

Green Action Plan for Bryan Station High School

in response to:
Earth Day-to-Day Essay Contest

Write an action plan for your congregation that delineates what environmental changes should be made in the facility and the lives of the attendees. Describe what has already been done and lay out a roadmap for achieving a more sustainable future. Include a persuasive argument to motivate your target audience to help them understand why they need make these changes.

Lucy Arthur-Paratley

Bryan Station High School

lucya-p@insightbb.com

2009

Introduction:

There are many indicators pointing toward environmental changes needed for greener, healthier living. From global climate change to a looming obesity crisis, it is clear that action must be taken now to protect the future. We must change the minds being formed today in order to create a more sustainable future. It is in schools that this change must happen because it is there that the leaders, consumers, and employees of tomorrow learn the lessons that they will use later. It is vital that the lessons they learn make them and the world they will inherit healthier. The importance of greening our society, becoming more healthy, and working toward social justice are all interrelated. When we are better stewards of the earth we are also better stewards of ourselves and of each other. A society that is more environmentally conscious is also more egalitarian and more fair. In more concrete terms, healthier people can work longer and more productively on “green jobs” that make our society more sustainable and environmentally sound. A vital economy that includes everyone is key to social justice because it levels the financial playing field.

As a model for the environmental change that must occur in schools, I will describe an action plan for my high school, Bryan Station High. Like most schools, Bryan Station is beholden to test scores and has difficulty engaging all of its students. Unlike most schools, Bryan Station has a more “challenging” population; 60% of the students receive federally subsidized lunches and it is more racially diverse (45% are African-American, 45% are White, and 10% are Hispanic). This makes Bryan Station uniquely suited to resolving these issues in the context of social justice. These jobs do not necessarily require an expensive degree; technical training would be sufficient to install “green” designs and produce “green” products. As aware consumers, every citizen can make healthier, more “green” choices whether at the grocery store or in the voting booth. These choices will feed back into creating healthier people who can work longer and more productively, completing the circle of events necessary for a more “green” and just future. If we begin training these new “green” and healthy workers now, our schools will save money in the long run, have healthier students, improve achievement, and increase the success of their graduates in the “real world.” The Fayette County School System recently received a grant of \$4 million to create small learning communities dedicated to rigor, relevance, and relationships. This green action plan fulfills all three of those requirements. It can improve student achievement by increasing their ability to synthesize different pieces of the “green” campaign and by connecting disparate content areas into a cohesive and engaging whole. Clearly this plan will teach students a variety of skills that will serve them both in their postsecondary education and in their jobs, by giving them a leg up on the newest “green” ideas and by giving them the skills to compete in an economy that is “going green.” Furthermore, this will build relationships between teachers and students by facilitating their interactions in unusual environments (like a school garden) and in new ways (like leading an energy or waste audit). Fayette County schools have taken many small steps in the right direction, but more action is needed. As the Superintendent is honored on the state and national levels, he and the school board should be pursuing ways of becoming even more accomplished, rigorous, and groundbreaking by being a leader in environmental stewardship and “green” initiatives.

This action plan has four steps that increase in difficulty and in environmental payoff. In order for this plan to be a success it is critical that a base of support within the school is created from the outset. All of the stakeholders must be involved in this plan. These stakeholders should include the administration, the Site-Based Decision Making Council (SBDM), the Parent-Teacher-Student Association (PTSA), a group of teachers (perhaps the Department Chairs), a group of community leaders who are working on environmental issues, and a group of student leaders. The SBDM should create a committee that includes all of the stakeholders to execute and evaluate the action plan. This will become easier as more pieces of the plan are executed and more people within the school become involved. The **first step** of the action plan delineates several small ways to increase energy efficiency and save money, but do not require a wholesale revamping of Bryan Station's physical and scheduling infrastructure. The **second step** describes a few critical classes where small changes to the current curriculum and teaching methods could be made for dramatic benefits. The **third step** tackles the cafeteria, a larger challenge that will require input from community members both inside and outside the school (cafeteria workers, local farmers). The **fourth step** is the final integration of the other pieces of the plan into the curriculum and daily learning of every classroom in the building. This is the last step in the action plan because it is the most comprehensive and, therefore, most difficult. However, it is also the most long-term, and rewarding.

