and reduced price lunch, across 700 square miles of the densely urban greater Los Angeles area. The story of sustainability at LAUSD is one of partnerships and teams.

LAUSD has recognized the importance of sustainability beginning at least as far back as 1985, when it officially celebrated the 15th anniversary of Earth Day. The district continually has reiterated its commitment to air quality; water and energy efficiency; the pursuit of alternative energy sources; waste reduction and recycling; the purchase of clean-powered vehicles; the design of high-performance, healthy, and sustainable facilities; the development of school gardens for ecology and curriculum integration; and building awareness of sustainability in the LAUSD community.

The LAUSD Board of Education has expressly committed to becoming the most sustainable large urban school district in the nation. In 2003, LAUSD became the first school district in California to adopt the sustainability standards of the

Collaborative for High Performance Schools (CHPS) for all new schools and modernization projects. LAUSD's Maywood Academy and Charles H. Kim Elementary are featured CHPS demonstration schools. To date, 78 schools have been CHPS certified. In 2009, the District undertook a pilot of Leadership in Energy and Environmental Design (LEED). To date, three new district schools have been certified LEED Gold, and two modernization projects have been certified LEED Silver. The district requires cool roofs on all buildings to reduce heat island effect, and has piloted the use of cool schoolyard coatings, such as high-albedo surfaces.

LAUSD has undertaken a robust sustainability initiative aimed at reducing environmental impact and costs, including high performance design and construction on all new schools and modernization projects; energy audit and energy- and water-efficiency retrofits; use of recycled water; installation of 21 megawatts of solar capacity to date; innovative technology such as ground source heat pumps; low-impact development stormwater management to help recharge the city's aquifers; recycling, reuse, salvage, barter, and composting programs; and conversion of the district's bus and fleet vehicles to clean and alternative energy, including the largest alternative-fuel bus fleet in the state. A crucial aspect of LAUSD's initiatives to reduce environmental impact and cost is behavioral change. In addition to funding and implementing facilities projects, the district works with utility providers, state and federal government agencies, and corporate and community partners to offer awareness programs and resources to its schools.

In 2013, LAUSD restated its commitment to prioritization of educational schoolyard landscapes, greening through existing projects, and improving nutrition and food access, and over the past few years the district has worked with dozens of partners to install new gardens that serve as outdoor classrooms at more than 180 additional schools. The nutritional garden program received a Certificate of Congressional Recognition for outstanding community service, and three school principals won the 2015 L.A. Department of Public Health Champions for Change Excellence Award.

More than 375 schools have one or more onsite gardens maintained by students, staff, and community partners. The district participates in California Thursdays and other farm to school programs; more than 70 percent of food comes from local growers in California. Some 490 schools have been recognized in the U.S. Department of Agriculture (USDA)'s HealthierUS School Challenge. The Nutrition Education Obesity Prevention-LAUSD program (NEOP) and Sustainable Economic Enterprises of Los Angeles (SEE-LA) have partnered to create the unique Bring the Farmer to Your School program, which has local farmers visit *Title I* classrooms to deliver interactive presentations about agriculture, farming as a career, water conservation, and the importance of eating more fresh fruits and vegetables and having an active lifestyle. Students can ask questions, see pictures, and taste farm-fresh, locally grown produce.

A district-level Sustainability Steering Committee comprising stakeholders from Facilities, Food Services, Transportation, Division of Instruction, Career and Technical Education (CTE), the Office of Environmental Health and Safety/Waste Management, Procurement, Legislative, and Communications coordinates sustainability goals and activities. At the school level, each school has a Coordinated School Health Wellness Committee that promotes the physical, emotional, and social health and well-being of LAUSD students. The committees must have representation from health education, physical education, health services, nutrition services, counseling, psychological and social services, safe environment, and parents and the community. The committees work closely with other entities as needed, including the Health Education Program coordinator, the school nurse, and the food service department. The Wellness Committee completes an annual assessment tool, and develops and implements an action plan. LAUSD works with more than 150 partners to inform, educate, and support students, staff and the community in their efforts toward health, wellness, and physical fitness.

The district has more than 50 environmentally-themed magnet schools and academies. Fifty-one high schools offer advanced placement (AP) Environmental Science. The district has more than 100 gardens, which are integrated into the curriculum. Several schools use the district's legacy agricultural areas and greenhouses to offer horticulture-focused experiential programs. Teachers from more than 440 schools have participated in sustainability education professional development workshops. Through California's Proposition 39, high school students receive hands-on experience learning how to conduct building energy audits at their schools. Currently, 29 Proposition 39 projects are in construction, in design, or under audit, with another 20 anticipated.

LAUSD's outdoor education programs offer robust science, technology, engineering, and math (STEM)-related outdoor educational experiences to students throughout the district. LAUSD's Director of Outdoor Education participated in the California Environmental Literacy Task Force that developed the Blueprint for Environmental Literacy for the state. LAUSD has instituted policies that promote environmental awareness; creating school-based programs and curriculum that integrate sustainability concepts across disciplines; developing contests and providing outdoor educational experiences that expose students to the natural environment; providing sustainability-related CTE; advanced learning programs that prepare LAUSD students for success in the careers of the future; and coordinating and cooperating with dozens of nonprofit local and regional entities that bring resources and passion to propel the student body into active participants in developing a more sustainable future.

LAUSD's Susan Miller Dorsey Senior High School is a 2015 U.S. Department of Education Green Ribbon School. Two schools, George K. Porter Middle School and

Westchester Enriched Sciences Magnets, are recognized in the 2016 California Green Ribbon Schools program at the Gold level. The district's sustainability website ("Learning Green") and newsletter impart information on sustainability-related activities and resources. An informal network of school-based sustainability teacher-liaisons act as conduits for information on sustainability programs and initiatives from the district headquarters to the schools.

Manhattan Beach Unified School District, California

Grassroots Sustainability Organizing Blossoms into Districtwide Change

Manhattan Beach Unified School District (MBUSD) students, parents, teachers, and community partners took President Obama's words as their mantra: "Change will not come if we wait for some other person or some other time. We are the ones we've been waiting for. We are the change that we seek."

In 2011, it was MBUSD parents and students who led a site-based effort seeking, and ultimately earning, ED-GRS recognition for Grand View Elementary in the first year of the award (2012). Over the subsequent four years, the green schools movement has continued to blossom in Manhattan Beach, and now it is truly districtwide. MBUSD is a prime example of how a grassroots effort can become the change that it seeks.

The story begins with two groups of parents simply trying to make one school greener. Grades of Green and Growing Great began as groups of MBUSD parent-volunteers working to reduce waste while helping students understand the role of gardens and natural food in our lives. The groups made a difference at one elementary school, expanded to serve all MBUSD schools, and then expanded further to involve districts across the nation. Students and parents have led efforts in waste reduction. Students, dressed up as recycling clowns, starred in films doing the dirty and disgusting, yet fun, work of waste audits, and positioned themselves at campus recycling centers to help fellow students know what to deposit in waste, recycling, or composting containers. MBUSD has cut the number of trash bins it needs in half since 2010. MBUSD's student leaders are of all ages, from primary grades to seniors in high school.

Simple behavior change programs have yielded dramatic results in MBUSD. A single employee's efforts to thank teachers and staff who changed their habits ensured that lights were turned off at night, the swimming pool was properly covered, and electronics were unplugged while schools were not in session. One parent created a clever lunchbox that promotes trash-free lunches. Now every first

grader in MBUSD receives a free trash-free lunchbox, sponsored by Waste Management. It is a clear message that zero-waste is part of the culture in Manhattan Beach. A walking school bus and edible school garden is in place at all five elementary schools in the district.

MBUSD consistently and actively demonstrates its districtwide commitment to protecting the environment, and shows no sign of slowing down. In 2014, the Board of Trustees initiated efforts to dramatically reduce the district's ecological footprint by implementing solar panels and changing all lights to energy efficient LED lights. In 2015, the district's Green Committee entered its second year, emerging as an idea-generating center featuring businesses, city officials, volunteer organizations, parent-volunteers, and district and school leaders. District efforts include a first-in-the-nation accomplishment in turning food waste into energy.

MBUSD has documented a 44 percent reduction in greenhouse gas emissions and a 33 percent reduction in nontransportation energy use over six years. Each of the seven schools in the district is ENERGY STAR certified, and six of the seven scored 100. Solar panels installed at the high school provide a whopping 30 percent of the facility's energy needs. The pool has been updated with solar thermal heating, and lunch tables equipped with solar charging stations for student use. California *Proposition 39* funds are being used to fund LED lighting upgrades at all sites, and additional funds are being used to install carport solar shade and rooftop solar structures, auditorium lighting and controls, solar thermal equipment for the pool, HVAC upgrades and an energy management system at the high school, and HVAC upgrades at the middle school.

The goal of the district's environmental education program is to provide students with an understanding of the interactions and interdependence of human societies and natural systems, the ways that natural systems change and how people can benefit and influence that change, that there are no boundaries to prevent matter from flowing between systems, and that decisions affecting resources and natural systems are complex and involve many factors. Since 2004, MBUSD has incorporated California's Environmental Principles and Concepts into the kindergarten through grade 12 history-social science and science curricula with the goal of strengthening the environmental literacy of its students, and providing them with the skills to understand, analyze, and critically evaluate environmental issues.

Students have meaningful outdoor learning experiences at every grade level. In addition, every elementary school has a MakerSpace on campus, and Project Lead the Way is implemented for all elementary grades. MBUSD students learn to be problem-solvers and environmental advocates. In January 2009, 40 MBUSD students in grades three through eighth initiated a successful citywide ban of single-use plastic bags and Styrofoam.

MBUSD administrators have adopted a "say yes" approach to leadership. They seek to say yes when parent leaders want to start a new program, when one individual sets out to change the habits of all employees, when students want to lead, and when community leaders have an idea that will promote healthy living and the environment. MBUSD has said yes to their committed citizens over and over, and the result is a green district that shines as a beacon for the community.

San Francisco Unified School District, California

Coordinated Efforts in Environmental Education For More Than 40 Years

The San Francisco Unified School District (SFUSD) is proud of coordinated efforts to become one of the greenest urban public districts in California. SFUSD's partnerships with the City of San Francisco, local nongovernmental organizations, and universities let the district's 54,000 students in 64 elementary schools, eight kindergarten through eighth grade schools, 12 middle schools, and 18 high schools benefit from sustainable facilities, practices, wellness initiatives, and curriculum.

Coordinated efforts in environmental education rose in tandem with the creation of the Golden Gate National Recreation Area in the 1970s, followed by the creation of the SFUSD Environmental Science Center (ESC) in 1976. The ESC continues to provide elementary overnight environmental learning experiences at no cost for classrooms. In the 1980s, the ESC partnered with San Francisco municipal utilities (water, waste, power, and sewer), beginning the integration of sustainability messages in standardized education work and providing professional development to a large number of elementary teachers. At the same time, many individual school sites began their own relationships with partner providers to develop a sustainability ethic, and a more standardized integrated network of partners emerged as the science collaborative, now known as 4S.

In 2007, SFUSD partnered with the mayor's office, the Public Utilities Commission, and the Department of the Environment to create the SFUSD Department of Sustainability (DS), allowing districtwide coordinated oversight into all facilities improvements and practices. This oversight is connected to bond modernization at all sites, which includes the development of a green schoolyard on each and every campus. In 2011, the DS—in coordination with SFUSD Curriculum and Instruction—began providing environmental liaisons at all sites. Liaisons provide on-the-ground school support, working to reduce utility costs; targeting 100 percent landfill diversion; supporting walk-to-school, roll-to-school, and other wellness campaigns; and promoting professional development opportunities to site staff. Currently, the Next Generation Science Standards are encouraging a prekindergarten through 12th

grade pathway of meaningful environmental experiences that is being developed in partnership with 4S collaborative partners.

Every SFUSD school participates in the district's Shared Savings program, a partnership with the municipal utility companies. The program rewards school sites for reducing their utility use by giving them 50 percent of the savings they generate through conservation for discretionary site-based spending. SFUSD also identifies efficiency projects through ongoing audits of the biggest energy-using sites. All information is available to 100 percent of sites and the public through the district's www.greenthenextgen.org dashboard tool. In 2003, SFUSD adopted a policy that required all new schools to be CHPS-verified. Seventy-five percent of solid waste from all school sites is diverted from landfills through reduction, recycling, and/or composting.

To promote the health and wellness of students, 63 percent of whom are eligible for free or reduced price lunch, SFUSD partnered with Revolution Foods in 2012. Revolution Foods prides itself on food that is prepared fresh daily; has no artificial preservatives, colors, high fructose corn syrup, or trans fats; and provides fresh fruits and vegetables with every meal. SFUSD has banned BPA containers for food service. Most packaging is compostable, with very little if any packaging sent to landfill. Student and staff wellness benefits from physical education minutes in the form of creative, outdoor, environmentally friendly learning experiences such as walking field trips, bike-rodeo trainings for students, overnight camping trips that include hiking, and the integration of student exercise in outdoor green schoolyards that are continuing to be developed at each school in SFUSD.

SFUSD has been installing cool roofs since 2009, and removing asphalt to make way for green schoolyards at some 60 sites since 2005. In 2011, voters authorized the continued modernization and greening of all SFUSD school sites. As part of the district's modernization program, each building receives a sustainability site audit, including plans for the redesign of campus exterior spaces to improve health and wellness for students and staff. Schoolyard greening has allowed SFUSD to partner with Friends of the Urban Forest, which provides landscaping and fruit trees for all schools that would like to have students help care for them. As a result, 100 percent of SFUSD schools will undergo schoolyard greening. Schoolyard greening elements are determined by each unique school site, yet are guided by the SFUSD published Green Schoolyard Guidelines. In 2015, an organization called Education Outside staffed 40 college graduates at elementary schools across SFUSD. These coordinators are responsible for outdoor schoolyard instruction including science education, English language arts, and nutrition/cooking/gardening/stewardship. Nearly all secondary sites offer gardening/nutrition or CTE pathways.

SFUSD STEM offices have aligned curricula with the environmental and sustainability efforts. An environmental pathway is being implemented that supports prekindergarten through 12th grade meaningful environmental experiences at each grade level. SFUSD continues its 40-year partnership with the National Park Service sponsoring the SFUSD ESC. As of 2015, all ESC programs are aligned with Next Generation Science Standards, supporting grades three, four, and five. These programs remain no-cost for classrooms, and prioritize *Title I* school sites. SFUSD benefits from a rich network of science, stewardship, and sustainability providers that are integrated into the pathway.

To make these experiences equitable, the SFUSD Board recently approved a Science Enrichment Pathway fund. Funding will eliminate barriers such as bussing fees, substitute costs, or entrance fees for students, with a goal of ensuring that all students at all schools can participate in a pathway of meaningful experiences. A pathway coordinator has been hired to connect school sites into the prekindergarten through 12th grade pathway of meaningful science and environmental experiences available from SFUSD partners. These experiences also will align with California's Blueprint for Environmental Literacy, developed by the Environmental Literacy Task Force, which counted SFUSD as a member.

Colorado

Heritage Elementary School, Highlands Ranch, Colo.

Staking a Green Flag for Green Schools

Heritage Elementary School is an example of comprehensive school sustainability, addressing each of the three Pillars of ED-GRS. As a result of its sustainability culture, the school received its Eco-Schools USA Green Flag in 2014, and was named by the National Wildlife Federation (NWF) as one of America's Top 10 Eco-Schools in 2015. Heritage also was a featured stop during the 2014 U.S. Department of Education Green Strides Tour of Douglas County School District, a 2013 District Sustainability Awardee.

Heritage's Energy Team, in collaboration with the Operations and Maintenance department, has worked to reduce the school's impact on the environment. Onsite solar panels provide about 27 percent of the building's energy, and the school has reduced its energy consumption by 14 percent over three years, despite implementing an increase in tech devices from 267 to 850 to provide each student access to iPads, laptops, and Chromebooks. The automated irrigation system, use of native plants, and *hugulkultur* gardening practices all ensure efficiency of water use on school grounds, reducing domestic water usage by eight percent and irrigation by 35 percent.

Students and teachers work diligently to implement waste diversion strategies, including recycling, composting, and using food waste to feed the school's chickens, resulting in a 57 percent diversion rate. Heritage's cafeteria recycling program has made tremendous strides in just two years. Before that time, the school was sending 400 pounds of waste to the landfill. By the second year of the program, Heritage reduced that volume to 200 pounds to the landfill, and, in a third year, averaged 107 pounds of waste to the landfill from the school cafeteria.

Through its Sustainability Incentive Program, the Douglas County School District supports all of these conservation efforts by returning a portion of energy, waste, and water savings to the school to invest in further green school efforts.

