

# Guiding Questions

---

1. *How can we inspire young people to advance the work of environmental justice through education, research, and advocacy in our communities?*
2. *How can math and mapping be used as tools to support youth centered environmental justice work?*

justice  
mapping  
geography  
lead  
community  
learning  
collabora  
th-centered  
poisoning  
mathematics  
environmental  
education



# The World Cafe Etiquette



1 Focus on  
What  
Matters

2 Contribute  
Your  
Thinking

3 Speak  
Your Mind  
and Heart

**HAVE  
FUN**

4 Listen  
to  
Understand

5 Link  
and  
Connect  
Ideas

6 Listen  
Together for  
Insights and  
Deeper  
Questions

**#virtualspacehero**



# **THE DATA WARRIORS PRESENT: SAFE COMMUNITIES**



## **Act I – 2:30-3:15 pm**

Showcase of Data Warriors Student-Centered Education and Advocacy

## **Act II - 3:15-4:00 pm**

Guest Speaker Panelist Question & Answer

## **Act III 4:15 - 4:30 pm**

Wrap Showcase, Survey, and Giveaway

# THE DATA WARRIORS PRESENT: **SAFE COMMUNITIES**



## THANK YOU TO:

CENTRAL NEW  
YORK HUMANITIES  
CORRIDOR



SCAN ME

ENGAGED  
HUMANITIES  
NETWORK



SCAN ME



# IMAGINE A WORLD...

Use the sticky notes to write down one word that describes

Racial  
Justice

Community  
Safety

What is an issue in the  
community you care about?

# Safe Communities Survey

Towards the end of the event, please fill out this survey. Your time and responses are greatly appreciated! :)

1. Did you find this event meaningful?

*Mark only one oval.*

☐ Yes

☐ No

2. Explain your previous answer.

---

---

---

---

---

---

This content is neither created nor endorsed by Google.

Google Forms

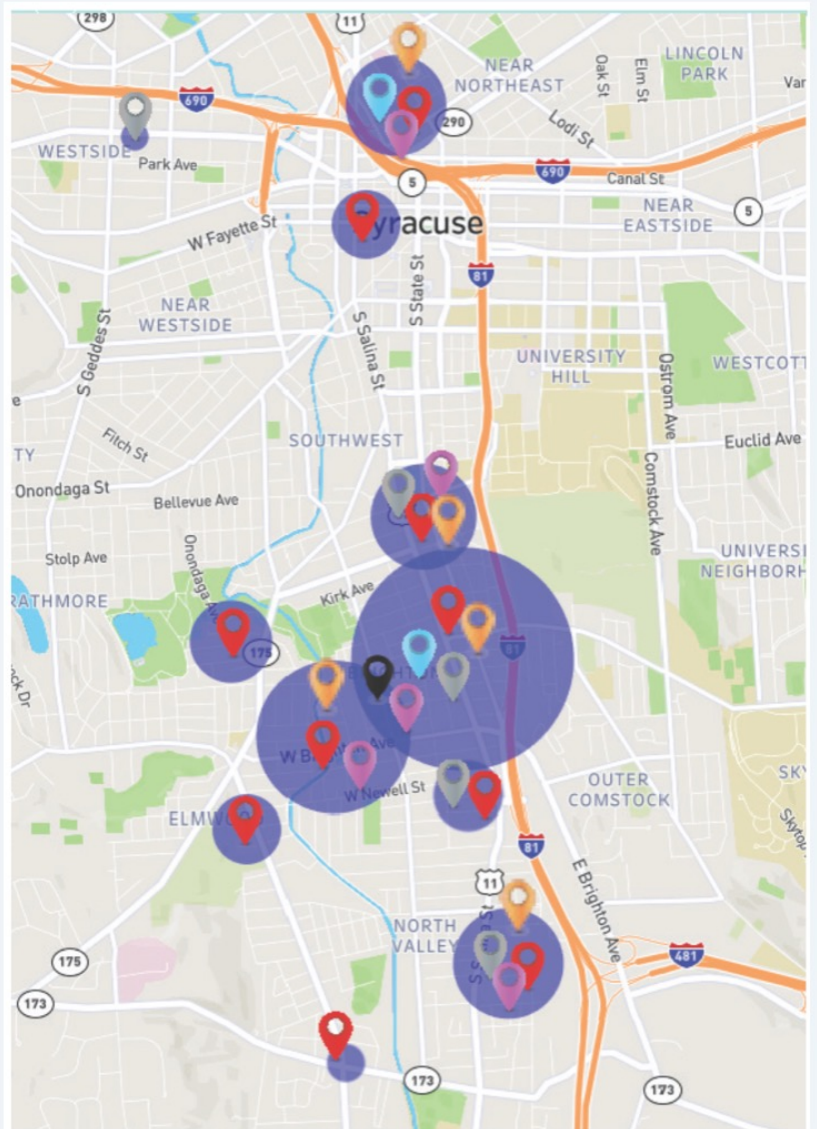
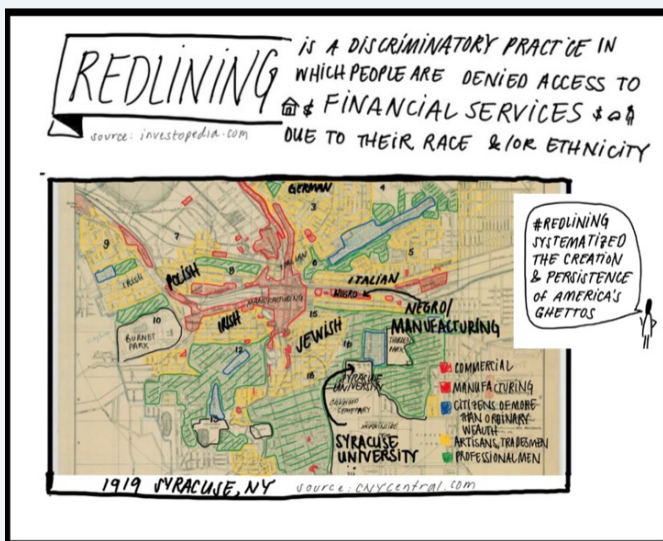


# Culturally and historically responsive math tasks.

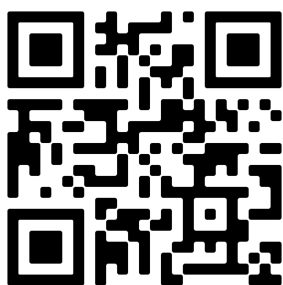
## Social and Environmental Justice Math Tasks

Highway 81, Redlining, and White Flight, Population Trends, Linear Functions

Lead Poisoning, Environmental Justice, Exponential Decay



LEARN MORE AT:

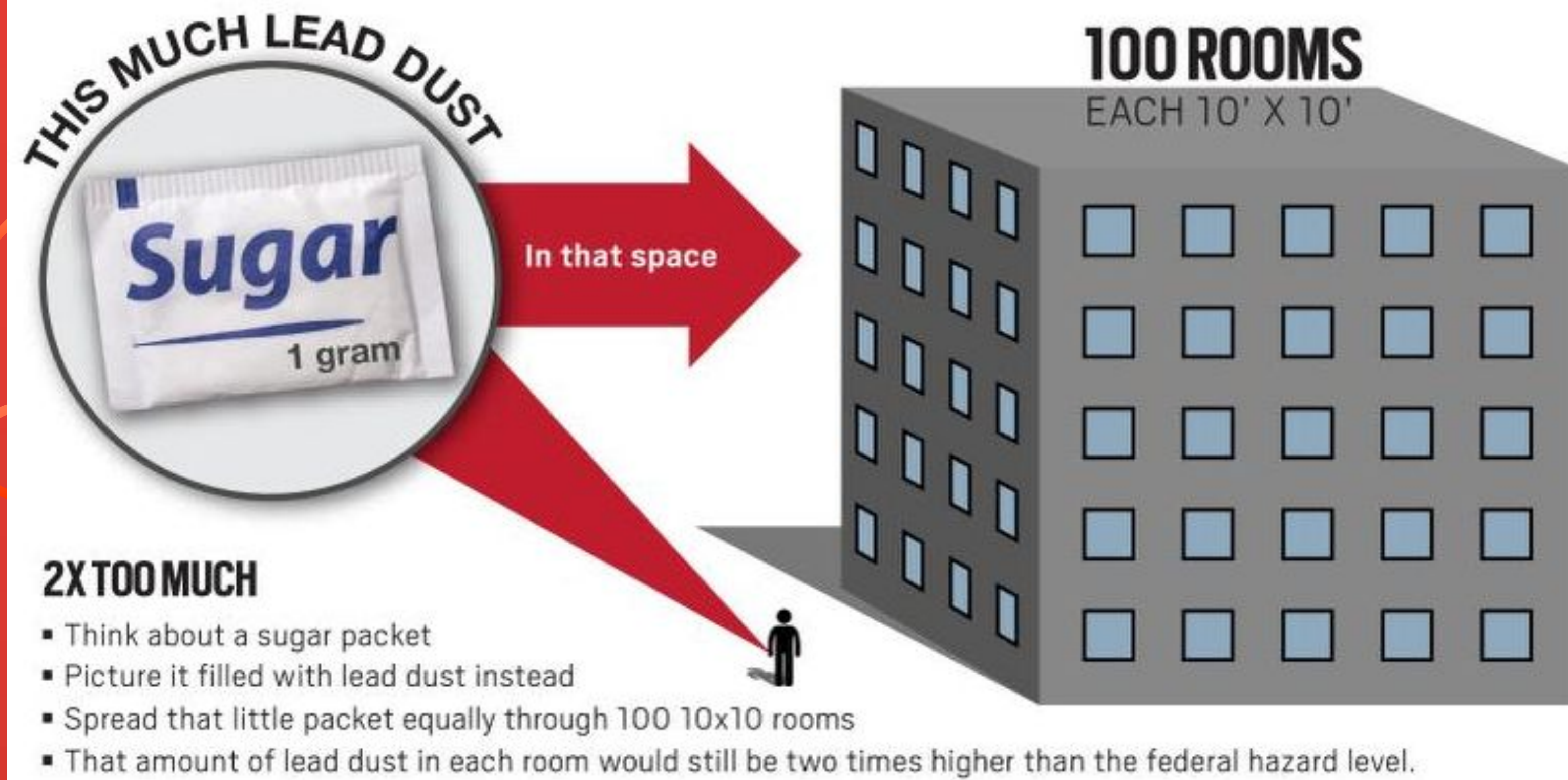




# Is any level of lead safe in the body?

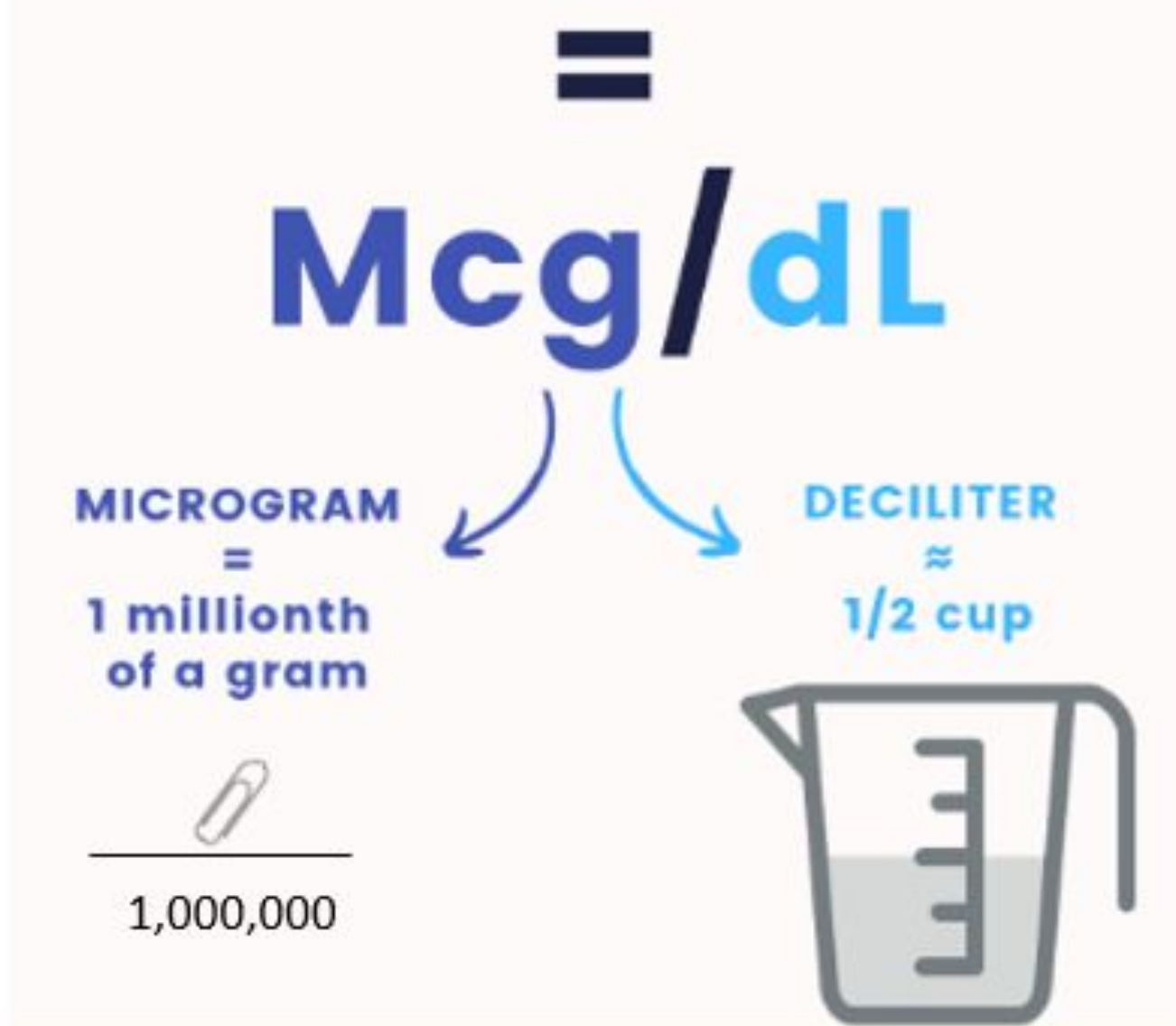
## HOW MUCH LEAD IS DANGEROUS?

Even low levels of lead exposure can damage the nervous system, and high levels of exposure can lead to coma or death. The Centers for Disease Control and Prevention say there is no safe blood lead level in children. Paint containing lead can deteriorate or chip, leaving traces of lead dust at dangerous levels.

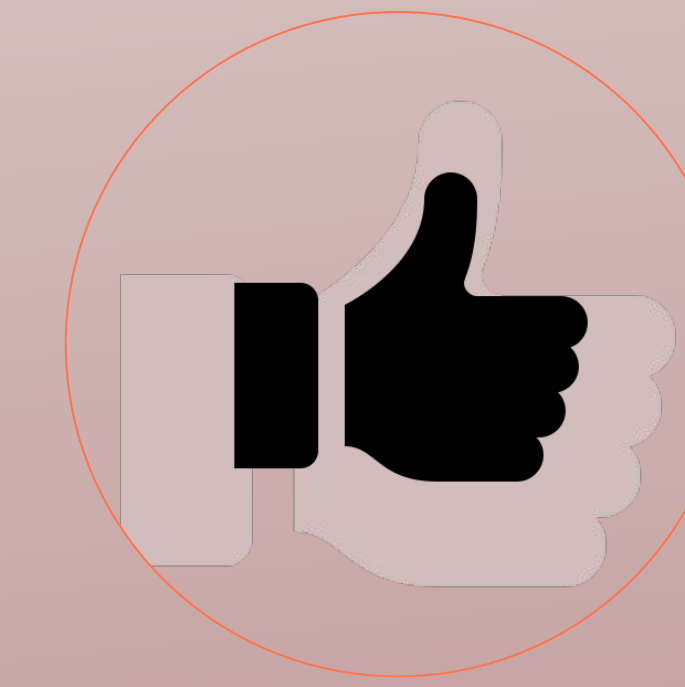


Video on the danger of lead

## BLOOD LEAD



# Can Lead Poisoning Ever Go Away?

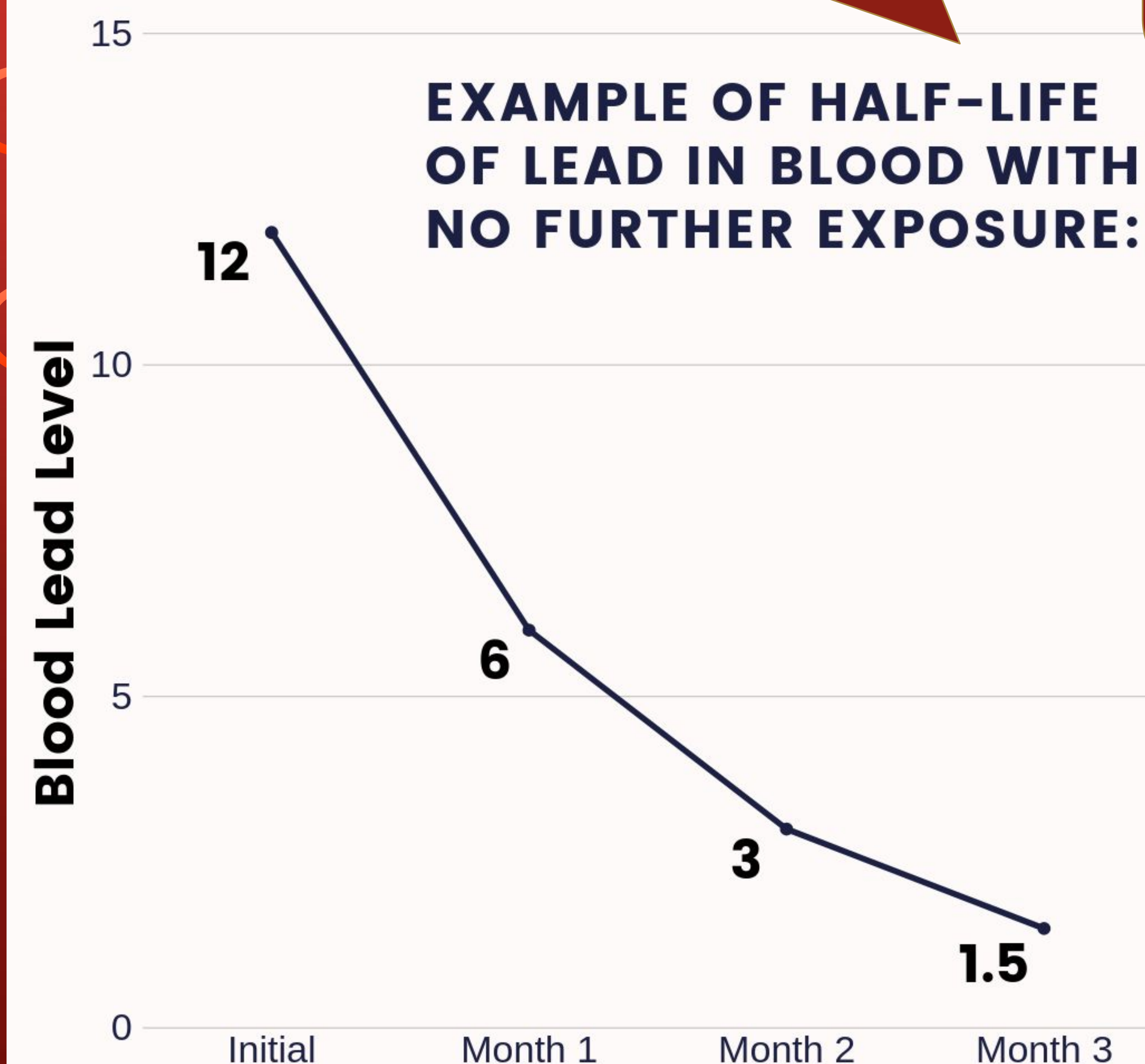


Yes, for sure.



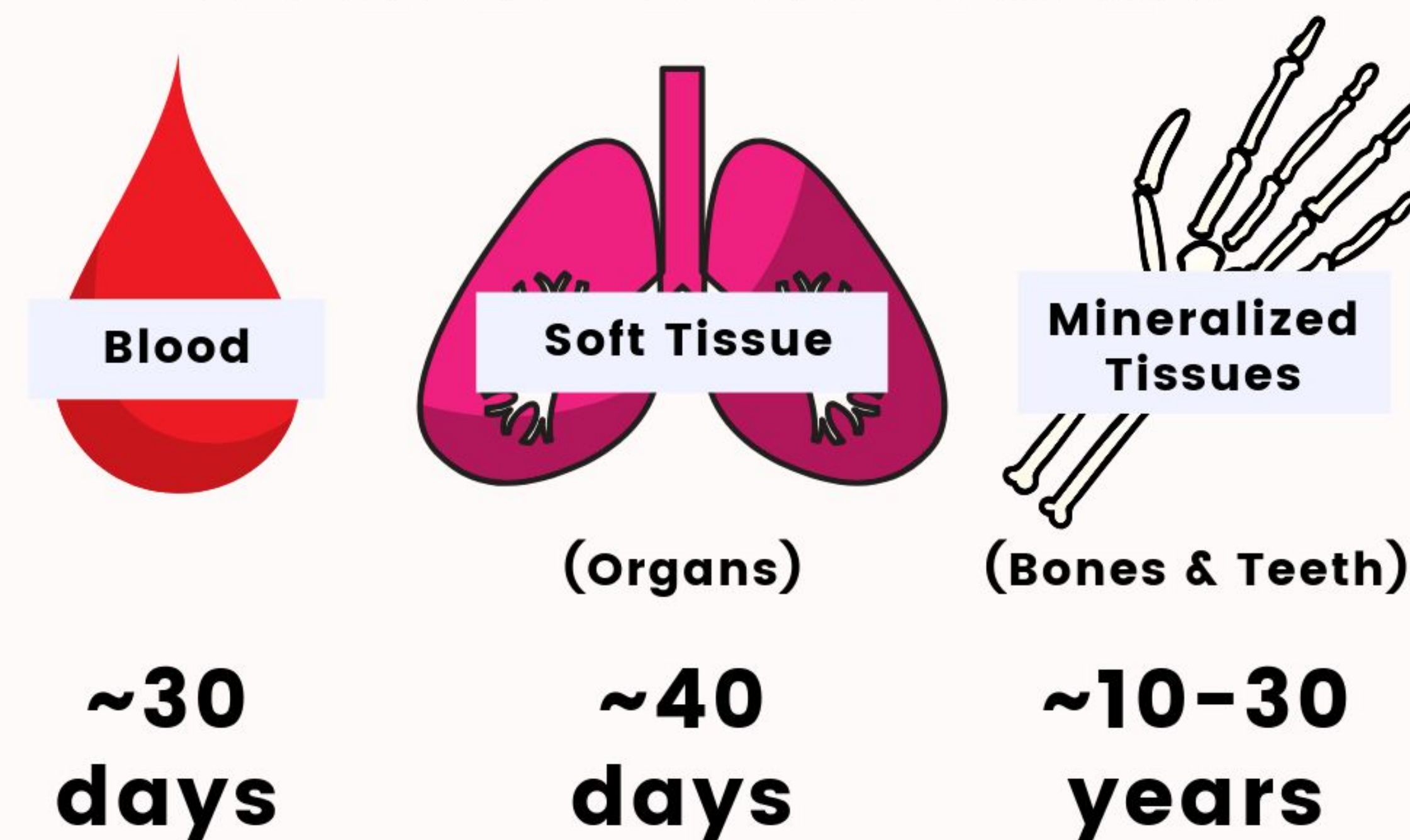
No, I'm confident.

