



## School Nominee Presentation Form

### ELIGIBILITY CERTIFICATIONS

#### School and District's Certifications

The signatures of the school principal and district superintendent (or equivalents) on the next page certify that each of the statements below concerning the school's eligibility and compliance with the following requirements is true and correct to the best of their knowledge. *In no case is a private school required to make any certification with regard to the public school district in which it is located.*

1. The school has some configuration that includes grades early learning to 12.
2. The school has been evaluated and selected from among schools within the Nominating Authority's jurisdiction, based on high achievement in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental and sustainability education.
3. Neither the nominated public school nor its public school district is refusing the U.S. Department of Education Office of Civil Rights (OCR) access to information necessary to investigate a civil rights complaint or to conduct a district wide compliance review. The Department of Defense Education Activity (DoDEA) is not subject to the jurisdiction of OCR. The nominated DoDEA schools, however, are subject to and in compliance with statutory and regulatory requirements to comply with Federal civil rights laws.
4. OCR has not issued a violation letter of findings to the public school district concluding that the nominated public school or the public school district as a whole has violated one or more of the civil rights statutes. A violation letter of findings will not be considered outstanding if OCR has accepted a corrective action plan to remedy the violation.
5. The U.S. Department of Justice does not have a pending suit alleging that the public school or the public school district as a whole has violated one or more of the civil rights statutes or the Constitution's equal protection clause.
6. There are no findings of violations of the Individuals with Disabilities Education Act in a U.S. Department of Education monitoring report that apply to the public school or public school district in question; or if there are such findings, the state or public school district has corrected, or agreed to correct, the findings.
7. The school meets all applicable federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

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

X Public  Charter  Title I  Magnet  Private  Independent  Rural

Name of Principal: Mrs. Cartelia P. Lucas

Official School Name: Highcroft Ridge Elementary

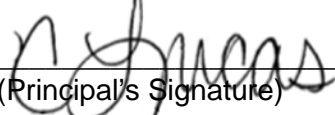
Official School Name Mailing Address: 15380 Highcroft Drive, Chesterfield, MO 63017

County: St. Louis State School Code Number: 4130

Telephone: 314-415-6400 Fax: 314-415-6419

Web site/URL: <https://www.parkwayschools.net/Domain/16> E-mail: [clucas@parkwayschools.net](mailto:clucas@parkwayschools.net)

I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate.

  
\_\_\_\_\_  
(Principal's Signature)

Date: 12/18/18

Name of Superintendent: Dr. Keith Marty

District Name: Parkway School District

I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate.

  
\_\_\_\_\_  
(Superintendent's Signature)

12-20-2018

Date:

**Nominating Authority's Certifications**


The signature by the Nominating Authority on this page certifies that each of the statements below concerning the school's eligibility and compliance with the following requirements is true and correct to the best of the Authority's knowledge.

1. The school has some configuration that includes grades Pre-K-12.
2. The school is one of those overseen by the Nominating Authority which is highest achieving in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental and sustainability education.
3. The school meets all applicable federal civil rights and federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

Name of Nominating Agency: Department of Elementary and Secondary Education

Name of Nominating Authority: Mrs. Kristen McKinney  
(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

I have reviewed the information in this application and certify to the best of my knowledge that the school meets the provisions above.

  
\_\_\_\_\_  
(Nominating Authority's Signature)

Date: February 13, 2019

**SUBMISSION**

The nomination package, including the signed certifications, narrative summary, documentation of evaluation in the three Pillars, and photos should be submitted online according to the instructions in the Nominee Submission Procedure.

OMB Control Number: 1860-0509

Expiration Date: March 31, 2021

**Public Burden Statement**

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this information collection is 1860-0509. Public reporting burden for this collection of information is estimated to average 37 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The obligation to respond to this collection is required to obtain or retain benefit P.L. 107-110, Sec. 501, Innovative Programs and Parental Choice Provisions. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the U.S. Department of Education, 400 Maryland Ave., SW, Washington, DC 20202-4536 or email [ICDocketMgr@ed.gov](mailto:ICDocketMgr@ed.gov) and reference the OMB Control Number 1860-0509. Note: Please do not return the completed ED-Green Ribbon Schools application to this address.