About 37 percent of students participate in Walk or Wheel Wednesdays, and no-idle zones are posted and enforced in the car loop. The Heritage Green Team and the school's art teacher create upcycled jewelry, planters, and cheese trays out of aluminum cans, gift cards, and glass bottles. Students sell these items at farmer's markets in the fall and spring, and at the Annual World Market in December. The district's chef works with students for nutrition and agricultural education. After harvesting grapes from the school garden, sixth graders learn the science of preservation with Chef Jason. They then price and sell the jelly at the Spring Farmers Market.

Heritage is actively engaged in Douglas County School District's Healthy Schools Program. Using the "Whole School, Whole Community, Whole Child" model, Heritage has both a Coordinated School Health Team, as well as a Student-Led Health Team. These teams have worked to increase physical activity before, during, and after the school day, use brain boosters throughout the day, increase awareness for mental and physical health, and address bullying.

For six years, Heritage has had a thriving school garden that promotes health and wellness, growing fresh produce for students to taste and experience. A student-tended chicken coop provides eggs that are sold to the school community. The NWF Certified Native Habitat provides an outdoor classroom for science, writing, art, and environmental studies. Outdoor education and a robust health curriculum ensure that students are physically active and engaged in outdoor learning.

Sustainability education is integral to the fabric of Heritage. Teachers across disciplines make use of the school gardens and outdoor classrooms for inquiry, inspiration, and experimentation. Art students use the garden for still life drawing. Kindergarteners and first graders plant an apple orchard in connection with their "Apple" unit, using the school's own compost to enrich the soil. In second grade, students plant a tulip test garden as part of a citizen science project called Journey North. Third graders set up an experiment to see how Native American gardening

practices enhanced corn growth. Sixth graders learn about energy conservation in collaboration with Xcel Energy's Think Energy take-home kits.

All students participate in the cafeteria recycling program, and see the cycle of sustainability through composting and gardening. Students learn how they can affect the environment by producing their own food. Heritage in a partnership with the Rocky Mountain Arsenal National Wildlife Refuge, a ranger visited the school and worked with the sixth grade leadership team, who then visited the Arsenal on a field trip, observing a pollinator garden and participating in prairie restoration.

Heritage's school grounds are a hub for the community to learn about sustainability by helping with the garden, the chickens, and composting. Through these actions, students see the broader effect of their work, and learn the civic applications. Heritage's sustainability champions also support other schools and districts by sharing resources, examples, and mentoring, serving to build the green school community in Colorado and beyond.

Poudre School District, Colorado

Decades of Comprehensive, Districtwide School Sustainability

Poudre School District (PSD) is an award-winning, nationally-recognized leader in energy conservation, green building, and health and wellness. PSD's commitment to sustainability began in 1994 with the formation of the Energy Efficiency Team, a group tasked with coordinating sustainable efforts and defining sustainable goals. After establishing its Green Team in 1999, PSD began researching sustainable products, sustainable design guidelines, energy-efficient commissioning, and building performance, and used this foundation to help support a 2000 bond program that yielded some of the top performing schools in the state: Fossil Ridge High School, Kinard Middle School, and Bethke Elementary School.

The results of the district's efforts have been significant. Since 1994, PSD has completed 260 energy efficiency projects resulting in a utility savings of over $2 million, and a greenhouse gas emissions have been reduced by over 5,000 tons since 2005. The district has been recognized by numerous local, state, and national organizations, including being the first school district in Colorado to be awarded the Environmental Leadership Award, having the first LEED Gold certified school in the nation, and earning the first ENERGY STAR rating for a school building under the Designed to Earn designation.

Building on the successes of sustainable construction, the district reaffirmed its commitment to sustainability by adopting a Sustainability Management System (SMS) in 2006. This SMS extends the principles of sustainability across district operations, and provides an integrative and collaborative approach to work toward reduction goals while supporting the district's educational mission through fiscal responsibility. PSD builds upon the SMS by publishing its Annual Sustainability Report, which highlights sustainable accomplishments, innovative practices, and goals from departments and schools across the district. Now in its seventh year, this report involves 33 departments and 12 schools, and includes five topic areas: resource conservation, greenhouse gas emissions, sustainable education, transportation, and health and wellness. Among its newest set of goals, the district intends that all new buildings will be designed with the intent of being net zero energy capable by 2025.

PSD integrated health and wellness into its sustainable mission in 2010, acknowledging that health and wellness help to foster and support sustainability goals. The district has worked to develop partnerships with local public health groups, encouraged walking and biking to school, educated students and staff on wellness topics, and recognized how district facilities influence physical and mental wellness as a whole. PSD oversees a robust Safe Routes to School program, including walking school buses, walk and bike to school days, bike safety instruction, and the installation of bike repair stations at middle and high schools. Every school has a salad bar, and PSD's farm to school program has been in place for five years.

Nearly 30 percent of schools have onsite gardens, which are used as outdoor classrooms, with the growing cycle incorporated into science classes. Elementary students participate in The Walking Classroom program, in which students take 20-minute walks while listening to a podcast on topics focused on science, social studies, and language arts; middle school students engage in Global Explorers field trips and river watch activities; and high school teachers incorporate the outdoors into lessons whenever possible, including hands-on experiential field trips.

With student achievement as PSD's first priority, environmental education and sustainability has been integrated into the classroom through collaboration with administrators, teachers, staff, and outside entities to establish learning opportunities. Using the District Ends—policies that establish the vision and direction of the district—as a basis, these learning opportunities focus on four key component areas: foundations for success, success in a changing world, above and beyond, and connections. Sustainability concepts are embedded in the curriculum across all grade levels. For example, science standards require all students to "experience the richness and excitement of observing and understanding the natural world," and social studies focuses on "understanding of how humans interact with each other and with the environment over time."

During the 2014-2015 school year, the City of Fort Collins Utilities Department worked with 36 schools to provide hands-on, curriculum-based classes, programs, and events for students related to water and energy. Each of the district high schools has developed a unique STEM/STEAM (science, technology, engineering, art, and math) pathway, including such options as Agriculture and Natural Resources and Bioscience. Across the district, schools participate in activities such as River Week, a citywide children's water festival, Habitat for Humanity home building, gardening and composting, water ecology studies, nature hikes, and informational tours of sustainable school facilities.

PSD now has had three schools selected as U.S. Department of Education Green Ribbon Schools: Lesher Middle (2014), Kinard Middle (2013), and Wellington Middle (2012). All three of these were part of the 2014 Green Strides Tour. Spearheaded by district administration, PSD's sustainability program truly is a team effort, with support and participation coming from students, staff, community members, and outside entities. Past sustainability efforts, awards, and achievements, combined with a vision of a better future, demonstrate PSD's embodiment of ED-GRS Pillars.

University of Colorado—Colorado Springs, Colorado Springs, Colo.

A Sustainable Compass Runs Through It

University of Colorado–Colorado Springs (UCCS) provides leadership by working to institutionalize a culture of sustainability, imparting both the knowledge and practices students can carry into their lives after college. UCCS is a Gold-rated university in the Association for the Advancement of Sustainability in Higher Education's Sustainability Tracking, Assessment & Rating System (AASHE STARS) and uses a comprehensive Sustainability Strategic Plan to guide its efforts. It has conducted four external energy audits, and spent more than $1.3 million for energy and water retrofit projects, producing over $4 million of avoided costs. The University was an early signatory to the American College and University Presidents' Climate Commitment, which required a goal of carbon neutrality, along with short term actions to reduce carbon emissions immediately.

Each year, UCCS invests in more renewable energy from onsite solar photovoltaic and thermal systems, wind energy purchases, participation in solar gardens, and purchase of Renewable Energy Certificates. For over seven years, students have directed a student-approved and -funded Green Action Fund to conduct sustainability projects on campus, including a retrofit of showerheads and toilets in housing, resulting in over $25,000 in savings per year. Seven buildings have achieved LEED Gold certification, one is awaiting certification, and three more are in

process, for a total of 25 percent of UCCS square footage meeting some LEED standard. A 64-panel solar thermal system on the Recreation Center provides the majority of energy required to heat the swimming pool, spa, and showers.

Between 2005 and 2015, UCCS waste diversion increased from five percent to 41 percent, with the implementation of a comprehensive Zero Waste program. Disposable water bottle sales have been banned on campus and replaced with water bottle refilling stations. UCCS placed an office recycling bin with a small sidesaddle landfill receptacle in all new faculty/staff offices to reduce waste, eliminate plastic bag liners, and give ownership of waste to each individual.

Colorado residents are among the most active people in the nation, and UCCS has been a leader with regard to health and wellness. The new student-supported and funded Student Wellness Center, a $16.3 million addition to the Recreation Center, is an innovative model represented by co-location and integration of recreation, mental health, health, wellness promotion, and nutrition. For the second consecutive year, UCCS faculty and staff participated at the highest rate (over 20 percent) of University of Colorado campuses in the Be Colorado SUCCEED Health Assessment program, the wellness component of the University of Colorado Health Plan.

UCCS has achieved a Bronze level Bicycle Friendly University designation through investment in bicycle infrastructure, safety signage, classes, and incentive programs. The library loans bike locks if a student forgets to bring one. Pedal Perks is a year-long incentive program funded by Kaiser Permanente to increase health by commuting by bicycle and stationary bicycle exercise. UCCS offers a Bachelor of Science in Health Care Science degree with a Health and Wellness Promotion Option, a Master of Science degree in Health Promotion, and will introduce a Bachelor of Exercise Science degree in 2016. UCCS features in-house food service, a campus farm, and greenhouse.

UCCS prioritizes environmental education and sustainability to ensure that all graduates are prepared to contribute positively to the global environment. Comprehensive general education requirements, known as the Compass Curriculum, specifically require a sustainability course and a global diversity course for all students before graduation. Courses address social equity, environmental, or economic aspects of sustainability. The minor in Sustainable Development has been a growing and high-impact academic program on the campus for over ten years. The Geography and Environmental Studies Department offers both undergraduate and graduate coursework in sustainability. The Sustainability Demonstration House, which houses the Office of Sustainability, provides education for students, staff, faculty, and the community on best environmental practices for a contemporary house, as well as ways to reduce environmental impact in general.

The Sustainability Wellness and Learning program is a collaboration between the Office of Sustainability, the UCCS Farm and Greenhouse, the Health Sciences and Nutrition department, and Dining and Food Services to provide experiential education and student learning. Through the UCCS Center for STEM Education, educators and kindergarten through 12th grade students receive hands-on science experiences including workshop field trips to UCCS. Projects include building a solar-powered model car and environmental forensics cases. The Partnership in Innovative Preparation for Educators and Students program seeks to respond to the looming shortage of skilled STEM workers, and the lagging performance of students in science and math, through innovative and supportive partnerships with parents, educators, and professionals.

UCCS offers a wide variety of academic courses that require students to partner with the greater community. The Service-Learning Internship and Community Engagement Center within the College of Letters, Arts & Sciences fosters quality experiential learning opportunities for students, supports faculty in community-based outreach activities, and facilitates campus-community partnerships. The Restoration Club integrates student knowledge with local land restoration. Students for Environmental Awareness and Sustainability work toward creating a more environmentally conscientious campus community.

Connecticut

CREC Two Rivers Magnet Middle School, East Hartford, Conn.

A Windspire and Weather Bug Engage Students in a Living Laboratory

CREC Two Rivers Magnet Middle School, (TRMS) from the Capitol Region Education Council (CREC) District, is located in East Hartford, Conn. The school serves 652 students in grades six through eight, from 21 towns. Forty percent of the school population qualifies for free or reduced price lunch and 54 percent are minority students.

TRMS was honored as a Magnet School of Excellence by Magnet Schools of America. The school is aptly named for the convergence of the Hockanum and Connecticut Rivers in East Hartford. The location of the school gives its students access to a true living laboratory where they can study all subjects under the theme of environmental science. Between the rivers and the school's pond, students learn about biodiversity of the land and learn to become stewards of nature. Two Rivers couples environmentalism with an emphasis on STEM teachings.

An environmentally themed STEM school, TRMS focuses on environmental awareness through courses like sustainability, environmental ethics, and a field

science class. Lessons on the environment are worked into other classes. For example, when students study Mexican culture they learn about the migration of Monarch butterflies from Canada to Mexico, the butterflies' significance to the Mexican culture, and about threats to Monarchs due to decreasing milkweed populations.

The school's focus on the environment extends beyond the classroom. The TRMS recycling program is run by students, who collect recyclables from classrooms along with data on how classes are doing in terms of accuracy. The school fills 15-20 90-gallon barrels of single-stream recycling per week. After a small-scale compost operation last year, TRMS introduced schoolwide composting. The kitchen staff collects kitchen waste, and sixth graders are piloting a student compost program in which students collect food scraps during lunch. On average, TRMS collects three 90-gallon barrels of food scraps weekly.

Students play an integral role in their own learning and environmental stewardship at TRMS. In 2009, several students and the school's enrichment coordinator began the Project Learning Tree (PLT) modules. Through their work with PLT, students wrote articles that were published in the Hartford Courant and presented at both the Connecticut Science Teacher Association and National Science Teacher Association conferences in Hartford in the fall of 2011. In 2012, TRMS was named the first PLT Green School in Connecticut, and its enrichment coordinator received the first PLT Connecticut Educator of the Year award. Students worked with the facilities director, the town of East Hartford, and the Board of Education to research, approve, and install a windspire on the roof of the building, with funds received through a PLT grant and CREC. The windspire is connected to a computer in the classroom below, so students can collect data on how much energy is generated each day.

In addition to collecting data on waste reduction and energy collection, the school also collects data on the environment around the school. Students participate in Picture Post, a program of the University of New Hampshire and part of the Digital Earth Network, taking panoramic pictures of the school grounds and uploading to compare over time. There is a Weatherbug Station on the roof of the building, so students can compare the picture post photos with the weather reported on those days to look for patterns.

Additionally, students are familiarizing themselves with Cornell University's School of Ornithology program, ebird. Groups of students monitor bird feeders in three different locations around the property, collecting data on the amount of seed left in each feeder as well as the number and types of birds sighted at each feeder. All of these programs provide rich data that is both engaging and informative for students.

TRMS operates a greenhouse and a hydroponic garden. An after school cooking class uses the student-grown herbs as ingredients in their cooking. Several teachers have container gardens in their classrooms. TRMS has a fruit exchange bin for students who choose not to eat their fruit. They can leave it in a bin just past the cash register and other students who are hungry may take the fruit. This supports health and wellness goals and also waste reduction. Through donations from Whole Foods, students in high-risk groups are offered a backpack of food to take home on Fridays. Teachers frequently take students outdoors as part of class or for earned rewards, and students also can earn lunch outside through a positive behavior support system.

CREC Two Rivers Magnet High School, Hartford, Conn.

From Brownfield to Multiple Green Career Pathways

CREC Two Rivers Magnet High School (TRMHS) is an urban environmental science magnet school overseen by CREC in Hartford, Conn. TRMHS currently serves over 395 students in grades nine through 12 from the greater Hartford area. More than 50 percent of the students are eligible for free and reduced price lunch. It has a high English Language Learner (ELL) population, and more than 80 percent of students are minority. The magnet theme is environmental science and sustainability. As a four-year-old school, TRMHS has used the CT Green LEAF guidelines and resources as a green road map for the development of its theme programing. For example, students at TRMHS have participated in courses that teach sustainable green building design, techniques in water quality testing, aquaponic food production, and drone and robotic conservation efforts.

By making use of the CT Green LEAF self-assessment tool, TRMHS added to the School Improvement Plan action steps including environmental STEM pathways, cross-disciplinary environmental science curricula, theme-specific professional development, green school initiatives such as recycling and composting, and a theme-specific senior capstone project. In 2015, TRMHS received the Magnet Schools of America Award as a School of Distinction for efforts promoting the magnet theme of environmental sustainability.

TRMHS integrates the magnet school theme of environmental science and engineering throughout all core, elective, and co-curricular classes. TRMHS offers four exciting theme-specific pathways for students to choose from: Aquatic Studies, Environmental Studies, Environmental Science and Engineering, and Plant Genomics and Biotechnology. Upon graduation, students receive an environmental pathway designation on their diplomas for their specific focus.

Learning occurs in multiple environments, including nearby parks, rivers, coastal and mountain regions, and nature preserves. Social studies classes visit historic sites and analyze how the environment shapes our culture and history. World Language classes create eco-tourism postcards and apply vocabulary related to environmental preservation. In art classes, students create original and expressive pieces by repurposing recycled materials and using multiple media to increase environmental awareness. Music students make and play recycled instruments as they study environmental and cultural issues through world music.

The creation of thematic pathways is enhanced by teacher collaboration on interdisciplinary learning experiences. Examples of environmental science integration in core classes include: a study of alternative energy in physical science class which culminates in a social studies debate on the merits of Tesla's vs. Edison's work; an aquaponics project incorporating the engineering design process; an exploration on energy transformations relating to human nutrition and sustainability; an upcycling project in music using old computer parts to make maracas, and ecological field and aquatic studies at the confluence of the Connecticut and Hockanum Rivers.

