



2012

# U.S. Department of Education Green Ribbon Schools: Highlights From the First-Ever Honorees

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## U.S. Department of Education Green Ribbon Schools, 2012

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## Introduction

When Secretary Duncan opened the inaugural year of U.S. Department of Education Green Ribbon Schools (ED-GRS) in September 2011, he said that the winning schools would be those that were making the greatest progress in three areas, known as “Pillars”: 1) reduced environmental impact; 2) improved health; and 3) effective environmental education. While the schools recognized this year have gone about their greening efforts in different ways depending on their specific circumstances, they all have shown significant progress in the three pillars of our award, and continue to make efforts to improve each day.

Selectees of the inaugural cohort of ED-GRS were reviewed exhaustively at the state level, where they competed for one of up to four nominations state education agencies were asked to send to the U.S. Department of Education (ED). In their respective states, schools were reviewed by committees from multiple state education agency offices, judges from state environmental, energy, and/or natural resources agencies, and, in many cases, U.S. Environmental Protection Agency regional office judges as well.

Because of the short timeline for this first year, competitions for school applicants in many states were open only for a matter of weeks. Even in this short window, over 1,000 schools across the nation began applications, and over 350 ultimately completed and submitted them to their state education agencies. ED provided some guidance as to how state education agencies might evaluate schools on the three pillars and their nine underlying elements, but ultimately, states had flexibility in their selection processes, provided that they documented schools’ comprehensive progress in the three areas. Each nomination package, all of which are posted on the ED-GRS website, reflected comprehensive progress in not one, but all three pillars. Rewarding such progress is the principal aim of this new federal award.

Many aspects of the inaugural year of ED-GRS impressed federal judges even before the first nominations arrived. First, we were struck by the number of states – over 30 -- that voluntarily elected to nominate schools, especially given the number of competing priorities, the budgetary limitations, and the time constraints at the time of the ED-GRS launch in September 2011. Next, we were impressed by the enthusiasm states and schools showed about this new recognition award. They not only wanted to participate in a federal competition recognizing the high achievement of schools in environmental impact, health, and education, but they were willing to invest significant time and energy to take part.

The inaugural cohort of nominees themselves impressed federal judges in countless ways. Initially, we noted the diversity of the schools applying. The schools include 66 public institutions, including 8 charter schools, and 12 private schools. Among them are 43 elementary, 31 middle, and 26 high schools, with several of the 78 schools enrolling various configurations of primary and secondary grades. Perhaps most of all, we were struck by the number of schools attended by underserved students.

As we soon learned, schools serving disadvantaged students – including schools that were 100 percent American Indian, two-thirds Hispanic, or 98 percent African American, as well as schools with populations with high numbers of students eligible for free or reduced-price lunch -- have used efforts to reduce their environmental impact, improve students’ health, and provide effective environmental



literacy. In addition, these schools used their “greening” efforts as a springboard for school innovation and academic improvement.

That these so-called ‘disadvantaged’ schools were masters of stretching limited resources further should not have surprised us. Green schools, after all, are all about creating an education built to last; in simple terms, a sustainable education, which requires, nearly by definition, ingenuity and resourcefulness. And what type of school might better understand conservation? So, when we saw schools providing better education to traditionally underserved students, we realized that our nation’s green schools are a great tool to advance equal access to quality education for all students.

What follows are some highlights of the winners of the first ED-GRS recognition award. They are by no means exhaustive accounts of schools’ strengths, but rather a few highlights that caught federal reviewers’ attention, anecdotes that may be instructive to other schools, and instances of incredible innovation.

Trailblazers in many ways already, they lead as shining examples for all schools to follow in their efforts to go green. They are the first ever U.S. Department of Education Green Ribbon Schools, winners of the first federal award to recognize comprehensive achievement in the areas of environmental impact, health, and education. We are immensely proud of and inspired by them, and confident that you will be as well.

Andrea Suarez Falken  
Director  
U.S. Department of Education Green Ribbon Schools



## Winners at a Glance

78	Schools being honored
50%	Underserved student populations
66	Public schools (including 8 charter schools)
12	Private schools
27	LEED registered or certified constructions
3	Collaborative for High Performance Schools certified constructions
17	EPA Energy Star Schools
11	EPA Indoor Quality Tools for Schools
2	Department of Energy Wind for Schools Participants
70	Schools with on-site gardens
19	National Wildlife Federation Eco-Schools
1000s	Hours of community service and pounds of donated student grown harvest
100s	Corporate, foundation and community partners
100%	Environmentally literate graduates





## **Alabama**

### **Munford Elementary School, Munford, AL**

*The first school in the southeast modeled after a forest*

Munford Elementary integrates forestry, conservation, and environmental education themes throughout the curriculum, with interactive exhibits to convey environmental elements. The exhibits were sponsored through successful partnerships with the Alabama Forestry Commission, Natural Resource Conservation Services, U.S. Forest Service, Georgia Pacific, and other local organizations, which collectively donated over \$275,000 for the museum-type displays. These exhibits were correlated with state science, social studies, and math standards, and include themes such as trees, recycling, animal tracks, water quality, soil profiles, and careers in natural resources. A \$30,000 U.S. Forest Service Kids in the Woods grant added a 125-seat amphitheater to the school. This structure, located on the nature trail, is frequently used for speakers, ceremonies, and workshops. The school has received grants totaling over \$23,000, awarded by Talladega Education Foundation, Legacy, Alabama Association for Curriculum Development, Rural Conservation and Development, and CBS One Classroom at a Time. In the last three years, the 5<sup>th</sup>-grade students have scored 90 percent, 99 percent, and 97 percent on the Alabama science assessment. In 2006, Munford began a partnership with 21st Century Community Learning Centers (CCLC). As a 21st CCLC, it initiated annual Science Camps, a three-week summer enrichment program, which provides opportunities for students to be outside working in the butterfly garden and the greenhouse, planting tomatoes in raised beds, or taking extended environmental field trips. Students participate in the Junior Master Gardener Program, an innovative 4-H youth gardening project. Students are able to carry healthy gardening experiences to their homes and communities.

### **Winterboro High School, Talladega, AL**

*Historic Appalachia meets 21<sup>st</sup>-century community learning center*

Built in 1936 by local craftsmen and on the state register of historic places, Winterboro High is the community hub not only for its current students/families, but also for generations of graduates and community members. The original masonry is constructed from rocks hauled to the location from the fields and the foothills of the Appalachian mountains. Located on 40 acres of land, the campus is an open, natural habitat that is highly conducive to outdoor studies and wholesome physical activities. The school provides a 21st Century Community Learning Center, known as the CCLC, which focuses on a plethora of outdoor fitness and science studies after-school and summer camps. A lagoon wastewater system provides a unique environmental learning venue. The curriculum features project-based learning, which is heavy on real-life science, technology, and math applications. The students also have many opportunities to participate in problem-solving activities related to environmentally friendly structures, greenhouse-based science, and the value of healthy lifestyles. Outdoor classroom areas allow science classes opportunities to participate in projects such as Neanderthal toolmaking, rocket launching, gardening, composting, and developing competitive robots to solve imaginary bioenvironmental hazards.



## **Arizona**

### **The STAR School, Flagstaff, AZ**

*The nation's first off-grid solar- and wind-powered school*

The STAR (Service To All Relations) School is an elementary charter school located in rural northern Arizona, bordering Navajo Nation. The school serves a population that is entirely Native American. STAR School was established in 2001 as the first charter school in the country to be completely off the power grid, generating 100 percent of its own power, largely through solar and wind generation – an impressive distinction. The solar power inverters used to power the school provide a minute-by-minute calculation of the pounds of greenhouse gas pollution that have not been emitted into the atmosphere, through the school's use of solar generation rather than coal-fired power plants. While the school was constructed to use renewable energy by geographic necessity, it integrates sustainability and wellness into every aspect of teaching. The approach to education and sustainability at STAR School aims to provide a platform from which the student can step in to the world of environmental challenges, empowered to contribute to a more sustainable future. STAR School promotes self-reliance, alternative building methods, and energy sources such as solar power. The school also hosts workshops about sustainable living, technology, and the arts. Sustainability education is used to complement and reinforce the oldest Navajo traditions throughout the school. Students maintain a garden using Navajo practices and serve their traditionally prepared, organic harvests in the school cafeteria. The school partners with Northern Arizona University to gather data on the school's air, water, and soil quality, and to provide student mentoring in engineering and sciences. Each student is expected to complete an individual or group project during the middle-school years that: 1) meets identifiable national STEM standards, 2) investigates and provides possible solutions to environmental and sustainability challenges chosen by the student, and 3) provides service to the community that meets the STAR School service-learning rubrics.

### **Roadrunner Elementary School, Phoenix, AZ**

*Behavioral changes and retrofits win a coveted corporate gift*

Roadrunner is a school with 1970s construction that used behavioral changes and retrofits to reduce energy consumption by 35.2 percent. It improved its ENERGY STAR rating from 48 to 87 in just three years. For these exemplary sustainability efforts, Roadrunner was awarded a new LEED Platinum building called "The Safari" by corporate donors. The school serves over 65 percent Hispanic students and half English language learners. The school partners with DeVry University for teacher STEM training and mentors to students. Other partners include Alliance Bank, Kraft Foods, Armstrong Tile, and Glidden Paint for financial, nutrition, and engineering training, as well as in-kind gifts related to the new construction. The school's outdoor facilities include a vegetable garden, rain garden, outdoor wildlife habitats, and an outdoor classroom.

## **Arkansas**

### **Acorn School, Mena, AR**

*Eco outpost in the Ozarks*



Located in rural southwestern Arkansas, Acorn sits on a 15-acre campus that includes a vegetable garden and greenhouse. In the forest adjoining the campus, students discovered an endangered tree species, the Ozark Chinquapin, and worked to build community awareness to protect the species. The school places an emphasis on outdoor, project-based, and hands-on learning, as well as physical fitness and nutrition. The school also has a number of community partnerships that benefit the environmental programming, including a partnership with the Arkansas Game and Fish Commission that involves student teams that monitor local water quality. This 1928-built school proves that any school can be a green school. It implements all Environmental Protection Agency environmental health recommendations, including integrated pest management practices and contaminant control protocols. Students themselves requested and completed an application to be nominated for ED-GRS from the Arkansas state education agency.

## **Bureau of Indian Education**

### **Circle of Nations-Wahpeton Indian School, ND**

*Students help design a state of the art dormitory and preserve their oldest American Indian traditions*

Circle of Nations is a boarding school that incorporates Native American gardening and service learning at every grade level. A 2012 Healthier US Challenge Gold Award winner, the school recently installed a native plants medicine wheel garden, and includes a National Wildlife Federation Certified Schoolyard Habitat. Area businesses and national sponsors have donated garden supplies, plants, seeds, equipment, and tools, which included the construction and operation of a kitchen garden onsite. Students were involved closely in designing a new dormitory in meetings with architects. The efficient design and operation of the new building not only has drawn much attention to the school, but it also has saved over \$233,000 in only three years of operation. In older buildings on campus, windows, roofing, and other design features also were retrofitted to conserve energy. The school's Strategic Instruction Model connects nutrition with math, reading, science, physical activity, arts education, culture, parents, and community. It also promotes physical fitness and eating more vegetables and fruit instead of high-calorie, low-nutrition meals or snacks. The school's partners include the North Dakota Department of Agriculture and the National Gardening Association. Students also got involved with their local community by adopting a wounded eagle and an orphan monkey at a local zoo, creating and auctioning artwork to support the adoptions, and inviting the animals to a traditional ceremony.

