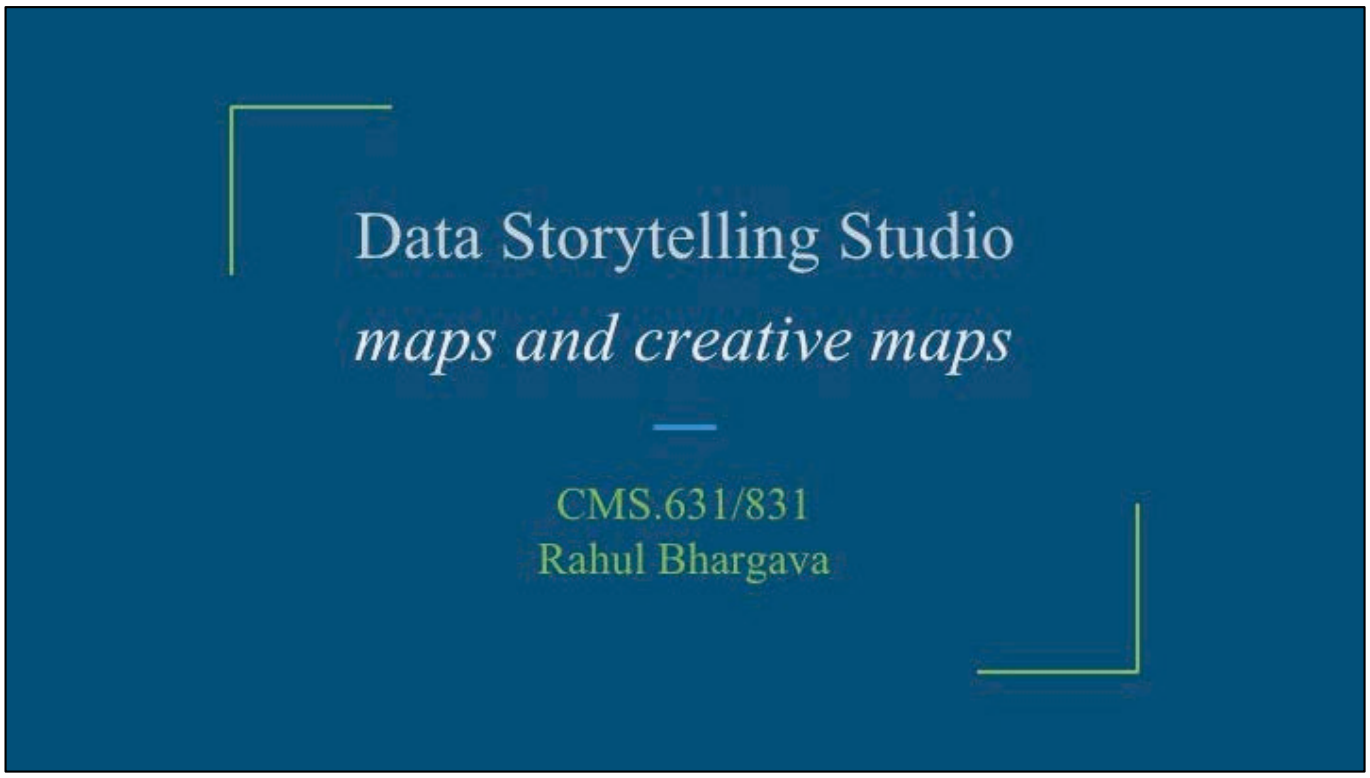


This sketch is about making maps or creative maps.. The goal is that you'll work with some data to tell a geography-based story. This sketch is three class sessions over a week and a half. The first is this lecture; the second is in class group work time, and the third is project presentations.

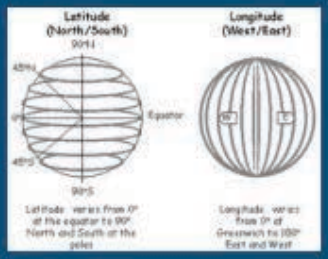
Agenda

- [15] Fundamental Concepts / Readings
- [15] Teach to Learn sharing
- [30] Inspirational examples
- [15] Tools
- [15] Datasets and team-forming

There is some key terminology you'll want to know about maps first.

Technical Concepts

- Earth is a bumpy egg
- Latitude, Longitude (decimal vs. degrees, minutes, seconds)
- Projections (making the world flat)
- Layers, Points, Polygons
- Various formats for storing info:
  - Shapefiles, GeoJSON, KML, TopoJSON
- Base Layers:
  - Google Maps, OpenStreetMap, Stamen
- Tiles vs. Vectors



Wikipedia
Public domain image.

Map Projections - *XKCD*
Courtesy of xkcd.com. License CC BY-NC.