## What is half-life?



## The time it takes something to be cut in half.

### The Half-Life of Lead Varies:



Half-life is kind of like shelf-life with food



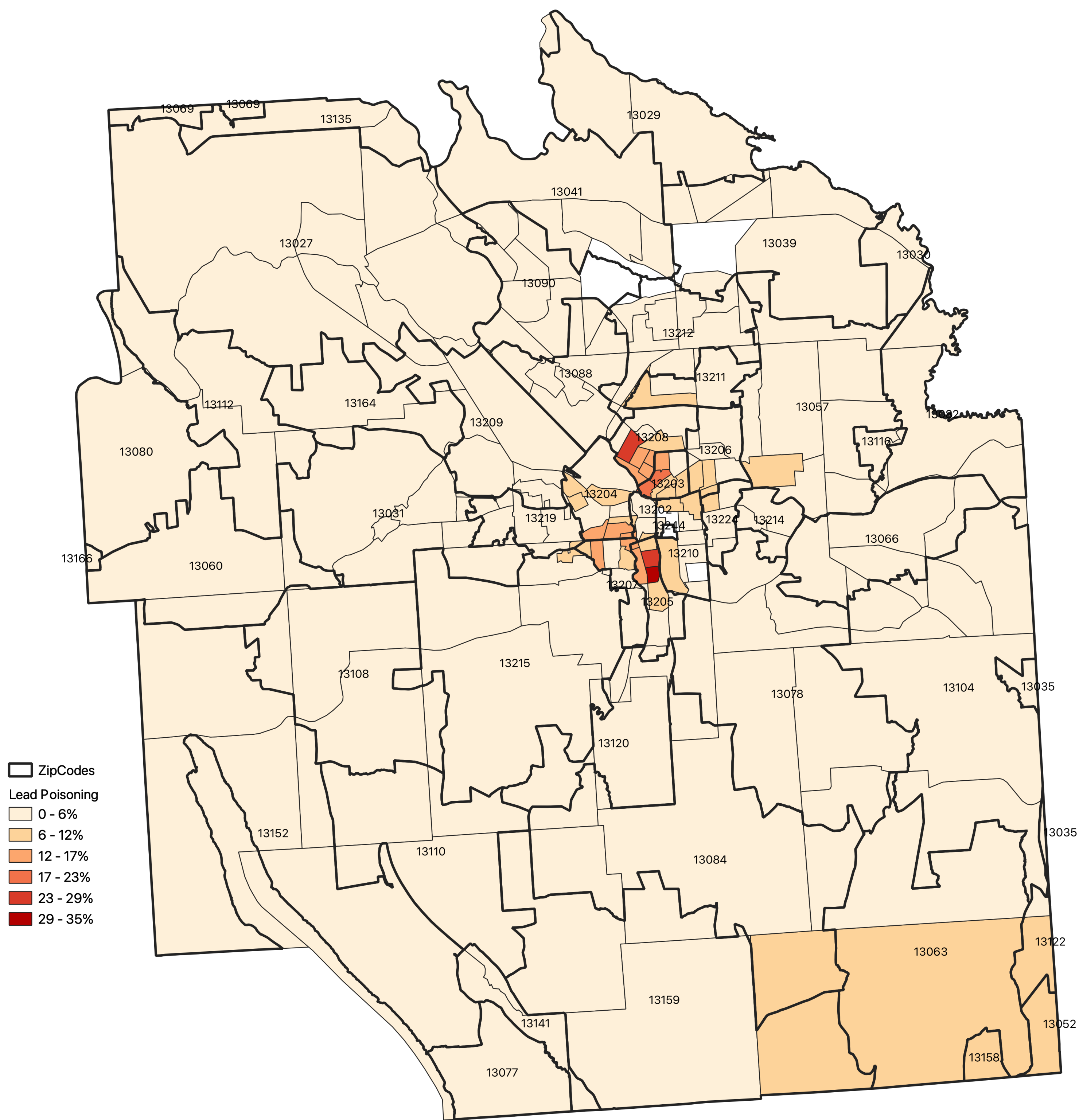
Twinkies have a shelf-life of 26 days

Yeah—or think of how medicine fades after a while.

Tylenol half-life is about 3 hours, and is mostly gone in 12 hours.



Percent of Tested Children with Blood Lead Levels of  $\geq 5$ mcg/dL (2021)



# Lead Poisoning in Syracuse NY

Why is this important?

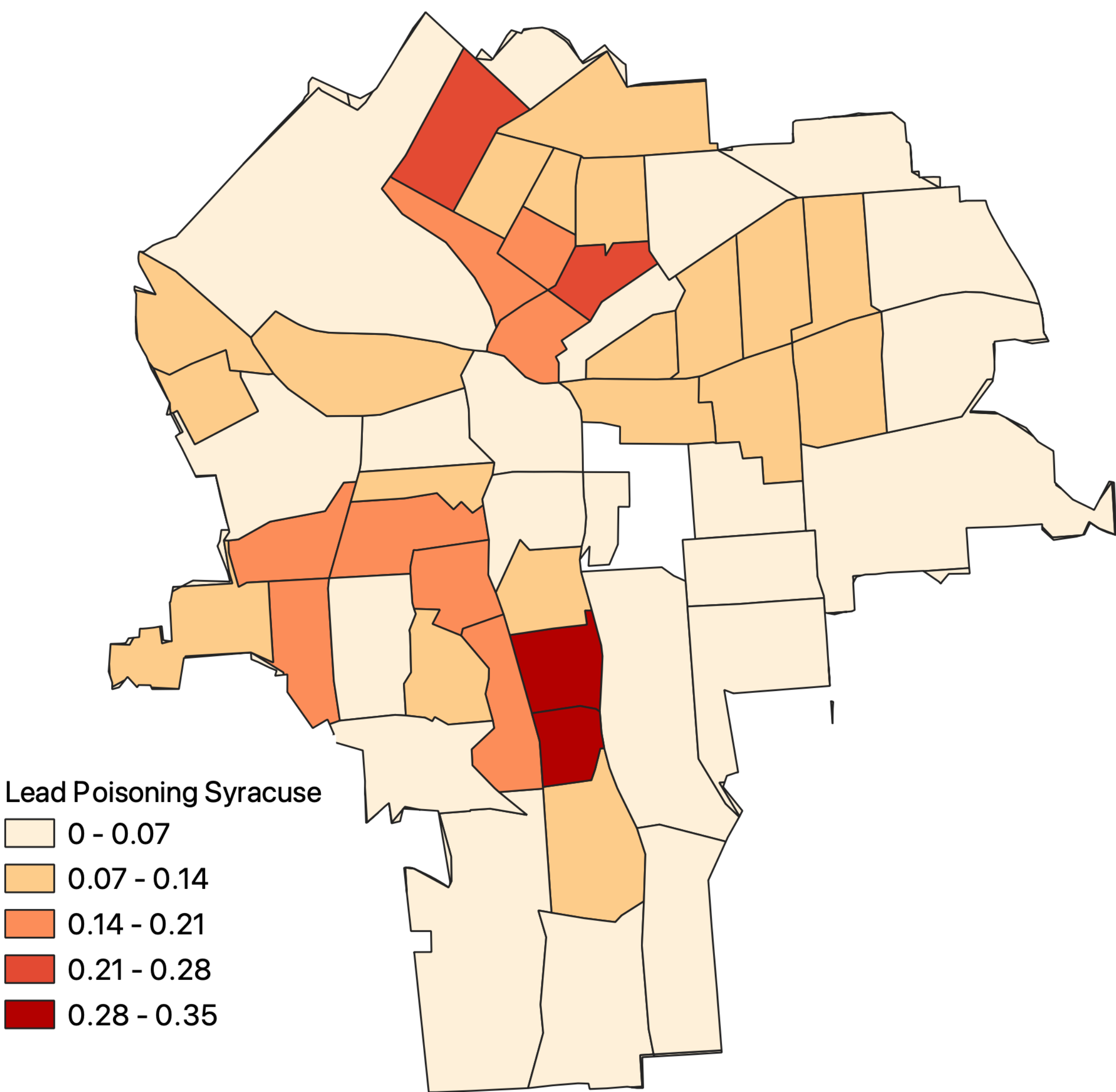
- Lead is an issue of environmental racism
- Lead poisoning is worse in zip codes starting in 132...
- Lead poisoning is more common in areas with lower values homes and in low-income areas
- Lead poisoning occurs most in predominantly Black communities

What are the connections between these maps?

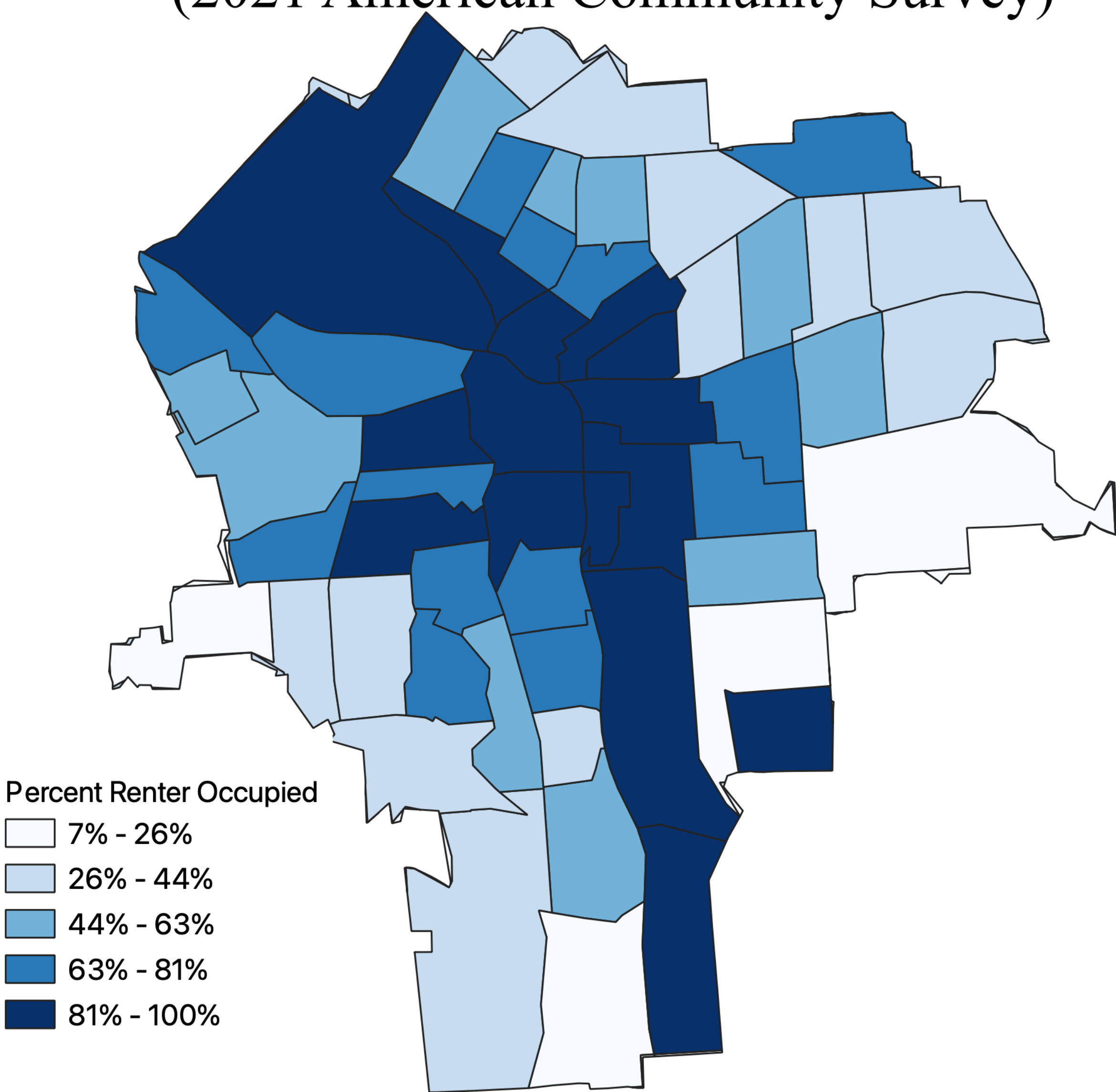
What patterns do you notice?