TRMHS pursues health and wellness, both in academics and in other activities. It has a diverse curriculum that includes courses such as Environmental Justice and Food Science, as well as maintaining an active student team that assesses the indoor environmental quality of the school using EPA Tools for Schools and PLT's GreenSchools materials. A Wellness Committee addresses staff wellness education and offers quarterly health competitions for staff members. Staff members participate in a community supported agriculture program to bring farm-fresh produce to the school, a program that has expanded to include students' families. The cafeteria offers vegetarian and vegan choices, as well as culturally inspired meals. As an urban school located on a former brownfield site, the school uses local parks for recreation, and walks to many field trip sites.

Currently TRMHS is located in the renovated historic Colt Armory in downtown Hartford. This factory was a former brownfield site that has been rehabbed and revitalized to serve as the campus for three CREC schools. TRMHS has a greenhouse that students use in AP Environmental Science and for their capstone projects. The school adheres to CREC's Ethical and Sustainable Spending Policy for schools and programs, which requests that staff make considerable effort to reduce consumption, waste, and transportation emissions when purchasing supplies and equipment. Many students walk, ride their bikes, or travel to school by city bus. TRMHS has a no-idling rule at the school, which helps to reduce the environmental impact of school buses.

Next year, construction begins on a new facility which will be located on the Farmington River, and is projected to include a solar array that will provide at least 50 percent of TRMHS' electricity needs. TRMHS also is investigating whether geothermal heating and cooling is a good fit for the school. In an after school club and in the green building design course the school is planning to offer, students design low-impact landscapes for the new site, which will include vegetable and pollinator gardens, an educational wetland and trail system, an outdoor aquaponic farm, a nature center for the local community, and a bird sanctuary.

King School, Stamford, Conn.

A Sustainability STAR Among Even the Smallest Superheroes

King School is an independent coeducational college preparatory day school in Stamford, Conn., instructing 672 students from prekindergarten through 12th grade. The breadth of its programs, the challenge of its wide-ranging offerings, and the strength of its community serve its students extremely well.

Two faculty and staff members lead sustainability task forces, with one responsible for promoting environmental stewardship and the other responsible for promoting health and wellness. The parents' association has a Healthy and Sustainable Living committee. Student leaders in the Lower, Middle, and Upper School divisions work directly with faculty to engage the student body on sustainability issues at least twice a month. All task forces and committees are coordinated through King's full-time sustainability director.

King uses STARS to measure best practices in sustainability. The school earned bronze status in 2014, and has adopted a sustainability plan that will bring it to gold status in five years. All King stakeholders, including senior administrators, parents, faculty, staff, and students, were involved in the creation of the sustainability plan.

King defines sustainability in terms of social, environmental, and economic concerns, which means looking beyond reduction of environmental impact efforts to ensure that graduates also are literate in sustainability concepts. To that end, King has adopted Education for Sustainability standards published by the Cloud Institute at all grade levels kindergarten through 12th. Faculty-illustrated cartoons of Environmental Ant, "the world's smallest superhero ever," have been designed to teach Lower School students sustainability lessons.

To communicate and promote sustainability efforts, King designs and disseminates 13 infographics throughout the school year, covering the following topics: waste,

service work, food, curriculum, energy, greenhouse gas emissions, transportation, water, purchasing, affordability and access, support for underrepresented groups, investment, and health and well-being. An infographic is sent biweekly to all upper and middle school advisors, and to lower school homeroom teachers. Accompanying each infographic are three yes-or-no questions prompting discussion about sustainable behaviors. The results are aggregated and sent back to the sustainability director, and then shared with student leaders of each division.

King is undergoing a comprehensive kindergarten through 12th-grade curriculum review using Understanding by Design strategies. All Upper School departments are working with cross-divisional program leaders, including sustainability, to incorporate standards into their overarching, departmental transfer goals, understandings, and essential questions. Once adopted, departments will use backward design to incorporate sustainability standards even more intentionally into unit planning from 12th grade all the way back to kindergarten.

Students in King's Environmental Science and Sustainability elective course work with the sustainability director to implement a learning environment analysis that includes the EPA's Tools for Schools program. Students in the elective are split into groups, with each group responsible for the data collection in a different campus building. The process engages just about every King employee, and the data is used to inform changes in indoor quality practices. The audit also incorporates a majority of the parameters used by the Collaborative for High Performance Schools in its Operations Report Card.

The food service director has worked to increase King's percentage of sustainably-sourced food using metrics from the Real Food Challenge. Within one year, King doubled its sourcing of sustainably sourced food, and expects to double it again by 2020. To help move the initiative forward, King is leading a group of 10 schools in the Fairfield/Westchester county area, all of whom use the same dining service, to work together in increasing their procurement of sustainably sourced food.

King's Sustainability Task Force on Health and Wellness, which serves all employees at King, provides education, bringing resources to campus, fitness incentives, use of community resources, and stress relief initiatives. For the students, athletic programs are an integral part of their experience. Students in prekindergarten through sixth grade have physical education every school day. In grades seven and up, students participate in sports as a requirement.

King's sustainability plan includes a very ambitious target of reducing carbon emission by 50 percent in five years. A comprehensive greenhouse gas inventory, going back to 2010, was calculated using the Carbon Management and Analysis Platform maintained by the University of New Hampshire's Sustainability Institute.

To reach its carbon reduction goals, King's strategies include increased energy efficiency with infrastructure modifications, increased energy efficiency with -- conservation behaviors, installation of renewable sources, and expanding sustainable transportation strategies.

The school's path toward renewable energy use began this past year in a cooperative, student-led effort between King's Global Education Program and Sustainability Program. Twenty-one students are engaged in feasibility studies in renewable energy topics for King. The topics are solar photovoltaic energy, solar thermal, wind, fuel cells, biomass, geothermal and innovative ways to use kinetic energy. The students will develop requests for proposals, engage businesses in the region, collect proposals, and bring their research to the Global Student Leaders Summit taking place in Iceland in March 2016. They will present results to the board of trustees, giving King the opportunity to decide which renewable sources are most appropriate in the coming few years. Most of the students are using the project as their senior capstone project, which will allow them to earn Distinction in Global Education upon graduation.

Delaware

Wilmington Montessori School, Wilmington, Del.

Fundamental Montessori Values Undergird Daily Green School Practices

The Wilmington Montessori School (WMS) community makes a great effort to uphold green practices and use materials and systems that will minimize the school's costs and environmental impact. The WMS facilities staff is committed to creating a safe, healthy, and sustainable campus. The nursing and health education staff seek ways to keep students and families as healthy as possible, and WMS teachers and staff are dedicated to teaching students to be good stewards of the Earth. These are fundamental Montessori values.

Staff works together to maintain the natural gifts of the school's 25-acre outdoor classroom, and help all of the students understand how gratifying it is to care for one's own environment and, by extension, the world. WMS has installed gardens and composters. The square foot gardening project is integrated into the fourth through sixth grade curriculum, and extra vegetables are passed on to the Food Bank of Delaware. Toddler students play in a specially designed area that allows them to interact with natural elements such as dirt, seed pods, and water. The teachers provide the appropriate language related to these experiences. Preschool students make feeders for birds, care for plants, and name the stages of the butterfly's life cycle. The monarch butterfly waystation allows students to observe the natural world up close. Lower elementary students learn about the fundamental

needs of plants and animals, along with the underlying processes of the larger natural world.

As a part of the Delaware Valley Green Building Council's Pathways to Green Schools program, a team from the University of Delaware conducted a daylong energy audit to assist the school staff in understanding ways to conserve energy and resources throughout the school. Measures to reduce environmental impact taken at WMS include: the installation of a new roof, approximately 200 energy-efficient windows, 10 energy-efficient exhaust fans, a building automation system, seven energy-efficient HVAC rooftop units, five energy-efficient dishwashers, and six low-flow toilets; the conversion of 220 lighting fixtures from T12 to T8 fixtures and all exterior lighting to LED or compact fluorescent; re-striping of the parking lot; reinsulation of an entire wing; and diverting stormwater runoff to a drainage basin. WMS also participates in the NWF-administered EcoSchools USA.

The WMS community has sponsored several ongoing sustainability projects. Students, families, and staff support shoe, paper, and ink cartridge recycling. Sixth graders have raised funds and awareness for Save the Rain, 350.org, and the UNICEF Tap project. Primary students installed a certified monarch butterfly waystation. Lower elementary students have done extensive study of wind power, water filtering, oil spills, and river preservation, and attended programs at the Delaware AeroSpace Education Foundation to learn about solar power and renewable energy. Students and facilities staff built a small library out of recycled materials, into which donated used books are placed so that students may exchange books. This project has reinforced the concepts of reducing, reusing, and recycling.

Students at all levels participate in the Bash the Trash artist-in-residency program, with workshops in which students learn the physics of sound, orchestral instruments, and ways to use recyclables to create musical instruments. Lower elementary students conduct a study of trees and seeds, through which they have created a field guide of trees, and have grown plants from seed. The upper elementary curriculum includes work with square foot gardening, composting, the design of "land art" projects, and an investigation of watersheds, estuaries, and oyster restoration through Project PORTS, an outreach initiative of the Haskin Shellfish Research Laboratory at Rutgers University.

In 2014-15, WMS opened several maker studios - for the toddler, preschooler, kindergarten, and elementary level students to explore STEAM topics. In the general classrooms and the maker studios, students practice the skills of experimentation, testing, redesigning, and retesting. Students create water filtration systems, build hydroponic planting systems, dye fabric by natural means, and create code for computers.

The Montessori curriculum encompasses many of the key principles of sustainability and conservation. Maria Montessori, the Italian physician and educator who created the education system that bears her name, included materials, activities, and lessons expressly to address the student's innate interest in the environment and the fostering of higher-level thinking about the universe and a child's place in it. She urged teachers to create beautiful indoor classrooms while also teaching in the outdoor classroom, because children feel their connection to the natural world in a profound way. WMS teachers strive to impart to their students the connection and respect for the natural world that Montessori originally envisioned.

Department of Defense Education Agency

Kimberly Hampton Primary School, Fort Bragg, N.C.

Sharp Students Learning From a Smart Building

Kimberly Hampton Primary School (KHPS), serving 481 prekindergarten through second grade students in the Fort Bragg district in North Carolina, opened in the fall of 2014. Hampton was designed and constructed to meet LEED Silver certification standards. The school's state-of-the-art design promotes sustainability education and STEAM instruction, and is resource efficient. The building is used as a teaching tool for both students and the community through its exposed infrastructure "bones" and sustainable features, including solar panels, a windmill, and rooftop gardens.

The school has an energy-building automation system that is monitored at the district office. Approximately five percent of the school's energy usage is produced from solar panels located on the school roof. Water is heated as it loops through solar panels on the roof, and then is stored in a storage tank. This looping helps regulate water temperature, resulting in a 35 percent energy savings. Large windows allow natural sunlight in, so the need for artificial light is minimized.

A 10,000 gallon in-ground cistern captures rainwater, which is used to flush toilets in the group bathrooms. Rainwater also is collected in barrels to irrigate Hampton's rooftop gardens, and the landscaping around the school is composed of native drought-tolerant plants and pervious pavers.

The building design and classroom educators of Hampton promote STEAM instruction and learning. Classrooms are open studios that allow collaboration and discovery through the use of PBL, in which students work for an extended period of time to respond to a complex question, problem, or challenge. Teachers are committed to incorporating and emphasizing STEM and 21st-century learning skills in these project-based units.

Hampton uses its two rooftop gardens for outdoor learning on life and water cycles, plants, and conservation, and the Garden Club meets on the rooftop gardens weekly. Students use a bicycle-powered pump to water the plants with collected rainwater. Teachers use the school's windmill and solar panels to instruct about alternative forms of energy and sustainability concepts.

Hampton encourages students to ride the bus or to walk with parents to school. The campus population recycles milk cartons, bottles, cans, and paper, and is a worksheet-free school. To support the promotion of having a healthy breakfast, the school offers the National School Breakfast Program, and arranged bus schedules to facilitate participation in the breakfast program. In the classroom, healthy snacks from home are encouraged. Students participate in movement breaks throughout the day, and teachers are encouraged to join morning stretch sessions.

Van Voorhis Elementary School, Fort Knox, Ky.

LEED Silver Leads to Gold

Van Voorhis Elementary School has a long proven history of providing an outstanding education for the children of military families, 40 percent of which qualify for free and reduced priced lunch. Today, Van Voorhis boasts a rich blend of students from both military and civilian families that reside in on-post housing. Although well-maintained, the 1958 facility was not built with sustainability in mind. As a result, the school has emphasized practices that permit students and staff to be good stewards of the environment by conserving resources. Van Voorhis has undergone renovations to conserve energy and provide a healthy school environment. Curriculum and instruction have been designed purposefully to address the health and educational needs of Van Voorhis students, in order to prepare them to become environmentally aware and responsible citizens.

The current Van Voorhis facility will be closed after the 2015-16 school year. All of the students in prekindergarten through fifth grade will attend what is expected to be a LEED Silver certified school. The new Kingsolver Elementary School plumbing and sewage systems will minimize the use of water, and have both solar and geothermal energy generation capabilities.

Van Voorhis educators, support personnel, military, and civilian partners all are focused on demonstrating conservation practices in an effort to produce caring students that will become 21st-century leaders and caretakers of the environment. Some of the school's community partners include: Fort Knox Recycling Center, U.S. Army Corps of Engineers, Fort Knox Meteorological Department, National Energy

Education Development Project, Fort Knox Forestry Department, Fort Knox Division of Wildlife Services, Fort Knox Veterinary Clinic, Kentucky State Forestry Division, and the Hardin County Extension Office

All of these partners have serve as environmental educators for Van Voorhis students. For example, partners helped Van Voorhis students create an oil filtration system during STEMposium Week, offering the scientific foundation needed for students to design, build, and test working filters.

Van Voorhis Elementary recently began an initiative to promote healthy eating and horticultural opportunities for engaged learning through the construction of a school greenhouse. Through the support of a caring district maintenance department and DoDEA's STEM promotions, students benefit from opportunities to get their hands dirty as they learn about life science. Students see firsthand how protecting the environment and conserving resources affects their health and quality of life. Health partners from the Ireland Army Hospital and Dental Center, and the military family life consultant work with Van Voorhis' physical education teacher and school counselors to promote student health and well-being. The United States Army Human Resources Command offers support and mentoring for special events that promote being physically fit and active.

Recently, Van Voorhis has secured a master gardener to help expand the school greenhouse program, including increasing its composting efforts. Hands-on investigations in the greenhouse, as well as other outside learning adventures, promote students' understanding of earth sciences and the fragility of natural resources. Students were thrilled to study a mother fox who decided to have her kits under a shed on school grounds. While maintaining a safe distance, the students witnessed her bringing food to her offspring.

A representative from the Fort Knox Energy Office, in conjunction with the local energy cooperative, will be consulting with Van Voorhis fifth graders as they conduct a school energy audit. Students from the school's gifted program work with the Fort Knox Water Division and Conservation Officer to monitor and promote reduction of water use. Second grade students showcase ways to reduce and recycle paper. All students are involved in the creation of imaginary environmental "superheroes" that protect their world. These superheroes are used to promote sustainable living to the community, along with an earth-themed musical production.

Students benefit from receiving focused STEM instruction from a STEM teacher in the district and from classroom teachers, along with specialists that have incorporated STEM, 21st-century learning, and college and career ready math standards and initiatives to drive student instruction and learning. The STEM

teacher conducts monthly STEMposium challenges that promote student and family problem-solving to design or develop an environmentally sustainable solution.

Garmisch Elementary Middle School, Bavaria, Germany

A Green School Nestled in the Alps

By integrating health, wellness, and environmental responsibility into a 21st century learning environment, Garmisch Elementary Middle School (GEMS) embodies not only green living but also green learning and leading. From the school's "Healthy People, Healthy Planet" wellness program to the recycling and composting program, GEMS has created a multi-tiered, comprehensive program that provides students with the 21st-century tools they need in order to be responsible, environmentally conscious, and successful members of a global society.

Improving the environment while providing students with rigorous and relevant learning opportunities is a cornerstone of GEMS' green school work. GEMS provides opportunities for students to apply and extend learning in hands-on, practical settings, which directly benefit the community. For example, beyond simply implementing a recycling, composting, and waste reduction program, students at GEMS integrate environmental and sustainability education with STEM concepts. GEMS students designed and constructed compost bins to collect organic waste. Students also developed a campaign focused on waste reduction, and collected and analyzed types of waste generated at GEMS to determine the effect of the recycling and composting program. As a result of the composting project, recycling initiative, and student-led campaign to reduce waste, students determined that the amount of waste going into the regular trash was reduced by 83 percent. Students are designing and constructing a garden, which will be planted in the spring of 2016, using soil generated from the compost. Students demonstrate their commitment to improving the environment by participating in garrison clean-up activities. Classes also have taken on civic projects around specific environmental issue, such as water conservation and water quality.