Treating a round object like a flat one is hard!

Maps are Political

The West Wing

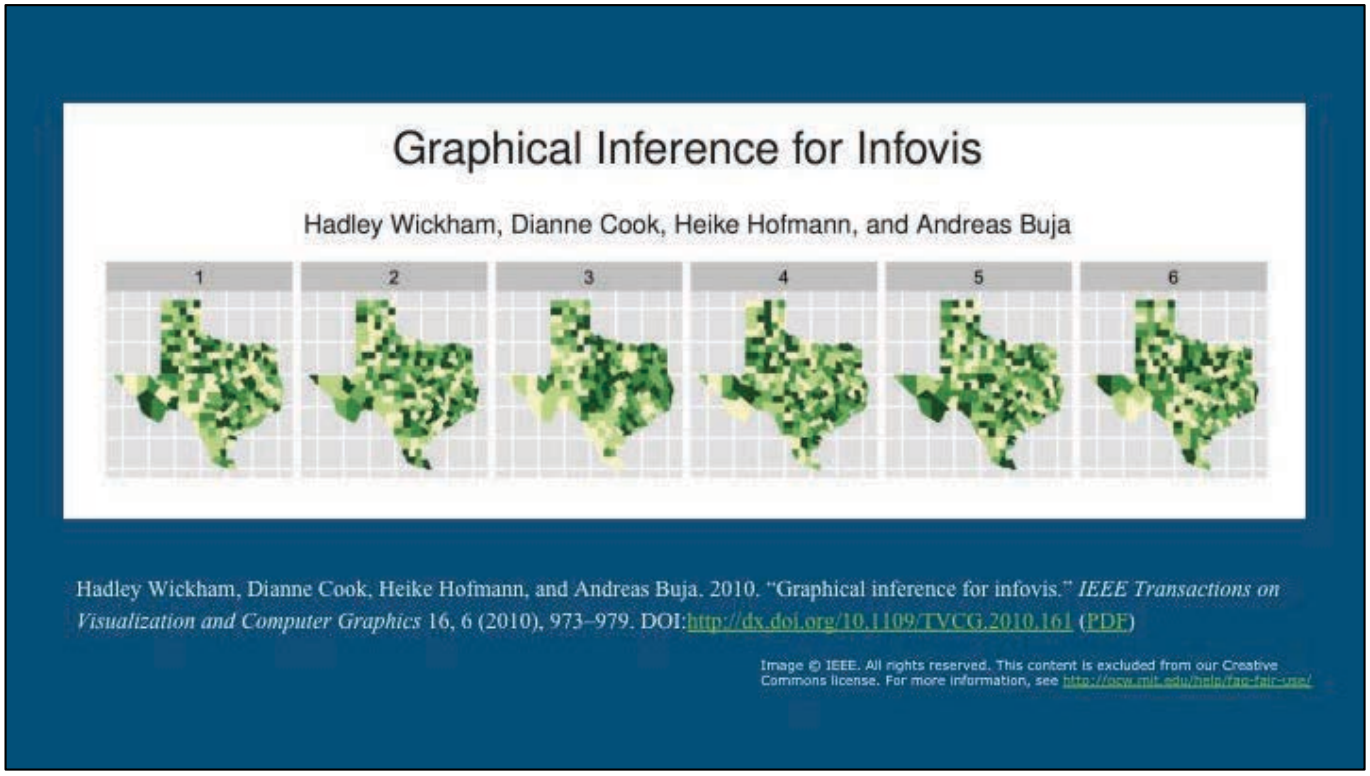
Notes:

"The Map is the perfect symbol of the state." - Mark Monmonier (How to Lie With Maps)

ThenMaps is a nifty tool for time-travelling…

But authorship is no longer a privilege!

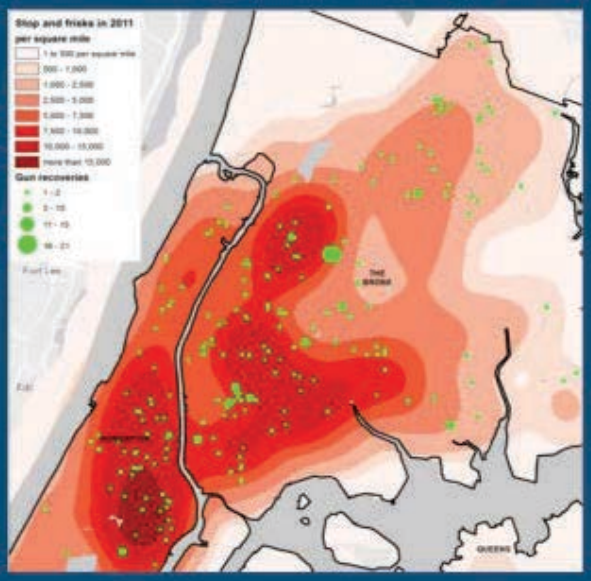
You could easily describe the history of maps as, more than anything else, the history of a tool used to oppress people around the world.