What other variables might be important to consider when talking about lead poisoning?

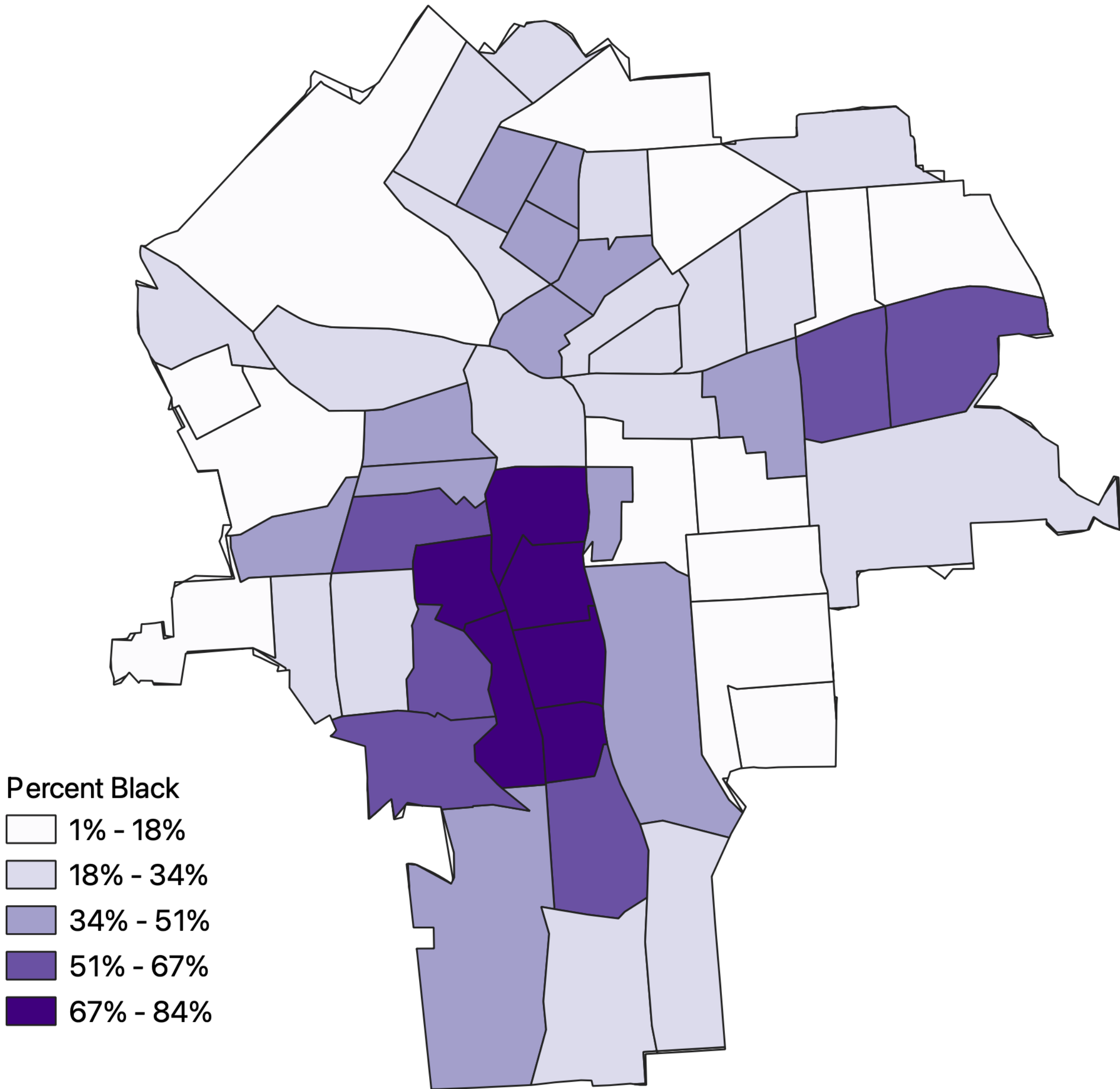
Percent of Tested Children with Blood Lead Levels of  $\geq 5$ mcg/dL (2021)



Percent Renter Occupied Housing Units (2021 American Community Survey)



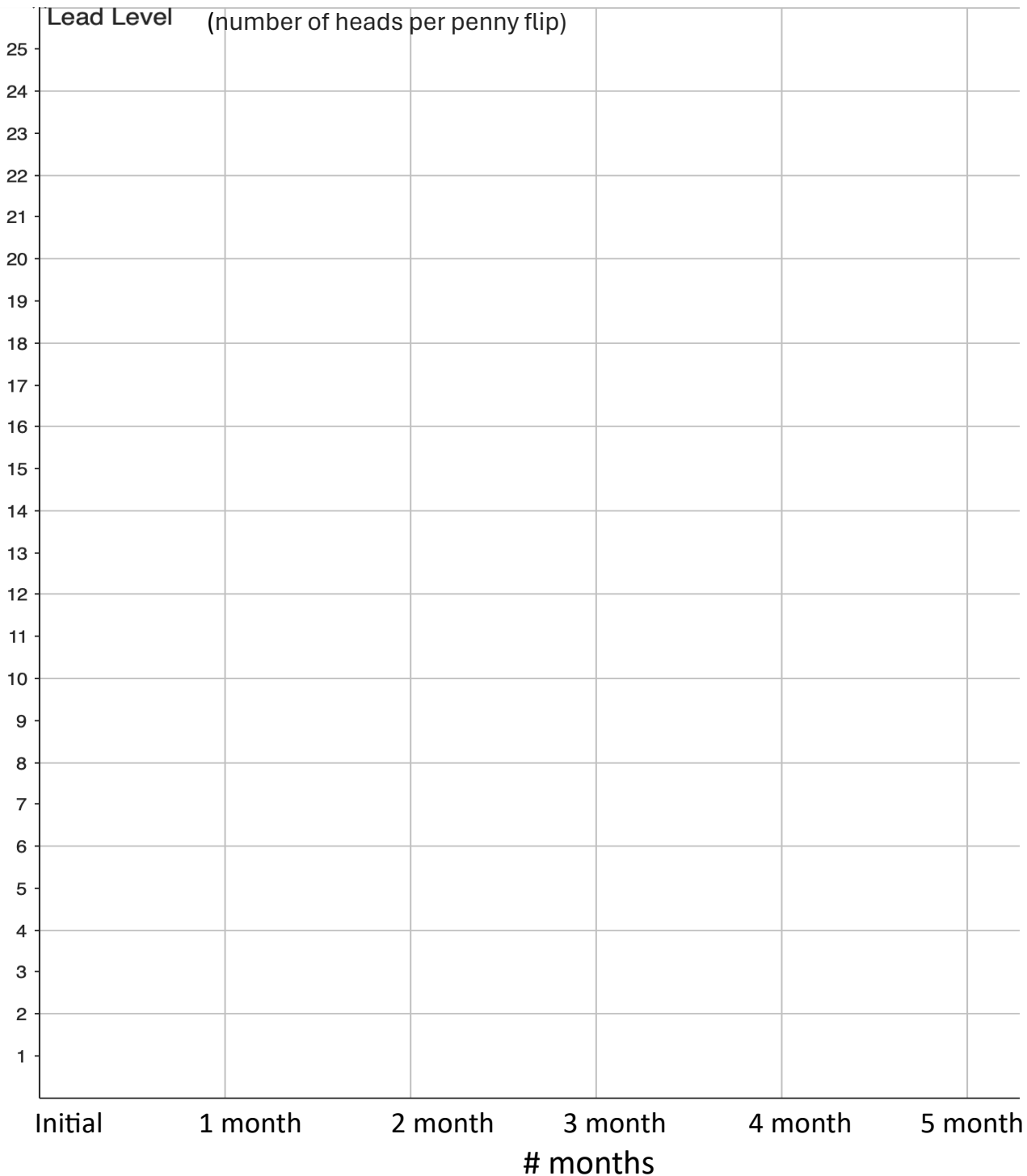
Percent Black (2020 Census)





# Data collection sheet for the experiment representing half-life

1. Plot the data on the graph below as you conduct the experiment. Each ordered pair is *(month, blood lead level)*. Or, *(iteration of experiment, number of pennies flipped as "heads")*.




2. Connect the data points. Do you see a trendline? Explain your findings.



## COMMUNITY ENGAGEMENT

### I'm a Parent

- Get your family tested for lead!
- Your child may be eligible for special services in school
- There are ways to reduce lead poisoning! 

### I rent my home



- Know your rights! 
- Find out if your home has lead, possibly with a free inspection 
- Learn more by watching this video: 

What  
do I do  
if...

### I'm a Student

- Discuss with parents about any concerns
- Tell your parents you want to be tested for lead!
- Get involved! Join our work at Truth Seekers or connect with local partners

### I'm a Landlord or Homeowner

- Landlords must disclose lead information to potential renters
- You may be able to receive a free lead inspection
- You may be able to receive  funds for removing lead paint
- More information 

Fill out our feedback form before you go!



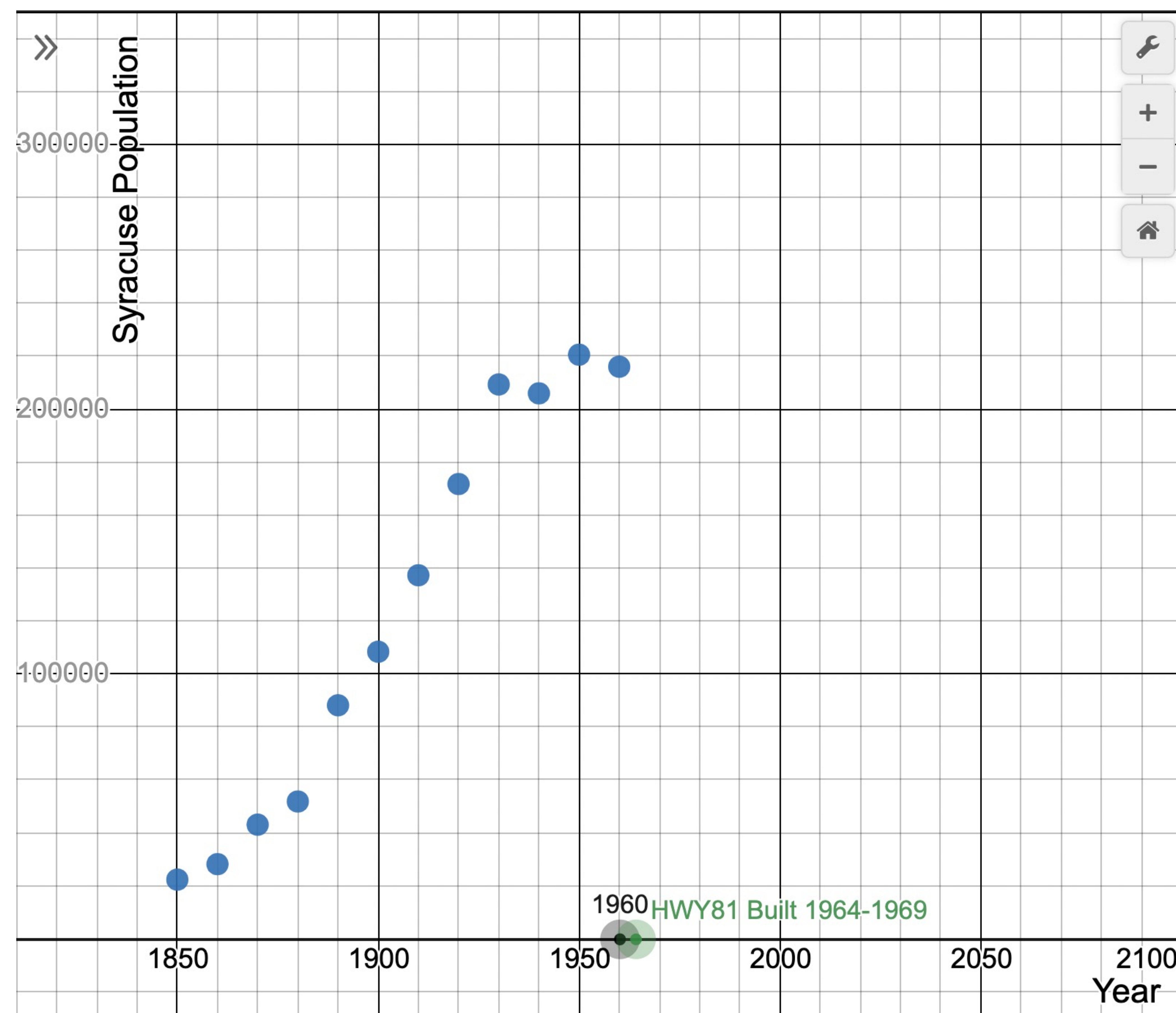
# How has Highway 81 Affected Syracuse's Population?

