



2019

DAVENPORT
COMMUNITY
SCHOOLS

SUSTAINABILITY
ACCOMPLISHMENTS

INTRODUCTION

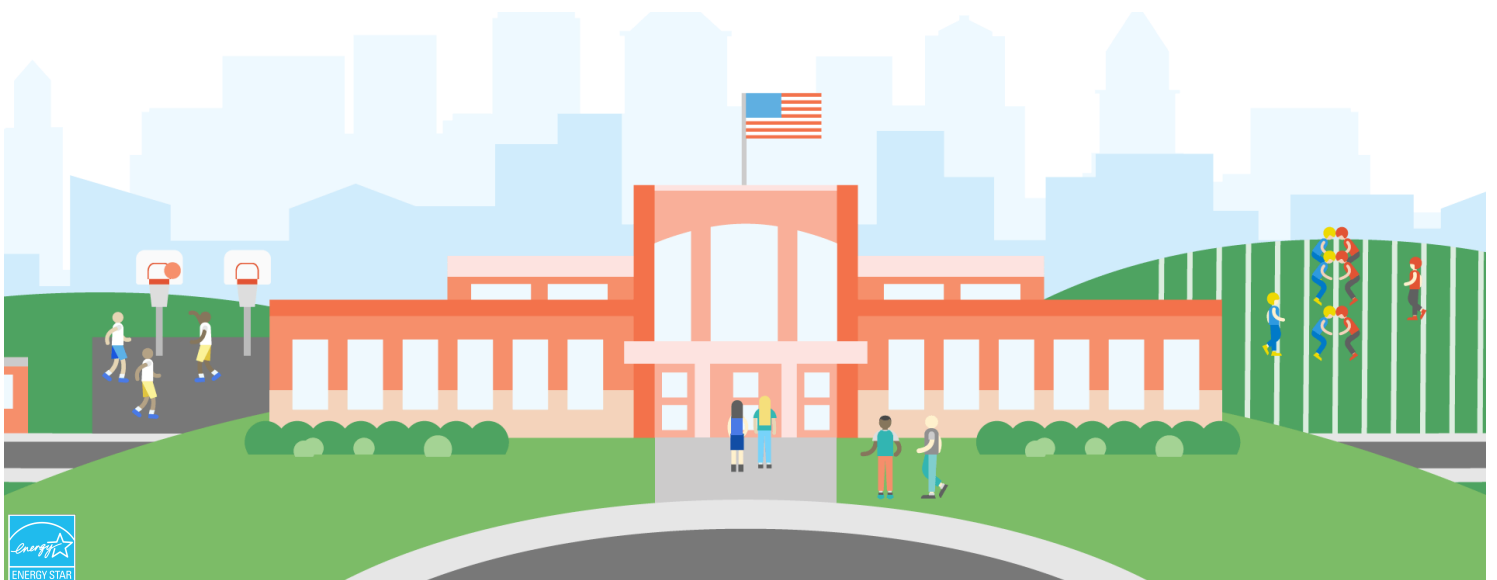
Davenport Community School District has made ongoing efforts to improve energy, water and resource efficiency in all schools to help preserve our budget dollars to use for positions and programs which directly affect the health, safety and achievement of our students while being good stewards of our planet's resources .

This summary is provided to describe Davenport Community School District's efforts to reduce environmental impact and costs, improve student and staff health and provide effective environmental and sustainable education.



**"Unless someone like you
cares a whole awful lot,
nothing is going to get
better. It's not."**

The Lorax
Dr. Seuss





REDUCED ENVIRONMENTAL IMPACTS & COSTS

Davenport Community School District currently uses three benchmarking tools to track and monitor our natural gas, electrical and water consumption- Energy Star Portfolio Manager, B3 Benchmarking, and UmPro's Utility Manager Tracking Software. Analysis of data and trends through these tools has informed planning and decision-making district-wide, which has guided energy efficiency improvements, such as: systems upgrades; utilization of maintenance management software; adoption and implementation of temperature guidelines, School Board Policies on energy and sustainability, administrative regulations and Long Range Facilities Plan and Energy Management Plans.

Use of these benchmarking tools has also given the District recognition locally, regionally, and nationally. In the past 22 years, DCSD has received eight awards for excellence in energy efficiency and conservation, two awards for energy resiliency, one for distinction in environmental sustainability, one for excellence in recycling program development and four for staff leadership in sustainability. Five of these were local

awards, three were regional awards, six were national awards and two were international awards. See text box on following page.

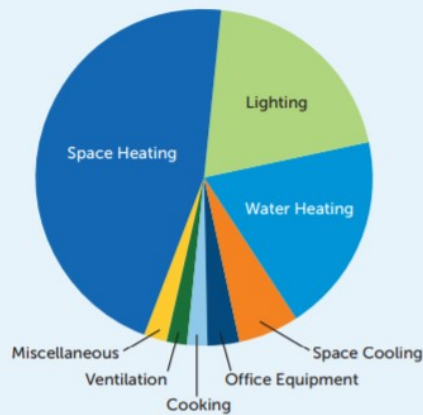
Renewable Energy

Currently, 14, or about half, of Davenport schools use geothermal heating and cooling. There are both closed and open loop systems installed as mechanical systems are replaced in buildings. The district is also in the midst of reviewing solar proposals for installation of solar electric arrays on several of Davenport's schools. These installations would be in addition to the two solar arrays currently in operation.

Energy Efficiency

Most Davenport Community Schools have received common area LED fixture or light bulb replacements in the past several years. We are currently focused on LED fixture or bulb replacements in our classroom areas.

FIGURE 1 BREAKDOWN OF ENERGY USE IN K-12 SCHOOLS



Source: U.S. DOE, 2006b.

