

Growing Up Green



Insights from youth at one
of the “greenest” schools
in one of the country’s
“greenest” cities

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Preface

The students who participated in this project are between the ages of 10 and 12. As such, their full names have been removed from their quotes, and excerpts of their essays do not include any personally identifying information. Spelling errors have been corrected to provide clarity.

There is no baseline data to which these students' surveys and writing can be compared. No national surveys have been conducted to determine how children act and think in relation to protecting the environment.

I. Executive Summary

“I just think it’s fantastic that you’re asking about this stuff, because we’re the ones who are going to have to deal with it. More kids should be asked about this.” That’s how an 11-year-old girl at Merrill Middle School in Des Moines, Iowa, ended an essay that was part of a survey on youth and the environment.

This student is one of more than 140 students at the school – most of them ages 11 or 12, with some 10-year-olds – who participated in an unprecedented survey. The students answered 40 questions that offer insight into the role environmental conservation and sustainability play in young people’s lives, and they wrote essays explaining what they think it will take to protect the environment, who should lead the charge, and why it matters.

They are no ordinary children. The students attend a remarkably green school, in a school district with particularly innovative green policies, in one of the greenest cities in the nation. Their experience is almost certainly not representative of all youth in the country. By finding out how these children live and think, we don’t learn what all youth think – we learn how young people nationwide can become more engaged in protecting the environment and what government entities, schools and communities can do to make it possible.

Overview of findings

The students generally notice the most tangible, visible signs of environmental conservation. They know where recycling bins are (and they want to see more of them), they notice solar panels and know what they’re for, and they watch how much their parents drive. In general, they know what kind of light bulbs are used in their homes, but not at their school. They know what happens to trash at the school cafeteria, but not what happens to uneaten food.

They are active in protecting in the environment. It would be easy to assume that in a school and city with such environmentally conscious practices, the students would not feel like they need to do anything to help. On the contrary, the students take clear action when they know they can do something to protect the environment. The majority of them, for example, intentionally take shorter showers and turn the water off when brushing their teeth in order to save water. They belong to environmental clubs or groups, and they are eager to find even more ways that their school and community can protect the environment. Others express no resentment or other unhappiness when talking about personal sacrifices they make, such as wearing sweaters at home instead of turning up a thermostat.

Even at an age when they can rarely do anything without supervision and permission, the students are unquestionably empowered when it comes to trying to make sure other people limit their environmental impact. They ask their parents to turn off an idling car; they personally go through their family’s trash to pull out recycling; they notice which classmate’s parent rides miles to work on a bike. More broadly, when asked who should take responsibility to protect the environment in the future, they rank themselves first. They see a role for the government (though

many of them see only a limited role) and for businesses, schools, community leaders, and nonprofit organizations. But, above all, they see themselves and other youth as the best positioned and most effective leaders on these issues.

Key Statistics

Specific findings in the survey of 142 students in several classes at Merrill Middle School include:

- More than 52% of the students said they regularly suggest ways their family can limit its environmental impact. More than 22% of the students said they are the person in their house who primarily thinks about these things.
- More than 38% of the students said they are involved with groups, clubs or committees that develop suggestions for how to help the environment.
- More than 67% of the students said they turn the water faucet off when brushing their teeth. Fully 45% of the students said they have intentionally decreased the amount of time they spend in the shower in order to conserve water.
- Nearly 75% of the students said their family drinks tap water or filtered tap water (with only 25% drinking bottled water).
- More than 34% of the students said their family uses energy-efficient compact fluorescent bulbs. Only 8% said their family uses traditional incandescent light bulbs.
- More than 63% of the students said that at least some of the food their family eats is grown locally in the Des Moines area; 41% of the students said that at least half of their family's food is locally produced.
- Fully 53% of the students said that environmental issues have been a focus of the curriculum in at least one of their classes. More than 18% of the students said environmental issues have been a major focus in one class or multiple classes. Fewer than 7% said environmental issues never come up in class lessons.
- More than 81% of the students said recycling bins are conveniently located throughout the school. More than 50% of the students said materials distributed by teachers are printed on recycled paper and/or are double-sided at least sometimes
- When asked why Merrill Middle School has been effective in advancing environmental awareness, conservation and sustainability, more than 48% of the students cited interest and participation of the youth at the school. More than 61% cited tangible applications of the school's commitment – campus policies and practices, as well as curriculum and lesson plans that include these issues (these were presented as two separate items in the survey).

- Nearly 30% of the students visit Des Moines’ green attractions – such as the library roof, a farmers’ market, or the River Walk – at least once a week. More than 51% of the students visit such attractions at least once a month.
- More than 21% of the students said they know someone in Des Moines who lives in a “green home” (a home built with conservation and sustainability in mind), and more than 35% said they know people in Des Moines who have taken serious steps to limit their environmental impact. More than 42% of the students said they know people in Des Moines who are currently trying to figure out how to go green and limit their impact on the environment.

Recommendations

In open-ended essay questions, the students were asked a series of questions about what they think people could learn from their school and their lives – and what they think it will take to encourage more environmental conservation and sustainability nationwide. In those essays, a series of common threads emerged as recommendations from the students. They include:

- **Government incentives/encouragement**
The students generally agreed that the government has a role to play, though they were split on whether it’s through legislation or encouraging the public to be more environmentally conscious. Most students pointed to the federal government, though some said state and local leaders have an important role to play.
- **Individual Action**
Many of the students said that individuals need to care more about the environment and take simple steps in their own lives to protect natural resources.
- **Education of the public**
The students identified a need to raise public awareness of the problems and also to make more of the public understand how they can help. Many of the students referenced popular culture – films, advertisement, television and celebrities – as an effective way to do this.
- **More school programs/encouragement**
The students generally believe that involving more youth in environmental issues will make an impact in the future. Many of the students said other schools should have programs like Merrill Middle School does (and that even Merrill should do more).
- **New innovations and creative ways to conserve**
Many of the students said government leaders and businesses should find new and different ways to protect the environment.