Some academics have dug into the perception of maps. For instance, which map here do you think is the real data? They all purport to show the prevalence of cancer in Texas, USA.

The answer is 3. The spatial clustering of dark and light is the only clue.

Design Decisions

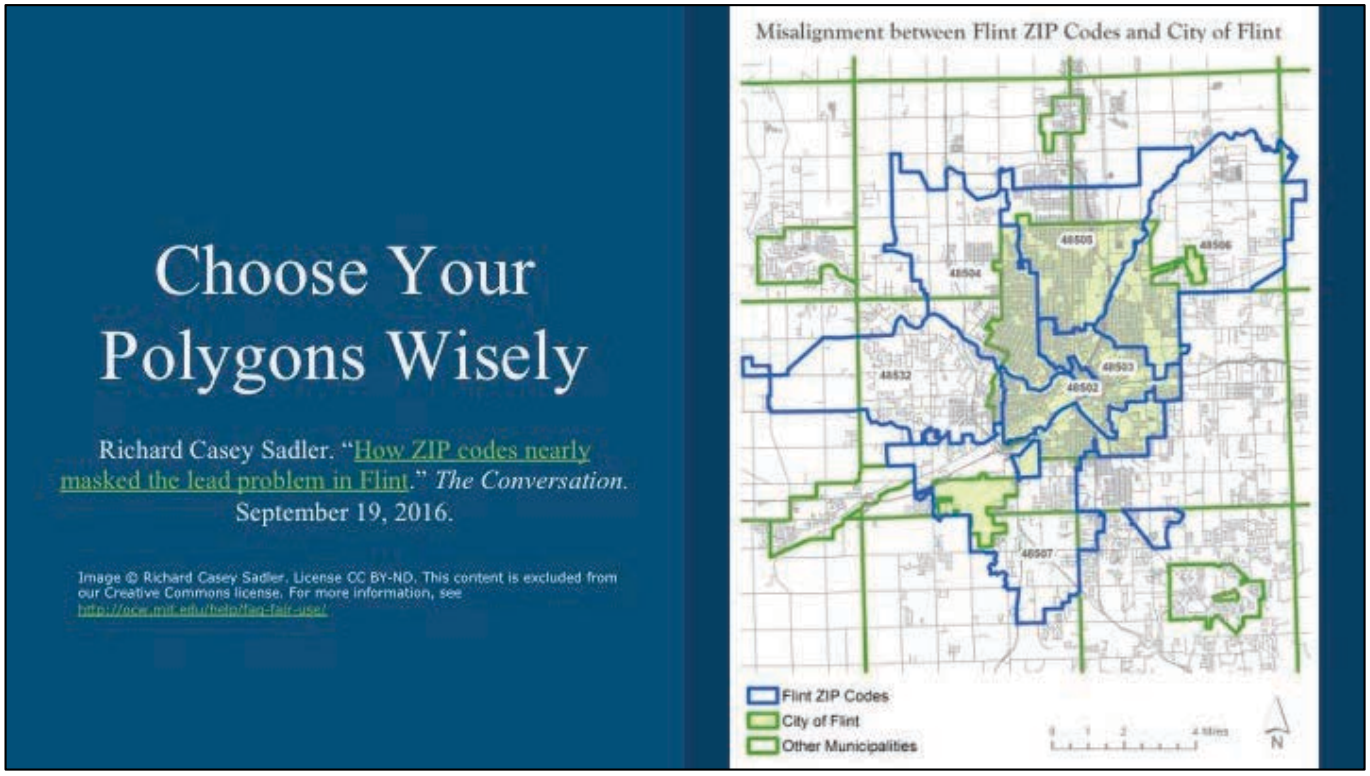


Jake Porway. 2016. The Trials and Tribulations of Data Visualization for Good. Markets For Good (March 2016).

Porway's blog post gets into the hard design choices associated with this perception problem. The original graphic on the left shows where police stopped innocent people in New York City with bright pink boxes. Green dots illustrate where guns were actually found. The two don't overalp, suggesting this stop-and-frisk policy is not based on actual evidence (but is in fact discriminatory).