Current State of Our Energy Usage

Energy costs are second only to personnel costs as the leading draw on K-12 school district operating budgets. It is a cost we can and have controlled by various energy efficiency measures.

Buildings require on-going tune-ups and efforts to stay efficient and/or improve our efficiency. By making energy efficient selections in our purchases and keeping what we have working properly and efficiently, we will continue to reduce consumption and costs which will allow us to put those funds back into our classrooms.

Since July 2018 we have completed multiple energy efficiency measures. Forty-nine of which were eligible for energy efficiency rebates. LED lighting projects, occupancy and vacancy controls, roof insulation, retro commissioning, Express Building Tune-Ups (quick no cost to low cost improvements), kitchen hood optimization, etc.

Rebates received so far total \$452,594.98. Our utility provider estimates we will see annual on-going savings in energy consumption and costs are estimated at over \$100,000 for just these projects.

Currently, the District has the lowest cost per square foot of Iowa public K-12 schools which have reported their energy data in The Iowa Department of Economic Development's B3 Benchmarking program for public buildings. Between July 2017 and June 2018, the district saved money on utility costs in spite of

Davenport Community Schools Awards

1997: Green Lights School System Partner of the Year by the U.S. Environmental Protection Agency

1990s: Association of School Business Officials International Facilities Masters Award

2004: participating in the Pollution Prevention Awards (EPA) and contributing to prevention of pollution and reduction of waste [not an "award"]

2004: Energy Efficiency and Renewable or Alternative Energy Sources Award (EPA)

2005: Governor's Environmental Excellence Award (IA)

2005: Energy Conservation Regional Award (EPA)

2006: Energy Star Leader for 10-Point Improvement (EPA)

2006: Energy Star Leader for Superior Portfolio-Wide Energy Performance (EPA)

2006: National Pinnacle of Excellence from the Association of School Business Officials International for energy conservation

2006: Best School Recycling Program (Iowa Recycling Awards)

2007: Energy Star Partner of the Year for Energy Management (EPA)

2007: The Iowa Governor's Environmental Excellence Award for Energy Efficiency and use of renewable energy

2017: Central High teachers Gail Heninger, Joni Nelson, and Shifra Gassner received the 2017 Education Eddy Awards from River Action

2017: Central High Family and Consumer Science teacher Jenee Cross was awarded an Afterschool Champions Award from the Iowa Afterschool Alliance. Mrs. Cross worked with River Bend Food Bank to create the Community Cafe program, which taught students how to be proactive members of their environment and tackle community hunger issues.

2019: The redevelopment of the former JB Young K-8 School into the JB Young Opportunity Center is recognized as a winner of the Best Re-development Award in the large community civic category by 1000 Friends of Iowa.

2019: In February the Iowa Department of Education nominated DCSD for the Green Ribbon Schools Award, a national award recognizing schools and districts that reduce environmental impact and costs; improve the health and wellness of schools, students, and staff; and provide effective environmental and sustainability education.

Public Schools - Ranked by Dollars

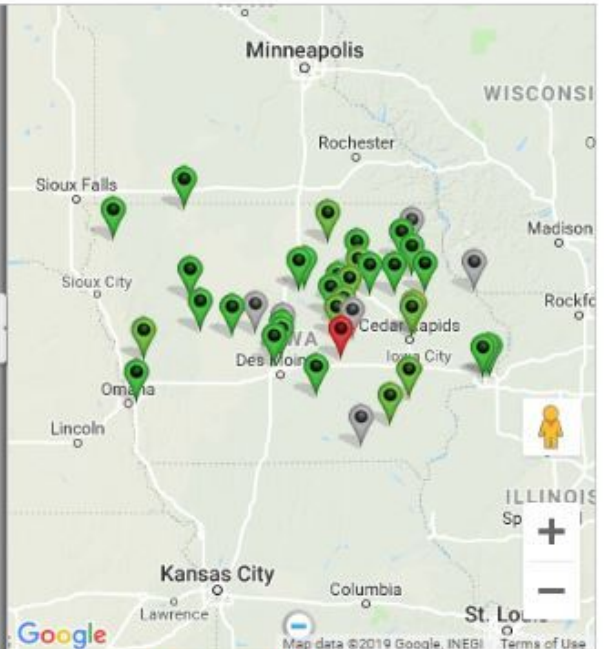
Public Schools

Ranked By: Energy \$/SF

Freshness:

HELP

#	Name	Dollars (\$/SF/yr)	Completed Sq Ft	Total Sq Ft	Completed Sites
1	Davenport	\$0.60	3,061,875	3,247,921	34
2	Pleasant Valley	\$0.68	667,940	667,940	8
3	Iowa Falls	\$0.72	340,008	340,008	7
4	Waterloo	\$0.76	2,324,485	2,324,485	26
5	East Sac County	\$0.77	286,447	286,447	6
6	North Polk	\$0.78	211,962	211,962	4
7	Bettendorf	\$0.79	773,468	773,468	10
8	Johnston	\$0.79	1,094,082	1,094,082	8
9	Alden	\$0.81	79,804	79,804	1
10	Grundy Center	\$0.81	165,550	165,550	5
11	West Delaware County	\$0.83	255,516	333,399	2
12	North Fayette	\$0.85	184,681	184,681	4
13	Carroll	\$0.88	397,120	397,120	7
14	Knoxville	\$0.88	369,819	369,819	7
15	Ankeny	\$0.89	774,432	2,310,200	11
16	Burlington	\$0.91	160,167	160,167	1



43 public schools listed

Reporting on data current to 3/8/2019 3:39:14 AM. Need help understanding why your organization is ranked where it is? Need assistance getting your data up to date? Email us or call 952-939-1878.

increasing building square footage and total energy consumption, as well as experiencing a warmer summer and colder winter.