II. A Green School in a Green City

As environmental conservation and sustainability becomes a higher national priority, attention naturally turns to youth. High-school and college students are becoming increasingly active on environmental issues, but less attention is paid to students who are even younger. Many are still forming their values and their approach to the world. At one middle school in Des Moines, Iowa, young people are growing up in an environment where conservation and sustainability are a way of life. They are at one of the greenest schools in one of the greenest cities in the nation.

Merrill Middle School

In the Waterbury neighborhood of Des Moines, Merrill Middle School houses more than 600 students in the sixth, seventh and eighth grade. It is one of a half-dozen public middle schools in the city. Merrill is part of the Des Moines Public Schools system, which has long had a system-wide commitment to environmental conservation and sustainability.

Des Moines Public Schools has taken substantial steps to limit the environmental impact of its own operations, while also raising students' awareness about conservation and sustainability. Recent efforts include lowering energy consumption through a district-wide campaign with MidAmerican Energy, developing an energy sustainability curriculum at Central Campus, and implementing geothermal energy systems into school construction and renovation projects.

At Merrill Middle School, teachers, administrators, parents and students work together on a range of green initiatives. An art teacher started a garden on campus that students now maintain; students maintain a paper recycling program themselves; a vocal teacher spearheads efforts to recycle plastic; a science teacher applied for a grant to install a solar panel to prove some of the school's power. "If we want students to become future leaders, it is critical that we all set the example by taking action to protect our environment and to maximize our energy resources, especially green technology," said Blake Hammond, a Merrill Middle School science teacher who is centrally involved in many of the school's green efforts.

Following is a timeline of major developments in conservation and sustainability at Merrill Middle School and within Des Moines Public Schools:

- Spring 2005: Merrill Prairie is developed; this is an area of the school grounds where native Iowa grasses and flowers are planted. Sixth-grade students observe the prairie's development and learn about how grass and plants can help protect the environment.
- Fall 2007: Sixth-grade students begin a paper recycling program.
- April 2008: Merrill's solar panel is installed and in operation.
- Fall 2008: Merrill begins a school-wide paper recycling program. Some classrooms participate in weekly contests for who can recycle the most paper.
- Fall 2008: A music teacher begins a plastic bottle recycling program in the school cafeteria and classrooms.

- Fall 2008: Merrill begins a “Lights Out” campaign to reduce lighting when students are not in the building. Major common areas’ lighting was reduced and energy-efficient bulbs were installed where applicable.
- January 2009: Des Moines Public Schools powers down all computers on the weekend and installs software that turns off any computer that was left running.
- March 2009: Des Moines Public Schools requires the removal of convenience appliances such as microwaves, refrigerators, and coffee makers from individual classrooms; buildings identify centralized locations where these appliances are set up and shared by the staff.

Students’ investment in these activities – and the impact the green initiatives have had on how students lead their lives – is explored in the survey of Merrill students, starting on page 16.

Public and Private Sector in Des Moines

Des Moines has been a leader in the green movement for years. Local businesspeople, farmers, religious leaders, educators and elected officials have come together to figure out how to conserve energy and protect the environment. As with everything else in the nation’s heartland, it’s not just talk – the Greater Des Moines community develops innovative ideas and puts them into action.

In 2006, Des Moines Mayor Frank Cownie created a Taskforce on Energy Conservation and Environmental Enhancement to make the city government an example for the entire community. The Taskforce’s mission reads: “The City of Des Moines will lead the greater metropolitan community by example through energy and environmental practices, policies and ordinances that encourage the use of sustainable energy, and protect and preserve the area’s natural resources for the benefit of future generations.” The Taskforce developed plans that were adopted by the City Council, and those plans continue to evolve. “[O]ur residents recognize that there is a finite amount of energy and resources available,” Cownie told a U.S. Senate Committee at a hearing in 2007. “Scarcity of resources increases costs. We view this as a crucial issue in protecting our economic vitality and our high quality of life. Our quality of life is our single greatest asset in Iowa, and we are committed to minimizing costs that would jeopardize it.”

The city created a Sustainability Team that pursues a wide range of green initiatives. The group provides quarterly reports to the City Council and to the community via a letter from the City Manager that details recent progress toward the city’s sustainability goals.

Highlights of green activity spearheaded by the local government include:

- The city uses hybrid and alternative fuel vehicles in its fleet. For example, the police department uses hybrid vehicles for neighborhood patrol and in the detective bureau. When the city is purchasing new cars to replace old ones, it secures smaller vehicles or vehicles that utilize alternative fuels, like biodiesel and ethanol.
- The city has improved energy efficiency in municipal buildings and infrastructure. For example, the city has improved lighting and installed timers in parking facilities and in

some municipal buildings. The city has also replaced incandescent traffic signals with more energy efficient LED bulbs to reduce electricity consumption (which is saving the city \$120,000 on energy already).

