Boston Latin School Youth Climate Action Network

blsyouthcan.org

The Oldest School. The Newest Thinking: Educating for Sustainability



Overview of BLS Youth CAN

Now in our 6th year of existence, the Boston Latin School Youth Climate Action Network (BLS Youth CAN) is an after-school club at the oldest public school in the country (1635), and the largest school in the Boston Public School system (2,400 students). Students at the Boston Latin School (grades 7-12) founded and oversee Youth CAN, a coalition of environmental youth groups at other schools across the city that now boasts more than 20 member groups. BLS Youth CAN does extensive educational outreach into the community, maintaining numerous partnerships with youth organizations, academic institutions, businesses, and public officials in the Greater Boston Area. BLS Youth CAN students organize free events that serve dozens of schools and organizations in our community every year. We have initiated several large-scale projects and events in the community aimed at educating for sustainability that now serve as powerful demonstration projects effectively documenting the success of our community outreach and the need and interest there is in the community for these collaborative learning opportunities. We are committed to sharing all aspects of our work and to maintaining our collaborative student-led model. Our website (www.blsyouthcan.org) offers a guide to work BLS Youth CAN students have done to increase energy savings, integrate sustainability curriculum, design a community facility that will educate for sustainability, and build the partnerships necessary to ensure the success and longevity of these initiatives. We have fostered broad alliances within the greater Boston environmental and youth-leadership communities.

BLS Youth CAN's Major Programs, Events, and Initiatives - Demonstrating Success Over Time

All of BLS Youth CAN's large events, programs and initiatives serve to extend the reach of BLS Youth CAN's energy savings and sustainability initiatives by providing models for replication. Many of Youth CAN's most successful programs will eventually find a home on the Shared Green Roof and Community Learning Center that BLS Youth CAN students have proposed. For example, the ground level garden and summer garden camp for elementary students will eventually take place in the rooftop greenhouse. The same is true for our summer teacher training program and our youth green jobs energy audit training program. The results generated by these programs along with energy savings data from our renewable technologies provides a measurable record documenting Youth CAN's impact in the community with regard to energy savings and sustainability and attests to the the need, interest, and overall success of our programs.



Here are some of our major initiatives:

- A Youth Network (Youth Climate Action Network) 20 member groups
- carbon footprint, save energy, and increase sustainability:

Energy - the energy and sustainable facilities initiative in our own school includes a completed energy audit and energy action plan and numerous energy saving measures that have already been implemented. Our building's Energy Performance rating at the time of our audit was a 59. It is currently a 92. We have switched to cfls in our auditorium, reduced our domestic hot water temperature, turned off vending machine lights, and implemented an energy saving lighting retrofit that is currently saving \$33,000.00/ year or 200,000 KWh of energy annually. We are currently working on doing energy modeling for our building. We have installed a small photo voltaic array on the roof (28 pvs) and 350 trays of vegetation. We won a state-of-the-art solar tent that we have used to raise awareness (it is currently on loan to a local green band that powers their sound system with renewable energy. We have hosted educational events such as a green careers energy symposium with energy professionals; and our annual Youth Green Jobs/Energy Audit Training Program.

Waste & Recycling - We implemented a school-wide zero-sort recycling pilot that cut our waste in half. The pilot was so successful it resulted in the City of Boston developing a plan to implement zero-sort recycling in 30 more schools within the Boston Public School system this coming fall. We launched a effort to get a digester, held a fund raiser to secure funds to pay for leasing the digester, and implemented a schoolwide zero food waste trial where we documented how much food waste we produce on daily, composting all of the food waste. We are now working on getting a shed to house the digester.