## **California**

### **Longfellow Elementary School, Long Beach, CA**

*Disseminating green practices to all area schools*

Longfellow earned an ENERGY STAR 2011 award with a perfect score of 100. Every Wednesday, the school's Green team hosts Walk to School Wednesdays for its community members. For those who don't live close enough to walk the full distance, they are encouraged to drive to a nearby point and walk the remainder of the route with fellow classmates. The school awards prizes that promote sustainable living to classes with the most walkers, such as reusable lunch containers. Not satisfied with greening just one school, Longfellow partnered with a local middle school, forming a green schools coalition to disseminate good practices to other area schools. Longfellow's community partners include



Lowe's, local public relations firms, the local department of the environment, local businesses and community colleges, and a number of sponsors that helped to fund the school's garden and tree planting. Every teacher at the school engages in professional development in environmental and sustainability, and 100 percent of physical education takes place outdoors.

### **Environmental Charter High School, Lawndale, CA**

*An oasis of STEM learning, environmental stewardship, and civic engagement amid concrete*

The Environmental Charter School has a recycling rate of over 85 percent. It is Collaborative for High Performance Schools certified, and working toward its LEED Existing Buildings certification. The school's environmental philosophy permeates the campus and the curriculum. The school produces more than 2 percent of its energy on-site, powering, among other things, its greenhouse. Students take outdoors overnight trips, and spend 25 percent of their class time outdoors in a recycled-concrete urban outdoor amphitheater, or tending to raised gardens, chicken and rabbit coops, and green walls. Students worked with permaculture experts to create a natural stream that now runs through the center of the urban campus. A group of students successfully presented a proposal to change food vendors to one that supports the school's mission, with locally grown food, low-waste compostable packaging, and healthier food. In chemistry classes, students made their own biodiesel fuel. A student-run bicycle repair shop encourages students and staff to ride rather than drive. The students also invite their community into their lessons, hosting composting workshops and campus tours, and engaging in projects to restore the L.A. watershed.

### **Grand View Elementary, Manhattan Beach, CA**

*A school that drives community change, one step at a time*

Each day, Grand View students begin with an eight-minute exercise routine. Students sell the organic produce they grow, and parents receive nutrition guidance. On Walk to School Wednesdays, students are rewarded with hand stamps, and a trophy goes to the class with the most walkers. Last year, the school spearheaded a Walk to School Parade on Earth Day for all schools in the area, with the mayor, police, and firefighters joining students on their trek. The school worked with its district to have each school name a green representative for a monthly district-wide convening on sustainability matters. The school uses iPads and SMART Boards, as well as chalkboards instead of paper posters. The school celebrates Trash Free Tuesdays, has both garden composting and worm bins, and has reduced lunch trash from 30 bags a day to two bags, while serving over 700 students. Students' science scores have improved from 33 to 97 percent proficiency.

### **The Athenian School, Danville, CA**

*Where environmental stewardship is the guiding light*

At this private northern California school, solar panels generate 70 percent of the campus' energy. Behavioral changes, conservation activities, and retrofits to existing buildings have allowed the school to achieve a 48 percent energy reduction, and divert nearly 50 percent of its waste to recycling. Principles of environmental stewardship guide all aspects of academics, operations, food service, building, and maintenance policy. Eleventh grade students participate in the Athenian Wilderness Experience, which is 26 consecutive days of hiking, climbing and camping in Death Valley while using Leave No Trace practices. Students prepare for this major trek with outdoor activities of shorter, age-



appropriate duration by hiking and camping in various state and national parks. Students learn permaculture garden techniques, produce school bus biodiesel fuel in their science labs, work to convert a car to electric power, harvest and press olives, construct an aircraft, and design robotics. The school offers close to 100 percent organic foods, and provides fresh fruit all day as snacks. Faculty and staff can take a weekly yoga class.

## **Colorado**

### **Flagstone Elementary School, Castle Rock, CO**

*Vertical garden and corporate sponsors make STEM learning soar*

Flagstone is a rural school, and a site of the Department of Energy's Wind for Schools Program. Situated in an older facility, the school implemented a rigorous energy management program using student teams. Student Helpful Energy Resource Officers (HEROs) collect and monitor data to reduce consumption, and have managed to reduce the school's energy use by over a third. They passed out student-crafted reusable snack bags, and celebrate a regular "lights out lunch." They compost, teracycle, and reuse materials in art and science class. Since the school's foundations make a topsoil garden impossible, the school worked with a local nursery to develop and fund a vertical garden. The school also partners with gourmet chefs to improve nutrition, while teachers lead a running club. Students participate in robotics competitions with financial and engineering expertise from Lockheed Martin. The school also hosts a summer science program that teaches kids science and technology through the lens of sustainability.

### **Denver Green School, Denver, CO**

*Where successful community partnerships fuel innovation*

With solar panels, solar-tubes, and careful energy use monitoring -- including energy audits by third graders -- this school has reduced its energy use by nearly 50 percent and its water use by half. One in four faculty members bike or carpool to school. For curriculum, the school partners with the Cloud Institute for Sustainability Education. The school farm allows students to experience earth science firsthand, engage in plentiful outdoors physical activity, and learn good nutrition. The adjacent farm also cuts down on the school's greenhouse gas emissions impact, as produce consumed at the school is wheelbarrowed 150 yards, rather than transported by truck, car, or plane. Denver Green School also partnered with a local bistro for a fundraising dinner, and continues to work closely with Sprout City Farms and Denver Urban Gardens for its school garden and farm. Initiated under a \$300,000 grant from the Walton Family Foundation, the school also has been the recipient of many thousands of dollars in financial support and in-kind gifts from Lowe's, Whole Foods, Wells Fargo Bank and KIND snack bars.

### **Wellington Middle School, Wellington, CO**

*A U.S. Department of Energy Wind for Schools Site*

Wellington has demonstrated its ongoing commitment to sustainability by reducing its annual energy consumption by more than 25 percent compared to its 2004 baseline. Wellington's energy use rivals many schools that are LEED certified. The school earned the ENERGY STAR award for four consecutive years from 2008 — 2011, and currently derives one percent of the energy it consumes





from on-site renewable energy generation. Wellington was named one of the first schools in the state to receive recognition as a Wind for Schools site by then-governor Bill Ritter. The school also strives to minimize water consumption by continuously monitoring the use of water on athletic fields to prevent waste. Students visit a local dairy, and sewage and water treatment facilities to experience first-hand the concepts they learn in their classes. The school is the northern Colorado host site for Innovation Camp, a STEM camp for middle school students. It also partners with Little Shop of Physics, a Colorado State University community outreach project. Students use the outdoors in daily intramural and classroom experiences.

## **D.C.**

### **Stoddert Elementary, NW**

*The first geothermal powered school in DC*

Stoddert Elementary, a public school in northwest Washington D.C., earned LEED Gold certification and was the first school in Washington to be heated and cooled using geothermal technology exclusively. The geothermal system installed by the school resulted in a 70 percent reduction in energy use. Stoddert has a community garden and two green roofs. Both the school and its garden are used as teaching tools, with students planting, tending, and harvesting under the guidance of a garden science coordinator. Fifth-grade students give tours of the school's trees and energy conservation features to their pre-k "eco-buddies," so that even the youngest students can identify the different elements that make the school green. Parents report being more aware of their recycling habits because their children expect them to recycle with care. The school implements a bicycle safety program sponsored by the Washington Area Bicyclist Association. All of the school's cleaning products are certified green, and the custodial program is certified by ISSA Cleaning Industry Management Standard. The school also was one of the first in the District to adopt the D.C. Healthy Schools Act protocols, making it one of the healthiest school sites in the city. Stoddert regularly plays host to architects, designers, and builder visitors, as well as D.C. Parks and Recreation and U.S. Green Building Council partners, who help to teach students and staff about the green features of their school.

### **Sidwell Friends School, NW**

*The first K-12 LEED Platinum school in the world*

Sidwell Friends Middle School uses 60 percent less energy and 93 percent less water than standard construction. Its green roof helps to reduce the urban heat island effect, and the campus is certified as wildlife habitat by the National Wildlife Federation. The school participates in a Community Supported Agriculture cooperative and obtains healthy food and ingredients from local organic vendors. All eighth graders complete an environmental science course, and sustainability is infused in other courses throughout the sixth through eighth grades. Students are conducting a long-term study of bee populations on campus with the help of the U.S. Geological Survey. They have participated in environmental restoration and conservancy projects in places as far away as Hawaii and Alaska, as well as down the road at neighboring schools. Eighth-grade environmental science focuses on four significant environmental issues that will confront students: biodiversity loss, global climate change, water stress, and human population growth. At the end of the course, each student writes a personal



code of environmental ethics based on what they have learned, which is included in their middle school time capsules.

## **Florida**

### **Learning Gate Community School, Lutz, FL**

*The first public school to achieve LEED Platinum certification*

At Learning Gate, a 10,000 gallon rainwater harvesting system helps put grey water to good use both indoors and out. Students of all ages participate in the ecological curriculum; kindergarteners initiated a Waste Free Lunch program, third graders spearhead composting, middle-school students operate the electrical recycling program, and fourth graders are responsible for ink cartridge recycling. All 800 students spend 30 percent of their day participating in outdoor classes, and participate in free play time every day after lunch. The Seed to Soup Curriculum® ensures that all students attain an age-appropriate level of environmental literacy. Students also are required to complete a Junior Master Gardening program, and through the efforts of students, the school donated over 2200 pounds of harvest to a local charity last year. All teachers are required to take Project Wild, Project Wet, and Project Learning Tree courses, and a quarter of the instructors also have completed the Master Naturalist Program sponsored by the University of Florida. Finally, in 2011, the school hosted a sustainability fair attended by 100 local businesses, farmers, and artists as well as over 1,000 attendees from the community.

### **Pine Jog Elementary, West Palm Beach, FL**

*The first LEED Gold certified school in Florida*

Since its inception in 2008, Pine Jog has been committed to becoming a world leader in developing a culture of sustainability for future generations. This school, where 70 percent of the students are eligible for free or reduced-price lunch, has won numerous awards for design, construction, and operations. The school's staff has taken the green-school concept and continued to build upon sustainability concepts with a level of enthusiasm that is infectious. Students make use of energy and water consumption information available on touch screens in various locations throughout the school. The school is one of Florida's most energy-efficient schools; Pine Jog has reduced energy use by 25 percent annually, which is enough to pay for one teacher's salary each year. 140 acres of this campus, which is shared with Florida Atlantic University, are natural woodlands, featuring multiple outdoor classrooms and three miles of trails. 93 percent of this LEED Gold facility is built on 10 acres of land. As part of the United Nation's Billion Trees Campaign, Pine Jog students planted 1700 trees in 2011. Students manage all aspects of a 4000-plant hydroponic garden, including its business plan. The campus also houses nine themed gardens, including an urban peach orchard, pond, and beehive, as well as extensive nature trails. Students created a YouTube Video detailing how water is collected in cisterns and reused to irrigate gardens. They create artwork and musical instruments from items that would have gone to the landfill. The school's Reuse Center allows the community to drop off clothing, books, and classroom supplies that they don't need, or find treasures to reuse. The school principal drives a used, vegetable-oil fueled car, a diesel car, and a solar powered golf cart. Students participate in the NASA Train Like an Astronaut Program, through which they experience rigorous outdoor physical



activities that are linked to the curriculum. All teachers are certified in the Florida Fish and Wildlife Federation's Project Wild Curriculum, and study Richard Louv's *Last Child in the Woods*.

