Standard 8 **- Students engage in self-directed STEM learning guided by educators who are effective facilitators of learning.**

Concept 1- Students are encouraged to be critical and creative thinkers as owners and managers of their own STEM learning experiences.

Concept 2- STEM educators serve as facilitators who provide guidance and support for students as self-directed learners.

Teachers at D.A.T.E. understand the importance of designing activities that foster learner independence and is essential because they invite students to engage more thoughtfully and be critical and creative thinkers. Our teachers' most engaging STEM lessons are the ones where they introduce a complex idea or problem, and then turn it over to the students for further inquiry. These lessons generally consist of concepts that challenge students' thinking, call into question their preconceived notions, invite controversy and have multiple pathways. While students are busy managing their own STEM learning, teachers serve as facilitators by asking probing questions, and providing guidance and feedback as they draw their own conclusions.

D.A.T.E. believes that when students are in charge of their own STEM learning, they feel a sense of belonging, and the classroom becomes a space defined by them. When teachers provide greater autonomy for our students, they understand that they are more important than ever because they can set up the scaffolding, for inquiry based learning experiences and guide students through each step of the process.

Artifact 1

During the STEM Summer Bridge Camp, students visited the garden and learned about the different types of soils and necessities relevant to grow plants in the garden. Students were tasked with researching, planning, and taking care of the garden. The students pulled weeds and planted seasonal crops. They first had to read and research about what types of plants grow best in our area and during a particular time of the year.

Thursday, June 6, 2019

National Gardening Exercise Day
https://nationaldaycalendar.com/days-2/national-gardening-exercise-day-june-6/
(Mrs Shillingford will do some of these activities with her small groups in the morning.)

Science Standards:

Materials Needed:

- **Craft sticks**
- **Dixie cups**
- **Recyclables**
- **String**
- **2 binder rings**
- **Water balloons**
- **Syringes**
- **Water**
- **Vegetable oil**
- **Corn syrup**
- **Salt water**
- **Sugar water**
- **Juice**
- **4 buckets**
- **cups**

STEAM Time

1:20 - 3:05 p.m. (1 hours, 45 minutes)

1st	2nd	3rd	4th`	5th
Cup Stacking	Sphero Ball	String Lifter	Water Balloon	Water Can
Water Can	Cup Stacking	Sphero Ball	String Lifter	Water Balloon
Water Balloon	Water Can	Cup Stacking	Sphero Ball	String Lifter
String Lifter	Water Balloon	Water Can	Cup Stacking	Sphero Ball
Sphero Ball	String Lifter	Water Balloon	Water Can	Cup Stacking

- **Cup Stacking Challenge** **(approximately 15 minutes)**
  - Students will stack cups with the materials given.
    https://www.pinterest.com/pin/285556432608586784/
    https://www.teacherspayteachers.com/FreeDownload/STEM-Challenge-Sticks-and-Cups-Tower-FREEBIE-2808857

- **Sphero Ball** **(approximately 15 minutes)**
  - Students will work in 2 groups creating a maze using recyclables.
  - Once the maze is completed, they will take turns being the computer programer, standing at the exit of the maze, while the other students go through the maze with the direction of the programmer.
    https://www.gophersport.com/blog/stem-in-the-gym-tips-and-activity-ideas-for-physical-education/

Hamilton, Deva <DHamilton@dateacademy.org> May 16, 2019, 12:46 PM

to Althea, Endia, Tashay, Keyonia, Treva, LaToya, Latia, Kadeidra, Tameeka, Caroll, Deva, Sonja, Ashley, me, Cynthia, Denise, Erica

Hey Summer Camp Teammates 😀

Thank you for taking the time out to meet briefly this past Monday. I believe that meeting gave me an opportunity to iron out any kinks in the plans for this summer. As we finalize plans, I have put together pertinent information that should assist in this being a fun, smooth, and engaging summer, not only for the kids, but for you as well.

With that being said, can everyone come by my classroom, room #203, on Tuesday, May 21st, as early as 3:20, after you drop your students off. This should not last longer than 3:45. The following will be displayed on the tables for you:

- Individual binder that will include only your name stating only what you will do
- Any changes to your roster, along with student/parent contact information (allergies, etc)
- Detailed information about the STEAM activities for each day
- Examples of each enrichment activity, giving you ideas
- Priority standards
- MAP Data
- Time Sheet examples
- Fire Drill/Lock Down Procedures
- Break times

I will also be on hand for any questions. 😀

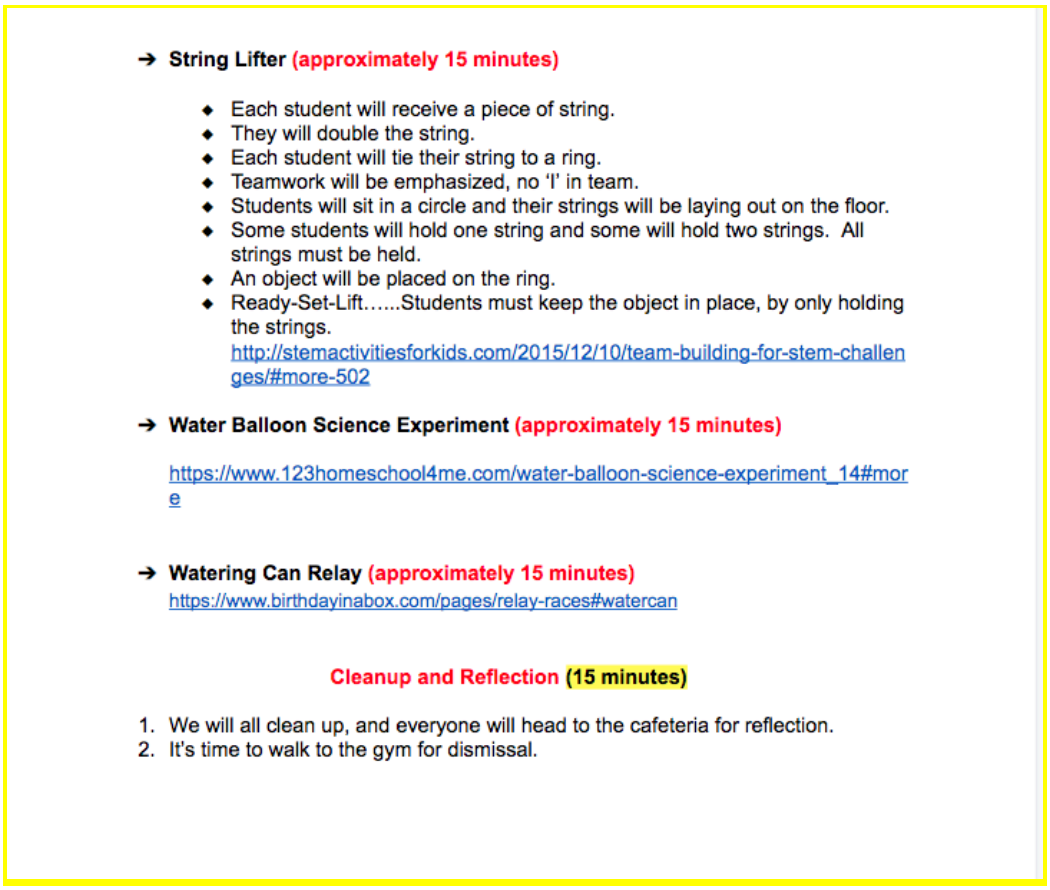
First Phase **(approximately 15 minutes)**

