

Students in Boston need to develop important life skill, become more educated about renewable energy options, and more money needs to be raised for the BLS YouthCAN Shared Green Roof project. To make these things happen YouthCAN wants to conduct a wind study on the roof of BLS and, on the YouthCAN website, provide the opportunity for other schools to borrow the anemometers we purchase for free. We will also provide a guide to how we conducted our wind study on the YouthCAN website, so that students from other schools will know how to start and complete their own wind study. The anemometers we will purchase for the feasibility study are three RainWise WindLogs which cost \$315.95 each. The wind turbine feasibility study will be conducted by a student team led by Michael Timmons, and supervised by Scott Balicki, a teacher in the BLS science department.

Statement of Need

BLS and other schools in Boston need more projects that promote leadership, skill-building, and community partnership experiences for students interested in promoting sustainability. Students are also in need of more opportunities to organize and conduct important research at their schools, research that is important for changes to their school in the form of renewable energy. Students need to feel that their work matters to their community and to the environment. Students also need to become more educated about renewable energy options and sustainability. It needs to be demonstrated that students can lead many of the projects that will educate themselves and their peers about energy and being more energy conscious. The goals of the BLS YouthCAN Shared Green Roof need to be furthered, by demonstrating to potential supporters that the green roof project is still being moved forward by youth leaders.

Program Description

The wind feasibility study will collect wind data on the roof of Boston Latin School for the purpose of determining where the optimal locations for the placement of wind turbines might be. We will educate other students of schools in Boston by setting up an online mechanism for sharing data from the wind study with students at other schools, and by making the actual anemometers that will be used in the study available for other schools who want to conduct wind studies of their own. While the feasibility study is intended to serve as a precursor to getting wind turbines for BLS, it is also a stand-alone project, the goals of which can be accomplished without getting wind turbines on the roof. The feasibility study does not seek to actually acquire the wind turbines, since their costs are beyond what the Deitch grant can provide. Therefore, any discussion of turbines in this application is only meant to provide a context for the wind turbine feasibility study and its goals. BLS students will conduct a year-long wind study using anemometers. All results of the wind study will be documented on the BLS YouthCAN website. The wind study will provide opportunities for students and science faculty to practice scientific investigation. It will provide the opportunity for students to practice leadership skills, help improve their community and develop interpersonal skills that will help them to work with others in group projects. The students participating in the wind study will be highly motivated by the fact that their work is important to their community and the environment. Students will review the Museum of Science wind study, which has guided the wind turbine planning work to date. They will document and analyze wind conditions, write a report about the best rooftop installation locations, finalize the selection of the turbines, and share the findings with the student body. This project will evaluate the wind feasibility findings in light of the preliminary selection for a wind turbine (Windtronics Honeywell turbine, chosen because the gearless system which generates energy at winds of 2 mph or greater, and wind speed at Boston Latin School is assumed to be limited because of the taller surrounding buildings.)

Steps:

- 1.) We will recruit a team of BLS students to help with and participate in the wind feasibility study.
- 2.) We will purchase three wind anemometers from WeatherShack.com to measure the wind speed and direction on the roof.
- 3.) When the anemometers have arrived we will install and set up the WindSoft software so that the anemometers are ready to collect data. Michael's personal computer, that meets the system requirements, will be used.
- 4.) After the software is set up, we will request a key to the roof from Mr. Flynn and mount the anemometers on the roof of BLS in the positions that have the best wind exposure.
- 5.) During the time the anemometers are collecting data, we will closely monitor the anemometers with weekly visits, until the data collection period is over.
- 6.) When all the data has been gathered we will analyze the data, determine which anemometer recorded the highest wind speed on average and in what direction the wind most consistently blew in the place that anemometer was mounted
- 7.) We will add a guide to the YouthCAN website that explains, step by step, how to conduct a wind feasibility study. We will also make the anemometers we purchased available to other schools to borrow for their wind study.

Project Gantt Chart

/December / January / February/March

recruit team	X															
purchase anemometers	X															
install software, mount anemometers		X														
gather data			X	X	X	X	X	X	X	X	X	X	X	X	X	X
analyze data, determine optimal position																
write report, put guide on website, allow other schools to borrow anemometers, survey																

/April

/ May

/ June

recruit team																
purchase anemometers																
install software, mount anemometers																
gather data				X	X	X	X	X	X	X	X	X	X			
analyze data, determine optimal position															X	
write report, put guide on website, allow other schools to borrow anemometers, survey																X

Goals

1.)We aim to inspire as many schools as possible to conduct their own wind studies.

2.) We want to attract as much attention to ourselves as we can from possible donors and raise more money for the green roof project.

3.) We also want to teach the students on the team about conducting scientific research, sustainability and renewable energy options, and important skills needed in participating in group projects

Budget

- 3 RainWise WindLogs (free shipping) X \$315.95 each = \$947.48



Evaluation

To find out the number of schools that we inspired and helped to conduct their own wind studies we will count the number of schools that used our guide and borrowed our anemometers. To discover how effective the wind turbine was in gaining positive attention from possible donors we will calculate the amount of money that we receive from donors in response to our wind study research and guide. Finally to evaluate how much the members of our group learned during this project we will have them answer a survey after we have finished creating the guide for the website.