## Predict Syracuse's Population with Spaghetti!

### Directions:

Hold a piece of spaghetti up to the graph to help you make a guess. Place it on the poster!

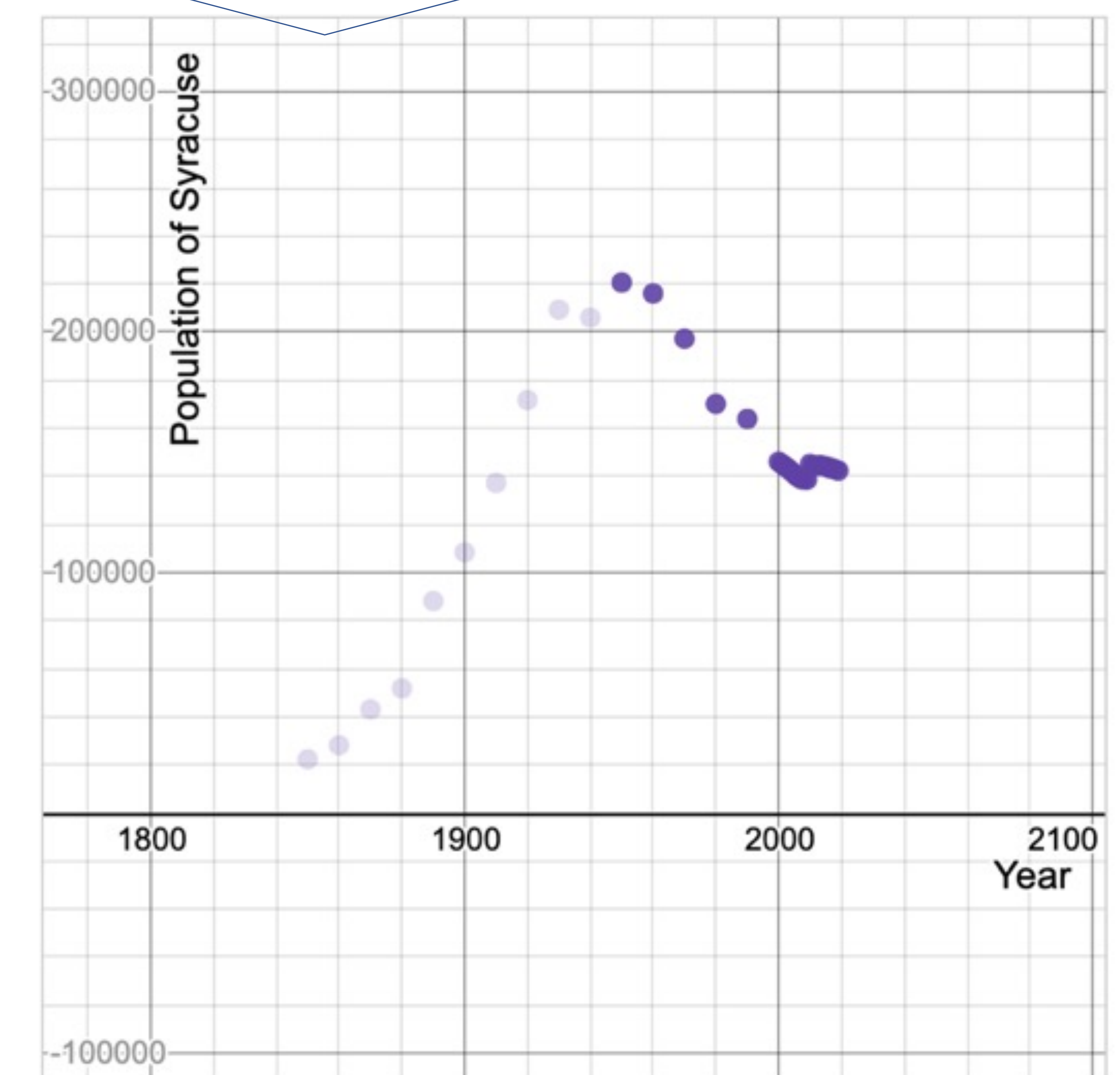
- 1) If you only had data up to 1920, what would you predict for Syracuse's population in 1960?
- 2) What if you had data up to 1940?
- 3) What if you looked at data only from 1940-1956?



"the 1956 Federal Highway Act ... authorized money for the construction of the Interstate system. A strong highway network, city leaders argued, would make Syracuse one of the largest cities in the country because people would be able to easily commute to downtown from outlying areas."

Source: How to Decimate a City. *The Atlantic* <http://amp.theatlantic.com/amp/article/416892/>

City planners **predicted** that Highway 81 would support **population growth** in Syracuse. Did their predictions hold true?



Year	Population	Year	Population
2019	142,327	2001	145,056
2018	142,749	2000	146,070
2017	143,396	1990	163,855
2016	143,378	1980	170,105
2015	144,142	1970	197,208
2014	144,263	1960	216,038
2013	144,669	1950	220,583
2012	144,170	1940	205,967
2011	144,392	1930	209,326
2010	145,170	1920	171,717
2009	138,560	1910	137,249
2008	138,629	1900	108,374
2007	138,912	1890	88,143
2006	139,743	1880	51,792
2005	140,939	1870	43,051
2004	142,052	1860	28,119
2003	143,189	1850	22,271
2002	144,143		



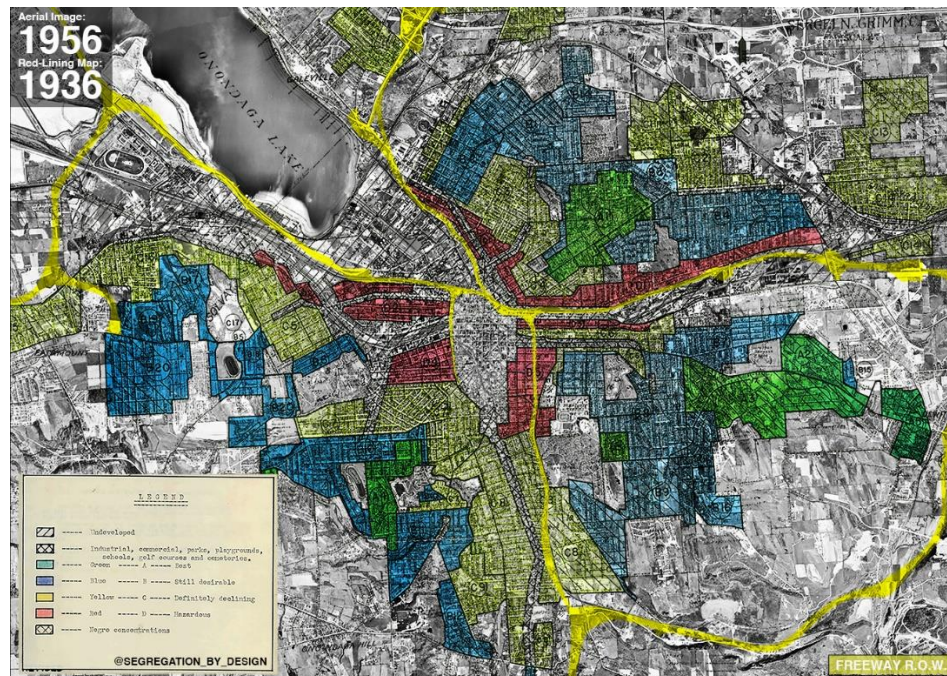


## What is redlining?

[Redlining was a racially discriminatory national housing policy](#) created by the federal government in partnership with local officials and real estate professionals during the Great Depression. This racist public policy denied Black families access to the tools that white Americans used to build generational wealth, and it helped to extend and entrench racial residential segregation in communities across the nation.

In the 1930's, a new federal agency called the Home Owners' Loan Corporation (HOLC) created the practice of "redlining" as part of its attempt to slow a nation-wide wave of mortgage foreclosures. HOLC helped homeowners refinance mortgages over longer amortization periods with lower monthly payments. In this way, the federal government subsidized homeownership for many families.

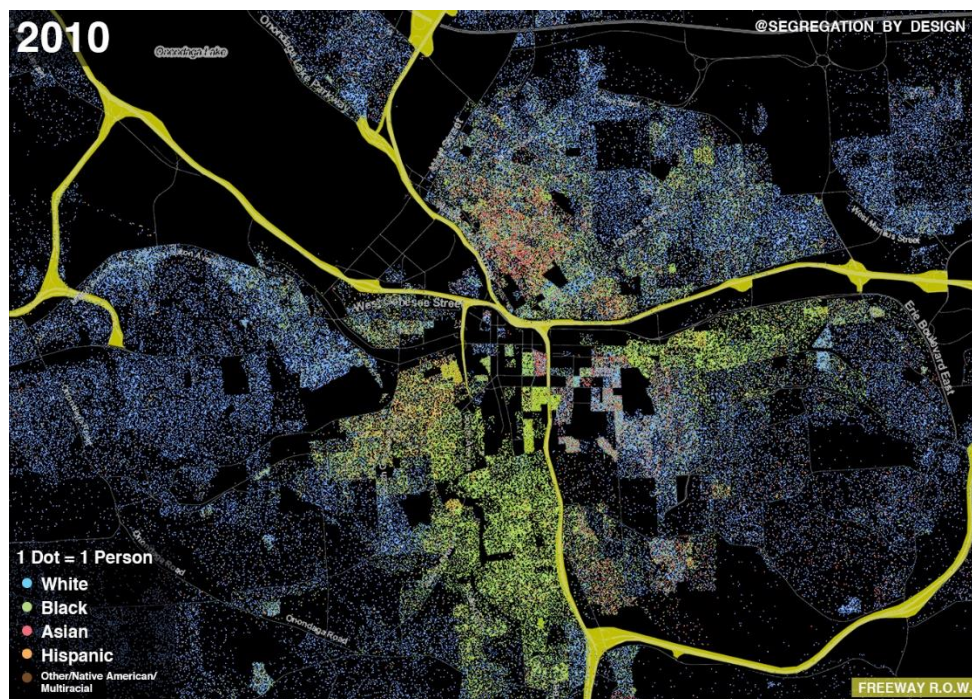
HOLC did not extend this aid to all Americans. To determine whether properties were suitable for refinancing, HOLC worked with local government officials and private real estate agents from 239 cities across the country, including Syracuse, to create "residential security maps." These maps categorized neighborhoods on a four-tier scale. In general, these rankings tended to favor newer, suburban communities and gave the lowest rankings for older, city neighborhoods. Households in highly rated neighborhoods could access financial assistance while families living in poorly rated neighborhoods could not.



## Redlining leads to segregation

In Syracuse, as in other cities, race was an important factor in rating neighborhoods. Areas that were predominately African American, regardless of the condition of the housing or the financial means of local residents, were considered the highest risk for loans and were colored red or “redlined.” In justifying its decision to redline the areas just east of Downtown Syracuse, for instance, HOLC agents referred to the race of people living in those neighborhoods.

By assigning credit worthiness to entire neighborhoods rather than individuals, redlining contributed to housing discrimination and racial residential segregation in two ways. First, it denied Black families the opportunity to build generational wealth through homeownership. Even if they had the ability to repay a loan, Black families could not participate in HOLC's programs because their very existence meant that their neighborhood was redlined and therefore denied federal aid. Second, redlining encouraged white families both to flee integrated neighborhoods and exclude Black families from segregated white neighborhoods in order to preserve their own ability to access federal homeownership aid.