GEMS is committed not only to protecting the planet, but also to promoting healthy lifestyles. With the implementation of its "Healthy People, Healthy Planet" program, GEMS has made health and wellness a focus for students and staff. The school counselor teaches weekly classes that target social and emotional well-being. The school nurse has developed and implemented a healthy lifestyle and nutrition curriculum that is taught in all classes. Families receive education and information through "Nurse's Notes," a health/wellness newsletter, which is routinely featured in

the school's weekly bulletin. Families can learn more about the benefits of a healthy lifestyle during GEMS's Spring Health and Fitness Night.

The school nurse offers weekly fitness activities, and organizes staff participation in a healthy lifestyle challenge. Staff model healthy living for students by leading active lifestyles; half of the staff regularly walk or bike to school, 47 percent of the teaching staff serve as volunteer instructors for the school's Wonderful Wednesday ski program, and 20 percent of the staff recently competed together in a team endurance race. Students also are committed to improving the environment and engaging in an active lifestyle, with over half of the students walking or biking to school each day.

Located in the Bavarian Alps, in a town that has been recognized internationally for its healthy climate and outdoor recreation opportunities, GEMS' commitment to health and wellness extends well beyond the classroom walls. After school clubs provide students with the opportunity to participate in physical activity and experience some of the outdoor recreation opportunities that exist in the town of Garmisch. Formed through a partnership with Children and Youth Services, the Outdoor Education Club provides middle-school students with a chance to promote teambuilding and problem solving skills through participating in outdoor activities such as hiking, climbing, and geocaching. As evidenced by a 92 percent participation rate, the students love the hands-on learning opportunities that this club provides. With over half the student body participating in the running or dance clubs, GEMS students are enthusiastic about maintaining a healthy lifestyle. GEMS' Turkey Trot Fun Run, Spring Sprint, and Field Day allow students and families additional opportunities to be active. During the winter months, GEMS students learn to ski by participating in weekly three-and-a-half-hour ski lessons. Not only does this program encourage physical activity and increased self-confidence, but it also provides students with an incredible sense of accomplishment in learning new skills.

GEMS is continually identifying ways to further improve and expand the school's commitment to providing a learning environment that promotes green living, learning, and leading. GEMS plans a 2017 renovation with sustainability features that will improve the building's resource efficiency and indoor environment, and will result in cost savings for the school. The expansion also will allow for the addition of a greenhouse/lab, which will be used for hands-on sustainable energy and horticulture studies year round. During the design process, students were asked to be architects and provide input on design elements and features of the school. After the expansion plans were finalized, eighth graders used math and engineering skills to draw up the plans of the new construction. Using surveying equipment, they mapped out the new building site.

GEMS is proud of its comprehensive, authentic, and effective program, which instills not only a commitment to healthy living and environmental responsibility, but also prepares students for successful futures.

District of Columbia

Capital City Public Charter School, Washington, D.C.

Hands-On Urban Ecology in Our Nation's Capital

Capital City Public Charter School serves 983 students in prekindergarten through 12th grade in one consolidated LEED Gold-certified building. Seventy-three percent of students are eligible for free or reduced price lunch, and 85 percent are African-American or Hispanic. Capital City's focus on creating a green and environmentally focused program is evident from one glance at the school's building and grounds. Capital City's main school garden encompasses 2400 square feet, includes an outdoor classroom, and is adjacent to the high school entrance for the entire community to see. The grounds also include bioswales and a rain garden. The school employs a part-time school garden coordinator, who works with teachers to design curricula that includes resources from the school garden. The coordinator works with high school students to provide a weekly school garden market in the spring and fall that offers fresh produce from the school garden and a local farm. Students participate in hands-on, project-based, authentic learning "expeditions." From prekindergarten students' expedition on herbs to the 11th graders' Food Justice for All expedition, students are engaging with natural, local foods, and learning why knowing where your food comes from has benefits for health, wellness, equity, and local economies.

In 2012, Capital City underwent a massive renovation of its 1963 building with sustainable practices in mind. The new building has large windows that draw in a significant amount of natural light. This not only reduces energy use, but also helps kids grow and learn better. Lights are on timers throughout the building and recycling bins are in every school hallway, office, and classroom. Students played an integral role in helping develop the green practices now implemented. Prior to the renovations, seventh and eighth graders investigated green practices with assistance from the Alliance to Save Energy and the U.S. Green Building Council (USGBC), as part of a green building expedition. The students then created a book with their suggested green designs, and presented their chosen features to the school's board of directors. Their recommendations are evident throughout the new building in elements such as doorstoppers that prevent outside air from entering the building and slanted ceilings in classrooms to maximize natural light.

Capital City's mission is to "enable a diverse group of students to meet high expectations, develop creativity, critical thinking, and problem-solving skills, achieve a deep understanding of complex subjects, acquire a love of learning, along with a strong sense of community and character….young adults who are self-directed, intellectually engaged and possess a commitment to personal and civic responsibility." In order to accomplish this mission, Capital strives to expose students to their natural environment and to issues that affect their community and the world. All students must take either Environmental Science or Urban Ecology to graduate, and an optional outdoor adventure program includes camping, rock climbing, and hiking. Each expedition includes fieldwork and a service project. For example, the first grade expedition on bees includes fieldwork to a local youth garden and butterfly habitat. Students meet with a beekeeper and a scientist from the USDA who discusses what colony collapse disorder is, and how it affects bees' livelihoods. All of this information is presented to students in an age-appropriate manner that helps them grapple with the issues and develop their own ideas. Students then create beeswax candles and information cards that they sell at two local farmers' markets, and the lower school music teacher works with students to create a bee song that students present at their biannual showcase. Funds from the markets have been used to purchase a bee hive.

Throughout the Capital City curriculum, students are encouraged to take an active role in reducing their carbon footprint. Teachers act as guides, helping students navigate and develop their own beliefs and plans for action. For instance, the middle school Farm to Table elective allows students to read the novel *Seedfolks,* and then plant their own garden mimicking the plants in the book. Students then harvest their food and decide what meals to prepare for their class. The experience allows students to use their own creativity and make informed meal decisions.

As students progress through Capital City, they learn how to expand their civic engagement. This is evident in the 11th-grade Youth Food Justice Summit that is organized entirely by the junior class. Students work in teams to develop engaging presentations focused on food justice topics. They draw upon their fieldwork to local farms, work in the school garden, and meet with experts in the food justice field to develop engaging presentations for the nearly 200 attendees to their annual youth summit.

Florida

Beachside Montessori Village, Hollywood, Fla.

An Out-of-This-World Cosmic Education

Connecting the child to the natural world is an integral component of Montessori education. Studies and practical life experiences in the natural world are imbedded into the curriculum at an early age. To further strengthen this connection, Montessori encourages leadership by children. Beachside Montessori Village, a public magnet prekindergarten through eighth-grade school, aims to create an environment that inspires children to take ownership of their surroundings and action for change toward a more peaceful and sustainable world. Reducing environmental impact, promoting health and wellness, and integrating sustainability education accomplish this goal.

Beachside's facilities staff, teachers, and students collaborate to reduce environmental impact and costs. To reduce energy use, Beachside participates in the NBA's Miami Heat's How Low Can You Go Energy Efficiency Challenge. Students from Beachside's sustainability elective class visit classrooms to read and discuss environmentally themed books. In an effort to educate and to standardize recycling, the school partners with Recycle Across America. Beachside's Recycle Rangers have placed recycling labels on all bins throughout the school to reduce contamination.

Progressive Waste, the school's hauler, partners to conduct schoolwide assemblies, recycling audits, and art contests. Through a Green Team fundraiser, three water bottle refilling stations have been purchased, saving over 5,850 plastic water bottles in just a few months. Additionally, the Montessori curriculum uses reusable manipulative lessons, student notebooks, and key experiences, reducing the need for single-use materials. To reduce carbon dioxide (CO_2) emissions on campus, Beachside offers a Green Car Pool, and students oversee a no-idling program. With support from partner On Air Schools-Clean Air Campaign, students collected data to measure the amount of CO_2 and air pollutants produced, then educated parents and asked them to sign a pledge promising not to idle their vehicles.

Promoting health and wellness among students, staff, and the community teaches children to take ownership of their own health. As part of Beachside's peace education, the school begins each week with Mindful Monday, featuring schoolwide guided relaxation. Several teachers have certified yoga teachers volunteer in classes once a week, and others use GoNoodle or other brain break exercises. Beachside is proud of the beautiful stone labyrinth that the school community came together to build by hand, offering students an opportunity for walking meditation.

Beachside's recess area is shared with a community park, so local residents also benefit from the labyrinth.

All over campus, upcycled murals, artwork, and inspirational quotes create a positive, nurturing, learning environment. The school's outdoor environment includes an NWF-certified wildlife habitat. Through classroom gardens and a weekly gardening club, students learn about planting, maintaining, and harvesting organic edibles. Beachside holds an annual food drive and Turkey Trot walk for students and staff, while its PTA organizes a community five-kilometer race. Staff members have an opportunity to participate in various activities from the Nike+ Challenge to a community dragon boat team.

The Montessori curriculum teaches "cosmic education" to help students understand the connections between the world's biodiversity and themselves. Interconnectedness of all things provides a way for children to be able to study math, science, nature, and the universe. Beachside is the first middle school in its district to offer a sustainability elective for students, resulting from a partnership with ASU Sustainability Teacher Academy. Students participate in off-campus, field-based environmental studies at Everglades National Park and Pigeon Key. Off the Canvas, a program run entirely by parent volunteers, cultivates a sustained awareness and interest in art and crafts, using of recycled materials and socially responsible practices through monthly classroom hands-on projects.

The Warriors of Rainbow student green group provides opportunities for school leadership and service learning. The group was chosen to attend the Algalita International Youth POPS Summit, where they presented solutions to the ocean's plastic pollution problem to the city of Hollywood's Green Team, resulting in a partnership to work on this issue. Montessori Model United Nations (MMUN) students research and offer solutions for global environmental issues from climate change to affordable energy services. Resolutions are presented to ambassadors, as well as their peers, at the MMUN conference held at the United Nations in New York.

The Montessori philosophy coupled with strong partnerships and a passionate school community create a unique environment that inspires students to become guardians of the planet.

Alachua County Public Schools, Florida

Forty Two Energy Stars Create EnergyWhizzes

Alachua County Public Schools (ACPS), where approximately 50 percent of students are eligible for free or reduced price lunch, was an EPA 2013 ENERGY STAR Leader and Top Performer District for improving energy efficiency of facilities by more than 10 percent compared to its 2006 baseline, in addition to achieving an average ENERGY STAR score of 77 across its schools.

Every employee and student in the district is fundamental to the success of conserving energy. The ACPS information technology (IT) department monitors and shuts down over 17,000 district computers daily, and received EPA ENERGY STAR Low Carbon IT Campaign Recognition. The ACPS facilities department is involved in day-to-day maintenance, including building automation systems operations for the entire district.

ACPS has 21 school sites with more than two megawatts of photovoltaics installed, ranging from five-kilowatt to 209-kilowatt systems. Three of these projects were provided through partnerships with local utility providers, and are hands-on learning centers for students. Eighteen sites are Feed-In-Tariff programs, which provide a substantial income to ACPS from the rental of roof spaces. In addition, a portion of the solar rental income is earmarked toward funding the North Florida EnergyWhiz Expo event a forum for students to demonstrate their STEM knowledge and skills as they relate to such energy topics as solar thermal, photovoltaics, and hydrogen technology. The event features a Junior Solar Sprint Car Competition and a Solar Energy Cook-Off. In addition, the district has provided a solar energy kit in conjunction with a one-day workshop about solar energy to every school in the county, along with solar energy training for a teacher from each of the 42 schools.

ACPS' Camp Crystal Lake School Year Program sends all second grade students to a sixty acre "classroom without walls" to engage in environmental education. In fifth grade, all students attend overnight campouts onsite to further enhance their understanding of North Central Florida's ecosystems firsthand. ACPS also has implemented a districtwide STEAM robotics program.

The district's award-winning Food and Nutrition Services department has 23 farm to school programs underway. The USDA HealthierUS Schools Challenge has awarded ACPS schools two Gold Awards of Distinction and three Bronze Awards. ACPS provides agriculture, health, and nutrition education opportunities to students,

all while supporting local and regional farmers. Milk cartons are recycled in almost every elementary school.

ACPS now has 100 percent recycling capacity in all schools and ACPS ancillary sites. Preliminary data gathering included an eight-site audit of one day's waste, both rural and urban, for elementary, middle, and high schools in partnership with Alachua County Public Works. The district distributed green recycling bins and dumpsters to all 42 school and ancillary sites, and offered onsite custodial trainings.

Orange County School District, Florida

Goal-Setting Toward Sustainable Schools and Community Involvement

Orange County Public Schools (OCPS), a large urban school district, is the fourth largest in Florida. OCPS is also Central Florida's second largest employer after the Walt Disney Company, with over 23,000 permanent and part-time employees. The nearly 200,000 students, 67 percent of whom are eligible for free or reduced price lunch, come from 200 countries and speak 167 different languages and dialects. The five district goals are: 1) an intense focus on student achievement; 2) a high-performing and dedicated team; 3) a safe learning and working environment; 4) efficient operations; and 5) sustained community engagement. Long range sustainability strategic objectives have been developed to support these districtwide goals.

In both health services and family and community involvement, the district has been highly regarded for its community referral processes, School Health Advisory and Wellness Committee, and continuous recruitment and training for varied volunteer opportunities. OCPS partners with nearly 30,000 volunteers and has 1,035 school-business partnership agreements, which link businesses and organizations with schools to prepare all students for the future. In 2015, the district was awarded the Florida Healthy School District Gold Award for the second time. Last fall, 40 of its schools participated in International Walk to School Day.

OCPS has achieved an impressive inventory of sustainable school facilities, with a total of 36 schools designed and constructed using a sustainable rating system. This includes four LEED ratings, 28 Green Globe certifications, and four Florida Green Building Coalition projects. Another 16 schools currently in the design or construction phases are anticipated to achieve a sustainable rating.

In 1996, OCPS implemented a districtwide indoor air quality management program. The Environmental Compliance Department implements the OCPS Indoor Air

Quality Management Plan, trains OCPS personnel in all aspects of good indoor air quality, assists in the investigation and remediation of potential indoor air quality problems, and verifies the effectiveness of the plan and corrective measures.

The recycling program, which began in 1991, has saved more than $600,000 over the last three years. The district recycles universal waste, metal, petroleum waste, electronic waste, yard waste, used tires, textbooks, district records, single-stream materials, and construction site waste. Last year alone, the district's recycling program kept over 55 million pounds of materials out of local landfills.

OCPS developed its own districtwide Green Schools Recognition Program (GSRP), an incentivized behavior modification program to create cultures of sustainability. Categories of work include: energy efficiency, transportation, waste, water, health and well-being, school grounds, and innovation. This program has led to outcomes in the areas of nutrition, school gardens, security, air quality, wildlife habitats, and community partnerships.

OCPS celebrated its third annual Green Day by having service learning students from Timber Creek High School design and lead activities for a fun, educational day to celebrate the top green schools in the district. Local municipalities and vendors also participated in the event to help educate students about the environment and community engagement.

The district's Surplus Services division reused over 58 percent of the items that were turned in districtwide during fiscal year 2015. The reissue of surplus furniture and equipment to the schools reduces trips to the landfill and has saved the district nearly $2.2 million dollars. The total cost benefit through surplus sales and reissue for the 2014-2015 school year was $3,570,492.

OCPS' energy administration department conducts regular audits in all schools and follows up with efficiency recommendations. The Department uses Energy Cap Pro™ software to manage utility billing data, and identify consumption anomalies and savings opportunities. OCPS has developed a systematic approach to energy rebates by creating an energy rebate matrix to identify and pursue all rebate opportunities that comply with district design standards. These efforts have earned OCPS rebates of over $1.8 million since starting the program in 2013. These impressive results contributed to OCPS being selected for the Duke Energy Management Award in 2014. The energy rebate is used to fund the district's GSRP.

OCPS has developed and implemented curriculum and choice programs specifically designed to integrate environmental and sustainability topics into the kindergarten through 12th grade academic experience. The district provides numerous tools and opportunities for teachers and students to be engaged in environmental education.

Grade-level-appropriate lesson plans tie environmental education to Florida standards. For example, the middle and high schools have curricula that combine chemistry, the environment, and energy to predict the effect of individuals on environmental systems, and examine how human lifestyles affect sustainability. Environmentally themed, and STEM choice and career education programs are offered to students in elementary, middle, and high schools.

Georgia

Atlanta Neighborhood Charter School, Atlanta, Ga.