1. Students will walk into the cafeteria and sit at the table that is labeled with their grade level.
2. Teachers will walk to the tables for their grade levels for reading, math and science.
3. Each table will have a container with supplies. Students will not touch it until they are instructed to do so by the teacher.

4. Mrs Shillingford will welcome everyone in and music will be playing.
5. We will begin at 1:25 p.m. Mrs Shillingford will introduce the activity for the day to all.
6. Today is National Gardening Exercise Day! What does that mean? (Mrs Shillingford will call on a student to read the slide on the screen.)
7. Let's take a moment right now to stretch, squat, do the rake, bend like you're planting flowers and dig. (music will be playing)
8. Today it is all about stations and rotating, constant movement!

Second Phase **(approximately 1 hour, 15 minutes)**

Stations



→ **String Lifter** (approximately 15 minutes)

- Each student will receive a piece of string.
- They will double the string.
- Each student will tie their string to a ring.
- Teamwork will be emphasized, no 'I' in team.
- Students will sit in a circle and their strings will be laying out on the floor.
- Some students will hold one string and some will hold two strings. All strings must be held.
- An object will be placed on the ring.
- Ready-Set-Lift……Students must keep the object in place, by only holding the strings.
  http://stemactivitiesforkids.com/2015/12/10/team-building-for-stem-challenges/#more-502

→ **Water Balloon Science Experiment** (approximately 15 minutes)

https://www.123homeschool4me.com/water-balloon-science-experiment_14#more

→ **Watering Can Relay** (approximately 15 minutes)
https://www.birthdayinabox.com/pages/relay-races#watercan

Cleanup and Reflection (15 minutes)

1. We will all clean up, and everyone will head to the cafeteria for reflection.
2. It's time to walk to the gym for dismissal.

Artifact 2

Students were to conduct research and observation projects and present the findings using both physical depictions and utilize technology tools taught to create the slides. Students received background knowledge from instruction, informational books and videos. Students were given 8 weeks to plant and provide weekly observations of the plant's growth, the final outcome was presented, via a Google Slides presentation.

(Part 1)PBL: Seed Observation Project

Erika Alexander • Oct 2 (Edited Oct 10)

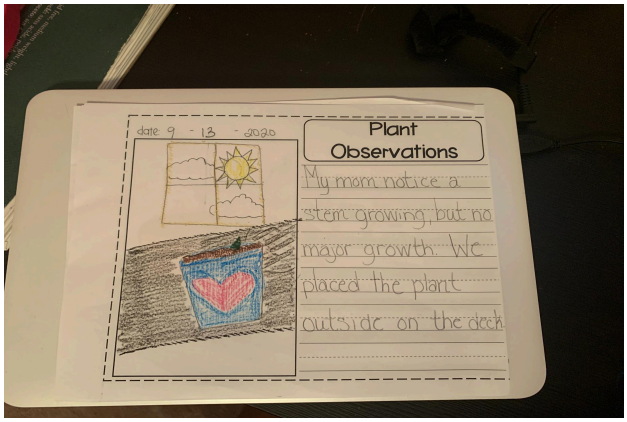
100 points Due Oct 4, 8:00 PM

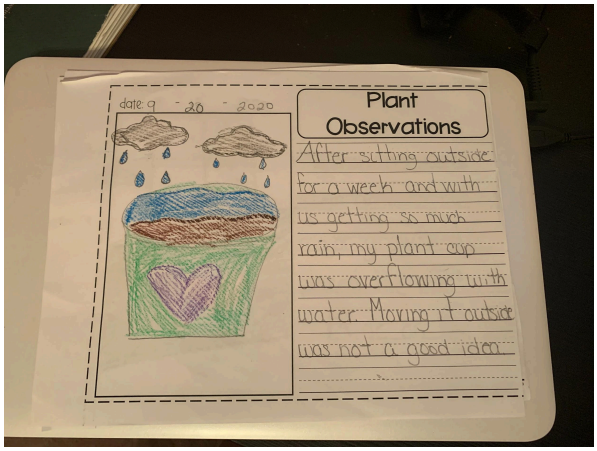
We are wrapping up the first part of our PBL(Project Based Learning) on Living Things which focused on "plants" and moving onto the second part which is focused on "animals". To close this first part complete the Final Observation slide attached and upload you observation journal pages. You all have the "Animal Research Project" to go along with part two in your Kindergarten Kits already, I will let you know when to start on it. Let me know if you have any questions or concerns.

Final Observation- Seed Proj...
Google Slides

Class comments

Add class comment...





What did you think was going to happen?

I thought my plant would grow nice and tall.

What actually happened?

My plant didn't grow at all. It was first placed in our guest bedroom, then outside on our deck.

Did your plant grow?

(Drag circle to answer) **YES** **NO**

What are two things you learned during this project?

Plants need water every other day and plants need enough sunlight exposure.

Artifact 3

While studying the unit on Natural Disasters, the students tracked Hurricane Irma. They collected data on natural disasters and created a natural disaster checklist/safety kit.

Name: Ms. Gurley **Content: Math** **Week of: Oct. 15-19**

Technology Integration	**Environmental Integration**	**STEAM Integration**
Over the course of this unit students will bookmark websites we will be utilizing. http://www.weatherwizkids.com/, http://www.aaamath.com/, http://www.softschools.com/, http://nlvm.usu.edu/en/nav/vlibrary.html This website will assist in helping students master common core standards. Students will also collect data from the weather wiz kid website and input it into a spreadsheet.	Students will read and watch a variety of videos on natural disasters. They will learn the proper safety procedures and essentials needed during a natural disaster.	Students will learn the essentials needed for a survival/safety kit (we will use these in our end of the year sustainability market). Students will create a diorama of a natural disaster graphing how many occurred in a specific year.