1. Save Energy, Save Money:

The first step is the easiest, and in some ways Bryan Station has already made progress in this area. It is relatively simple to change small infrastructure and equipment "habits." Bryan Station moved to a brand new building in the spring of 2007, making some major infrastructure changes, but eliminating the possibility for others. For example, the building uses motion sensitive lights in the hallways and bathrooms, maintains a paper recycling program, has no mold, and has many windows throughout the building. There are, however, a few changes that could save energy and money, a top priority in a period of budgetary uncertainty.

- a. Lighting: As was mentioned, Bryan Station already has energy saving motion detectors for hallway and bathroom lights. However, compact fluorescent bulbs should be used more widely, and a concerted effort should be made to turn off lights in classrooms, offices, and other areas not controlled by the motion sensitive lights. (A kilowatt-hour of electricity costs about \$0.05. (1)) Furthermore, the available natural light should be used to its fullest capacity. Using an understanding of the sun's position relative to the windows should be used to determine whether the blinds in any given room should be opened or closed to aid in temperature control.
- b. Heating/Air Conditioning: The massive furnace used at Bryan Station could be used in a more judiciously. The large variation in temperatures between classrooms is not efficient, and is the result of a lack of temperature in the classrooms themselves. Each teacher should be able to control the temperature of their classroom, a change that would only require unlocking the temperature control box in each class. All thermostats should be capped at a maximum of 70° F in the winter and a

minimum of 66° F in the summer. (“For every degree you raise your thermostat, you can cut energy use by about 3 percent.”(2)) Imagine the savings, especially when you consider just how much carbon dioxide is spewed into the atmosphere by a furnace and how much that energy costs (A thousand cubic feet of natural gas costs about \$12.74. (1)) Furthermore, nearly every classroom has windows, all of which could be opened. This would allow for a period in spring and fall when the heat and air conditioning could be turned off leading to dramatic savings. This would only require the release of all of the handles on the windows which are currently screwed shut.

- c. Computers/Technology: Every classroom and office has at least one computer, and there are several computer labs including the library. While putting these computers on sleep or stand-by mode can save a lot of energy (especially since nearly all of them were built in the last three years (2)), it would save even more energy to turn off the computers every evening. The district currently turns off every non-personal computer at 5:00, an important energy saving policy. Each classroom is also equipped with an overhead projector that is connected to the computer and often left on. It is essential to turn these off each evening in order to save energy and prolong the life of this technology, particularly the very expensive light bulbs in each projector. This “turn-off” policy can also be applied to the televisions in the security room, the copy machines, the printers, and many other appliances.
- d. Recycling: There is already a paper recycling program at Bryan Station that is run by the Global Issues class, but more could be done to make the paper use “greener.” Often there is a paper shortage, and it is difficult for teachers to print their handouts. In some respects, the shortage has had a positive impact on Bryan Station’s paper use, because it has made everyone aware of how much paper is used and has encouraged the use of copying one “class copy” instead of individual copies for every student in every class. However, while the paper used has recycled content, it is not approved by the Forest Stewardship Council (an organization that ensures sustainability, safety, and respect in paper and wood products (3)). Last year the Key Club, a volunteering and philanthropic club, ran a soda can recycling program in order to win money for an organization they were supporting. They only collected cans for a month, but students quickly fell into a routine of leaving their cans on the tables for pick up. A similar program could easily be reinstated by simply adding recycling bins in the cafeteria and publicizing the program. The school could have the cans picked up automatically by the city because their waste is already collected by the city, per the instructions of Lexington-Fayette Urban County Government’s Waste Management office.
- e. Accomplishing these Goals: Most of these goals can be accomplished fairly easily by changing a few habits and implementing a few policy changes. These changes will be most effective when the Bryan Station community, students, teachers, and staff are made aware of the changes