Food - We won a salad bar for the school and worked with the Boston Public School Systems' Food Services staff to get it implemented in our cafeteria. We worked with the Facilities Department to secure permissions for a school garden, raised funds to pay for it, and then plant and maintain it. We implemented a farm to school program that brings fresh food from local farms into the school cafeteria once a week, held a fall food fair to teach about concepts of sustainability, and created a summer garden program. Based on the results from a single day of the Zero-Food Waste trial, the Boston Latin School was able to compost 428 lbs. of food scraps that would have otherwise been sent to a landfill. A total of 51.9 kg of methane gas was prevented from entering the atmosphere, and the day had had a net impact on global warming equivalent to preventing the release of 0.95 metric tons of carbon dioxide. Based on these results, if BLS leases the BioGreen360 digester for six months (90 school days), this will prevent 4.7 metric tons of methane from being released into the atmosphere. Since methane has a much higher impact on global warming than carbon dioxide, leasing the digester will be equivalent to preventing the release of 85 metric tons of CO2. This is equal to the amount of CO2 released by: consuming 9,530 gallons of gasoline, consuming 128 barrels of oil, or supplying electricity to 10.6 homes for a year. Sequestering that volume of CO2 from the atmosphere would require 18.1 acres of forest, or planting 2,180 new trees. While these numbers are significant, they can all be increased if the digester is used year-round.

Sustainable Facilities Initiatives - we have implemented numerous projects in our own building to reduce our



- A Model for Sharing BLS Youth CAN's initiatives are all aimed at sharing concepts of sustainability broadly with the larger community. The model we have developed offers a roadmap for successful youth leadership, collaboration and partnerships, to promote sustainable facilities and educating for sustainability, a thorough case for the value of service learning, and an innovative design for a shared green roof and community learning center. Our initiatives have given us an opportunity to demonstrate success with many of the programs and activities that will eventually take place on a new green roof BLS Youth CAN and community partners have proposed
- The Shared Green Roof and Community Learning Center An Innovative Community Facility BLS Youth CAN's goals of youth leadership, education for sustainability, energy conservation and facilities improvement, and community partnerships all come together in our Shared Green Roof and Community Learning Center proposal. It is a plan for a stateof-the-art community green roof where students and educators from across the city will come to learn how to think in terms of the world's interconnected systems. Our intent is for them to be inspired by the facility itself to think in new ways about what a sustainable future requires. The design for this shared facility was created by students who engaged and worked with local architects and engineers to envision a space where students and educators alike can come learn in an exciting facility that literally educates by design. So far the project has been entirely funded by students as well, through contests, grants, and prizes with students bringing in
- A Shared Green Roof Community Youth Task Force The direction of the Shared Green Roof Community Learning Center has been shaped by a coalition of students and teachers in schools and community groups across the city because Youth CAN students wanted the design to reflect the diverse interests, ages, and experiences of the future users of the facility. The project aims to create a national model for what educating for sustainability should look like. The project has already engaged hundreds of youth in meaningful servicelearning and the opportunity to collaborate with the exciting and diverse variety of groups that are part of the task force. Together we have envisioned a place where school groups, community youth organizations, educators and others can come to explore the fundamental interrelatedness of issues like equity, social justice, health, security, access to resources, sustainable development, economic stability, and protection of the natural environment. The shared green roof is designed to help learners begin to think in terms of these interconnected systems. Shared green roof features include:

Rooftop multi-use indoor classrooms

Rooftop multi-use outdoor classrooms

Facilities, Technologies and curriculum to promote Science/Technology/Engineering/Math (STEM) learning, & education for sustainability in general





Weather stations, anemometers, etc.

A cafeteria farm and greenhouse to grow healthy food, including hydroponic growing that will provide visitors opportunities to learn about agriculture, and engage in community service

