



Tools, Resources, and Activities to Support Data Inquiry and Build Data Literacy



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The Civic Data Project

Social studies teachers focus on inquiry, sourcing, contextualization, and corroboration making these classrooms a rich environment for developing data literacy. The Civic Data project supports teachers in creating opportunities for their students to engage with civic data and use data to make a difference. Working collaboratively, we are developing data-rich resources and activities for social studies that:

- deepen data literacy,
- empower students to use civic data to explore their own questions,
- create inclusive data experiences that have meaning and relevance for students and their communities.

Methods

The project uses an interdisciplinary and collaborative co-design approach to develop resources to support teachers in creating openings for data inquiry. We are learning more about students' engagement with civic data through formative assessment, student interviews, analysis of student work, and classroom observation.

Tools, Resources, and Activities Being Developed by the Project

In 2024, the Civic Data Summer Workshop brought together a team of teachers and researchers to explore free, easy to use tools and resources that engage students with civic data in dynamic and interactive ways. One important tool that we worked with is CODAP. Using CODAP (<https://codap.concord.org>), learners can interact with datasets curated to support social studies inquiry with click and drag moves, creating graphs and maps to explore their own questions. Visit our project website to learn more and access free resources.

<https://www.terc.edu/civic-data-project>



Acknowledgments

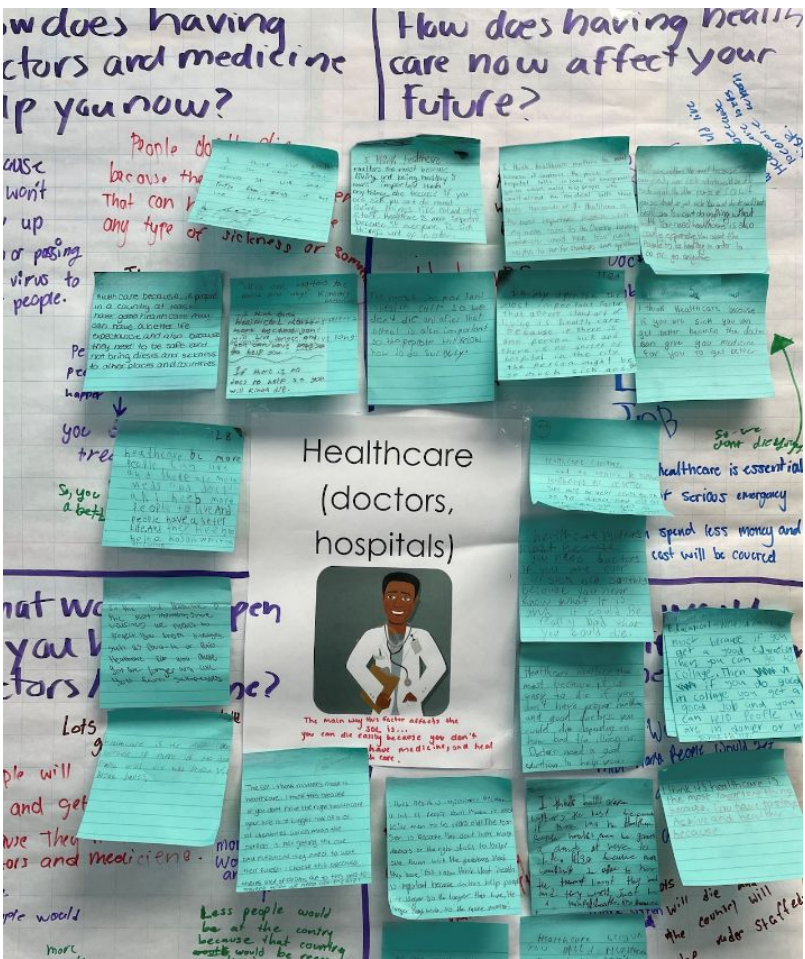
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Exploring the World Through Data

