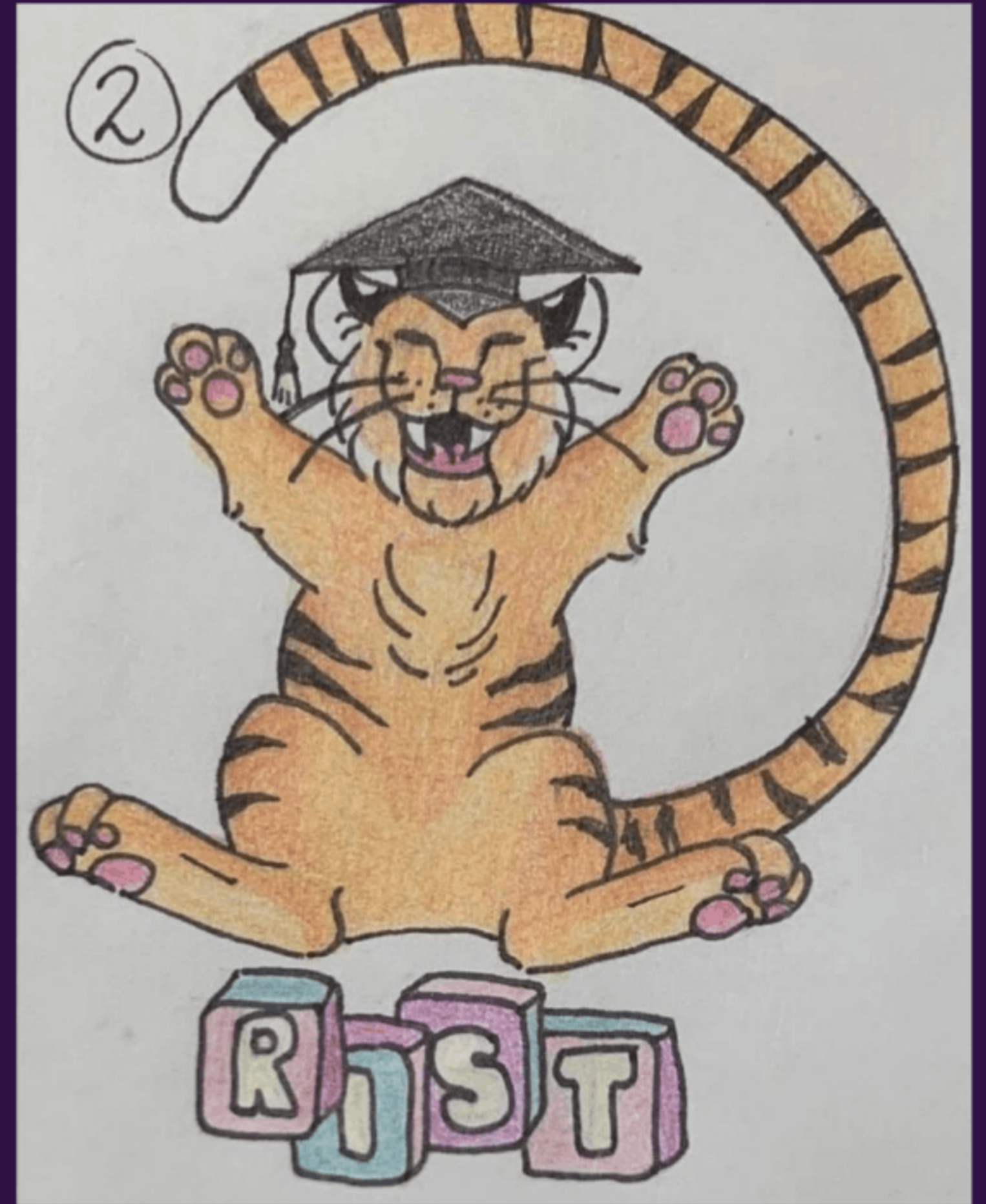


Raton Innovative STEAM Team

Security means building a new future...



A young child with dark hair, wearing a light blue sweater, is sitting at a wooden desk in a classroom. The child is looking off to the side with a thoughtful expression, resting their chin on their hands. In the background, other children are visible at their desks, some looking towards the camera. The lighting is soft and natural, typical of a classroom setting.

...And that future will be obtained through children.

“ Children are our
greatest
treasure. They
are our future.

-Nelson
Mandela

Problem

Owning Food Insecurity



In Raton 83.95% of students qualify for free meals.



97% of New Mexico's food is imported.