### **Terra Environmental Institute, Miami, FL**

*The first LEED Gold science magnet high school in the nation*

Inspired by global environmental conservation initiatives and STEM national programs, Terra is the first green LEED Gold science magnet high school in the nation. Students use engineering, medical, and biological sciences to promote scientific knowledge and conservation techniques in one of three academies: Environmental Research and Field Studies, Biomedical Research, and Robotics and Engineering Technology. Students conduct research outdoors in the school's greenhouse and composting sites, agricultural grounds, and aquaculture research facilities, all built and maintained by students. They have partnered with the Dumond Conservancy to design and build a tree-climbing robot fitted with a camera to monitor endangered species in the Amazon. Students have patented battery design and robotic devices. Students have contributed to the publishing of scientific data in national journals. Every student at Terra is required to complete a graduating portfolio that consists of multiple scientific research projects in environmental topics, including a field experience community internship and a certification in their area of study. Students enjoy literature under the natural light and trees in "Reading on the Green" sessions.

## **Georgia**

### **Arabia Mountain High School, Lithonia, GA**

*Taking state science standards to the next level*

This LEED Silver school purchases 60 percent renewable energy and produces solar, wind, biomass, and hydro power on-site. Arabia Mountain is an Environmental Protection Agency air quality monitoring School Flag Program participant and serves only local food. Its partners include organizations such as the Turner Foundation, the Georgia Power Company, the Georgia Clean Air Campaign, the Arabia Mountain Heritage Alliance, IKEA, The Nature Conservancy, the Oxford Institute for Environmental Education, and Arabia Mountain Park. At the 98 percent African American serving magnet school, every student takes Advanced Placement environmental science. Through an Environment as an Integrating Context curriculum, students use projects to formulate hypotheses about the environment, conduct scientific investigations, present their findings to their peers and the local community, and engage in service learning. The school's academic achievement rates exceed both the county and state, and it graduates 98 percent of students enrolled.

### **Springdale Park Elementary, Atlanta, GA**

*A garden tops historic structures*

Nestled in the historic Druid Hills, this school is comprised of two restored homes and a newly designed LEED Gold building. The new construction produces 18 percent on-site renewable energy and features a roof-top garden that contains over 100 raised plant beds. The students receive lessons on the school's many green features from Heery International; attend programming on how to reduce harmful emissions from the Georgia Clean Air Campaign; receive fresh fruit snacks and garden sponsorship





from Whole Foods; and enjoy locally harvested produce of the month, a Farm to School Fair and nutrition instructional materials thanks to partnership with Sodexo.

### **Savannah Country Day School, Savannah, GA**

*The first National Wildlife Federation Eco School Green Flag Recipient in the nation*

Students at this LEED Silver school have donated hundreds of pounds of vegetables from their gardens to a local food bank in addition to ensuring local and organic foods in their own meals. With a butterfly garden, herb garden, fruit garden, brown thumb garden, Monet garden, organic spot, Shakespeare garden, and Pangaea garden, the all on-site harvest was plentiful. The school is certified by the National Wildlife Federation as a Schoolyard Habitat and is the first National Wildlife Federation Eco School Green Flag recipient in nation. At Savannah Country Day, students learn simple machines by hoisting their science teacher up and down one of the many hundred year old live oaks, Georgia's state tree.

## **Hawaii**

### **Ewa Makai Middle School, Ewa Beach**

*Hawaii's first green school*

At this newly opened LEED Gold school, all cleaning products, furniture, and computers were purchased to green certification standards. 60 percent of school waste is composted, using worms and barrels to produce fertilizer which is used in the school garden. Instead of golf carts, staff employ adult tricycles for deliveries and administrative purposes. Courtyards and common areas are the site of collaborative, environmental, service, and project-based learning. Science classes cover aquaponics, solar cells, solar cars, windmill generators, ecosystems, and robotics. Paperless classrooms make wide use of iPads, PowerPoints, email, e-books, and laptops. Students give tours of their new school, deepening their understanding of its green features and practicing public speaking. Staff attend free, bi-weekly Zumba classes to stay fit.

### **Hawaii Preparatory Academy, Kamuela, HI**

*Modeling a Living Building for schools across the nation*

With support from a local donor, the Hawaii Preparatory Academy's Energy Lab was constructed as a sustainable classroom prototype according to LEED Platinum standards. It became the first school ever to meet the Living Building Challenge, which requires net zero energy, water, and waste use, as well as stringent materials requirements. The school produces one quarter of its energy consumption on-site and purchases one third renewable energy. All furniture is certified to green standards. The school serves mainly organic and local foods. Students engage in two hours of physical education a day, four days a week. Students have created a system to monitor energy use and conservation in their school buildings. They also have worked with a local hotel to gauge energy "footprints," saving the hotel utility expenses through operational changes and conservation. The school hosts an annual national Student Sustainability Conference. A sustainability education coordinator helps to integrate this learning into science, history, and English. All faculty and staff attend a one-week intensive sustainability course. They use local scientific and natural resources, such as nearby observatories and labs, to provide real-life curricula and programs for students. The curriculum links to each of the



four major environmental challenges students will have to face in 21<sup>st</sup> century: energy, food, water, and culture. Students spend over 200 minutes a week in science classes.

## **Illinois**

### **Academy for Global Citizenship, Chicago, IL**

*Teaching health and nutrition to students and school community*

Academy for Global Citizenship features a comprehensive nutrition education program that spans in-cafeteria education, in-class lessons and daily sustainability and wellness classes. All teachers participate in sustainability professional development. Students learn about food systems, animals, and the environment by caring for three schoolyard chickens. Kitchen staff is trained and heavily involved in educating about the school's innovative all-organic, from-scratch, and increasingly local breakfast and lunch program. After breakfast, students begin the day with 12 to 15 minutes of yoga. The school offers reasonably priced local produce shares, and free health, wellness, and cooking workshops to the school community. Since the school is located in an industrial area, it uses field trips to farms, wetlands, nature preserves, and campsites to expose students to nature. Students meet with local farmers to choose what they grow in the schoolyard garden. Throughout the harvest process, the school runs workshops with parents to show what students have done in garden and to teach them how to grow at home, no matter the space available to them. At least 10 home gardens have come out of this effort. The school facilitated a mother enrolling in Chicago Conservation Corps, who then led workshops for other parents on green cleaning supplies in the home, and helped two unemployed mothers start a green-cleaning business. The school has encouraged carpooling by mapping where students live and sharing data (with parental consent), as well as by establishing a walking school bus that enables safe walking and bike riding to school. It purchases only renewable wind energy, and reduced dumpster collection from once a week to once every other week.

### **Thomas J. Waters Elementary, Chicago, IL**

*The first LEED in Illinois*

This 1911 schoolhouse was reconstructed to meet LEED Silver standards and to become the first LEED certified school in Illinois. Waters has set up a salad bar and removed all vending machine beverages with sugar or high fructose syrup. The school was so adept at lunchroom composting that Chicago Public Schools contracted Waters to teach other schools this practice. All students participate in cultivating food in the vegetable garden, and are responsible for aspects of waste management. The Waters Ecology Program is integrated into every subject, including language arts, drama, music, and art so that each grade has an environmental focus. Teachers form the science committee, working to unify the science curriculum across disciplines and coordinate thematic units with field trips and activities. They go on lengthy walks, dig potatoes, gather seeds and leaves, go fishing in Lake Michigan, and participate in organized runs. Students use data from solar panels, calculate run-off with asphalt versus the school's water-permeable surfaces, study river biomes in three seasons, and measure air, water, and ground temperature. Students testify before the Chicago City Council to make the scientific case for higher water quality standards for the Chicago River. Every class takes three or more outdoor ecology-related trips annually. The music teacher works with students after field trips to create songs reflecting collective experiences, and art classes practice skillful observation of the natural



world. The eighth-grade gift to the school revolves around ecology. The school partners with Nature Conservancy, Sierra Club, and Friends of the Parks.

### **Prairie Crossing Charter School, Grayslake, IL**

*Training other schools and future teachers in sustainable practices*

At Prairie Crossing, students in the 3rd and 4th grades participate in a Lewis and Clark unit that culminates in a visit to a local homestead in the middle of winter, where students make a shelter, start a fire, and cook their own food, as the explorers might have done. The school requires that students place samples of their work in their environmental portfolio at each grade level to monitor progress and knowledge. The school's environmental literacy scope and sequence is overseen by an environmental education specialist and culminates with a final environmental project. Other staff participate in professional development on topics such as planning an integrated environmental unit, classroom gardens and nature journaling. Five school buildings meet LEED Gold certification, and the school generates nearly one quarter of its energy on site through geothermal, wind, and solar panels. Four 1000-gallon cisterns for collecting rainwater and a bevy of rain barrels handle irrigation for all of the campus landscaping. Through the school ambassadors program, students teach their parents about the green features of their schools and how those features might work in other places. Students have traveled to schools in Chicago, Waukegan, and Gurnee, among others, to teach younger students about the benefits of environmental behaviors and ecological concepts. A partnership with a nearby farm allows students to work and learn experientially about farming practices and health issues. The school also sponsors environmental service-learning projects that encourage stewardship behaviors, such as working with adult community volunteers to restore a prairie across the street from the school.

## **Iowa**

### **Des Moines Central Campus High School, Des Moines, IA**

*A retrofitted 1918 Ford car factory where students prepare for careers of the future*

Des Moines Central Campus serves students from 29 districts and 57 schools, and was originally a 1918 Ford car factory that has been converted in recent years to a high-efficiency, regional, K-12 school. The renovations have included the installation of double-pane glazed windows in order to increase the availability of natural light and reduce the need for artificial lighting. High-efficiency water source heat pumps also were installed in the school, and reduce the need for steam heating. Des Moines Central Campus has reduced its energy consumption by 28 percent compared to a 2008 baseline, and has reduced its water consumption by 64 percent compared to a 2009 baseline. In this urban setting, students use sustainability concepts to learn green job skills. Home building students use recycled materials to turn old bleachers into hardwood flooring. The aviation program works with the Iowa congressional district to salvage old jets and helicopters as teaching tools. A welding program recycled over 43,000 pounds of scrap metal in 2011. The teacher academy is working toward paperless operations with electronic portfolios. The culinary arts program installed a grow cart to cultivate herbs and salad greens, and their new ENERGY STAR dishwasher reduces energy consumption. Animal science students use recycled materials to create wildlife habitat sculptures. Design students study sustainability principles and devise constructions that incorporate LEED criteria. Horticulture students offer their landscaping services throughout the campus. Technology students' use of cloud computing reduces energy consumption by over a third. Central Campus' Iowa Energy



and Sustainability Academy is a two-year program that teaches sustainability, green technologies, renewable energy, and conservation. The school nurtures partnerships with University of Northern Iowa, Siemens, Iowa Department of Natural Resources and the Iowa Energy Department.

## **Kansas**

### **Eisenhower High School, Goddard, KS**

*A certified Wildlife Habitat and Monarch way station*

At Eisenhower, consultants from local community, county, and state enhance environmental curricula. These experts, in fields ranging from raptor rehabilitation to hazardous waste to energy conservation to land management to conservation, engage students with their real-life career choices, which apply environmental information and sustainability concepts. The use of environmentally relevant iPod downloads, interactive websites, research facility webcams/webinars, and virtual web labs in the ecology class have provided an opportunity for students to experience environmental science on a global scale. Ecology classes complete water, energy, and waste and recycling audits and manage a recycling program. Special education uses recycling activities as an alternative state assessment. English classes study Henry David Thoreau and Aldo Leopold, and debate teams use environmental issues for their competitions. Math classes use recycled materials to create geometric mobiles. Students participate in wellness sessions focusing on diet and nutrition every third week. The school is home to a certified Wildlife Habitat and Monarch way station.