We track almost 3.3 million square feet in B3 Benchmarking. When compared to another school district in Iowa closest in size to ours, we pay \$0.55 per square foot less. If we paid their rate we would increase our annual cost an additional \$1,805,606. If we paid even the average cost per square foot per year (\$.093) of the Iowa public schools currently using the energy tracking database, we would increase our annual costs by more than \$1,083,364.

Imagine how much money other schools could be putting towards support for the classroom. That being said, imagine our increase in costs if we stopped our efforts or didn't consider energy efficiency when purchasing equipment or in our energy reduction efforts.

Energy Guidelines, Policies, Regulations & Management Plans

The District Temperature Energy Guidelines limit heating and cooling set points in buildings district-wide to keep these costs down. Degree settings are determined by building type, area usage type, age of students in classrooms and occupancy levels.

School Board Policy 307.04, *Energy Use*, was originally adopted in 1976, but most recently reviewed in 2017. This policy recognizes a need for environmental conservation and "accepts responsibility for developing and enforcing programs and procedures" for doing so at the district level.

Administrative Regulation 307.04A, *Utilities*, is a part of the Energy Use School Board Policy. This regulation prioritizes conservation of energy and water in all



district buildings, by encouraging all district personnel “to participate actively in that effort”. It also states that all building administrators and staff members should utilize energy and water records to stay aware of progress being made in each building and to further contribute to continued improvement.

Davenport Community Schools’ Long Range Facilities Plan includes a chapter on *Sustainability, Energy Efficiency and Life Cycle Costs*, which details plans and recommendations for: energy efficiency upgrades and investments; new construction standards, including consideration for renewable energy installations; continued collaboration with the City of Davenport Public Works on storm-water management and future projects and efforts that will help enhance district-wide environmental sustainability.

The Energy Management Plan lists eight primary objectives as follows:

1. Promotion of energy efficiency initiatives
2. Encouragement for energy-related employee trainings
3. Appropriate integration of the plan into curriculum

4. Oversight and development of corrective actions for maintaining energy usage within set performance goals
5. Designation of specific accountabilities based on Key Performance Indicators
6. Implementation of energy usage targets
7. Maintenance of relationships with key stakeholders (local utility companies)
8. Continuation of regular and consistent data analysis reporting

The plan explains several strategies for meeting these objectives - for example, developing a Facility Energy Team tasked with providing leadership and innovation for improving the district’s energy use management.

While these benchmarking tools have helped accelerate district sustainability efforts among energy systems, there are additional aspects of a sustainably functioning school district that are also necessary to track and monitor when assessing Davenport Community Schools’ environmental impact and costs: recycling and waste; food procurement and disposal; building design, and construction material life-cycle management; paper use and transportation.

Recycling & Waste

Davenport Schools has offered recycling for a varying degree of items in all school buildings since 1998. Analysis of district-wide recycling began in 2018, along with plans to improve recycling efforts through increased school adoption and upgraded operational capability. Tracking district-wide recycling showed that participating schools increased their recycling rate by 104% between the 2016-2017 school year and the 2017-2018 school year (measuring September through May as the school year). In the 2017-2018 school year, elementary schools contributed 37% of that recycling; intermediate schools contributed 16%; high schools' recycling efforts made up 30%; and other facilities, like the district's Sports Complex and Operations Department building, recycled 17% of that school year total. In July 2019, Davenport Community School District will join the few school districts in Iowa in recycling glass.

School Board Policy 305.21, *Recycling*, was first enacted in 1995, and most recently reviewed in April 2018. This policy states that “the district is committed to being a progressive environmental organization” by offering recycling throughout the District. It also determines who is accountable for upholding support for a recycling program, among which facilities this program will be administered, and how implementation of this initiative will be analyzed and determined as successful.

The District has also made efforts to reduce waste by purchasing less styrofoam and paper trays for breakfasts and lunches in our cafeterias. In the 2017-2018 school year, DCSD saved just shy of \$3,400 from reduced styrofoam use, and more than \$2,100 from reduced paper use. Between 2014 and 2018, the district saved over \$8,000 by reducing the use of styrofoam and paper trays in cafeterias. Now, use of these trays is reserved for certain and specific instances.

Food Procurement & Disposal

During the 2016-2017 school year Davenport Community Schools began sourcing school breakfasts and lunches from local Iowa farmers. Although the Iowa Local Food Day only comes around once a year, it is certainly a conscious effort to connect students with their food and with their community, rather than a money-saving decision: Bringing sweet corn and apple cakes to Davenport Schools cafeterias typically costs the district \$4,000 more than any other day. While the district might not be able to provide local food everyday, food on this day each year is exceptionally fresh, offering students some of the healthiest produce possible. This procurement practice also reduces the distance food must travel, which means DCSD is supporting the local economy and expending less carbon emissions.

On every other day of the school year at Davenport Community Schools, all of the milk that is served comes from a cow somewhere in Iowa. Through this one choice, the district has committed to supporting their local economy and increasing emissions savings just a little bit more.

Reducing food waste is a practice that improves student health and wellness by reducing the amount of waste that goes to local landfills, improving air quality, water quality, and aesthetic appeal of a community. Davenport Community School District has made many efforts to reduce food waste.

Campaigns for reducing food waste are abundant in schools across the district. Students are encouraged by teachers, food service staff members and cafeteria posters not to take more food than they can eat, stating things like "Don't Feed the Garbage". While the amount of waste this has diverted from the landfills is unknown, this is a conscious effort to reduce the district's footprint and to teach students important behavioral practices worth continuing.

Inevitably, students will take more food than they can eat sometimes. This is why Davenport Community Schools began offering food share tables in September 2017. During cafeteria breakfasts and lunches at all Davenport Community Schools, students are encouraged to place unopened, pre-wrapped or packaged items which they do not open or eat on a designated share-table located in their cafeteria. Other students are then welcome to take those items for themselves. This practice has been supported by a district policy that details guidelines for implementation. The driving efforts of share tables has occurred through student education. Posters telling students what they can and can't place on the share tables are located on each table in each cafeteria district-wide.

