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LESSON PLAN

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Mapping (In)Equity at the Polls

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Introduction/Context

While provisions of the federal Voting Rights Act of 1965 continue to guarantee equal voting rights (Dreiband 2017), a fundamental question remains: To what extent do all voters share an equitable experience at the polls? Anecdotally, we know that not everyone has equal access, yet where do these differences exist spatially, are there trends, and how can students make an impact? This overarching lesson plan creates a set of lessons for students to determine a list of vote location characteristics, collect data at the polls, and analyze the data to answer these questions, opening the doors to many more questions as well.

In addition to learning about the provision of voting services, students will engage in applied research, becoming active participants in their education. In a survey of students who took part in a previous polling place quality assessment, students felt that the time they spent on the project was "valuable," that it "enhanced understanding of course materials," and that a majority would recommend a friend to participate (Mann et al. 2018). This project is an opportunity for civic engagement and field research that will introduce students to questions around American elections, voting services, and social justice.

Learning Goal

The lesson introduces students to the equity differences in voting locations or polling places. Not all voting locations provide voters with the same experience, and by surveying individual voting locations in your study area, students learn how people experience voting in different places. In addition, by overlaying demographic data, students can visualize how these differences in voting experiences may correlate with different demographic characteristics. This lesson emphasizes social justice by combining elements of geography and social science research to engage students with their community.

Guiding Question

To what extent do all voters share an equitable experience at the polls?

Target Audience

Secondary social studies and higher education geography, political science, and student engagement courses. Students should be familiar with geographic information systems (GIS).

Time

2–3 hours for site selection and logistical setup

One class session (preferably before Election Day) for discussion and preparation with students

One day for data collection (Election Day; hours can vary depending on availability of the students)

At least one class session for data analysis and debrief

Standards and Skills

National Geography Standards

1. Element 1: The World in Spatial Terms
   How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information
2. Element 2: Places and Regions
   How culture and experience influence people's perceptions of places and regions
3. Element 4: Human Systems
   The characteristics, distribution, and migration of human populations on Earth's surface
4. Element 6: The Uses of Geography
   How to apply geography to interpret the present and plan for the future

Preparation

The survey of polling place characteristics, shared in the lesson, was repurposed from the 2020 LA Votes: Vote Center Study, a survey of voting locations across LA County, conducted by StudyLA on March 3, 2020. The questionnaire is comprehensive, though students may edit or expand it to fit the needs of the classroom.

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- Opening lesson: preparing the survey and selecting the locations
- Developing lesson: collecting, entering, and cleaning data
- Concluding lesson: mapping and analyzing the data

Materials

- Layer file of voting locations (e.g., polling places or vote centers) in your study area, with an attribute for address
- Map of your study area (e.g., city, region, county), subdivided by a smaller geography for comparison purposes (e.g., city council districts or neighborhoods)
- Survey of polling place characteristics (see example)

Opening the Lesson or Instruction

Background Discussion

Over the course of American history, groups have demanded suffrage, the ability to vote, and enfranchised themselves into voting: The vehicle for this enfranchisement has traditionally been the American Constitution. Possible ideas to discuss include the following:

- Highlighting the importance of the 15th and 19th amendments in expanding voting rights to Black men and women, respectively.
- Taking a deeper look at the 15th amendment, discuss the Jim Crow laws that disenfranchised African Americans who earned the right to vote. These were permissible because of the Southern states' discretion in the administration of elections.
- Discussing the distribution of responsibilities among national, state, and local policy makers in election administration. If relevant, discuss any recent news about voting changes in your state or county.

Some groups are still overcoming barriers to voting more so than others, such as people with disabilities or those who cannot forgo their pay to go vote. Students can discuss the repercussions of disenfranchisement today and whether there are any other groups who are still unable to vote.

Explain that this lesson focuses on trying to identify differences in the provision of voting, searching first by geography and then by demography. Inform students that this research is an important method of civic engagement, providing feedback to local officials to facilitate better voting accommodations in future elections for people in your community.