## Highcroft Ridge Elementary – Chesterfield Missouri



### Missouri Green Ribbon Schools Nomination Form

#### School Contact Information

School Name: Highcroft Ridge Elementary School	Street Address: 15380 Highcroft Drive	
City: Chesterfield	State: Missouri	Zip: 63017
Website: <a href="https://www.parkwayschools.net/highcroft">https://www.parkwayschools.net/highcroft</a>	<a href="https://www.facebook.com/HighcroftRidge/">https://www.facebook.com/HighcroftRidge/</a>	
Principal: Cartelia Lucas	District: Parkway	
Principal Email: <a href="mailto:clucas@parkwayschools.net">clucas@parkwayschools.net</a>	Principal Phone: 314-415-6401	
Lead Applicant and Position (if different): Erik Lueders - Director of Sustainability & Purchasing		
Lead Applicant Email: <a href="mailto:elueders@parkwayschools.com">elueders@parkwayschools.com</a>	Lead Applicant Phone: 314-415-8278	

#### School Characteristics

Level <input type="checkbox"/> Early Learning Center <input checked="" type="checkbox"/> Elementary (PK - 5 or 6) <input type="checkbox"/> K - 8 <input type="checkbox"/> Middle (6 - 8 or 9) <input type="checkbox"/> High (9 or 10 - 12)	School Type <input checked="" type="checkbox"/> Public <input type="checkbox"/> Private/Independent <input type="checkbox"/> Charter <input type="checkbox"/> Magnet	Geographic Area <input type="checkbox"/> Urban <input checked="" type="checkbox"/> Suburban <input type="checkbox"/> Rural	Total Enrolled: 355 Graduation rate: NA Attendance rate: 96.6%
Does your school serve 40% or more students from disadvantaged households? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
% receiving FRPL: 12.7%	% limited English proficient: 5%	% total disadvantaged students*: 31.8%	

\* **without double counting**, provide the total percentage of students that are receiving FRPL and/or have limited English proficiency, and/or have learning disabilities

## Summary Statement

For many years, Highcroft Ridge students have met as Family Groups one time a month to learn more about character education and create service projects to benefit our community. These Family Groups are thirty small groups of multi-age students K-5. In 2017-18, our students voted to have “the environment” as their topic and theme for the year. Our school hosted a speaker from the Missouri Botanical Gardens who helped the students learn more about sustainable projects that would benefit not only our school but also our community. From this, each Family Group brainstormed ideas for projects and then on April 24, 2017, we held our half day Environmental Day. The thirty groups completed various projects such as building birdhouses, planting trees, picking up trash, tracking the use of reusable snack containers, cleaning our flower beds, creating an upcycled water bottle chandelier, creating soda bottle terrariums and creating light switch plates to remind everyone to turn off the lights.

From Environmental Day, our students were able to discover problems and then create solutions to help our school and community learn more about what it is like to be environmentally friendly and how to conserve our natural resources. These projects encouraged our students to learn leadership skills as well as take ownership and pride in their school and community. They were able to teach others the importance of being environmentally conscious. From this Environmental Day, many of our students were asking, “What else can we do to help our environment?” So a new club, EcoBuds, was created by three teachers and 18 students.

In their first year, EcoBuds focused on “eco-cation” about “reduce, reuse, recycle.” There was a student-led effort to reduce the number of paper towels used by our school. Students researched hand drying techniques and educated students and staff about better ways to dry our hands to reduce paper towel usage in the restrooms. We replaced the towel dispensers with high efficiency hand dryers in the summer of 2018. The students were also involved in tree planting on school grounds with the coordination of the city of Chesterfield. Our club was involved in educating the whole Highcroft community about environmental issues at STEM night.

