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.
8. The school or its district has in place and is willing to provide a link to or a copy of a non-discrimination policy, upon request. The U.S. Department of Education reserves the right to disqualify a nomination and/or rescind an award if unlawful discrimination is later discovered.

U.S. Department of Education Green Ribbon Schools

Name of Principal: *Jill Hill*
(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in the official records)

Official School Name: *Cassidy Elementary*
(As it should appear on an award)

**Private Schools: If the information requested is not applicable, write N/A in the space*

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

Jill Hill
(Principal's Signature)

Date: *2/25/2022*

Name of Superintendent: *Dr. Demetrus Liggins*
(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in official records)

District Name: *Fayette County*

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

Date: 2/28/2022

(Superintendent's Signature)

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: *Kentucky Environmental Education Council*

Name of Nominating Authority: *Mr. Billy Bennett*

(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.

Date: *3/1/22*

(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: December 31, 2023

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:

Cassidy Elementary School, part of the Fayette County Public School (FCPS) system, serves approximately 650 students in grades K-5. These students speak 21 different native languages, and were born in 18 different countries, representing all continents besides Antarctica and Australia. Faculty and staff work in unison with the community to ensure that Cassidy Elementary's vision, "All students will leave Cassidy as proficient learners on a path to graduate from high school prepared for college and careers, ready to excel in a global society" is met for each and every student in equitable ways. This involves meeting the needs of the whole child and working with families to obtain any necessary mental health counseling, family resource, or medical service. This learning environment prioritizes intentional efforts to provide environmental and sustainability education, improved student and staff health and wellness, and a reduction in environmental impact and costs.

Constructed in 1935, Cassidy Elementary is land-locked as it is surrounded by a busy road, neighborhood homes, and Morton Middle School. While this posed a challenge for finding green space for environmental and sustainability education, efforts to incorporate opportunities for hands-on learning in an outdoor environment led to the construction of a multi-faceted outdoor classroom for engaging learners in the Kentucky Academic Standards (KAS). This outdoor space highlights environmental and sustainability themes of water quality through storm water abatement, soil quality and conservation, and pollinator habitat. The project, which was first conceptualized in 2015, brought together students, families, and local and national partners in a collaborative effort. Cassidy's planning and infrastructure partners included the University of Kentucky Biosystems and Agricultural Engineering department and dedicated volunteers. The completed project as well as upkeep and maintenance over the past five years was funded and supported by Kentucky Association for Environmental Education (KAEE), Cassidy PTA, Quantrell Subaru from the Subaru Loves the Earth 2017 Campaign with the National Wildlife Federation, FCPS E=USE2 Program, Bluegrass Greensource through the Kentucky Division of Water, Captain Planet Foundation, and most importantly family volunteers. This collaboration resulted in a widely used outdoor space that increased not only content knowledge, but engagement and curiosity of students and members of the community that frequent the space. Another outcome of the project is that the school received the KAEE Outstanding preK-12 School Award and National Wildlife Federation Schoolyard Habitat® certification.

Our outdoor classroom gives students the opportunity to learn outside of four walls, as learning is not bottled in a classroom! It is a source of inspiration for art, music, and movement. The accessibility of the outdoor classroom meets the needs of every student. The area includes handicap-accessible raised bed gardens and outdoor table, butterfly habitat, rain garden centered around a storm drain, open and closed system composting, vermiculture, erosion station, soil percolation station, animal tracks and insect exploratory regions. There are rainwater harvesting, sensory, herb and literature gardens, and a Kentucky native species area. A planned shade area supplied by large evergreens is adjacent to the space, with enough seating available in the sun and shade for an entire class. This outdoor classroom

meets the challenges of teaching KAS through STEM, and places Cassidy at the forefront of producing our next generation of environmentally literate citizens.

In an effort to increase student knowledge of water quality and cold water conservation, Cassidy Elementary has a partnership with the Bluegrass Chapter of Trout Unlimited. Cassidy's Sustainability Coordinator, who first piloted the Trout Unlimited Trout in the Classroom (TIC) program for Kentucky 14 years ago with the goal to *make waves* by spreading the word about the program, brought TIC to Cassidy Elementary. The goals of TIC are to: "Connect students to their local environments and their local watershed, teach about watershed health and water quality, and get kids to care about fish and the environment" [1]. Each year the students explore ecosystems as they raise trout from eggs to understand their life cycle, water quality, and the status of their local watersheds as trout are indicator species. The program culminates with our Scientists and Engineers Empowering Kids (SEEK) Science Club releasing the fingerlings into a federally approved stream in the Spring. Even during the school closures that COVID-19 presented, all students were presented with habitat and water conservation and sustainability lessons as well as virtual and interactive macroinvertebrate hunts, biological and chemical water testing, and trout releases. Last year Cassidy was recognized for their efforts at the annual Bluegrass Chapter of Trout Unlimited Fundraiser which helps to offset TIC start-ups and offers in-kind support throughout the year and on the Release Day they help with the stream study and recruit marine biologists to assist with macroinvertebrate identification. Through Cassidy's teacher participation in the Summer Teacher Environmental Academy with Bluegrass Greensource, we were awarded a $500 grant through the Lexington-Fayette Urban County Government (LFUCG) to use on aquarium filtration media and water quality testing kits. Also, Cassidy has won the FCPS Earth Week Challenge Award multiple years to assist with aquarium maintenance costs. Even during school closures in 2020 our school worked collectively to complete 955 earth stewardship activities to win the top award of $1,000 to purchase new chillers, filters, and aquarium chemicals.