Explain that there have been many projects designed to examine the provision of voting services across an area. In a past assessment of polling places in LA County, low-income and minority neighborhoods were more likely to have poor-quality voting services than neighborhoods with higher incomes or a principally White population (Barreto, Cohen-Marks, and Woods 2009). A recent nationwide study found that counties and states accounted for much of the variation in voting services, which is understandable given the role those two entities have in administering elections, but did not find differences based on race/ethnicity or socioeconomic factors (Stein, Mann, and Stewart 2020).

Though this study was initially prepared for Los Angeles County, it is also appropriate for use in areas where vote-by-mail is more prevalent. Vote-by-mail has become an increasingly popular method of voting since 2000; a study from the Democracy and Polarization Lab at Stanford University (Thompson et al. 2020) proved that voting by mail is an effective nonpartisan method to increase voter turnout. In states like Colorado, where only a small percentage of the population casts their ballot at-poll, what barriers may be prohibitive for those who vote by mail? Could the students map drop boxes or county offices to assess the availability of this alternative to using the United States Postal Service? Does your county provide free postage for vote-by-mail ballots?

Research Discussion

Regardless of the efforts to increase vote-by-mail, the majority of American voters still cast their ballot at a polling place. To understand differences in voting locations, students do not need to visit every voting location. However, teachers will want to make sure the research is inclusive of the entire community. Start by introducing the concept of area random sampling. Explain that without the bandwidth to examine every voting location, the class will randomly select a smaller sample of voting locations within different subdivisions, which will be representative of all the voting locations in your study area.

Display a map that contains three layers:

- Your chosen study area boundary
- A relevant subdivision of the study area (e.g., city council districts or neighborhoods; an example is in Appendix A)
- The voting locations in the election (usually the county election office's website will have a map of voting locations that is already georeferenced or have a list of addresses by which to geocode)

Explain the methodology for how the locations were chosen within the study area. Divide the voting locations based on a geographical subdivision of your study area, so that you have a list of voting locations that are within each of the subdivisions. Using these subdivisions assures an even geographical distribution of polling places across the area and allows for comparisons between subdivisions once the data are collected.

Select your voting locations using the area sampling method. To do this, choose a randomizer that is a whole number greater than 1. In each voting location group, choose the row numbers that are evenly divisible by your randomizer to create a randomized list. From the top of the new, randomized list of voting locations, select the number of voting locations in each subdivision you are including in the study. Make sure you select the same number of voting locations from all subdivisions. If the voting locations you randomly chose are clustered within the area subdivision, delete the voting location you chose most recently of the two and select the next voting location from your randomized list for that subdivision.

Verify that your locations are where you expect them to be. For example, in the map later in the lesson, the voting locations are the same color as the area in which we expect them to be; a quick color match shows that all the red circles are in red areas.

Survey Discussion

To collect data on the voting locations, the class needs to create a survey, or list of variables, to explore. An example survey is available in Appendix A. In this example, voting locations are evaluated on three criteria: the building, exterior, and interior, all with a focus on accessibility. Ask the students what topics they want to cover. What are the laws in your area? Also, are there questions that are time-specific; for example, questions about social distancing and six feet of separation are now part of the conversation though they were not a concern in previous elections.

Spend time editing and discussing the survey to get the optimal wording and to allow all students to engage with the survey design. This also facilitates a shared understanding of how to interpret the questions. Note that the survey response choices are operationalized in an effort to remove any subjectivity from the analysis; share with the students why they should be as specific as possible with their answer choices and question wording.

Logistical Discussion

Once the survey design is complete, print as many surveys as voting locations in the sample. Other supplies, such as a piece of string for measuring doorways for ADA compliance, might be necessary to pack. Remind the students to bring a snack and water bottle as well.