- Many city buildings upgraded their roof and window insulation to reduce heating costs and emissions. For example, the city's fire stations and parks facilities now have energy efficient windows and improved roof insulation. In some buildings, the city has installed solar hot water heating systems to augment existing gas-fired water heaters. This will result in significant energy savings and reduced carbon dioxide emissions.
- The city government creates spaces that allow people to enjoy and appreciate the natural environment, while also increasing conservation. For example, the Des Moines Public Library now has a 5,000 square foot "green roof" that serves as both a nature sanctuary within the city's downtown area and an innovative way to limit stormwater and sewage runoff that can jeopardize the environment. The city is also planting more trees in all of its parks, which helps conserve water and limits the use of chemical pesticides.

Meanwhile, the local business community has also become a national model. Des Moines is home to a wide range of large companies, including Principal Financial Group, Wells Fargo Financial, Allied Insurance, and Aviva USA. The major industries in the area are finance and insurance, government, manufacturing, and trade and service. Des Moines is consistently ranked as one of the country's best cities in which to work and live, and businesses in Des Moines work closely with government agencies, nonprofit organizations, schools and others on green initiatives.

"We regularly hear from people in other cities who want to know how businesses in Des Moines have gotten so far ahead of the curve in conservation and sustainability," said Tom Hadden of Metro Waste Authority. "The answer is actually simple: It's a team effort. Separately, each of our different sectors could take important steps, but together we can transform the community and have a true, lasting impact on the environment."

Highlights of green activity involving local businesses include:

- Nearly all new business construction projects in Des Moines are certified by the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design). Several local businesses, including Wellmark and Aviva USA are striving for LEED gold certification.
- Local businesses provided seed money for a Des Moines Area Regional Transit Authority (DART) shuttle into downtown, which helps reduce the number of cars being used in downtown areas. In addition, a new tram is currently being studied.
- Many local businesses also provide incentives for their employees to take buses or carpool to work. For example, Nationwide Insurance offers free bus passes to all employees and preferred parking for employees who carpool. A community-wide program called "Rest Your Car" provides rewards for people who use alternate commute options and offers a Guaranteed Ride home for people who use an alternative commute mode and need a way home during the day.

- While businesses are often overlooked for their role in proper waste management, Metro Waste Authority (MWA) in Greater Des Moines recognizes their importance. MWA provides businesses with assistance on everything from recycling to properly disposing of hazardous and special waste. In fact, within MWA's central Iowa service area, more than 364,000 tons of recycled waste is generated by the businesses of our member communities each year.
- Many businesses in Greater Des Moines seek to reduce energy consumption by doing simple things like always printing things double-sided on paper, turning off lights and electronics when employees leave for the day and the like. In addition, MidAmerican Energy, the local utility, is utilizing wind energy to provide electricity for its customers. The State Fairgrounds in Des Moines has a wind turbine that helps power events at that site as well. Major local businesses invest in the city's infrastructure through projects that improve the community while also protecting the environment. For example, Principal Financial Group (whose insurance headquarters are in Des Moines) funded a major project that connects 300 miles of Central Iowa trails and features lighted, landscaped pedestrian public spaces, unique outdoor art and pedestrian walkways.
- The development community is building new communities through its "Growing Green Communities" initiative. These builders are building homes with shared green space rather than individual backyards, more transit-friendly layouts, and semi-permeable surfaces instead of storm sewers.
- Businesses also partner with youth organizations and schools to promote green initiatives. For example, the solar panel at Merrill Middle School was funded by Wells Fargo, which bases part of its operations in Des Moines.

III. Living Green: Youth Attitudes and Actions

The students who were surveyed generally perceive themselves as caring about the environment. Many of them take action to conserve natural resources and limit their environmental impact, and they express pride in taking such action. They see their school and their community as being at the forefront of the green movement. However, many of the students also said they can and should do more themselves to protect the environment, and they said their families, school and community can and should also do more.

Recycling

Most of the students equate conservation and sustainability with actions they can easily see, such as recycling bins and solar panels. More than any other issue, students raised recycling – as both an example of what they, their school and their community does to help the environment and what needs to be done more. They notice where recycling bins are in their school and in the community, and they perceive the bins as a commitment to the environment. “Our community used to have really small like bins for recycling, but the government gave us a recycling bin bigger than the garbage,” one student wrote.

Students seemed to embrace recycling because it’s something they can easily do themselves. “I go recycle crazy sometimes because I love recycling,” one student wrote. Several students said they monitor their family’s trash and pull items out to put into recycling bins. “I personally make sure the recyclables are in the recycling bin,” a student wrote, echoing what several of her classmates also said. Just as they raised a need for more recycling, the students often identified litter as a problem that is harming the environment.

Transportation

Most of the students, 62%, live in homes with families of four or five people (including the students). In most of those homes, 53%, there are two vehicles – but 27% of the homes have three or more cars. Nearly half of the vehicles in the students’ homes are those typically associated with high fuel usage and heavy emissions (large pickups and SUVs). Nearly three-quarters of the students ride in those cars with their parents at least four times a week; more than 50% ride in those cars with their parents daily.

Equal numbers of the students ride in the car with their parents to get to school or take the school bus (37% each). Fully one-quarter of the students most often get to school by walking, riding a bike, taking a city bus or carpooling. Nearly one-third of the students take public transportation at least a couple of times a month to get somewhere other than school.