A Project-Based Perfect ENERGY STAR Score

The Atlanta Neighborhood Charter School (ANCS) is a kindergarten through eighth grade charter school with two campuses formed by the merger of two successful charter schools. Since the school's founding, ANCS has been committed to improving the well-being of the students and community in variety of ways. First and foremost, it strives to reduce the environmental impact of the school through facilities and transportation initiatives. Two separate awards given to ANCS (in partnership with Southface Energy Institute) from the Community Foundation for Greater Atlanta's Grants to Green program resulted in the installation of energy efficient LED lighting, low-flow plumbing fixtures, water bottle filling stations, high performance windows, thermal envelope insulation, and web-based centralized climate control for HVAC units. ANCS reduced greenhouse gas emissions by 28 percent and energy by 50 percent in just one year. These efforts led to one of the building's receipt of an ENERGY STAR certification with a score of 100 in 2015, as well as to participation with the City of Atlanta in the U.S. Department of Energy's Better Buildings Challenge program for sustainable buildings.

The school received a Safe Routes to School infrastructure grant to make walking and biking to school easier through community infrastructure improvements, and now oversees walking and biking school buses. ANCS participates with the Georgia Clean Air Campaign's schools program to encourage cleaner, healthier forms of transit to and from school, along with no-idling policies. The schoolwide recycling and composting program limits the impact of the school's consumption.

ANCS seeks to improve the health and wellness of the students and staff. It has implemented a successful farm to school program providing fresh, locally sourced food for students and staff. During the school day, there are regular periods of daily physical activity for students at all grade levels, and mindfulness practices are incorporated into all classrooms. All staff members are invited to participate in a voluntary wellness program sponsored by Humana. As a school, ANCS organizes and holds an annual five-kilometer road race and health fair for the community.

These environmental and wellness efforts are interwoven with learning. With support from a grant from the Aetna Foundation, a student FitWit club was formed to provide greater learning about health, and also to provide materials to help launch the farm that supports the school's farm to school program with students. Students at the middle school campus are involved in tending the school farm. They have planned out entire meals for the school cafeteria using the school farm -- determining what they would need to plant, when the crop would yield, how they could use cisterns to irrigate the farm, and how they could use as much of the yield as possible in the meal.

ANCS is a project-based learning school, and the major culminating projects for units that include a focus on sustainability and environmental impact. In grades five, six, and seven, students take a major overnight field trip to different parts of the state, where they take part in an outdoor education program to learn more deeply about environmental issues affecting Atlanta and the region. ANCS's partnerships with the Jackson Park Farm, Grant Park Community Farmers Market, and Captain Planet Foundation provide students with a range of learning about gardening, math and science, and civic engagement.

Pharr Elementary School, Snellville, Ga.

Produce Sprinkled by Solar Energy, Enjoyed by Co-op

Pharr Elementary School believes it is important to teach students how to become leaders in and out of the classroom. Pharr employs best practices in operations management, ensuring that the school is safe, energy efficient, and well maintained. Pharr follows district policies for hazardous waste, chemical usage, integrated pest management, and ventilation systems.

Pharr is ENERGY STAR certified with a score of 91, nearly a 20 percent improvement in energy use from its initial score of 77. Pharr's energy-efficient upgrades include automated energy management systems with occupancy sensors and lighting retrofits in all classrooms. Teachers practice energy conservation by following the school's unplug-and-put-away protocol prior to leaving for extended breaks.

Pharr embraces the health and wellness of staff and students, 44 percent of whom are eligible for free or reduced price lunch.. Nutrition staff members post monthly trivia questions for students to promote eating healthy, and visit classrooms to offer additional learning opportunities. Pharr has a robust character education program that teaches students about being kind, respectful, responsible, and courageous. It

also teaches students about self-control, perseverance, tolerance, and citizenship. Using the Fitnessgram program, students are assessed annually for flexibility, strength, and endurance. Ninety percent of students are helping to improve air quality by riding the bus or walking to school. Pharr participates in the Clean Air Campaign No-Idling program, which is designed to reduce idling rates in bus and car rider lines. Parents receive magnets to put on their cars to let others know the importance of not idling. The school also encourages students to walk to school by having Walk to School Days through its Safe Routes to School Program.

Pharr's environmental stewardship extends beyond the building and into its outdoor learning areas. Over 40 percent of Pharr's grounds are devoted to outdoor learning areas, which have been funded through the school's PTA, local grants, and Donorschoose.org. These outdoor learning areas include a 1/5 mile walking trail, pollinator gardens, vegetable gardens, an African Keyhole garden, an alphabet garden, and native plantings maintained by students. One hundred percent of Pharr's landscaping is considered water-efficient and regionally appropriate. Pharr's garden had over 800 plants growing in it at the start of the school year. All plants begin as seeds in the greenhouse. Students and teachers water, weed, and nurture the plants, waiting to harvest the crops. Rainwater is collected from the roof and stored in a 650-gallon tank. Solar panels turn on sprinklers to help water garden beds, and students help to hand-water additional beds. Pharr donates over 90 percent of the crops to the local Southeast Gwinnett Co-operative. From June 2015 to September 2015, Pharr donated over 750 pounds of fresh fruits and vegetables from the school garden. Students at Pharr know they are helping to feed families in their community, including some families from Pharr. Students also learn different ways to grow crops using companion planting like the Native Americans did, with the three sisters method (in which plants that grow harmoniously together are planted together), aquaponics, and hydroponics. Pharr recently received a Captain Planet grant, which will provide additional beds for the garden and more learning opportunities for teachers.

In partnership with nonprofit Gwinnett Clean and Beautiful and the Clean Air Campaign, Pharr has a multi-disciplinary team that focuses on waste reduction and recycling, air quality, energy conservation, water conservation, and greenspace preservation. Students collect and recycle difficult-to-recycle items in the cafeteria to send to Terracycle, and the school receives money for the recycling. Students also compost fruit waste daily from the lunchroom.

Pharr incorporates environmental education in prekindergarten through fifth grade that is aligned to new state standards. On the science portion of the new Georgia Milestones Assessment, Pharr's first year baseline data indicates that Pharr students outperformed state, regional, and district results. Pharr has a STEAM special that all students attend weekly. Pharr students are immersed in project-

based learning and engaged in real-world, STEAM activities. Some examples of STEAM learning include: kindergarten students designing and building boats to help a "bear family" cross a river; first grade students showing how water drops can move all over the world; third grade students researching and developing ways to reduce stormwater runoff and reduce pollution; fourth grade students creating circuits; and fifth-graders researching and building earthquake-resistant buildings. Students in all grade levels create murals and art for the garden from recycled materials like bottle tops, records, CDs, and water bottles. Students are able to show projects and artwork at STEAM and garden nights each year.

Pharr teachers and students pride themselves on environmental learning and giving back to the community. These student leaders are getting a world-class education through the Pharr STEAM program, in-school and extracurricular sustainability activities, and by learning the importance of helping in their community.

Paideia School, Atlanta, Ga.

Giving Thanks…With Zero Waste

Paideia School is a nonprofit, urban, independent prekindergarten through 12th grade school with a commitment to the environment and to social responsibility as part of its Framework of Values. In addition to the school's expectation that its students exhibit excellence and hard work, it encourages them to take responsibility for the environment and to advocate preservation and protection of the natural world.

Paideia's commitment is evident throughout the school: in its facilities, construction and renovation, land and resource stewardship, curriculum, and professional development; as well as the Parent Green Team, the Student Green Team, and community outreach. The Georgia Recycling Coalition, Green Schools Alliance, and USGBC are among many organizations that have recognized Paideia's achievements with commendations and awards.

Since its founding in 1971, Paideia has acted to reduce its impact on the environment. Supporting the adage, "the greenest building is one that is already standing," it preserves and repurposes existing buildings, retrofitting for energy efficiency. In 2007, it constructed one of the first LEED-certified school buildings in Atlanta. One notable design feature of this building is buried beneath its campus green: a geothermal heating system, which significantly reduces the cost and environmental impact of heating and cooling. When one of the buildings was devastated by fire, the school salvaged materials, pulling granite and bricks from the

rubble to use in new stairs and walkways. That reconstructed facility received LEED Gold certification in 2010.

In addition to minimizing environmental impact via energy efficient construction, Paideia works to lessen water and energy usage, create incentives for green transportation, and minimize waste production. There are bioretention ponds, water wells and cisterns for landscape maintenance, as well as waterless or low-flow restroom fixtures throughout campus. Students and staff enjoy parking privileges if they carpool, leading the majority of Paideia's community to carpool or use alternative forms of transportation to school.

Parent and Student Green Teams collaborate with staff on a comprehensive waste management program, with bins labeled for recycling, composting, and landfill-bound waste throughout campus. Organic matter goes directly to the school farm for composting by students. The school holds an annual Zero-Waste Thanksgiving Feast, feeding almost 1000 people, but producing only a single small bag of trash. Paideia also provides an innovative Reuse-a-Kit (reusable plates, utensils, cups for at least 100) that can be borrowed by anyone in the community, which is used at most parent-hosted social events.

Paideia supports the health of its whole community. From fitness classes for staff to using ecofriendly cleaning supplies, Paideians, as those in the school community are known, engage in all kinds of wellness efforts. After significantly reducing idling at carpool, Paideia was designated a Clean Air School. Healthy vending machines and farm-grown vegetables at school food sales offer students healthy food choices. Science classes explore nutrition, with parents sharing their culture's recipes using produce from the school farm. Physical education classes, a sports policy in which students are not cut from sports teams, and extended outdoor recess help the school's students develop active lifestyles. Flu shots, cardiopulmonary resuscitation, and first aid classes all are offered on campus.

Paideia also supports the community beyond those connected to the school. Students grow and deliver thousands of pounds of organically grown vegetables to local soup kitchens and food pantries, install edible gardens in schools and community gardens in less-resourced neighborhoods, and join forces with both nonprofit and for-profit social enterprises working in the area of food justice. Paideia partnered with a prekindergarten Montessori school in a less-resourced community in order to help them create an edible schoolyard garden. The elementary school library has several dedicated parent volunteers who take surplus materials to two underserved schools. The elementary students also collected gently used items for children from the same schools to choose from, allowing them to give gifts to their families. This event culminated in students from three schools sharing gingerbread and playtime on Paideia's playground. Paideia organizes such events to offer an

awareness in its students about the importance of, and interconnectedness of, people-care, planet-care, and a fair share for all in the community.

The school has had particular success in building a thriving urban agriculture program, which engages students in physical activities, the natural world, and inquiry-based exploration of its green spaces using the scientific method. A full-time urban agriculture coordinator facilitates integrating the farm experience into the curriculum. Teachers use Paideia's farms, forest, and creek areas to teach ecology, biodiversity, and water quality. Elementary students measure, graph, and evaluate waste and consumption; learn about water cycles, from rivers and oceans through how water treatment plants function; and analyze oil spills and their effects. Junior high students take part in a yearlong science and social studies exploration of food, from nutrition through sustainability and food security. High school students may study environmental science, green home design, and ecology, and even may enroll in a course in primitive living.

Paideia intentionally incorporates sustainability concepts throughout the curriculum.

An added benefit of the urban agriculture program is how it develops Paideia's students' sense of social responsibility. Students deliver fresh grown produce to local soup kitchens, and work with local schools to help build gardens, even offering composting classes for other schools. They take on leadership roles and explore career opportunities within the field of sustainability. The deep effect of these lessons on students can be seen in the enthusiasm they show in the myriad sustainable activities on campus: Brownies for Batteries, Reuse-A-Shoe, Creek Clean-Ups, and so many more.

At Paideia, a commitment to sustainability is infused in everything, from curriculum to construction to building community. The Paideia community is proud that these values can be seen throughout the campus in structures and land use, but mostly in the students who will shape the future with their passion for caring for this world.

City Schools of Decatur, Georgia

Four Square Miles of Sustainability

According to its stated mission, the City Schools of Decatur (CSD) is committed to providing safe and inviting schools, including a healthy and vibrant learning environment for students and staff. CSD strives to maximize its resources through responsible operational procedures. The district employs best practices in energy savings to limit consumption and expenditures. CSD supports healthy living through

its Farm to School program, scratch cooking, and walk and roll to school events. The CSD curriculum is infused with learning about the local community and the environment.

CSD has implemented a five-year master plan that will bring the district in line with best practices for energy savings and lower impact on the environment. The district serves just over 4,500 children in a four-square-mile area, in buildings ranging from over 100 years old to less than 18 months old. CSD is experiencing rapid growth. CSD no longer uses harsh chemicals and cleaners, having replaced all products with green supplies. The district's new quarterly energy audit process focuses upgrades where they are most needed. The district has brought the Decatur High School and athletic center, constructed in 1952, to an ENERGY STAR Portfolio Manager rating of 76. CSD's water retention and bio retention cells are located under the new athletic field store, and treat over 121,347 cubic feet of runoff. CSD not only replaces trees on construction sites, but replaces total canopy coverage.

Through a private grant, CSD has implemented a one-to-one iPad initiative in grades four through eight. This initiative has helped reduce the need for textbooks across half of the grades served in the district. Not only has this had a significant cost savings, it also dramatically reduces the need to purchase and dispose of textbooks on a yearly basis. In addition, the iPad initiative reduces the need for supplemental and consumable paper materials. In 2013, CSD made a commitment to use reusable lunch trays and silverware. This has resulted in avoidance of disposal of over 500,000 trays annually.

CSD's staff has worked to build community relationships with local farmers and community groups to provide students with healthy lunches that are sourced from the area. Recently, CSD began to contract directly with local farmers to grow food specifically to district farm to school specifications. The district offers either two salad choices or a portable salad bar in every school, and features a local produce item every month. Over the last two years, the CSD nutrition department increased dollars spent on fresh produce by 48 percent, and increased dollars spent on locally grown produce by 99 percent, as compared to the previous five school years. It is important to note that total food costs did not increase significantly over this period. CSD has seen a rise in students making healthy choices at breakfast and lunch, as well as a rise in overall participation in the nutrition program.

All nine schools in the district have edible school gardens, which are used for teaching farm to school lessons and growing produce for taste tests. Over 60 standards-based farm to school lessons were taught to students in classrooms and school gardens through a partnership with the Wylde Center. The CSD school health program provides seven registered nurses and a registered nurse coordinator for the district's eight schools and the Early Childhood Learning Center. Over 50

percent of CSD students walk or ride a bike to school. This reduces the need for buses and cars, and promotes healthy living. CSD also provides students with a robust staff of physical education teachers, and plenty of time outside of the classroom for play and exercise.

The CSD Expeditionary Learning curriculum provides students in grades kindergarten through five an opportunity to participate in interdisciplinary experiential education opportunities. Expeditionary Learning design principles provide all CSD students the framework to develop a direct and respectful relationship with the natural world, and teaches the ideas of recurring cycles and cause and effect. The International Baccalaureate curriculum encourages students in grades six through 12 to investigate issues through research, observation, and experimentation, while working independently and collaboratively. The curriculum supports interdisciplinary learning in all STEM areas, and focuses on students' relationship with the communities and natural world.

The Water Wise symposium is an educational opportunity devised by two district schools for all eighth and ninth grade students enrolled in CSD to explore global water issues surrounding access to potable water through multiple perspectives. For four years in a row, Decatur Farm to School has offered a six-week, paid summer internship to three Decatur High School students. The Decatur Farm to School summer program serves two purposes: to offer students a hands-on opportunity to partner with gardeners, farmers, and chefs in the hard work of cultivating fresh local foods and preparing these foods for consumers; and to encourage students to share their ideas about how to increase meaningful Decatur Farm to School activity with high school-aged students. The selected interns worked at farms, gardens, and local restaurants to experience the entire farm-to-table process.

Georgia Institute of Technology, Atlanta, Ga.

A Living, Learning Laboratory for Sustainability

At Georgia Tech, sustainability principles and practices permeate practically every facet of campus life – from the locally sourced produce in the dining halls, to the Game Day recycling program that minimizes the amount of waste sent to landfills during home football games, to the school's Smart Energy Campus program, which is designed to reduce energy consumption and increase building operational effectiveness. The Georgia Tech community is continually aggregating, analyzing, and evaluating data from various programs and initiatives, and designing new strategies for the future, including plans for a future state of carbon neutrality.

Community members believe it is their role to foster an ecosystem of innovation, collaboration, and creativity – where new knowledge, methods, and technologies are tested, developed, and applied for insights and solutions to critical sustainability challenges.

In 2007, Georgia Tech joined the American College and University Presidents' Climate Commitment (ACUPCC), which requires a university to develop an action plan to achieve climate neutrality and to report progress toward that goal publicly. In keeping with the ACUPCC, Georgia Tech made commitments to reduce energy consumption, expand the use of renewable energy sources, and become carbon neutral by 2050. The institution has made strides toward this goal with greenhouse gas reductions – emissions per every 1000 square feet have been reduced by roughly eight percent since 2011 – despite the challenges of operating world-class research and lab facilities with high energy requirements.

At any given time, there are a multitude of sustainability initiatives underway on the Georgia Tech campus. These efforts unite faculty, staff, and students in a quest to provide solutions to the environmental, ecological, and sustainability challenges of our times. Georgia Tech has made the Princeton Review Green Honor Roll (2014, 2015), Sierra Club Coolest Schools, and has earned an AASHE STARS Gold rating. From 2003 through 2015, Georgia Tech built or renovated 23 projects to LEED Silver-level certification or higher, certifying 2.9 million square feet of space.