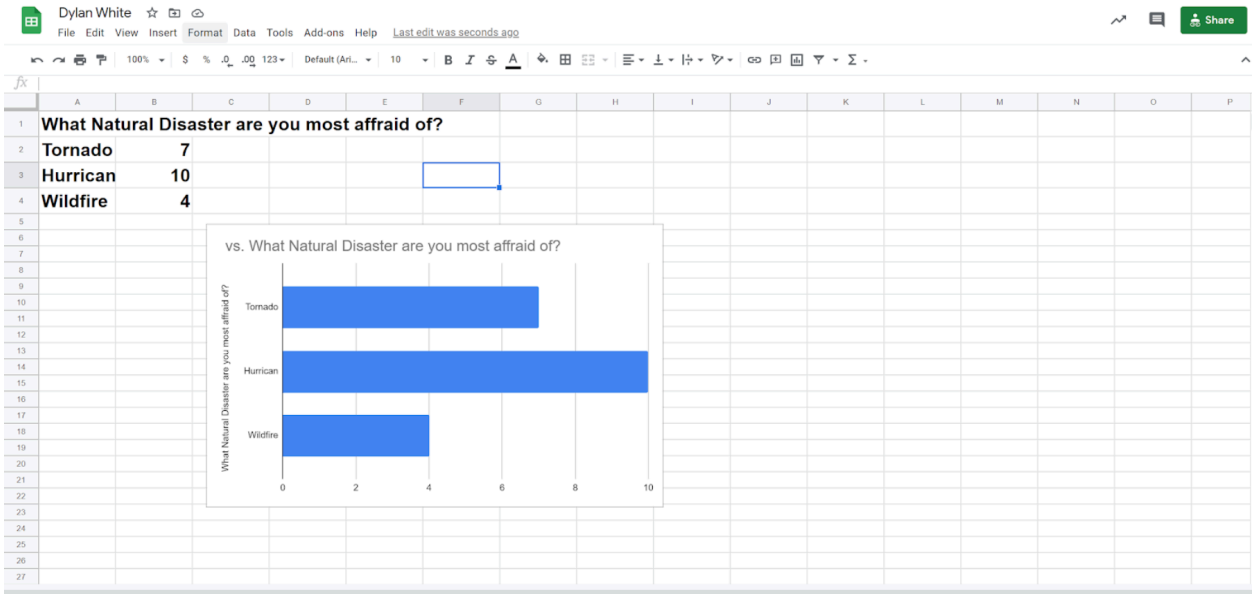
Monday

Standards: MGSE1.NBT.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

MGSE 1.NBT.2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones — called a "ten." b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones)

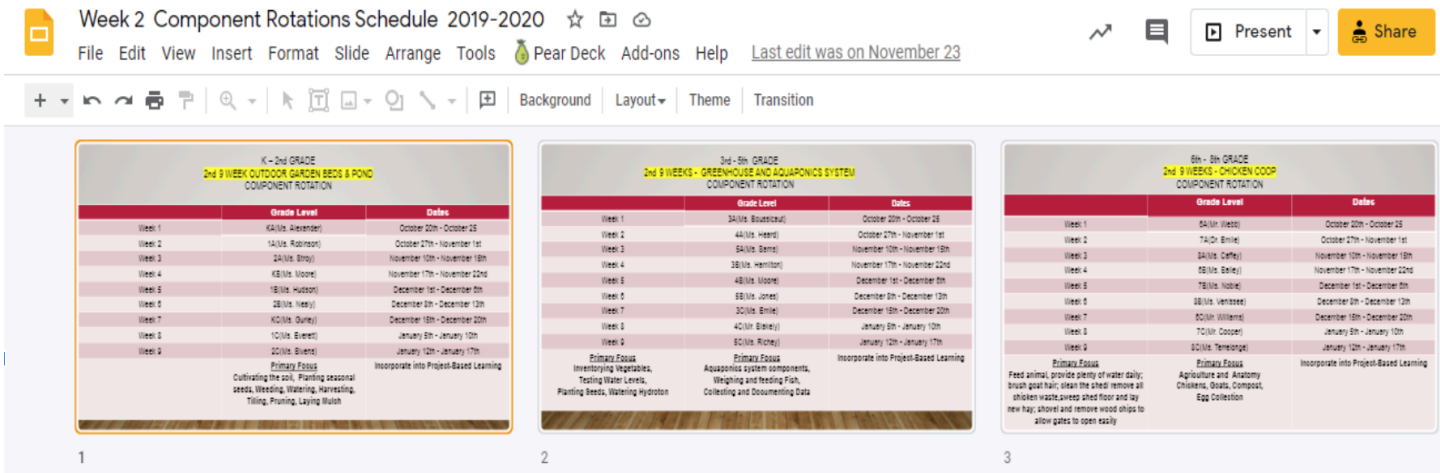
MGSE1.NBT.7 Identify dimes, and understand ten pennies can be thought of as a dime. (Use dimes as manipulatives in multiple mathematical contexts.)

MGSE1.MD.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category,



Artifact 4

D.A.T.E. students have multiple opportunities to engage in self-directed learning which include our special classes: Builder Bunch, robotics, and engineering and design. Teachers provide opportunities for students to independently complete STEM tasks while they act as facilitators. Teachers are also responsible for maintaining the campus ecosystems and work through a rotation to ensure that all students have access to the learning and maintenance tasks.



Robotics instruction

BUILDER BUNCH is Atlanta's premier youth S.T.E.A.M. education provider that infuses science, technology, engineering, art, and math principles with LEGO building in a fun and engaging way for students ages 5 to 12. Builder Bunch invests in our youth and community by providing affordable summer camps, spirit nights, in-school field trips, and enriching after-school programs. At Builder Bunch, we are helping to build stronger schools within the metro Atlanta area and beyond.

The Builder Bunch "In-School Field Trip" is Atlanta's premier LEARN + BUILD "education through creation" program for schools looking to complement their existing STEAM and STEM programs. This 2-part program provides students with a semester-based topic, a web-based tutorial to learn it, and the ultimate in-school field trip competition with their peers to apply their discoveries.

Calling all LEGO Lovers from DATE Academy!!