electricity, and solar thermal panels that will generate hot water

heat load in the building

albedo on heat exchange

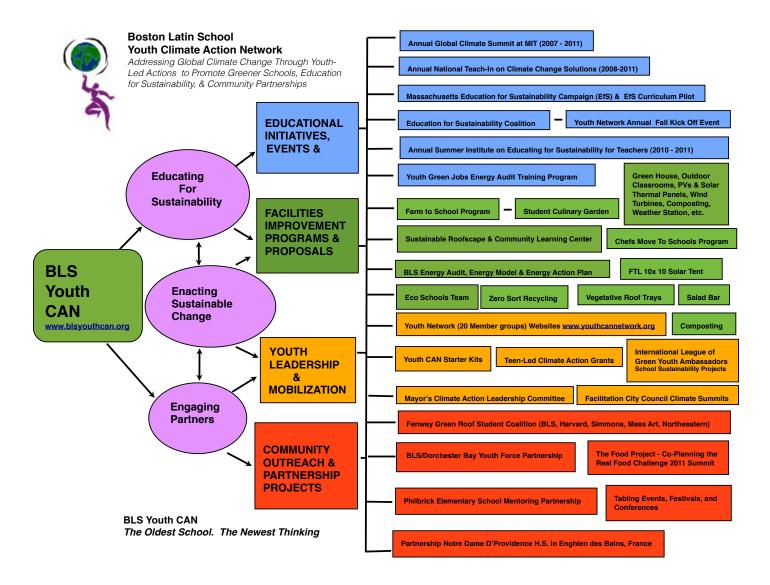
online for offsite accessing

Fitness stations to help educate about the connections between fitness & health and sustainability A Rooftop Classroom Sized omni-theater ("PRU II") streaming views of Boston (from webcams on Boston's Prudential Tower), overlaid by GIS mapping to reflect data about trends related to climate change and sustainability in the city (eg. sea level rise, high asthma areas, new green construction, heat islands, "food deserts", problems with storm runoff, high diesel emissions, etc.)

A "Real Costs Store"

A Solar Forest

- Renewable energy systems including with photovoltaic (PV) panels and small wind turbines generating
- Extensive vegetation areas that will provide habitat for birds, bees and insects; absorb rainwater; reduce
- A variety of green roof features allowing for comparative studies, such as the effects of high and low
- Contemplative areas where visitors may explore issues of sustainability through the arts or language arts
- Web Cams and Streaming Data generating information from rooftop technologies that will be available



BLS Youth CAN Advisorv Board

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Shared Green Roof Implementation - Community Youth Task Force

Students from across the Greater Boston Region have formed a Shared Green Roof Youth Task Force that has been working together to develop a plan for how the roofspace will be used and advance the project in meetings with city and state officials. The Task Force held a Community Visioning event at the Gardner Museum to share ideas for uses of the community facility with Curt Spaulding the Region 1 Administrator for the Environmental Protection Agency. In April Task Force youth met for a design charrette led by Studio G Architects to further develop some of the components for the Shared Roof Space that came from the Community Visioning event. The Task Force announced their plans to the broader community at BLS Youth CAN's Annual Youth CAN Climate Summit at MIT in May, and began working on a report for the Mayor explaining what students want the City to support with regard to the Shared Green Roof project. The Mayor's report will also include:

An Impact Statement created by the youth members of the Shared Green Roof Task Force explaining the educational importance of the proposed facility on teaching and learning, and it's potential as a national model for what sustainability education should look like

A list of the Shared Green Roof Youth Task Force Members

Individual participation statements from each of the Task Force Member Groups

Costs and benefits comparisons with existing educational green roof facilities



- Descriptions of how each individual task force member group plans to make use of the shared facility

An extensive list of schools, organizations, community groups, agencies, etc. from the Greater Boston Area (beyond members of the Shared Green Roof Task Force) who have committed to being future users of the Shared Green Roof.

A short video that incorporates footage from some of the various meetings we've had since January that are focused on the Shared Green Roof including input from some of the members of the Shared Green Roof Youth Task Force.

The youth on the Shared Green Roof Youth Task Force are committed to promoting education for sustainability through their Shared Green Roof project because they believe it will benefit students and educators across the Commonwealth.

The Shared Green Roof Community Youth Task Force Member Schools & Organizations

(*non-task force schools & programs committed to being future users are not shown)

The Boston Green Academy	The Boston Collaborative for Food and Fitness
Madison Park High School	MATCH Public Charter School
The Tobin School	MissionSafe
The John D. O'Bryant School	East Boston High School
The Food Project	SubUrban Justice
The City School	Roxbury Environmental Empowerment Program (REEP)
Boston Latin Academy	Dorchester Bay Youth Force
The Emerald Necklace Conservancy	Bold Teens
Fenway High School	Boston Latin School

Annual Climate & Sustainability Summit at MIT - BLS Youth CAN's Annual Summit (2007-2011) is planned and led by youth. It engages several hundreds of students (grades 7-12) and educators in interactive workshops led by community organizations and professionals as well as activities where youth participants learn about energy conservation, climate change, sustainability, youth activism and youth leadership. It is our highest visibility event with close to 100 schools in attendance annually. The Summit has served over 2,000 youth and educators since its inception. BLS Youth CAN students have partnered with more than 200 community organization and businesses in delivering this event to the community annually.