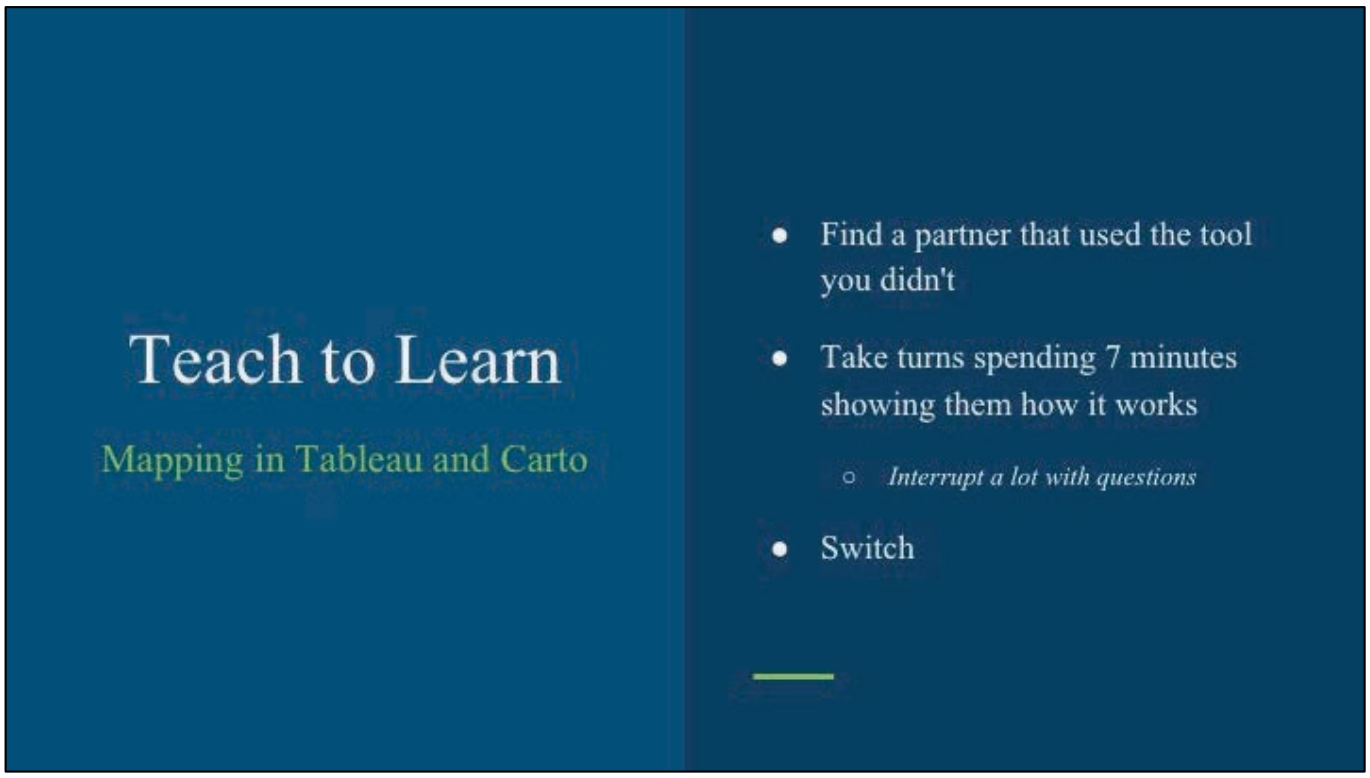
The image on the right is from someone that smoothed the data and tells the exact opposite story, because the green dots are clustered around the dark red areas.

The data doesn't speak for itself - the design decisions one makes in creating a map interpret what is shown.



Another example here is from the recent water crisis in the city of Detroit, MI, USA. The maps they used to examine dangerous water contamination were by postal code, which didn't match up with municipal water supplies, thereby hiding the pattern of contamination.