Only 4% of the students live in a home where there are no bicycles. More than 65% of the students live in a home where there are four or more bikes, and 30% live in a home where there are one, two or three bikes. Nearly 75% of the students ride a bike at least once a week. More

than 50% of the students ride a bike at least four times a week, and 28% ride a bike every day. One-third of the students said their parents never ride a bike, but 40% of them said their parents ride a bike at least once a week. More than 16% of the students said their parents ride a bike at least four times a week. More than 15% of the students said one of their parents sometimes rides a bike to work; about 7% of the students have a parent who rides a bike to work at least once a week.

In open-ended essay questions, the students raise transportation-related issues less than other areas (such as recycling or energy consumption), but they clearly notice efforts to reduce the use of fuel. “I’ve seen people bike miles to get to work,” one student wrote. Another student said, “Whenever we have to wait for someone in the car, I push my mom to turn the car off even though there’ll be no air conditioning.”

Home Life

Many of the students take deliberate steps to limit their own environmental impact, particularly by reducing their use of water at home. More than 67% of the students said they turn the water faucet off when brushing their teeth. More than 43% take showers lasting 10 minutes or less – and 45% of the students said they have intentionally decreased the amount of time they spend in the shower, in order to conserve water. One student reported that she has cut her time in the shower by “five to 10 minutes” to save water, and another said that she now turns the water off when shampooing and turns it back on to rinse.

On broader home issues that are determined by families rather than students themselves, many parents and families have taken steps to limit their household’s environmental impact. Only 27% of students said the towel they use after showering is washed after every use; more than 25% said the towel is washed weekly or after more than a week.

Nearly 75% of the students said their family drinks tap water or filtered tap water (with only 25% drinking bottled water). Just over half of the students didn’t know what kinds of light bulbs are used in their home, but more than 34% of students said their family uses compact fluorescent bulbs. Only 8% said their family uses traditional incandescent light bulbs. More than 63% of the students said that at least some of the food their family eats is grown locally in the Des Moines area; 41% of the students said that at least half of their family’s food is locally produced.

More than 66% of the students said their parents control the thermostat in their home, and the students have to ask to change the setting. Only 13% of the students said anyone can set or change the thermostat in their home. Several students mentioned heating and air conditioning when talking about personal sacrifices they make to help the environment. “When I’m cold, I put on a sweater and try not to change the thermostat unless it’s really necessary,” one student wrote.

In other areas, students reported that their family has not taken steps to conserve energy or limit use of natural resources. Just 15% of the students said their family uses cloth napkins instead of paper napkins or paper towels. Only 26% of the students said television and other electronics in

their home are unplugged when not in use (to prevent “phantom” waste of electricity that electronics use when they are turned off but not unplugged).

School

Almost uniformly, the students see Merrill Middle School as a leader on environmental conservation and sustainability. While many of them said the school should continue doing more, virtually all of them said the school has taken important steps. “Merrill should be an example for others because then people and other schools would say, ‘Look what they’re doing, maybe we can try doing that.’ Eventually people will become a little more ‘green,’ and that will help our country a lot,” one student said. In talking about their school’s environmental commitment, several of the students invoked future generations. “They should learn that we care because we recycle plastic, we don’t throw trash on the bus, and we don’t use a lot of electricity. I think all the schools should do this because if we keep this up, maybe when we are older our grandkids might be learning about this,” one student said.

Fully 53% of the students said that environmental issues have been a focus of the curriculum in at least one of their classes. More than 18% of the students said environmental issues have been a major focus in one class or multiple classes. Fewer than 7% said environmental issues never come up in class lessons.

More than 81% of the students said recycling bins are conveniently located throughout the school. More than 50% of the students said materials distributed by teachers are printed on recycled paper and/or are double-sided at least sometimes (about 40% said they had never noticed). Several of the students raised ideas for how the school could conserve more. “I think that schools should find ways to use less paper. I think we should find other ways to do homework besides writing it on paper, like emailing it,” one student said. Several of the students cited Merrill’s contests about which class recycles the most in a given week as a way to make conservation “cool” and “fun.”

While 54% notice that the cafeteria sorts trash for recycling, nearly 50% said they didn’t know whether the cafeteria composts uneaten food. Although they take note of energy use, recycling and other visible forms of conservation, the vast majority of students said they do not know what kind of fuel the school buses use or whether the school uses chemical pesticides on its grounds.

When asked why Merrill Middle School has been effective in advancing environmental awareness, conservation and sustainability, more than 48% of the students cited interest and participation of the youth at the school. More than 61% cited tangible applications of the school’s commitment – campus policies and practices, as well as curriculum and lesson plans that include these issues (these were presented as two separate items in the survey). More than 30% of the students said the involvement of the school’s teachers and administrators was a key factor, and more than 15% cited the commitment of the Greater Des Moines community.

Community

Most of the students said Des Moines is definitely a “green” city, but many of them struggled to compare it to other cities because their perspective is limited. Whereas they can compare their school to schools their friends or relatives attend in Iowa or other states, comparing entire cities is more difficult for them. Still, the students generally seem aware that they live in a community that ahead of most on conserving and sustaining the environment. “My opinion is Iowa, Des Moines, is probably one of the greenest cities in the U.S.A. Other places should try to be more green,” one student said.

Nearly 30% of the students visit Des Moines’ green attractions – such as the library roof, a farmers’ market, or the River Walk – at least once a week. More than 51% of the students visit such attractions at least once a month. More than 21% of the students said they know someone in Des Moines who lives in a “green home” (a home built with conservation and sustainability in mind), and more than 35% said they know people in Des Moines who have taken serious steps to limit their environmental impact. More than 42% of the students said they know people in Des Moines who are currently trying to figure out how to go green and limit their impact on the environment. Just 30% of the students said they know a person in Des Moines who does not think it’s necessary to limit his or her environmental impact.