## Blockbusting and “white-flight”

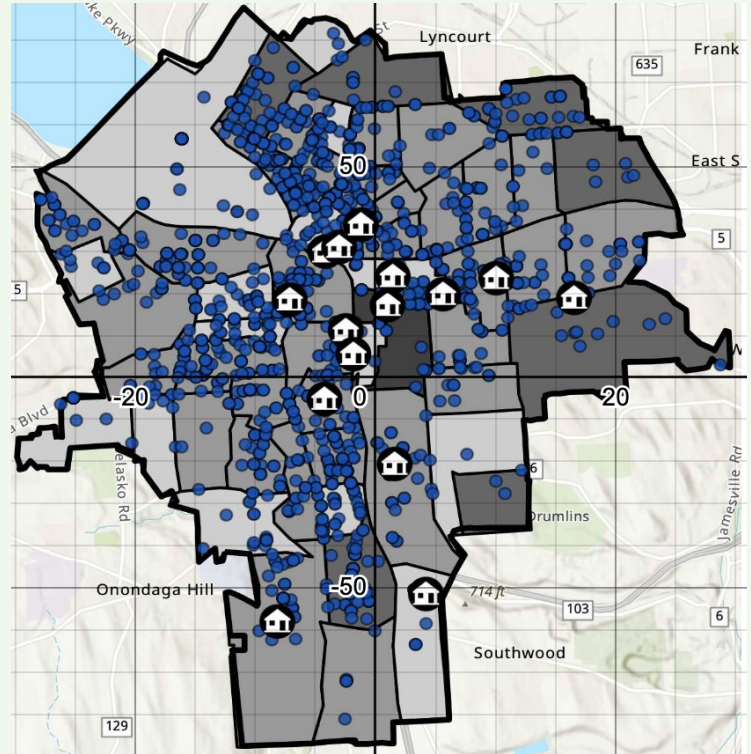
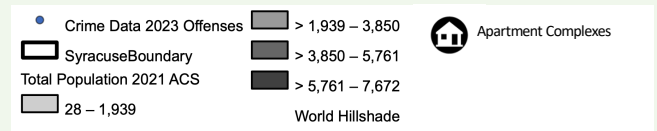
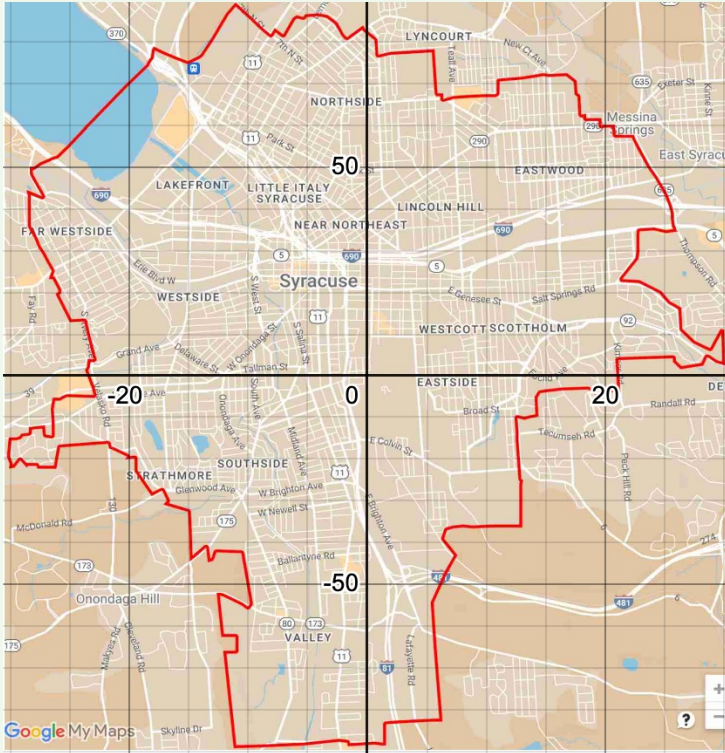
Redlining set the stage for later acts of housing discrimination. Because redlining devalued integrated neighborhoods, real estate speculators could trick white homeowners into selling their properties below market value by suggesting that Black families might soon move into their neighborhood—a practice known as blockbusting. Those speculators would then resell the homes at inflated prices to Black families who had few other options to purchase homes. Often these homes were sold using predatory practices such as land contracts that made homeownership difficult to maintain.

Redlined neighborhoods could not access the financing necessary to invest in basic property maintenance. By the time the federal government began investing in urban renewal, the housing stock in many of these neighborhoods had deteriorated due to the systemic disinvestment caused by redlining. As a result, cities targeted their redlined neighborhoods for demolition and displaced countless Black families in the process.



# HOW CAN MATH AND MAPS BE USED TO UNDERSTAND THE SAFETY OF YOUR COMMUNITY?

## WHERE DO YOU LIVE?



Do you think there is a correlation between higher densities of population and higher densities of reported crime?

YES

NO

WHY?

YES

I think this because more populated areas tend to have more crime.

I think this because I guess the more people there is the easier to do crimes and be hard to find.

I think this because the the low the population the less the police check on them and more crimes happens more often.

Why do you think these correlations exist or do not exist? Do you think any of the variables have a causal relationship (does one cause the others)?

Why do people live in areas of the city that have many cases of reported crime?

Who do you think is responsible for managing this crime?

THINGS WE ARE STILL WONDERING:

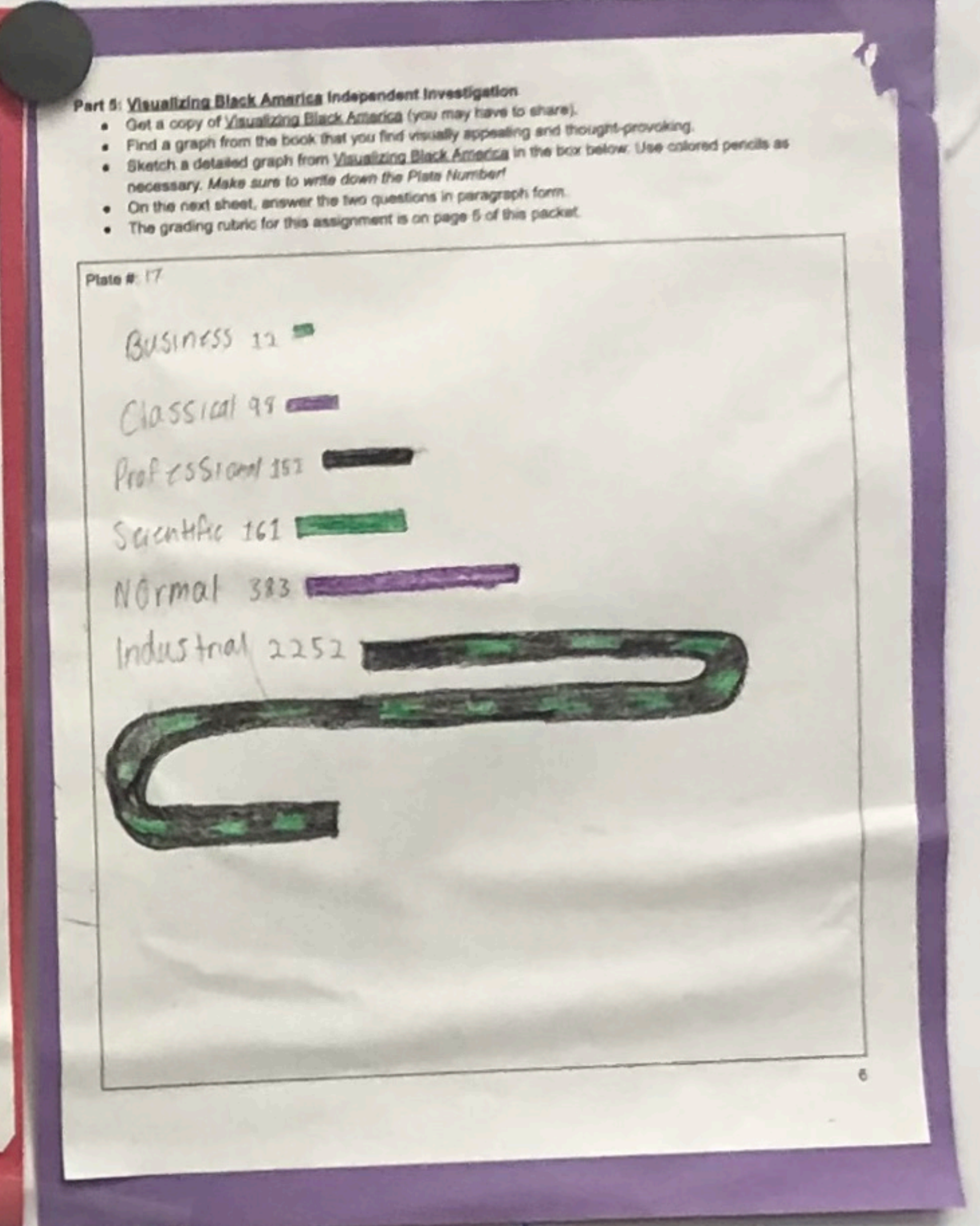
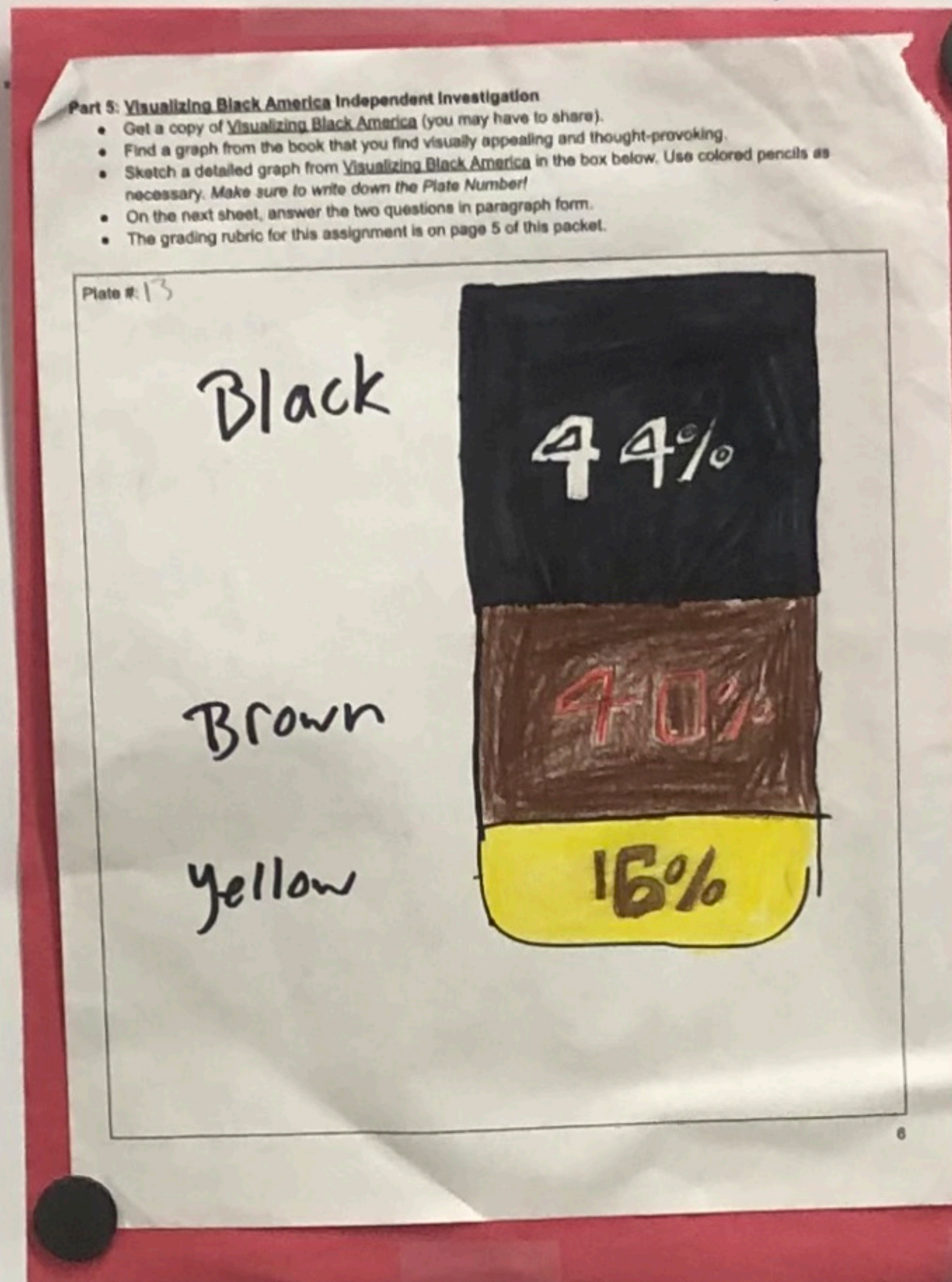


# What are graphs inspiring action?

Graphs inspiring action show data that was collected on a topic and graphed to show a comparison usually between two or more variables, often to represent a story or meaning using the power of math. These graphs were created to evoke meaning and bring awareness to those viewing.