Split the students into pairs or small groups, with at least one person in the group having access to a vehicle. Divide the selected voting locations evenly among the groups and assign nearby locations to the same group where possible. For each group, put a list of the addresses for the voting locations they will be visiting in a bag with the surveys and supplemental materials.

If the project is performed during times of social distancing, additional precautions will need to be taken, such as reminding students to wear masks at all times and remaining six feet from others.

Developing the Lesson or Instruction

Once students have collected the data, have them enter the data into a database. An online entry form can expedite this process. After students have entered the data, the teacher will need to clean the data. The more time spent organizing the students ahead of time, the shorter the cleaning likely will be. After the teacher has cleaned the data, students are ready to import the data set into their mapping software. Several software or online options for mapping are available. Resources for ArcGIS Online and Google Maps "My Maps" are attached below. Data saved in Excel or CSV (comma-separated value) documents are easily uploaded into the GIS. Once uploaded, there are two main options for adding the data to the locations:

- If the database includes geography variables (address, city, state, and ZIP code) for each voting location, each row of data can be geocoded—or matched to a particular latitude and longitude based on their address—on a map.
- Alternatively, a unique identifier, such as the voting location ID, can be used to join the data from the survey to the voting location ID of the specific vote location stored in a file with its geospatial information. Examples of how to add data from a spreadsheet to a map are available on Esri's website[1] or through Google Maps.[2]

Concluding the Lesson or Instruction

Now the real fun begins. Once the data are in the mapping software, the students can locate each of the voting locations they visited on their map within the software. Students can change the symbology depending on the question being mapped to look at patterns by geography. Start by introducing a few standard visualization techniques:

- Equal interval: data are distributed among predetermined bins of equal size
- Quantile: data are distributed evenly among bins of different sizes
- Defined interval: data are distributed among bins of equal size, chosen by the user
- Manual: data are distributed among bins whose bounds are chosen by the user

Depending on the level of the course, students can look for patterns on their own or they can conduct spatial statistical analysis with the data. Ask students whether patterns exist or the findings seem to be random. Are there any areas (e.g., city council districts or neighborhoods) where voting locations are fraught with more issues?

Students can also add geospatial layers with a variety of demographic and socioeconomic variables to analyze demographic patterns in relation to the voting locations. Sources for these data include the Census Bureau and Esri's Living Atlas. Demonstrate how to create choropleth maps using the demographic data and how to overlay data from the voting locations on top.

Returning to the topic of social justice, ask students whether it appears that voters in all areas have the same quality of polling places. Are there particular clusters on the map that have different characteristics? What are the demographics of those areas? By accessing these data, students can see how variables for race/ethnicity or household income may bring to light additional patterns of inequitable distribution of polling place qualities. Ask what patterns they observed based on the demographics of particular areas. Follow up by asking whether there are additional policies or requirements of polling places that could be established to help all voters have more equitable access to voting. Conclude with highlighting how geography and social science research can come together and lead to improvements in social justice in their area.

Formative and Summative Assessment

To assess students on their learning, they should be able to do the following:

- Correctly map the voting locations,
- Create multiple choropleth maps highlighting key takeaways (to showcase their ability to communicate visually), and
- Explain where clusters of inequality exist and whether those clusters are in or near regions with specific demographic characteristics (e.g., do areas of lower median household income have more issues at their vote centers than areas with higher median household income?).

Debrief

Take a moment to ask students about their experiences on Election Day and let them share some stories. Ask them to, by a show of hands, indicate how many had been to a new place in the study area on Election Day. To emphasize the geographical concepts, teachers can have them take a couple of minutes to draw a mental map of their study area that incorporates what they experienced on Election Day.

Discuss whether visualizing demographic layers showed them something new or confirmed things that they had wondered about their community. Which demographic layers did students find the most interesting in the context of the voting analysis? Ask what trends the students discovered working with the data in GIS.

Remind the students that this exercise, while it was a research project, was also an opportunity for civic engagement. Ask the students what other activities they can do to be engaged citizens. Thank them for doing a service for their community.

