



Reducing Impacts to the Mississippi through Native Plants and Rain Barrels

School: Bloomington Lutheran School, MN

Grade: 7

Date: May 8, 2012

Climate Literacy Principle: Human activities are impacting the climate system.

We want to reduce the amount of carbon dioxide in the atmosphere by planting native MN trees at our school. Our class is especially concerned because we have 12 mature ash trees on the boulevard surrounding our school and if the emerald ash borer gets to Bloomington, all 12 trees will potentially have to be cut down. Increased carbon dioxide is a major contributor for climate change in Minnesota and we want to reduce the amount by planting native trees, which are like sponges, soaking up CO₂. We also hope that the trees will provide a place for birds to live.

Our 7th Grade class also wants to redirect water that rushes off the flat roof of our school by adding rain barrels on 2 down spouts. The water will be collected and used to water the trees we plant. This will help with climate change by keeping oil and other pollutants (like plastics) from going into storm drains which lead directly to the Minnesota River, which flows into the Mississippi River. We watch the rain from the flat roof gush into our parking lot every time it rains. The rushing water pulls plastic garbage and oil from the cars and busses into the storm drains. If some of the water were directed into rain barrels, the oil and plastics wouldn't end up in the Minnesota River. These 2 project goals can create a cleaner river and prevent future climate change leading to a better overall environment.

Video Link: <http://www.youtube.com/watch?v=eOC53cFczVA&feature=youtu.be>

Colonial Creek Field Trip

School: Liberty Bell High School, WA

Grade: 10

Date: March 13, 2012

Climate Literacy Principle: Our understanding of the climate system is improved through observations, theoretical studies, and modeling.

Colonial Creek Summary

Two classes of 10th grade Biology students and 4th grade students from Liberty Bell High School and Methow Valley Elementary (~ 45 and 25 respectively) visited Colonial Creek Campground in the North Cascades National Park Complex October 27th, 2011.

Goals of the Colonial Creek Project were:

1. Remove Invasive Species.
2. Analyze distribution and percent cover of plants in a westside montane ecosystem.
3. Raise awareness of the National Park System's mission to preserve natural habitat for future generations,

and the effect of climate change on glaciers in the North Cascades.

Students engaged in a friendly competition to determine which team removed the most \"stinky bob\", measured in garbage bags, from various locations around the campground. Ranger Mike Brondi provided background information about the natural history of \"stinky bob\" and how it arrived at the park. Students and chaperones then got to work.

Kirsten Cooke, from Okanogan Conservation District, visited Liberty bell High School prior to the field trip. She led students in a trial run practicing quadrants and transect in the shrub steppe ecosystem. The following week 10th graders presented the lesson 4th graders. Multi-age teams of 4-6 students were geared up and ready for performing quadrants in shady and exposed areas at Colonial Creek.

Finally students were able to take in the beautiful fall day on the dock of Diablo Lake as Ranger Andrew Pringle led students in an interactive conversation about the history of National Parks and how climate change affects glaciers in the park and the subsequent effect on visitors and ecosystems in the park and beyond.

This multi-age field trip was mutually beneficial for both groups. The 10th graders appreciated the enthusiasm of the 4th graders and the elementary kids looked up to the model set by the older students.

Thanks for providing the time and encouragement to scaffold this project.

With gratitude for opening my eyes to the resources at North Cascades Institute,
Lisa Monahan

Video Link:

<http://www.youtube.com/watch?v=YgFzAyrJlp4&context=C41d4d52ADvjVQa1PpcFMYE30fbMTSkSwQt1Uks79fiRK56gnd28E=>

Whole-School Recycling

School: Hillcrest Middle School, CA

Grade: 6

Date: April 24, 2012

Climate Literacy Principle: Climate change will have consequences for the Earth system and human lives.