Conserving energy through efficient systems, demand management, and alternative solutions are core objectives at Georgia Tech. Major solar power arrays on campus buildings not only generate clean electricity, but provide hands-on opportunities for students and researchers to study working photovoltaic system installations directly. Data from energy utility systems all over campus are collected through the Smart Energy Campus initiative. Data analysis, modeling, and simulation tools are used to help maximize efficiencies, reduce costs, and positively affect energy planning and consumption.

After Georgia Tech fully implemented a green cleaning program, cost savings analyses revealed an annual savings of 84 percent over initial baselines, and a 56 percent reduction of chemical use from 2008 through 2014. Georgia Tech was named *American School & University* magazine's 2015 Grand Award winner in the higher education category for the Annual Green Cleaning Award for schools and universities.

The school offers a variety of robust programs to support the health and wellness of the campus community. For example, staff and faculty have access to a comprehensive benefits package with options to meet their diverse needs, and an assistance program — in place for twenty years — that helps maintain work-life

balance. Students, too, have services that support their physical and mental well-being, including a peer counseling program, and the "G.I.T. FIT" — Georgia Institute of Technology Fitness — program, all of which enable participants to learn lifelong skills and increase their fitness levels through over 80 noncredit classes spanning martial arts to golf to personal training. The overall mission is to provide the Georgia Tech community with opportunities to create or sustain healthy lifestyles.

In January 2016, students began to have the opportunity to focus their time and energy on projects centered on creating sustainable communities. As part of the Quality Enhancement Plan for the years 2016 – 2021, Georgia Tech introduced Serve-Learn-Sustain. This program equips students to address sustainability challenges and community-level needs effectively in their professional and civic lives. Students work to develop ways to help make communities more livable, sustainable, and prosperous. This could include developing services for the under-served, deploying community renewable energy, supporting infrastructure for clean water, or developing local, state, and federal environmental policy.

Already, Georgia Tech has 21 endowed chairs and 23 research centers that include a significant sustainability component or focus. Interdisciplinary research centers, corporate partnerships, the National Science Foundation, and Science in Energy and Environmental Design funding all support major sustainability research. Among the academic undergraduate initiatives that support innovative green policy, research, development, and product design are: the Ray C. Anderson Center for Sustainable Business, the Center for Biologically-Inspired Design, the Joint Laboratory of Ecological Urban Design and Urban Climate Lab, the Center for Organic Photonics and Electronics, the Strategic Energy Institute, and the Center for Quality Growth and Regional Development. These institutions explore solutions for communities in five program areas: air quality and the natural environment; community design and architecture; healthy places; land development and regional governance; and transportation and infrastructure.

The wide range of efforts to promote effective environmental and sustainability education also includes internship programs and campuswide engagement events. The school also has many highly referenced ("h-index") green chemistry award-winning researchers, as well as numerous accomplished graduate and undergraduate researchers in the area of environmental sustainability. The collaborative research environment at Georgia Tech encourages all members of its campus family to join this culture of innovation.

In short, Georgia Tech and the surrounding community have worked together to form a living, learning laboratory for sustainability.

Iowa

Spalding Park Elementary School, Sioux City, Ia.

Recycling Leaders with Grand Geothermal

Spalding Park Elementary, part of the Sioux City Community School District, has 650 students in prekindergarten through fifth grades, 56 percent of whom are eligible for free or reduced priced lunch. Spalding Park is in the process of formally becoming an environmental science specialty school. The school campus sits on approximately 12 acres of land, and includes a school garden and 48 newly planted trees. The school property also abuts a five-acre wooded area owned by the city.

Spalding Park Elementary has proven itself a leader in energy conservation within the Sioux City Community School District. When Spalding Park was built, the most up-to-date technologies were used to maximize energy efficiencies. The school houses a bidirectional cascading central geothermal system. This system has saved the district $46,583 in electrical costs as well as reduced CO2 by 671.015 metric tons. While the district as a whole has saved 25 percent on energy costs, Spalding Park Elementary has saved 39 percent. The building uses well field irrigation in areas that are not adjacent to the building. Inside the school building, sensors are used at every handwashing station to conserve water. Forty-eight additional trees were planted in May 2015 not only to reduce water runoff, but also to provide energy efficiency to the heating and cooling of the school building. Spalding Park Elementary has avoided 6,587 kilogallons of irrigation water. The school has an ENERGY STAR rating of 100.

Reducing waste and increasing recycling have been a major goal for Spalding Park Elementary students and staff. The fifth grade student council has been at the forefront of this initiative by collecting paper and cardboard for recycling. Spalding Park has led the district's elementary schools by recycling an average of 750 pounds of paper and cardboard per month. Any hazardous materials are disposed of properly off campus with coordinated efforts by the district's operations and maintenance staff and the recycling centers of Sioux City. The school's food service staff has been invaluable in helping eliminate waste by recycling as much as possible. Spalding Park is in the process of implementing a new compost system for the school gardens.

Spalding Park Elementary was built with a Trane bidirectional cascading central geothermal system. This system controls air flow through the school's ventilation system. Outside air is brought in, filtered, and then dispersed throughout the building. The heating and cooling system works as one unit in monitoring moisture levels in the school. The Spalding Park operations and maintenance department

works closely with Presto X Pest Management in providing the safest solutions in preventing pests on school grounds.

As a Blue Zone designated school, Spalding Park created a walking school bus for students. This occurs on Wednesdays during the spring and fall months. A group of volunteers walk into the community and pick up students at prearranged stops and then walk back to school. This program not only has provided additional exercise for students, but also has eliminated a large number of vehicles entering parking lots. Spalding also promotes several bike to school days for students and staff.

Students receive physical education classes twice weekly for 30 minutes each time, and 40 minutes of daily recess. As a result of a $40,000 grant in 2012, students have access to a traverse climbing wall, a light wall (promotes hand-eye coordination and cross mid-line activities), exercise bikes, weighted bars, and a railyard system that emphasizes motor learning and motor development. Spalding Park has yoga mats and free weights for staff use. Each day classes begin with five minutes of daily mindfulness, and brain breaks are scattered throughout the day. Employee assistance and counseling provide support to staff, and counseling and mental health therapists provide assistance and guidance to students. Incentives are available for staff members who attend fitness facilities. Spalding Park is currently involved in Live Healthy Iowa, a 10-week program for schools to create teams and set goals regarding health and wellness. Spalding Park students participate in a health cart program that provides each student with a healthy snack every afternoon.

In 2015, Spalding Park received a $5,000 grant through the Department of Natural Resources to plant trees on school property. The school planted 48 trees in one day, in the process that included all 650 students. Spalding Park has created a school garden where students participate with the help of a master gardener from the Iowa State Extension Office. They also follow a curriculum that teaches students about soil quality, proper moisture for plants, and how to prepare and fight weeds.

Spalding Park teachers provide aerospace lessons, learning the mechanics of gravity and creating their own theories. Fourth and fifth grade students have the opportunity to learn about liftoff and air dynamics. Teachers use NASA education programs to help students learn about energy and space. Spalding Park hosts local presenters to discuss wildlife habitats, recycling efforts, and conservation. Classrooms have been using water to investigate sound production and how to identify patterns. Students observe wind waves and how they are formed. They learn how to write their own hypotheses on wave formation and then create experiments. Spalding Park lies adjacent to city owned property that is approximately five acres of wooded terrain with creeks flowing through, where the school will be building outdoor classrooms. The student council helps plan

incentives for the entire school, coordinates the recycling efforts, and mentors younger grades.

Hawkeye Community College, Waterloo, Ia.

Accelerating Hands-On Learning in Green Pathways

Since 2012, energy efficiency initiatives have decreased Hawkeye Community College's energy costs more than $100,000 annually, and reduced energy usage by 2,191,536 kilowatt-hours. Energy efficiency initiatives including green construction and renovation have allowed the main campus to build an additional 59,548 square feet of space while maintaining energy usage at below pre-addition levels. The Health and Education Services Center (HESC) and Regional Transportation Center were designed to LEED specifications and feature geothermal heating and cooling and floor-to-ceiling windows. Buildings built or renovated since 2009 are equipped with low-flow water closets, urinals, showerheads, and lavatory faucets to conserve water.

The XLERATOR waste reduction initiative was implemented in 2013 to reduce solid waste streams generated on campus. With grant assistance from the Iowa Department of Natural Resources, Xlerator hand air dryers were purchased and installed. The college has also distributed 135 recycling bins across campus. Funds received from recycling paper, cardboard, plastic, and glass bottles have been used to implement a Go Green Scholarship. Preconsumer waste is picked up for composting. The Scrap and Sell Program generates a revenue stream through the removal of scrap materials from nonreusable items such as copper, motors, ballasts, capacitors, lead acid batteries, servers, and motherboards, as well as lithium ion, nickel-metal hydride, and nickel-cadmium batteries. Recycling efforts have resulted in over 50 tons of waste being diverted each year from landfills, with an estimated annual savings of over $31,600. Alternative transportation on campus includes using electric carts. Hawkeye provides shuttle bus transportation for accelerated commercial truck driving students.

In 2012, the college became the first educational institution in the Cedar Valley to earn the Blue Zones Worksite designation by instituting healthy choices in the cafeteria and vending machines, an ongoing focus on exercise and weight loss programs, the development of new walking paths that encourage employees to move naturally throughout the day, and making stress reduction information and events available to students. The Health Wellness Fair hosted each fall is attended by over 300 students, and includes 50 area vendors that provide wellness services. Hawkeye has hosted multiple five-kilometer run/walks for the community, with

proceeds benefiting student scholarships and the student emergency fund. In addition to making Iowa-grown fresh fruits and vegetables available in the cafeteria, horticulture students partnered with Iowa State Extension and Blue Zones to develop a community garden for the growing influx of Burmese refugees.

The HESC offers free workout space for students, faculty, and staff. Preventive dental treatments and minor restorative care are offered on campus at minimal cost for students, their families, and the community. Counselors work with students to reduce stress and increase success through assistive social services like emergency financial assistance, and high-quality, low-cost, onsite child care.

Hawkeye offers green pathways ranging from certificates to diplomas to Associate of Applied Science degrees. The two most distinctive programs are Agriculture and Natural Resources, and Sustainable Construction and Design. In 2013, Hawkeye received the National Association of Agricultural Educators Outstanding Postsecondary/Adult Agricultural Education Program Award for its quality of instruction, experiential learning, and collaboration. The college's grounds include a 400-acre working farm, pond areas, Native Demonstration Gardens, and the Cedar Valley Arboretum and Botanic Gardens, all of which provide a hands-on environment for students to put the sustainable practices they are learning into action.

Sustainable projects include the installation of solar panels on one of the farm's barns to power the electricity and lights in the facility, and the installation of a small windmill to power the farm's parking area lights. Students in the Agriculture, Landscape and Turf, Construction Equipment Operation, and Natural Resources Management programs incorporated STEM concepts into their collaborative project to remediate two ponds on campus to allow for better stormwater control, provide cleaner water into the natural waterways, and develop better habitats for aquatic, amphibious, mammalian, and avian species. Sustainable Construction and Design students have been constructing an energy efficient tiny house to gain practical and relevant skills in design, layout, and construction, as well as skill in finishing of energy efficient homes. The house will be approximately 220 square feet of living space, and will include solar panels to help offset electricity costs.

Hawkeye helps students cultivate civic skills by cooperating with city, state, and federal agencies on projects. Natural Resources students have assisted with Iowa Department of Natural Resources initiatives including trumpeter swan roundup efforts, fish sampling and seining, and timber stand improvement projects. Sustainable Construction and Design students have helped install smart thermostats in the community, and helped build a home with Habitat for Humanity. Agriculture students have assisted a university in Haiti in using drip irrigation for their crops, performing soil tests to more accurately use fertilizer sources, and identifying sources of organic fertilizer.

Kentucky

Eastern Elementary School, Lexington, Ky.

Coordinated Health and Energy Conservation

At Eastern Elementary School, preserving the environment, wellness of students and staff, and effective environmental education are part of the school's daily curriculum and expectations. At Eastern, where 44 percent of students are eligible for free or reduced price lunch, instructors model healthy, sustainable lifestyles. The teachers incorporate environmental studies into their curriculum throughout the year to improve students' understanding and knowledge of ways humans can positively affect the environment through the community, school, and as individuals.

The school has earned awards for achievements in energy use reduction, including EPA ENERGY STAR recognition for a total of six years. Eastern reduced greenhouse gas emissions by 22 percent over five years, and reduced energy use 28 percent over four years. In addition, the school has nearly halved its water use over those five years. Eastern has had several updates to conserve energy since it was built in 1955. A water system was installed outside of the school that dispenses water to keep the moisture constant around the foundation of the building in order to reduce cracking. A geothermal heating and cooling system was installed during a 1998 renovation to help improve energy usage. LED lighting has been placed throughout the school to decrease energy use.

Eastern's staff makes a conscious effort to conserve energy throughout each day. The staff turns off all computers and monitors before leaving each day, turns off lights and projectors when leaving the classrooms, and keeps light usage at a minimum when school is not in session. An energy team patrols the hallways and reminds staff of ways to save energy, and also checks each classroom to make sure all computers and monitors have been turned off prior to the end of the school day. Four years ago, Eastern created a recycling team in hopes of diminishing the amount of waste the school generated. The team collects recyclable materials on a weekly basis and disposes of them in the recycling dumpster located onsite. The energy and recycling teams have allowed students to show leadership in reducing resource use, preserving the environment, and environmental learning.

Environmental and health education are embedded in the Eastern curriculum. The school partnered with Bluegrass Pride / Green Source to enrich teachers' knowledge of renewable energy, nonrenewable energy, and electricity. Educators invite guest speakers, take field trips, and discuss concepts that teach students how they can conserve. The Kentucky Division of Fish and Wildlife Management teaches fourth grade students conservation once a month, and Scott County 4-H offers students

hands-on demonstrations and experiments. Students also have the option of joining science and running clubs.

An outdoor classroom allows classes in all grade levels an opportunity to learn outdoors. Students, 44 percent of whom are eligible for free or reduced price lunch, identify different leaves, discuss plant life, explore ecosystems, learn about weather, and investigate the different types of energy sources. Instructors find that students better retain the information taught to them outdoors. Teachers use outdoor learning as writing practice to connect science learning with reading curriculum and to explore the science curriculum and standards using a hands-on approach that engages students.

Eastern offers a coordinated school health approach. The physical education teacher, the family resource coordinator, and the school counselor sequence lessons together to teach a variety of health concepts to the students throughout the entire year. The school celebrates Red Ribbon Week to promote staying away from drugs, while the physical education teacher correlates lessons to teach the students how drugs harm their bodies. The intermediate grades participate in Jump Rope for Heart to encourage students to live heart healthy and stay active. The school also has started a monthly Move It Thursday event to inspire students to be active throughout their school day and outside of school. An automated scrubber was purchased for the school that transforms water into a power cleaner to clean the floors so chemicals are no longer used to clean the floors. Eastern participates in the USDA fresh fruits and veggies program, which provides healthy local produce to students.

Russell Cave Elementary School, Lexington, Ky.

All Hands on Deck for Energy Reduction and Environmental Lessons

Russell Cave Elementary School, in Fayette County, Kentucky, has achieved a 45 percent greenhouse reduction and 49 percent energy and water reductions over six years. The 1926 facility was renovated to achieve ENERGY STAR certification. The school participates in Kentucky National Energy Education Development, Kentucky Green and Healthy Schools, and the Recycle Bowl; and has received county energy saver accolades. Ninety-two percent of the students ride the bus to school.

Russell Cave, serving 95 percent free and reduced price lunch-eligible students, created a green team to lead efforts to reduce the school's environmental impact and costs. Students audit energy usage at the beginning of the year, and then plan

and implement various initiatives to improve in areas they identify for growth. Russell Cave has been recycling for several years, and regularly recycles more than it throws away. The school reduced copier usage by purchasing composition notebooks for all students. Fifth grade students launched a digital notebook pilot system for their laptops (currently at a 1:1 ratio) in January 2016, and the pilot has added a grade level each month, with 100 percent participation expected by May 2016.

The green team keeps "thank you" and "oops" Post-It notes on them at all times during the school day within team-issued waist bags. As they travel throughout the school during the day, they can leave a thank you note to classrooms that have left their room and turned off lights and projectors, and closed their door. Alternatively, if they come across a classroom that forgot one of these steps, they can leave an "oops" note for that classroom with a reminder of how to improve. Once a month, the Russell Cave school cafeteria has a low-energy day, on which the cafeteria does not use ovens and other electrical equipment to provide lunch. Instead, they provide sack lunches for students, as well as turning the lights off in the cafeteria.