Extension

In addition to conducting the survey using the paper format, creating an online survey has notable benefits. Examples include using Esri's Survey123, Google Forms, or Qualtrics. Having an online survey helps with the following:

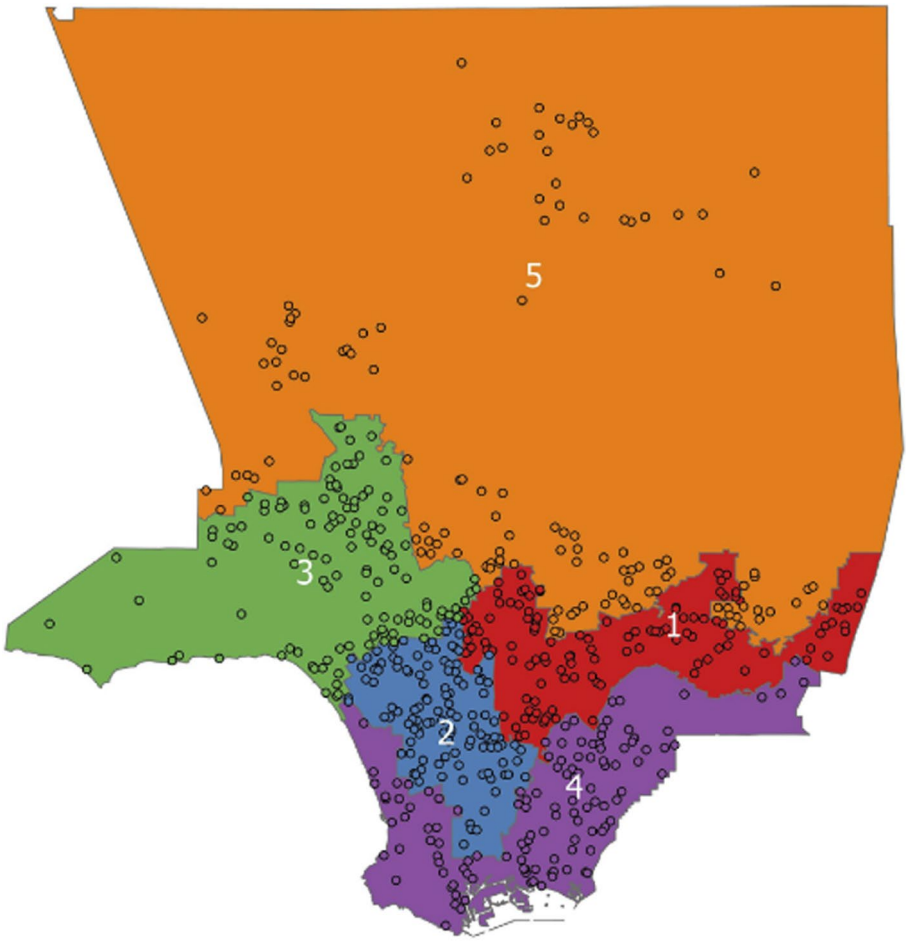
- Data collection during the day, instead of students needing to enter the data later
- Depending on the survey type, the location of where the survey was entered may be recorded

These metadata can be useful to geocode the survey questions. If teachers are planning to use an online survey, paper copies should be distributed as backups in case of areas with poor internet access.

Another idea is to have students create a StoryMap of their key findings. This presentation format is easy to distribute and easy to convey information to local leaders or elected officials, particularly if there are areas of concern that need addressing.

Sample Handouts

The figure below is an example of the map used to select polling places: In this example, we are looking at 600 polling places across LA County, 120 from each county supervisorial district. The point fill is the same color as the supervisorial district it should be within; this serves as a visual check that the voting



locations are dispersed and are located in the same area as they should be from our address. Producing such a map for your community will help your students understand the spatial distribution of polling places or drop boxes within your study area.