In the second year, EcoBuds are focusing on understanding, calculating, and reducing our carbon footprint. A survey will be sent out to staff and students to gather data on our carbon footprint. Students are in the process of developing multiple initiatives that will help reduce or offset our carbon footprint. We have started a marker recycling program through Crayola's Colorcycle initiative, where old markers are turned into clean energy. We will also be increasing Highcroft's awareness of what we can recycle through the Parkway recycling program. We will be encouraging students and staff to reduce energy usage through a carpool/bus week in January or February with incentives for students and staff that carpool or ride the bus instead of driving to school. We have plans to educate our community during STEM night in March about ways to reduce our carbon footprint, and then community members can make a reminder to take home using recycled/reused materials. Finally, our April and May meetings will focus on how students can take this learning into their own homes.

## Engagement, Benchmarking and Recognition

List the members of the team that helped prepare documentation and their role in the school

- Cartelia Lucas, Principal Diana Schumacher, Assistant Principal
- Melanie Maxvill and Adam Meinershagen, PE Teachers
- Cindy Beeler and Melissa Welker, Counselors
- Kim Rudd, Elizabeth Cornell, Janet Gleason, Teachers
- Kate Larson, Marni Lang, Sarah Swanger, Jill Epstein, Alesha Turney, Teachers
- Danielle Stilts School Librarian
- Erik Lueders - Director of Sustainability & Purchasing
- Mike Mertens - Director of Facilities
- Marlene Pfeiffer - Director of Nutrition Services
- Bill Freymuth - Supervisor of Grounds
- Juliette Travous - Manager of Environmental Services
- Robin Wallin - Director of Health Services

List any programs you are currently using to benchmark your progress in sustainability

- EcoBuds Environmental Club
- Energy Star Portfolio Manager
- Energy CAP
- ARC
- LEED - EBOM
- Tableau
- Talisen - Enterprise Sustainability Platform

List any recognition or awards you have received in the last five years related to your efforts in any of the pillars

- Energy Star Award - EPA/DOE
- Composting Award 2017, 2018 - Parkway School District
- Promising Practice 2017, 2018 - Character.org
- Clean School Award 2015-2016 - Parkway School District

List any future goals

- In spring 2019, EcoBuds Club will encourage students and staff to form carpools.
- The school plans to get a tower garden.
- In 2019 the school will complete installation of a wheelchair accessible playground

## Pillar I: Sustainability - Reduced Environmental Impact and Costs

### Energy and Greenhouse Gases

Highcroft Ridge has reduced its energy use by 17.4% per student since 2015. It has reduced its non-transportation GHGs by 18% per student since 2015. Funding mechanisms to support energy efficiency upgrades have included utility incentive rebates (Ameren Missouri and Spire) and a Missouri Department of Economic Development Energy Efficiency Loan

- **ENERGY STAR** - The school benchmarks performance with ENERGY STAR Portfolio Manager and Energy CAP. Highcroft Ridge has been awarded the ENERGY STAR award for multiple years, being recognized as within the top 25% of efficient buildings of similar characteristics.
- **Conservation** - The entire school has been converted to LED lighting, including both interior and exterior lighting. Exterior lighting is dimmable based on occupancy. Interior lighting is controlled by vacancy sensors. Desktops are on a centralized PC Power Management system. The system is currently being converted to another platform that will include laptops and monitors. All devices will be put in standby after a certain period of time when not in use, or at the end of each day. All HVAC systems are controlled by a centralized BAS that allows for setback schedules and advanced sequence of operations strategies to save energy. All future improvements will be in accordance with ASHRAE Advanced Energy Design Guidelines for 50% energy reduction. A monitoring based commissioning platform is used to identify issues within the mechanical systems and identify opportunities to save energy in real time. Carbon dioxide sensors have been installed to monitor the indoor air quality within the gym and cafeteria, which allows the ability to reduce outside air requirements, saving energy from conditioning untempered air. When CO2 exceeds a set point, the units purge the air in the rooms with fresh air. All future improvements will be in accordance with ASHRAE Advanced Energy Design Guidelines for 50% energy reduction.
- **Alternative/Renewable Energy** - Highcroft Ridge Elementary has a 25 kW Solar PV array on the roof. There is an online monitoring platform that actively displays the energy production levels throughout each day. The monitor also has graphics illustrating the solar energy process for an educational opportunity for students, staff, and community members. The array produce 5.2% of the school's energy.