Russell Cave has a part-time nurse that works with teachers and families to help with student needs. The physical education teacher has formed a student and staff health committee. This team brainstorms and implements healthy activities within the school. They also monitor the health policies that stipulate the amount of activity students receive and the types of food that are offered to them. Activities have included Wellness Wednesday, which allows extra movement breaks in the gym, and presentations by the physical education teacher during the morning news show. Russell Cave has physical activity breaks during staff meetings. Teachers are being trained and given access to GoNoodle.com so they can provide a larger variety of activities, along with a motivational system during daily movement breaks. Students participate in physical education class, health class, and a guidance class for emotional and social well-being. Community partners, like the University of Kentucky College of Dentistry and Student Athletes, offer other health programs.

Russell Cave's science lab provides environmental lessons to all students throughout the year, and also brings in speakers from community partners such as University of Kentucky's Center for Applied Energy Research, College of Agriculture, and Bluegrass Greensource. Lessons include water quality and conservation, human impact on the environment, and energy education and sustainability. All students kindergarten through fifth grade are taught lessons about where food comes from by green team members who have completed a course with the College of Agriculture. Fourth grade students complete a semester-long unit on energy and work with scientists from the Center for Applied Energy Research to learn about current green technologies. They then design and build an original product that includes more than one energy source, conserves energy in some way, and fills a

niche in the marketplace. An example of a student-made product is a sports hat with rotating pompoms that uses electrical energy via rechargeable batteries with an energy saving switch.

Russell Cave's outdoor classroom, including a vegetable garden, bird sanctuary, and native plant garden, is used by all grade levels. Students tend to eight raised beds, and grow herbs and vegetables from spring through fall. The food grown is sent home to students' families or donated. Kindergarteners complete a scavenger hunt in this space, looking for ways to meet the basic needs of plants and animals. First graders study the structures of plants using the native flowers. Second grade students learn about the ways native flowers are pollinated by animals, wind, and water. Third graders use this space to observe and compare the life cycles of various organisms. Fourth graders search for evidence of erosion. Fifth graders label the four Earth spheres in the garden and the interactions amongst them.

The school participates in Green Apple Day of Service and makes use of PLT resources. Russell Cave's goal is to educate students to become innovative, creative thinkers that are knowledgeable in energy usage and conservation.

Berea College, Berea, Ky.

Environmental Integrity as a Mission and a Communitywide Commitment

Berea College—a private college in Appalachia founded by ardent abolitionists and radical reformers in 1855—promotes sustainability as part of its mission and as one of the eight Great Commitments codified in 1969, "to encourage in all members of the community a way of life characterized by plain living, pride in labor well done, zest for learning, high personal standards, and concern for the welfare of others."

At Berea, sustainability refers to the capacity of individuals, communities, and societies to coexist in a manner that maintains social justice, environmental integrity, and economic well-being today and for future generations. Berea College is a leader in reducing ecological footprint, environmental impact, and costs. Berea's campus boasts the first LEED-certified building and LEED-certified historic hotel in Kentucky, as well as the first LEED Platinum Residential Building with Living Building Petal recognition from the Living Futures Institute.

Berea's innovative Ecovillage is an ecologically sustainable residential and learning complex designed to provide housing for student families, childcare for campus children, and a living/labor opportunity for students interested in sustainability. The college is well on its way to becoming a net zero waste institution, with a 70 percent

diversion rate for academic year 2014-2015. In addition, with the launch of the school's car and ride share programs in 2014, Berea College was named a top-ranked car share usage school in the nation.

Efforts to reduce environmental impact and costs extend to reducing greenhouse gas emissions, through steps that, in 2006, eliminated the annual use of about 4,000 pounds of coal, and reduced gas use by 39 percent through a new cutting-edge central plant. As signatories with Second Nature, Berea measures and reports publically on emissions each year. The school draws a percentage of energy use from a mix of solar and hydro power as well as natural gas, and creates carbon offsets through the school's 8,000 acre Forest Stewardship Council-certified forest, and through composting. The campus also has worked to reduce water consumption by installing water efficient toilets, sinks, drinking fountains, and dormitory showers, and by employing water efficient landscaping and other measures. This commitment extends to regional water quality improvement efforts, through local stream clean-up projects. Berea also has extensive reduce-reuse-recycle strategies in place to manage waste production.

The Berea community has invested in efforts to improve health and wellness by funding a full-time director to oversee programs and incentives to reduce obesity, smoking, and stress, and improve physical fitness and nutrition. Over 25 percent of the food served in Berea's dining facilities comes from local and organically sourced purveyors, including much from the school's own 400-acre organic farm. The college's Farm Store offers organic produce, meat, and other locally sourced products to the community; provides discounts to students, faculty, and staff; and accepts the Women, Infants, and Children federal food and nutrition program. The school's health and wellness efforts also include counseling and psychological services, a required general education course that helps all students develop healthy habits for a lifetime, and a focus on family and community involvement – including outreach to the area's kindergarten through 12th grade districts and the nonprofit partner HealthCorps, to teach children, teens, and families to make healthier choices. These efforts are especially important in a region – Central Appalachia and Kentucky – that encompasses some of the nation's communities that struggle the most with poor health and related challenges.

When it comes to effective environmental and sustainability education, the school offers comprehensive and creative options. For instance, Berea is one of seven "work colleges" in the U.S., which means that in exchange for free tuition, students (who must be economically disadvantaged) are required to work on campus 10-15 hours per week. This provides a unique opportunity to address environmental and sustainability education both through hands-on work experience and academic programs like Sustainability and Environmental Studies and Agriculture and Natural Resources. Students have the opportunity to work as waste diversion coordinators,

sustainable foods coordinators, and alternative transportation coordinators. The Ecovillage also employs students as gardeners, community outreach coordinators, and childcare workers.

Berea College encourages students to become engaged citizens and good stewards of the land. The Center for Excellence in Learning through Service enables students to volunteer in local nonprofit organizations and schools to solve real-world sustainability problems through actions at the household and community level. Berea also has organized many student protests and marches to raise awareness of the dangerous effects of mountaintop removal—a radical form of strip mining that levels mountains, destroys natural habitats, and pollutes streams—as well as clear-cutting and other unsustainable practices.

Academic opportunities at Berea include programs that integrate sustainability studies with STEM coursework, encourage the development of civic engagement knowledge and skills, and employ interdisciplinary learning, as exemplified by the Sustainability and Environmental Studies (SENS) program. SENS is an interdisciplinary academic program offering both majors and minors that are centered on ecological design – the purposeful integration of human actions with the structures and functions of the natural world. SENS courses emphasize experiential learning and work in close collaboration with other hands-on programs including Agriculture and Natural Resources, Technology and Industrial Arts, Business, and Computer Science.

Additional offerings that provide sustainable interdisciplinary learning include the Agriculture and Natural Resources program and the Technology and Applied Design major – a curriculum that engages students in research, design, and production while emphasizing sustainable practices. Students can select from three concentrations: Technology Management, Artisan Studies, and Engineering and Technology Education.

A dedicated Office of Sustainability helps organize and implement many of the sustainability programs and projects around campus. The Loyal Jones Appalachian Center at Berea College blends scholarship, academics, outreach, and action focused on the needs and assets of this unique region.

The story of sustainability at Berea College is one of creativity and commitment, as well as grassroots organizing and institutional innovation. It is the story of dedicated students, faculty, staff, and administration—literally, the entire campus community—striving to embody sustainability and environmental practices in word, deed, and thought.

Louisiana

Westdale Heights Academic Magnet, Baton Rouge, La.

Caring for Wild Babies Now, Developing Stewards of the Coast of the Future

Westdale Heights Academic Magnet (WHAM) is located in the East Baton Rouge Parish School System, which is the second largest public school system in Louisiana. It is a dedicated academic magnet school focusing on environmental science, math, and technology that attracts students from all over the parish using a lottery system. This urban elementary school instructs 450 students, prekindergarten through fifth grade. Ninety-six percent of the parish is eligible for free and reduced price lunch, so, two years ago, the school board started a program to provide free breakfast and lunch for all students. Before this whole-district certification, WHAM had approximately 52 percent of its students qualifying for free and reduced price lunch, and was a *Title I* school. The students come from diverse racial and ethnic backgrounds, and many are children of scientists and professors at Louisiana State University (LSU).

WHAM maintains a close relationship with LSU School of Veterinary Medicine; the Agricultural Center and their Smart Bodies program; and the Coastal Roots program, which has had students planting native tree seedlings in three restoration area. The school also participated in planning and teaching for the LSU Ocean Commotion Day, where students from both public and private schools learned about Louisiana wildlife and rehabilitation. Parents who are scientists at the nearby university help with field study, or come to WHAM to guest teach, bringing their university students along. Through the years, engineers, chemists, biologists, astrophysicists, soil scientists, and oceanographers have taught WHAM students. WHAM participates in two citizen science projects: the Cornell Lab Project Feeder Watch and the Monarch Watch butterfly tagging program.

WHAM students generated funds for Steve Irwin's International Wildlife Warriors, which buys land for wild animals around the world to live and prosper, especially tigers. Students have generated over $7,000 since 2011 to support local wildlife rehabilitation. The nationally recognized Metamorphosis Children's Garden, begun in 2000, has expanded to two additional garden areas in first grade and kindergarten. School gardens are certified as a Monarch Watch Waystation, a NWF Wildlife Habitat, and NWF Bird Habitat. Under the careful supervision of a local professional farmer, students also grow fruits and vegetables, which they enjoy in the classroom and share with teachers and parents,. Fruit and vegetable waste is fed to science lab pets or composted.

Students construct Garbage Pizzas, that is, pie graphs of the contents of landfills, and participate in a Geaux Green team and two annual STEAM nights. A partnership with a local wildlife rehabilitation center developed as a result of students continually bringing in orphaned animals, overwhelming the science specialist. She turned to a community wildlife rehabilitator, who began working with the students to offer hands-on learning, observation, and stewardship. Students have seen beavers, opossums, skunks, armadillos, squirrels, raccoons, and turtles. The local rehabilitator teaches students to be keen observers of the adaptations and physical features of each animal.

Although its facility dates to 1959, WHAM is focused on green operations and behaviors. The school community began recycling paper and other materials in 2007, filling five large recycling bins weekly. The school conserves electricity by turning off fluorescent lights on sunny days and when leaving the classroom. Most rooms have lights and computers that automatically turn off with no activity. There are new bathrooms with automatic hand basins. No single-use plastic water bottles are allowed on campus. Children bring their own reusable bottles from home and refill with tap water. Materials used to clean and disinfect the school are all approved by OSHA, and are kept in locked closets. Buses and carpool drivers do not idle while waiting for students, and wait in a separate area of campus. Over five years, WHAM has reduced energy consumption by 27 percent and water consumption by 67 percent.

At WHAM, the students' health and wellness comes first. The school uses organic and sustainable farming practices in all of the gardens, using only safe natural pest control methods, like neem oil, diatomaceous earth, and only when absolutely necessary. The school nurse provides teachers with strategies to support students and ensure their safety and well-being. She offers professional development on the use of epi-pens and hand washing at staff and faculty meetings. Students learn about their organ systems and how different foods affect their systems positively or negatively through the science-based, evidence-based, and child-friendly OrganWise Core Curriculum, in which the OrganWise Guys puppets, Organ Annie and Organ Andy, offer fun, entertaining, hands-on human physiology instruction. Students receive a whopping 240 minutes weekly combined physical education and recess time outdoors, and participate in Brain Breaks, Girls on the Run, Jump Rope for Heart, and the Louisiana Kids Marathon. One teacher also conducts evening adult fitness classes for parents and faculty.

Baton Rouge Magnet High School, Baton Rouge, La.

Educating Younger Peers with Help from The Lorax

Baton Rouge Magnet High School (BRMHS) is a kindergarten through 12th grade public school that continually strives to maintain a healthy and sustainable environment for faculty and students, 43 percent of whom are eligible for reduced price lunch. Recent renovations to the 90-year-old building have improved both energy use and water consumption substantially. The Health Centers in Schools initiative, combined with the school's extracurricular clubs, provides students with services and experiences to keep them healthy and well. All of these efforts allow students to have the best possible experiences during their academic career.

The original building was constructed in 1926, and is listed on the National Register of Historic Places. The campus grounds are home to more than 25 live oak trees, which are over 75 years old. The building underwent renovations and reopened to students in 2012-2013, and is now 360,000 square feet. The new renovations allowed for the installation of several types of energy- and water-saving pieces of equipment, leading to a 60 percent reduction in energy use over three years, and a 70 percent water reduction over 12 years. These results earned the school the Professional Grounds Management Society Green Star Merit Award in 2015. Additional design elements such as automated lighting, double-paned windows, and the use of skylights also have contributed to energy usage reduction. A survey conducted to assess student transportation use revealed that roughly 76 percent of students use public transportation (school or city bus) or carpool to school daily. Another innovation came about because the school district does not have a program in place for recycling. Students in the Environmental Science Club assumed the responsibility of coordinating a schoolwide effort.

BRMHS makes every effort to ensure the environmental health and safety of students and staff. The building is equipped with a high-efficiency air filtration system to improve indoor air quality. The science department uses small scale lab practices that help reduce chemical use and waste, and any chemicals are handled and stored in a secure room designated for this purpose. Handling, storage, and disposal procedures follow EPA and Occupational Safety and Health Administration standards.

Specialized staff is available to meet students' physical and mental health needs. BRMHS has a full-time nurse on staff who coordinates hearing and vision checks, the administration of flu vaccinations, and serves as a sponsor for the Healthy Lifestyles club. All four guidance counselors hold graduate degrees, and one is a

licensed clinical therapist. The school's ICare Program provides additional services once a week, which include one-on-one counseling, classroom instruction on alcohol and drug abuse, and education on suicide prevention.

BRMHS offers several curricular and extracurricular programs that are designed to encourage students to make healthy choices and become actively engaged in the community. The Healthy Lifestyles Club has made great progress in bringing many health issues like healthy eating habits and stress reduction to the attention of BRMHS students and faculty. The club coordinates a wellness event to help reduce stress during spring testing, and also offers healthier snack options, such as fresh fruit smoothies, for students who remain on campus after regular school hours for extracurricular activities. SADD (Students Against Destructive Decisions) coordinates several fun and engaging events throughout the year that inform and encourage students to make good decisions about drugs, smoking, driving, and suicide.

The BRMHS athletic department offers the traditional physical and health education courses along with specialized classes for athletes, in which over 63 percent of students are enrolled. All students in Louisiana's East Baton Rouge Parish are provided with a breakfast and lunch at no cost. These meals are planned according to USDA guidelines, and factor in student preferences for healthy food items in order to encourage students to eat school meals. BRMHS is piloting the use of vending machines containing salads, sandwiches, and yogurt parfait (also at no cost to students) to offer more healthy choices in addition to the school cafeteria's hot meal option.

Over the last six years, BRMHS has seen exponential growth in environmental studies. From a humble beginning of just two sections of Environmental Science, the program has expanded to five sections of Environmental Science and three sections of AP Environmental Science. BRMHS now teaches 200 students Environmental Science every year. Students consistently score higher than average on the AP exam. Each year, students from the AP Environmental Science class visit a nearby elementary school to read The Lorax to first grade students and provide a hands-on lesson on sustainability. Environmental science teachers present best practices in environmental education at the North American Association for Environmental Education conference.

Students enrolled in environmental courses are required to design and implement a service learning project. Projects cover a variety of topics including litter cleanup, recycling, repurposing, animal welfare, working with the local food bank, proposing new bike lanes, church gardens, educational activities with elementary school after school programs, and painting urban murals. BRMHS students have participated in the Louisiana Earth Day Festival, a statewide celebration with nearly 40,000 visitors

since 2010. The Environmental Science Club placed first twice in the Exxon-Mobil Science Challenge held at the festival, and volunteered for environmental and cultural demonstrations and hands-on activities with the public.

BRMHS is a performing arts magnet school that offers a plethora of opportunities for collaboration. The arts are integrated into the core courses through multi-disciplinary lessons and activities. For example, students produced public service announcements after a unit on ecology to promote awareness about Louisiana's coastal land loss. Videos about National Estuaries Week were shared during the morning announcement period. Environmental Science teachers often collaborate with AP Human Geography teachers to address content such as human population issues. Students participate in several environmentally focused competitions, including Envirothon, Lexus Eco-Challenge, Samsung Solve for Tomorrow, Science Olympiad, the science fair, and the DECA Design Challenge. The BRMHS Drafting and Design Architecture course incorporates projects that focus on current environmental engineering issues (e.g., Solar Car Challenge, Strand Beast Design).

Benjamin Franklin High School, New Orleans, La.

Green Society Shines a Sustainable Light on School and Community

Benjamin Franklin High School was founded in 1957 as a citywide public coeducational college preparatory day school for students of exceptional intellectual potential. The school community believes teacher and staff are at their best when they are facilitating learning rather than dictating it. In August of 2005, Benjamin Franklin High School was seriously affected by Hurricane Katrina. Upon reopening in January of 2006, the priorities of students and staff shifted. The school's active Green Society, which previously had been focused on a multitude of ethical and environmental issues, began to narrow its focus toward rebuilding a school community that was healthier, more sustainable, and environmentally focused.