If DCSD Food Services staff prepare more food than is eaten, there is also a practice in place to keep this food out of landfills as well. This food is donated to food banks in the Quad City area. As a district, we have donated around 3,630 pounds of food to the following food banks: Cafe on Vine, J.B. Young Opportunity Center Food Bank, and River Bend Food Bank.

Building Design, Construction Material Life-Cycle Management & Re-purposing

The majority of DCSD's construction project building materials are sourced from within the state of Iowa. These procurement decisions decrease travel distance of these materials to our schools, therefore reducing emissions.

During demolition projects, many items are repurposed for additional use in our schools. Useable items like doors, windows, excess materials, light fixtures, screws, tackboards or marker boards if not needed in DCSD are taken to the Quad Cities Habitat for Humanity Restore Center. If items are unusable and can be recycled, our construction team makes sure they are taken to the proper facility. All cardboard, metals, concrete and

appliances are recycled. Sometimes insulation, drywall and ceiling tiles are also recycled.

Shive-Hattery, the Architectural and Engineering firm that designed and constructed the building addition and secure entry at Sudlow Intermediate in 2017 has a stated commitment to "incorporate the best-fit sustainability features" into all of their buildings. Therefore, many of the elements of this renovation were designed with sustainability in mind: translucent walls increase daylighting; a glass alternative maintains the building's thermal performance; and LED fixture replacements reduced energy consumption by 20%.

Previously an Intermediate School, the J.B. Young Opportunity Center was renovated in 2018 with energy efficiency upgrades and repurposed to provide a collaborate learning space for community organizations to help enhance the quality of life of local residents. After assessing community needs and searching for matching proposals, the District chose nine organizations to share the building with District staff. Some of these organizations include: ProStart Culinary Arts; Davenport Community Food Pantry and Active, Community-Conscious Teachers Committee. In 2018, 1000 Friends of Iowa Announced the Center as the winner of the Best Development Award for the Renovated Civic-Large Community Category.



By rerouting District bus routes after the 2016-2017 school year, Davenport Schools was able to reduce the number of miles buses traveled in the 2017-2018 school year by 333,122 miles. This is approximately equivalent to decreasing carbon dioxide emissions by 706.5 metric tons. This would be equal to growing 11,862 trees from seedlings for ten years.

Paper Use

Since 2015, each Davenport Community Schools student has received a Chromebook or tablet in replacement of paper for use throughout the entirety of their learning career with us. That's over 25,000 of these paper-saving devices! These technologies accompanied interactive whiteboards, projectors and Smartboards, which had already been used in *all* elementary classrooms and many intermediate and high school classrooms for a decade.

Teachers are saving paper too by using the Virtual Backpack platform to communicate with parents and students about field trips, homework and other important information that used to be shared on paper notes.

Transportation

Sharing transportation greatly reduces emissions and can save riders as much as \$2,200 a year on fuel costs alone. One person choosing public transportation over driving for one year is equivalent to growing 80 trees for ten years from seedlings (on average). District employees and students have participated in several programs for improving transportation efficiency which have reduced the amount of emissions emitted by the district and saved money on fuel costs.

Since 2014, DCSD has offered their students free public transportation on City of Davenport CitiBus transit routes. Students can even ride CitiBus free on the weekends!

DCSD's Pool Vehicle Program offers district employees the ability to reserve a vehicle from the district's fleet free of rental charges. These vehicles have been driven a total of 935,987 miles as of December 2018. Assuming at least one other vehicle would have been driven, had the passengers of this service not been able to carpool for each of the trips these vehicles have made, this program has saved 665 metric tons of carbon dioxide equivalent, or the equivalent of electrifying 116 homes for one year. Assuming four carpoolers shared each trip, this program has saved about 1,331 metric tons of carbon dioxide equivalent, or the equivalent of electrifying 232 homes for one year.

DCSD has put effort into offering a variety of alternative transportation methods to its students. Bicycle racks have also been installed at our schools to encourage students and teachers to participate in the most sustainable form of transportation there is.



IMPROVED HEALTH & WELLNESS

Much of the District's success in improving health and wellness of its students and employees can be attributed to programs, policies and practices that have reliably made progress in this arena over decades throughout the school district. Programs like the Free and Reduced Meal Price Program and the Fresh Fruit and Veggie Program have eliminated barriers like cost and accessibility to fresh foods to ensure that healthy eating habits are a convenience. Other programs, like Pick A Better Snack, educate students on those healthy eating choices. Policies created by the District Wellness Committee, including the District Wellness Policy, aim to improve student and staff health and wellness by integrating education into daily life in different and creative ways. Practices such as Green Cleaning, Integrated Pest Management and use of Indoor Air Quality tools eliminate student exposure to harmful chemicals and particles and provide healthy learning environments.

Providing Accessibility to Low-Cost or Free & Healthy Food

The Free and Reduced Meal Price Program has been offered to students through eligible Davenport Community Schools since the 1950s. In 2018, the

number of schools who qualified for this program more than doubled - increasing this number from 8 to 19. Every student enrolled in one of these schools may receive a healthy breakfast and lunch at no charge each day. Since 2014, this federal program has been funded through the Community Eligibility Provision (CEP) in the state of Iowa. CEP allows schools to qualify for free meals through direct certification or categorical eligibility, rather than income applications.

Since 2008, DCSD has provided schools that qualify for the Fresh Fruit & Veggie Program with regionally sourced produce. In the 2017-2018 school year, twelve Davenport Schools qualified and received fresh fruits and veggies through this special program. Among these schools, each student was offered one fresh fruit or veggie each day that the program could accommodate them. This meant students were introduced to two to three healthy produce items per week. They are also being introduced to the products of the Midwest's fertile soil that supports an abundance of agriculture and being encouraged to support their regional farmers. In total, 90,514 pounds of fresh fruits and vegetables were delivered to these schools.