and their personal responsibility to enact those changes. This could be accomplished at faculty meetings, through the morning announcements, with posters, and with small presentations during homeroom/advisory. The Young Democrats Chapter at Bryan Station conducted a non-partisan presentation on registering to vote and the candidates in the 2008 election in every junior and senior homeroom/advisory class, demonstrating that it is easy to give these small presentations, and the administration is willing to work with a variety of groups who want to inform the students during homeroom/advisory.

2. Training for the Future:

The second step is to train students for “green collar” jobs and to be more environmentally aware consumers and citizens. The existing infrastructure and scheduling framework can be used to incorporate environmental content: Bryan Station sends students to two different technical centers, Southside Technical Center and Eastside Technical Center where students learn a variety of technical skills; nearly every freshman is required to take Defender 101, a course that introduces study and life skills; all students attend an advisory class or homeroom once a week for 45 minutes. Each of these would be excellent places to include information on sustainability and the environment. These components of Bryan Station’s framework make it possible to implement these ideas without changing the overall structure of the school schedule and curriculum.

- a. Job Training/Technical Classes: President-Elect Obama promised to create 5 million “green collar” jobs as president (4). This is a huge economic opportunity that Bryan Station should be training its students to tap into. For example, the Eastside Technical Center provides courses in agri-science, so some of those courses could be tweaked to teach students about bio-fuels (5). Both technical centers teach in mechanics, construction, and other courses that could be tweaked to teach “green” design, construction, and manufacturing. Another specialty could be added at these technical centers on “green” technology, truly preparing students for jobs in the growing “green” economy. This is a way of providing job security – even as the general economy wobbles, the “green” economy is still growing. They could enter competitions to create “green” inventions and be on the cutting edge of new technologies. A class at Bryan Station in the Life Skills Department (mechanics) could also focus on “green” technology. Students in the Information Technology (IT) Academy could use their skills to conduct an energy and waste audit of Bryan Station. This audit would monitor waste and energy use and compare it to waste and energy levels before the action plan was initiated. This would provide extremely useful data that could be brought to the committee in charge of conducting the action plan and the Fayette County Public Schools’ (FCPS) Board of Education. Also, once the current appliances (like printers and copiers) break down, new purchases should be approved by the federal government’s Energy Star rating system. The IT Academy students could evaluate and set up the new technology purchases.

- b. Consumer/Citizen Training: In the summer of 2008 Bryan Station launched a summer literacy program aimed at encouraging literacy of all kinds. Students got points if they completed certain activities related to literacy including checking books out from the library, balancing a checkbook, writing in a diary, going to see a play, etc. This program was intended to teach students life skills in the context of improving their reading. Understanding “green” ideas and applying them to one’s daily life should be considered a life skill similar to balancing a checkbook. Students need to be able to apply more environmentally conscious choices to their own lives. Courses like Defender 101, that teach life and study skills, should include (perhaps in a lesson on saving money) tips for a “greener” life. Students need to graduate with the tools to be questioning consumers who can critically evaluate the environmental repercussions of their choices. It is critically important that students are trained to do research when buying large items and to feel good when they make environmentally friendly choices. For example, some students must ride the bus to school and take mass transit because they can’t afford cars. It would be valuable for them to know that taking mass transit is a very sustainable, commendable choice. In addition, too many students know too little about our government and politics. It is important for environmental awareness to permeate into our political consciousness because it is through the political process that comprehensive and widespread environmental change occurs. One way students could become more aware, is through discussions on political or global issues that included environmental concerns. Discussions of this sort and presentations from local environmental groups could occur in the weekly homeroom/advisory class. This would benefit the school by keeping students engaged (too often homeroom/advisory is not used productively) and by helping students become more successful adults.