Benjamin Franklin High School is devoted to creating a sustainable facility, and thus saving money. In 2014, students who partnered with an electrical engineer to conduct an energy audit discovered that it would be environmentally and financially beneficial to use high-efficiency bulbs. They created a lighting facilities phasing plan that they presented to Franklin officials. Benjamin Franklin High School receives sustainable facilities gifts, such as dual-flush toilets, windows that transition their tint according to the temperature and amount of light outside via solar-powered electric technology, and water bottle refilling stations, all of which have saved money, energy, and water.

The diversity garden and vegetable garden are important parts of biodiversity on campus. Managed by Benjamin Franklin students and teachers, the gardens provide cafeteria-approved food and are used as outdoor classrooms. Benjamin Franklin High School has worked to expand what was initially a limited white paper recycling program. What started as a volunteer-based, labor-intensive operation transformed into a partnership with Progressive Recycling, which now averages 69.28 cubic yards of varied recyclable material per year. Students, faculty, and staff practice and promote alternative means of transportation. Students and staff organize carpools, bike, walk, and ride public transportation.

Prioritizing the health and well-being of the Benjamin Franklin High School community is central to the school's mission. New investments in technologies that improve indoor air quality demonstrate the comprehensive approach taken to create an exceptional learning environment. Decisions regarding pest management and chemical storage are approached from a wellness perspective. Although it is not possible to renovate the entire school building immediately, small-scale renovations use safer products like low-VOC (volatile organic compound) paint.

Seasonally, on-campus gardens provide healthy options in the cafeteria and learning options year-round. Vending machines offering organic and less-processed food options were recently added to the cafeteria. Within the rigorous academic environment, Benjamin Franklin High School students and staff have created a multitude of mechanisms and safeguards designed to support the mental health of students. Clubs and organizations support groups of students who traditionally are marginalized. Students design initiatives to help others express themselves in a supportive environment. Benjamin Franklin High School employs a full-time team of accredited counselors, including a social worker, to provide extra support when needed.

The Benjamin Franklin High School population believes community and school engagement are important factors in sustainability efforts. The school also recognizes the importance of encouraging a green mindset in each student, Green Society member or not. Among the most important steps taken to incorporate environmental and sustainability education at the school have been: Earth Love Week, a weeklong recycling drive and celebration of all things green; independent research projects (including an environmental science project requirement for graduation); and Service Saturdays, in which students tend to the gardens and hold recycling drives. The AP Environmental Science classes for juniors and seniors are extremely popular, as students in this course take a marsh restoration field trip for the purpose of educating students on the importance of ecological preservation.

In addition, students work to assist the community in environmental efforts. Green Society members work with Green Light New Orleans, a nonprofit focused on

teaching sustainability and offsetting the human carbon footprint, to provide New Orleans residents with free energy-efficient light bulbs. The school recently implemented two Community Recycling Days per semester, providing New Orleans locals with the opportunity to recycle items like glass, batteries, and electronics through the school. In addition to their other tasks around the school and gardens, Green Society members stay busy volunteering with Animal Rescue New Orleans and participating in an annual beach sweep.

Benjamin Franklin High School's approach to conservation and sustainability is in keeping with the overall school culture. Curriculum, extracurricular activities, and community engagement all are student-centered.

University of Louisiana at Lafayette, Lafayette, La.

BeauSoleil Home Lights Up Campuswide Sustainability Movement

The University of Louisiana at Lafayette (ULL) has been committed to the stewardship of its natural environment since its founding. This long-standing environmental ethic supports the university's mission to explore solutions to national and world issues through instruction, research, service, and exemplary leadership. In 2009, ULL competed in the U.S. Department of Energy's Solar Decathlon. ULL's entry—the BeauSoleil Louisiana Solar Home, a hybrid structure that combines Louisiana culture and lifestyle with modern sustainable technology—took first place in the People's Choice and Market Viability division.

Following the momentum from this recognition, students across campus formed a grassroots movement to implement a campus recycling program in 2010. At the start of 2014, the university's first director of sustainability was hired, and in fall 2014, the President's Council on Sustainability developed the university's first Comprehensive Sustainability Policy. Buildings, grounds, and infrastructure are designed, constructed, operated, and maintained to meet resource conservation regulatory requirements and work toward ecological neutrality. The new LEED Silver Student Union has set the standard for all future construction on campus. Ongoing scheduled maintenance and renovation optimizes older buildings on campus by replacing windows, lighting, and HVAC equipment with more energy-efficient options, installing occupancy sensors, and adding insulation. In 2006, the university began a campuswide condensed work week by closing at 12:30 p.m. every Friday, which led to saving several hundred thousand dollars annually.

University food services are operated in an environmentally responsible manner that reduces food waste and disposable food-serving dishes and utensils. Locally

produced or sustainably harvested products are used whenever feasible. The university introduced Geaux Vélo Bikeshare at the end of January 2016, an automated system that began with 52 bikes at three locations on campus. This dedication to improving the biking culture on campus and around the community earned the university a Bronze Bike Friendly University designation by The League of American Bicyclists—the first university in Louisiana to receive this honor.

Following a 2014 waste audit, the university restructured the waste and recycling systems and developed short-term and long-term goals to drastically reduce solid waste production—first through reduction, then through reuse, and finally through the Geaux R.E.D. recycling program. The university has reduced its landfill waste drastically, and found innovative ways to serve the community while protecting the environment. Students for Sustainability participates in the Food Recovery Network, delivering perishable foods that otherwise would go to waste to those in need.

For seven straight years, ULL has been designated a Tree Campus USA by the National Arbor Day Foundation. In 2015, the university formalized the Campus Forest Management Policy to guide campus design and construction and maintain a zero net loss of trees through preservation and mitigation practices. The grounds staff focuses on reducing the need for landscape water use by planting native landscaping that is drought resistant, and by keeping a heavy layer of mulch on all landscaped beds and around trees. The majority of student housing is equipped with low-flow showerheads and toilets.

From competition-oriented intramural and club sports, to organized paddle and biking trips organized by the Office of Sustainability, students, faculty, and staff have a variety of options to stay active and get involved. The university's beautiful campus benefits from a master plan that prioritizes walkability and a variety of green spaces, while the Campus Forest Management Plan and central Cypress Lake ensure the protection of some of the most-loved natural resources on campus. ULL was profiled in National Wildlife Federation publication *The Campus Wild*, which features postsecondary institutions that are protecting wildlife and restoring habitats Midweek farmers' markets and a growing variety of healthy, vegan/vegetarian, and local menu options from the campus dining services ensure that students, faculty, and staff have access to proper nutrition that also affects the environment less than many other options.

Many of the favorite campus traditions tie community and sustainability together. The annual Earth Day event, Fête de la Terre, has expanded to a weeklong celebration to include more community partners like local farmers and bayou preservationists. During The Big Event, the school's annual service day, the university has mobilized some 1,000 students to collect litter in and around the city and parish. For Plan Lafayette week, the university facilitated several presentations

and workshops that focused on Smart Growth and better urban transportation planning. Finally, the Office of Sustainability and the Dean of Community Service work with the Office of Orientation to organize one day of service during an event called SOUL Camp. Students work on various projects throughout the community, such as picking up litter, planting tree seedlings, beautifying public parks, and scouting out new locations for bike racks on campus.

The College of Engineering educates new leaders to change the world. Energy is a major research and development focus area, with interests ranging from petroleum resource development to alternative energy process optimization. The interdisciplinary Energy Institute is an internationally recognized comprehensive research unit for energy development, usage, policy, and impact on the ecological and human condition. Examples of cutting-edge research projects include bio-diesels from algae, green chemicals, new reflector materials for solar thermal power production, and waste gas recycling. The school also is home to a Building Design Institute, along with a Coastal Community Resilience Studio, which addresses the complexities of restoration along the coast.

Maryland

Sligo Middle School, Silver Spring, Md.

Stewards of the Creek

Sligo Middle School (Sligo) enrolls a diverse student body, and approximately 45 percent of its 623 students receive free and reduced price meals. Sligo shares its name with Sligo Creek, which runs adjacent to the school, not far from downtown Silver Spring. The Sligo Creek watershed is part of the Anacostia Watershed, which is a target area for improvement of water quality by the Montgomery County Department of the Environment. Sligo students are actively involved in improving the state of Sligo Creek and its watershed.

When the Sligo community began its sustainability journey three years ago, teachers left lights and Promethean Boards on, and recycling bins were not labeled correctly. The School Energy and Recycling Team students organized a plan to collect recycling materials weekly and place those materials in the correct receptacles, visit classrooms to turn off lights and computers, and reform the recycling practices of staff and students.

Sligo also sought out internal and external partners that could help offer more outdoor environmental education experiences for students, especially those that would foster the health of the local watershed, including the Tower Companies, Montgomery County Department of Environmental Protection, and the Audubon

Naturalist Society – GreenKids Program. Sligo's partnership with the Audubon Naturalist Society includes Enviroscape lessons, water quality testing, litter collection, and a compost experiment.

During the second year of this work, the school refocused its efforts on connecting all students to Sligo Creek watershed. Among those initiatives, all eighth grade students were able to conduct stream quality testing of Sligo Creek, and an outdoor classroom with gardens in the courtyard was built. The sixth grade teachers invested many professional development hours in the Trout in the Classroom program, and brought this project-based learning opportunity to all students. These efforts culminated in Sligo's certification as a Maryland Green School in May 2015.

The district's Environmental Literacy Plan ensures that environmental and sustainability education occurs as a series of learning progressions from kindergarten through grade 12.

In sixth grade, students investigate ecological and sustainability concepts in their project-based units on habitats, going green, and alternative energy. Also in grade six, students participate in three days of outdoor environmental education at a residential site. There, they investigate the answer to the question: How do humans impact the environment? In grade seven, students study hydroponics and its use in modern agriculture. Adaptation and natural selection are big concepts in two of the grade seven units. In grade eight, students gain a better understanding of systems that underlie the interdependence of the living and nonliving environment in a unit on earth materials and processes.

Sligo was awarded a STEAM grant in late 2014 that has provided additional opportunities for students to collaborate in teams, and incorporate the 21st-century skills and competencies they need to learn about and help support the environment (focus areas: creativity, innovation, critical thinking, problem solving, community and team work). Elements of the program include outdoor adventure, artistic creation, scientific exploration, and the process of meaningful multimedia communications; all are integrated through a project-based learning approach.

In the culmination of a yearlong effort by 30 students, Sligo students and teachers hosted the "S"TEAM Sligo Community Day Festival, an event to bring together staff, students, and the community to learn more about the outdoor environment surrounding the school. The event was a huge success, with local press coverage and participation from members of Montgomery County's Council and Board of Education. The work of these Sligo students had a far-reaching effect, encouraging students, staff, and the community as a whole to care about the environment, and inspiring other educators to provide similar experiences for their students.

Sligo has an outdoor classroom that is used often by students and teachers for classes as well as stewardship activities. It includes a pond, vegetable gardens, a butterfly garden, and a RainScapes garden. As students grow food in gardens at school, they learn concepts such as nutrition, science, and horticulture, along with the interdependency of living things, as they discover the pollinators, the herbivores who come to eat the food, and the predators who eat them. Students eat food from the garden, including kale, collard greens, Swiss chard, and cabbage. Sligo hosts a salad party where students bring various salads to school to share and teach about the nutritional value of each.

Broadneck High School, Annapolis, Md.

Signature Sustainability Education on the Bay

Since 1982, Broadneck High School (BHS) has been an environmentally oriented institution with students and staff participating in civic-minded, bay-focused restoration projects. These early efforts set the tone for the high school. Over the past 30 years, students have led efforts to plant bay grasses, design and implement rain gardens, and develop and plant stormwater restoration projects. In Anne Arundel County Public Schools, each of the high schools has a signature program that serves as a theme around which 21st-century skills are built into curricula, job shadowing, mentoring, co-curricular clubs, and internships. The school's signature program of environmental literacy was chosen in 2010, and is structured to represent the school and its surrounding community. The signature program is designed to reach all students through co-curricular activities such as clubs, guest speakers, and field trips.

AP Environmental Science students conduct annual stream studies of a retention pond on school property over a 10-year time period. Fourteen percent of students took AP Environmental Science, with 60 percent of these earning a three or higher on the AP exam. Over 88 percent of all BHS students passed the Biology High School Assessment (a Maryland graduation requirement), demonstrating a very high schoolwide understanding of environmental literacy standards.

While these specific environmental courses exist, all students are afforded the opportunity to engage in environmental literacy through signature overlays, a means of refocusing existing content so that it can be taught through the lens of environmental literacy. For example, 3D art students research endangered species within the state of Maryland and construct sculptures out of repurposed materials. AP Government students study media literacy and compare the two sides to the hydraulic fracturing argument through media articles. Honors English students

create an environmental children's book on endangered species. Botany classes work with plants in the BHS greenhouse. In Child Development courses, students explore risks to children's health that can stem from human activities, products, and technology found in childcare facilities. U.S. History students examine how local government addresses the effect of urban sprawl on the Chesapeake Bay. Students also reflect on then-President Carter's legendary 1977 speech on energy, and write reflections on its effect on policy today. In English courses, students examine the environmental impact of the Dust Bowl on American history through literature, and research a current environmental issue to discuss how this issue might have future implications. Foundations of Technology students construct wind turbines and examine alternative energy sources.

Students recognized the challenge of recycling, and collaborated with operations staff, custodial staff, and faculty to implement a successful schoolwide program. A recycling club formed in 2014 to assess the needs of the school has evolved into a student-managed recycling program. Student announcements remind teachers to place recycling bins in the hall, and recycling rates have increased. In 2015, district operations tasked BHS students with a cafeteria recycling challenge, and purchased new bins to facilitate a behavioral change. Students modified the design of the bin to better suit the needs of the school, and guest speakers provide education on recycling. From 2007 to 2010, the BHS art department participated in the Rethink Recycling sculpture contest, winning first place in 2009. Since 2011, art students have been successful in Anne Arundel County's Recycled Runway Fashion Show, winning numerous awards. The school engages in walking field trips to reduce transportation use and keep students active.

The Environmental Literacy Explorations course partnered with the Baltimore Gas and Electric company to develop a student-led energy audit. This initiative evolved into a districtwide energy challenge among high schools during times when schools are on extended break. BHS was one of the top three energy savers during spring break 2015, and won first place during the 2015 Thanksgiving challenge. Environmental Literacy Explorations students also participated in the 2014 Power Savers Energy Challenge. The Environmental Club petitioned the district Board of Education to request the remote shut-off of computers overnight and on weekends, an initiative that would save $500 per day. The Chief Operating Officer agreed to impose automatic shutoff when students are not in a standardized testing window.

Healthy food choices are encouraged through cafeteria initiatives, the Family and Consumer Science curriculum, and organic food labs in Environmental Literacy Explorations. In 2015, the school's Green Team began an organic vegetable garden in the school's courtyard. Bread, milk, and a good deal of produce are sourced locally. The physical education department is committed to engaging students in outside physical education with courses such as Walking for Wellness and Lifetime

Sports, the latter of which offers a unit in fly fishing during which students are able to visit a local waterway to practice. Students can take unlimited fruits and vegetables with their lunches.

BHS partners with the local Watershed Stewards and the Alliance for the Chesapeake Bay to support Project Clean Stream at Cat Branch Creek, which is adjacent to school grounds. Students are encouraged to participate as part of their service learning. BHS Environmental Club hosts a Community Environmental Services Day where community members bring electronic waste, batteries, and paint for proper disposal. Students have participated in a stewardship program teaching bay issues to *Title I* elementary students within the city of Annapolis.

A stream restoration grant partnered BHS with another high school to plant nearly 1,000 trees in both school zones. Eight students were chosen from BHS to act as leaders on this project. These students learned the essentials of successful tree planting, geographical information system mapping, and teaching stewardship principles to younger students. A partnership with Trout Unlimited allows students to raise rainbow trout in their classroom. Students attend a field trip to the University of Maryland Sustainability Department to learn about new degree programs in the sustainability field.

BHS initially certified as a Maryland Green School in 2008 and is completing its recertification. BHS has a longstanding commitment to educating students on how to become environmentally responsible through a variety of programs, opportunities, and curricular content.

Anne Arundel County Public Schools, Maryland

Sustainability by Committee Results in Environmental Literacy

In 2013, Anne Arundel County Public Schools (AACPS) adopted a sustainability policy that put in place a committee to facilitate the development and implementation of sustainability practices and policies. Chaired by the director of facilities and the coordinator of environmental literacy and outdoor education, the sustainability committee connects the business side of the school system with the instructional side. The committee consists of members from purchasing, finance, technology, food service, human resources, transportation, operations, maintenance, design and construction, logistics, curriculum and instruction, principals, and educators.

Support for Maryland Green School certification is a collaborative effort of instruction and facilities. With a goal to have 100 percent of AACPS schools certified, resource