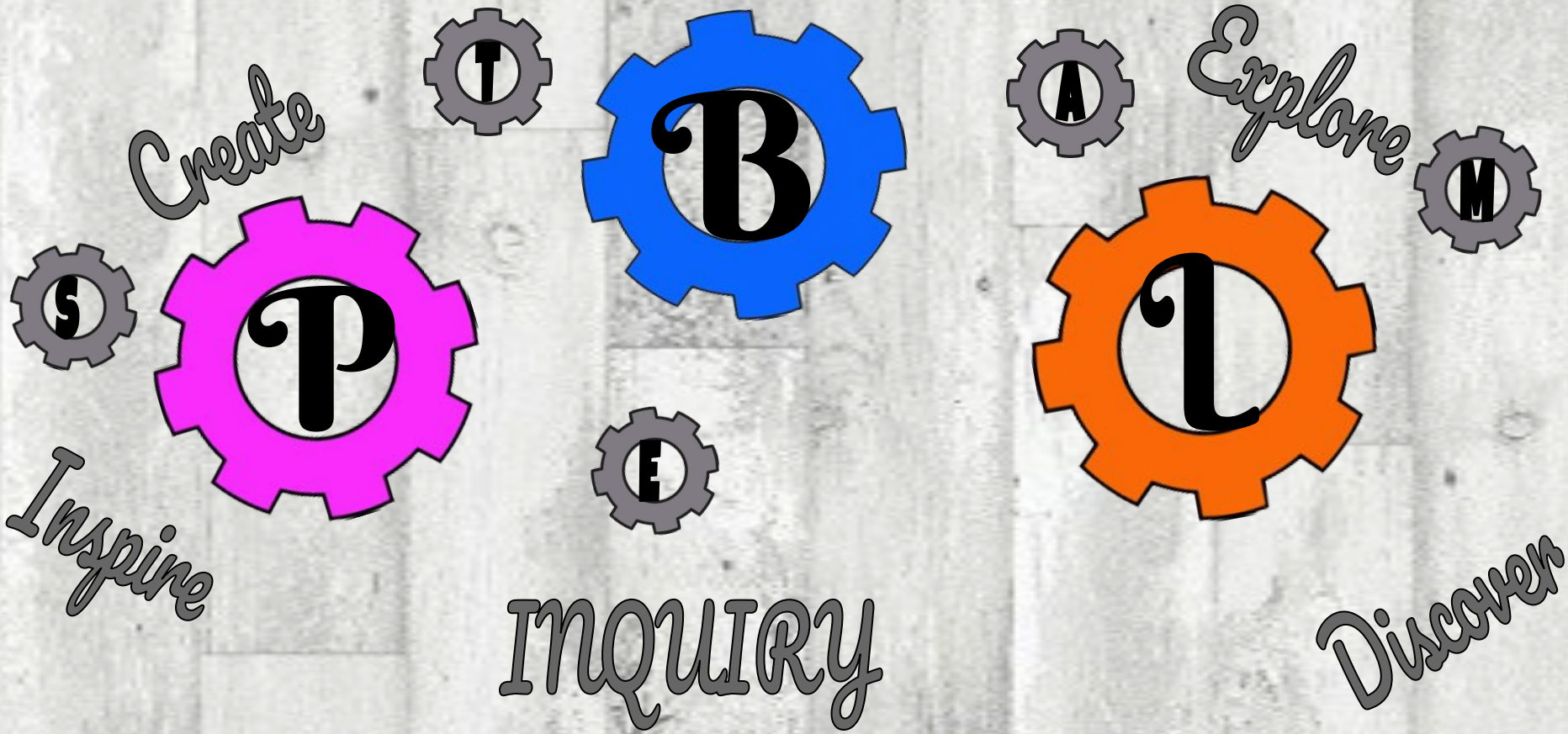
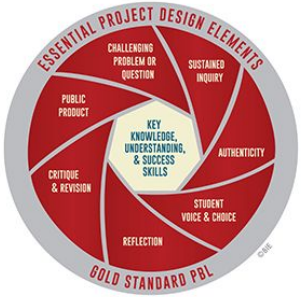
Clearwater STEAM PBL Showcases



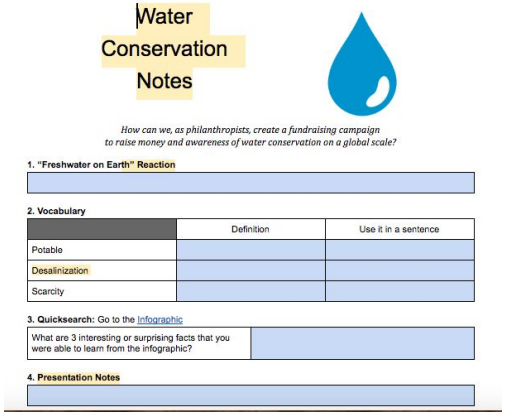
What is PBL?

