



District Nominee Presentation Form

CERTIFICATIONS

District's Certifications

The signatures of the district superintendent on the next page certify that each of the statements below concerning the district's eligibility and compliance with the following requirements is true and correct to the best of the superintendent's knowledge.

1. The district has been evaluated and selected from among districts 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.
2. The district is providing 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.
3. OCR has not issued a violation letter of findings to the school district concluding that the nominated school district 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.
4. The U.S. Department of Justice does not have a pending suit alleging that the school district has violated one or more of the civil rights statutes or the Constitution's equal protection clause.
5. 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 school district in question; or if there are such findings, the state or school district has corrected, or agreed to correct, the findings.
6. The district 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 District 2015-2018

Name of Superintendent: Dr. Marvin Wade
(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in the official records)

District Name: Manhattan-Ogden USD 383
(As it should appear on an award)

Address: 2031 Poyntz, Manhattan, KS 66502

Telephone: 785-587-2000 Fax: 785-587-2006

Web site/URL: www.usd383.org E-mail: marvinw@usd383.org

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



(Superintendent's Signature)

Date: March 12, 2018



Nominating Authority's Certifications

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

1. The district 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 education.
2. The district 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: Kansas Department of Education

Name of Nominating Authority: Dr. Lizette Burks

(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.

A handwritten signature in black ink that reads "Lizette Burks".

Date: 3/16/18

(Nominating Authority's Signature)

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, 2018

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 and reference the OMB Control Number 1860-0509. Note: Please do not return the completed ED-Green Ribbon Schools application to this address.

Summary Narrative

With 1,200 staff members, 6,500 students and 55,000 community stakeholders, Manhattan-Ogden USD 383 in north central Kansas is a 6A district with English Language Learners (8%), students with Individual Education Plans (IEPs) (21%), and students from economically-disadvantaged households (42%). In this district, all students learn, grow and succeed to: reduce environmental footprint, impact and costs by millions of dollars of water and energy conservation and savings in tight budget times for our state; improve health & wellness efforts to reduce chronic absenteeism and improve wellness for students, staff and stakeholders; and provide effective environmental and sustainability education to highlight integrated and culturally-inclusive Science, Technology, Reading, Engineering, Arts and Math (STREAM) connections in classroom and community opportunities.

We are honored to take part in the Green Ribbon process to more efficiently accomplish our long-standing vision to educate each student to be a contributing citizen in a changing, diverse society by championing responsible and ethical decision making to highlight long-term zero waste goals. We provide all students with future-ready environmental and sustainability lessons at each grade level to prepare for our changing world and build hubs in the community for best practices to be shared as a world-class school district. Uniquely positioned in the Flint Hills region of tallgrass prairie and in the agricultural heartland, we offer an innovative space for learning. For the past five years, we have completed incredible student-centered projects district wide at multiple sites with evidence-based results.

The timeline of our collective efforts date back to many individual efforts of teachers and staff for generations leading the charge to support sustainable change. For the past five years specifically, the entire district has centralized and moved forward in key goals and targets each year. In 2013-14, we started with seeking inputs, data and funds with Grant Writing and Waste Audits. Since 2013, we have been awarded \$250,000+ from local, state and federal sources to invest in specific projects allowing students to have equitable access to tools for environmental learning. With very limited district funding, this was a key first step to invest into our long-term vision of supporting student success with sustainable and community-wide efforts to make lasting change. In 2014-15, we focused on school-wide recycling. Across the entire district, we have been diverting millions of pounds of trash from the solid waste stream into commingled recycling bins. Thanks to a local business partner, we even brought recycling to an entire small rural community: Ogden, Kansas. In 2015-16, students across the district completed in the FIRST Lego League Trash Trek Robotics Curriculum. All schools have used this dynamic and innovative curriculum with imaginative thinking and teamwork. Guided by adult coaches, FIRST Lego League teams research a real-world problem of recycling and are challenged to develop a solution. Teams designed, built and programmed robots to apply STREAM concepts, plus a big dose of imagination, to solve our current and future environmental challenges. Project-based learning supports individual plans of study (IPS) and future careers. In 2016-17, our highlight was makerspaces called Repurposing and Recycling Education Space (RARES). Each of our nine elementary schools invested \$6,000+ to create RARES (total \$54,000+). These makerspaces serve as a gathering point for low-tech tools, recycled products, project-based learning, open inquiry projects, reverse engineering, and creative expertise. RARES are zones of inquiry and self-directed learning. They provide hands-on places for building prototypes and models of student ideas from wind powered covered wagons in one 4th grade class to recycled robot

characters for writing projects in 6th grade. These RARES spots in libraries, community learning centers, and classrooms, feature tools and raw materials to support repurpose, recycling and invention. Most recently this year in 2017-18, we've redesigned into Go Green Champions and Leadership Teams. Powered by teacher and community leaders, we built new levels of capacity and empowered action plans among our staff and students with a renewed effort on Green Teams at each of our 15 schools to support ongoing efforts and build new ideas around lessons and projects. The team stands for: G-Generating O-Opportunities for G-Globally R-Responsible E-Environmentally E-Educated N-Next Generation Leaders (GO GREEN). We have created a district Green Champion team connecting faculty, students, community partners, and parents from each school in our effort to affect widespread change in our classrooms, homes, and entire community. The team meets six times throughout the year and for a week each summer to support members, brainstorm solutions, and organize community gatherings highlighting environmental education.