District Wellness Committee

DCSD acquired a Wellness Committee in 2006. This volunteer body creates information that supports and encourages improved student and staff health and wellness.

The Davenport Community School District has been committed to providing a comprehensive learning environment for developing and practicing lifelong wellness practice behaviors since 2004 through the District Wellness Policy. As recently as March 2017, the district's goals for meeting Iowa Department of Education requirements were updated.

In order to "positively influence a student's understanding, beliefs and habits as they relate to good nutrition and regular physical activity", as district policy states, the Wellness Committee committed to achieving the following goals between 2017 and 2019. The district plans to:

1. provide students with nutrition education that supports their health
2. is integrated into every subject area
3. encourages healthy food choices and preparation
4. emphasizes that food must be balanced with energy expenditure
5. includes fun learning activities

The district will also provide learning opportunities about personal wellness to district staff. The district will work to increase physical activity by providing students with age appropriate activities, and engagement in these for the majority of Physical Education classes. The district commits to teach necessary skills that promote lifelong fitness through encouraging students to meet a goal of sixty minutes of physical activity each day, examining fitness through individualized assessments and reporting on each student's success. The district will also provide education to parents and other outside entities, provide food and beverage choices for students which follow federal standards, ensure that caloric consumption is not used as reward, limit unhealthy snacking, and continue to improve student access to water.

Pick a Better Snack has reached an average of 2,200 students per month. In 2017, 2,184 students were reached at ten elementary schools. Students who receive programming through Pick A Better Snack are Kindergarteners, first graders, and third graders. Each student has received 4.5 hours of education each of these years since beginning in 2013.

Pick a Better Snack

Pick A Better Snack has a mission to improve student health and wellness through healthy eating choices and an unspoken goal of reducing childhood obesity, as it is a rising epidemic (in the state of Iowa, the average servings of fruits and vegetables a child eats is one per day). This program aims to achieve its mission through educational programming in the classroom, such as introducing kids to healthy food options. This program is hosted in ten Davenport elementary schools: Fillmore, Buchanan, Jackson, Wilson, Hayes, Monroe, Jefferson, Madison, Garfield and Washington. Some of the projects they have been involved in are listed below.

In the five years DCSD has hosted this program, Pick a Better Snack has reached an average of 2,200 students per month. In 2017, 2,184 students were reached at ten elementary schools. Students who receive programming through Pick A Better Snack are Kindergarteners, first graders and third graders. Each student has received 4.5 hours of education each of these years since beginning in 2013. Pick A Better Snack also communicates with families through a monthly newsletter. Families are able to get involved with programs like Born Learning (a Kindergarten-preparatory program for guardians and young children), as well as Family Night events.

Projects that Pick A Better Snack has hosted or lead include: creation and maintenance of school gardens, Summer Feeding Programs, family nights, and cooking classes. Pick A Better Snack has helped Garfield Elementary maintain a garden on-site since Spring 2014. A Garden Club was started, and family involvement has since been welcomed. During the summer of 2017, Pick A Better Snack worked among the school district to host Summer Feeding Programs at several school sites. Among these school sites, staff held student taste tests

of healthy fruits and vegetables, taught cooking classes and helped start and maintain gardens. It was common to see groups of 25 to 30 students at a time during this summer.