Summer Youth Green Jobs/Energy Audit Training Program - the Green Jobs program (2nd year 2012) engages youth from schools across the city in paid summer training that results in the youth participants forming green teams in the fall, performing energy audits at their schools or community centers, and creating and implementing energy action plans for their respective facilities. Participants gain skills in youth leadership, team building and organizing while learning about energy audits, energy conservation and how concerns about energy are related to social justice issues, global climate change, and overall sustainability. Ten teens are accepted annually and have an opportunity to work with a variety of local energy experts. The Green jobs program served 10 youth in its first year (2011) with more than 15 community organizations and businesses partnering with BLS Youth CAN to make the program possible. The 2012 Energy Audit Training Program participants will receive energy saving implementation funds from BLS Youth CAN to use at their schools (contingent upon BLS Youth CAN successfully securing those funds.)

- tend a garden, how to reduce food miles, and how to compost their food waste.
- for the Massachusetts Environmental Educators Society.

Using Art to Educate for Sustainability

The Shared Green Roof will use art to inspire understandings about sustainability. Students are working on collecting art for a rooftop exhibit where students will be able to explore student art focused on youth-led sustainability initiatives in communities around the world. The collection will also be available for viewing online. Youth CAN students have developed partnerships with sustainability artists Dan Harvey and Heather Ackroyd and the Gardner Museum, and are working on developing proposals for a rooftop sculpture garden aimed at provoking thinking about sustainability as well as an online digital collection of art focused on youth-led sustainability work from around the world.

Community Collaboration

With its combination of outdoor classrooms, green house, green technologies, large sculptures, and creative elements, the facility has been specifically designed to inspire systems thinking and foster the big-picture thinking necessary for meeting the issues challenging today's global community. It will serve as a muchneeded place where educators, students, environmental organizations, and other our community can engage in hands on, inquiry-based learning and education for sustainability. It will provide a year-round

space for collaboration and partnering on sustainability initiatives, a clearinghouse for sustainability curriculum, and a green schools facilities model for how to save energy, reduce CO2 emissions, curb heat island effects and encourage youth leadership and service learning. It will help learners cultivate the capacity to think in terms of large interconnected systems and how such systems impact issues of sustainability. Most importantly, once it is completed, the Shared Green Roof will provide a permanent home and ground the model of youth leadership, service learning, community collaboration, and innovative design that have been the hallmarks of this project since it's inception.

*Educating for Sustainability is an approach to teaching and learning that links the global to the local, and promotes learning that is interdisciplinary and inquiry-based.

BLS Youth CAN Summer Garden Camp - The BLS Garden Camp (new this summer) engages a local gardening business (Green City Growers) and five Youth CAN teens (as paid interns) in mentoring and teaching ten younger students from area elementary schools. The garden campers learn about the food cycle, where food comes from, the importance of eating healthy, sustainably grown foods, how to start and

Statewide Education for Sustainability Campaign - The youth-led EfS Campaign aims at integrating the big ideas of sustainability into teaching and learning as broadly as possible, meaning across grade levels and curricular disciplines. Towards that end, BLS Youth CAN students have so far arranged two summer trainings (2010, 2011) engaging more than 50 teachers in Massachusetts in spendings several days learning how to integrate sustainability into their curriculum and developing their own sustainability lessons. Students also organize an Annual Teach-In on Sustainability at our own school (past 6 years) have organized and hosted the Annual Summit at MIT. BLS Youth CAN is working with the Sustainability Coordinator for the Boston Public Schools. Students have presented about their Education for Sustainability vision and campaign to the Secretary of Energy's Advisory Group on Energy and Environmental Education (SAGEE) as well as to 100 educators for Mass Audubon, the Massachusetts Sustainable Communities Conference, and to educators





Need and Impact

Today's students need their educational experience to prepare them for the future. Todays educator's need opportunities to learn how to integrate the big ideas of sustainability into what they teach. We believe that the world needs youth leaders like us, and it needs facilities like the one we have proposed. Facilities with the potential to really impact the way we educate and think about our world. With more than 30 schools and organizations now working together to advance our Shared Green Roof project, it's apparent that it isn't just our building design proposal or our energy savings that are so exciting. To solve the problems of global climate change, and make the shift to a more sustainable global community, we also need innovative collaborative models like ours. Our Shared Green Roof and Community Learning Center is already bringing large numbers of people together. It is already educating students and youth about sustainability and it hasn't even been built yet. When it is completed it will be a space where collaboration happens all the time, and it will serve as a powerful example of how educational facilities paired with meaningful curriculum can give rise to the kind of change we most need to see in world, and how today's young people are leading the way to making it a reality.