### Building

In 2015 53,300 square feet of the school building was renovated and now meets ASHRAE Advanced Energy Design Guideline for 30% Energy Savings

### Water and Grounds

- **Water Use** -Water faucet aerators were installed on all restroom faucets, limiting water flow to 0.5 gallons per minute (gpm), which is a significant reduction from the standard 2.2 gpm faucets. Dual flush valves have been installed on all restroom toilet fixtures. One of the Girl Scout troops at Highcroft designed and created a rain barrel to be used with our raised garden beds.
- **Grounds** - Highcroft Ridge has a raised garden that was built by a former student for his Boy Scout Eagle project. Students in second grade plant vegetables, flowers and herbs for their science lessons. We also have a walking track and wooded area in the back of the school where students take nature walks integrated with curriculum. For example, our kindergarten students take nature walks for their Five Senses unit as well as their weather unit. They record their observations in their science notebooks. We also have a rain barrel that was designed and built by one of our Girl Scout troops. Regionally appropriate plants include little bluestem, sideoats grama and Virginia wild rye.

### Waste

- **Solid Waste** – Highcroft Ridge uses a comprehensive single stream recycling program that has been in place for several years. Before that a source separated recycling program had been in place since 1992. All of the school's food waste is composted daily, along with its compostable lunch trays and cutlery. High efficiency hand dryers are installed to help reduce paper towel waste. There is a water bottle filler to encourage the use of reusable bottles, and plastic straws were eliminated except for students needing them for accessibility purposes. The recycling rate is 40.5 % and monthly waste per person is 0.17 lbs. The school has been the beneficiary of various recycling and waste diversion grants provided by St. Louis County Department of Health and the St. Louis Jefferson Solid Waste Management District
- **Electronics** - All electronics are recycled with a certified e-scrap recycler.

- **Hazardous Waste** - Hazardous Materials are tracked, managed and disposed of through the district's Environmental Services Department (ESD). Waste materials, lab waste, art waste, etc. are disposed of through licensed waste haulers and EPA permitted disposal sites. Science chemical inventories are kept at the school level and reviewed by the district's ESD. There is a mercury reduction program where mercury containing science and health equipment has been removed from the school and replaced with electronic equipment. The district's Environmental Services Department worked with the Missouri Department of Natural Resources to properly remove and dispose of/recycle the mercury in this equipment.
- **Electronics** - All of our electronics, including desktops, laptops, monitors, peripherals, projectors, batteries, phones, CRTs, light bulbs, ballasts, motors, and other equipment, are repurposed or recycled at the end of their useful life. Items are either sold to the public at govdeals.com or recycled with a registered e-scrap recycling vendor.
- **Surplus** - All school surplus is either re-circulated within the district, or auctioned off online so that the equipment, materials, or products are able to get a second life.
- **Other** - Scrap metal from construction and maintenance related projects are recycled with an area scrap metal recycler and generate significant revenue.

### Transportation

- **Alternative Transportation** - Every year, our PE teachers coordinate a "Walk to School Day". The Chesterfield Police department provides officers to ensure safety. Students and parents meet at Cedar Mill Bath and Tennis club and walk 0.9 miles to school together.
- **Buses** – Over 85% of students use buses to get to school. Our school bus fleet has completely phased out all older diesel engines that had higher emissions (model year 2007 and prior), participating in the EPA's Clean School Bus program. In addition, 50% of the buses used at Highcroft are fueled with compressed natural gas