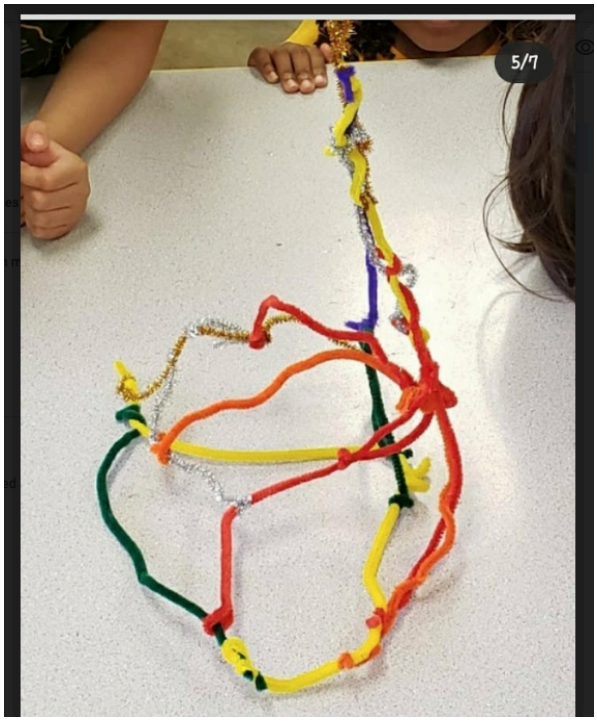
Come join us in a fun" in-school field trip" day of LEGO competition involving the topic: "Building the Strongest Bridge Brick-by-Brick". Participants will receive instruction from a Builder Bunch Master Builder on bridge building fundamentals prior to the field trip competition. During the competition, students have an opportunity to show what they know and compete with other student teams from each grade level. The top teams from each grade will be eligible to compete in a metro-wide school LEGO bridge building championship in December 2015. LET's GO DATE ACADEMY!!!!!!

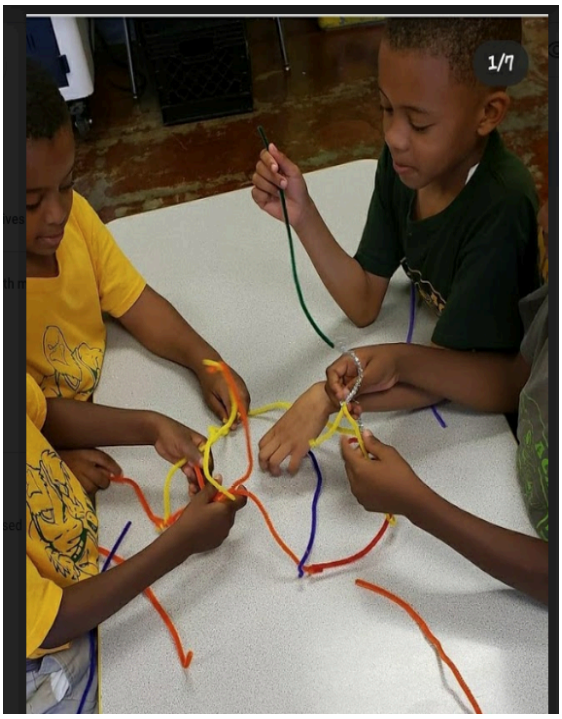
Interested in bringing the Builder Bunch Program to your school?

Please contact Charlene Holder our Community Partnership Marketing Director at Charlene@builderbunch.com or see our web page at www.builderbunch.com for more information.

Artifact 5

Utilizing the skills and processes of the engineering design process, these 2nd grade students were given sixteen pipe cleaners and twenty minutes to construct the tallest tower. They could not use any other materials other than what they were given. The scholars had to work collaboratively with their group to determine how to make a strong foundation and build their tower. The teacher was able to use the results from this formative assessment to reteach STEM discipline concepts.



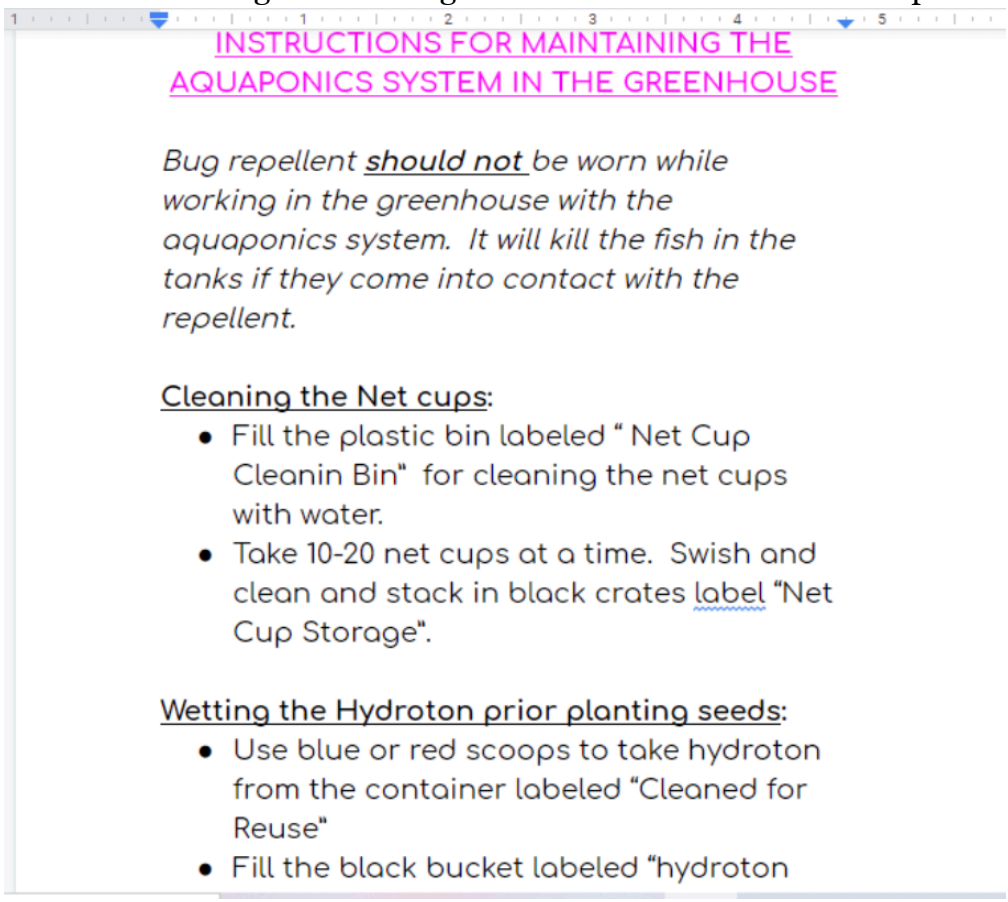


Artifact 6

The cup stacking STEM activity allowed our scholars to use both sides of their bodies and brains to develop important athletic and lifelong skills. This activity also developed bilateral proficiency, allowing equal performance on both sides of the body. Students were able to showcase their style of learning using critical thinking to come up with strategies. This experience opened up the opportunity for transformative collaboration, allowing students to share their ideas and strategies to stack the cups and keeping them balanced. Students used 21st century skills, communication, flexibility, critical thinking, initiative and collaboration.