Local & National Interest

The project has already demonstrated a remarkable capacity to leverage local impact into national and international interest. The Shared Green Roof project's innovative design and collaborative youth-led approach have earned a hearing from Boston Mayor Thomas Menino and garnered an all-expense-paid trip to France in October where students were invited to present about the project and our city partnerships model at a regional sustainability conference called Les Respirations. BLS Youth CAN students launched an International League of Green Youth Ambassadors at the American Embassy in Paris that will focus on building collaboration among youth nationally and internationally towards developing best practices with regard to youth-led school-based sustainability initiatives.

Media Attention for the Shared Green Roof Project

The success of BLS Youth CAN's grassroots youth-led movement has received media attention and numerous awards:

Boston Globe

http://www.boston.com/news/local/massachusetts/articles/2010/07/26/student_ideas_for_ green roof make school a teaching lab/

BLS Youth CAN has been featured on local radio and TV including the nightly news, and were featured on the:

Today Show:

http://www.blsyouthcan.org/BLS_Youth_C.A.N./Today_Show_Clip.html

NBC Nightly News

http://www.youtube.com/watch?v=whTnqh7eeNo

Mass High Tech Magazine / Spring 2009

Boston Magazine - Greenest School / September 2010 http://www.bostonmagazine.com/articles/2010/08/the-honor-roll/2/

Smart Planet

Slate Magazine

Huffington Post

West Roxbury Transcript

http://www.wickedlocal.com/west-roxbury/news/lifestyle/columnists/x884182168/West-Roxbury-Saves-Energy-What-BPS-students-are-learning-about-the-environment#axzz1z1MGVP2r

StoughtonTimes

http://www.wickedlocal.com/stoughton/news/education/x1131632478/Sophomores-learn-howtoconserve#axzz1YsTVD14e



HOME (NEWS / LOCAL / MASS The Baston Blah Student ideas for green roof make school a teaching

What BPS students are learning about the

By West Roxbury Saves Energy Wicked Local West Roxbury/Roslindal May 10 2010 @ 08:24 AM

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http://www.huffingtonpost.com/2010/07/08/youth-can-boston-latin-sc_n_636745.html?view=print



Youth CAN: Boston Latin School Green The Campus And Beyond

Huffington Post ∣ <u>Travis Walter Donovan</u> ≫ 🖒 First Posted: 07/07/10 09:27 AM ET ∣Updated: 05/25/11 06:00 PM ET

The nation's oldest public school, Boston Latin School, is getting a green maker One of the school's most popular clubs, <u>Youth Climate Action Network</u>, campus' energy audit. The students started with small steps, like impli-auditorium, but they aren't content with stopping there.

Working with a local architect and BLS parent, Youth CAN has designed a sustainability, equipped with solar panels, wind turbines, and green garden

tech support to peers. Kyle Sweeney, Beverly class of ? "It taught me communication and problem-solving sl

GREEN

Boston Latin Schoo

Three years ago history teacher Cate Arnold's studen started a climate-action club. These days, that club. Y 28 solar panels installed at the school, kicked off single a \$6.2 million green roof. Yet the effort is no student f brainstorming ways to re-engineer the curriculum to



Awards for Shared Green Roof Project and Youth CAN Initiatives

Do Something Increase Your Green Award / 3x The Green Schools Green Difference Award / 2x Green Heroes Award / 15K Eco Schools USA Eco Sweepstakes / Solar Tent valued at 10K President's Youth Environmental Award EPA Merit Award EPA Merit Award Secretary's Award for Excellence in Energy and Environmental Education National Energy Education Development Youth Award for Massachusetts / 2x The Green Award / 25K Student Conservation Association Award The National Wildlife Federation's ChillOut Competition Award Rounds 1 and 2 of the 2011/2012 Lexus Eco Challenge / 20K BLS Youth CAN was one of three schools in the nation to win the Sustainable Energy Award / 10K BLS Youth CAN was the first public school in the country to receive Eco-School's USA's Green Flag Award