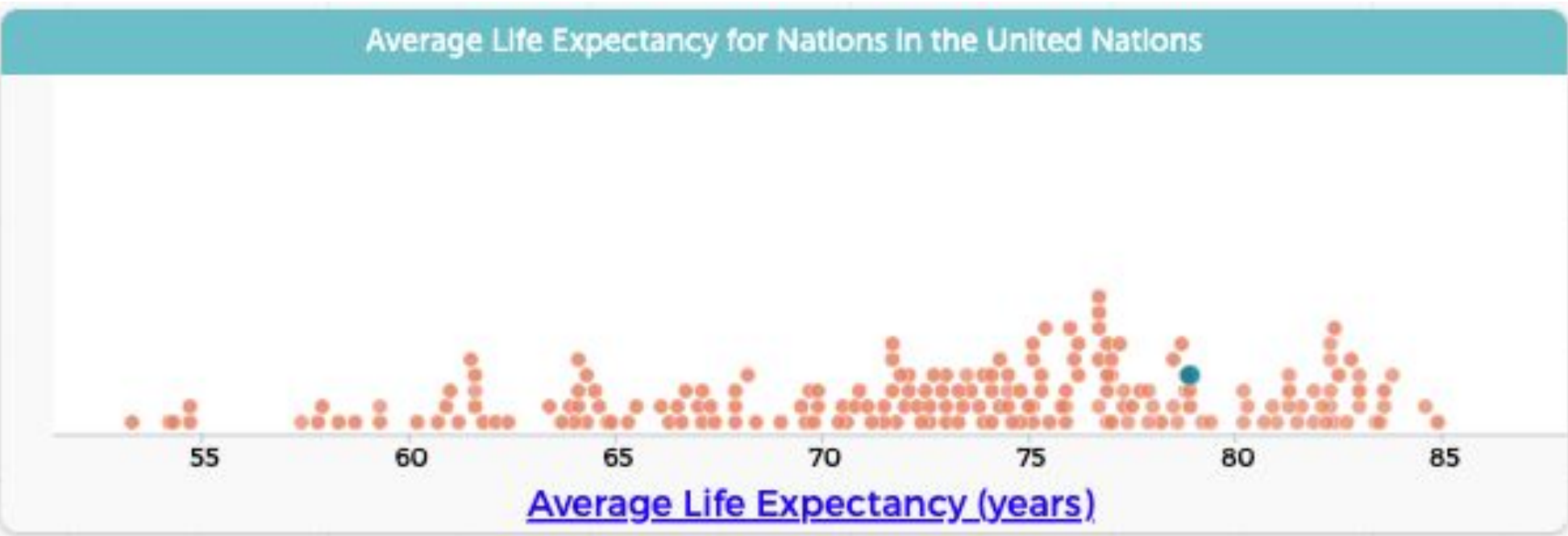
This activity is excerpted from a 6th grade unit occurring late in the academic year examining standard of living for nations around the world.

Before diving into the data, students think about why healthcare would be an important factor to consider when evaluating standard of living. Here we see some of their work:



Having explored why quality healthcare matters, students examine nation-level data on average life expectancy in CODAP. Such data is used as an indicator of the quality of healthcare.