### **Erie High School, Erie, KS**

*The first LEED school in Kansas*

Erie's success was the result of a successful federal school construction bond initiative for this small rural community. Thirteen percent of Erie's consumed energy is derived from purchased renewable energy, and the high school Green Team promotes environmentally friendly behaviors throughout the school as well as the community. Skylights, large windows, and lighting occupancy sensors minimize the use of artificial lighting, and energy-efficient fixtures help prevent energy waste. Low-flow water fixtures with automatic sensor operation optimize water efficiency. The Green Team also contributed to water savings by researching and identifying plant species for landscaping that would require no supplemental watering after the first year of growth. Erie High School uses the environmental Protection Agency's Portfolio Manager to track its energy use over time, and in 2012 the school earned an ENERGY STAR energy performance score of 94. Also, over 95 percent of classroom space benefits from extensive day lighting. Students and visitors find preferred parking spaces for those who carpool or drive a fuel-efficient vehicle. Curriculum is delivered through project-based learning that includes meaningful outdoor experiences. A cattle operation module includes livestock reproduction, addressing such relevant topics as artificial insemination, embryo transfer, pregnancy checks, and the maintenance and general care of livestock. Other projects include a lasagna garden, an on-site pond and a locally accessible river where students study water quality, species substantiation, and erosion issues. The school's natural habitat area allows for projects in prairie identification, animal identification and tracking, native grasses, and xeriscaping. Students complete assignments digitally instead of on paper, and 90 percent bike, walk, or carpool to school.



## **Brookwood Elementary, Leawood, KS**

*Highly integrated environmental education*

At Brookwood, educators integrate environmental education into the curriculum throughout all grade levels – in all subject areas, from language arts to sciences. Educators and students have access to the wide variety of environmental fiction and non-fiction books in the library. At the beginning of every year, all educators are engaged in a school-wide green professional development opportunity. This year, the annual family Math and Science night was environmental education themed, incorporating green community members and opportunities for hands-on environmental experiences. The school holds numerous other school-wide environmentally-focused assemblies and presentations. The Brookwood PTA raised money to install energy efficient hand dryers in the school restrooms in the school, and promotes zero waste classroom parties by encouraging reusable plates and napkins with recyclable drink options. A local artist is assembling reused materials into a large indoor sculpture and engaging students in hands-on workshops where they work with reused metal. The school recycled over 30 pounds of crayons last year. It also collects inkjet and toner cartridges, cell phones, laptops, and batteries.

## **Kentucky**

### **Rosa Parks Elementary, Lexington, KY**

*Reaching toward community-driven sustainability objectives*

The Rosa Parks school improvement plan includes sustainability objectives; parents and staff meet monthly to discuss how to best attain those energy-saving goals. They've installed rain barrels and walking trails, and planted trees in coordination with the University of Kentucky Landscape Architecture Department. Rosa Parks is one of two sustainability pilot schools for Fayette County Public Schools, and uses the environmental Protection Agency's Portfolio Manager to track its energy reduction progress, including a reduction of more than 70 percent in GHG emissions. Additionally, Rosa Parks conducts annual audits of facility and irrigation systems to prevent water leaks and identify opportunities for water savings. Rosa Parks earned the ENERGY STAR award in 2011, and has reduced its energy consumption by more than 40 percent compared to a 2009 baseline. As part of an air quality improvement campaign, students conducted tests, created signage, wrote student news articles and advertisements. Students care for trout in the classroom to learn about and improve water quality. The school has partnered with Kentucky American Water Company to hold an annual school science fair. Lunches are prepared and color coded according to USDA's My Plate so that students can make choices in every food group. Teachers ask, "Do you have all your colors on your tray?"

### **Georgetown Middle School, Georgetown, KY**

*Using shared energy conservation efforts to learn STEM*

Located in a 54-year-old building, Georgetown Middle School is part of Scott County Schools and was constructed in 1958 in Georgetown, Ky. As part of its energy conservation efforts, Georgetown Middle established a Student Energy Team, which has held educational programs for students at two neighboring elementary schools. Compared to its 2010 baseline, Georgetown Middle has reduced its annual greenhouse gas emissions by 20 percent. The school also has installed an underground retention system to help prevent runoff and improve the quality of the school's water supply.





Georgetown Middle earned the ENERGY STAR award in 2011 and 2012 with performance scores of 76 and 88, respectively. Also, teachers participate in the Kentucky chapter of the National Energy Education Development workshops. Sixth grade students conducted a creek study using GPS to create maps. The energy team has held workshops on energy topics for feeder elementary schools. Students have improved their state science test scores by 15 percent. The school has partnered with the local soil conservation organization to sponsor a student writing contest. It participates in USDA's HealthierUS School Challenge and holds an annual Greek Olympics.

### **Richardsville Elementary, Bowling Green, KY**

*The first net-zero school in the nation*

Richardsville Elementary holds the distinct honor of being the first net zero school building in the nation. In addition to being LEED Gold certified and scoring 100 on the Environmental Protection Agency's ENERGY STAR portfolio, the school generates renewable energy on-site through solar panels and a geothermal system. Among the school's features are sinks in the bathrooms that are hands free and run with photovoltaic cells, and a rain water collection system on the roof of the building that pipes water to the rain garden, which has eliminated the need for an irrigation system. Additionally, Richardsville's cafeteria does not have fryers, a practice that decreases energy consumption while increasing the nutrition of every meal served. The school's student Energy Team leads schoolwide recycling efforts, in addition to giving energy tips, completing energy audits, leading tours of the building, and holding schoolwide and community events that focus on energy conservation and sustainability. The school participates in Farm to School and the HealthierUS Schools Challenge programs. Teachers participate in professional development workshops through National Energy Education Development. The school's Dr. Seuss Family Fun Night includes nutrition- and energy-related activities. Students also learn about energy conservation and sustainability through an energy conservation curriculum plan developed around National Energy Education Development materials. Environmental responsibility is integrated throughout the school in learning murals and themed hallways, focusing on solar, geothermal, recycling, and water conservation.

## **Maryland**

### **Dunloggin Middle School, Ellicott City, MD**

*Caretakers of the Chesapeake*

Stream restoration and wetland construction has served as Dunloggin's 7<sup>th</sup>-grade student service-learning project since 2005. Through the continued maintenance of a wetland area near the streams, students help to create a natural habitat for wildlife, as well as provide a buffer to absorb excessive nutrient runoff from local fields before it enters the stream and eventually reaches the Chesapeake Bay. The project is intensive and ongoing, engaging students in environmentally friendly activities throughout the school year. Students also have created and regularly maintain nature trails through the area, perform water-quality testing on the streams and wetland area to determine the health of the water, and take population samplings of various organisms. Students are required to write an argumentative piece either supporting or refuting the possibility of using alternative/renewable sources of energy in the future after they learn about and generate electricity to operate models. Students compare and contrast the power and efficiency that can be realized from wind-, solar-, and water-powered machines,



as opposed to non-renewable sources. The school replaced its old boiler system with a more energy-efficient model. Its soap dispensers, toilet paper, and paper towels all are green standard certified, chlorine free, and made with 100 percent wind-generated electricity.

### **Francis Scott Key Middle School, Silver Spring, MD**

*Learning critical thinking, STEM and writing weighing the evidence of global change*

Francis Scott Key is a LEED Gold facility, featuring geothermal heating and cooling and solar panels. Its roof provides information to students and staff on the energy produced at the school for monitoring and data manipulation. In their exploration of solar energy, students have the opportunity to build a solar collector, gather data, and consider why solar energy often is promoted as an alternative to fossil fuels. Student service learning projects are performed at each grade in middle school. At grade six, those projects are environmental, and many students also choose environmentally focused action as their grade eight service project. The 300-student eighth-grade class participated in a local greenscaping project. In both grades six and eight, students consider the evidence of global change over time through research and data analysis. Students learn about bias and think critically about sources as they explore information related to global warming. All grade six students are involved in a multi-day residential environmental program focused on the ecology of the local watershed. Students learn to use scientific equipment and technology to collect data about the watershed. They complete a stream water survey and forest buffer assessment, and then analyze data and make conclusions about the health of the local watershed. Students discuss the decisions they make every day that affect the local watershed.

### **Folger McKinsey Elementary School, Severna Park, MD**

*Learning by raising terrapins, eels and bay grasses*

Folger McKinsey holds a Tasting of the Rainbow event each month, providing students with the opportunity to try new fresh fruits and vegetables. Its outdoor courtyard features a butterfly garden, raised flower beds, a science lab, reading area, stage, "explora-torium" to dig and witness nature, and a water-feature emulating the sea-level fen uniquely characteristic of this region. The accompanying curriculum plan encompasses science, language arts, music, art, and math. Through annual environmental field trips and use of the schoolyard at all grade levels, along with a strong partnerships with a local outdoor education center, Folger students engage in active lessons, allowing them to make practical applications to the environment. In addition to each grade level focusing on a specific issue, projects such as growing bay grasses and raising terrapins and eels make environmental literacy tangible and real at Folger. Fifth grade students have scored between 92 and 95 percent proficient or advanced on state science assessments in recent years. The school partners with Northrup Grumman and the Naval Academy for its STEM initiatives, including the school-wide annual environmental science fair.

### **Lucy School, Middletown, MD**

*LEED Platinum pride*



The Lucy School is the only LEED Platinum school facility in Maryland. It also is on the National Register of Historic Places. The 17-acre campus includes a pond, waterfall, wetlands, forest, and rolling hills. The school purchases wind-generated energy and produces a whopping 43 percent of its energy on-site with solar installations. A roof garden accumulates and filters rainwater for toilet flushing. Teachers drink from reusable thermoses instead of water bottles. The school provides discounted tuition for families who carpool. Even the three-year-olds are very careful to conserve during hand washing, and are reminded by a song that they sing when it is time to wash hands: "Turn off the water, don't let it run. Save a little water for everyone." The cafeteria serves organic local food, including hormone-free milk, and is free of sugary snacks. The school maintenance team employs chemical-free cleaning products. Chemical-based fertilizers and herbicides, as well as smoking and idling vehicles, are not permitted on school property. All students spend about an hour a day outdoors, including unstructured playtime. Playgrounds have logs, rocks, and tree stumps to climb over, and tree "cookies" and pinecones to build with and carry about. Outdoor time also includes exploration walks, work in the garden, forest play, and visits to designated learning sites. Children are immersed in hands-on learning projects, keep nature journals, and construct and write a field guide for flora and fauna found on the campus. They plant, harvest, and maintain an organic garden and greenhouse. For independent projects, students are assessed according to school-created rubric assessments. All students who have been in the primary program for at least one full school year score proficient or better on environmental curriculum assessments.

## Michigan

### **Clarkston High School, Clarkston, MI**

*Celebrating technology and green energy curriculum*

Clarkston High School was built in 1998 as a part of Clarkson Community schools, and the school received the ENERGY STAR award in 2008. Clarkston's students, staff, administrators, and community members all contribute to the district's energy management program. Due to these initiatives, Clarkston has reduced greenhouse gas emissions by 27 percent through behavioral changes, lighting upgrades, energy use policies, installation of occupancy sensors, centralized HVAC and lighting controls, continual monitoring of utility usage data, and more. Clarkston also has reduced its water consumption by 55 percent from 2006 to 2010 by installing low-flow water fixtures, scheduling, and zoning of irrigation. Classes have created and maintain outdoor classrooms and learning trails. Students participate in spring and fall grounds cleanup days. A green energy curriculum is supplied by Energy Works Michigan. Clarkston has an arrangement with a local refrigeration design company to receive scrap and waste insulation so that grades six through 12 can conduct aerodynamic analysis. The English language arts department reviews papers using track changes to reduce copies made. CSMTech is a program where science and math infused with technology is celebrated. Science and math are taught with real-world applications and integrated throughout the curriculum. These career and technical education courses embedded with green and sustainability education.