Another successful initiative has been the decrease of energy consumption within our main school building and portable. When calculating energy consumption usage, despite favorable data from the 2019-2020 and 2020-2021 school years, due to lengthy COVID-19 school closures, data analysis excluding those anomalous years shows that during the four years prior, Cassidy still reduced electricity consumption by 15.3% from the 2015-2016 school year to the 2018-2019 school year. This is a reduction of approximately $24,000 annually for utility bills and 139 metric tons of carbon dioxide emissions which equates to the amount of electricity used in 25 homes for one year or 10 years of growth of nearly 2,300 tree seedlings.

Students in Cassidy's SEEK science club conduct secret monthly energy audits and students take part in various projects and campaigns to increase energy conservation and awareness. Through the FCPS SEE (Sustain·Educate·Empower) KY Program, students conducted five Green STEM investigations each year: Plug Load Survey, Energy & Wellness Audit Patrol, Building Envelope Assessment, Indoor Air Quality Assessment, and Light Level Survey.

Water quality and conservation have also been a focus for our school. Students engage in citizen science projects using a rain garden, demonstration rooftop rain barrel system, permeable pavers, and water bottle refilling stations. Educators from Bluegrass Greensource have taught students about watersheds and macroinvertebrates, checked out gear to students, and participated with them in storm drain stenciling. Cassidy teachers went through the Bluegrass Greensource Teacher Environmental Academy to learn about public transportation, energy usage, solar energy, the process our wastewater goes through to get treated before heading to streams, and how our drinking water is cleaned. As a result of these and other initiatives, Cassidy reduced water usage by 5.9% from 2015-19, even before in-person learning halted due to Covid precautions.

In an effort to teach students about clean energy sources and the benefits of clean transportation to minimize environmental impacts, Cassidy Elementary School is participating in the Electric Vehicle STEM Education Project, "GEN-EV" through the University of Kentucky Center for Applied Energy Research (UK CAER). Students at Cassidy are learning how electric transportation will benefit the environment and allow our state to operate with efficiency while decreasing carbon dioxide emissions.

The Cassidy Leadership Team on a quest to reduce environmental impact, started a campaign to collect bottle caps to upcycle into benches. This initiative allowed us to partner with Green Tree Plastics, LLC. Their recycled plastic products use 100% recycled plastics, no hazardous chemicals, non-organic fillers, and uses non-organic color concentrates. Through student signage, morning news shows, and word of mouth, Cassidy collected over 400 pounds of bottle caps resulting in enough recycled material for two benches. Cassidy donated over 100 pounds of caps to other schools in need of caps for their projects.

Cassidy's Wellness Night, physical education classes, Girls on the Run and SEEK science club work to bring awareness and increased engagement for staff and students to improve health and wellness. Staff have the opportunity to participate in onsite biometric screenings, vaccinations, and an occasional fitness challenge. Farm to School provides our cafeteria with fresh local fruits and vegetables each week. Students participate in Jump Rope for Heart, car and bicycle safety, as well as playground safety. University of Kentucky Neurocats works with our students to teach about the brain and ways to reduce trauma to the brain through safety measures. In addition, students partner with the University of Kentucky Dance Blue Program which raises money and awareness for childhood cancer research. Cassidy has raised over $10,000 each year since the inception of the fundraiser.

Mindfulness, movement breaks, and social emotional learning have been implemented into the school curriculum. Students in grades K-2 have access to recess time twice a day while students in grades 3-5 have recess time at least once per day. Cassidy's school counselors created a virtual Break Room for teachers to get some tips for self-care during the pandemic when Non-Traditional Instruction (NTI) was the new normal and teachers were implementing instruction via Zoom meetings Google

Classroom, websites, and other platforms. Our students were cared for during this time through meal pick-ups for breakfast and lunch. Teachers and staff worked together to drop off clothing, blankets, coats, snack packs, and winter holiday presents. They called and checked on students who needed an extra nudge to attend class and to turn in assignments. Counselors had regular check-ins with students on a watch list to ensure they were getting all of their physical and mental health needs met.

Overall, Cassidy's continued desire to positively impact the community through citizen-science based projects, morning news shows, and participation outside of school in environmental efforts shows through their unmitigated support with recycling, water quality education and energy reduction.