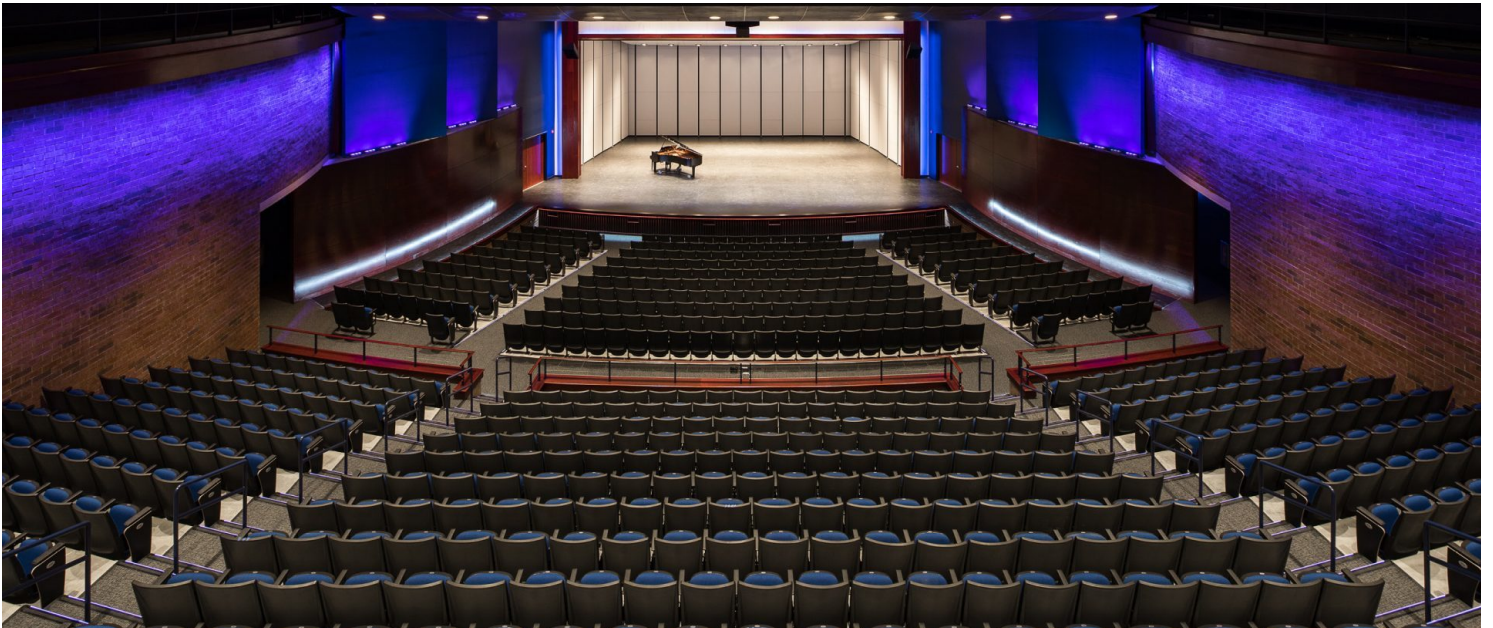
Healthy Learning Environments

The state of Iowa House File 823, signed in the spring of 2010, requires Iowa schools to use green cleaning products. Davenport Community Schools have abided by this stringent state standard since 2010. By doing so, DCSD has reduced student and staff exposure to toxic chemicals, as well as protected groundwater systems.

The District has implemented Integrated Pest Management (IPM) procedures to control structural and landscape pests and minimize exposure of children and staff to pesticides.

Good indoor air quality contributes to a favorable learning environment for students, productivity for teachers and staff, and a sense of comfort, health and well-being for all schools' occupants. Davenport Community School District manages indoor air quality concerns through the use of the EPA's "Indoor Air Quality Tools for Schools" program. District objectives are to proactively prevent indoor air quality problems and quickly respond to any problems that may arise.

Concerns about indoor air quality from district staff are encouraged to be shared with school Administrators, so that they may be addressed swiftly. When an Indoor Air Quality complaint is determined to have merit, we immediately assign a Certified Industrial Hygienist to conduct an air quality investigation. The lab results of that investigation is shared with the complainant and any recommended changes or improvements to the building are implemented to ensure that air quality standards are maintained and that all staff, students and other occupants of our buildings are in a healthy environment.



While these tried-and-true health and wellness initiatives of the district are necessary and important for continuing to provide Davenport pupils with a healthy K-12 experience, so too are new initiatives for providing students additional health and wellness benefits.

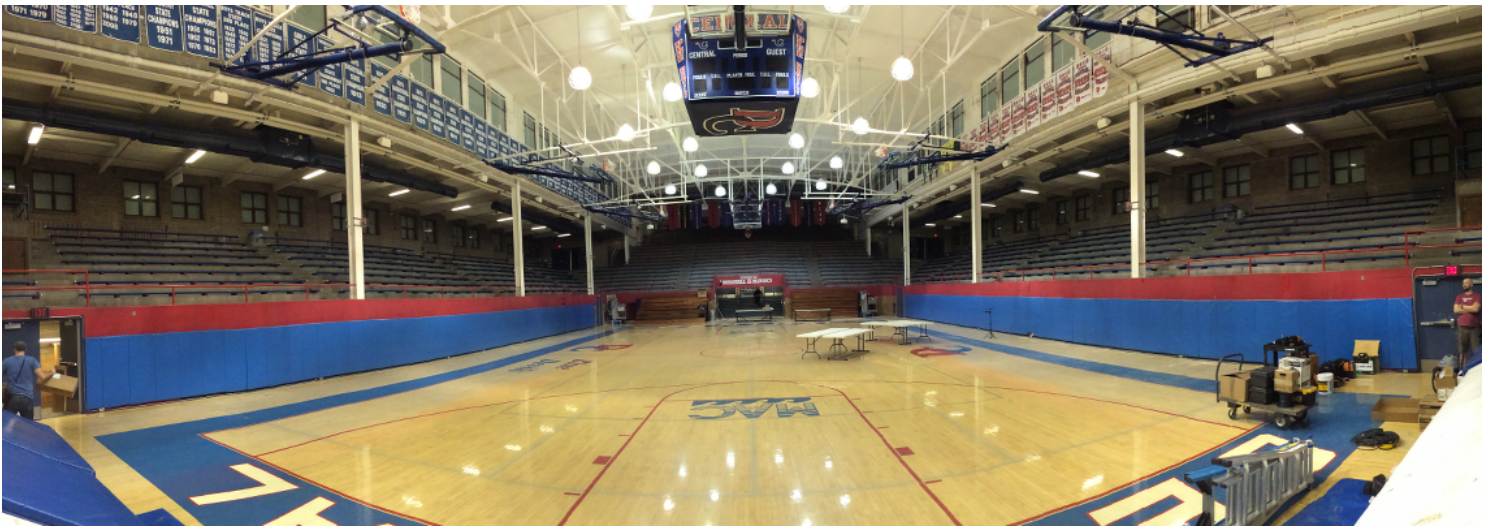
Employee Wellness

Newer programs, like the Employee Wellness Program, improve health and wellness for employees of DCSD by incentivizing healthy behavior. This preventive approach encourages proactive habits for maintaining a healthy lifestyle. Since its inception in the Fall of 2015 the District has seen a 108% growth of employee participation and currently has 40% of all employees actively using the program.

The District Employee Wellness Program, through a partnership with BeBetter Health, provides an opportunity for staff to engage in healthy lifestyle practices while earning rewards points towards monetary incentives up to \$500. The five goals of the program are: 1) reduce long-range healthcare costs; 2) increase employee engagement, culture and climate; 3) lower absentee rates and occurrences; 4) support physical and emotional health/well-being of staff; and 5) to build a premier wellness program to attract top talent. In addition to these identified targets, the District aims to model healthy behavior by its employees to its students and families. By incorporating members from all employee groups and levels of responsibility the program is geared annually to the needs and desires of those it serves.