There are 324,000 food insecure people in New Mexico and 88.9% of US households were food insecure throughout 2018

Problem

Owning Water Scarcity

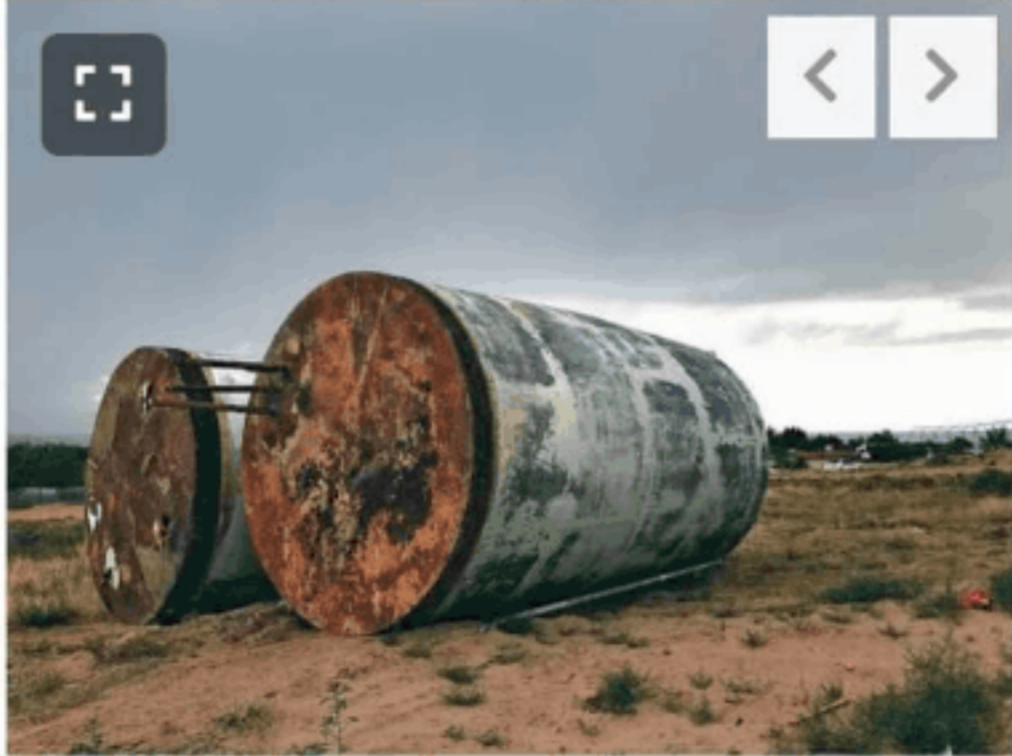
Water scarcity is already a problem throughout New Mexico and the Southwestern United States and it is only going to get worse.

☰ MENU 🔍

Small New Mexico communities struggle to deliver water free of uranium and other toxins

Story and photos by Rebecca Moss | The New Mexican
Jul 29, 2017 0

1 of 7



☰ AlbuquerqueJournal Sign In

Newsletters

New Mexico is running out of water

BY GALEN HECHT
Sunday, October 13th, 2019 at 12:02am

New Mexico is not water-secure.

Two weeks ago, the Rio Grande dried for 17 miles south of Albuquerque pushing native fish and wildlife further towards the brink of extinction. The Rio Grande does not dry up on its own. The culprit is us.

New Mexico is the most water-stressed state in America. Despite this fact, water managers continue to sink us deeper into a water deficit rather than working to sustain our rivers and aquifers, our

Our Solution

Reconstructing Education

Creating a new self-sustaining community is vital to the security of our nation. This can be achieved through creating a career pathway to Biosphere Engineering. Part of our vision is integrating "NMSTEMReady!" performance expectations into K-12 education. We envision having in-classroom lessons along with a Greenhouse in every district that can be used to teach these standards.

The Model

Greenhouse

The Greenhouse contains many tools for learning such as a raised bed, two hydroponics, a composting drum, and various planting containers. Students can plant and cultivate food in the Greenhouse while learning "NMSTEMReady!" curriculum in the process.

The Instruction

Teaching in the classroom

By teaching "NMSTEMReady!" standards in the classroom, and how to conserve water with the use of a hydroponic system, students will learn how to grow food, sustain our natural resources, and support our communities. This will result in a better fed, healthier, and more educated society.