Artifact 7

The students have the opportunity to engage in being responsible for all of the ecosystems on the DATE campus. The diverse population of students have been shown how to care for each area of the campus. They are able to participate in activities in which they are able to direct themselves after being instructed, such as tending the gardens, caring for the chickens and being ambassadors and role models of responsibility for different areas on the campus. As ambassadors they have shown initiative for caring and learning for the environment on the campus.



INSTRUCTIONS FOR MAINTAINING THE AQUAPONICS SYSTEM IN THE GREENHOUSE

*Bug repellent **should not** be worn while working in the greenhouse with the aquaponics system. It will kill the fish in the tanks if they come into contact with the repellent.*

Cleaning the Net cups:

- Fill the plastic bin labeled " Net Cup Cleanin Bin" for cleaning the net cups with water.
- Take 10-20 net cups at a time. Swish and clean and stack in black crates label "Net Cup Storage".

Wetting the Hydroton prior planting seeds:

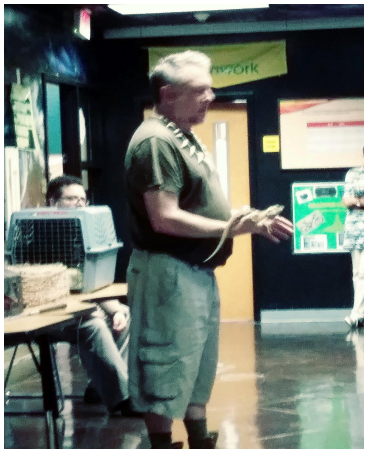
- Use blue or red scoops to take hydroton from the container labeled "Cleaned for Reuse"
- Fill the black bucket labeled "hydroton

Responsibilities for students when working independently to manage the ecosystems.

STEM Schedule for K-1

Straw Bridges	**ZaKara Nzinga**	Will come to you	
10:00 AM - 10:45 AM	Moore		
11:00 AM - 11:45 AM	Camp		
12:40 PM - 1:25 PM	Robinson		
Catapult	**Jaida Sorrell/ Chasity Lazenberry**	Will come to you	
10:00 AM - 10:45 AM	Camp		
11:00 AM - 11:45 AM	Moore		
12:40 PM - 1:25 PM	Everett		
Burning Sand	**Camden Fisher/ Evan Guilford**	Location in front parking lot	
10:00 AM - 10:45 AM	Robinson		
11:00 AM - 11:45 AM	Burns		
12:40 PM - 1:25 PM	Gurley		

Schedule of student facilitators for the STEM Day experiences.



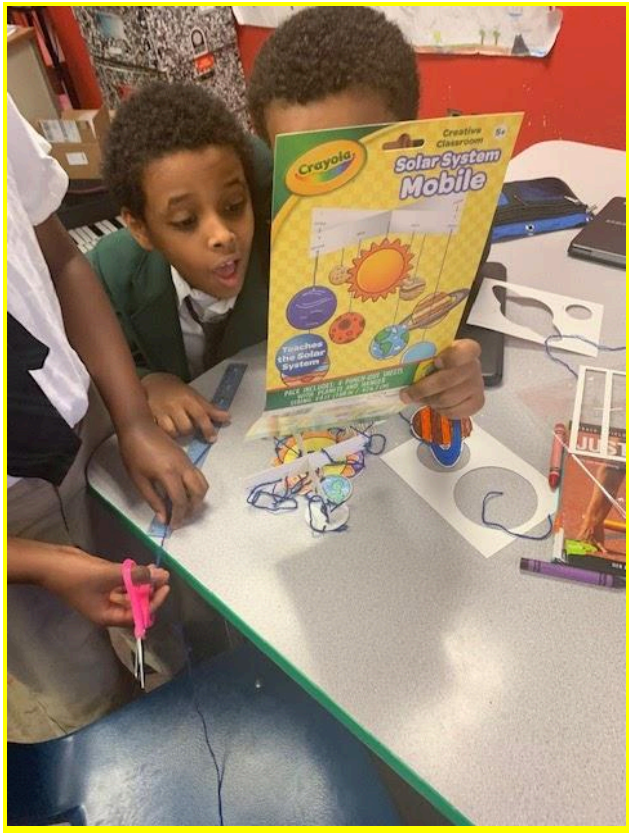
Students participating in STEM Day activities

Artifact 8

Students were able to participate in STEM Day, Spring of 2020. They were excited about being able to work on various activities around the school/classroom involving STEM related activities. Students were engaged while interacting with robotics. They were able to create a blueprint trail in which the robot being used would follow. This gave students an opportunity to think critically and take ownership of their learning.

Artifact 9

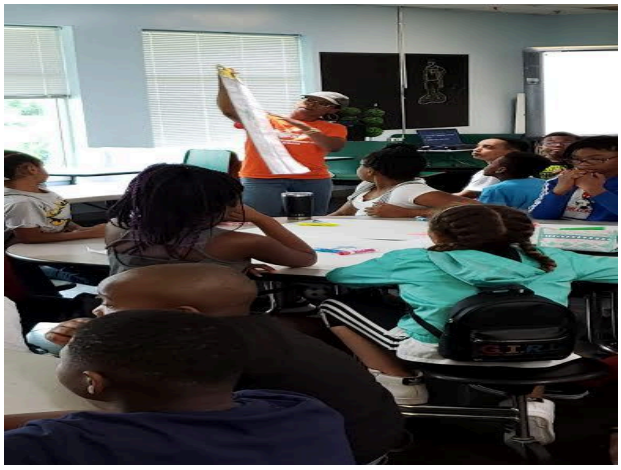
Students are engaged in a STEM activity where they are building their own mobile Solar System. Students were given this activity where they had to read/follow directions and build their own Solar System, effectively. With the teacher as facilitator, she observed and listened to each group as they discussed the task to be completed. The teacher also asked them probing questions throughout the activity.