### **Detroit Edison Public Service Academy, Detroit, MI**

*Urban school, global view*

This school has obtained grants to erect a wind turbine, solar pavilion, and weather station, as well as plant trees. It obtained a multi-year STEM service-learning grant, and hosted a 2011 STEM service





professional development conference. The school planted an urban garden with support from Lowe's and Daimler Chrysler. Some students are involved in a program called Young Explorers at Ecotek Lab. They have created bioplastic and biofuel, visited a wind farm in Pigeon, Michigan, assisted the U.S. Coast Guard with the BP oil spill in the Gulf of Mexico, traveled to Cape Town, South Africa to work with the South African Weather Service and the GLOBE Program on climate change, and presented their work on environmental science and sustainability at the United Nations in New York City. The science club is developing a car driven by biofuel. The Engineering Society of Detroit introduced students to Future City Competitions, where students build models of sustainable cities of the future, using only recycled materials and robotics. The Academy's first Earth Day event included a student led demonstration of a hydrogen fuel cell vehicle from General Motors, as well as a variety of fuel efficient vehicles.

## **Minnesota**

### **Garlough Environmental Magnet School, West Saint Paul**

*Outdoor learning stations and an environmental literacy graduation requirement*

Garlough students have gone on to start composting and recycling programs in their middle school. The entire school "walks from school" to the school buses on a path through the woods every other Friday, and participates in Safe Routes to School. Six classrooms are equipped with treadmills and 80 under-desk peddlers are distributed throughout classrooms for students who need to move even as they are seated. The school is a Silver USDA HealthierUS Schools Challenge winner, and maintains organic gardens and a fresh salad bar. A major environmental theme is woven into the curriculum each year and students visit an on-site nature center daily. The campus includes Outdoor Wonder Learning Stations aligned to state academic standards with interdisciplinary lessons at these stations designed for every grade level, under such themes as chipmunk park, rain garden, bird sanctuary, tree walk, outdoor weather station, butterfly gardens, vernal pond, and tulip garden. A naturalist takes all students out every week and the school has implemented a fourth-grade environmental literacy requirement. The staff meets every month to integrate environmental and nature-based concepts into the school's curriculum.

### **Kennedy Community School, Saint Joseph, MN**

*A U.S. Fish and Wildlife Service Schoolyard Habitat*

This LEED Gold certified school purchases 96 percent renewable energy, generating the remainder through on-site geothermal production. The school has an energy use tracker website for monitoring consumption, diverts 58 percent of its waste from landfills and has reduced its irrigation and indoor water use by 25 percent. The school van has been converted to run on recycled cooking oil. Kennedy participates in the Safe Routes to School Program, the HealthierUS School Challenge, and the Farm to School program, and is a recipient of a U.S. Department of Education Carol M. White Physical Education Program grant. Forty of Kennedy's 72 acres are certified U.S. Fish and Wildlife Service Schoolyard Habitats, and include an outdoor classroom and reading garden. Students are designing a walking trail through the restored prairie habitat. Ninety percent of seventh- and eighth-graders score at the proficient level or above on school-wide assessments in environmental and sustainability concepts. A STEM club operates at various levels, with groups facilitated by university professors and students. All staff are trained in recycling by TriCounty Waste Management and the school's designers



on green school features. Most staff also receive U.S. Fish and Wildlife Service training in the prairie habitat. One hundred percent of the school's sixth- to eighth graders completed a community service project focused on environmental and sustainability topics.

### **North Shore Community School, Duluth, MN**

*Hormone-free milk from local dairies and student tapped maple trees*

This charter school in rural north Minnesota is a 50 year old facility, yet it received a score of 77 in the ENERGY STAR Portfolio Manager. The school uses washable utensils and trays, and diverts 51 percent of solid waste from landfills through reuse and recycling efforts. Fourth grade students conducted a water audit that led to the installation of a high efficiency hand washing station, reducing water consumption to approximately one quarter of prior daily usage. Ninety percent of campus-generated food waste is composted through a vermiculture system. All of the school's paper supply is post-consumer material, and all used colored paper is recycled into student-made paper. The school consolidated six and a half bus routes into five, resulting in a significant decrease in mileage. This Farm to School participant serves certified hormone-free milk from local dairies. The school greenhouse supplies up to 20 pounds of mixed greens each year to the cafeteria. Each spring, students tap maple trees on campus to enjoy homemade syrup during breakfast in school. The curriculum includes nutrition at all grade levels, and students participate in a minimum of 170 minutes of physical activity and/or outdoor learning each week. A year-long environmental theme is used as an integrating context for the curriculum and school field trips. Every student attends an additional Environmental Education course once a week, led by the environmental educator on staff. Ninety percent of all staff participate in environmental and sustainability training several times annually. Teachers develop two to three Environment as Integrating Context lessons each month. From raising mealworm beetles in first grade to the science and social studies teachers collaborating on the effects of aerated and non-aerated worm tea, classrooms are geared toward environmental and sustainability concept integration.

## **Missouri**

### **Crossroads College Prep, Saint Louis, MO**

*The only LEED Platinum School in Missouri*

At this urban college preparatory school serving nearly 50 percent minority students, you'll find the only LEED Platinum school building in Missouri. The facility has the largest photovoltaic cell in the region, allowing the school to generate 20 percent of its energy on-site. Crossroads has reduced its energy use by 15 percent, and purchases 18 percent renewable energy. Students learn from composting, a bioretention pond and a native garden that serve as outdoor classrooms. All 2011 graduates went on to enroll in college, with 42 percent of them pursuing a STEM field. Students analyze, clean, and reclaim a local creek. 210 students contributed over 4,000 hours of community service in the Saint Louis metropolitan area by participating in the school's civic engagement program, which partners with 16 nonprofits that focus on environmental issues. Their service activities included growing organic food, recycling and reusing bikes, restoring native habitats, removing invasive species, and constructing rain gardens. The school partners with the National Audubon Society's Rivervision program to expose students to river and bird species. All students study LEED building features and 38 percent of students enroll in Advanced Placement environmental science.



## **The College School, Saint Louis, MO**

*Finding simple solutions to save energy*

The College School found that it could reduce the lighting in each classroom by 33 percent by simply disconnecting one light bulb in each fixture. This was easy, cost nothing, and made students aware of a simple mechanism to reduce energy use, one that is four times more effective than the school's wind turbine and solar array combined. The school began restoration projects to reduce rainwater runoff with a permeable parking lot, and then installed native plants on campus. The College School then moved to restoring a local park and surrounding areas in cooperation with the community. Students led and partially funded a wind turbine project. All students take environmental issues and ecology courses for a minimum of 160 hours. They tend a greenhouse, a vegetable garden, and learn from a demonstration green roof. Half of the food served is local, and Tuesday's cafeteria menu features a locally grown soup and salad lunch. Students take part in wilderness adventure outings using Leave No Trace methods. The La Barque Creek Campus is the school's 28-acre environmental education site located 30 minutes from St. Louis. It provides students with opportunities to learn about and interact with nature in joyful, meaningful and creative ways, and to engage the broader community.

## **Nebraska**

### **Lothrop Science and Technology Magnet, Omaha, NE**

*Where all community service projects focus on the environment*

This pre-k through fourth grade magnet school reduced its greenhouse gas emissions by over one third in one year by changing to energy efficient bulbs, training in water use reduction, and planting native species of vegetation. Its curriculum features a consistent, daily focus on reduction, reuse, and recycling, and science standards include relationships between living things and environment. The school hosted a vermicomposting assembly with a speaker on the science behind this practice and taught the public how to compost on Earth Day. Students learn about erosion, soil pollution, and pesticides. The school engaged in a landscaping project to help the neighborhood understand how to reduce exposure to soil lead caused by drainage and lead-based paint. The school collects juice boxes from six other schools to use as sunflower planters and recycles crayons. Even the youngest students are fascinated by alternative energy, and all note wind turbines while on field trips. In the student managed garden, children turn over soil and add compost. All civic engagement projects at the school focus on the environment. Students work to resolve community problems, build outdoor classrooms, mentor other schools to develop environmental programs, and experiment with alternative pest control procedures. The school employs Project Wet and Project Wild curricula. Students produced a play on reducing lead exposure. They dig up dandelions and look at roots under microscope, make salsa and other foods with garden produce, manipulate variables in an experiment to simulate the greenhouse effect, study the foods they eat at lunch and breakfast to learn good nutrition, and keep nature journals using recycled paper.

### **Miller Park Elementary, Omaha, NE**

*Using sustainability to keep kids and community safer and healthier*



This pre-k- to sixth-grade school is located in one of the highest poverty areas in city of Omaha. Students, staff, and green team members all were actively involved in preparation of the school's application to Nebraska for the ED-GRS nomination. Parents at the school have a 100 percent attendance rate at conferences and student attendance is at 93 percent or higher daily. Miller Park reduced its greenhouse gas emissions by 72 percent and its water use by 19 percent, earning the highest ENERGY STAR rating for any Omaha public school. To achieve these gains, it re-lamped entire school, regulated temperature setbacks and installed geothermal. The schools earned the ENERGY STAR award 2010 and 2012, with scores of 89 and 92. At every grade level, students use environmental education, health, and sustainability topics to develop an aptitude for the critical STEM subjects, preparing them for jobs of the future. Head Start attendees learn the basics of recycling and composting. Fourth graders completing a food unit take a field trip to a nearby culinary institute to learn how science is used in the industry. The school invested in nine 20-unit mobile learning laptop carts for each grade level. The school offers a GED program for parents and community members, dental screenings and sealants, and mental health lessons. The school also partners with the local police department for gang intervention services.

## **New Jersey**

### **Bernard High School, Bernardsville, NJ**

*An annual battle of the bands supports environmental initiatives*

Bernard High achieved a 16 percent energy use reduction in three years through behavioral changes and low cost retrofits, including adjustments to lighting, controls, ice storage, vending, and the kitchen hood exhaust. Located in a district with an energy savings contract and pay for performance agreement, the school reduced its greenhouse gas emissions by more than 12 percent. It calculates its annual savings in water and sewer utility at \$28,150. An active Green Team spearheads gardening, composting, and local restoration projects. The green team organizes an annual battle of the bands to raise awareness around environmental issues. The school purchases fresh local produce through the Jersey Fresh program, and obtained a \$300,000 Safe Routes to School Grant to build a sidewalk connecting the high school with feeder middle and elementary schools. It recycles at over 30 percent, and partners with its borough to hold community-wide electronics recycling day. Four environmental science classes are offered, including Advanced Placement environmental science. Each year, the school gives an award to its top environmental science scholar and an annual scholarship for pursuit of a college course of study relating to outdoors and/or environmental fields.

### **Midtown Community Elementary, Neptune, NJ**

*The largest public school in North America to achieve LEED Platinum*

This Pre-K through fifth grade elementary school not only is the largest public school in North America to achieve LEED Platinum certification, but also is home to a diverse student population. The school is truly integrated in its community with in-house spaces for an intergenerational tutoring center, a senior center, a parent resource center, and a police sub-station. The school itself was constructed on a site that allows for a reduction in light pollution and heat island effect while managing storm water. The school's bioswales capture and filter the rainwater runoff from the parking area and other locations. Geothermal wells, which make heat by using the Earth's natural temperature to heat the schools, also



are located in the front of the building. All of these building features, along with the light shelves, which allow the sun's rays to go under the sun shades and the solar panels mounted on the roof of the cafeteria, work to maintain a 60 percent reduction in energy usage. Not only do the students study in this LEED Platinum building, but the building is used as a "living textbook" and an educational resource. For example, since 90 percent of the school space has daylight and open views, students use solar cells, which work by turning the sun's rays into electricity, to measure energy usage and determine the relationships between wattage and voltage in the science and math classes. Additionally, the school has a rooftop garden and a native plant arboretum natural area that frequently are used as outdoor classrooms and educational spaces for staff and students.