Students to utilize the ideals of reducing environmental impacts and costs, improve health and performance, and increase sustainability literacy. Integrated into our accreditation model, we have specific sustainable and wellness goals in two areas: 1) **relevance** with student engagement; specifically student personalized learning and 2) **responsive culture** with district climate; specifically student engagement. These areas encompass many examples of Green Ribbon work including Richard Louv's positive effects of treating nature deficit disorder for our students, staff, and stakeholders with "everything from a positive effect on the attention span to stress reduction to creativity, cognitive development, and their sense of wonder and connection to the earth."

Specifically, our wellness policies presented to our Board of Education include: the District's approach to ensuring environments and opportunities for all students to practice healthy eating and physical activity behaviors throughout the school day. Students receive quality nutrition education that helps them develop lifelong healthy eating behaviors; schools engage in nutrition and physical activity promotion and other activities that promote student wellness; staff are encouraged and supported to practice healthy nutrition and physical activity behaviors in and out of school; community is engaged in supporting the work of the District in creating continuity between school and other settings for students and staff to practice lifelong healthy habits; and district establishes and maintains an infrastructure for management, oversight, implementation, communication and monitoring of the policy and its established goals and objectives.

As a diverse and ever-changing community facing shifting demographics and the need to understand our complex world, our district benefits from established partnerships like Kansas Green Schools, multiple Kansas State University connections, and strong relationships with more than 60 community organizations, businesses, and individuals. Collaboration and instructional excellence are hallmarks of our culture centered on student success. All of our work and successful outcomes give a backbone to our district core values: Students thrive in a safe, positive and accepting environment. Students achieve when decisions are data-driven within a responsive instructional and intervention system committed to equitable outcomes for all learners. Students succeed when adults model an authentic, respectful and honest spirit of collegiality, collaboration and celebration. Students benefit from cooperative efforts between home, school and the community.

Pillar 3: Provide Effective Environmental and Sustainability

Education - With a world-class education, USD 383 has fully incorporated the Next Generation Science Standards at all levels preK-12 grade with strong curriculum, project-based learning with makerspaces, and career paths. One hundred percent of our highly-qualified and certified teachers (including those in cross-content areas to showcase integration opportunities) have participated in district-wide trainings to develop a high-quality science education that students will use to develop an in-depth understanding of content and develop the key skills of communication, collaboration, inquiry, problem solving and flexibility that will serve them throughout their lives. These skills are especially beneficial to sustainability education and promote waste reduction, health, and environmental literacy. Special green emphasis has been placed on the scientific and engineering practices.

In one specific example, students at Manhattan High School West Campus (MHSW) who take Environmental Science (or the Advanced Placement options) focus on deep learning of natural systems, the impact of humans on natural systems, and how to remediate impacts. The class is divided into balanced topics based on earth systems, living world, populations, land use, energy resources, pollution, and global change. Students gain extensive lab and field experience. MHSW is also participating in the launch of Environmental Science Investigations (ESI), a co-curricular club that investigates waste and inefficiency around the school focusing on utilizing an outdoor school commons area to create a pollinator garden and the implementation of a schoolwide composting program. "MHSW had a tremendous student response with 65+ members. ESI manages nearly 40 recycling bins that collect recyclable materials such as paper, plastic, and aluminum all in one. Since our students are the ones who put the program in place, they are self-motivated to see the program succeed," said one teacher as specific evidence of the student-centered nature of our program.

Engaging in these lessons and extending them into the afterschool time, the environmental and sustainability practices help students understand how scientific knowledge develops and impacts the student. The direct involvement of using what they learn gives students an appreciation of the wide range of approaches used to investigate, model, and explain the world with integrated life, physical, and earth sciences.

Through all of these standards-based lessons, one popular instructional practice includes graphics with whiteboards, which are a powerful tool in the process of argumentation and found in all secondary science classrooms. For elementary classrooms, five professional learning sessions were presented on Full Option Science Systems (FOSS) curriculum where each life, physical, and earth science lessons are presented with phenomena, data collection in notebooks, meaning making circles, and active investigations with energy, climate, and practical applications of sustainability. All teachers support student growth in the science and engineering practices by cross-cutting concepts to illustrate vital connections.

Curriculum connects classroom content to college and career readiness - Dynamic classrooms and innovative curriculum set our students up for practical and technical skills, as well as intrapersonal, interpersonal, and cognitive competencies into course content. In this way, educators support students to develop into career-equipped, lifelong learners who are socially and emotionally engaged. One way is with our approved Career and Technical Education (CTE) program aligned with our state department and incentives from the state legislature promoting technical credits. Manhattan High School implements core academic, civic, employability, and

leadership skills into every CTE class offered to students. A 2016-17 profile of CTE is summarized as follows:

- 1,269 students (grades 9-12) enrolled in at least one CTE course.
- 1,649 CTE student seats.
- 94 courses with 13 Manhattan Area Technical College (MATC) concurrent courses.
- 186 course sections taught.
- 17 approved pathways that include: Comprehensive Agriculture Science; Power, Structural, and Technical Systems; Biochemistry; Biomedical; Animal Science; Health Science
- 10 approved clusters (22 teachers with CTE courses and a CTE coordinator) that include: Agriculture, Food & Natural Resources and Health & Biosciences

For the 2017-2018 school year, AP Environmental Science was offered through the Biochemistry pathway. Thirty students enrolled in this new course. To prepare for these world-class opportunities, we have individual plans of study for students starting in middle school with emphasis on career exploration utilizing community partnerships where students gain hands-on opportunities to explore industry-level employment.