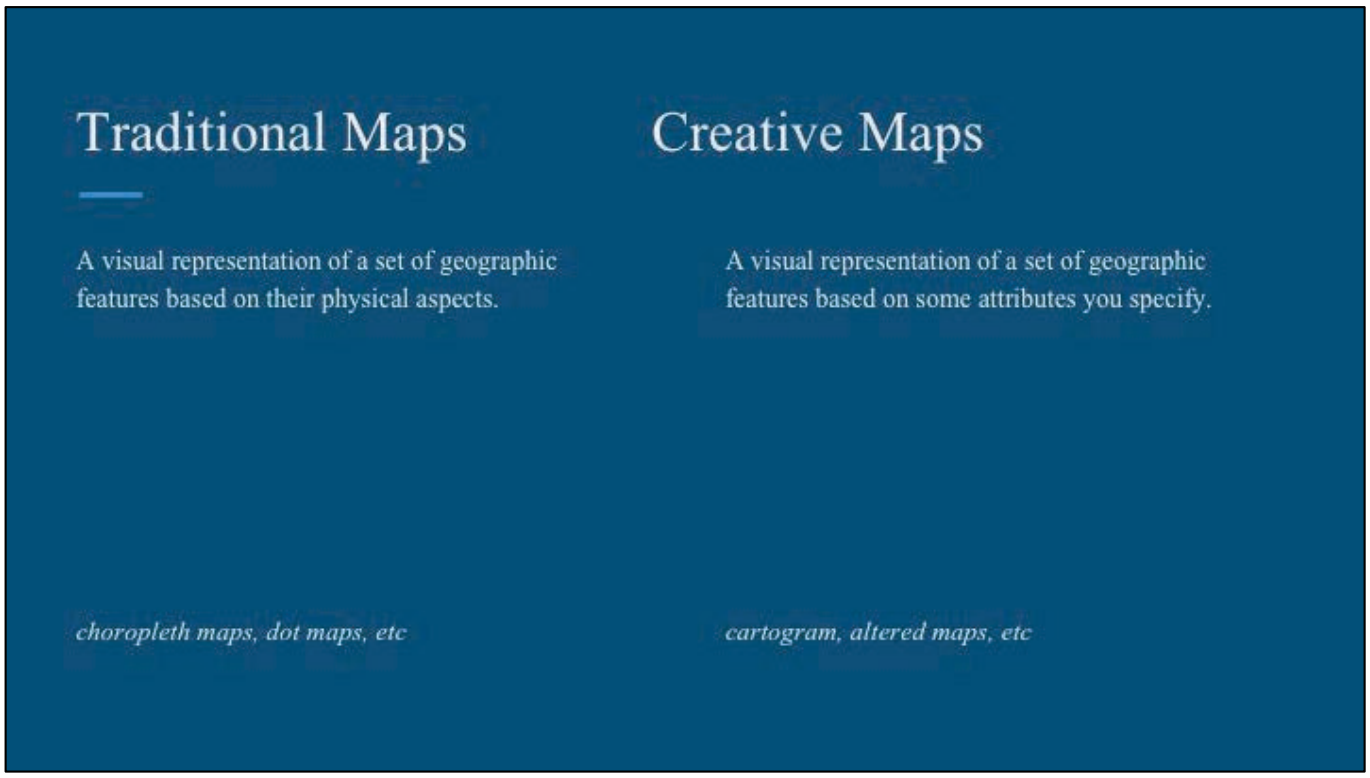
Readings



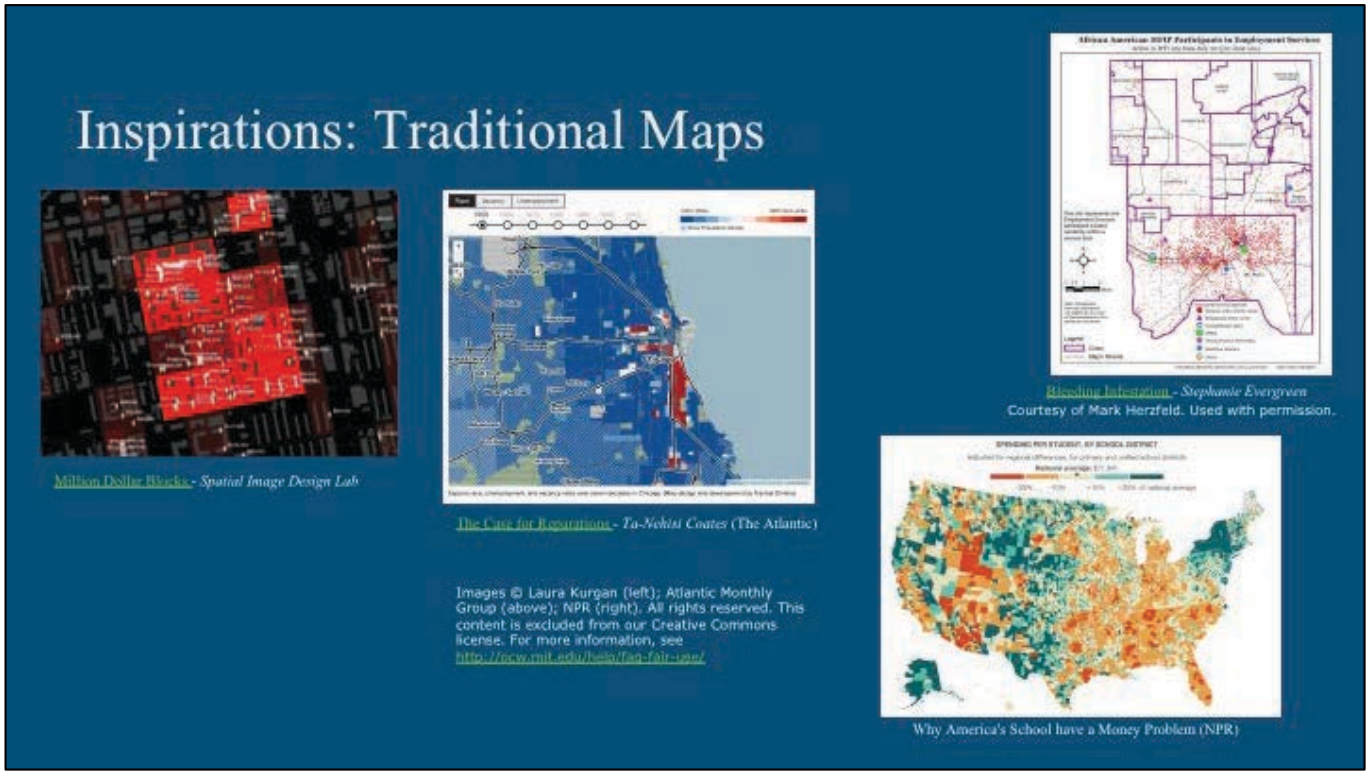
For homework half the class did a Tableau mapping tutorial and the other half did a Carto mapping tutorial.