Narrative for Pillar I:

Cassidy Elementary School has spearheaded several efforts to reduce our environmental impact and costs for our school and community. EUI (Energy Usage Intensity) measures how much energy is used per square foot of building area. It is measured in kBtu/square foot. In calculating consumption usage at Cassidy, over the past four years before NTI affected in person school attendance and therefore energy usage, Cassidy reduced electricity consumption by 15.3%. In the 2015-2016 school year, Cassidy used 1,281,070 kilowatt-hours of electricity which made our EUI 57.6 kBtu/square foot. Looking at these numbers during science club meetings with our district Energy & Sustainability Curriculum Coordinator and Energy Manager, we realized this was higher than the desired number and efforts to decrease this usage were underway. In the 2016-2017 school year usage was down 5.57%. This decline continued in the 2017-2018 school year as Cassidy decreased usage to 1,200,920 kilowatt-hours of electricity and again in the 2018-2019 school year as usage dipped to 1,085,160 kilowatt-hours of electricity with an EUI of 48.8 kBtu/square foot. This was an overall decrease of 15.3% which is a reduction of approximately $24,000 annually for utility bills. This is a decrease of 139 metric tons of carbon dioxide emissions which equates to the amount of electricity used in 25 homes for one year or 10 years of growth of nearly 2,300 tree seedlings.

To accomplish these decreases in energy use and building efficiency, the students in Cassidy's Scientists and Engineers Empowering Kids (SEEK) Science Club took several measures to help educate and empower the school to become more energy efficient. Through the FCPS SEE (Sustain·Educate·Empower) KY Program, students conducted five Green STEM investigations each year: Plug Load Survey, Energy & Wellness Audit Patrol, Building Envelope Assessment, Indoor Air Quality Assessment, and Light Level Survey. The Plug Load Survey made students aware of the phantom energy load that some devices use even when not actively being used such as the clock on a microwave. With a Kill-A-Watt Edge meter, students identified the energy drawn per device in watts and determined the cost per device per year and the pounds of carbon dioxide emitted per year if the device was left on 24 hours a day, all year. Students enjoyed donning energy patrol badges and completed energy audits before, during, or after school throughout the year. They left descriptive notes

with emoji faces that depicted how well classrooms and offices were doing conserving energy and ways to improve. SEEK members left notes that thanked classrooms for conserving energy and their names or initials in case teachers had any specific questions for the team. Students also mounted a campaign to educate by placing an energy saving checklist by classroom and office doors and “Turn Me Off Please” stickers next to light switches. The Building Envelope Assessment revealed the importance of the set of double entry doors in the foyer from the renovations as the temperature fluctuations on the two sets of doors varied on many occasions 15 degrees or more depending on the season. Students and teachers were also mindful to keep the outside doors and windows closed when not in use with the help of a reminder poster. During the Indoor Air Quality Assessment students tested carbon dioxide and relative humidity. It was decided to purchase dehumidifiers for the portable to prevent any potential conditions for mold. Students also participated in data collection on light levels and shared any concerns with our head custodian to find solutions when needed. They also raise awareness about energy conservation by disseminating School Break Shutdown Checklist. Staff are encouraged to commit to turn off lights, unplug personal appliances, shut down computers, close blinds, set thermostats in portables, and remove warm appliances directly underneath thermostat to reduce electricity consumption over long breaks.

Water quality and conservation have also been a focus for our school. Even before in-person learning halted due to Covid precautions, Cassidy saw significant reductions in water usage. From 2015 to 2019 Cassidy reduced their water consumption by 5.9%. In the 2015-2016 school year, Cassidy used 711,000 gallons of water costing approximately $11,000. By 2019 Cassidy reduced that number to 669,000 gallons of water costing approximately $9,000 that year with a savings of 42,000 gallons of water reducing costs by about $2,000 annually. These positive changes can be attributed to several initiatives.

Bluegrass Greensource has been a long-standing partner by working with our students and teachers in many capacities over the last 8 years. Bluegrass Greensource educators work with the entire school population through the science lab, our Gifted and Talented classes, and Cassidy’s science club, SEEK. Bluegrass Greensource educators provide students with activities and lessons that teach about water conservation and the importance of maintaining clean water. They have loaned us kits to teach about watersheds and macroinvertebrates and what they reveal about water quality. Bluegrass Greensource environmental educators have attended Cassidy’s annual trout release at Red River Gorge where students take part in chemical water quality testing and a stream study. They have allowed us to check out waders and waterproof boots for students who needed them. They helped us to stencil a storm drain alerting people that what goes into the drain at Cassidy heads straight to the stream. They helped teach about landfills and how the decisions we make can affect our water quality as well.