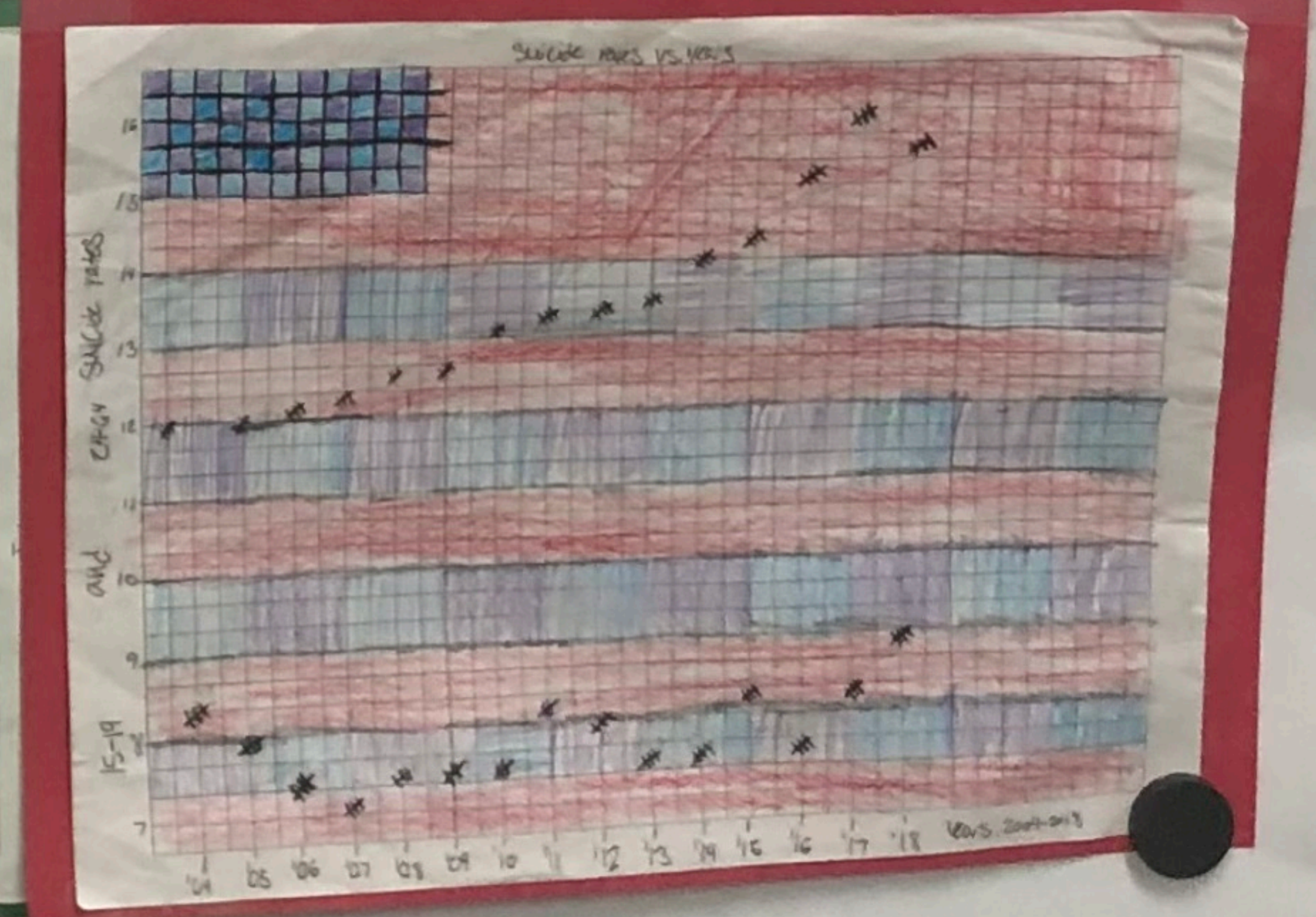
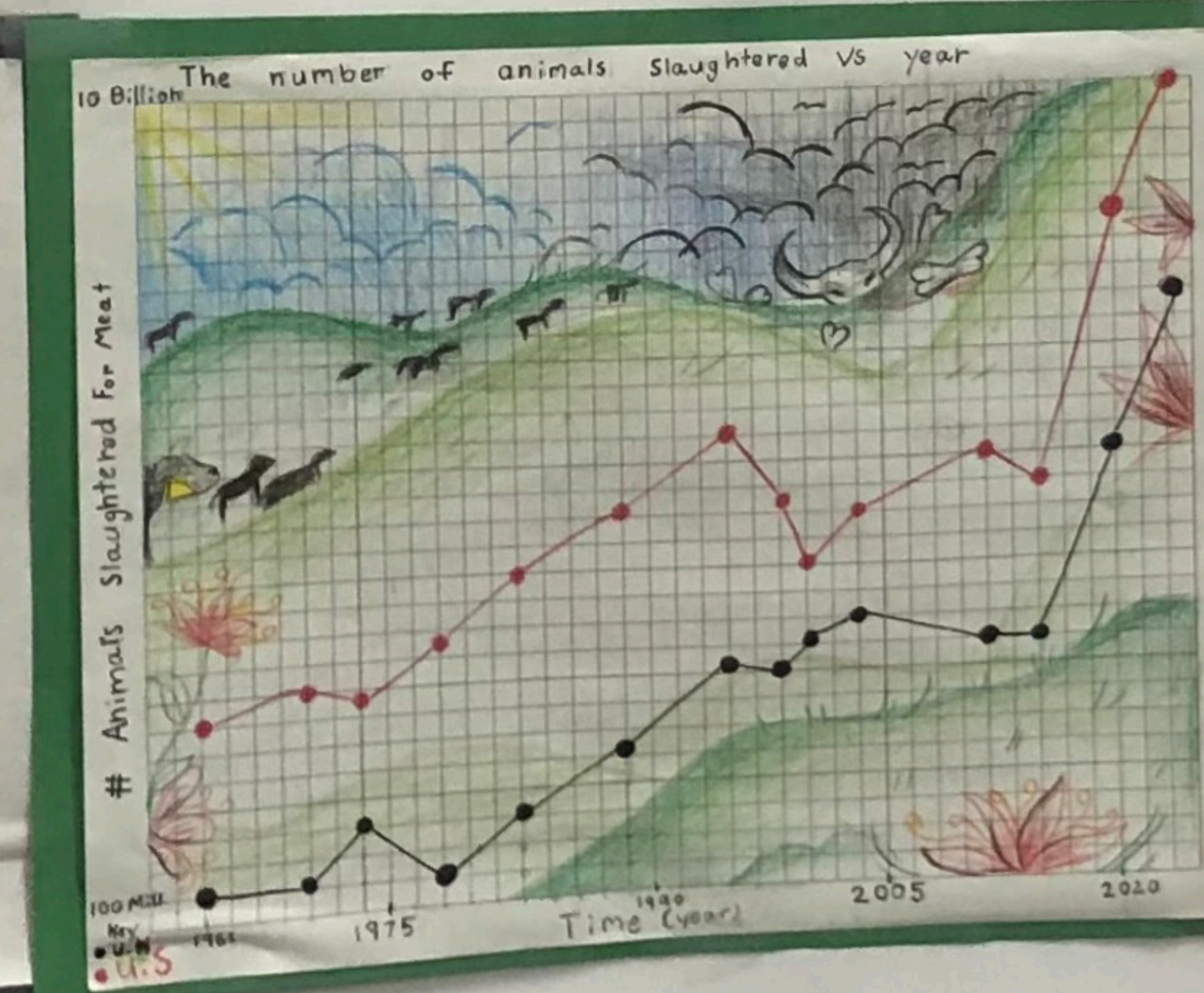
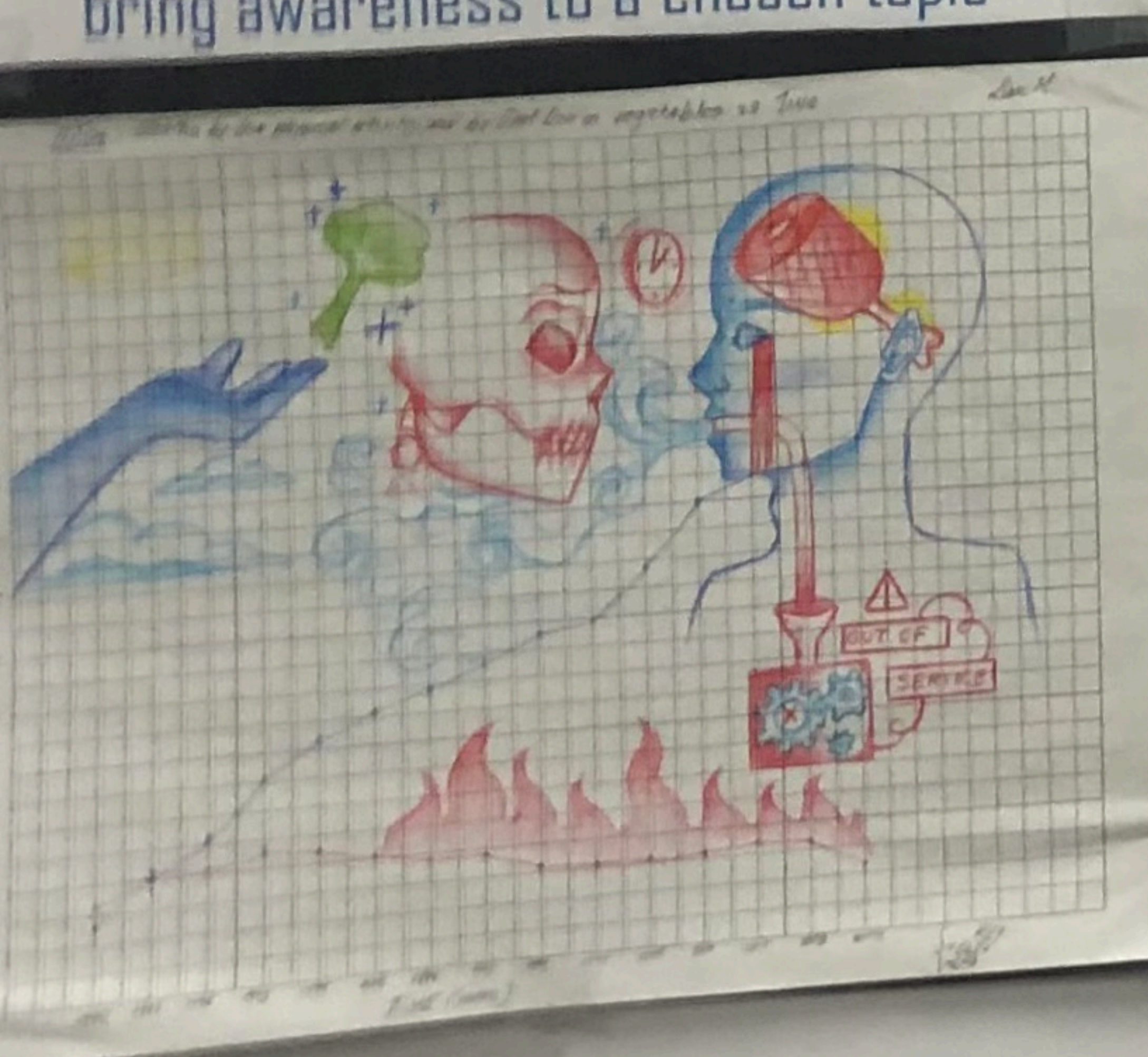
## W.E.B Dubois Graphs

W.E.B Dubois worked with an artist to create graphs to show change and show black Americans a representation of tenacity and to encourage people, especially black people, and show them the numbers over history when fighting against oppression and just how something can go from 0 to 100 with enough tenacity.