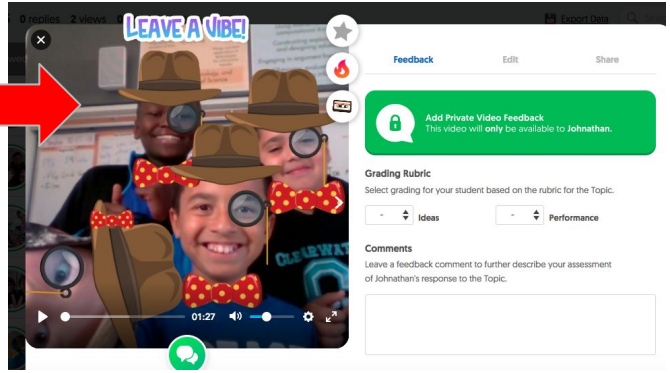
Project Based Learning (**PBL**) is a teaching method in which students learn by actively engaging in real-world and personally meaningful projects.

Project-based learning is a student-centered pedagogy that involves a dynamic classroom approach in which it is believed that students acquire a deeper knowledge through active exploration of real-world challenges and problems



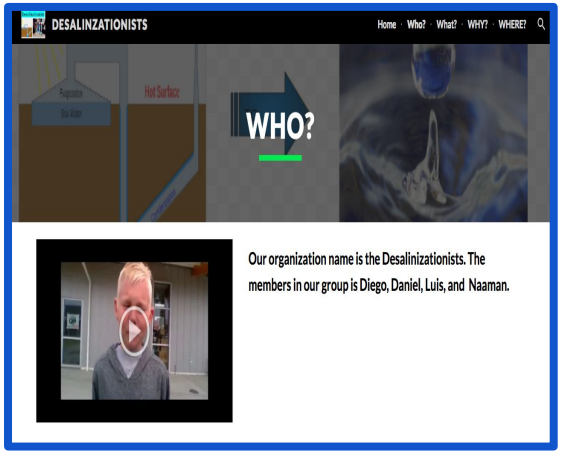
Project Component	Standard(s)	Description	Score
Water Conservation Notes	Historical & Cultural Literacy Life Science Earth Science RI.6.1, RI.6.2 RI.6.4, RI.6.7 RI.6.8, L.6.4	Students will conduct research on water use and its effects in the environment.	_____/20 (McCann)
Informative Letter	Historical & Cultural Literacy W6.2, W6.4, W6.5, W6.6, W6.7, W6.8, W6.9, RI6.2, RI6.7	Students will research credible sources to write an informative letter that informs others of the importance of having portable water in Africa.	_____/20 (Macias/Nance) Rubric
Flip Grid Video/Slide Presentation	SL.6.2 SL.6.5	Students will present their findings on typical water use using multimedia tools.	____/10 (McCann)
Website Creation Template	RST.6.3 RST.6.9 Life Science Technology	Students will create a multifaceted website stating the mission of their philanthropic organization.	____/20 (McCann)
Water Filtration Activity	Life Science Investigation	Students will use the engineering method to create an effective water filter.	____/10 (McCann)
Water Use Calculations	6.SP.4 6.NS.2 6.NS.3 6.NS.5	Students will calculate their total weekly water consumption and display the data using appropriate graphs.	____/20 (Martinez)