Students' civic and/or community engagement experiences integrating - As engaged citizens of our community and world in climate change, USD 383 has multiple ways to rethink, reduce, recycle, and reuse items by sharing with others in service minded ways. Each school engages with food drives, clothing exchanges, and many other contributions to organizations. As one piece of evidence, our district hosts a Families in Transition Clothing Exchange (FIT) for more than 400 students classified as homeless with the support of faith-based groups to cover basic needs by reusing items with a generous spirit.

Students participate in the district led Green Initiative by serving as members of Green Teams at buildings and find the best projects to fit their culture. One school with a mascot of dolphins partnered with Sunset Zoo to raise \$500+ in a local project called "Pennies for Porpoise" to reclaim habitat and establish a breeding program for the critically endangered vaquita porpoise. With all projects like this, we employ a team-based model comprised of community members, faculty and staff that support students interested in serving as green ambassadors for their school community. The student-led Green Teams conduct waste audits, manage recycling, experiment with sustainability within their classrooms, create environmentally informative art installations, plan community garden possibilities, and participate in community Green Gatherings. As one teacher shared: "Students at [one school] developed action plans to address the amount of trash we are producing each day. There is a large amount of recyclable material being thrown away even though we have a recycling program at our school. Students are composing an email to send to all staff informing them of our data as well as developing and distributing flyers for all students to see. [Students] would like to see recycling containers easily visible in all classrooms to establish a 'recycle first, trash last' culture in our school."

Field trips are a key part of learning in the Flint Hills. Each year, hundreds of classes travel to Konza Prairie Biological Research Station with free transportation to learn about the unique features of the tallgrass prairie ecosystem and climate research being completed by international scientists who reside at the station. An entire high school summer program, as well as a week-long teacher workshop, is hosted by Konza as an incredible partner to build deep understanding of our role in the world's climate. We have more than 30 key partners, including:

1) Sunset Zoo - From their own early learning site called Zoo Sprouts (feeding into our

kindergarten classrooms) to volunteer opportunities for high school students, this site has countless environmental literacy opportunities including on site DIY investigations and programs aligned with the Kansas College and Career Readiness Standards for Science integrated science practices, core sustainability ideas, and math concepts into each investigation. **2) 4-H Youth Development KSU Research & Extension** - Based on interests and guided by adult volunteers, youth develop their own pathway in 4-H with project-based learning (PBL). They select from a broad menu of local programs and projects; many feature agriculture skills with hands-on opportunities for everyone with Science, Technology, Reading, Engineering, Arts and Math (STREAM). **3) Flint Hills Discovery Center** - Where history and science collide, environmental education is right in the middle with on-site education programs for students of all ages to learn through dozens of programs. Fun and educational programs excite students and families to learn about STREAM and the Flint Hills with rotating exhibits at the heritage and science center.

Our community-based Green Gatherings are opportunities for all students as well as faculty, staff, and community to engage in field trips to local organizations and businesses to better understand how our community addresses environmental and sustainability topics. Some of our presentations include: Howie's Trash & Recycling, KSU Student Gardens, Gardening Projects hosted by Sunset Zoo, Riley Co. Transfer Station (composting program) and Wastewater Treatment Plant.

Meaningful outdoor learning experiences - To create and expand meaningful outdoor learning experiences, we have many Outdoor Wildlife Learning Sites (OWLS) with bird feeders, water sources and other features to create natural aesthetics around our buildings for interaction between urban nature and our students. Several schools have learning gardens on site and at least one is working toward becoming a certified monarch waystation. At one elementary school, 500+ students grades K-6 gathered in class groups to plant various flowering bulbs on school grounds in November 2017 as part of Red Ribbon Week; an event to stamp out drug and alcohol usage. The connecting theme for this activity was "Grow stronger without drugs!". Bulb structure and function as well as plant growth requirements were discussed with each group. Volunteer assistance was provided by parents and students from our local university.

- Our district grounds and play areas are beautiful and feature landmarks of our neighborhoods. Kindergartens explore their environment by participating in a leaf walk to collect leaves with various textures to study the leaves and create texture rubbings.
- First graders take a field trip to the Milford Nature Center and learn about their local environment and five groups of animals.
- Second graders explore the playground to discover different building materials for the dirt, sand, and silk science unit taking samples back to the classroom. They also take an annual visit to the Insect Zoo for a hands on bug unit.
- Third graders visit the Konza prairie for their structures of life unit and tour of the local prairies.
- Fourth graders discover elements of nature by outdoor learning paired with Kansas State Universities Agriculture Farms. They also plant salad & salsa gardens with master gardeners from our university extension to learn about the benefits of growing and eating vegetables.
- Fifth graders venture outside to explore mixtures and solutions learning about reactions to create better methods of engineering materials like plastics and cosmetics as well as experimental rocket launching and solar eclipse viewings.

- Sixth graders study solar space by marking the suns' various locations on the playground as well as visiting the Cosmosphere for hands on learning experiences. Students also experiment with the atmosphere during hot air balloon launches.
- Middle School students are responsible for grounds maintenance in and out of the school; watering the plants and trees. Through our local Rotary Club, we obtained several new trees for our grounds bringing cleaner air and more beauty to our playground and sports facilities!
- High school biology students perform biodiversity studies on school grounds and compare their data to that from the Konza Prairie, create food webs based on observations of interactions of organisms, and analyze animal behaviors based on data collected from populations of pillbugs.
- Specials teachers: Two art teachers and their students have created animated public service announcements about the benefits of recycling on Youtube to share with social media everywhere. A music teacher wrote and performed an entire musical on the prairie.