3. Green and Healthy Food:

In a school where 60% of the students are on the federal free/reduced lunch program, it is imperative that the food they are getting is healthy because many students eat both breakfast and lunch at school so it is vital that the school provide them with the nutrition they need. The Chair of the Science Department led a food project last year in conjunction with the University of Kentucky to understand food equity and quality. It had three parts: surveying local grocery stores for product and price disparities, surveying students’ eating habits, and beginning to grow food to test organic and non-organic techniques. With a group of students after school the first part of the project was completed. The goal of growing food at Bryan Station has not yet been realized, but the potential remains. Throughout Lexington, there is a growing local food movement encouraged by several organizations including the Farmers Market, Kentucky Proud, and Jim Embry’s local efforts. Several conferences have occurred and some restaurants and grocery stores are making an effort to provide locally grown food. This local knowledge based should be used by the school because they have practical experience and an understanding of local food logistics. The benefits of local food include decreasing the fossil fuels required to

transport the food and supporting the local economy. Finally, the waste generated in the cafeteria should also be addressed in this step of the action plan. The cafeteria uses reusable lunch trays, but could cut down on other waste in a program that could be linked to the aforementioned recycling program.

- a. Nutritious Food: “Fayette County Public Schools is committed to providing school environments that promote and protect children's health, well-being and ability to learn by supporting healthy eating and physical activity.” (6) Unfortunately, few items on Bryan Station’s menu actually comply with the school systems’ standards of protecting and promoting health. For example, French fries are simply not vegetables. While they are no longer fried, only baked, but the U.S. Department of Agriculture recommends being “careful to limit portion size of foods high in calories, such as cookies, cakes, other sweets, French fries, and fats, oils, and spreads.” (7) It is vital that the nutritional value of the food served at school improves, because it can affect the health of current students and future contributors to our economy and society. An added benefit for the school is increased achievement. Students do better in school when they eat, and they do even better when they eat healthfully. By making more for healthy choices available and decreasing the amount of candy and soda sold during and after school, Bryan Station could improve the health of their students. Also, providing more fresh fruits and vegetables, as opposed to those from a can, increases their nutritional value.
- b. Local Food: A local food program has three direct benefits. The first is that it provides fresh food that has more nutritional value and is more likely to provide foods like fruits and vegetables than foods like ice-cream and candy bars. The second is that it provides local farmers a stable income which, in turn, benefits the local economy. The more people who make a living wage, the better for the local business they will support. Supporting the local economy has a trickle up effect. It supports everyone in the community before it benefits only one person. Another benefit is that it could provide farmers added incentive to stop growing tobacco and start growing food, which is more healthy for both the people and the soil. The third direct benefit is a decrease in the amount of fossil fuels required to transport the food. When food comes from hundreds and even thousands of miles away, a tremendous amount of carbon dioxide is spewed into the atmosphere. The closer to the table food is grown, the less carbon dioxide is released. Kentucky has a Farm-to-School program that is run by the Department of Agriculture in conjunction with the U.S. Department of Defense Fresh program and several other organizations including the University of Kentucky and the Kentucky Department of Education. Schools can sign up to become part of the program, and school districts must request food in May. After that, these organizations work with farmers and the school to provide food at comparable prices to the food that can be purchased through the Department of Agriculture, the normal route for schools to purchase food. (8) Bryan Station should sign up for the Farm-to-School program to begin receiving locally grown food.

