

“Growing in SC: The Future of STEAM is Here” Grant Report

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S2TEM Grant-Level Up Village Doctor DNA

- 1. In what ways did focusing on learner collaboration through a project/unit with a practical, real-world application to STEAM influence your practice as an educator?**

Focusing on learner collaboration through project-based, real-world application directly impacted my preparation and delivery as an educator. Preparation took more time to gain a more in-depth knowledge of the topic. As much time as I spent researching the main topics for each lesson, that did not prepare me for where the students would take the lesson. As they collaborated within their groups using hands-on experiences, students gained a more in-depth knowledge through trial and error and self discovery. Through this type of teaching I learned that as much as I educate myself and plan how I think the lesson will go, the students are really the ones who took control and led the class. Through their hands-on collaboration and investigation, the students were able to teach themselves more than I taught them. Student discussions at the conclusion of every lesson was a highly motivated, well thought out conversation about the topic and what they learned. Being able to connect information to real world experiences were the most challenging yet the most rewarding.

- 2. What were the specific deliverables your learners produced? How were your learners able to achieve those deliverables by collaborating with peers?**

To begin the unit, each student had to create their own profile page that allowed them to communicate with their Ghana partner. The profile page gave students the opportunity to apply their knowledge learned in class about DNA to their own lives and their partner's lives.

One of the first things the students made was a candy DNA structure based on the information they gathered from reading and videos. Using the pieces of candy provided, they had to create a DNA structure without a model to go by. After understanding the basics of DNA, they did a variety of hands on experiments to test things that effect health, including environmental and inherited traits.

By the end of the unit, students collaborated with their Ghana partner using a Health Profile. This document was used to evaluate their own health and compare and contrast their health profiles with their Ghana partner. This led to great discussion between their partners and within our own classroom.

- 3. What were your successes and challenges as you and your learners completed the project/unit? What data supports learner outcomes that were met? What might you do again? What might you change for next time?**

The Global Doctors DNA unit successfully covered the topics of heredity in order for students to gain the information needed to meet the South Carolina State Standards. The students learned

“Growing in SC: The Future of STEAM is Here” Grant Report

the information through inquiry and self discovery, giving the students a reason for learning. Students learned more about what effects their health through partner discussion. Through this discussion, students were able to evaluate their lifestyle in order to become healthier. Each lesson from the beginning of the unit started off by asking the focus question, “what does it mean to be healthy?” Each week students were able to add more information and detail to their answer. At the end of the unit, students were asked to evaluate their knowledge of DNA by completing an essay answering the focus question for the last time, “what does it mean to be healthy” using a list of key words during the entire unit. Using the rubric, every student passed the essay by scoring 6/6 on the content of their essay.

The biggest challenge of this project was communication with our Ghana partners. Even though we communicated with our partners weekly, it was difficult at times to move on to the next lesson if the other class had not completed their portion of the lesson. Therefore, we had to be very flexible about our lesson times and check daily for partner progress.

4. How were your “lessons learned” shared with colleagues? What feedback did you receive from your colleagues based on your lessons learned from the project/unit?

My successes and struggles were presented during a staff meeting in order to get more classrooms interested in the STEAM-based approach to learning. After sharing pictures, student projects, and testimonials from students, a couple summer classes were added to the summer camp list and one teacher plans on using this same program next year to enrich their curriculum.

5. What would some of your learners say about how collaborating with peers on a real-life project/unit impacted their learning? (Include specific quotes written or told by learners.)

“This topic was fun and I thought it was so cool working with someone from another country.”
Arthur Freeland

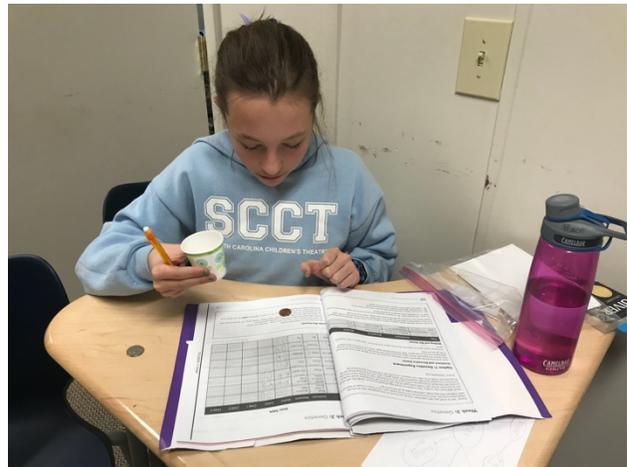
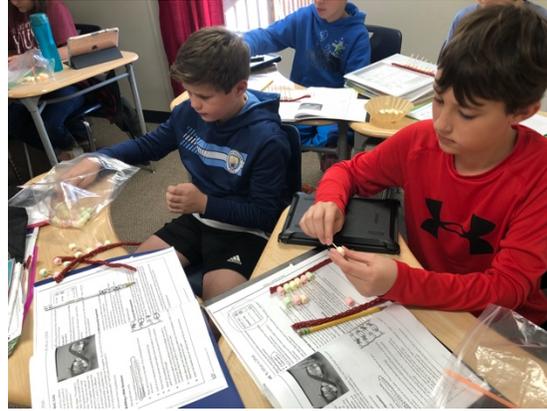
“I never thought I would be able to have a friend from another country. This let me make friends and help me understand more about other countries. It makes me happy to live in America.” Harper Greer

“I didn’t feel like I was in school learning. I looked forward to Friday afternoons to work on Level Up Village with my friends.” -Hannah Krienke

“Growing in SC: The Future of STEAM is Here” Grant Report

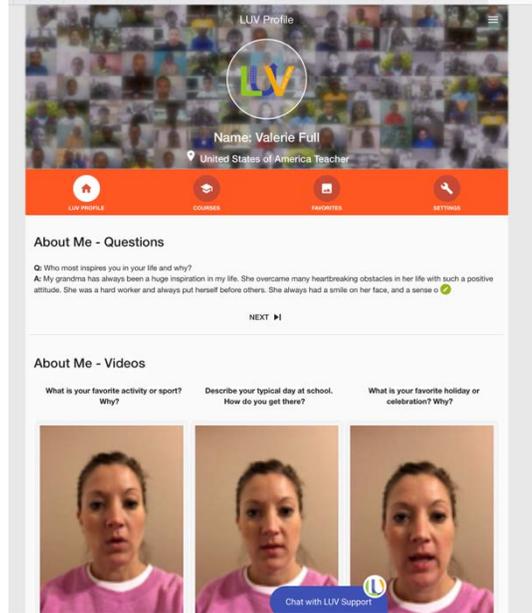


Students using the information provided in the workbook about DNA to construct her own “candy” model of DNA.



Students learning about inheriting different traits based on a flip of the coin. After creating their own punnet square, they had to draw a picture of what their person looked like based on the punnet square information.

“Growing in SC: The Future of STEAM is Here” Grant Report



Example of a profile page each student had to create before starting the unit. The profile included videos and short answer questions that let them get to know each other. Students also used this page to create collaboration videos about each lesson.



Completing a self-discovery experiment on respiration to explore the effects of environmental factors on overall health.

“Growing in SC: The Future of STEAM is Here” Grant Report



Two groups exploring the effects of exercise on heart rate and blood pressure.



The entire class posing for a picture for the school newspaper after a successful STEM experience.