Core environment, sustainability, STEM, green technology and civics - As we look at a bond issue to design and construct at least two new schools, we are exploring LEED building recommendations and other methods to respect our environments. Our maintenance director and countless community stakeholders advocate for practical steps as well. Educators put student ideas front and center: one group of sixth grade students built models for a new local park. In a note from the city planner, she shared with students: "As you may be aware, many accomplishments have been made in the development of this park. These accomplishments would not have been possible without interest from community members like you. Together in collaboration with community members, organizations, national and local partnerships, the master plan of this park is now in its final draft format."

USD 383 staff embed sustainable practices into their core curriculum in many ways from paperless classrooms to units on earth science in literacy. In one key feature each week, 3,500 students in K - 6 engage in 90 minutes of Project Lead the Way with STREAM-infused problem solving. This partnership has brought nationally recognized curriculum framework into every student's thinking. We have partners who give real-world connections with speakers and trips. One specifically is the National Bio and Agro-Defense Facility (NBAF); a state-of-the-art, biocontainment laboratory for the study of diseases that threaten both America's animal agricultural industry and public health.

As an entire district, USD 383 strives to ensure that each student has the most appropriate tools, individual plan of study, academic interventions, adequate resources, and professional instruction to grow and learn at their level in advancing our green goals towards handling our futures with research based curriculum. With the support of the environmental education process, we seek to cast a stronger, more efficient, systems-wide implementation of the green ribbon framework to support our students, staff, and stakeholders. Little daily actions add up. One high school teacher indicates, "I have my students reuse water in the chemistry lab. There are buckets around the room for clean water. Students reuse the water the next hour or it is used to water plants. We also use rags instead of paper towels to wash & dry glassware. Rags are reused the next hour which means less trash." Then there are larger district wide decisions to find ways to work the three pillars into our culture: "Lessons on the importance of reducing waste and advocating for a cleaner earth. Discussing the impact of plastic in our oceans and the importance of reducing the amount of plastic that is used and created on a daily basis."

Through collaborative opportunities that focus on student success measures, we plan to improve data protocols among teams, buildings, programs, and stakeholders. In addition, we strive to better communicate with parents and the community that our district's core values drive the opportunity to assist each student along their educational journey.

To showcase the work of the last five years and gain momentum on our successes, a new team of passionate community patrons, energetic and curious students, empowered teacher leaders, and supportive administrative staff within our district have formed the Green Champions Committee during the summer of 2017 with Kansas Association for Conservation and Environmental Education (KACEE). KACEE has been active in promoting and providing quality, non-biased, and science-based environmental education in Kansas for 45+ years.

During the summer workshop, the following prospectus was developed for the committee: "As a district and community, our goal is to empower students to become next generation environmental stewards. We will encourage students to connect with the outdoors so they may improve the environments where they work, learn, and play through thoughtful conservation practices. The **VISION:** G-Generating O-Opportunities for G-Globally R-Responsible E-Environmentally E-Educated N-Next Generation Leaders (GO GREEN) **VALUES include:** Students will participate in hands-on activities outside the classroom; investigations will be student-led; inspire a culture of environmental literacy in all USD 383 schools; inspire students to problem solve and think critically; encourage communication skills among students, staff, and community members of USD 383; be self-sustaining over time by creating a culture of environmental stewardship in students and staff of USD 383. **GOALS:** **Healthy School Environments Goal:** Students will improve school health for students and staff by improving and identifying air-quality and transportation management practices by generating a list of improvements. **Water Goal:** Students will investigate water usage in each building to gather data and help each school identify ways in which they can conserve water and improve its quality. **Waste & Recycling Goal:** Students will reduce, reuse, and recycle waste by modifying waste management practices. Each elementary school will utilize money awarded by KDHE Green Schools Solid Waste Grant to establish a baseline waste audit. Family engagement will be included by having students perform parent surveys on recycling knowledge. Durable, reusable water bottles and grocery bags will be distributed to students as part of a "disposables to durables" curriculum. Manhattan High Schools are working toward establishing a composting program for cafeteria waste. This program will teach students to think critically about their impact on the nutrient cycle. Students have performed cafeteria waste audits and will observe details and benefits of the composting process via field trips and hands-on experiments. **Energy Goal:** Students will investigate energy usage in each school to gather data that will inform the district to establish a baseline and develop individual building plans to decrease usage and increase efficiency. **Learning Community Goal:** Students will identify improvements for school grounds and ideas to help local flora and fauna, school communities, neighborhoods, city, state, country and world. **District Action Plan:** After one year, EACH school will: 1) Certify at least one educator per site through environmental education professional development. 2) Establish a diverse site team. 3) Complete at least two of the above goals, providing stakeholders within the district with relevant data. 4) Achieve ED Green Ribbon status and Kansas Green School of Excellence Silver Globe Award.

Pillar 2: Improve the Health and Wellness of Schools, Students, and Staff

- Our district facilities cover 1.3+ million square feet in 23 different locations and 280+ acres of grounds with an operating budget of \$5+ million per year and a capital improvement project budget of another \$5+ million per year. Our maintenance team, employing 55+ full time custodians plus 15 specialists like plumbers and electricians on 3,400 work requests during fiscal year 2016-17, has moved from a zone to a team clean approach to specialize in areas like restrooms, backpack-based floor vacuum, desktops, whiteboards, sanitize door handles, and take the trash. Switching to reusable, washable pads on mops for tiles alone reduced towel usage by more than 120 towels per day at each of a total of 23 locations for a savings of over half a million dollars. “This transition allows us to be cleaner and more focused on wellness,” our maintenance director said.