Bluegrass Greensource also taught participating Cassidy teachers an incredible amount of information through their Teacher Environmental Academy. Through the Academy, teachers embarked on mini field trips with other educators around Central Kentucky to learn about public transportation, energy usage, solar energy, the process our wastewater goes through to get treated before heading to streams, and how our drinking water is cleaned. The participating teachers received books full of lessons

to implement in classrooms and funding from the city of Lexington to support environmental projects at Cassidy. The money allowed Cassidy to purchase the chemicals and filtration materials needed to keep our Trout in the Classroom program alive even during the pandemic. Students enjoyed watching our Trout LiveSTREAM from home especially as the rainbow trout eggs were hatching.

The Bluegrass Chapter of Trout Unlimited (BCTU) has partnered with Cassidy over the past 8 years to bring Trout in the Classroom to K-5 students. Over the years, this water conservation program has opened students' eyes to the importance of taking care of our land and water as lessons it promotes demonstrate how the spheres interact to impact this indicator species. Since the program's inception at Cassidy, students have released over 1,000 rainbow trout into federally-approved Kentucky streams. In 2018 and 2021 Cassidy was recognized by BCTU for outstanding contribution to the program.

In 2016, a rain garden and outdoor classroom complete with a rainwater harvesting area was completed. Cassidy was able to use energy award money that the science club helped to earn and grants from KAEE and matched PTA funds to build the infrastructure. This area has provided students with a space to participate in citizen science based projects all while learning how our rain garden aids in filtration, our permeable pathways promote water conservation, and our demonstration rooftop rain barrel system allows students to learn the importance of recapturing water to use during period of drought.

Through the efforts spearheaded by our SEEK science club and a match by the Cassidy PTA Wellness Committee, we were able to acquire two filtered water bottle refilling stations that students can utilize on the first and second floors of our building. This allows students to reuse water bottles in place of single use bottles. Our science club also campaigned Kentucky American Water Company and Wachs & Buchart Orthodontics to donate water bottles so that every student at Cassidy had a reusable water bottle to fill up at the station. During science lab classes, students got excited by this new initiative by getting to decorate and personalize their own bottle with permanent paint pens while also learning about the benefits of reducing landfill waste by reusing water bottles at our refill stations.

Years ago, when Cassidy first began working with Bluegrass Greensource, Cassidy did not recycle very consistently. However, through concentrated efforts over the past five years and up until the pandemic and the recent recycling changes in Lexington, we were consistently recycling a variety of materials in all classrooms and offices. Through many lessons describing Municipal Solid Waste (MSW) and its impact on our environment, students have learned the importance of reducing waste and recycling. This has resulted in the school saving money on waste removal. The Dumpster Dive and Waste Audit Bluegrass Greensource helped us conduct was a truly telling experience! The second year it was conducted, students had increased their knowledge and actual practice by 95%! Tissues and candy wrappers were the items that most students misplaced in the incorrect bins. Now students lead contests to encourage students to pick up litter from the playground and post signs showing the importance of proper recycling and not littering.

For several years, while the program was being offered, we also collected empty ink jet, laser, and toner cartridges for components to be recycled by a third party, ultimately keeping additional toxic chemicals and metals from leaching into our soil and waterways. Cassidy also started collecting dried up markers and highlighters to send to Crayola. The Crayola ColorCycle environmental initiative uses a process that converts plastic markers into fuel. While the program was put on pause due to the pandemic, we have saved our collected markers for when it resumes.

The Cassidy Leadership Team, on a quest to reduce environmental impact, started a campaign to collect bottle caps to upcycle into benches. This initiative allowed us to partner with Green Tree Plastics, LLC. Their recycled plastic products use 100% recycled plastics, no hazardous chemicals, non-organic fillers, and uses non-organic color concentrates. Through student signage, morning news shows, and word of mouth, Cassidy collected over 400 pounds of bottle caps resulting in enough recycled material for two benches.

Alternate transportation to our school is also encouraged. Additional bike racks have been installed and are conveniently located near an entrance to the school. Each year, Cassidy promotes a district-wide Walk or Ride Your Bike to School Day which makes students aware of our carbon footprint related to transportation. Through our GEN-EV Racing Team program, students at Cassidy are also learning how electric transportation will benefit the environment and allow our state to operate with efficiency while decreasing carbon dioxide emissions.

Cassidy's school cafeteria uses some local produce to promote healthy eating through the Farm to School program. This also decreases carbon dioxide emissions by reducing the distance the produce must travel to get to the school. Farm to School has visited our school to do a series of visits about the benefits of locally sourced food. For several years, Cassidy grew lettuce for a salad that the PTA sold at our annual Fun Day to raise money for the school. At Thanksgiving, our Kindergarteners and 1st graders harvest herbs from our garden to take home to encourage family cooking and healthy eating.

While we have made some integral moves to promote energy and water conservation and efficiency, we will continue to work with our school community to improve and grow as a potential Green Ribbon School.

