

## Research Question

What elements of community-embedded STEM integration help to foster STEM interest in middle school girls of color at a developing STEM school?

## Background

Middle school – a critical time when students begin to form their ideas about careers

Many begin to lose interest in STEM topics; in particular, girls of color

Women & people of color underrepresented in STEM -- dominated by White men

Increasing interest and opportunities in STEM careers for women and people of color may ameliorate the predicted future employee shortages in STEM

To ensure that all students have the opportunity to pursue STEM careers, educators need to find ways to increase and maintain high levels of interest for a broader audience of students

## Context of Larger Study

Goal: to research the process of developing STEM programming at four secondary schools within an urban public schools district in the Midwestern United States

Each school: STEM team, University STEM fellow, Professional Development

## Context of this Study

Falconer Middle School – urban community school with a STEM focus; 98% students of color; 88% students free/reduced lunch

7.8% of students proficient in science

## Methodology

Single embedded case study contextualized in two integrated STEM units with multiple units of analysis (Yin, 2014)

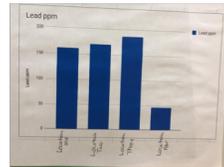
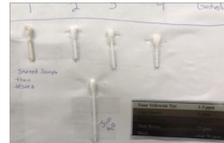
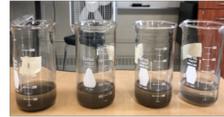
Case – STEM interest in girls of color

Units of analysis – 7 girls of color at Falconer

## Analysis

Audio recordings of focus groups, presentations, & interviews transcribed, inductively coded

### MidWest Metal Unit: Lead Soil Testing Project



### Civil War Soldier Unit: Prosthetic Leg Prototype



### Civil War Soldier Unit: Civil War Soldier's Jacket Project



**Connections to Helping People in the Community**  
*"people [who live near MidWest Metal] would...be affected by [lead]...if...underground it's going to stay there for...thousands of years... Lead in the ground can affect the air, plants, & animals that live around it...when lead gets into blood vessels, it hurts [young children] more because...they're still developing, and lead can still cause a lot of problems like how the blood flows...it can be fatal."*  
 - Aaliyah

## Personal Connections

Danita wrote about how she suffers from **asthma** and how this relates to the **dangers of air pollution** in her community

Kira's little brother suffered from **lead poisoning**; she spoke to the entire seventh grade

She collected soil samples from her yard and tested the samples for lead

Making connections to real-world problems

One of the main tenets of quality STEM integration (Moore, et al., 2014)

When students are able to connect what they learn to their own lives and to helping others, they are more interested in what they are learning and doing

**SciGirls Strategy #2: Girls are motivated by projects they find personally relevant and meaningful**

## Conclusions/Implications

This study illuminated five main elements of community-embedded STEM integration that helped to foster STEM interest in girls of color.

Through STEM integration, they were able to make meaning of what they were learning and doing in school and connect it to their own lives. They learned how they could make a difference and help others within their community through application of their STEM knowledge.

## References



## Findings