The custodial team has moved away from all cleaning chemicals to Tersano, a system that turns tap water into a safe, effective cleaner and sanitizer that is stronger than bleach and hydrogen peroxide – without any hazardous odors or toxic chemical residues that come with traditional cleaning chemicals. “Converting from traditional general purpose chemical cleaners to Stabilized Aqueous Ozone (SAO) keeps literally millions of litres of toxic chemicals from being emptied into landfill, groundwater, streams, and rivers every month,” the district maintenance director said. Custodians simply fill with water, press the power button, and the device converts water into a powerful oxidizer for on-demand cleaning anywhere, anytime. These systems kill 99.9% of germs, including E.coli, Salmonella, and Listeria without chemicals and quickly, easily remove dirt, grime, stains, odors, mold, mildew and pesticides. It saves time and money by no longer purchasing chemical cleaners, sanitizers, or deodorizers. “We strive to have safe and efficient methods of preventing, detecting, and mitigating exposure to health hazards & chemicals,” our director said.

Each building is using advanced HVAC systems with high efficiency appliances. These systems are under constant review by trained maintenance staff. “We also seek to empower building level leaders and custodians to handle issues and manage risks in key ways with meetings, protocols and trainings to support student safety.” We have detection systems in place and work with buildings, district teams, and our Board of Education to find the best ways to support health in our buildings and alleviate environmental concerns.

From the macro down to micro, our teams are thoroughly invested in building health. We have transitioned from manual hand soap dispensers to sensed auto dispensers in all classrooms, restrooms, kitchens, and other areas to save soap and reduce impacts to help with an estimated two gallons each month in each of the 60 units per buildings. The same is true for battery powered paper towel dispensers to cut down on paper towel waste. “These are safer for wellness efforts because they are touch free to eliminate the spread of germs and pay off with reduced absenteeism,” our director said.

USD 383 uses the recommended steps from EPA and local environmental agencies to support student focused infrastructure including: * Assess existing state initiatives and any laws, policies, or regulations that address healthy school environments. * Determine the capacity of each state agency to contribute to an effective state environmental health program for schools. * Develop an initial plan to establish a new, or enhance an existing, state environmental health program for schools based on available resources. * Work to ensure the state program is implemented effectively. * Evaluate the goals, activities, and milestones to determine whether they need to be revised or expanded to improve the program. * Utilize the results to determine the return on investment, make adjustments to the program where needed, and communicate

successes. We also manage carbon monoxide detectors and other safety monitoring systems for peace of mind.

Communication with stakeholders is critical when establishing a health program for schools. We have an ongoing site-council based communication process to continuously incorporate feedback and identify opportunities to enhance student safety.

Protect indoor environmental quality - Our district values a favorable environment for students, teachers and staff and strives for a sense of comfort, health and well-being. We know indoor air pollution can also have significant and harmful health effects. We operate dehumidifiers in problematic areas and air purifiers/scrubbers with charcoal and hepa-filters to clean the air circulating back into classrooms and offices. We use EPA studies on exposure to air pollutants and find ways to measure indoor air quality (IAQ) to control airborne pollutants; distribution of adequate outdoor air; and maintain acceptable temperature and relative humidity. We have annual reviews and inspections to prevent, detect, and remedy any risks. One specific example: In the expanded welding lab at our high school, we installed new exhaust hoods to increase fresh air in the lab with better ventilation. "Before you could walk into the building, you could just smell the fumes, but now it's a much better environment for everyone," said one teacher.

Connected to student investigations, all 14 buildings housing students in our district have created or are in the process of creating "green teams" that consist of students, faculty, and staff. These teams will be completing the Kansas Green Schools Investigations. We are currently in year one of our district-wide Green Initiative. The goal of year one is to complete two of the five investigations. By year four, all 14 buildings will be completing all five investigations.

One of those projects is the Healthy School Environment Investigation. This investigation will help green teams identify air quality and transportation management practices and will aid in brainstorming ways to modify these practices to make each building greener and healthier! The results will inform school staff and students where they can make improvements and generate an action plan to improve school health for students and staff.

Nutrition and Fitness - To honor our state and district high standards of nutrition, fitness, and quality outdoor time for both students and staff, we have many projects through our science curriculum, minimum required times for recess, and opportunities for health fairs and exercise for staff. These have been recognized locally by the Flint Hills Wellness Coalition with many grants and by Kansas Department of Education Power Up programs to support success.

All schools in Manhattan-Ogden USD 383 participate in the National School Breakfast and Lunch program and thus meals served to students meet or exceed USDA guidelines. There are offerings of fresh fruits and vegetables daily with the secondary schools having salad bars in all their schools to help guide students toward healthy choices. Included on the menu are a fruit and vegetable of the month to showcase fruits and vegetables that are in season.

Schools eligible to participate in the fresh fruit and vegetable program further expand students' exposure to fresh fruits and vegetables. Offering healthy options is important but understanding the importance of living a healthy lifestyle is also key. Students in kindergarten and 2nd grade are educated on healthy lifestyles with the help of The Organwise Guys curriculum. The Assistant Food Service Director, who has a background in nutrition, teaches lessons monthly with second graders and each semester with kindergartners. Lessons include healthy eating guidelines using the Myplate model, exercising, and how making healthy choices affect our organs.