FoodCorps

Another healthy and wellness-promoting program that has joined DCSD more recently than others is FoodCorps. Each year, one FoodCorps service member joins the district as a volunteer, offering educational after-school programming that is similar to Pick A Better Snack. This FoodCorps (a program of AmeriCorps) Service Member serves in two elementary schools in the Davenport Community School District - Garfield and Hayes. This member works to improve student health and wellness by offering educational programming that introduces and encourages healthy food choices. This programming is offered primarily through the schools' Garden Clubs. With a garden-based, hands-on approach, some lessons address sustainable growing practices for raising produce from seed to harvest. Other lessons lead students through preparing a healthy and delicious dish to enjoy afterwards. Another program this member organizes and leads throughout each school year is healthy taste testing. Taste tests offer students the opportunity to try new healthy food items and dishes in their own school's cafeteria. Other programming this member manages and teaches includes local food identification.



EFFECTIVE ENVIRONMENTAL & SUSTAINABILITY EDUCATION

Environmental and sustainability education has been integrated into more than just Davenport Community Schools' curriculum. Project-based learning and new outdoor learning environments have also allowed DCSD teachers to effectively train their students that these concepts can be integrated into ideas beyond the textbook explanation. Additionally, students have become engaged in environmental and sustainability learning outside the classroom through environmental clubs and related events.

Project-based learning has developed over the years in high schools and middle schools among the Davenport district schools. Some high schools offer the opportunity for students to self-develop a capstone project, while others have several classes in which sustainability-related projects have been integrated and are ongoing. One high school offers a college-credit course which explores a range of environmental issues through project-based learning.

Project-Based Learning

The INSPIRE Capstone Program at West High School provides students an opportunity to take coursework toward career pathways in healthcare, engineering, finance/accounting, advanced manufacturing and computer science. The program includes a senior capstone that brings INSPIRE students together to complete a major task. Some of the projects that have evolved out of this program are described below.

- Kenya Water Project is a partnership between West High School and the Muamba village in Kenya to create water filtration systems with regional materials. The collaborative STEM project gives students an opportunity to work on a real-world environmental problem that requires a sustainable solution. It has been awarded the \$10,000 Lemelson- MIT Program Grant two years in a row.
- Net Zero Home Solar Installation Project is a partnership between teacher Jack Achs and West High School's engineering and architecture students to transform Achs' home from an energy-efficient home to a net-zero home by using solar panels. The project objective is to determine the number of solar panels, the placement of panels, and what types of panels.
- Energy-Efficient Home Designs for Habitat for Humanity is a Project Lead the Way curriculum used yearly for architecture students that challenges them to design an energy-efficient affordable home for Habitat for Humanity that incorporates green and sustainable design features.



North High School's Environmental Science class is a college-credit course which covers a range of environmental problems through project-based learning and community-based projects. In this course, common environmental problems are surveyed, with discussion as to their possible causes, consequences and remedies. The goal of each student project is to develop a solution to a local environmental problem in one of the following topics: water quality and water pollution; ecology and ecosystems; population dynamics; agricultural practices and feeding the growing population; land and mineral use; other pollution sources of the air, from hazardous waste, or using toxicology; or sustainable practices.

In all Davenport Community Intermediate Schools, science classes participate in an environmental project during the Spring term. Overall, there are 3600 middle school students and 1200 students per grade level- all of which contribute to improving the environment in their own way.

Through a partnership with the City of Davenport Public Works department, all sixth graders work on a watershed project. This includes a field trip where students learn about the local watershed, flooding, weather (with NOAA staff) and water testing. These young learners also get to take a tour of the wastewater treatment facility and learn about green infrastructure such as rain gardens and permeable sidewalks.

- Seventh graders focus on a local environmental issue of their choice. At this age, though, they're required to do more than just listen and learn. Seventh graders must take action (not just writing a report) to better understand "what is the power of one person?"
- Eighth graders are challenged with choosing a project centered around a global environmental issue of their choice. These students must also take action (not just writing a report) to reflect "what is the power of one person?" Example projects have included attention to the disappearance of the bees and plastic in the ocean.



Outdoor Classrooms & Gardens

Davenport Community Schools have also worked toward achieving more effective environmental and sustainability education by creating outdoor classrooms and gardens in which lessons can be demonstrated. Currently, there are ten outdoor classrooms, five school gardens, two greenhouses and several additional projects in which schools have gone above and beyond to create a hands-on learning experience for their students.

Hayes Elementary has both an outdoor classroom and school garden. The outdoor classroom is available to all teachers and is also used for Environmental Day activities when students plant the raised garden beds in the spring. The district's FoodCorps service member assists tremendously with this garden.

Wood Middle School has an outdoor classroom as well. Their outdoor classroom is used as an alternative classroom space that features an outdoor white board and garden within it. Classes adopt portions of the "room" to maintain such as planting and pulling weeds. It is also used for students who need community service hours.

Wilson Elementary School's outdoor classroom features a pond where students of varying ages learn about ecosystem management. Classes of all grade levels use the space when the weather is acceptable. The PTO helps maintain this outdoor classroom.