The Prototype

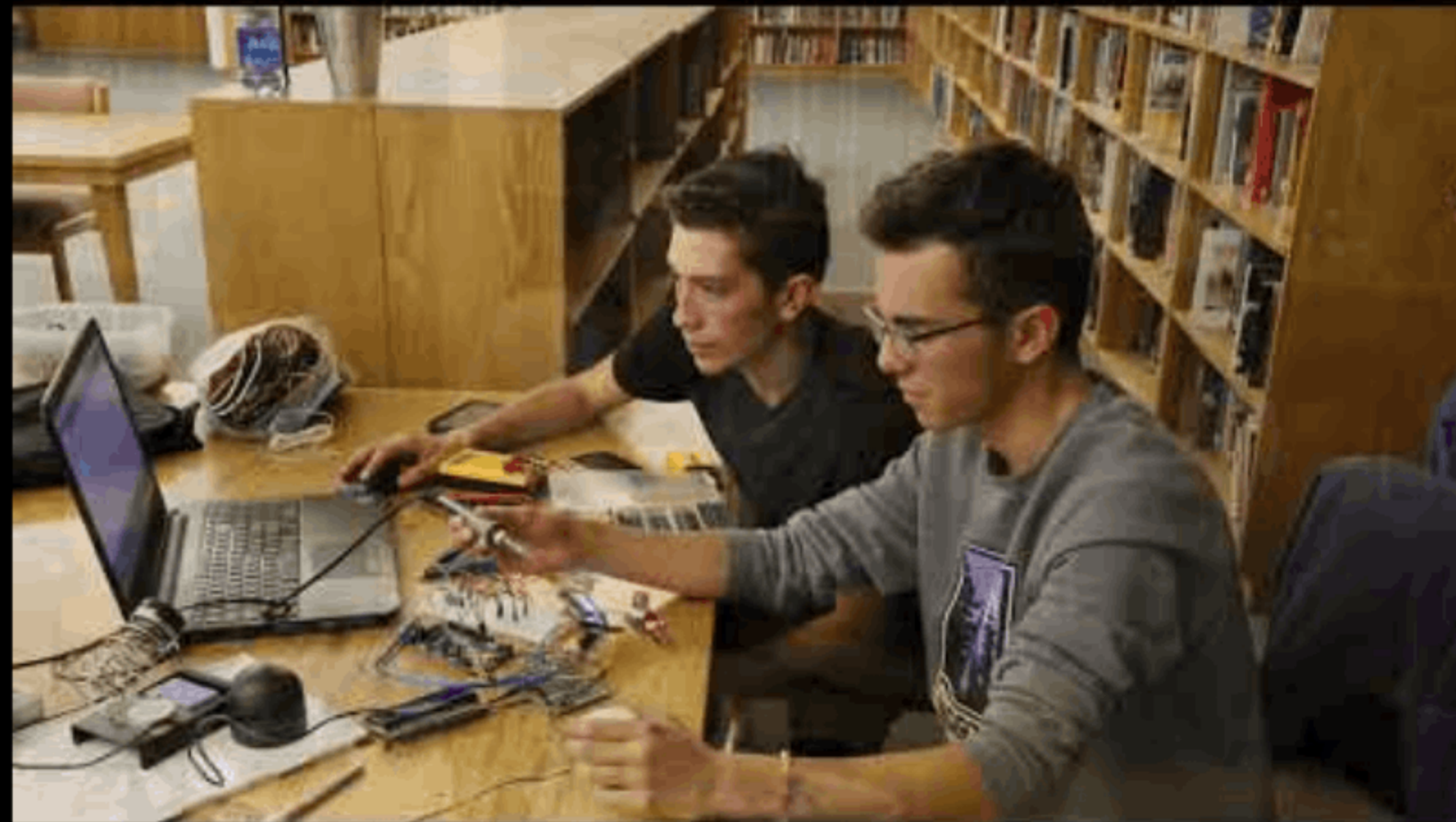
A.C.T.S.

When working in the Greenhouse Students will also be able to take a more tech forward approach to learning about the system as a whole. The R.I.S.T. engineering team developed a system for gathering data in the Greenhouse. Students can then use this information to adjust the Greenhouse and optimize its performance.