Youth CAN Shared Green Roof & Education for Sustainability Presentations

Secretary's Advisory Group on Environmental Education / 2008

Boston Public Schools Facilities Department / 2009

The Curriculum Initiative (TCI) Jewbilee Youth Conference - Global Challenges in Pursuit of a Better World / 2009

Mayor's Energy Staff - Brad Swing, Brian Glasscock / 2009 BLS Administration / 2009, School Site Council / 2009, Parent Council / 2009, and BLS Alumni Board / 2009

Get Out And Learn (GOAL) Education Showcase / 2009

Massachusetts Environmental Educators Society (MEES) Conference / 2009 D2E Down to Earth Sustainability Conference / 2009

BLS Youth CAN Advisory Board / 2009

Chicago School Building Expo / 2010



Boston IFMA Chapter - Special Recognition Award / 2010 Adult Staff from Youth Center in Reykjavík, Iceland / 2010 100 Massachusetts Audubon Environmental Educators / 2010 2nd Adult Group from Iceland / 2011 Primary Source Environmental Program for Educators / 2011 West Roxbury Forum Presentation / 2011 Mongolian Student Group Visit / 2011 Les Respirations Sustainability Conference Enghien Les Bains, France / 2011 Presentation to Earth Science Educators - Adult Education Program, Malden HS / 2012 Hingham HS Presentation / 2012 Presentation to Boston Mayor Thomas Menino / 2012 Presentation to EPA Region Administrator Curt Spaulding at Gardner Museum Community Visioning Event / 2012 Denver McCormack School - 6th Grade Class Presentation / 2012 Boston Sustainable Communities Conference Presentation / 2012 National School Board Association Conference: The Essential School District Sustainability Toolkit / 2012 School of the Future Design Competition Presentation / 2012 Cambridge Science Festival Ideas Challenge / 2012 Japan Fulbright Program Visit / 2012

BLS Youth CAN Fundraising (\$235K)

NSTAR Save A Light Fundraiser / 5K	
Boston Digital Bridge Foundation / 2.5K	
BLS / .5K	
Do Something / 1K	
Student Conservation Association / 2.5K	
Do Something / .5 K	
NWF Campus Chill Out Competition / 1K	
Private Donor (student bar mitzvah) / 2K	
GE ICare Employee Fundraiser / 1.3K	
We Add Up T-Shirt Fundraiser / 2.4K	
Do Something / 1.5K	
ACE / 2.5K	
Tray Sales(for green roof) / 11K	
Food Fair Bake Sale Fundraiser / 1K	
Individual Small Donations / 3K	
National Grid Foundation Summit / 6x10K	

Materials and Kind Donations (73K)

NWF ECO Sweepstakes: / 10K SOLAR TENT

Great American Salad Bar Contest / 3K Salad Bar

Studio G Architects In Kind Donation / 50K

Pam McKinney, Byrne McKinney Associates In Kind Donation / 10K BLSA / 10K Lexus Eco Challenge Round 1 / 10K Lexus Eco Challenge Round 2 / 10K Green Heros Competition / 15K NSTAR Save A Light Fundraiser / 7.4K The Green Awards / 25K BLS Alum Donation / 1.5K BLS Alum Donation / 5K National Grid Foundation Summer Institute 2010 / 15 K National Grid Foundation Summer Institute 2011 / 9K National Grid Foundation Green Jobs Program / 9K Equal Exchange Fair Trade Fundraiser / 2.4K Conservation Teacher of the Year Award / 1.5 K Samsung Sustainable Energy Award / 10K New England Grass Roots Environmental Fund Grant / 1.5K

Dietch Leadership Grants / 5K



Business & Community Partners

United Hydroponics

City Feed

Red Sun Press

Migrant Winds T-s

NSTAR

Constellation Energy

Mazon Lighting

Casella Recycling

Energy Management Associates

Dorchester Bay Youth Force MIT Technology and Culture Forum

The Food Project



Boston Public Health Commission, Boston Food and Fitness Collaborative

Fenway Green Roof Student Coalition

Philbrick Elementary School

Franklin Park Zoo

Boston Nature Center & Mass Audubon Society

Sociedad Latina

Green City Growers

City Sprouts

Alliance for Climate Education

National Wildlife Federation Green Schools

Boston Latin School Youth Climate Action Network

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