Inspirations

Lets define a bit more about what I mean by mapping data stories.



Like with charts, the idea is that creative maps break the rules of mapping but still use the visual langauge.

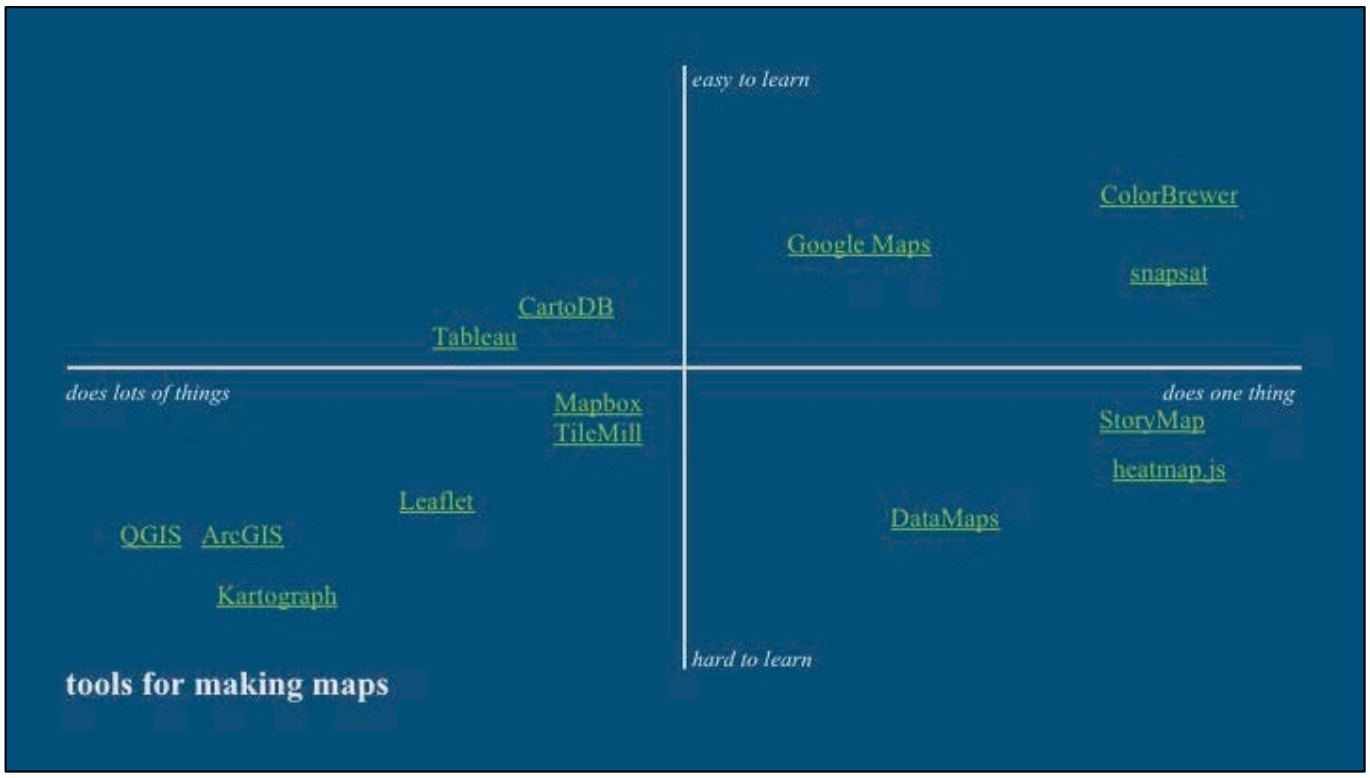


- The million dollar blocks project got access to the home addresses of prison inmates across the state of New York. They then mapped those and identified "million dollar blocks" - individual city blocks on New York City where the government was spending more than a million dollars a year housing and feeding inmates. These maps were used to kick-start a conversation that focused on prevention - imagine how much that money could do to prevent people from ending up in these situations where they committed crimes.