Crayola
Creative Classroom
Solar System Mobile
Teaches the Solar System


TROJANS
BELIEVE

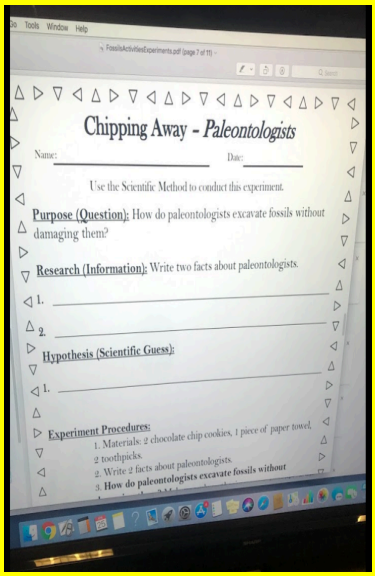
Artifact 10

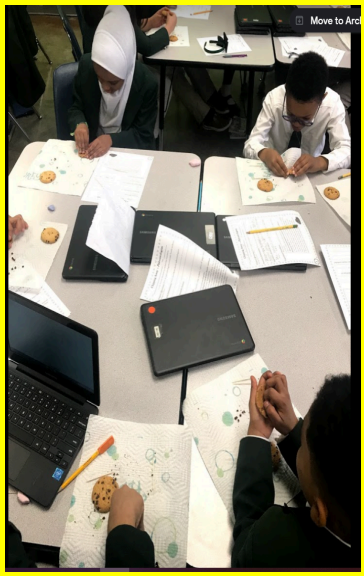
During the STEM Summer Bridge Camp, students researched and learned how composting is helpful to the soil and environment. Students were charged with creating a mini composting bin to store food scraps and ultimately have them return and create nutrient- rich soil.



Artifact 11

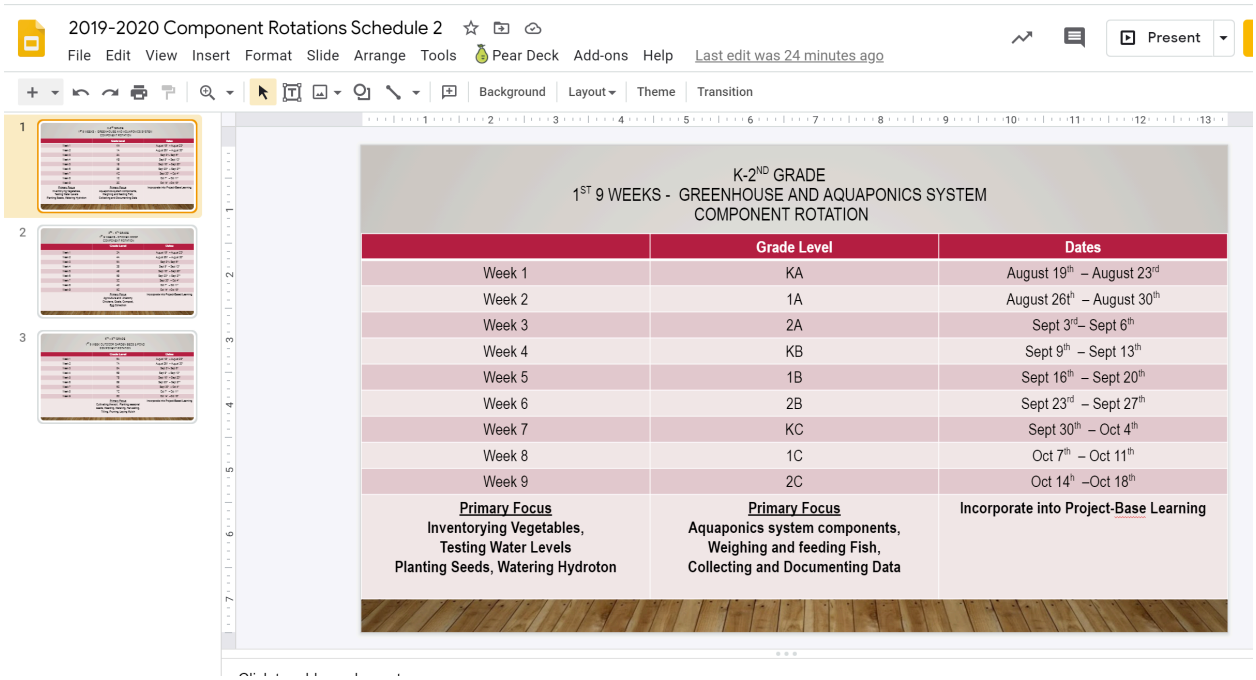
As a part of their fossil unit, students explored the job of a paleontologist. They conducted an experiment where they removed chips from a cookie, but being careful not to break them and preserve the cookie's original shape using toothpicks.





Artifact 12

Each year DATE implements an environmental science component schedule, where each week a grade level is responsible for the maintenance of our chicken coop, garden beds & ponds, greenhouse, and aquaponics system. Scholars are responsible for the upkeep of our environmental entities. During these scheduled times, students have to develop independence and take on the responsibility of each campus component (ecosystem).