### Purchasing

- **Paper** - All copy paper is 30% recycled content. Toilet tissue is 100% recycled content, Green Seal Certified, and processed chlorine free. Most paper towels have been eliminated with the installation of high-efficiency hand dryers. All paper towels and toilet tissue is green seal certified and made with 100% recycled content
- **Electronics** - All purchased electronics and appliances are energy star certified if the product is an eligible category
- **Food** - Many of our produce items are available from our school gardens in the spring and fall of the year. We advertise the produce item and what class is responsible for its harvest. Other produce for the salad bar is sourced locally through our commercial supplier when possible. In addition, produce will be supplemented in part from a planned school tower garden. This produce will be grown on site for students to try. One hundred percent of tableware used in schools is compostable. Trays, individual serving containers, soup bowls, salad bar trays, and utensils are all compostable.
- **Cleaning Supplies** – Highcroft Ridge uses the Green Cleaning Guidelines and Specifications for Schools, 2009, Missouri Department of Elementary and Secondary Education. Excluding floor finishers and sealers, 96% of products are 3<sup>rd</sup> party certified – Green Seal, EcoLogo, Design for the Environment, California Air Resources Board and the Carpet and Rug Institute.
- **Paint** - All paint purchased for the school is zero VOC containing
- **Furnishings** - Office furniture purchased is BIFMA Level certified, or certified by comparable rating systems.

## Pillar II: Health - Improve the Health and Wellness of Students and Staff

### Environmental Health

- **Drinking Water** - Highcroft Ridge Elementary receives its water from the local utility, Missouri American Water, which samples and analyzes its water supply frequently for Clean Water Act contaminants. The school has also implemented a lead in drinking water program utilizing EPA's 3T's (Training, Testing, Telling) for Reducing Lead in Drinking Water in Schools Program. Where lead is greater than 15 ppb, remedial actions, such as replacing the faucet and piping occur, and the equipment is resampled.
- **Air Quality** - The District Environmental Services Department (ESD) utilizes EPA's Tools for Schools for indoor air quality inspections and remedial actions if needed. All operations departments are involved in the IAQ process including ESD, maintenance, custodial, roofing and grounds. An IAQ Task Force was developed to help track IAQ complaints and follow up on actions taken to remediate problems discovered. It regularly monitors and resolves any moisture issues in their early stages, preventing mold and/or mildew growth. The use of high quality, high efficiency MERV 8 filters has improved the air quality throughout the building. Carbon dioxide is monitored in large spaces and the system introduces more fresh air when needed. All paint and carpet meet no or low VOC standards. All buses and maintenance vehicles follow no idling policies and all fresh air intakes are located a minimum of 10 feet away from any vehicle areas or exhaust stacks per code requirements.
- **Cleaning Products** - Most of the cleaning products purchased for the school are compliant with the Missouri Green Cleaning Guidelines and Specifications for Schools with the exception of disinfectants and heavy degreasing chemicals
- **Integrated Pest Management** – The district pest technician conducts routine inspections and takes steps to reduce pest entry, eliminate food and water sources, and to handle preventive maintenance using bait stations, and traps. Custodial staff complete annual training on IPM practices. When pests are found, specimens are kept for identification by the pest technician, or when needed, by the Missouri Department of Agriculture or the St. Louis Zoo Insect House.
- **Chemical Management** - Thorough asbestos and lead based paint management plans ensure that our schools are healthy places to learn and work. Mercury containing equipment in classrooms, thermometers, barometers, psychrometers and blood pressure cuffs in the nurse's office were removed and disposed/recycled through the MDNR. If mercury-containing equipment is discovered, the ESD is notified and it is removed from the building. All areas/rooms in the lower levels and/or levels that have contact with the ground have been tested for radon in conjunction with the Missouri Department of Health and Senior Services. Highcroft also has access to two electronic radon detectors owned by the district, that can be used to test for radon as needed and for follow up purposes.