Our schools participate in the USDA's HealthierUS School Challenge, Alliance for a Healthier Generation, and other local nutrition programs. We have Farm to School programs with KSU Research and Extension to utilize local food in our classrooms with onsite food gardens for salads, salsa and watermelons for our cafeteria. One teacher shared: "Our sixth grade students use our outside high tunnel greenhouse on site to plant soybeans and [perform] a variety of experiments throughout the year." Celebrating the garden and composting partnership, another teacher shared: "Green team members are currently in the process of completing their learning communities investigation and have been working toward building a community garden. The beds have been constructed and the compost and soil mixture has been filled. We are developing a plan for small-scale onsite composting as well as a plan for what to plant this spring. Students will participate in research related to their environment and which items grow best!"

Our students spent an average of at least 90-120 minutes each week in supervised physical education. Weather permitting, at least 50% of our students' physical education takes place outdoors. We also take part in the EPA's Sunwise program and many other features to highlight student needs.

Pillar 1: Reduce environmental impact and costs - As we continue to make milestones with reduced footprints, we practice what we teach! In 2013, we consumed at 14.2 million KWH across the entire district; it was reduced to 13.9 million in 2014; reduced to 11.5 million in 2016 and down to 11.2 million in 2017 according to our director of maintenance. Within five years, we managed a three million KWH reduction. "There's been a huge reduction, even though prices don't show that because our rates keep going up with budgets," our director said. "Even now, we're 120,000 KWH from this point last year in Feb. 2018 so we're on pace to meet or drop even more."

Thanks to new HVAC systems and controls, we can set up schedules for HVAC equipment and make adjustments to HVAC systems remotely from any PC within the district network. Having better control of our HVAC systems helped us immensely when our funding was cut during 2015, by allowing us to lock our temperature set points at each building to reduce energy usage. The set points of 74° in air conditioning mode and 68° in heating mode were recommended to the Budget Advisory Committee and Budget Advisory Steering Committee in 2015 and implemented at the start of the 2015-2016 school year. In just one year, the reduction in energy usage saved the district \$183,654 in electrical and \$52,230 in natural gas (combined total of \$235,884). We have continued using the set points in the years since and are seeing our overall electrical and natural gas usage stay close to our \$1.15 million and \$125,000 budgets respectively. With policy shifts and conservations efforts, it's the climate control temperature set points that make the difference and help with our state recent budget reductions of approximately 8%. "We're budgeted for \$1.15 million for electrical each year; and we've always been under. Natural gas is \$125,000, but we're always under \$100,000. Making these changes was one of those things we tried during our budget crisis, and it worked great to drop it considerably with several \$100,000s of combined savings. That means less teachers lost their jobs," our maintenance director said.

At each site, we discourage the use of personal classroom items like mini-fridges, microwaves or others products to reduce consumption, because it all adds up. Our maintenance director concluded by sharing about his specific next steps to continue the energy reductions: "We're hoping for all LED lighting to get away from high-bay and fluorescents to use less than a

fraction of the energy and note huge savings. We're currently retrofitting everything we can for LEDs from parking lot lights and other places at lots of sites. The payback & savings is huge."

There are countless lessons and partnerships, like the Kansas Energy Program with KSU Engineering Extension, to help us showcase the vital importance of protecting our environment. We engage students with dynamic lessons including our Environments Module for all fifth graders. This has four investigations focusing on the following concepts: 1. organisms have structures and behaviors, including sensory receptors that serve functions in growth, survival, and reproduction, 2. living organisms depend on one another and on their environment for their survival and the survival of populations. Students design investigations to study preferred environments, range of tolerance, and optimum conditions for growth and survival of specific organisms. They conduct controlled experiments by incrementally changing specific environmental variables to determine the range of tolerance for early growth of seeds and hatching of brine shrimp. Students use these data to develop models to understand the impact of changes. They graph and interpret data from multiple trials of experiments and build explanations from evidence. Students gain experiences that will contribute to the understanding of crosscutting concepts of patterns; cause and effect; scale, proportion, and quantity; systems and system models; energy and matter; structure and function; and stability and change.

Another example is from the Project Lead the Way curriculum: First, students review concepts of potential and kinetic energy. Next, students learn about forms of energy including thermal, light, nuclear, chemical, electrical, and mechanical. Students then learn about conversion of energy between forms and the transfer required to move energy from place to place. Middle and high schools feature exclusive opportunities to measure results from our district and determine ways to continue to drive down our impact. We have hundreds of students who seek a future in STEM fields as result of our investment in these types of lessons.

Reductions of greenhouse gas emissions and/or increased energy efficiency

One key student project is the Energy Investigation. Energy management challenges bring together the fields of economics, environmental science, sociology, political science, health, and engineering. A more informed citizenry has the potential to come up with superior solutions to our energy problems and is aware of the importance of reducing overall energy usage. The role of our educators is fundamental to this process. The students in our classrooms today will be the policy makers, scientists, and voters of tomorrow. It is critical to help students realize they can make decisions and take responsible action, which in turn can have positive effects on their community. This investigation will help students become more aware of the energy they use every day. They will see the connections among the energy they use, natural resources, and pollution. The results of the investigation will help students develop action plans for reducing energy use in our schools. As one teacher shared, "Green team members work hard to advocate for their environment. They have been attending district Green Gatherings to improve their knowledge on community environmental issues like saving electricity. They create signage and announcements to keep the school informed."