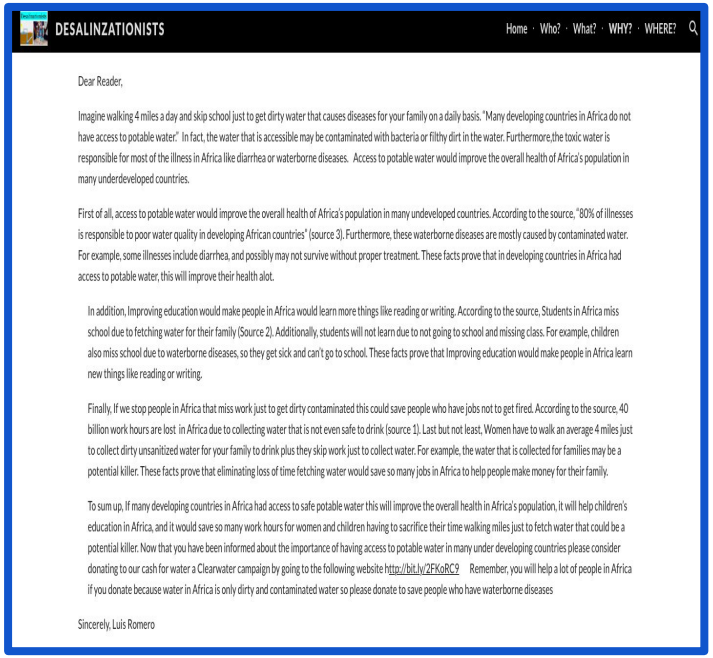


Major Products and Making it Public

Student Campaign Websites



Informative Letter



PBL Showcase

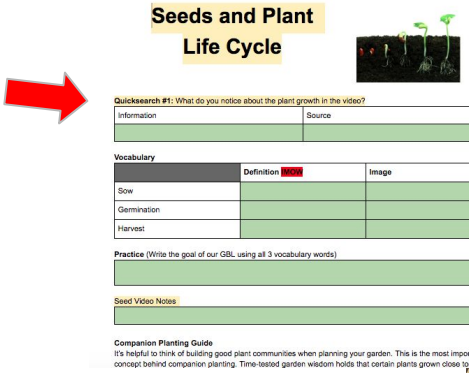
6th Grade

GBL #2: Garden Based Learning

- **Project Idea:** Students will create a 6th grade food garden in order to grow ingredients they will later use in a recipe.

- **DQ:** How can we, as botanists, plan and grow a 6th grade garden with the most cost effective and useful plants to make our own recipe?

Project Component	Standard(s)	Description
Plant Research	W6.6 W6.7	Gather research about best plants to grow in garden
Argumentative Essay	W6.1 W6.4 W6.5 W6.9	Write an argumentative essay convincing Mrs. Velez to allow us to plant a 6th grade garden at Clearwater
Seed Life Cycle Notes	MS-LS1-6 MS-LS4-5 RI.6.4 RI.6.7 Life Science Investigation	Notes and background info on seed life cycles. Students will germinate seeds in classroom.
Plan Growth Guide	RST.6.3 RST.6.9 Life Science	Students will create a step by step guide on how to grow and maintain a plant in our garden.
Unit Rates and Unit Pricing	6.RP.3b Economic Literacy	Students will calculate unit rates to determine pricing and costs to plant a garden.
Measurements	6.EE.2a 6.G.1	Students will take measurements and use them to calculate the perimeter and area of the part assigned for their garden. Students will use formulas to calculate the area and perimeter of their class section of the garden.



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Plant Research Guide

Plant Research Guide

You will use this guide to gather your research about the best plants to grow in our garden. Remember to cite your sources.

Sources

1. Vegetable Planting Guide
2. Crop History
3. National Gardening Association
4. OC Master Gardeners
5. Burpee Seed Company
6. Farmers Almanac
7. Gardening Basics

Plant #1:

Carrot, Yaya Hybrid

Question Researched	Answer *Complete Sentences*	Source(s) * Link to website
1) Describe the plant you would like to grow in our garden?	1) Crispy and juicy, very sweet and low maintenance.	https://www.burpee.com/vegetable/carrots/carrot-yaya-hybrid-prod
2) What will make this plant the best one to grow? Consider factors such as: -Seed/plant cost -Space needed -Growing Season -Required maintenance	**1) It will be the best to grow because it doesn't need much space. It grows best during Feb-Mar and it doesn't cost much. ($.19 per 1000 seeds)**	https://www.burpee.com/vegetable/carrots/carrot-yaya-hybrid-prod
3) How will Clearwater benefit from growing this plant?	**1) Growing this plant will benefit Clearwater by giving it a sweet DELICIOUS carrot to snack on.**	https://www.burpee.com/vegetable/carrots/carrot-yaya-hybrid-prod

Argumentative Letter and Infographic

Date: 1-23-19

Dear Mrs. Velez and Mrs. Livengood,

Imagine a beautiful campus with healthy vegetables and students. Many schools in the nation have planted their own school gardens. Gardens have healthy and educational benefits. Without doubt, we as 6th grade students should make a garden based on the following reasons: school gardening improves test scores, increase student's teamwork, and attendance.