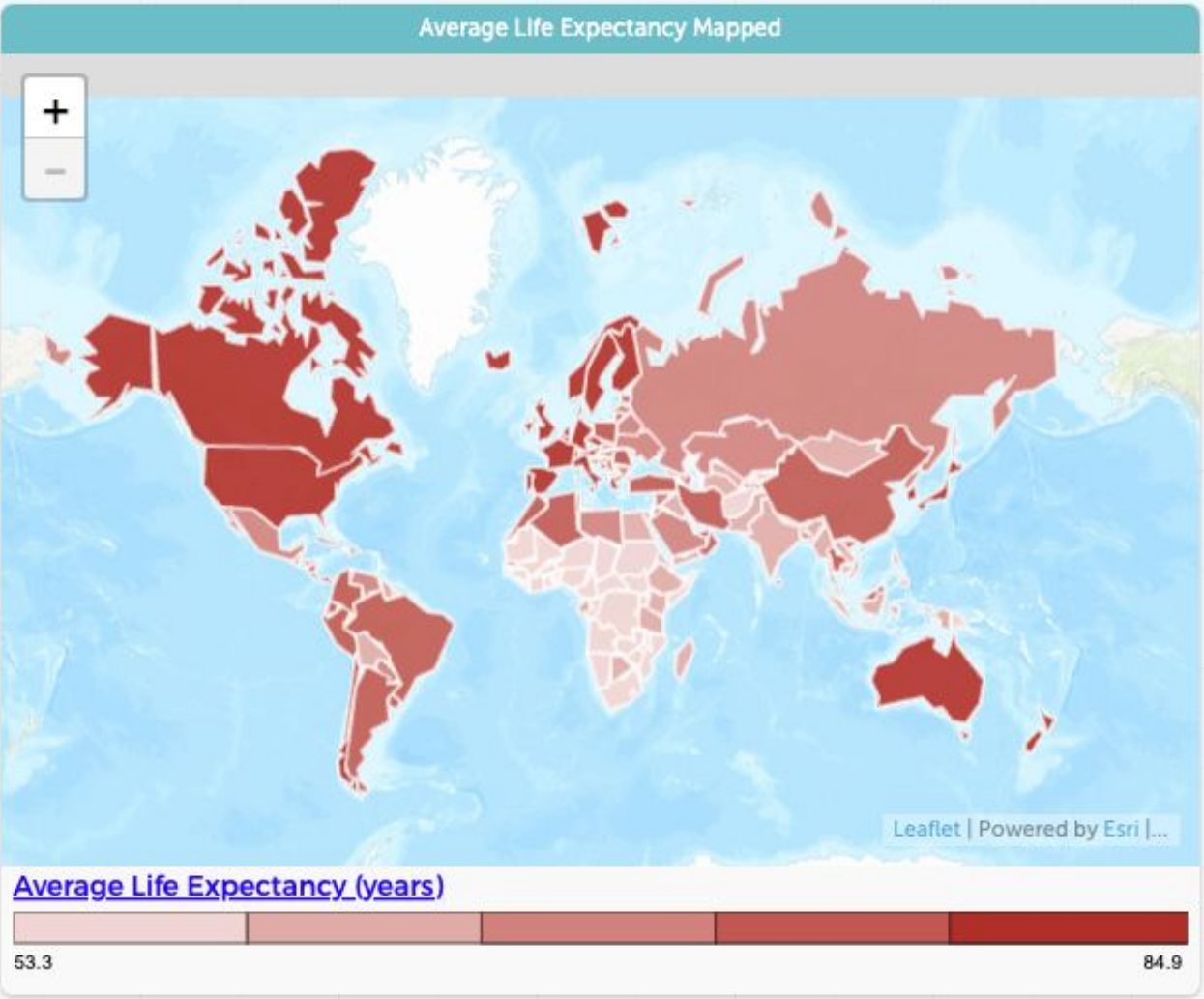
Students use CODAP to graph average life expectancy for nations. Each dot represents a nation within the United Nations. The highlighted dot represents the United States.



1. What are the lowest and highest life expectancies?
2. How big is the gap between the lowest and highest life expectancies?

Insight: The data range from roughly 53 to 85 years. There is a lot of variability! What does it mean for a nation to have an average life expectancy of 53 years? Students wonder which nations have some of the highest and lowest life expectancies.