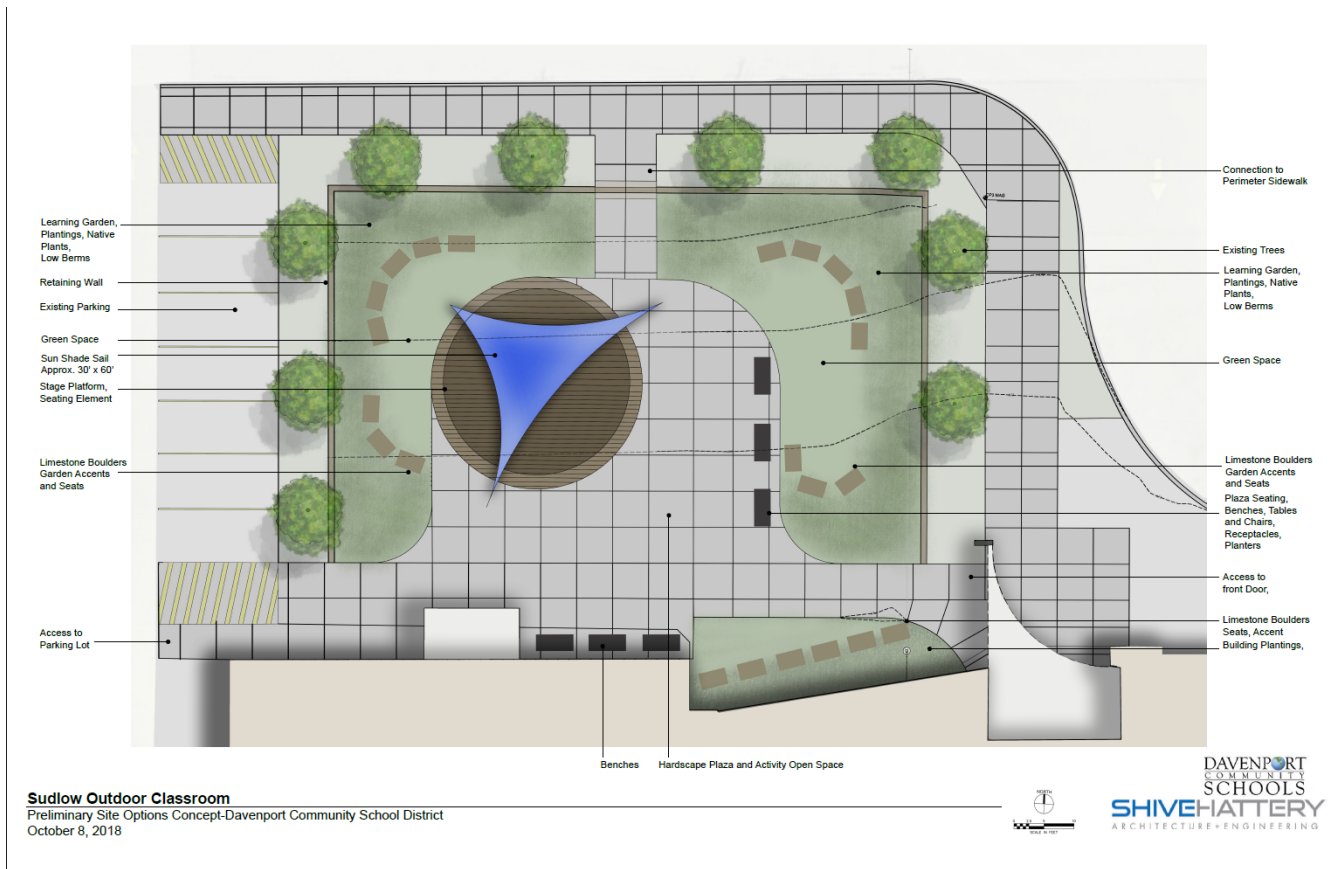
Buffalo Elementary has a school garden on its premises which is unique from all other Davenport Community Schools' gardens. Theirs includes a "Farm Bot". The creation of the Farm Bot was a collaborative

STEM project developed with West High School technology students, Mid-City High School Building Trades students and Buffalo Elementary students. The Farm Bot is used in the Buffalo Elementary School garden to plant seeds, measure soil moisture content and water crops. Buffalo Elementary is a STEAM campus and curriculum for the Farm Bot is incorporated into many levels of learning with concentration from fourth and fifth grade classes.

Garfield Elementary also has a school garden. This school garden is used for student lessons about the life cycle and nutritional value of plants. They learn about portion control, healthy choices and how to prepare different food. Participating students are given the opportunity to have hands on experiences in growing a garden and making meals from the food they grow. The vegetables and fruits they successfully grow are available to the students to eat, which increases the amount of healthy choices that they are exposed to.

Mid City High School has also uniquely utilized the outdoor space on their campus. While this school's Urban Farm is aesthetically pleasing to many, it is managed and maintained by the Environmental Studies class. This class is focused around NGSS Engineering Standards and provides students opportunity to engage in hands-on, experiential learning.

From planning to planting, and harvesting to plating edible crops, students are involved in every aspect of running the farm. During the summer a few students are even hired to work on the farm, giving them their first real experience with a paying job.



These students learn valuable skills which they will carry with them into their future. Day to day operations of the farm allow them to hone their critical thinking and collaborative skills.

The school garden at McKinley Elementary is utilized in the school's Farm to School curriculum, which was written by the IA Extension Office for Kindergarten and Third Grade. All students participate in planting and harvesting this garden. Fifth grade students are given the opportunity to prepare food from the garden with local volunteer chefs, after which students taste test their own culinary dishes.

Blue Grass Elementary has a huge courtyard with Galapagos Torti and greenhouse.

Sudlow Intermediate and Washington Elementary School will share in a new outdoor learning space to be constructed spring of 2019 (pictured above).

Student Engagement & Professional Development

Each Spring since 2013, Hayes Elementary has hosted a school-wide Environmental Day during the week of Earth Day. Students become environmental leaders on this day, when they come to school prepared to teach a day full of learning sessions focused on the

environment and how everyone can contribute to sustaining and improving its well-being.

Central High School science teachers, Joni Nelson and Alene Vandermyde, attended a workshop in Keystone, Colorado, at the Keystone Science School. While at the workshop, these dedicated teachers learned how to teach about water resources and water allocation, while working through many hands-on activities and lessons. They learned how to use data and information about the Colorado River to help students understand how important water conservation is. These teachers have now replicated similar lessons and activities using the Mississippi River.



DAVENPORT COMMUNITY SCHOOLS

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