### **Alder Avenue Middle School, Egg Harbor Township, NJ**

*Signature environmental education curriculum and outdoor classrooms*

Reducing their carbon footprint by creating a healthy, energy-efficient school environment reinforced with sound environmental and sustainable education practices has been an on-going initiative embraced by all grade levels at Alder Avenue Middle School. Since 2000, Alder Avenue has been taking students out of the traditional classroom setting and introducing them to tangible outdoor learning excursions with the creation of their *Catawba Project*. The *Catawba Project* curriculum is packed with differentiated instruction curriculum that incorporates core content standards and appeals to all students despite their learning levels. It also is infused with character-building service-learning initiatives designed to partner middle school students with township leaders, environmentalists, parents, and community members to work together to help solve real environmental problems. This middle school also seeks to blend the *Catawba Project* curriculum with the nationally recognized Energy Education program. A recent energy audit showed that Alder Avenue had an energy reduction of 26.65 percent in the first eight months of implementing the Energy Education program. In addition to outstanding environmental education initiatives, a solar-powered system was installed, which contributes to the school's 15 percent on-site renewable energy generation. The school has an outdoor classroom site that features a small tree farm, an organic garden, a pond with a solar-powered pump, native plants, and bird houses built by students, and which also collects surface water runoff from the asphalt parking area and diverts it to a bog, which is used to water the organic garden and tree farm.

### **The Willow School**

*One of the first schools in the nation to adopt sustainability as an integrated concept*

This small, independent, coeducational day school for students in kindergarten through eighth grade is committed to fostering academic excellence, a passion for learning, and the development of an ethical approach to all relationships—including humanity's relationship to the natural world, of which it is both a constituent part and chief steward. Several national organizations have cited the school's integrated commitment both to sustainable building design and to a K-8 curriculum informed by sustainability as a replicable model for reforming elementary and secondary education, both private and public. The National Geographic's "Green Guide" ranked Willow as the nation's second greenest school for its progressive integration of sustainable design initiatives into the campus and the curriculum. The school building's site orientation and layout plan, along with upper insulated walls and ceilings, high-performance windows, high-efficiency heating and cooling systems, and innovative day lighting strategies that include automatic photocell-based daylight dimming controls for interior light systems, all





provide maximum energy performance. The Barn, a multi-use building, is certified LEED Platinum and consumes 70 percent less energy compared to an identical building constructed to building code. Photovoltaic on-site renewable energy generation provides 37 percent of the building's electricity requirements. Also, the school has many water reduction techniques, such as using collected rainwater to flush all toilets, low-flow water faucets and fixtures, and native/drought resistant landscaping that requires no irrigation.

## **New York**

### **Hampton Bays Middle School, Hampton Bays, NY**

*First LEED Silver certified and New York State Collaborative for High Performance Schools-certified school building in New York State*

Since this school's opening in 2008, minimizing the school's carbon footprint and maintaining energy and cost efficiency have been top priorities along with ensuring that all students receive a first-class education. The school is the first LEED Silver certified building in the state of New York, and contains many energy-saving features like a dual heating system that consumes oil or natural gas depending on which resource is most cost-efficient at the time, and waterless urinals and sensors in all restroom sinks, which account for nearly 100,000 gallons of water in savings each school year. In addition to sustainable design, Hampton Bays Middle School's integrated health and nutrition efforts have led to a direct positive correlation to improved health and performance for its students and staff. Through MyNutriKids.com, parents have access to their child's food choices in the cafeteria, and the school's "Guest Chef" program features healthy entrees prepared by local chefs using fresh, locally grown ingredients. Also, all students participate in a sustainability curriculum and college and career planning units for "green collar" careers in family and consumer sciences and technology. All students sign the school's "Green Pledge," and the EARTH club shares a weekly "green minute," highlighting current sustainability initiatives. Many of the school's clubs participate in the ongoing partnership with Cornell University Cooperative Extension to promote interdisciplinary and intergenerational engagement in the Good Ground Community School Garden, a space that is shared with the elementary school and community members, who rent beds to grow flowers and vegetables. In the coming fall, Hampton Bays intends to use the food from this garden in the school cafeteria.

### **Sleepy Hollow Middle School, Sleepy Hollow, NY**

*Students and staff unite to minimize environmental impact*

Sleepy Hollow Middle School serves grades six through eight, with a diverse group of students. The school provides its students with a safe, supportive, and nurturing environment that fosters the social, emotional, and academic growth of each child. More notably, this middle school has implemented a sustainability curriculum, created an award-winning Environmental Action Club, and focused many of its efforts on minimizing the school's impact on nature. The school has four outdoor gardens that are used for education and for growing food to be used in the cafeteria. Students are instructed in gardening techniques like crop rotation, composting, and rain catch that are healthy for the environment. All teachers are trained in a sustainability curriculum, which focuses on education and opportunities for students to learn about how their actions affect the planet and its fragile ecosystem. All students additionally take a "Green Pledge." Thus, the National Wildlife Federation has awarded Sleepy Hollow



Middle School with the bronze and silver Eco-School awards, and the school is on track to receive the “Green Flag” award. This school’s Environmental Action Club has created bird habitats, assisted in local cleanups, and conducted a full-scale eco-school audit that includes all energy, waste, school grounds, and global dimensions.

## **Bethlehem Central Middle School, Delmar, NY**

### *Counting conservation efforts*

Bethlehem Central Middle School is committed to equipping students with the knowledge and skills necessary for overcoming obstacles in their future. This school emphasizes that the choices humans make every day affect the overall health of the planet, and constantly ask students to be conscious of what they consume, whether energy, food, or water. Bethlehem Central Middle School also seeks to provide the infrastructure for students to make good, environmentally conscious decisions. During the morning announcements on Tuesdays and Thursdays, students from each homeroom are asked to empty their blue paper recycling buckets into large totes that are located in central points of the building. Teams of students are in charge of weighing these totes and logging the data. At the end of the month, the school TV station announces the amount of paper the school recycled and the environmental benefits of these savings, including number of trees saved, gallons of water conserved, and amount of pollution avoided. In addition to the school’s recycling efforts, Bethlehem Central underwent renovations in 2006 and subsequently measured a 35 percent reduction in greenhouse gas emissions between 2009 and 2010. A comprehensive control system monitors the energy production of the school’s two-kilowatt solar array, which is installed on the school library and helps to power the school facilities. Bethlehem Central minimizes its water use by using grey water for irrigation before potable water, and by conducting annual audits to prevent or eliminate leaks. Bethlehem Central earned the ENERGY STAR award in 2010 with an energy performance score of 78. Also, an organic school garden, with over 1,500 square feet of raised beds, can be found on campus, supplying fresh produce to the school’s cafeteria.

## **North Carolina**

### **Evergreen Charter School, Asheville, NC**

#### *Understanding the Nature of Children*

This kindergarten through eighth grade public charter school has made environmental responsibility a key component of their mission and is now reflected in the school’s community outreach, facilities, and culture. The students score 30 percent above the state average on science tests. This school also has an adventure component, and teachers lead their students on several outdoor challenges like mountain biking and rafting every year. On average, 96 percent of Evergreen’s graduates participate in a four-day Outward Bound course with a focus on health and leadership. Staff address environmental and sustainability issues in their blog “The Nature of Children.” The adventure physical education program includes rock climbing, white water rafting, camping and backpacking. The 8th grade final project consists of researching and defending a position on hydrofracking. Local Appalachian history and culture are woven throughout the curriculum. Richard Louv’s *Last Child in the Woods* is required staff reading. Most community service projects are environmentally focused and classes average 200 field experiences per year. The school site includes rain gardens, native plantings, a strawbale and cob



playhouse, a hoop house for winter vegetables, fruit bushes, apple trees, and vegetable garden. The school uses recycled and chlorine-free toilet paper and eco-friendly cleaning products. Students use cloth towels in classrooms and bring cloth napkins and utensils from home. Further, the school's facility, which was built in the 1960s, has been retrofitted so that it exceeds some LEED standards. Some of the campus retrofits include replacing incandescent bulbs with compact fluorescent bulbs; installing green bathrooms with low flush toilets, waterless urinals, and electric eye sinks; installing two photovoltaic solar panel systems that offset energy usage, and adding a monitoring tool on the school's website so that students, staff, and members of the community can see the energy and cost savings and the carbon dioxide levels avoided. The school owns and operates two biodiesel buses for off-campus field trips, and the fuel is obtained from a local company that obtains recycled cooking oils from over 400 local restaurants.

### **American Hebrew Academy, Greensboro, NC**

*Home to one of the world's largest closed loop geothermal heating and cooling systems*

While the American Hebrew Academy features organic architecture and the campus's 26 buildings are integrated into the 100-acre natural landscape, one of the school's most impressive green components lies under the surface. Five hundred feet beneath the school's soccer stadium and track is one of the world's largest closed loop geothermal heating and cooling systems. Compared with conventional heating and cooling methods, the Academy sees 40 percent savings annually, and the energy savings attributed to current systems operations are estimated to pay for the added capital installation cost by the spring of 2013. Additionally, the geothermal pump house serves as a living classroom where students can learn about geothermal energy and earth science. Students also gain real life experience through a science research internship course, which places them in research labs at the University of North Carolina at Greensboro, where they investigate topics such as optimal sustainable grasses for cattle feeding and dealing with disease vectors. The school infuses the Judaic concept of 'healing the earth' into curriculum, offering such courses as Eco-Judaism. Finally, because 80 percent of the Academy's students are residential and are each served 20 meals per week, in 2007, the school made the decision to switch to using locally grown produce, thereby reducing transportation costs and seeing an increase in quality of the cafeteria's fruits and vegetables. The school's garden, fed by compost created from kitchen waste, also supplies food for the cafeteria and the local food bank.

## **Ohio**

### **Loveland High School, Loveland, OH**

*A HealthierUS Schools Challenge Bronze serving all-organic food*

Loveland High School has worked closely with the Loveland School District to create comprehensive programs that have been implemented to reduce the district's overall environmental impact. In order to reduce GHG emissions, the district created and implemented an energy improvement plan that was the first of its kind in Ohio. This plan allowed for many energy-efficient upgrades in Loveland High School, like the installation of motion and infrared sensors on lighting fixtures and changing light bulbs, which resulted in savings in the first year of \$350,000. Loveland High School, a 72-acre campus that includes 15 acres of woods, prairie, and a rain garden, also has achieved a 59 percent water reduction with the installation of low-flow faucets. All buses have been retrofitted with catalytic converters through use of





an Environmental Protection Agency grant. Students compost kitchen waste and petitioned to ban the sale of water bottles. Students and staff use reusable water containers to reduce the waste of water. As for the school's overall nutrition, the school serves all-organic and 30 percent local foods, achieving a HealthierUS School Challenge Bronze award. Students have called local McDonald's and Circle K gas stations to ask that they stop using Styrofoam cups. Students also called the local Best Buy to inquire what they do with the old television sets that are collected by Best Buy as part of a community service projects. Students found that Best Buy collects the televisions for parts, and throws the unused portion in the trash. Students asked that Best Buy take the collected televisions to 2TRG, a local e-recycling facility, and educated the managers on the ills of throwing televisions and other e-waste away.