For example, our units on energy provide first hand experiences in physical science dealing with the anchor phenomenon of energy. The five investigations focus on the concepts that energy is present whenever there is motion, electric current, sound, light, or heat, and that energy can transfer from one place to other. The guiding question for the module is how does energy transfer between systems? Students investigate electricity and magnetism as related effects and engage in engineering design while learning useful applications of electromagnetism

in everyday life. Students conduct controlled experiments by incrementally changing variables to determine how to make an electromagnet stronger. They investigate how the amount of energy transfer changes when balls of different masses hit a stationary object. Students explore energy transfer through waves (repeating patterns of motion) that results in sound and motion. They gather information about how energy and fuels are derived from natural resources and how that affects the environment. They explore alternative sources of energy that use renewable resources. Students interpret data from graphs to build explanations from evidence and make predictions of future events. They develop models to represent how energy moves from place to place in electric circuits and in waves. Students gain experiences that will contribute to the understanding of crosscutting concepts of patterns; cause and effect; and energy and matter.

Water - Thanks to water conservation efforts and limited irrigations on the grounds due to policy shifts, water is being saved in our district at huge rates: 57,792 hundred cubic feet (as measured by our city meters) in 2015 and 32,808 in 2016 - a savings of nearly 25,000 hundred cubic feet!

Living the heartland of the agricultural state of Kansas, water is absolutely vital to everything in our economy. As a school district, we have undertaken many projects to showcase conversation including a huge annual water festival event for elementary students to learn about all facets of water with a safari theme. By conducting annual audits of the facility and irrigation systems, we ensure they are free of leaks. We have smart irrigation system that adjusts watering time based on weather conditions. Better yet, we have turf and all landscaping is water-efficient for the Flint Hills. Several sites use alternative water sources with rain barrels and grey water. We also work with KDHE to control lead in drinking water.

We protect drinking fountains with high-standards for cleaning and by installing bottle filling stations. We participate in practices fix problems - for example just one leaking toilet and waste more than 50 gallons of **water** each day or a dripping faucet can waste up to 1,000 gallons per week! So beyond monitor toilets and faucets inside and outside the **school** regularly, we want to set more policy on lowering irrigation and higher level decisions about usage.

For additional learning, all fourth grade students engage in Water and Climate modules through the anchor phenomenon of how is water involved in weather. Students explore the properties of water, the water cycle, and interactions between water and other earth materials. Students learn how humans use water as a natural resource and explore the crosscutting concepts of patterns; cause and effect; systems and system models.

Other ways you are working to improve water quality, efficiency, and conservation:

USD 383 administrators and teachers were on the front lines of advocacy with the Kansas Water Office, in coordination with local, state, federal and interstate partners, to develop a 5-year update of the *Kansas Water Plan*. The *Plan* is one of the primary tools used by the state to address current water resource issues and to plan for future needs.

We are all about improving water quality, efficiency, and conservation both at school and at homes across our region as students take their learning home. Our units in water include a specific unit for grade three. Water is the most important substance on Earth. Water dominates the surface of our planet, changes the face of the land, and defines life. Weather is driven by the Sun and involves the movement of water over the earth through evaporation, condensation, precipitation, and runoff - the water cycle. Climate is determined in part by the amount of precipitation in a region and by temperature fluctuations. Human societies depend on water, and

new technologies are being engineered to conserve and protect this natural resource and provide for the needs of people around the world. Students engage with these powerful ideas through the anchor phenomenon of weather in diverse climates. The guiding questions are: 1. How is water involved in weather? 2. Are weather conditions the same around the world and throughout the year? Students explore the properties of water, the water cycle, and interactions between water and other earth materials. Students learn how humans use water as a natural resource. Students engage in science and engineering practices while investigating water, weather, and climate, and explore the crosscutting concepts of patterns; cause and effect; scale, proportion, and quantity; and systems and system models. They are introduced to the nature of science, how science affects everyday life, and the influence of engineering, technology, and science on society and the natural world.

In the Green Schools water investigation, students answer: How is water used in your school and are there ways to make your school water use more efficient? This investigation helps each team identify water practices and thinking of ways to identify ways in which the district can conserve water. The results inform school staff and students where they can make improvements and also to generate an action plan to improve water efficiency and conservation for each building within the district.

Solid Waste Management Plan - After district-wide recycling for more than five years and connecting to the Riley County solid waste management plan, Manhattan-Ogden USD 383 now annually recycles (8 bins of 100 pounds each week for 36 weeks at 15 sites) nearly 500,000 pounds. One teacher shared: “We have class-wide meetings on the importance of reducing waste and advocating for a cleaner earth. Discussing the impact of plastic in our oceans and the importance of reducing the amount of plastic that is used and created on a daily basis.” Teaching and doing both build toward incredible impact for our students.

One specific creative aspect at all nine elementary schools are MAKERSPACES to promote creativity with student projects, models and prototypes. Thanks to the 2016-17 Kansas Green Schools Grant, our Repurposing and Recycling Education Space (RARES)/MAKERSPACE serves as a gathering point for low-tech tools, project-based learning, open inquiry projects, reverse engineering and creative expertise. RARES are zones of inquiry and self-directed learning. It provides hands-on character, coupled with the tools and raw materials to support repurpose, recycling and invention. Additionally, we drive for less solid waste. RARES gives: 1) inspiration by inviting students to participate in the creative economy and to direct their own future with trade careers; 2) Innovation by serving as a catalyst for grassroots invention and reinvention. With the revival of DIY (do-it-yourself), RARES are dedicated to sparking the repurposing spirit in students and families, as well as potential open times for the community. RARES engage citizen scientists and promote long-term civic skills.