Narrative for Pillar 2:

At Cassidy Elementary School, we are committed to increasing the health and wellness of our students, staff, and community. Our PTA and Wellness Committee play a key role in this long-term goal.

In an effort to help all of our students feel welcome and accepted, our PTA and staff have worked together for nearly a decade to create a Special Needs Awareness Week Program. Prominent speakers are invited for a kick-off assembly and students are given necklaces to document kind acts that they witness from one another. The entire gym is set up with simulation stations for students to experience what it is like to play basketball in a wheelchair, what it is like to open a candy wrapper for someone with sensory issues by wearing gloves with cotton balls in the tips, or read a paragraph with jumbled letters to simulate dyslexia. For an entire week, we also intentionally incorporate aspects of disability awareness into each content area of instruction. For example, during a science lesson, a teacher helped students understand what the solar eclipse experienced at totality in some areas of our state in 2017, may have been like for individuals with vision impairment or blindness. Using the Eclipse Soundscape app on borrowed iPads along with blindfolds students experienced how someone who is blind can use technology to help them explore and experience different aspects of an eclipse. The app made the screens vibrate at different intensities based on the solar brightness as the students' fingers moved over different parts of the virtual sun during the eclipse simulation. This interactive activity helped all students learn more about this extraordinary event as well as appreciate more of what students with disabilities experience as they too try to learn and experience scientific phenomena in the world around them. Students in art and music class learned about famous artists and musicians who accomplished outstanding pieces with their special abilities despite having to overcome obstacles.

Teachers also work to make sure that students are comfortable in their classroom spaces. Many classrooms have alternative seating and flexible seating to allow students options throughout the day. Some classrooms have standing desks, couches, carpets, tables, as well as traditional seating. Students are also given movement breaks throughout the day and even during many of their special area classes.

Mindfulness and social-emotional learning (SEL) have been implemented into the school curriculum. Students are encouraged to participate in these activities to better manage their stress and overall health. While guidance classes have always been offered to in person classes, SEL instruction took place even during virtual learning. We have three guidance counselors, a school psychologist, occupational therapist, speech and language specialist and a part time nurse on staff to assist students with meeting their physical and mental health needs.

We share a family resource center staff member with the neighboring middle school to help meet the basic needs of students whether it be distributing weekly backpacks filled with food, clothes, school supplies, or holiday meals and gifts. Our neediest students are also given the opportunity to take a field trip to a clothing center a couple of times a year to pick out new clothes that have been donated.

Sun safety is something that Cassidy has been concerned about. We have been working on a plan and fundraising efforts to increase shading on our playground. Students in Kindergarten study the effect of different colors on temperature and study the effects of the sun using solar beads and Sun Art paper. Once students witness how the beads and paper change when exposed to light, they cover a bead with

sunscreen to see how it prolongs the time before the bead changes color. Finally, students build sun shade structures for two stick figures using the Engineering Design Process and measure their effectiveness using liquid crystal strips to visually see the change in temperature as more or less surface area is exposed to the sun.

Cassidy was the first school in Fayette County Public Schools to implement the EPA Air Quality Flag Program. Beginning in the 2019-2020 school year, we had a student team hoist a flag on our flagpole which could be seen from a major road and that alerting our community as to the air quality index. These brightly colored flags show how clean or polluted the air is each day. The flags correspond to the colors of the Air Quality Index and students learned what that means in terms of being active outdoors. In partnership with KY Division for Air Quality, students have been learning about particulate matter in our air and ways to educate our community. Towards the end of the 2020-2021 school year, the SEEK science club met virtually to talk about the connection of lichen to air quality and to start the planning stages of a No-Idling Awareness Campaign. They are anxious to kick off the campaign during the second semester of in person learning using newsletters, Class Dojo announcements, posters and tokens of appreciation such as key chains, stickers, and pencils.

Before the closures due to Covid, each year Cassidy hosted a Wellness Night. Parents, teachers, and community members would set up booths and stations for students and their families to learn about important wellness topics such as yoga and mindfulness, healthy living, preparing healthy snacks, and a make-and-take project for growing an at-home garden. Our Wellness Policy also prohibits students from bringing cupcakes on birthdays and encourages healthy snacks during school parties.

In partnership with the University of Kentucky, Cassidy hosts an annual Dance Blue event. Dance Blue is a fundraising organization for children's cancer research. Students from UK as well as Cassidy share their cancer experiences and participate in dances and card-making for patients throughout the evening while getting pledges from sponsors. For the past 3 years before closures due to Covid, Cassidy has raised over $10,000 each year. This worthy fundraiser not only promotes physical activity, but also promotes the health of children in Kentucky.

We have school-wide rules and expectations which are enforced with Positive Behavior Intervention Strategies (PBIS). We use Class Dojo to document school wide behavior and our PBIS team monitors and analyzes monthly data to award each grade level with the most points. We are seeing big gains in behavior since documenting strategically and are able to identify areas for improvement in the way that the points are structured.