- c. Lunch Waste: One of the simpler areas in which to make meaningful progress is decreasing the amount of waste produced throughout the school. In the cafeteria, Bryan Station has made gains by providing reusable lunch trays and not using Styrofoam, one of the least biodegradable substances available. However, more effort should be made to decrease the use of disposable utensils, plates, and cups. There is already the space within the cafeteria to have students drop off their dirty dishes, replete with a drop-off window and industrial dish-washers; however they are only used to wash the trays. Furthermore, the aforementioned recycling should be implemented in the cafeteria for cans and other material. Clearly, the system is already in place, it is only a matter of implementation.
- d. Community-Generated Food: The community of Bryan Station must become more intimately involved in their food. This can happen in at least three ways. First, there are a number of students that take a course on food, be it an introductory course or the advanced Commercial Foods class. These classes include a short lesson on alternative foods and “green” cooking, like using solar ovens. But this lesson, and all of the lessons taught in Foods would be better learned if they were applied in a real world situation – the cafeteria. With an influx of fresh food and potentially more time consuming food preparation, the students in these classes could be a real help to the cafeteria workers, at no extra cost to the school. The students who take Foods would benefit from working in the cafeteria “laboratory”, the workers would get extra help at no cost, and the nutrition of the food that the cafeteria could provide would increase. Second, there is ample area behind Bryan Station and on its roof to create a garden and grow some of the food to be used in the cafeteria. The Chair of the Science Department, already purchased a green house for the roof. The garden and greenhouse could be managed by a class that could also study many topics covered in the Earth/Space and Biology classes (and on standardized tests). This could be a way of reviewing material before the tests for remedial students or an advanced class in ecology, sustainable agriculture, and ethno or economic botany. Or, depending on the size of the garden, both classes could be taught. There is a constant need for new electives, and the 90 minute periods that make up the block scheduling would facilitate a class that could include both a lecture and work in the garden. A club after school or the health and gym classes could supplement the gardening effort. Any excess food or food in too small a supply for the cafeteria could be donated to local food banks. An added benefit would be that students, in any of these classes or clubs would benefit by becoming stakeholders in their food and in their school. This could be a source of pride and great on-the-job experience.

4. Integrating a Green Curriculum:

The final step in this action plan is complete integration of sustainability concept into every part of the school, particularly the curriculum. This integration of a green curriculum has already begun thanks to efforts by individual teachers and

departments. For example, last year, the English Department had a unit on poetry and the environment with every sophomore at Bryan Station. This year, all of the AP English Language classes attended a play called *Walden* based on Thoreau's writings. These are small, but important, steps toward a curriculum that is truly integrated across all disciplines and with a guiding focus on the health of students and the planet. Every school in Kentucky is required by law to cover the same core content and Program of Studies, essentially specific guidelines of the content that must be covered in every class. This "green" curriculum can link each piece of the core content into a more cohesive whole that is better for students because it "uses a theme to connect disciplines, making the curriculum more coherent and helping students see relationships." (9)

- a. Clear Integration: The most obvious integration of "green" ideas into the curriculum is in the sciences. More emphasis should be made in all science classes on their application to the real world and to the environment. In some classes, like Biology and Earth/Space Science this transition will be seamless. In other classes, like Chemistry and Physics, it will take a bit more effort to integrate "green" ideas, but it is clearly not a stretch. Health and Gym classes should include lessons on enjoying nature, nutritious food, and other "green" ideas that explicitly relate to course core content (for example, take a hiking field trip, discuss safe disposal of hazardous waste, etc). The Foods classes could use the garden and cafeteria experience to link green ideas to all of the meals they plan. The technical classes could all implement efforts to decrease waste and use "green" materials. The IT Academy students can conduct audits of energy and waste for the school and for other individuals and organizations. The Global Issues class is currently in charge of the paper recycling program, and they could continue to lead in all of the recycling efforts in the school while discussing environmental issues in the classroom. Most of these areas were previously discussed, and they are all examples of direct ways environmental concepts can be incorporated in the classroom setting.
- b. Complete Integration: There are many classes that have not yet been mentioned, but they too can integrate the "green" curriculum. Clearly the English Department can integrate environmental concern into every unit. Analyzing nature poems, reading books like *Walden*, and *A Sand County Almanac*, and writing essays on environmental issues are all ways to integrate "green" ideas into the core content of each class. Within the core content of every math class is application to the real world (or the answer to the constant question from students, "how can we possibly need to know this?"). These application lessons can include word problems or diagrams of "real world" situations. This would be much more effective if students were actually answering real questions with real application to their own lives. Why not ask them to use their knowledge to calculate their own energy use, or use math to determine the placement of solar panels – on school property. Some social studies classes have more clear connections to the "green" theme than others. Many of the social studies