We have numerous composting sites including one school library which hosts "book worms" and "Red Wiggler Worms," named for the bin of worms in the library available for observation of actual composting! “The Red Wigglers compost our food waste. The fourth grade teachers are incorporating them into their science curriculum. Primary students will observe them and learn more about their importance in the environment.”

Reducing waste and eliminating hazardous waste: To our state, hazardous wastes fall into one of four categories: flammable, corrosive, toxic or reactive. Thankfully, our district has very little of these types of products. Of the very limited hazardous waste we do work with, we partner

with others to support the reduction and elimination process like the County Health Department for disposal of nursing items or County Hazardous Waste at our public works department. Teachers have toured these sites on their professional learning days to learn more and report back ways to continue to limit exposure.

One teacher shared, “Students have increased the amount of recycling to such an extent that we now need larger and more receptacles!” Due to the Kansas Green Schools Waste Investigation, students conduct a waste audit of all rooms within their building. This data determines the quantity and types of waste being produced. It examines what waste could otherwise be composted or recycled allowing schools to reevaluate their waste protocols.

Alternative Transportation: Over the last four years, Manhattan-Ogden USD 383 together with representatives from the City of Manhattan, City of Ogden, Kansas State University (KSU), Riley County Police Department (RCPD), Riley County Health Department, Flint Hills Wellness Coalition, Manhattan Bicycle & Pedestrian Advisory Committee, and the Flint Hills Metropolitan Planning Organization (FHMPO) have come together to form the Safe Routes To School (SRTS) Committee to work to improve conditions for walking and biking to school. To that end, the following progress has been made:

In 2018, our elementary students use Bicycle Safety & Awareness Program (BSAP) to:

- Transform students into active, knowledgeable members of the transportation system
- Increase the number of students walking and biking to school
- Increase parental confidence and support for walking and biking to school
- Increase student riding ability and transportation knowledge using data analysis
- Decrease the number of bicycle and pedestrian collisions involving children
- Create a successful program template that can be replicated throughout the region

Students learn how to ride a bicycle safely and confidently; identify and understand signage and the rules of the road; how to navigate intersections; how to perform basic maintenance; where bicycle infrastructure and safe routes are located in their neighborhood. All USD 383 5th and 6th grade students (1,000) will complete the BSAP program in a comprehensive 10-hour lesson plan (4 hours in the classroom, 6 hours on bike).

Our schools have designated carpool parking lanes and well-publicized “no idling” policy that applies to all vehicles. We have vehicle loading/unloading areas that are at least 25 feet from building air intakes, doors, and windows. Our schools establish routes to school which are distributed to parents and posted in our offices.

We also have community-based free Green Apple Bikes and many Walk/Bike to school incentives. Each school has a designated bike housing system and our regional ATA bus stops near schools. 3,700 students use our district’s transportation system.

Describe any other efforts to engage students toward reducing environmental impact:

We have successfully completed several investigations over the years and we have an action plan to continue to use these curriculum resources. Getting our students involved in investigating our schools to find ways to go green helps to build student engagement, involvement, awareness, knowledge, critical thinking, and problem-solving skills in a relevant and real world context.

More than five professional learning sessions have given staff tools to fulfill the investigations by giving teachers, students, parents and community members with initial investigations to begin explorations in Energy; Waste and Recycling; Water; Healthy School

Environment and The Learning Community. These investigations serve as a starting point and extension from our core curriculum and other classroom lessons.

For example in the healthy school sector, we have focused on the engineering and encouragement aspects of Safe Routes to School as the potential solution for increasing the number of kids who walk or bike to school. Students develop the confidence they need to safely commute to school, and parents will find reassurance that we not only have a safe environment for them to do so, but that their children have been taught how to properly navigate to school on a bike. As more children cycle through the program and opt to walk or bike to school, the engineering component will continue to play a vital role in creating safe places for children to walk or bike. Our work is consistent with both the Flint Hills Transportation Plan and the Safe Routes to School. Our program will serve as not only a model for other school districts within our region wishing to do something similar, and is applicable to school districts across the state.

Thanks to our reduced footprint, environmental education and wellness efforts, our students to a brave world of our district learner outcomes: **Effective Communicators** to clearly express ideas; **Quality Producers** to create intellectual, artistic, practical, and physical products; **Complex Thinkers** to identify, access, integrate, and use available resources; **Collaborative Workers** to use effective leadership and group skills; **Community Contributors** to improve the welfare of others in their diverse communities; and **Self-Directed Learners** to set priorities and achievable goals.

Our district climate overcomes challenges by having leaders of staff, students and stakeholders ready to diagnose situations, manage themselves, energize others and intervene skillfully. To do this for the long haul, we empower the entire community to take on leadership roles to grow a shared belief in the direction of the work and the ability to effect change with students. To celebrate and honor successes, we find effective encouragement with authentic recognition of educators and students hard work and the resulting successes. Our self-corrective feedback loop builds collaboration and listening with common planning time, exhibiting models of excellence and in depth professional learning. We acknowledges the hardships of change and the demands of education that can be so overwhelming leading to burnout or feelings of endlessly treading water. However, our district is a place of true belonging where teams empathize, listen when they ask for help and do what everyone can to help manage responsibilities.