Material safety lessons are incorporated into science classes. In science lab class, safety is taught to every student and reviewed throughout the year. Students must understand and follow developmentally appropriate safety rules in order to participate in hands-on labs. They learn when to wear safety goggles and protocols for emergencies.

Custodians and district maintenance personnel all work together to ensure that our students, faculty and staff are teaching and learning in a safe work environment. Cassidy has a chemical management program that includes a chemical purchasing policy (low or no-VOC products), storage and labeling, training and handling, hazard communication, spills (clean-up and disposal), and selecting third-party certified green cleaning products (GS-42, Green Seal Standard for Commercial and Institutional Cleaning). 100% of our Pest Control products are certified. There is an annual sweep of all classroom, office/student occupant spaces to eliminate any potential hazardous substances including cleaning solutions and air fresheners not listed on the approved School Supply List.

Additionally, FCPS maintains an asthma management program that is consistent with the National Asthma Education and Prevention Program's (NAEPP) asthma friendly school guidelines. Common asthma trigger such as air fresheners and candles are confiscated during annual hazardous chemicals sweeps. Students in SEEK science club include air fresheners on their monthly wellness patrols and provide feedback to teachers/staff who include air fresheners in their classrooms/offices.

Stock concentrations are locked in chemical stockroom. Cassidy follows all MSDS and FCPS guidelines on storage, usage, and disposal. Our kitchen *All Purpose* and *Pot and Pan* are Green Seal Certified, and the Envirowash carries the EPA's Design for the Environment Label. Both Green Seal, and the EPA's DFE Label are widely recognized as being generally safer/more user and environmentally friendly.

Cassidy follows the FCPS integrated pest management plan to reduce and/or eliminate pesticides. Pest control policies, methods of application, and posting requirements are provided to parents and school employees. Copies of pesticide labels, copies of notices, MSDS and annual summaries of pesticide applications are all available and in an accessible location. Our school prohibits children from entering a treated area for at least 8 hours after the treatment, or longer if required by the pesticide label. Our integrated pest management program consists of good housekeeping techniques, reducing clutter, and preventative maintenance that controls entry. If further action is required, we use baiting and trapping to remove a pest, which is provided by our contracted pest control company (Terminix). Terminix provides the routine inspections, pest identifications, and monitoring of traps. If any pest control service involves anything besides baiting and trapping, the school provides a letter home to parents and keeps a copy of what insecticides were used on file. Our priority is to conduct pesticide treatment when school is not in session. The district tracks all work orders generated by the schools requesting pest control services.

Cassidy is inspected on a monthly basis to ensure the rooms are free of mold, moisture and water leakage. Classrooms are routinely monitored for CO_2 and RH levels. If the RH level is above 60% or a building occupant raises concern about RH, additional air mold assessments are conducted. Our SEEK science club collects RH data on multiple and various spaces within our school. Remediation protocols are in place if levels exceed the heathy limits.

Cassidy's ventilation system and filter status are monitored regularly, and Fayette County Public Schools Maintenance is alerted when the unit is not functioning properly or if filters need to be cleaned and replaced. All spaces were designed to meet ASHRAE Standard 62.1-2010 (Ventilation for acceptable indoor air quality.) This ensures that we have healthy air quality in our school. School buildings are kept between 71-74 degrees Fahrenheit during the cooling season, and between 69-72 degrees Fahrenheit during the heating season.

In our plumbing, a reduced pressure backflow preventer is installed at the domestic water entrance, preventing the reverse flow of polluted water from entering into the water supply. Two filtered water bottle refilling stations were installed using FCPS *Go Green to Earn Green* funds to encourage students to re-use water bottles. There is an indicator light to remind maintenance to change the filter.

Narrative for Pillar 3:

Sustainability and environmental education are the driving force of so much of what we do at Cassidy. First and foremost, students are exposed to a phenomena to engage their interest in a topic. They are given the opportunity to ask questions about the topic and oftentimes students become problem seekers to search out ways to improve energy efficiency or sustainability. Students work to solve their most pressing questions and learn interdisciplinary standards along the way all while using STEM in their project-based learning. For example, in 2016, a multi-disciplinary outdoor classroom was established at Cassidy using grant and award money from several sources and matched by our PTA. The primary goal of the project was to "provide students with opportunities for positive interactions with the natural environment" (Kentucky Environmental Literacy Plan [KELP] Goal 7) while also improving the sustainability of the grounds at Cassidy Elementary in an effort to "improve student environmental literacy" (KELP Goal 6). The specific objective of the project was to develop an outdoor classroom to aid in teaching Kentucky Academic Standards which encompasses Science, Technology, Engineering, and Math using a hands-on, multi-disciplinary approach to project-based learning. Our classes require students to:

- make observations of plants and animals to compare the diversity of life in different habitats (2-LS4-1),
- plan and conduct investigations to determine if plants need sunlight and water to grow (2-LS2-1),
- develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants (2-LS2-2),
- develop a model to describe the movement of matter among plants, animals, decomposers, and the environment" (5-LS2-1),
- obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment" (5-ESS3-1), and

- develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact" (5-ESS2-1).

