Assignment #3

"Color Outside the Lines; Think Outside the Box"

Day 3: Reason abstractly and quantitatively.

Objective: You will make connections to better understand the relationships between problem scenarios and mathematical representation (maps, plans, itineraries, etc.), and strategies for solution.

Rationale: Albert Einstein, one of the most widely recognized critical thinkers, once said if he were given an hour to solve a problem, he'd likely spend 5 minutes on the solution and the other 55 minutes defining and researching the problem. Like Einstein, you, too, should analyze the problem from all angles while making connections before proposing a solution.

Goal: Analyze the values that define your own town and make connections to how those values are represented in the community.

Key Terms: values, densification, biophilic, credibility

Materials & Resources:

Social Studies: Overpass park designed to celebrate Hill District history (*Pittsburgh Post-Gazette)*
ELA: Stage 2 of the Writing Process; Problem Solution Paragraphs; Persuasion Rubric; Persuasive Writing Words and Phrases
Math: Animated Map: Visualizing 200 Years of US Population Density
Science: Kids who grow up near green space have better mental health (*Quartz*)

ACTIVITIES:

Social Studies

- **Read** the article: *Overpass Park Designed to Celebrate Hill District History*
- **Explain** the relationship between the design of the "Overpass Park" and the history of that space in the Hill District.
- **Apply** concepts to your own city or town.
    - List 3-5 historical highlights of your town.
    - Write 3 **values*** that you think appropriately represent your town.
    - How would you design a space to appropriately reflect the history and values of *your* community? What people, places, or events would you highlight *in your community*?

ELA

- **Draft** a developed, one-paragraph persuasive argument to express your community needs.
    - Thoroughly explain the problem(s) and your proposed solution(s).
    - Use descriptive language to explain the problem(s) and your proposed solution(s).
    - Include # facts and statistics from research to add **credibility*** to your position.

Math

- **Describe,** in your own words, what you think a scatterplot is.
- **Analyze** the interactive map: Animated Map: Visualizing 200 Years of US Population Density
- **Graph** a (rough) scatter plot of population density versus year.
- **Determine** whether the scatterplot has a positive, negative, or no correlation and **think** about what this means in the context of the problem.
- [Learning Extension]
  If you can access the animated map (follow the link above), watch the population change over time. Choose a decade that demonstrated notable population growth in some part of the country. Make a connection to the events of that time to explain the visible change on the graph. Or ask a question about a specific change you noticed in the interactive map.

  Example: *The map is* populating from east to west up until the 1840s and 1850s when we start to see population boom in California but not in the central region of the country. What may have caused this disruption to the population growth trend?

Science

- **Read** the article: Kids who grow up near green space have better mental health
- **Define densification*** and **biophilic*** design.
- The article states, "Green spaces are 'potentially decreasing the risk of a lot of disorders, and can add up to a lot of potential benefits to a lot of people.'"
  - **Explain** why you think green spaces may potentially decrease the risk of disorders in children. What scientific evidence do you have to support your explanation?