### Nutrition and Fitness

- **Healthy Foods** – Of the total district budget, 11% is used for fresh produce. We offer a main entree daily. Students may make their combinations from 5 components either off the garden bar or hot line. Students may choose a protein selection from the main line, but complete their meal with remaining selections of grains, fruits, vegetables, and dairy choices from the garden bar
- **Physical Fitness** – Students average 150 minutes of PE a week. All students participate in individual and team sports. We put an emphasis on outdoor fitness as much as possible depending on the weather. Throughout the year, students participate in track and field activities like soccer, football, Frisbee, kicking and striking games, jogging activities and spatial awareness/fleeing activities. The outdoor running track is used daily for warm-up jogging. In the fall and spring, the students run the Mile Run and Jog Jam where they record their times for data collection and goal setting. They also participate in the annual Pumpkin Run in the fall.
- **Outdoor Activity** – In 2018, recess was doubled for all grade levels. In addition, up to 33% of regular PE activities take place in the outdoors. Students, parents and staff participate in a weekend Beautification of the campus where everyone cleans flower beds, trims bushes and applies mulch. The Beautification committee also plants flowers three times a year at the entrance of the school.
- **Outdoor Safety** – Highcroft utilizes St. Louis Regional Clean Air Partnership's Air Quality Forecasts, a color-coded system based on EPA's Air Quality Index. Outdoor activities are adjusted based on daily weather forecasts. Playgrounds are inspected annually by ESD's licensed inspector, and weekly by grounds technicians. Teachers and grounds technicians receive training in playground safety.



## Coordinated School Health Program

- **Health Education** - Highcroft PE teachers coordinate health lessons with school counselors and guest speakers such as NCADA, Delta Dental, SPARK Teachers. The lessons include topics on nutrition, exercise, eating healthy and safety. Grades K-2 students receive a Halloween Safety lesson from our School Resource Officer and Fifth graders receive lessons about alcohol, drugs, and strategies to resist peer pressure.
- **Employee Wellness** – The employee wellness program is led by our PE teacher, Adam Meinershagen. During our professional development days over the past three years, our staff has participated in many fitness and stress management classes including yoga, chair yoga, Zumba and Pure Barre. In 2017-18, a staff member taught a weekly yoga class to other staff members and in the 2018-19 school year, a different staff member is teaching a fitness class twice a week. In addition, the district wellness initiative provides over ten programs with emphasis on mental health, nutrition and exercise including the popular chair massages.
- **Social and Emotional School Climate** - Highcroft worked with Alive and Well STL to become a Trauma Informed Staff. A book study on [Help for Billy](#) preceded this training to establish awareness to the effects of trauma. Counselors teach mindfulness, calming strategies to self regulate, and encourage students to use calming corners.
- **Health Services** - Highcroft Ridge Elementary School has a full-time registered nurse providing school nursing services in the health office of the school. School Nurse Cathy Hubert is responsible for the provision of first aid and responding in medical emergencies. Nurse Hubert serves as a bridge between students and families and community resources and helps to ensure that students with asthma, diabetes, seizure disorders and other chronic health concerns are healthy and able to learn. Highcroft Ridge partners with several organizations to provide needed resources to students. Comtrea, a Federally Qualified Health Center, provides comprehensive school-based oral health services for students, including screening exams, digital x-rays, sealants, diagnostic exams, and remediation services. We also partner with Kids Vision for Life St. Louis to provide vision exams and glasses for students in need.
- **Counseling, Psychological and Social Services** - All students have access to building level counselors, district level counselors and a building social worker. Counselors provide parents with outside resources for mental health services such as Annie's Hope and BHR.
- **Community Involvement** - Parkway Rockwood Community Education provides ecology lessons and recycling for families and employees. We partner with a variety of community members for employee wellness. For example, we provide flu shots, mental health education, and onsite cooking demonstrations. Highcroft's Parent Staff Organization (PSO) organized a 5k to raise funds for a more inclusive playground. Participants included the entire community. Highcroft also participates in The GO! St. Louis Read, Right, & Run Marathon. For the last five years, the school has also participated in Jump Rope for Heart to raise awareness of cardiovascular disease and to raise funds for the American Heart Association.
- **Family Engagement** - Each month the Principal's Newsletter includes a segment from the school nurse identifying health and wellness tips on how to lead a healthier lifestyle. Community outreach programs and town hall meetings concerning health issues are also shared in the Principal's Newsletter and at PSO meetings. Give the Kids a Smile is a free dental care program that is offered to all students at Highcroft. Another similar service is provided annually that provides optometrist services that include free testing and free eye glasses to students.