### **North Adams Elementary, Seaman, OH**

*Solar Energy Star*

This elementary school is located 60 miles east of Cincinnati in the Appalachian region of Ohio. North Adams continues to be a leader in environmental sustainability and to promote these practices among their staff, students, and community. The school building's design includes many sustainable features including a geothermal HVAC system, daylight harvesting, and variable room lighting. In 2011, this school began using solar energy by adding over 1,250 solar panels to the building's rooftop. As a result, North Adams Elementary produces 30 percent of its energy on-site with renewable sources. North Adams also recently received the LEED for Schools Silver rating, and its first ENERGY STAR label where the building scored a 97 on ENERGY STAR's 100-point rating system. Lastly, the campus consists of 850,000 square feet of land, and the building only uses 11 percent of this space. Over 90 percent of the building's interior offers views to the outside, where wild turkey and deer often can be seen grazing in nearby pastures. The school's grounds include an outdoor classroom and a GLOBE weather station that can help teachers discuss and teach climate and weather with their students.

## **Oregon**

### **Sunnyside Elementary School, Portland, OR**

*Environmentally focused indoors and out*

Sunnyside Elementary School is a K-8 school in Portland that incorporates environmental education, place-based experiences, and service learning into its unique curriculum. This school's environmental science curriculum encompasses both the classroom and the field, with local foods, green gardening, food-to-table curriculum, and sustainable practices, both individual and school-wide. The school grounds have been converted into a rich and thriving garden, which includes a perennial sensory garden, fruit trees, a pollinator garden, a grain garden, and a native plant garden. A three-person sustainability team manages the garden and curriculum, which stresses global citizenship and service, and each grade is responsible for tending a garden. Lastly, students learn sustainable practices as part of their daily curriculum, with the use and study of on-site solar panels, a water collection cistern and several rain barrels, a chicken coop, a robust recycling program, a lunchroom composting system with worm bins, and a garden composting system. The school's lunchroom has also been converted to create less waste by only using reusable plates, cups, and utensils.

### **Willamina Elementary School, Willamina, OR**

*HealthierUS Schools Challenge honoree and Native American language immersion*



This rural K-6 school, serving one-quarter Native American students, is host to a Chinook Language Immersion kindergarten program and places sustainability at the forefront of the school's education curriculum. All grade levels have integrated environmental and social sustainability into their curricula through meaningful, real-world study and experiences, such as projects in which students must devise inventions using recycled materials. Willamina also excels at recycling; a team of student leaders leads the school in its conservation efforts by collecting all the recycled materials from each classroom and placing them in the proper containers in the pick-up area. In addition to sustainability, nutrition is studied in all grades in and out of the classroom. Willamina has established the Fresh Fruit and Vegetable program, which offers fresh fruits and vegetables to students daily and focuses on a "harvest of the month" to educate students about new foods. This elementary school has made a commitment to students exercising, averaging about 270 hours a week of school-sponsored physical activity, much of it indoors. Due to its excellence in nutrition and physical activity, Willamina is a HealthierUS Schools Challenge winner.

### **Gladstone High School, Gladstone, OR**

#### *Student-Led Practices*

Gladstone High School has implemented an outstanding vision for connecting their students with sustainable environmental practices. Their students have led the way to the creation of a Green School Club and have initiated several changes like conducting energy audits, researching information about placing water bottle filling stations throughout the school, and the adoption of a no-idling policy. The Green School Club, by conducting energy audits, reduced the school's power consumption and electrical costs by \$250 per month. These club members also remodeled the school's courtyard by using natural materials to build cob structures, a rainwater collection system, and a raised garden. The school itself also has undergone many changes in recent years that represent sustainable environmental practices. A 2006 bond funded a full remodel of this high school and incorporated the use of materials from recycled content. Despite adding 13 percent more square footage to the school, the school still was able to reduce overall electrical consumption by 9 percent and natural gas consumption by 3 percent. A 100-kilowatt photovoltaic system has assisted with mitigating the remaining electrical consumption. A Gladstone teacher took the lead on developing a sustainability curriculum that then became the model for the district. Courses include: Environmental Leadership, which focuses on decreasing the environmental footprint of the school and community through project based learning about sustainability. Ecology Projects is a project based course exploring several environmental sustainability topics. Renewable Energy is a course that teaches aspects of the various forms of renewable energy. Culinary Arts explores sustainable and local food and food service. The leadership class focuses on social sustainability through blood drives, children's hospital fund raisers, canned food drives and more. Horticulture teaches students the fundamentals of planting and growing. Drafting has students exploring energy efficiency in buildings. Computer Technology teaches students about the environmental and social side of electronics recycling and encourages volunteering at a non-profit electronics organization. Environmental Science teaches about maintaining eco-systems through native habitat restoration. Biology and Advanced Biology teach how resource management affects food chain sustainability.

### **Caitlin Gabel School, Portland, OR**

*First Girls Generation Robotics Competition and a sustainable nutrition theme every year*



Caitlin Gabel School has made a commitment to becoming sustainable by educating its students to develop the wisdom, vision, and determination to create a sustainable society, modeling sustainable practices throughout the school building, and inspiring others to make the same commitment to sustainability. This school seeks to get the entire school and outside community involved in long-term, sustainable change. Caitlin Gabel was the first organization in its area to make the shift to ultra-low sulfur diesel fuel for buses, which made this school the first Platinum level participant in the Oregon Clean Diesel Initiative. This school also has established PLACE (Planning and Leadership Across City Environments), which is an urban leadership program open to all students in the area. Through this program, students come to understand how a city operates in areas including equity, infrastructure, disposal, and sustainability planning. It also has extensive robotics teams and hosted the first Girl's Generation Robotics Competition. Through the Caitlin Gabels Service Corp, volunteerism begins in preschool. The garden is curricular focus of middle school classes in particular and there is a school-wide garden club. Each year, students have a nutrition theme woven into their curriculum. Nutrition services is headed by professional chef and features a daily salad bar, vegetarian and gluten-free options. The school does not sell soda, candy bars or bottled water. Middle school students in modern languages cook all year long according to cultural themes and the 7<sup>th</sup> grade December food festival is global in nature. The fifth grade sustainability curricular focus is Pitchfork to Plate, where students learn and experience how food works, from production to consumers. Caitlin Gabel students plant trees every year on earth day and the school purchases local paint, contracting services, lamb, produce, fruits, coffee and beef. The school has hosted Fulbright scholars from Japan who paid a visit to learn about sustainable development from an exemplary school.

## **Pennsylvania**

### **Radnor Middle School, Wayne, PA**

*Only LEED Silver certified school with a green roof in the Delaware Valley*

Radnor Middle School has earned the slogan, "the school with a heart in the heart of Wayne," because of its dedication to students, community, and the environment. The only LEED Silver certified school in the Delaware Valley with a green roof, the school stands out as a leader in sustainability. In the community, the students have worked to set up two community-supported agriculture systems, along with a Seed to Snack program, and have helped the community recycle paper. They established a school-wide Big Local Organic Movement and a BLOM blog and tend a year-round vegetable garden, green house and NWF certified schoolyard habitat. The Environment and Ecology curriculum is embedded throughout grades and the school's watershed program has been internationally recognized and a blueprint for environment literacy. The school participates in PA Fish and Wildlife Trout in the Classroom. A "Green Touch Screen" in the lobby provides visitors with information on the school's green features and no-idling signs outdoors protect student health. Radnor has made a significant reduction in energy use and waste production through green features, a focus on water use, and recycling. The school district supports environmental efforts through participation in a recycling program and transportation run on biodiesel.

### **Thaddeus Stevens Elementary School, Chambersburg, PA**

*Super Money Savers*



Thaddeus Stevens Elementary School is an example of student leadership and strong community ties. With an emphasis on green space, the school has a garden, blue bird houses, and a community-use soccer field. Through conservation, Thaddeus Stevens has kept the equivalent of 404 tons of carbon dioxide from entering the atmosphere, and earned ENERGY STAR certification three years in a row. As a result of their strong efforts and willingness to accept environmental recommendations, the school has saved over \$78,400 in 53 months. To protect student health, the building is monitored actively for air and drinking water quality, and the custodial staff use Green Seal Certified cleaning products. Winner of the Professional Recyclers Award of Pennsylvania in 2008, and with more than half of students walking to school, it is clear that the student culture has strong ties to environmental sustainability. Food service staff participates in choosemyplace.gov to provide nutrition and exercise information to students. The school is situated close to neighborhoods, and more than half of the students walk to school.

### **A.W. Beattie Career Center, Allison Park, PA**

*First LEED Gold Career and Technology Center in PA*

The A.W. Beattie Career Center reduced energy usage by 7.6 percent, water consumption by 11.1 percent, and solid waste by 21 percent, even as it increased the size of its facilities. Additionally, 87 percent of the 43-acre campus is designated as open space, and includes a storm water control system. As a career center offering 16 different career fields, the school continually updates curriculum to provide students with skills that are applicable in the green economy. The definition and awareness of green jobs has been promoted actively. Each career path is paired with projects and curricula in environmental stewardship, health, and sustainability. Science students grow herbs and vegetable seedlings, supplying the culinary program and faculty members. Construction Technologies programs incorporate developed a green tour and a multimedia presentation available to community members. The Beattie Restaurant serves homemade food three days a week. In Cosmetology, students study chemical usage and disposal; in Automotive, they study environmental impacts and regulations in Automotive. The Carpentry program designed a pavillion to be constructed at a local elementary school, the various bird and bat houses installed on campus and designed, constructed and donated an energy efficient model home to the Pennsylvania gaming commission. School-wide competencies include job readiness and green technology, and students must spend a minimum of 10 hours working on school LEED features each year in every program. The first LEED Gold certified career and technology center in Pennsylvania, the building is incorporated into academics, especially through the school's Green Technology team.

### **Springside Chestnut Hill Academy, Philadelphia, PA**

*Largest non-profit solar project in the region*

Springside Chestnut Hill Academy's legacy goes far beyond the 65-acre campus. Students can participate based on grade level in one of three eco-clubs all geared toward shaping an awareness of health, community, and the environment. Wellness and health are emphasized through fitness programs, an outdoor education program, and a relationship with local produce farmers. Students have planted hundreds of native species on the expansive campus, which also has three storm water recharge beds to capture runoff from roofs and pavement. A leader in the community, the school has constructed one of the largest solar projects in the region and helped the local area recycle 320 tons of waste. The school also has replaced its paper letters to parents and the community with virtual mail. Springside Chestnut Hill Academy is devoted to the wellbeing of their students, faculty, and community.



## **Rhode Island**

### **Classical High School, Providence, RI**

*Farms to Schools, Collaborative for High Performance Schools Design Criteria verified*

With sustainability and environmental science woven into the curriculum starting in ninth grade, Classical High School works to achieve its main goal of preparing students for college. The focus on science manifests itself through the offering of Advanced Placement science classes, a curriculum including off-campus science instruction, and new science rooms with solar hot water and recovered energy unit systems. Classical uses the “school as a tool.” Five percent of the school’s energy consumption is generated on-site, and there is a 500 square foot greenhouse located on the roof to demonstrate plant growth and scientific processes. Classical has been making great strides in resource consumption reduction, as well, with a 21 percent reduction in non-transportation energy use and a 21 percent reduction in water consumption. Also to be commended is the school’s commitment to community service, emphasized through a community service project during students’ junior year.