I attended the NatureBridge conference in June, 2011 at Marin Headlands. Since then and once I returned to school, I have been working on a recycling project for our entire school. Working with Sonoma Composters, Northbay Recycling, Hillcrest Student Council members and Sergio Blanco (our Science teacher), we have been working since the beginning of the year to bring our school garden back into a thing of beauty - this with the help of several parent volunteers. We have supplied all of our classrooms with new paper recycling receptacles courtesy of Northbay Recycling. In addition, we have added 6 new blue recycling garbage cans around our campus and have started a food waste recycling program for lunch and snack time. To kick off the program, Northbay Recycling sent a representative to give a whole-school assembly introducing the program and reviewing the guidelines for each of the different receptacles. We encouraged all students to bring their lunch in reusable containers and reduce the amount of 'throw-away' items. This information has gone home to the families also to help educate the parents on how to help us

reduce our daily waste. We have had a worm box built so that we can recycle our collected food waste - also providing our Science program with a teaching/learning example for all the Science students. We are using the compost from the worm bin on our garden. In addition, I have been speaking with the teacher who is in charge of Student Council at our elementary school about our work and she is planning on beginning a program at their school, using ours as a blueprint. Once both programs are up and running, we will be reaching approximately 800 children and 400 families in our district.

Empowering and Educating Young Adults Through Bicycle Advocacy

School: Bellingham High School, WA

Grade: 9

Date: April 30, 2012

Climate Literacy Principle: Human activities are impacting the climate system.

Three projects are in various stages of completion.

1. A survey was developed and administered to freshmen and sophomore aged students to identify the barriers that exist to commuting by bicycle to Bellingham High. The results of this survey indicated that additional bike storage is necessary at Bellingham High.
 2. Students are actively being recruited as a part of their culminating project to help design a sheltered informational bike rack that is a part of the current car parking lot. The end goal being to build it in a predominate location that students must pass by to get into school. This would provide commuters and non-commuters alike information regarding individual accountability to our global climate.
 3. Current students have been actively advertising the local Bike to School and Work Day occurring May 18th in Bellingham, Washington. Students have produced color posters that have been distributed throughout the building advertising the event along with providing free services to get bikes tuned up and ready to ride. Students from our school will also be participating as volunteers at several local celebration stations for Bike to School and Work Day on May 18th.
 4. Grant options are being explored to build the bike storage and information kiosk.
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Citizen Science Pika and Mountain Goat Survey's

School: Flathead High School, MT

Grade: 11

Date: November 25, 2012

Climate Literacy Principle: Life on Earth depends on, is shaped by, and affects climate.

Students in the IB Environmental Systems and Society are given the opportunity to work with Jami Belt Citizen Science Program Coordinator, Glacier National Park, Crown of the Continent Research Learning Center in both their first year as well as their second year of the course. Students conduct both Pika and Mountain Goat surveys using the Citizen Science protocols during the fall of both years. This field study is a required trip during their second year with students writing their own research question, hypothesis as well as the planning stage relating to their research question as part of their internal assessment done for the

International Baccalaureate program. Their research question must relate to climate change and its affect on Pika and Mountain Goats. Pika are great indicator species and GNP has noticed a decline in Mountain goat numbers during the past couple of years. During the Pika surveys students observe and listen for actual Pika along with searching for active hay piles and fresh fecal piles aka Pika poop! Mountain Goat survey's are done with binoculars and spotting scopes. Survey sites are selected by Jami Belt with several in class sessions used to cover Citizen Science protocol which are done prior to the final field trip. Once all data has been collected and processed by GNP, Jami returns to the classes and works with students on processing the data. It has been a great process for students to not only collect the data but to then process their data as well as data collected by others. Jami did a nice job in using a t-test looking at temperature and goat sightings. Students first used data from just one survey site and got a value showing that temperature and visual sightings of goats could be just by chance. Then students used all the data collected by the Citizen Science program they saw that the warmer the temperature the fewer goat sightings occurred was not by chance. I am always amazed at the number of students that I have that have never been to Glacier Park. This particular class has Renee Cordes teaching year 1 with myself teaching year 2. We also take students on a spring trip alternating each year from Newport Beach, OR and Moab, UT. We will be incorporating climate change during this coming spring trip to Moab.

For additional service learning ideas, please see the [Parks Climate Challenge website](#).