## Pillar III: Learning - Effective Environmental and Sustainability Education

### Curriculum and Assessment

All students in grades K-5 engage in reading, writing, researching and collaboration about environmental and sustainability topics. Our EcoBuds Club has created student leaders in every grade level who have presented and demonstrated their research on hand dryers through the Green Schools Quest. In all grades MakerSpace is used to introduce critical thinking and collaborative problem solving using the idea that all materials can be recycled and reused. In all the grades, The Engineering, Technology and Applications of Science (ETS) standards are incorporated into teaching and learning. Students also participate in 10,000 pencils, working together to collect and donate leftover and gently used schools supplies, an activity that ties in ELA and Social Studies.

- **In Kindergarten**, students learn about animals and their offspring as well as the differences between living and nonliving things. They record their observations about seed germination and the life cycle of ladybugs in science notebooks (1 LS.3.A.1 and K-5 ETS.1.B). 100% of students meet expectations for this activity.
- **In First Grade**, students track weather patterns, record observations, construct graphs and make predictions about the weather. (1 ESS.2.D.1) In an animal adaptation unit, each student also researches and records animal adaptations from four different environments (Arctic, African Savanna, Sahara desert, Amazonian rainforest), incorporating information about life cycles and environmental impact. At the end of the unit, they use their notes, online videos, and books to design a shoe that would help a traveler in one of the 4 environments. They then create a poster and give a presentation of their shoe and its adaptations and why they chose the particular adaptations for their environment. (1 LS.1.A.1) 100% of students meet expectations for this activity.
- **In Second Grade**, students research new and alternative homes here and around the world. The focus of this project is learning about and sharing how many people are decreasing their carbon footprint, incorporating recycled materials for building, and using a variety of ways to conserve and produce alternative energy. They evaluate these various homes and lifestyles, and brainstorm other possibilities. They look to the future of homes in our ever changing world (Individuals, Groups, Institutions and Culture). They also study the form of a plant and how the structure of a plant encourages pollinators to be attracted to the plant and then participate in cross-pollination. Students then develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants. (2 LS.2.A.2) 100% of students meet expectations for this activity.
- **In Third Grade**, students research endangered animals. The focus of this project is raising awareness and problem solving. Students learn the causes of animal endangerment (including the causes and effects of climate change and destruction of natural habitat), and what is being done in response. Students are assessed through their observations and ability to compare and debate different solutions to a real-life complex scenario involving the endangered prairie chicken. (3 LS.3.D.1) 100% of students meet expectations for this activity. They also solve a design problem involving rescuing a trapped animal while keeping it safe. This activity allows them to explore forces and interactions in the service of a real-life problem. (K-5 ETS.1.A, B, C)
- **In Fourth Grade**, students research and learn about the negative effects of natural disasters on people and the environment. The main focus is on floods, tornadoes, hurricanes, earthquakes, tsunamis, volcanoes, and droughts. As part of the activity, students build a structure that would withstand an earthquake. Students also learned about the vertebrate groups and what each needed to survive in their environment. They learned about adaptations and how that helped them survive in that environment. (4 LS.1.A.1) 100% of students completed a flipbook showing their knowledge.
- **In Fifth Grade**, students use "Using Our Resources Wisely" to learn that people who are informed can advocate for change in the world. Students pick a side, research an issue and debate solutions. Topics include the following: Should we be more focused on protecting sharks from humans or humans from sharks? Should we ban plastic bags? Should animals be kept in zoos? 100% of students completed their argument writing showing their research. (Tools of Social Science) They connected with social studies and reading by studying the role of natural disasters in shaping perspectives, how humans can change their behavior to reduce their impacts on the environment and how to solve a real world nuclear plant disaster problem by designing robots to remove radioactive materials.