2019-2020 Component Rotations Schedule 2

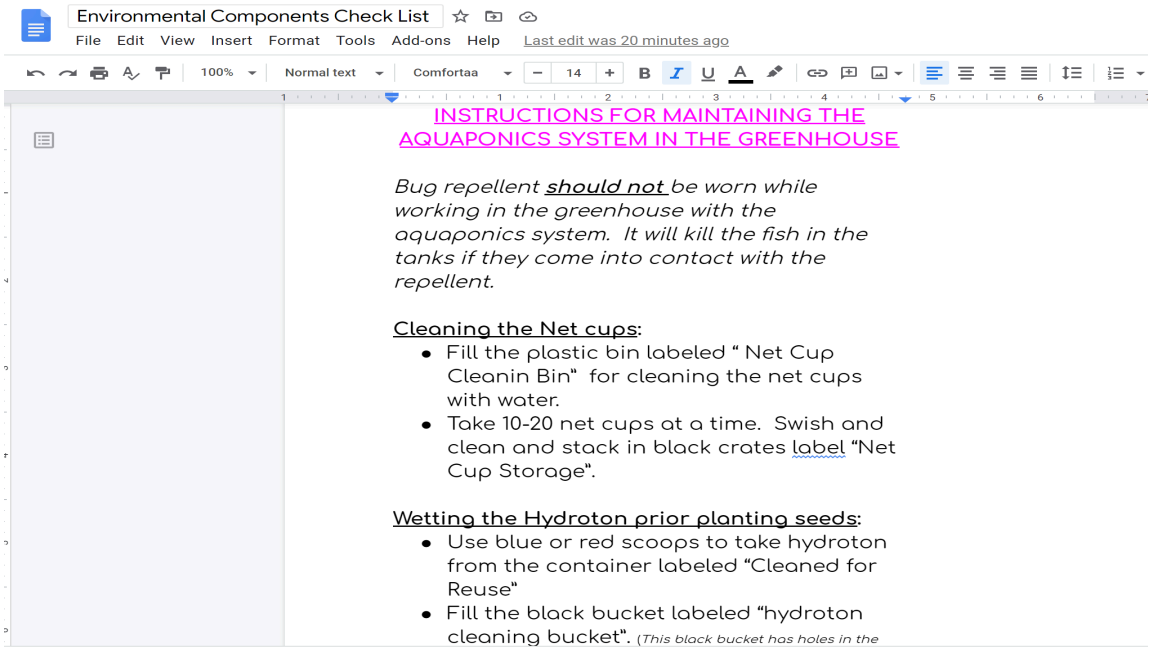
File Edit View Insert Format Slide Arrange Tools Pear Deck Add-ons Help Last edit was 24 minutes ago

Present

Background Layout Theme Transition

K-2ND GRADE
1ST 9 WEEKS - GREENHOUSE AND AQUAPONICS SYSTEM
COMPONENT ROTATION

	Grade Level	Dates
Week 1	KA	August 19th – August 23rd
Week 2	1A	August 26th – August 30th
Week 3	2A	Sept 3rd– Sept 6th
Week 4	KB	Sept 9th – Sept 13th
Week 5	1B	Sept 16th – Sept 20th
Week 6	2B	Sept 23rd – Sept 27th
Week 7	KC	Sept 30th – Oct 4th
Week 8	1C	Oct 7th – Oct 11th
Week 9	2C	Oct 14th –Oct 18th
Primary Focus Inventorying Vegetables, Testing Water Levels Planting Seeds, Watering Hydroton	**Primary Focus** Aquaponics system components, Weighing and feeding Fish, Collecting and Documenting Data	Incorporate into Project-Base Learning



Environmental Components Check List

File Edit View Insert Format Tools Add-ons Help Last edit was 20 minutes ago

100% Normal text Comfortaa 14

INSTRUCTIONS FOR MAINTAINING THE AQUAPONICS SYSTEM IN THE GREENHOUSE

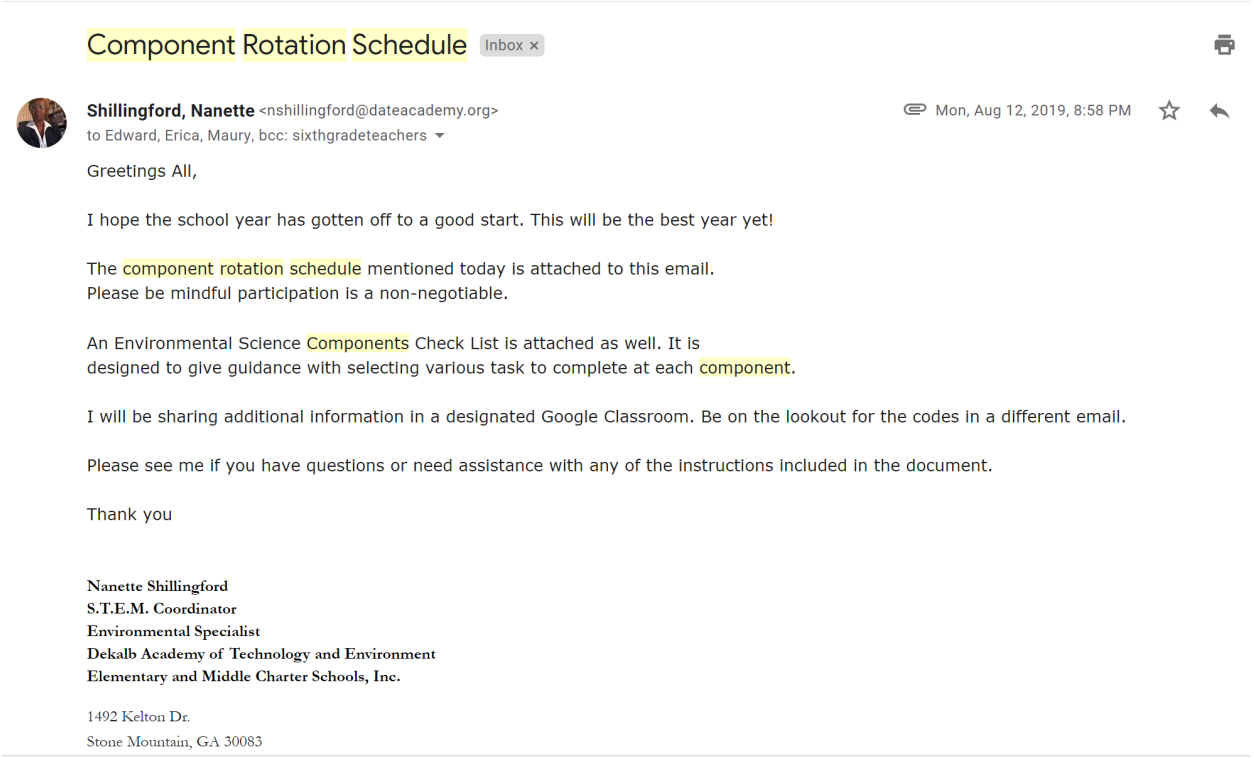
*Bug repellent **should not** be worn while working in the greenhouse with the aquaponics system. It will kill the fish in the tanks if they come into contact with the repellent.*

Cleaning the Net cups:

- Fill the plastic bin labeled " Net Cup Cleanin Bin" for cleaning the net cups with water.
- Take 10-20 net cups at a time. Swish and clean and stack in black crates label "Net Cup Storage".

Wetting the Hydroton prior planting seeds:

- Use blue or red scoops to take hydroton from the container labeled "Cleaned for Reuse"
- Fill the black bucket labeled "hydroton cleaning bucket". (*This black bucket has holes in the*



Component Rotation Schedule Inbox ×

Shillingford, Nanette <nshillingford@dateacademy.org> Mon, Aug 12, 2019, 8:58 PM

to Edward, Erica, Maury, bcc: sixthgradeteachers

Greetings All,

I hope the school year has gotten off to a good start. This will be the best year yet!