While more than 27% of the students said they don’t know enough about other cities to compare them to Des Moines, more than 49% of students said Des Moines is either a lot or a little bit more green than other cities. Just 8% said other cities were ahead of Des Moines in their commitment to environmental issues. More than 51% of the students said Des Moines is ahead of some or most other parts of the country and is (or will be) a leader in the green movement. Just 3% of the students said Des Moines is behind other parts of the country and will not be a leader on green issues in the future. “I think other people could learn from our school because Merrill has solar panels, great “green” teachers, and so much else! I think, really, Des Moines should lead the way to a greener Iowa, a greener America, and a greener world,” one student said.

IV. Toward a Greener Future: Youth Recommendations

The students who were surveyed see themselves as leaders toward protecting the environment – in their current daily life, and also in the future. At the same time, most of the students expressed strong views about the need for community members, the government, schools, businesses and others to prioritize environmental issues and address them concretely. The students hold widely varying views on whether there should be more laws to encourage environmental protection and whether the focus should be at the local or national levels, but they generally agree that much more needs to be done.

Youth Involvement and Leadership

Most of the students are already leaders on environmental issues. More than 52% of the students said they regularly suggest ways their family can limit its environmental impact. More than 22% of the students said they are the person in their house who primarily thinks about these things. Just 19% said they never suggest ways for their family to be more green. “I think youth would play a huge role because if they are telling their parents to do it, then the parents might tell other parents, and they might tell other parents, and on and on,” one student said. Several students pointed out that their parents and other adults have to learn to limit their environmental impact, while younger people have always known about this. “Adults can try to recycle, but it will be more effective for youth, because they have learned it growing up,” one student said.

More than 38% of the students said they are involved with groups, clubs or committees that develop suggestions for how to help the environment. Some of those organized efforts are through school, but they are also in the community. “My church has a green team committee and they help us with ideas on how to be green in our family. The green team has displays and they show demonstrations on how to be green. It’s important for everyone to learn how to be green. My brothers and I try to recycle and not waste stuff like paper and we ride our bikes place and play outside a lot instead of using our Wii or watching TV,” one student said.

The students also believe they have a critical role to play in helping their community become more green. The survey asked which sector has the most important to play – government, business, schools, nonprofit organizations, adults or youth – and the students could choose multiple answers and rank their level of importance. More than any other sector or population, the students said youth have an extremely important role to play. “Kids are the ones who can really make a difference. We have a longer time to work and we are better heard in our communities, one student said. They also said government and schools have an extremely important to play. The following chart shows the responses by sector/population and level of importance:

Youth Recommendations

In open-ended essay questions, the students were asked what they think it will take to make the country more environmentally aware and to encourage more conservation and sustainability. The students raised a wide range of ideas, with some common threads. They include:

- Government incentives/encouragement
- Individual action
- Education of the public
- More school programs/encouragement
- New innovations and creative ways to conserve

Each is explained in more detail below.

A. Government incentives/encouragement

Most of the students said the government has some role to play in protecting the environment. Roughly one-third of the students specifically said the government needs to encourage people to limit their environmental impact through legislation. (Of those, nearly half said laws should focus on recycling.) About one-fifth of the students specifically said laws should not be passed. Most students said government leaders should at least do more to encourage people to do more on conservation and sustainability. When students singled out government leaders or levels of government, they most often said President Obama and Congress should do more, but some students also said state and local government (specifically mayors and governors) have an important role to play.

Following are excerpts from a few of the essay answers:

“I think that the president should make it a law to make schools have recycle bins.”

“I think the government should teach us more about the environment. I think we should push the government to try harder by changing our resources to solar and wind power.”

“It doesn’t need to be a law, but people should just do it. If it was a law people would save energy and recycle, but they wouldn’t be doing it purposely to help the environment.”

“I believe that we as a nation should have a reward if we recycle in an extensive amount, like a bonus in your stimulus package.”

“I think that the Congress needs to make a law that states, ‘If you don’t help the environment you simply go to jail.’”

“We need laws that will start making the country green. Our government needs to stop talking about this problem and start doing something.”

B. Individual Action

Many of the students said that individuals simply have to start doing what they can to protect the environment and to encourage other people to do the same. The students often pointed to very specific ways people can limit their environmental impact – such as not littering, helping recycle, and using more efficient light bulbs or fuel. In general, the students said that if more of the public cared about these issues and took action in their own lives, the environment would benefit.

Following are excerpts from a few of the essay answers:

“We shouldn’t have to be forced to do something. People should be smart enough to realize that their world is hurting, too.”

“I think we really need to push each other to do more little things. I don’t think there is going to be one person that can do this. We’re going to have to work together

“I think all people need to have a goal of conserving energy and becoming green.”

“People should preserve energy more often and spread the word about new ways to protect the environment. They should also donate money to conserve rainforests around the world and try to make presidents, prime ministers, mayors, and governors think about becoming more green.”

“I think that people should pick up cans and recycle them, and do anything that will help our earth.”

C. Education of the public

In identifying the need for more people to take action in their own lives to protect the environment, the students often pointed to the need for more public education on the importance of these issues. The students identified a need to raise public awareness of the problems and also to make more of the public understand how they can help. Tellingly, many of the students referenced popular culture – films, advertisement, television and celebrities – as an effective way to do this. (Several of the students also cited popular culture when talking about why they care about the environment. Several mentioned the film “Wall-E” when explaining their fear about what would happen if more is not done to protect the environment.)