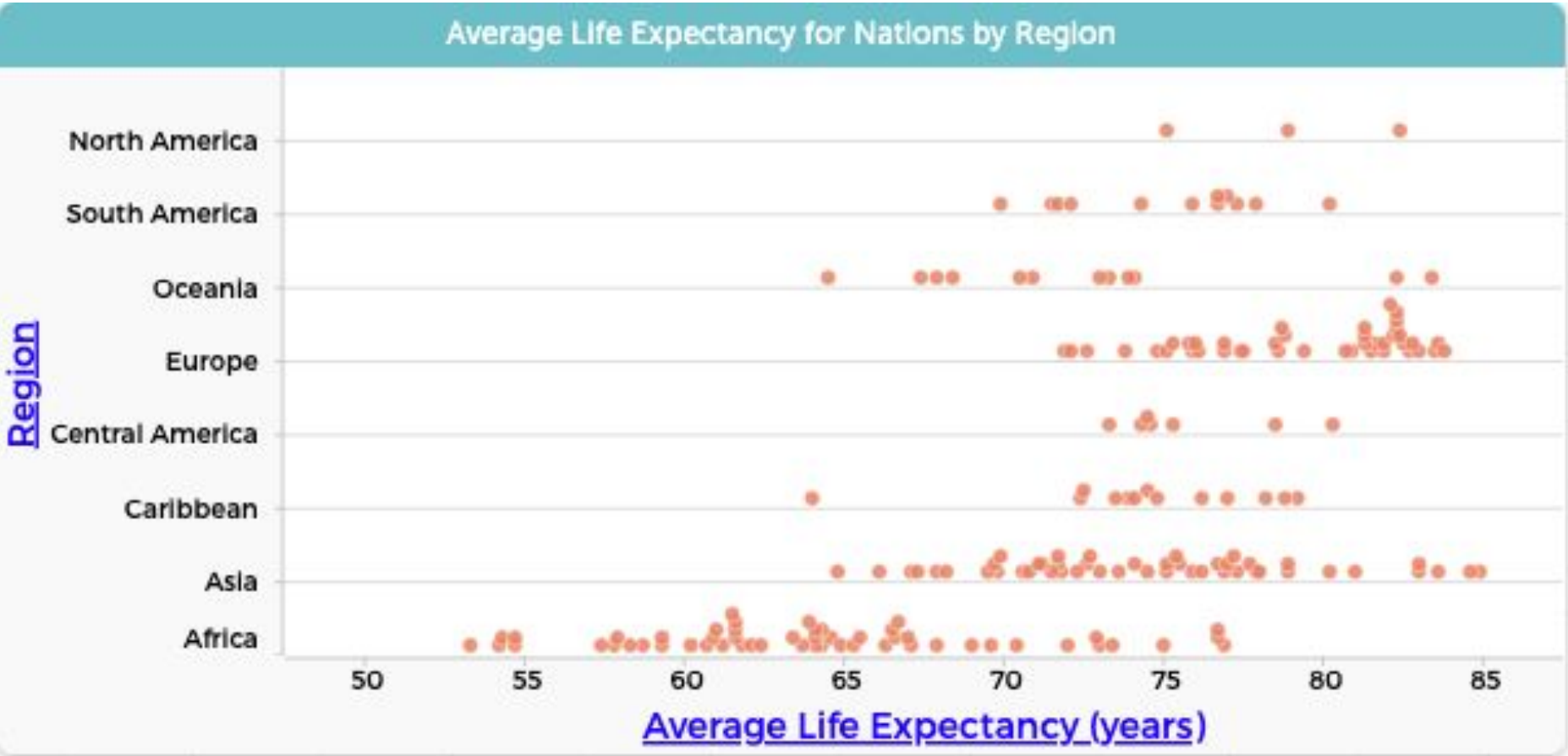
Next, students use the mapping tool in CODAP to explore these questions.



1. What patterns do you notice?
2. What do you wonder as you look at the map?

Insight: Some regions seem to have much higher average life expectancies than others. How can we learn more?

Going back to the graph that was already created, students plot region on the vertical axis.