Improves Test Scores

First of all, school gardening improves test scores. Source 1 states that students who grow their own gardens perform much better on standardized test. Furthermore, students get higher scores because they have to measure the space between other plants. For example, if I wanted to plant seeds I would need to measure the space between the plants. This would help with math. The need for science and math teaching in gardening is the reason students score higher on tests then students that don't participate in school gardening.

Increases Teamwork

Another reason is that it increases students' teamwork. According to source 2, "Students learn focus, patience, cooperation, teamwork, and social skills." In fact, if a student isn't good at teamwork they could work on a school garden and they become better at it. For instance, if I wasn't good at teamwork I would work on a school garden and learn more teamwork. Students learn more teamwork because they learn to plant with others and help other people.

Improves Attendance

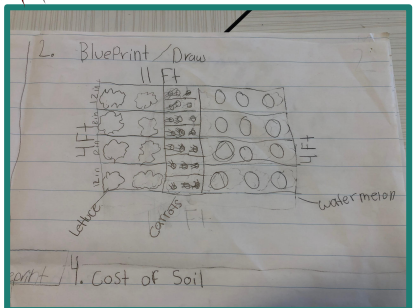
Last but not least, working on school gardens increase attendance. Source 1 mentions, that kids who grows a plant feels proud and improves school spirit and attitudes towards school. This illustrates, that students that participates in school gardening would want to go to school more. For example, if a student doesn't want to go to school they could participate in school gardening and would want to go to school. Children that participate in school gardening increase their attitudes towards school.

Expenses VS. Benefits

Many believe it can be to expensive. It may be expensive, but it is worth it when the campus becomes beautiful and has engaged students. In fact, when a compos has a garden, the campos is beautiful and has students that are happy and engaged. For example, the garden has beautiful colors that make a campos beautiful as well.

Presentation to Mrs. Velez

Blueprint Calculations



Planting Seeds

6th Grade Garden Beds!

5th Grade

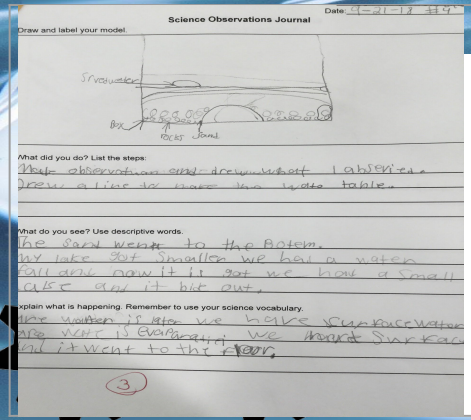
Making it Public:

Students will present components of the PBL in groups as parents/visitors come in for a gallery walk.

PBL 1 Quick Video

Assigned groups will present on:

1. Observation Log **2. Slide Presentation** **3. Informative Paper** **4. Hydrological Cycle Model**

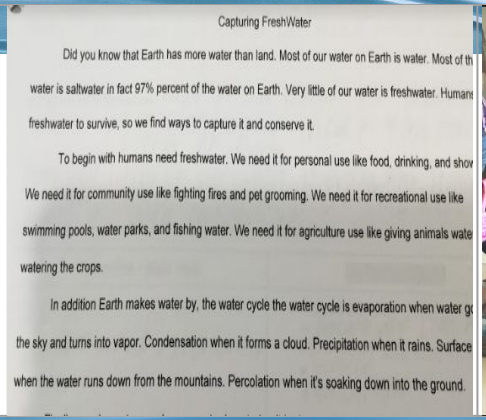

Science Observations Journal

Draw and label your model.

What did you do? List the steps:

What do you see? Use descriptive words.

Explain what is happening. Remember to use your science vocabulary.