Following are excerpts from a few of the essay answers:

“They should show what the difference would be if we don’t recycle.”

“To help the environment, people’s peers and role models need to encourage being green and eco-friendly, because it is our future and people need to start caring about it. If people don’t care enough to try to make a difference, there should be laws made to help decrease how much we

waste. But they really might not do much to change people's mind about it. That's why it would be best if we could actually get people to care."

"I think that we have to actually look at the damage we are doing to the environment, so that we could think about it. That way we can be aware of the situation. Schools could take field trips to dirty creeks or dumps, and there could be discussions at jobs."

"For the president to talk out but not just say what we should do but what will happen if we don't stop littering...We should have one day a month that should be green day. Start putting a lot more commercials about the environment. Start putting posters up and I know it may sound extreme but maybe even paint the White House green...We should start putting a program about "green" on national TV also, so we can inspire other states, communities, families and countries."

"I think more celebrities should be advertising to go green. I also think the community should provide easier ways to save the earth such as recycling and less energy use."

D. More school programs/encouragement

The students clearly see their own school as an example (while many of them also want their school to continue doing more), and they generally believe that involving more youth in environmental issues will make an impact in the future. Many of the students said other schools should have recycling programs and a solar panel like Merrill Middle School, and they also had other ideas for how schools could engage youth in these issues more.

Following are excerpts from a few of the essay answers:

"I think in order to make the country more aware of the impact it's leaving, schools need to do more thinking about how to teach kids about the environment. If everyone becomes more aware, the country will be much 'greener.'"

"We have a recycling program that helps open kids' eyes and it helped open mine to the rising crisis that we are having. I think all schools should recycle and help all of the lives in the rain forests and the ice caps."

"Schools shouldn't just recycle on Earth Day, they should recycle every day."

"Country leaders should go around and teach kids about the environment...If you are forced to recycle you will just complain and not know what it's good for. If you weren't required to do it and people would go out and encourage people to do so and educating them on what it can help do for the environment it would be out of the goodness of your heart."

E. New innovations and creative ways to conserve

Some of the students generally referenced a need to develop more ways for people to limit their environmental impact, while other students offered specific ideas. Many of the students said government leaders and businesses should find new and different ways to protect the environment. As they did in other areas, the students expressed enthusiasm for finding new ways to go green. Several of them raised the economic benefits of developing innovative new ideas, and virtually all of them raised new ideas while also explaining why it matters and how the ideas could be made enticing to the public.

Following are excerpts from a few of the essay answers:

“Make things out of trash – be creative. The world is not our landfill.”

“The best idea I have heard is changing all of our products to biodegradable material, it would be hard but if it stops the world from becoming a huge junkyard then it’s worth it.”

“Installing solar panels to every house. My opinion is they’ll look cool and help the environment.”

“We should recycle really everything besides food.”

“More hybrid cars. I mean like every car dealer in America should have at least 75% of their cars to be hybrid. People like hybrid cars better than a diesel car anyway, so what’s the big deal?”

V. Appendices

- Excerpts of Student Essays
- Sample Green Lesson Plan/Activity
- Full Survey Results

Excerpts of Student Essays

Following are excerpts from essays written by Merrill Middle School students as part of the “Growing Up Green” project.

On what it will take to encourage more conservation and sustainability nationwide...

“I think that the president should make it a law to make schools have recycle bins.”

“I think the government should teach us more about the environment. I think we should push the government to try harder by changing our resources to solar and wind power.”

“I think we need to go out and show people what the problems are. Showing people what the problems are, they will be more aware of what they are facing...The people of the government should be pushing us to help the environment.”

“I don’t think recycling should be a law, but I think we should make recycling easier and more accessible to people. As a young person, I think saving the planet is up to me and my classmates. It isn’t that hard to make a few changes to our lives so our grandchildren could live to see things that a polluted planet wouldn’t be able to offer.”

“It doesn’t need to be a law, but people should just do it. If it was a law people would save energy and recycle, but they wouldn’t be doing it purposely to help the environment.”

“To help the environment, people’s peers and role models need to encourage being green and eco-friendly, because it is our future and people need to start caring about it. If people don’t care enough to try to make a difference, there should be laws made to help decrease how much we waste. But they really might not do much to change people’s mind about it. That’s why it would be best if we could actually get people to care.”

“I believe that we as a nation should have a reward if we recycle in an extensive amount, like a bonus in your stimulus package.”

“I think that the Congress needs to make a law that states, ‘If you don’t help the environment you simply go to jail.’”

“Barrak Obama and other officials should really push to recycle. Possibly put commercials, magazine ads, recycling rallies out there.”

“We all need to push for the environment. The government would help and so would big companies and agencies if they started doing and showing us how to take ‘green’ actions.”

“Obama should push us to recycle. Showing his care for the environment could help him if he runs for a second term.”

“I think everyone needs to push for a more green environment. I don’t think you should be required to do anything, you should just do it for your planet.”

“I think that the president should push us to help the environment because then people might think about it. I think that they shouldn’t make a law that everybody should recycle or they have to pay a fee because I think that would be pushing them too hard.”

“I think that we have to actually look at the damage we are doing to the environment, so that we could think about it. That way we can be aware of the situation. Schools could take field trips to dirty creeks or dumps, and there could be discussions at jobs.”