These standards also connect with the content areas of math, social studies, and English Language Arts (ELA) through the cross-cutting concepts (CCC). For example, the concept of patterns can be addressed not only in science, but through math when looking at data collected from experiments in the garden and social studies and science when studying population dynamics and how that impacts resources. Cause and effect are CCCs that tie all content areas together from topics like climate change that students read, research, and write about in their ELA classes, plan projects to mitigate climate change in science class while geography classes look at some possible impacts in the future from the consequences of climate change. Other standard specific math connections include population counts, data collection, graphs, computation, measurement, and problem-solving. The outdoor classroom is another venue for art education as the elements of design are ever-present in the patterns of nature. For example, through the use of line, landscape technique is taught. Students made drawings of the landscape and showed how environmental and human systems have changed it over time. It is a place to learn about health and nutritious food choices. It is a place where we have discussed musical instruments made from plant parts. Students create songs to show how bloom time of flowers is affected by the season and the amount of available sunlight.

The outdoor classroom helps meet KELP Goal 7 as students' curiosity soars. The outdoor classroom improves sustainability at Cassidy Elementary, thereby helping to meet KELP Goal 6, by increasing pollinator habitat through the creation of butterfly gardens (pollinators are responsible for supporting 33% of the food we eat), increasing the amount of storm water infiltrated through the creation of a rain garden/butterfly garden, and ultimately decreasing the amount of yard and food waste from the cafeteria entering the landfill by utilizing composting and vermicomposting. The outdoor classroom also meets the strategy of KELP Goal 4 which states that we should, "[allow] students to demonstrate their environmental literacy in ways other than a paper-and-pencil test." The outdoor classroom lends itself to assessments and work samples that reflect the project-based learning taking place outdoors such as when fourth graders made passive solar water heaters and tested them in the garden. Based on their data collection they were able to determine the best location for the water heaters and the best design. Then students read non-fiction texts about solar energy during their reading classes to help them as they wrote claims, evidence, and reasoning statements to support their findings about energy efficiency. In addition, the science lab teacher designed a survey of environmental literacy that students took before the outdoor classroom was installed and again after students had engaged in several lessons in the space to compare their thinking. Data from each student was tallied by grade level. Each question was then analyzed after creating the data table and graph. Students in all grade levels showed tremendous growth in each area surveyed.

The garden serves as the perfect backdrop for studying the cross-cutting concept of cycles with topics such as the water cycle and the life cycle of flowers. Using a Project Wet lesson and kit materials

from Bluegrass Greensource, students explored the journey of a water drop by visiting different areas in the garden designated as different bodies of water as well as clouds, plants and animals and then described all of the different phase changes they took as they “landed” in those areas. Students had a bracelet of beads they collected on their journey and could each tell a classmate about their experience with the water cycle. Younger students were able to act out the bloom time of native plants and realize why their life cycles have different timings during the seasons. It gave real meaning to competition for resources like water, space, and sunlight that a paper and pencil test could never have provided. Fifth graders were better able to apply matter and energy content once the composter was completed and they could see matter starting to break down and decompose. They were able to consider factors that affect decomposition with our open and closed composting systems and ask questions about possible experiments. Through collaboration with teachers in the building, PTA, and community partnerships, the outdoor classroom continues to be a relevant and “living lab” that grows along with our own environmental literacy.

Venturing outside of our garden, the second graders conducted an investigation to find out where the most biodiversity was around the school. They explored habitats and collected quantitative data of the different types of living things they discovered in each area. Third graders used the data that the second graders collected to increase the pollinator habitat around the portable which they discovered was extremely low when analyzing the data. After researching solutions, they worked in teams to design engineered blueprints to show how they would solve the problem. Solutions were designed and hung on a wall of the main building and then final blueprints were made with a combination of the best ideas. Students then made a list of what was needed and helped to order the supplies using $250 from a Captain Planet Foundation grant which was awarded after the science lab teacher attended a three-day professional development conference at Kentucky State University. Each class worked on building and assembling various aspects of the project such as bird houses, bird feeders, deck planters, solar powered water fountain, rain barrels, and a watering system using the condensation run-off from the condenser tube of the portable’s air conditioner. Kindergarteners later investigated living and non-living things in the garden and around the portable to compare the characteristics of living things and what they need to survive. Also, the Girl Scouts created a new recycling and trash bin for the rain garden space for visitors to use especially after school and on the weekends to keep trash from entering our storm drains and to maintain the quality of water in Lexington.