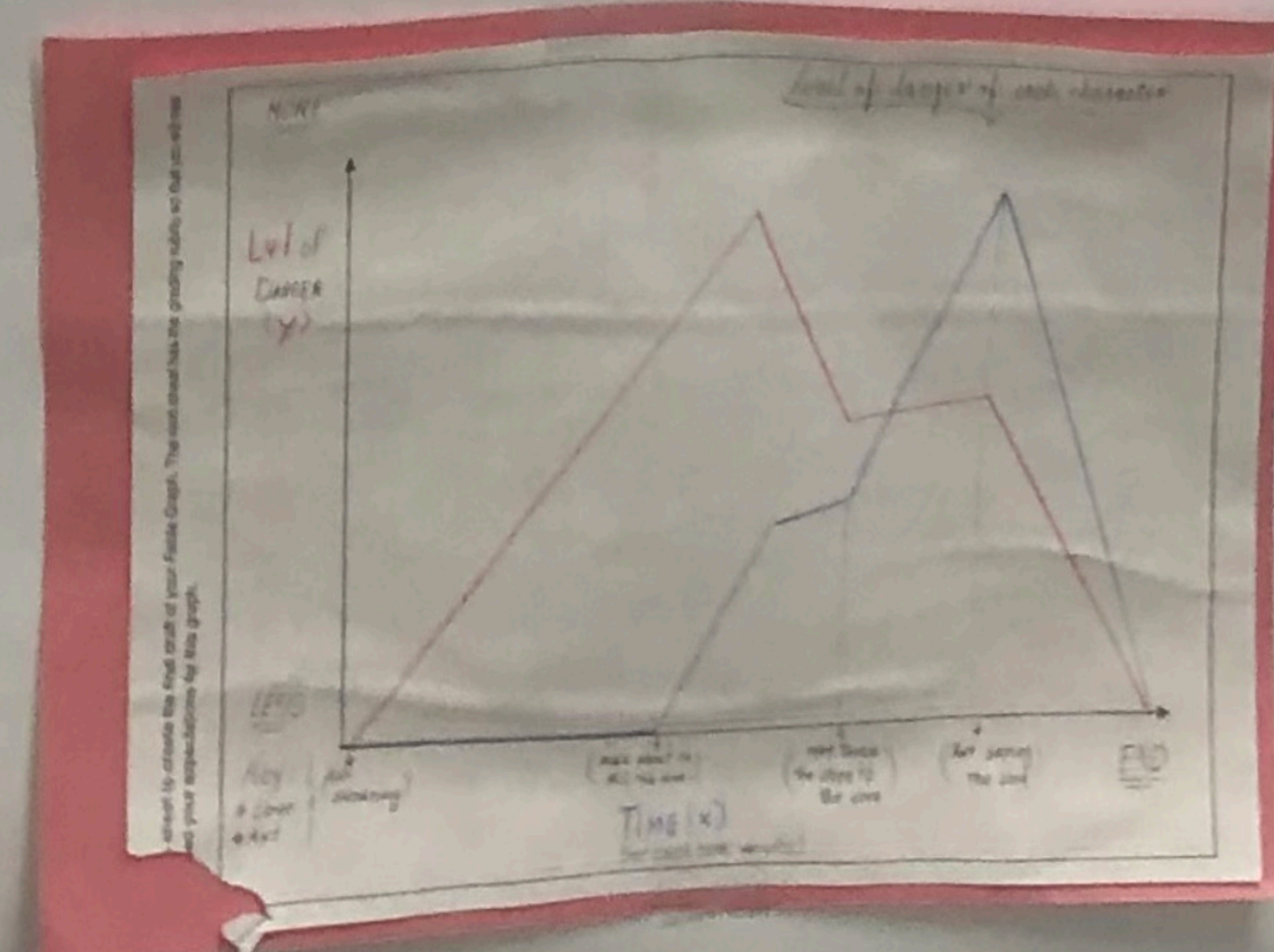
## Jill Pelto Graphs

Jill Pelto is an artist who deals with global environment issues, by incorporating her art style with graphing to show negative or positives changes. The graphs brought today were created by 9<sup>th</sup> grade students, who were inspired by Jill Pelto, and used art and graphing to bring awareness to a chosen topic

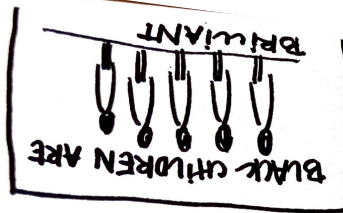


## Fable Graphs

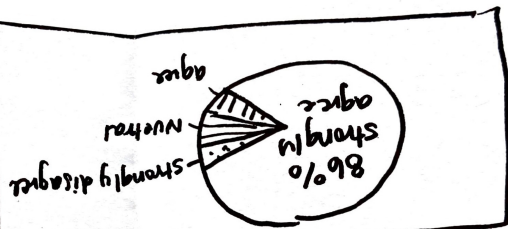
The fables graphs here were created by 9<sup>th</sup> grade class, with the purpose of showing a story threw a graph. All graphs show a story between two variables, by incorporating creativity and art to with mathematics to show the relation between two characters found in a fable.





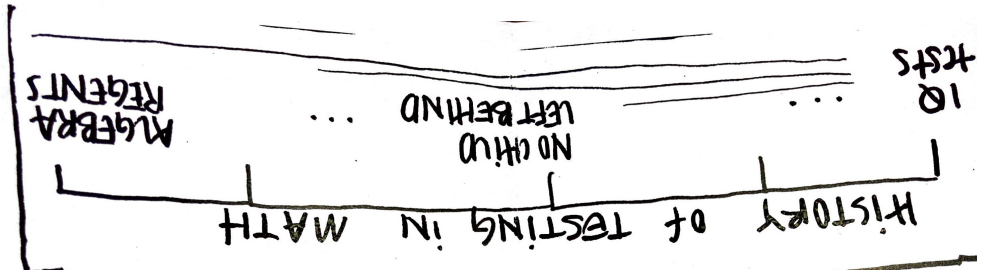


MATH  
TEACHERS' IDEOLOGIES MATTER



Math of 96 teachers surveyed in Oct. 2021... 5 strongly disagreed with this statement

"BLACK CHILDREN ARE CAPABLE OF ACHIEVING THE SAME LEVEL OF MATHEMATICS ACHIEVEMENT AS WHITE STUDENTS"



→ ORIGINAL 10 TESTS CREATED TO IMPROVE RACIAL HIERARCHY  
MYTH  
→ TODAY'S TESTS ARE BIASED, TOO

WE OVERTEST IN MATH...  
TEST TEST TEST TEST

THE ANTIRACIST ALGEBRA IS A COALITION COMMUNITY-ENGAGED EFFORT

WE IMAGINE ANTIRACIST FUTURES...

- ✓ FREE OF RACIAL HIERARCHY IN MATH CAPABILITY
- ✓ THAT HONOR STUDENTS RACIALIZED EXPERIENCES IN MATH
- ✓ EMBED INCLUSIVE CURRICULUM, ASSESSMENT

✓ NFONGER@SYR.EDU

HOW CAN MATH BE RACIST?

ALGEBRA ANTIRACISM

ZINE BY PROF. NICOLE FONGER

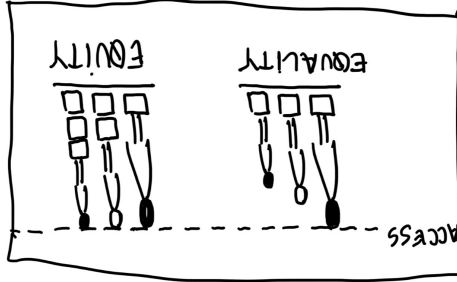
WHEN YOU LEARNED FRACTIONS...

SHARING PIZZA 2 PICES PER PERSON

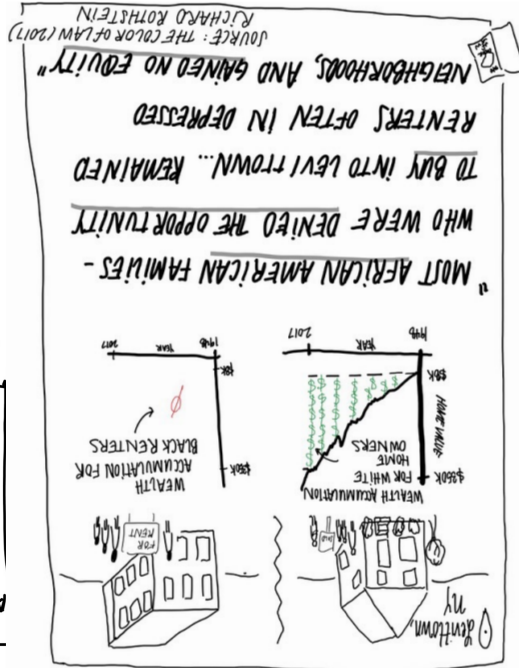
WAS IT MEANINGFUL TO YOU? YOUR COMMUNITY?

SCHOOL FUNDING

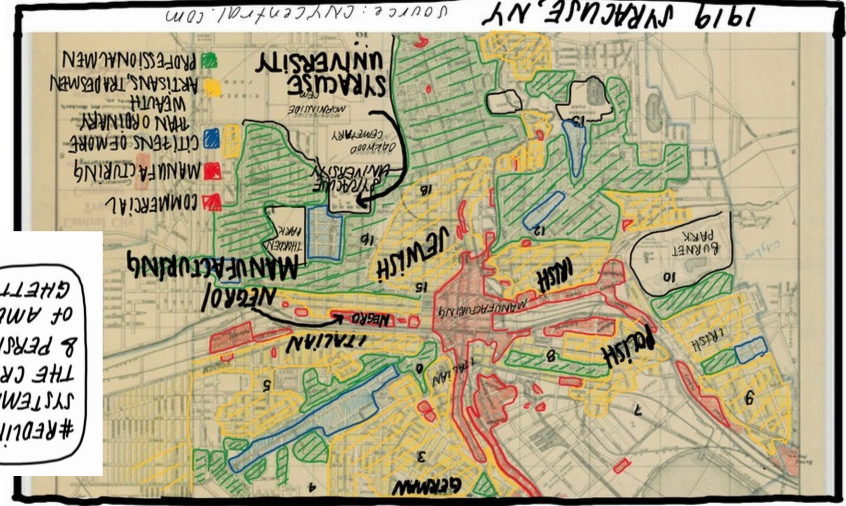




CAN THE INEQUITIES OF REDLINING EVER RESULT IN EQUITY?



#REDLINING  
THE CREATION  
OF AMERICA'S  
GHETTOS



**REDLINING**  
IS A DISCRIMINATORY PRACTICE IN WHICH PEOPLE ARE DENIED ACCESS TO FINANCIAL SERVICES & DUE TO THEIR RACE & OR ETHNICITY



REACH OUT  
@SYRACUSEUDIVERSITY  
OFFICE OF DIVERSITY  
AND INCLUSION  
STEELE HALL

BUT WHAT EXACTLY IS A GHETTO?