“Obama should push us to be more environmental. He could have schools put solar panels on their buildings.”

“For the president to talk out but not just say what we should do but what will happen if we don’t stop littering...We should have one day a month that should be green day. Start putting a lot more commercials about the environment. Start putting posters up and I know it may sound extreme but maybe even paint the White House green...We should start putting a program about “green” on national TV also, so we can inspire other states, communities, families and countries.”

“I think there needs to be more opportunity to recycle. If people make ways to recycling less complicated, everyone would do it. In this way, we could also create new jobs.”

“I think for every 1/8 pound of recyclables you throw away, you should pay a \$5 fine.”

“We should be made [to] recycle at least two pounds every week.”

“Country leaders should go around and teach kids about the environment...If you are forced to recycle you will just complain and not know what it’s good for. If you weren’t required to do it and people would go out and encourage people to do so and educating them on what it can help do for the environment it would be out of the goodness of your heart.”

“We can use more money for planet earth instead of car companies.”

“We shouldn’t have to be forced to do something. People should be smart enough to realize that their world is hurting, too.”

“They should show what the difference would be if we don’t recycle.”

“Helping the environment is a good thing, but it wouldn’t be fair to make it a law.”

“I think we really need to push each other to do more little things. I don’t think there is going to be one person that can do this. We’re going to have to work together...Our community is very

green... Together, all these little things will add up to a better environment. I think it is crucial to care for the environment. Earth takes care of us, we need to return the help.”

“We need laws that will start making the country green. Our government needs to stop talking about this problem and start doing something.”

“Government should talk more about the issues. Leaders need to take control.”

“I think all people need to have a goal of conserving energy and becoming green. Kids have to talk to their families and friends about saving the environment. If kids learn about saving the environment, then they will become more aware of how they can help.”

“I think that people should pick up cans and recycle them, and do anything that will help our earth.”

“People should preserve energy more often and spread the word about new ways to protect the environment. They should also donate money to conserve rainforests around the world and try to make presidents, prime ministers, mayors, and governors think about becoming more green.”

Essays referring to popular culture...

“I think more celebrities should be advertising to go green. I also think the community should provide easier ways to save the earth such as recycling and less energy use.”

[On consequences of doing nothing] “Just like on the movie Wall-E, earth will become a waste land.”

[On consequences of doing nothing] “Because (like in Wall-E) the earth will get loaded with trash.”

[On ideas for what can be done] “I’ve seen a TV show that sunk old war ships for reefs.”

“Merrill I think needs to do some kind of a protest to stop this because it’s hurting the animals, plants and more other stuff. On this one show called ‘That’s So Raven,’ these people who wanted to make real fur out of animals, they didn’t get to because people protested.”

On the role of youth in protecting the environment...

“As the youth, we play a role by shaping the world we grow into. If we keep the environment healthy now, it will be healthy in our future.”

“I think that youth play a large role in helping the environment, because we are growing up learning what we have to do.” Global warming is an extreme problem, and I hope that we will do whatever we can to stop it.”

Alison Sokolou, 11

“The youth play a HUMONGOUS role, because we are the next generation. If we are not taught, global warming WILL COME!”

“I think the role that youth would play is that, well, if children are encouraged to do it in school sometimes the parents catch on.”

“Our generation is the one that is going to have to deal with this. Reduce, reuse and recycle!”

“I think all people need to have a goal of conserving energy and becoming green. Kids have to talk to their families and friends about saving the environment. If kids learn about saving the environment, then they will become more aware of how they can help...If kids think it's cool to be green, then they will help conserve the environment.”

“I think youth would play a huge role because if they are telling their parents to do it, then the parents might tell other parents, and they might tell other parents, and on and on.”

“Kids are the ones who can really make a difference. We have a longer time to work and we are better heard in our communities.”

“Adults can try to recycle, but it will be more effective for youth, because they have learned it growing up.”

“I think youth can encourage the adults to be green by being enthusiastic about it and putting action into be green. Recycling will help everything and maybe even our economy!”

“It's just not grown up's that is taking action for our earth but it's 6,7,and 8 graders that are being serious and knowing that our earth is in need. This is the only earth we have, love it!”

On how their community helps protect the environment...

“Our community used to have really small like bins for recycling, but the government gave us a recycling bin bigger than the garbage.”

“Des Moines just started a “green” plan, where they plant trees and make energy consumption limited for big companies.”

“Once when I went to the park I saw a man picking up trash and he got \$20 for that from the security and he was homeless. So he was very happy.”

“I’ve seen people bike miles to get to work.”

On what their school can do and why it matters...

“They should teach us more ways to help our environment at school, home and other places.”
(on 2B) “A lot of the time other kids set examples for kids their age and younger, so Merrill could help a lot.”

“We recycle our plastic at lunch but we also do paper in class. I still think we can do more than that.”

“We should have a ‘green’ fundraiser or event to show that we can make a difference, even if we’re just kids!”

On what other schools should do...

“Schools shouldn’t just recycle on Earth Day, they should recycle every day.”

“I think that schools should find ways to use less paper. I think we should find other ways to do homework besides writing it on paper, like emailing it.”

“I think that teachers should take just a little time to teach about and push us to recycle, and the kids could teach the parents to be ‘greener.’”

“I think in order to make the country more aware of the impact it’s leaving, schools need to do more thinking about how to teach kids about the environment. If everyone becomes more aware, the country will be much ‘greener.’”