electives can be tied easily to the theme of environment (e.g., Political Science could discuss a candidate's environmental position, Geography is essentially human-environment interactions). The three required classes are Citizenship, World History, and U.S. History. Citizenship should include lessons on environmental law, the EPA, and other government programs that deal with the environment in ways that affect them. World History currently includes hints of human-environment interaction, but in many ways the environment and other species we share the earth with have been vitally important in shaping human history (10). Environmental degradation, disregard for species endangerment and extinction, and unquenchable thirst for natural resources influenced many events in our nation's history (e.g., furs, spices, gold and conquest of the New World; Atlantic Ocean and the Revolutionary War; gold, iron, steel, and the Industrial Revolution; gasoline shortages and 1970s and 1980's politics). The Foreign Language Department should include lessons on the environment to teach important but overlooked vocabulary, reading comprehension, and listening/speaking skills. All of these could include environmental themes (articles in the studied language on endangered species, for example). The Art and Music Department can include concern for the environment in their subject matter, and materials. They could design green buildings, decorate the garden, or learn about how the environment has affected the arts in other cultures and our own. There are many teaching resources available, including certification through the National Project for Excellence in Environmental Education (11).

Outline of the Green Action Plan for Bryan Station High School

Step	Component	Time Frame	Implemented by or Affects
1. Saving Energy, Saving Money	a. lighting b. heating/air conditioning c. computers/technology d. recycling	All can take immediate action.	School administration, students, teachers, Global Issues class
2. Training for the Future	a. job training/technical classes b. consumer/citizen training	All can take immediate or short term action	IT Academy, Technical Centers, Defender 101 classes, homeroom/advisory classes, FCPS Board of Education
3. Green and Healthy Food	a. nutritious food b. local food c. lunch waste d. community generated food	A, B, and D can take long term action. C can take short term action	Cafeteria workers, consumers of school breakfast and lunch, Foods classes, local farmers, Global Issues class, garden club, new science elective, Health/Gym classes
4. Integrating a Green Curriculum	a. clear integration b. complete integration	A can take short term action. B can take long term action	All students and teachers in every class

Bibliography:

1. Kentucky Utilities [http://www.eon-us.com/rsc/ku/res_heating_costs.asp]
2. Consumer Repots, Green Choices.
[<http://www.greenerchoices.org/globalwarmingsavecarbon.cfm>]
3. Forest Stewardship Council [<http://www.fscus.org/>]
4. Obama for America [<http://my.barackobama.com/page/content/newenergy>]

5. Fayette County Public School System
[<http://www.fcps.net/schools/others/eastside-technical-center>]
6. Fayette County Public School System
[<http://www.fcps.net/administration/departments/food-service/wellness-plan>]
7. U.S. Department of Agriculture, Dietary Guidelines for Americans: Professionals Booklet. 2000 [<http://www.cnpp.usda.gov/DGAs2000Guidelines.htm>]
8. Farm to School [<http://www.farmentoschool.org/state-home.php?id=14>]
9. Center for Ecoliteracy [<http://www.ecoliteracy.org/programs/rsl-guide.html>]
10. Diamond, Jared. Guns, Germs, and Steel. New York: W.W. Norton and Company, 1999.
11. National Project for Excellence in Environmental Education
[<http://www.naaee.org/programs-and-initiatives/guidelines-for-excellence/>]