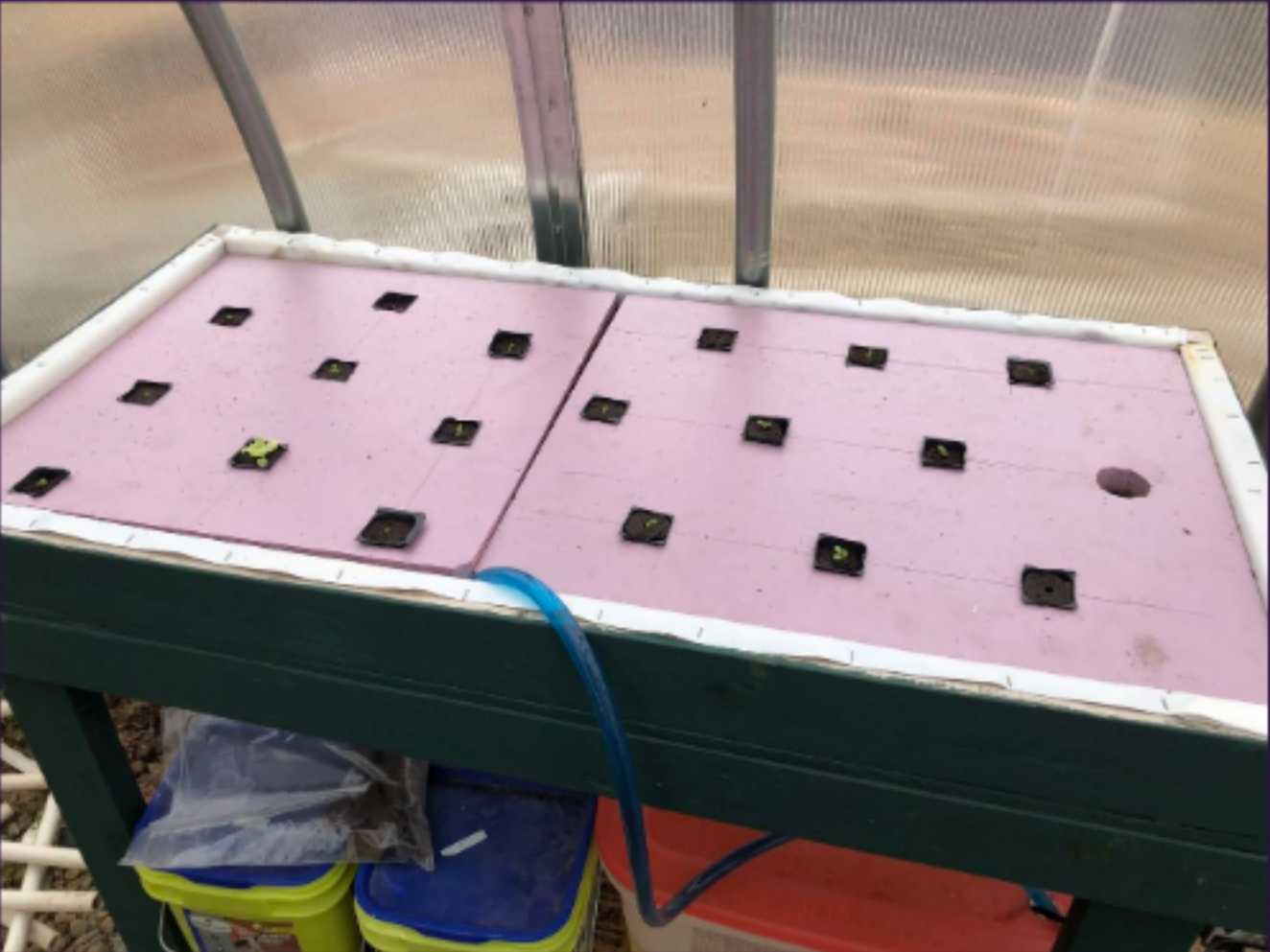
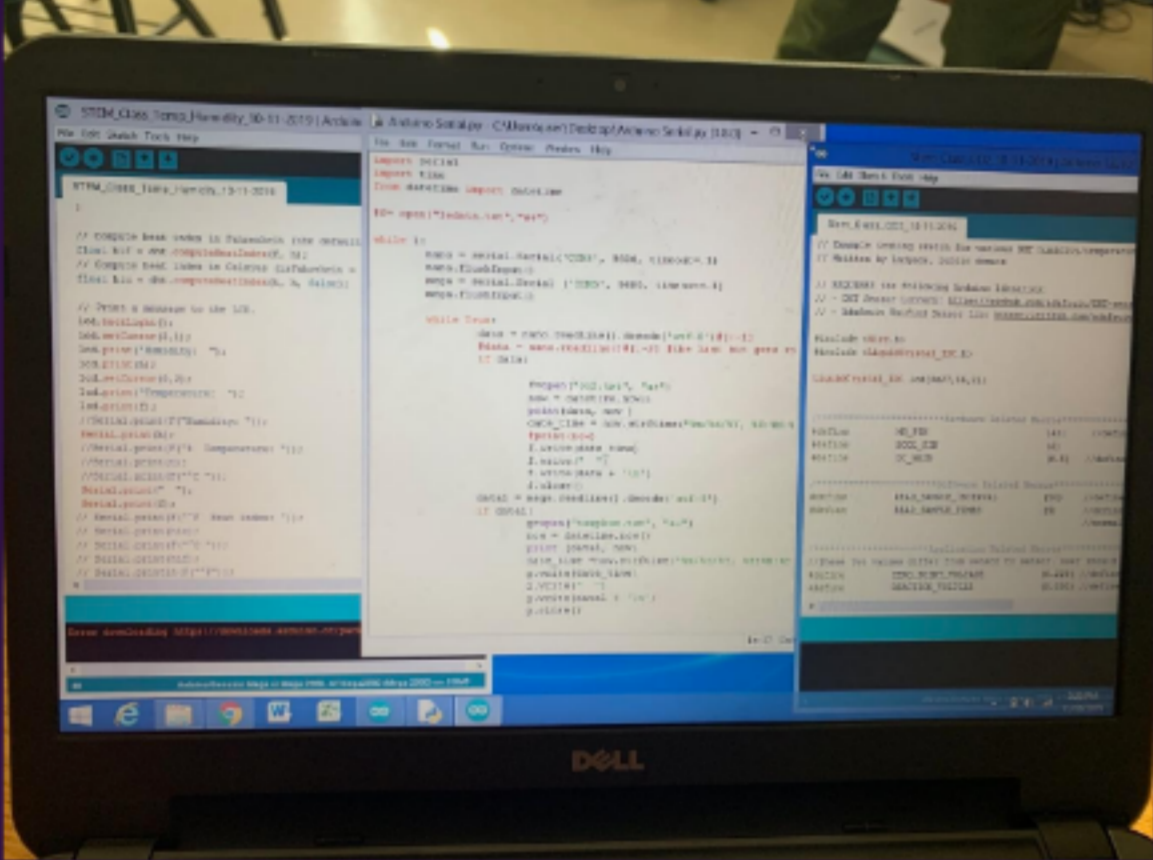
The Engineering Design Process