“We have a recycling program that helps open kids’ eyes and it helped open mine to the rising crisis that we are having. I think all schools should recycle and help all of the lives in the rain forests and the ice caps.”

“You can make recycling fun by seeing what class can recycle the most in a week.”

On what others can learn from their school and community...

“Merrill should be an example for others because we have recycling bins in every classroom, we have solar panels, we have recycle bins in the lunchroom for plastic bottles, some teachers don’t turn on all the lights.”

“We do a lot of things to help the environment because we collect box top, cans foods, and we recycle. So that’s a lot of stuff for the teachers to handle ... they have to teach kids and help the environment, that’s a lot to handle.”

“I think that what other schools, people and communities can learn from Merrill Middle School is maybe using solar panels to supply power, not to litter, and that if you spend time taking care of the earth it all comes back to you.”

“Merrill should be an example for others because then people and other schools would say, ‘Look what they’re doing, maybe we can try doing that.’ Eventually people will become a little more ‘green,’ and that will help our country a lot.”

“I think Merrill should be an example, but I also think we should, and need to, do a better job being green.”

“They should learn that we care because we recycle plastic, we don’t throw trash on the bus, and we don’t use a lot of electricity. I think all the schools should do this because if we keep this up, maybe when we are older our grandkids might be learning about this.”

“My opinion is Iowa (Des Moines) is probably one of the greenest cities in the U.S.A. Other places should try to be more green.”

“The school taught us about the new solar panels and how just one of them could power our whole house. Merrill helps the environment by using solar panels to power the school. Some teachers also turn off lights when they leave the room. I think all other schools should do this.”

“I think Merrill does more than a lot of schools. I mean SOLAR PANELS?!? That’s great. I think other schools should do it, too.”

“Schools should help being green with recycling bins. My school should be an example of a green school because we care about our environment.”

“Merrill should be an example because if we are, then others will try to follow and it will be a chain reaction!”

“I think other people could learn from our school because Merrill has solar panels, great “green” teachers, and so much else! I think, really, Des Moines should lead the way to a greener Iowa, a greener America, and a greener world.”

“I think more people should get solar panels on businesses/houses. Something everyone can learn from Des Moines is to have locally grown food.”

“They can look upon our solar panel and say, ‘Hey! These people are making a difference. I want to also!’”

On what they do in everyday life to help the environment...

“I go recycle crazy sometimes because I love recycling.”

“I go through the trash that I’m about to throw away. I remind my parents to recycle anything that needs to be recycled.”

“What I do is I make art out of recyclables and have a compost pile.”

“My favorite green thing to do is to cook organically. It makes me feel refreshed!”

“We try to recycle everything we can. Instead of just throwing something in the trash, we can just give it a quick rinse and then put it in the recycling bin. When I’m cold, I put on a sweater and try not to change the thermostat unless it’s really necessary.”

“At home we recycle as much as we can, use those special light bulbs, turn off the lights when we leave the room, turn off the water when we brush our teeth.”

“Instead of using air freshener that is full of chemicals that are unsafe, I pick flowers that smell good and hang them upside-down.”

“Whenever we have to wait for someone in the car, I push my mom to turn the car off even though there’ll be no air conditioning.”

“My family recycles and we are going to compost. I personally make sure the recyclables are in the recycling bin.”

“As a family, we have a compost pile, recycling bin, the energy-saving swirly lights, we use gutter water to water our plants, if we are not in a room the lights stay off, we rake leaves, we don’t flush the toilet overnight, like until we wake up, we don’t use beehive amounts of toilet paper, we use glass plates and cloth napkins, and wait until we have a full dishwasher until we wash dishes. Laundry days are also on Fridays, once a week.”

“My church has a green team committee and they help us with ideas on how to be green in our family. The green team has displays and they show demonstrations on how to be green. It’s important for everyone to learn how to be green. My brothers and I try to recycle and not waste stuff like paper and we ride our bikes place and play outside a lot instead of using our Wii or watching TV.”

“We are pretty green. My family is using less plastic and I force dad to ride his bike.”

On other ideas for protecting the environment...

“Make things out of trash – be creative. The world is not our landfill.” (Essay includes step-by-step, illustrated instructions for how to wrap a gift using recycled material)

“Not buying imported foods, just natural foods that are grown or produced nearby.”

“The best idea I have heard is changing all of our products to biodegradable material, it would be hard but if it stops the world from becoming a huge junkyard then it’s worth it.”

“Installing solar panels to every house. My opinion is they’ll look cool and help the environment.”

“A boat trip where you pick trash up out of rivers.”

“The three Rs, reduce, reuse and recycle.”

“We should recycle really everything besides food.”

“More hybrid cars. I mean like every car dealer in America should have at least 75% of their cars to be hybrid. People like hybrid cars better than a diesel car anyway, so what’s the big deal?”

On why it all matters...

“If we don’t act to help our environment, then the world as we know it would change. It could snow in July or could be 96 F in December. A lot of us humans might die. Also a lot of animals would die too. Starting with the polar bears. There would be landfills everywhere (yuck!). If we let our environment go then we can kiss good living goodbye.”

“People must realize how important it is to take care of the environment, because if we don’t we’ll soon be living next to landfills and having to wear oxygen/filtering masks outside. All the animals would be gone. There would be no cheerful flowers, or trees, the grass would eventually die too, something we take that much advantage of. It’s not fair for people to throw the environment away, even if they don’t care, what about the people who do care?”