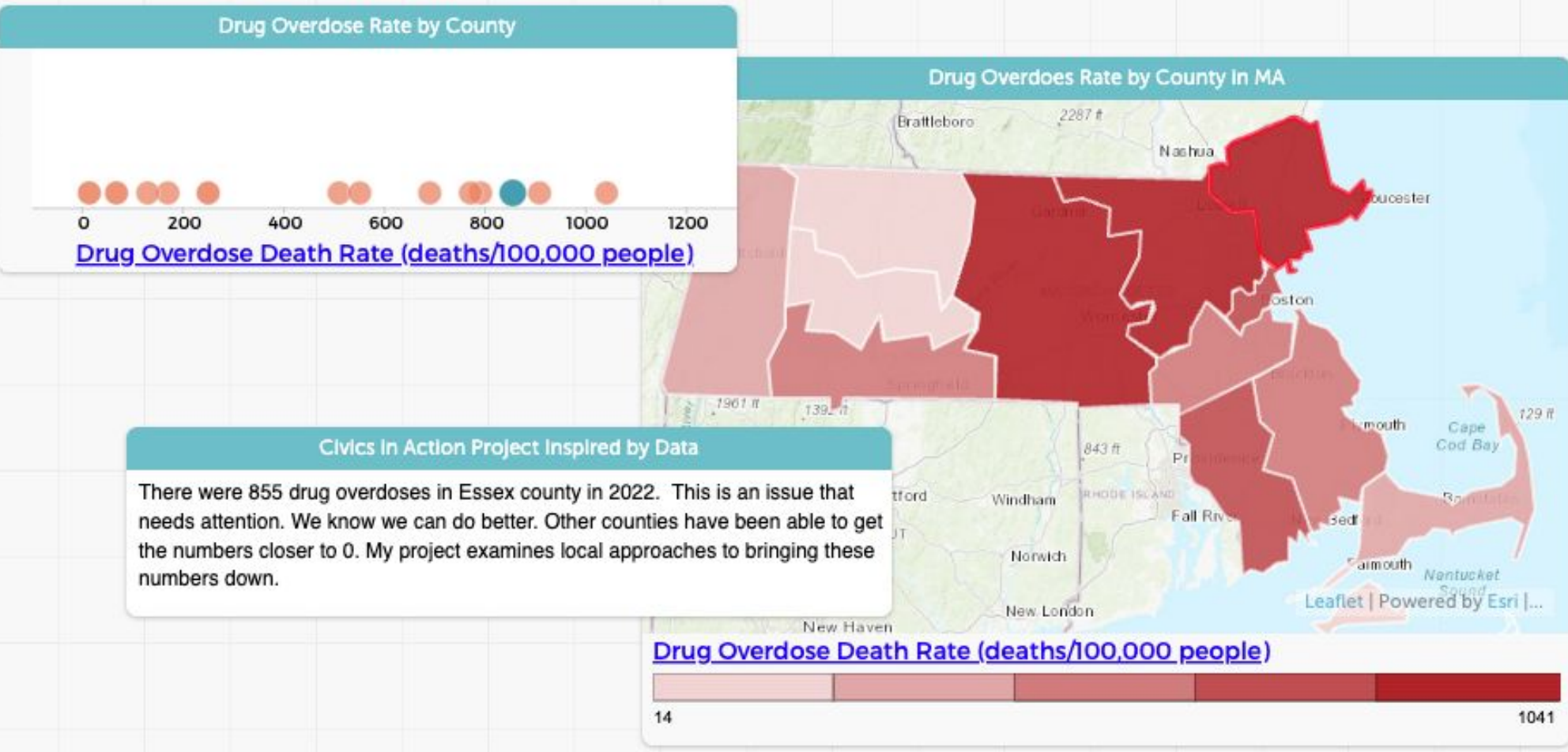


1. How are regions similar or different?
2. What region(s) have the highest average life expectancies?
3. What region has average life expectancies that vary the most?

Insights: The life expectancies for nations clump differently across regions. Europe, for instance, is clumped relatively close together and toward higher life expectancies. Africa has more nations at the lower range than other regions, but also has the greatest variability. Although the Caribbean nations clump between 72 and 80 years, one nation has a surprisingly low average life expectancy. What questions does this raise?

Connecting Data to Action

This example shows how data can be used in civic action projects driven by students' own questions. How might students leverage this data to make a difference in their community?



Investigating Environmental Justice Data

This 7th grade lesson occurs following a unit on Industry and Human Rights. The data was downloaded from the EPA and includes other attributes connected to air quality and exposure to hazardous materials, as well as demographic attributes pertaining to vulnerable populations. Below we see an example of guided inquiry supporting data exploration.