## **Green Technology and Careers**

At STEM Night, there are various STEM-related demonstrations on recycling, water quality, public health, solar power, wind power and engineering. In several of the grades, professionals give presentations to students allowing them to interact with a biologist, a wildlife manager, and a meteorologist.

## **Professional Development**

### **Workshops Attended**

- CPR Training: 15-20 teachers and staff each year
- Trauma Informed Care Training: K-5 teachers in 2017-2018
- Fostering Resilient Learners - Strategies for Creating a Trauma Sensitive Classroom: 1 teacher and 1 instructional coach in 2018
- Project Lead the Way: by K-5 teachers in the summer of 2018 to train teachers in STEM based topics for engaging students
- Design Challenge: 7 teachers, counselors, and administrators to increase project-based learning and STEM topics within the classroom
- Mobile Photowalk – Bringing Nature Photography into the Classroom: 1 librarian and 1 teacher in 2017
- 11<sup>th</sup> Annual Green Schools Event, St. Louis University HS: 1 teacher

### **Workshops Provided**

- STEM Night for the community, provided 2016, 2017, 2018, approximately 300 attendees

## **Outdoor Learning Experiences**

- Highcroft Ridge has a raised garden that was built by a former student for his Boy Scout Eagle project.
- Students in second grade plant vegetable, flowers and herbs for their science lessons.
- There is a walking track and wooded area in the back of the school where students take nature walks and integrate curriculum.
- Second grade students take field trips to Rockwoods Reservation and the Butterfly House to meet district science standards and increase student engagement in STEM.
- Kindergarten and 4th grade students take a trip to the St. Louis Zoo as part of district science standards to further engage students outdoors with animals while learning about their ecosystems.
- Students, parents and staff participate in a weekend Beautification of the campus where everyone cleans flower beds, trims bushes, and applies mulch.
- For the past year, our students and parents have been raising money through Lemonade Stands and other fundraisers to build an accessible playground for our students who use wheelchairs. So far, over \$50,000 has been raised. The first phase of the new playground will be installed in the spring of 2019.

## **Community Engagement**

In 2017-18, our students in Family Groups voted to study “the environment” as their theme. To get the ball rolling, the school hosted a speaker from the Missouri Botanical Gardens who taught the students about sustainable projects to benefit not the school and community. On April 24, 2017, we held a half day school wide Environmental Day. Since then, environmental issues have informed many of the school’s community projects.

- Since partnering with Earthways Center and the Missouri Botanical Gardens for its first Environmental Day, the EcoBuds club has worked with the USGBC-MO Gateway Chapter for our Green Schools Quests in 2017-18 and 2018-19. EcoBuds projects have included partnering with the city of Chesterfield to plant trees along Highcroft Drive. The city Arborist worked with the students to learn more about proper tree planting as well as proper future care of trees and seedlings on our campus.
- The increased focus on the environment and nature has fostered a belief that everyone should have access to the outdoors. For the past year, our students and parents have been raising money through Lemonade Stands and other fundraisers to build an accessible playground for our students who use wheelchairs. So far, over \$50,000 has been raised. The first phase of the new playground will be installed in the spring of 2019.
- For Environmental Day, all K-5 students participated with staff and families to improve the community Thirty groups completed various sustainable projects such as building birdhouses, planting trees, picking up trash, creating graphs to show the use of reusable snack containers, cleaning flower beds, creating a water bottle chandelier, creating soda bottle terrariums, and creating light switch plates out of clay to remind everyone to turn off the lights.
- For Service Day in 2018, students spent the afternoon participating in activities and making toys to support children and animals impacted by hurricanes. All proceeds went to Children's Disaster Services.

## MEDIA



Meteorologist Anthony Slaughter engaged our students in a conversation about weather to support the PLTW science curriculum.



Students working with community members to complete a tree planting project



EcoBud members teaching other students about the benefits of reducing paper towel waste



Students upcycling discarded items into an art project at STEM night