In early 2017 we started working with Bluegrass Community Technical College on a NASA grant to launch a test payload to near space in advance of the actual live-stream of the Great American Eclipse. The payload was equipped with sensors to collect environmental data such as temperature, UV, and air quality. Students were hoping to find out if the eclipse in any way impacted the normal patterns seen in this type of data. Cassidy’s fifth graders also got to fill the payload with mini experiments to find out the effect of the different levels of the atmosphere on the items. Students were curious as to what would happen to UV detecting beads, slime, marshmallows, and a bell. The payload traveled around 80,000

feet into the stratosphere which really got the students excited about space and thinking about future sustainability efforts in space.

We plan for cross-over with our programs to ensure that our projects are supported from various angles. For example, scientists and engineers from the University of Kentucky Center for Applied Energy Research (UK CAER) came to Cassidy for years to teach energy and sustainability concepts through their Energy 101 module. They gave students real-life examples of solar and wind energy projects helping to solve big problems in poor countries and how those solutions could apply in other venues here in our community. They had first-hand experience with bio-fuel and carbon fiber. They learned about how we could use local, renewable fuel sources to move towards a cleaner transportation footprint. UK CAER also provided our 4th graders transportation to attend Energy Day. They got hands-on experience with state-of-the-art equipment demonstrating sustainability efforts the university was researching. Kentucky National Energy Education Development (NEED) Project supplies our school with Science of Energy kits each time a teacher attends a conference. Those kits are used by teachers to teach all facets of energy transformations and ways to harness the power of energy in sustainable ways. We have also invited NEED teachers to our Discovery Days which is an all-day immersive event full of science, arts, and health and wellness mini classes as well as our Earth Week Extravaganza. We used FCPS Earn Green to Go Green funds to invite Kentucky Science Center to our school for the day to set up their energy stations and allow students to make an energy conservation promise. Bluegrass GreenSource supports the learning outside in our rain garden and with our littering mitigation and recycling efforts. Using Google Maps we were able to chart litter found on our school yard and code it by category. This allowed us to analyze the types of litter we were finding and look for point and non-point sources. Students then designed informative and eye-catching posters using digital media and clever phrases as well as a PSA during our morning news show. Our PTA also helps when needed to develop watering and weeding schedules for the summer when the science club isn't available. At times when the harvest allows, students pick vegetables and are shared with families served by our family resource center.

This year our students kicked off Tree Week with a Planting with the Principal event. We invited arborist to talk about their careers and help us to understand the importance of trees. Our entire fifth grade participated in the event as the tree was dedicated in honor of their class and will be marked with a plaque. Students also chose to map the tree benefits of several of the trees on our campus. They identified each tree using the Seek by iNaturalist app and measured the diameter of the trees to calculate how much carbon dioxide each was able to remove from the atmosphere, the amount of storm water it was able to intercept, the amount of energy it would conserve, and the amount it would increase property values based on Leaf Surface Area. Last spring, we also participated in a tree planting event and gave out over 75 tree saplings for students to plant at their homes. In addition, we participated in Earth Month 2020 in which we won a top prize of $1,000. Students from around the district competed to complete Earth Day activities which included topics such as watersheds, energy usage, consumption, and waste, Earth Day history, and Arbor Day.

In 2016, Cassidy applied for and was awarded an Environmental Field Day at Toyota Motor Manufacturing Environmental Center in Georgetown for the second graders at Cassidy Elementary. Students rotated through 4 outdoor stations dealing with stream studies, animals from the Louisville Zoo, animal adaptations, and honey bees. Toyota also donated tomato plants for students to plant at home, Environmental Field Day shirts, and refillable water bottles to use at Cassidy. In 2018 we received a kit of materials and lessons after participating in Energy Explorers Hands-On Discoveries at the Living Arts & Sciences Center. Students benefitted by doing art through science to learn about energy transfer and energy transformations while also learning about famous scientists and historical connections to the science discovery.

Most recently, Cassidy Elementary is also honored to participate in KY's inaugural Gen-EV racing program. This experience allows 4th and 5th graders to advance their understanding of STEM topics and inspire innovation through the immersive experience of designing, building, and racing a one seat electric powered vehicle. The Cassidy Colt Racing Team explores environmental lessons using critical thinking and teamwork while also learning about renewable vs. non-renewable resources, pollution, conserving natural resources, and human impact by reducing the release of CO2 into the atmosphere. This year-long project culminates in a racing event with other Kentucky schools and includes a team presentation to build communication skills and to prepare students for the future workforce.

Through hands-on projects, students have immersed themselves in their community and continue to look for ways to improve not only our school, but the world. Many of our projects have taken a long-term approach and are built on the shoulders of the class before hoping to enrich the journey and lend opportunities to learn from others. These projects have made it possible to be recognized as a Kentucky Association for Environmental Education PreK-12 Outstanding School in 2018.