The component rotation schedule mentioned today is attached to this email.
Please be mindful participation is a non-negotiable.

An Environmental Science Components Check List is attached as well. It is
designed to give guidance with selecting various task to complete at each component.

I will be sharing additional information in a designated Google Classroom. Be on the lookout for the codes in a different email.

Please see me if you have questions or need assistance with any of the instructions included in the document.

Thank you

Nanette Shillingford
S.T.E.M. Coordinator
Environmental Specialist
Dekalb Academy of Technology and Environment
Elementary and Middle Charter Schools, Inc.

1492 Kelton Dr.
Stone Mountain, GA 30083

Artifact 13

Students were tasked with providing Elon musk agricultural advice for his SPACE X Mars mission. This activity was designed so that students could take a critical look at the different planets' data in order to ultimately evaluate its ability to support life and what types of accommodation would need to be implemented, due to its differences from earth. In an effort to plan their presentation to Elon Musk, scholars had to conduct research and fill out a graphic organizer of their thoughts and primary talking points for their presentation. They were provided a video on how to edit the document. And they were provided probing questions to guide them in their inquiry.

Finished student product:
Standard 8- 9/14 FlipGrid Graphic Organizer.pdf

Artifact 14

Students engaged in completing a webquest on the integer rules. The integer rules in mathematics are the basis of all of the math standards in 7th grade. Students were responsible for their learning and were able to work at their own pace, while the teacher facilitated the learning.

Ariana Dority - One Step Equations Webquest

INTEGER WEB QUEST 2

Artifact 15

The 8th grade students learned about the science of centrifugal force and how it relates to amusement park rides. Students collaborated, went through the engineering process, and built roller coasters as finished products. During this activity, students worked collaboratively, and took ownership of their learning by planning and constructing their roller coasters.

Artifact 1: EDP with Centrifugal Force & Six Flags. Student collaborated with teammates to create, plan, sketch, and build a prototype rollercoaster demonstrating the concept of centrifugal force. Student attend STEM Day at Six Flag to extend the learning outside of the classroom. They were able to apply their knowledge in real world situations at the amusement park. A STEM lesson was completed during this process.

Artifact 2: Centrifugal Force Videos

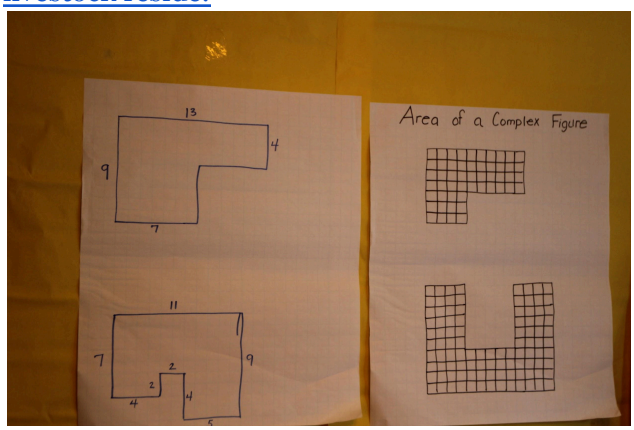
Artifact 16

Middle School students teaching elementary students about the anatomy parts of a chicken.



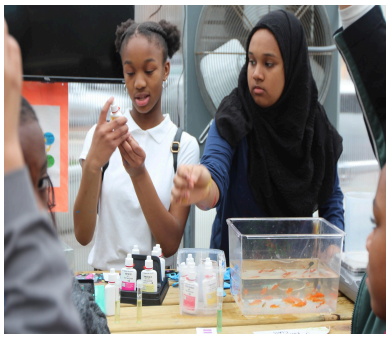
Artifact 17

VIRTUAL LESSON - Environmental Science/STEM Class with Mrs. Shillingford Calculating Perimeter and Area to determine size and space of The Pasture which is where all of our livestock reside.



Artifact 18

Students were given the task to perform aquaponics maintenance in our aquaponics system. They had to test the pH levels of the water and chart the growth of the fish.

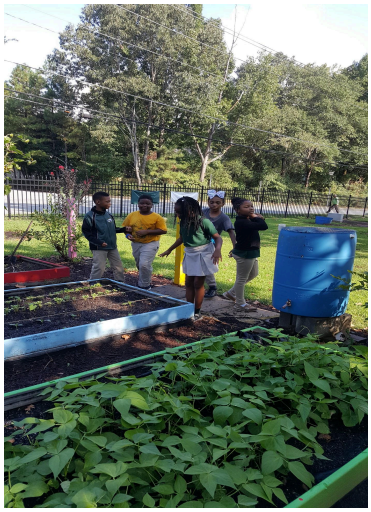


Artifact 19

Students are given an opportunity to be a part of D.A.T.E.'s news production, which is referred to as DNN (Date's News Network). Each group has a director, 2 news anchors and 2 field reporters. The various topics range from current events locally, to world wide events. Students are responsible for researching their own topics relating to their news cast. In addition, they also edit the videos before presenting it to the school.
DNN Link - https://www.facebook.com/watch/1829016883984567/785763931611086/

Artifact 20

The Farmers is a club for 3rd grade students that introduces the basics of planting and maintaining a garden. The students apply their knowledge in math to divide the beds with twine before planting.They take turns writing in the club journal about what they accomplished that particular day. As the vegetables began to grow, the students were able to taste them. After the vegetables were grown, the students gathered the crop and grilled the vegetables. The students were able to eat what they planted and take vegetables home to share with their parents.



The 5 farmers
+
1
Mikah Kang
Elizabeth Kalu
Jaden Watkins
Nevaeh Hicks
Alexandria Jones
NADA ASWAD

Date: August 24, 2018

1 - Mixed the soil
2. aciate the soil
3. air gets inside the soil
4. oxygen will circulate
5. talked about plans
6. bring change of clothes every Friday
7. bring bug spray
8. Tell parents

Plan: plant veggie tables so we can get them later

Nada Aswad

Date: 10-3-2018

So today we went outside to plant the lavender by the chicken coop. We put stick on it with the corn. Then After we ate lunch we learned how to make squints. Then we put the squints. In a BC order. Then we tasted the green beans. Then Mrs. Shilling Ford invited us to eat lunch/dinner. Then we went back to class and finished today. We put on the skewers onion, squash, and radishes from the garden. We loved them.

- Alexandria Jones