How we Developed A.C.T.S. (Automated Climate Temperature Sensor)

[Click here ---->](#)



A Glimpse of the Greenhouse



Influencing our Education

Shifting Paradigms

Pedagogy and testing assessments have conditioned students to believe that if they don't do well on mandated assessments they are failures. Class rankings are made to be more important than having practical and applicable knowledge. Students can succeed by learning outside skills not taught in the classroom.

“ The only source of knowledge is experience.

-Albert Einstein

Our Effect on Education

Our S.T.E.A.M team and our F.F.A organization have worked on the greenhouse for sometime now and this is the result...



Before



After

Constraints

Recognizing the Obstacles

- Accountability through state and standardized testing has defined us for too long.
- The focus on reading, writing, and arithmetic does not teach practical career life skills.
- Class ranking has taken precedent over the learning of practical career life skills.
- Teacher accountability has limited the ability of teachers to teach in a hands-on way.

The way we're taught needs to change now.

Feasibility

Is this
possible?

With investments from private industries, a paradigm shift in the way we're taught, and support from our government, the implementation of "NMSTEMReady!" curriculum into the classroom to develop career pathways and credegrees is possible.

Our Team

Contributions

- Our team has contributed to our school by taking a nonfunctional Greenhouse and making it functional for FFA use.
- Implementation of the brand new "NMSTEMReady!" performance objectives modeled for grades 1-6.
- Collaboration with A'viands food services to compost food scraps and grow hydroponic lettuce.
- Development of A.C.T.S. to monitor conditions inside the Greenhouse.
- Communications with Santa Fe Community College and New Mexico State University to create a credegree built off of the high school career pathway Biosphere Engineer.
- Theoretical plans to take the system off the grid with the use of renewable energy.
- Requested endorsement from the Raton Board of Education to create a Biosphere Engineer career pathway at our school.

Future Plans

If...

1. NMPED will change assessment priorities
2. LANL will establish 21st century school technology outreach
3. Industry will fund Greenhouse infrastructures

Future Plans

Then...

1. Students can learn practical skills to address food insecurity and water scarcity.
2. Students will be able to gain skills needed to enter careers in Biosphere Engineering and help create a more sustainable future.

Future Plans

Because...

Time is precious and if you don't grow kids that can grow food, who is going to feed you?
And who will take care of the world you leave behind?

Where does YOUR food and
water come from?

Kids in Action!