### **Nathan Bishop Middle School, Providence, RI**

*Second in 2011 RI Science Olympiad*

The actual school is a tool for learning at Nathan Bishop. The school was constructed originally in 1929, and renovations were conducted in 2009 according to criteria established by the Collaborative for High Performance Schools. Nathan Bishop has integrated its energy-management efforts into the science curriculum by installing kiosks on campus for displaying live energy data and demonstrating consumption trends in energy and water. Twenty-five percent of the school’s consumed energy is derived from on-site renewable energy generation, and the school reports a 21 percent reduction in water use compared to a 2009 baseline. As a result of its sustainability efforts, Nathan Bishop has reduced its energy consumption by 21 percent compared to the same 2009 baseline, and earned the ENERGY STAR award in 2011. Part of the Collaborative for High Performance Schools Initiative, there has been a 21 percent reduction in non-transportation energy use at the school, and 25 percent of the school’s energy is on-site and renewable. Nathan Bishop also has reached out to a variety of supporters and community partnerships such as with Brown University, RISD, Jewish Community Center, Sodexo, Aramark, Lowe’s, and parents’ groups. Students additionally participate in a Farms to Schools program to increase nutrition awareness and healthful lifestyles.

## **Virginia**

### **Fishburn Elementary School, Roanoke, VA**

*Green Education Foundation, Project Learning Tree inspired curriculum*

The mentality and commitment of Fishburn Elementary School is exemplified in their pledge: “No job is too big, no action too small, for the care of the earth, is the task of us all.” Fishburn fosters the creativity and growing minds of its students in all aspects of education. Creating incentives to promote healthy living and rewarding students who participate in community outreach projects are two ways Fishburn supports students in educational and lifestyle endeavors. Students also are supported in their creative endeavors through theatre and art projects. Every grade level has their own raised-bed garden, and students participate in an Earth Hour project each month, allowing them to take on the individual and





group responsibility of their school's environmental commitment. Even more unique than Fishburn's collection of live animals in the main building is their grove of maple trees which, with the help of the Department of Forestry, provide maple syrup to the school. The school collects gently worn clothing and goods and holds an annual environmental fashion show and resale to showcase the items, raising money for its environmental activities fund. Students collect samples from nearby streams around World Water Monitoring Day, conducting tests and comparing data. They also developed a purchasing protocol that eventually became the district standard.

### **Gereau Center, Rocky Mount, VA**

*PassivHaus Certified*

The wellness of every student is the focus of the Gereau Center. From improving indoor air quality and purchasing eco-friendly cleaning supplies to synchronizing clocks to eliminate the need for jarring bells, the health and lifestyle of every student is taken into account. The Gereau gives every student a tree to plant on Arbor Day and purchases seven percent of their energy from renewable sources. Perhaps most notable is the Center for Energy Efficient Design, a net zero energy educational and demonstrative center. The building is a template for residential and educational construction for the 21st Century. Featuring day lighting, solar hot-water heating, wind turbines, earth berming, south facing solar orientation, thermal mass, geothermal energy, photovoltaics, and rainwater harvesting, energy use in this building is tracked and maintained online for students to analyze. Students in all classes use problem-based learning activities emphasizing the use of scientific methods and development critical thinking skills. Students test model airplanes, rockets, solar-powered cars, and tetrahedral kites. The Gereau Center has developed a partnership with the science and education departments at Ferrum College for the purpose of writing curriculum for the Center.

## **Washington**

### **Tahoma Junior High, Ravensdale, WA**

*Place-based excellence in environmental education*

Tahoma Junior High successfully uses their local geography and surrounding area to integrate academics and environmental stewardship into hands-on learning and a healthy lifestyle. Students and faculty take advantage of 37 acres of local trails to increase personal fitness and a commitment to a healthy lifestyle. A part of the King County Green Schools Program and a participant in "Sounding off t on the Sound," a program to connect students with the ecology and environment of a local body of water, Tahoma uses inquiry-based study to advance students' understanding of core concepts. With the leadership of the Green Team, Tahoma now has three rain gardens and a 50 percent recycling rate.

### **Camelot Elementary, Auburn, WA**

*Salmon in the Classroom*

With students publishing a school resource conservation newspaper and raising salmon in the classroom to release in streams, Camelot Elementary, is well deserving of their Certificate of Achievement for school leadership, which was presented by the Board of Education of Federal Way. Most notably, through a joint effort of students and staff, the school has made a 50 percent reduction in



energy use since 2007 by updating systems that use energy, removing personal appliances, and placing reminder on computers and light switches. The school ran a reusable bottle fundraiser to eliminate plastic bottles. Green checklists are posted in each classroom and staff and students are continually educated about ways to decrease energy consumption and waste. It is clear that the school receives the support of the surrounding community, as the Camelot area recently raised \$10,000 to build a community garden on the school's grounds. 59 percent of students choose to walk or bike to school. Camelot implements a nutrition program that incorporates the USDA standards ensuring that each child has fruits, vegetables, whole wheat breads and low-fat milk at each meal. Camelot also works with its PTA to send home backpacks of food on the weekends for disadvantaged students.

### **Secondary Academy for Success, Bothell, WA**

*One of the first sustainability engineering and design programs in the country*

With a 30 percent reduction in energy use from 2008, the Secondary Academy for Success puts ideas into action in every aspect of their school. In addition to a Green Club, student work on annual community service projects and twice a year volunteer on a sustainable farm. A participant in the Cool Schools Challenge, they have a high-performance building and integrate a sustainable engineering and design program into the curriculum, which supports project-based learning. Throughout the year, students in the program work on real-world projects to maximize the relevance of the knowledge they gain from the course. Projects range from the retrofit of a cargo trailer into a green mobile learning lab. to solar-powered charging stations for electric bikes to local business sustainability assessments. In addition to the sustainable engineering and design program, the school has launched a dedicated horticulture class with accompanying new greenhouse and edible garden. Academic advancement and civic engagement are key to the goals of the Academy, where 100 percent of students participate in some type of civic engagement, and which won the 2011 Washington State STEM Lighthouse Award.

### **The Overlake School, Redmond, WA**

*National Wildlife Federation Schoolyard Habitat*

With outdoor walkways between buildings spread over 15 acres and a fresh air ventilation system in their LEED certified building, The Overlook School readily embraces the integration of academics and the outside environment. Students are taught to view sustainability as a part of everyday life, and they have many opportunities to incorporate environmental concepts into their studies, such as through outdoor education as a graduation requirement, the option of an environmental project during "project week," and a wide variety of electives and extracurricular activities based on sustainable practices. A Green Team has completed energy audits, and subsequent recommendations in energy-efficient practices have had a significant impact on consumption. Overlake even has taken the particularly unique step of building an electric car charging station on their campus, leading three families to purchase electric cars.

## **West Virginia**

### **Hilltop Elementary, Wheeling, WV**

*First LEED certified School in West Virginia*



As the first LEED certified school in West Virginia, Hilltop Elementary takes its environmental and community responsibilities seriously. Through exploration and work with the Green Schools Leadership Institute, Hilltop has developed a project-based K-5 curriculum incorporating a LEED framework. It created Sustainable Schools Learning Kits for other area schools through the use of a \$54,000 grant from an anonymous donor to move toward its goal of helping all other schools become more sustainable. Learning laboratories for sustainability allow students to learn in areas such as environmental footprint, energy efficiency, indoor environmental quality, materials and resources, water efficiency, and innovation and design. With a schoolwide community wellness walk in the evening and community service at every grade level, Hilltop fulfills their vision of being “the epicenter for sustainability” within its community.

## **Wyoming County Career and Technical Center, Pineville, WV**

*Innovation through Practical Application learning*

At Wyoming County Career and Technical Center, every program of study incorporates sustainability concepts into its curriculum and day-to-day practices. The Building Construction program designs and builds energy efficient modular homes. The Diesel Technology program manufactures biodiesel, retrofitted, and existing diesel engines, and uses kitchen oil waste from the cooking program as well as local restaurants for fuel. The Automotive Technology program recycles used oil by giving it to a local garage to burn for heat, and is developing a hybrid golf cart and all-terrain vehicle that will run on alternative fuels. The Electrical Technology program retrofitted and donated a golf cart powered with a small solar panel and batteries. The Electronic Technology program has developed a recycling program for proper disposal of electronics. The Welding Technology program has built recycling bins and recycles scrap metal and wiring. The Industrial Equipment Technology program designed and installed a 42 solar panel system to power their building. The school partners with Bridgemont Community College to allow students to obtain an associate’s degree in sustainable energy management.

## **Wisconsin**

### **Dimensions of Learning Academy, Kenosha, WI**

*Environmental Protection Agency WasteWise Program*

The Dimensions of Learning Academy, constructed in 1911, is committed to improving student health along with energy efficiency. A Wisconsin Green & Healthy School, a member of the Wisconsin Green Schools Network, and Wisconsin Association for Environmental Education, the school emphasizes environmental sustainability along with fitness and nutrition. At each grade level, health education is taught featuring environmental health, nutrition, and local food production, all complimented by the social studies curriculum, which includes “buy local” field trips to the farmer’s market. A participant of Fuel Up to Play 60 and Let’s Move, a healthy lifestyle is reinforced at the school, along with learning based on decision-making, problem solving, inquiry, investigation, invention, and systems analysis. With a 50 percent recycling rate, a grey water system, lighting retrofits, and a garden, Dimensions of Learning is progressing toward a complete green design and lifestyle. The school also has undergone efficiency upgrades, such as the replacement of a boiler purchased in 1952 with an energy-efficient boiler in 2007, and the replacement of all T-12 lighting fixtures with T-8 lighting. Low-flow water faucets





installed in the school help avoid the waste of water, and meters are in place to monitor the water usage of boiler units in order to detect and prevent leaks. The academy has reported a reduction of more than six percent in annual greenhouse gas emissions compared to 2010, the same year the school earned the ENERGY STAR award.

### **Middleton High School, Middleton, WI**

*ENERGY STAR since 2008 with strong community ties*

Middleton High School approaches sustainability from every direction. A commitment to decrease energy use through solar panels, including to heat the swimming pool, and students engaging in "behavior modification" to conserve electricity through reduced lighting is just a few of the ways students are exposed to energy efficiency, before they go on to tackle projects to design "green" homes incorporating water saving devices and landscaping. Middleton also has on-site prairie gardens, rain gardens, and organic gardens that are used to teach about storm water management, management techniques, and sustainable lifestyles. The local community benefits greatly from the work and commitment of these students, such as when the local library wanted to have a native garden that did not rely on energy consuming practices, and the students took on the project. The Ecology Club also raised \$16,000 in the last four years for community service projects ranging from oak savanna restoration and invasive species removal to prairie planting. A recipient of the Environmental Excellence Award from Seaworld/Busch Gardens/Fujifilm, Middleton has integrated academic achievement, civic duty, and environmental sustainability.

### **Purdy Elementary School, Fort Atkinson, WI**

*A naturalist in residence provides professional development to all teachers*

A part of Wisconsin's Green & Healthy Schools program, Purdy Elementary achieves success through student participation and community collaboration. The "Green Team" has led the way in making sustainable changes to the school and curriculum with such activities as the Naturalist in Residence program and planting trees. With the support of local funding, Purdy Elementary was able to rehabilitate a wetlands area, now open to the public and the location of student "Wetland Walks." The school currently derives five percent of its energy from on-site renewable sources, including geothermal heating and cooling, as well a solar panel installation. Behavioral changes to promote energy efficiency are encouraged by the Green Team, which recognizes classrooms exhibiting the most "green" behavior. Purdy Elementary also utilizes water-efficient or regionally appropriate plant species for 100 percent of its landscaping needs, and all bathroom faucets installed in the school are automatic in order to prevent water waste. In 2010, Purdy Elementary School earned the ENERGY STAR award with a noteworthy energy performance score of 97. Purdy's additional commitment to health and fitness is clear through their "walk to school" competitions, participation in the Healthier School Challenge program, and the "Purdy Pacer Program" that promotes running and walking.