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Additional Participants: Mike Watt
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School Name: Crossroads Community Day School
Grade Level(s): 7th, 8th, 9th
Course: Alt. Ed. Math, Science, Study Skills, English, Art History, HI
Name of Project: Each One Matters
Implementation Timeline: August 2017 through May 2018 = entire curricular piece
August - December 2017 = we will be implementing garden structure at our site in tandem with School Garden Network and Daily Acts
August - September 2017 = look at local grasses to classify native or non-native and study the native plants in the present garden as pollinator attractors
September 2017 = field journaling hike
September 2017 = begin Carbon unit
end of October 2017 = study of solar energy and solar fountain design challenge
October 2017 = walk to Steamer's Landing
November 2017 = nature van visit or take Smart train to Terwilliger Nature Center
January 2018 = design and construct insect house
February 2018 = design and construct solar fountain for garden
March = design and construct public education signage for the garden
Briefly describe some highlights of what you feel went well with last year's project.: Thank goodness we had rain so the kids could actually see how the water ran from the downspout, across the dirt, and into the parking lot. Students enjoyed learning about water testing and seeing the community resources available at Steamer's Landing. They also enjoyed learning how to do the leaf drawings. Most students were impressed by information in the book Silent Spring. Assigning chapters to each student to present to the class was a good way to cut the repetition and length of the reading. Building the garden was a highlight for everyone this year - it got them out of the classroom and instilled a sense of pride through their accomplishment. They begged to work!
Students seemed engaged with the study of chemicals in our water and enjoyed creating brochures on five forms of pollution that are produced from the average home and how to prevent it.
Now briefly describe some areas in which you encountered obstacles or feel last year's project could be improved on.: I would like to dwell on more understanding the term watershed and what gets into that water besides road pollution. I am planning on having the class build a model of our watershed, then we will take a walking FT down to the DYRHC to see the model there.
Silent Spring spoke to the way chemicals can combine to create even deadlier chemicals in waterways - I would like to have students understand this process better. We will focus on Carbon.
Planning the garden wasn't as fun for them as actually working - I would like to spend more organized time looking at native plants and determining what they do for the environment. Now that we have a garden started, we can use this space to springboard into a more in-depth study of the plants, beneficial insects, and soil. Before we start the digging, I am thinking of bringing actual plants into the classroom and assigning each student one plant to research and present their information to the class.
Yes, Project Bud Burst would be a great way to link to the global warming theme - my difficulty is in linking to the carbon cycle. Any ideas on how they measure carbon capture in soil and plants? I have contacted a couple of agencies to find more information on this and will inform you later. Mike likes the Project Budburst activity of introducing CO2 to plants to see the effects. He says this sounds engaging and (again) hands on and invites a fine opportunity to journal and observe the changes that occur.

We are planning the next segment of this garden with the Santa Rosa School Garden Network. What I meant was that the students weren't as interested in the planning stages - researching the plants to become familiar with what they were going to be planting - as they were in the actual labor of putting the garden in place. Before we start the digging, I am thinking of bringing actual plants into the classroom and assigning each student one plant to research and present their information to the class. Yes, Project Bud Burst would be a great way to link to the global warming theme - my difficulty is in linking to the carbon cycle. Any ideas on how they measure carbon capture in soil and plants? I have contacted a couple of agencies to find more information on this and will inform you later. Mike likes the Project Budburst activity of introducing CO2 to plants to see the effects. He says this sounds engaging and (again) hands on and invites a fine opportunity to journal and observe the changes that occur.

Please describe any changes taking place in the following areas of curriculum. If there are no intended changes to a particular curricular area, please indicate "no change." :
Content Standards:
MS-LS1-6, LS2-3, LS2-4
MS-ESS3-1, ESS3-4
MS-PS1-1
CC= RST.6-8.1, RST.6-8.7, SL.8.5, WHST.6-8.1, WHST.6-8.2, WHST.6-8.9
Math = 6.EE.C.9, 7.EE.B.4, 7.RP.A-2, MP.2
Fieldwork activities involving the Petaluma River/Wetlands: Hike to Helen Putnam or Mt. Tam to study plant communities. I think that the views from Helen Putnam will be helpful towards students visualization of the watershed.

water testing site to be determined
hike to Steamer's Landing to learn about watershed, water testing, and plant communities
Carbon testing - I have to learn how this is done but I imagine it will involve some type of vegetation study and looking at the muck at the bottom of a creek for organic material My research so far hasn't yielded much outside of looking at the bottom muck of a river. I was hoping to get some help from your resources on this! If we can't measure it, we can at least read about it - articles such as the link I provided below.(On another note, I also ordered a test kit from Algalita where students examine plastic pollution as found in the gyres - and we will relate that to how those pollutants might have originated from the Petaluma River.) As mentioned above, I have a couple of skewers on the grill. Mike is looking into test kits from SOLVITA.
Reading and Writing Tasks : Articles defining how carbon gets into our river systems such as:
http://environment.yale.edu/envy/stories/streams-and-rivers-breathing-carbon-dioxide#gsc.tab=0
Students will create models for the carbon cycle, respiration, plant cells
Students will create signs that describe plants in the garden
Research paper on some aspect of carbon in the environment presented to classmates
Research into the proposed carbon tax, articles through NOAA and EPA
Using research and insight to write letters to the editors of local/national newspapers - we should write to Trump also.
How students attain CA Core Curriculum Skills through the integration of media sources, media skills, and collaboration: Research through computer articles, collaboration on art projects for the garden
a video of our work for the presentation night
How students demonstrate their acquisition of new knowledge and skills or how students will present their learning to the public:letters to the editor
letters to the administration
signage in the garden

watershed presentation night
When do you plan to implement the pre and post assessments, which can be found on the assessments page of our website within teacher resources?: as soon as school is settled into our routine in August for the pre and along with the SBAC in May for the post.....sorry, we totally forgot the post assessment this year!
Any other planned updates to the project:: My focus will be the role of the Petaluma River pays in delivering carbon to the ocean and the role of gardens in removing carbon from the atmosphere.

The linking to the Petaluma Watershed: I picture this being accomplished mainly through gaining the understanding of how carbon is produced, then contained, and identifying where that happens within our Watershed area. We will use the model we build to identify which part of the carbon cycle is represented by the different land uses in our area.

Mike's addition: I suppose what we would hope to investigate is the positive and negative effects of carbon and see where we stand here in Petaluma and in the watershed. How much does industry and commercialization affect carbon in our environment compared to the effects of the farming and ranching interests in and around the watershed. We want to really delve into the human impact (and that of other 2 and 4 legged creatures) on carbon in the environment and thereby watershed.