Capturing FreshWater

Did you know that Earth has more water than land. Most of our water on Earth is water. Most of th

water is saltwater in fact 97% percent of the water on Earth. Very little of our water is freshwater. Humans

freshwater to survive, so we find ways to capture it and conserve it.

To begin with humans need freshwater. We need it for personal use like food, drinking, and show

We need it for community use like fighting fires and pet grooming. We need it for recreational use like

swimming pools, water parks, and fishing water. We need it for agriculture use like giving animals wate

watering the crops.

In addition Earth makes water by, the water cycle the water cycle is evaporation when water g

the sky and turns into vapor. Condensation when it forms a cloud. Precipitation when it rains. Surface

when the water runs down from the mountains. Percolation when it's soaking down into the ground.

5th Grade

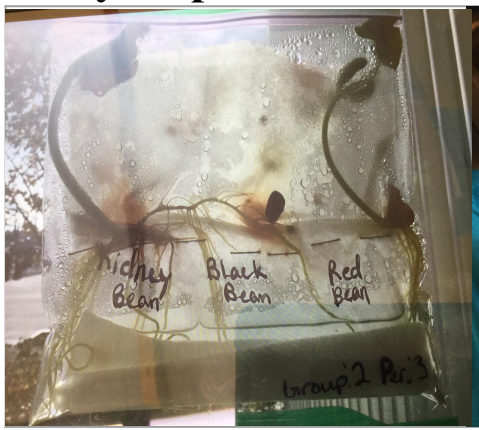
Making it Public:

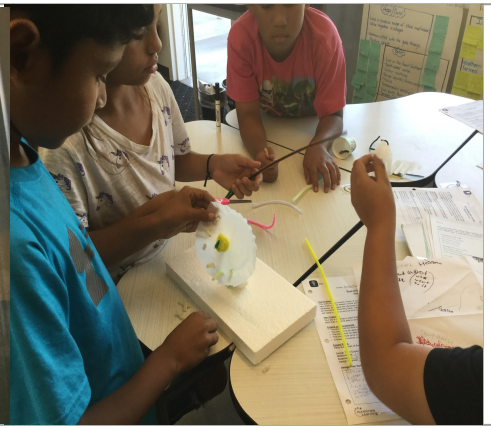
Students will present components of the PBL in groups as parents/visitors come in for a gallery walk.

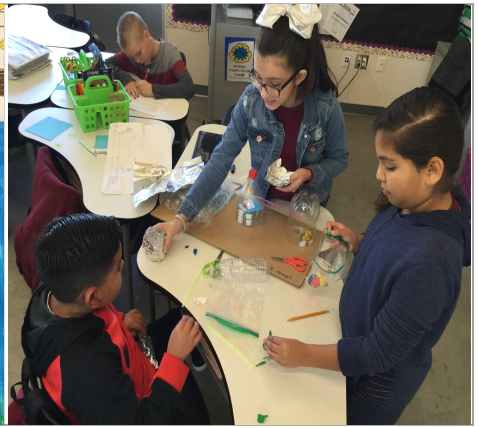
PBL 2 Quick Video

Assigned groups will present on:

1. Hydroponic Garden **2. Arctic Plant** **3. Zoo Enclosure** **4. Martian Habitat**

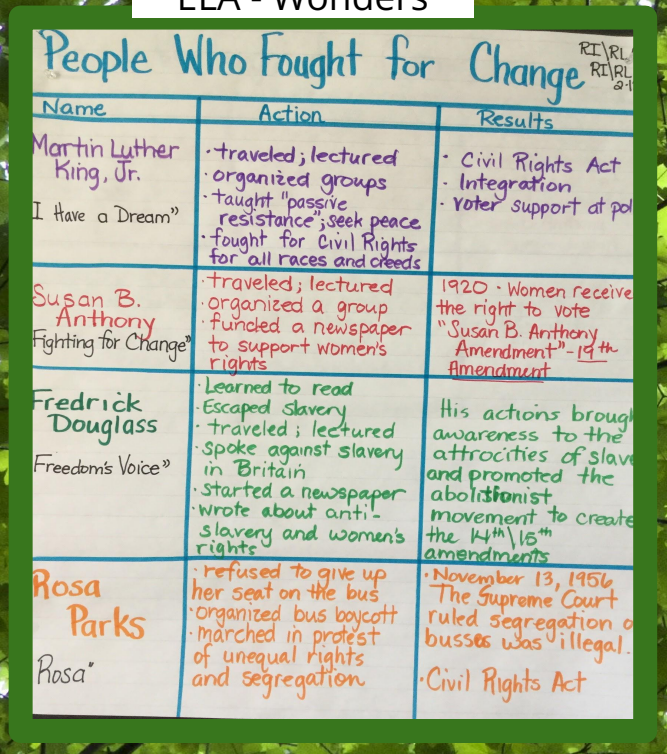




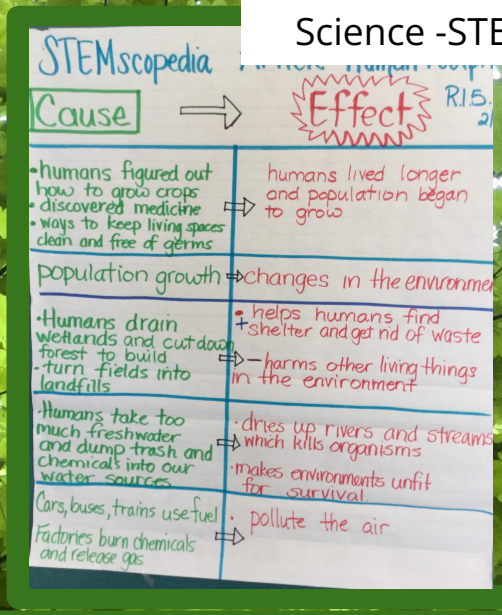


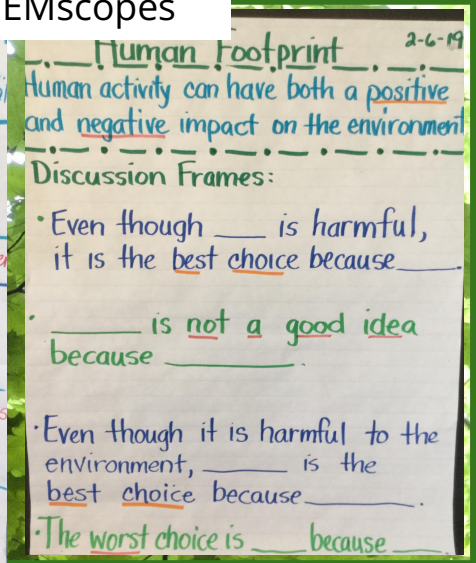
Classroom Instruction

ELA - Wonders

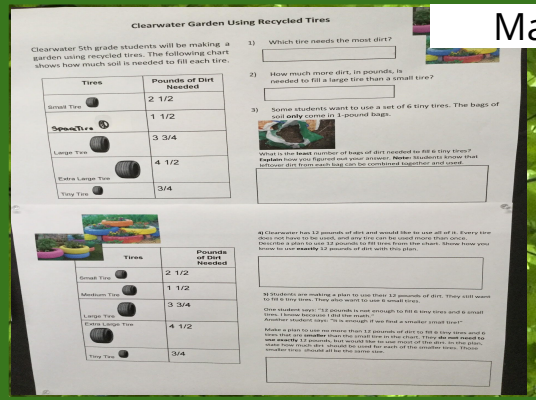


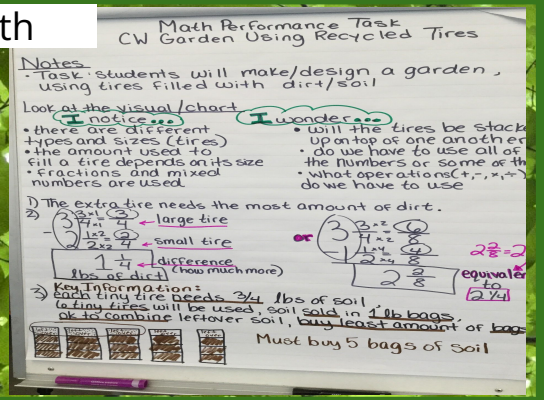
Science -STEMscopes





Math





Study Trips

Marion Ashley Education Center at Lamb Canyon

Perris City Gardens

Student Products

PBL Hyperdoc

TAKING ACTION TO HELP OTHERS

A 5TH GRADE PROJECT BASED LESSON

MY NAME: TEAM NAME:

NGSS Standards:
ESS3-1 Earth + Human Activity: Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
3-5-ETS1-2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

HELLO 5TH GRADER! YOU HAVE BEEN CHOSEN FOR A VERY IMPORTANT CHALLENGE. IN THIS CHALLENGE , YOU WILL FIND OUT THAT COMMUNITIES GET TOGETHER TO HELP PROTECT OUR WORLD AND ENVIRONMENT. YOU AND THREE SUPER FRIENDS WILL FORM A GROUP TO RESEARCH AND DESIGN A SYSTEM TO HELP OTHERS. YOU WILL THEN PRESENT YOUR SOLUTION TO THE CLEARWATER COMMUNITY IN THE FORM OF A RECORDED PUBLIC SERVICE ANNOUNCEMENT (PSA).

Huh? What's a PSA? Check out this video: How to make a PSA.

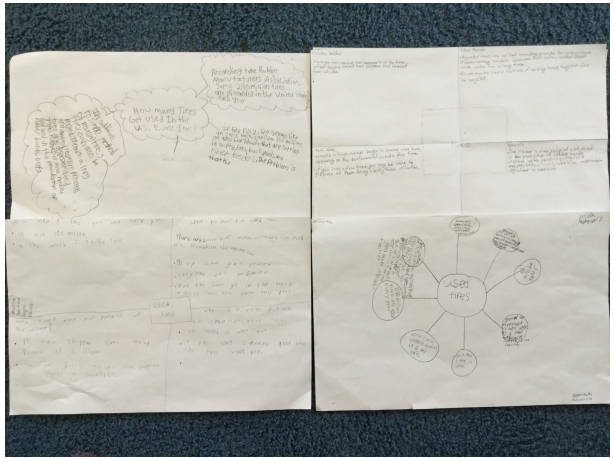
THIS IS YOUR DRIVING QUESTION....

HOW CAN WE TAKE ACTION AS A CLEARWATER COMMUNITY TO PROTECT OUR ENVIRONMENT?

BRAINSTORM... What are some things we need to do at Clearwater?

WHAT ABOUT OUR WASTE? WHERE DOES IT GO?
Take notes while we watch the video.

SOLE Lesson

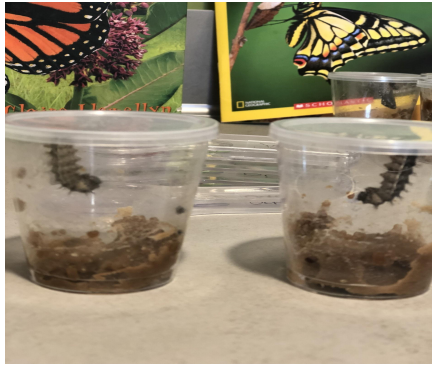


Garden Design

PSA

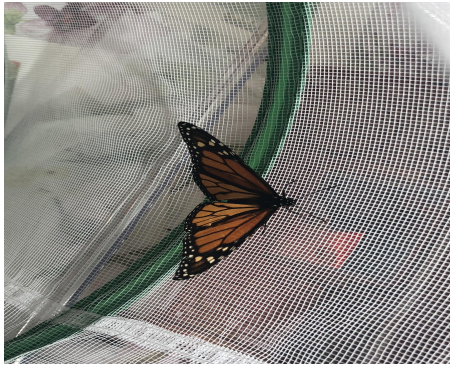
Butterfly and Plant Life Cycle

1. Egg.Larva Stage



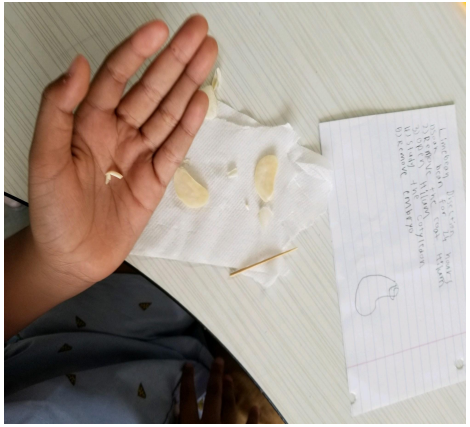
2. Pupa Stage

3. Butterfly



4. Butterfly Release Day

1. Bean Dissection



2. Grow seedlings

3. Plant sprouts

4. Plant in garden

Scientific Method