- Coates' reparations article uses map to document how red-lining created segregated cities across the US as an official policy. THis is a geographic story, so showing it on a map made sense.
- The NPR map shows how individual school districts across the US compared to the average in terms of spending per student in schools. The key point here is the color palette they choose - a diverging one used to highlight higher or lower than the average situations.
- The "Bleeding" map shows disease incidence in a geographic area. It was used in discussions with community members, but they reacted negatively to the fact that it in fact looks like a "bleeding infestation". The dot map was a poor choice given the context in which it was being shared. They changed it to a heatmap with a non-red color and then were able to get into their desired discussion.

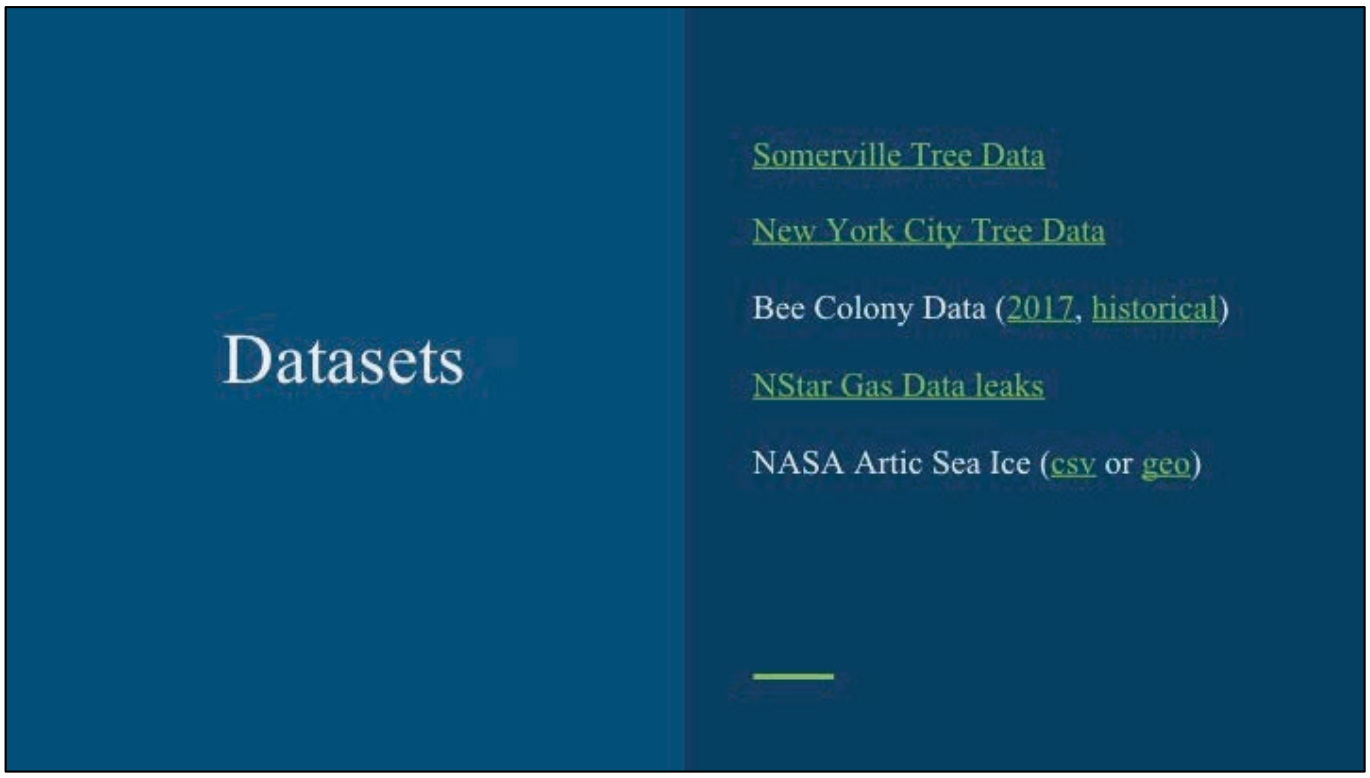
Here are some maps that break the rules:

- Begley's art piece uses the satellite images of prisons across the US to discuss the physical footprint of mass incarceration. It gets us out of the discussion of "law and order" and into a discussion of the real physicality and impact of the private prison system.
- The "Redlining" piece took the red-lining laws that sanctioned racist loan approvals and took them to real life by letting residents physically push a cart to draw the red line on the pavement. This intervention in real space took the abstract and made it real.
- The Archipelago piece is a wonderful example of making a strong statement. The artist drew the Palestinian territories as islands in a sea, connected by ferries (bus lines) and ports. This re-imagining argues that the partitioning of the geography is an otherwise hidden facet when looking at a standard map.
- The Tessellate example is one that looks at how to get around some of the limitations of maps I've discussed previously. Here they retained the rough shape of the United States allowing themselves to change the shape and size of the states to better represent them as equal.
- I'm not a huge fan of cartograms, but you can distort the size and shape of geographies in place through the use of special software.

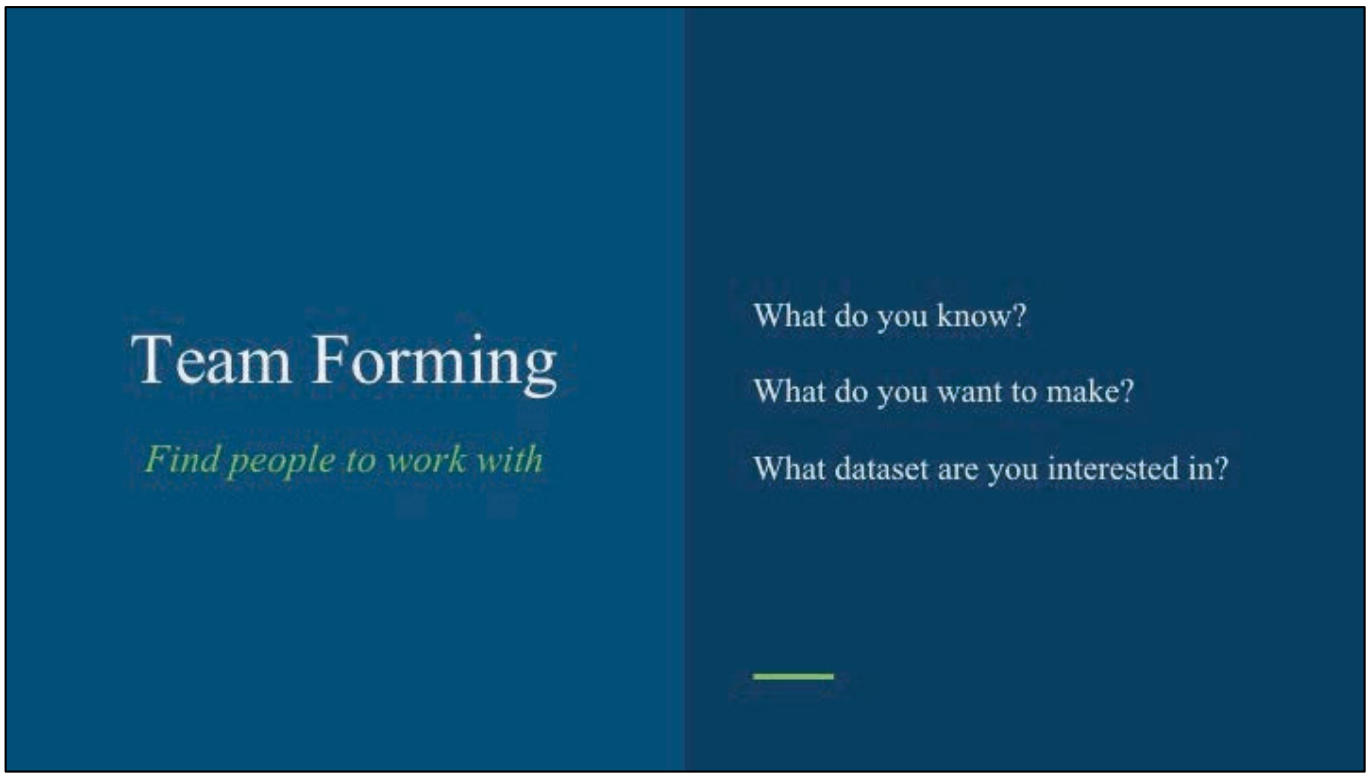
Tools



Here's another depiction of the tool space for making maps. The goal here is the help people know what is available for their particular project.



I've provided some clean datasets they can use (see the syllabus for details). They can use something else, but it should be clean (so they don't waste time cleaning it).



Have everyone stand up and think about these three questions. Then have everyone pick someone else in the room to talk to. Give them 2 minutes to discuss. Then have them switch to someone else and do the same. Repeat for 3 rounds and then tell everyone to form groups of ~3.

CMS.631 Data Storytelling Studio: Climate Change
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