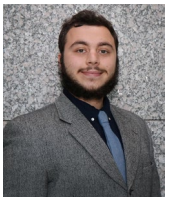
Notes

1. Get started with ArcGIS Maps for Office: https://learn.arcgis.com/en/projects/get-started-with-arcgis-maps-for-office/
2. Visualize your data on a custom map using Google "My Maps": https://www.google.com/earth/outreach/learn/visualize-your-data-on-a-custom-map-using-google-my-maps/

Notes on Contributors



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Max Dunsker is a research assistant at StudyLA and the team's GIS specialist. His research interests include using GIS to analyze human systems, ranging from civic engagement to agriculture.

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Appendix A. Voting Location Quality Checklist

Instructions for Field Researchers

1. Complete all pages while at the voting location
2. Return the completed survey to [insert location] by [insert time]

Identifiers

Time of Completion:_____ Student Names: _____
Voting Location ID: _____ Address: _____

If you are unable to complete the survey explain why here. You must still complete the survey. For the remaining questions, select the "not applicable" option and write "99" in all required text/number fields. If you are able to complete the survey, ignore this question.

_____
_____
_____
_____
_____

Building questions

1. What was the furthest distance at which you were able to see the address on the outside of the building?
   - 50 feet
   - 20 feet
   - 10 feet
   - 5 feet
   - Not visible
   - Not applicable
2. Was the correct address given for the voting location?
   - Yes
   - No
   - Not applicable
3. Was the building with the voting location readily visible from the street?
   - Yes, the building with the voting location was clearly visible from the street
   - Somewhat, the view of the building was obscured by trees or construction
   - No, the building with the voting location could not be seen from the street
   - Not applicable
4. What kind of parking was available for voters? [Select ALL that apply.]
   - Discrete lot immediately outside building (free)
   - Discrete lot immediately outside building (pay)
   - Designated lot within a city block of the building (free)
   - Designated lot within a city block of the building (pay)
   - Street parking (free)
   - Street parking (pay/metered)
   - Not applicable
5. What was the number of empty parking spaces readily visible from the voting location?
   - No spaces were available
   - Between 1 and 10 spaces
   - Between 11 and 30 spaces
   - More than 30 spaces
   - Not applicable

Voting Location Center Exterior Questions

6. What types of voting indicators were visible from the outside of the voting location? [Select ALL that apply.]
   - "Vote Here" signs in English (sign related to voting)
   - Signs for voting, in languages other than English

- "Polling place" signs in English (sign related to voting location presence)
- Signs for voting locations, in languages other than English
- American flags, buntings, or other signs using a red, white, and blue color scheme
- Balloons
- Other: _____
  _____
- Not applicable

7. How long did it take you to walk to the voting location **after parking**?
   - It took 1 minute or less to walk to the voting location
   - It took >1 minute to 3 minutes to walk to the voting location
   - It took >3 minutes to 5 minutes to walk to the voting location
   - It took more than 5 minutes to walk to the voting location
   - Not applicable
8. Generally speaking, when you were at the voting location how safe did you feel?
   - Very safe
   - Somewhat safe
   - Not safe
   - Not applicable

If you felt "somewhat safe" or "not safe," please explain why:_____
_____

9. How many on-site designated handicapped parking spaces were present?
   - None
   - One
   - Two
   - Three or more
   - Not applicable
10. Was there an ADA accessible path from street/public transit to a front door designated as accessible?
    - Yes, there were ramps for level changes (or no ramps were needed), and the doors were clearly marked as accessible or inaccessible
    - Yes, there were ramps for level changes (or no ramps were needed), but the doors were not marked as accessible or inaccessible
    - No, there were no ramps, but the doors were marked as accessible or inaccessible
    - No, there were no ramps, and the doors were not marked as accessible or inaccessible
    - Not applicable

Voting Location Interior Questions

11. Were all the necessary doors to vote at least 32" wide? [Use string.]
    - Yes, all doors were more than 32" wide
    - No, there were doors less than 32" wide which were necessary to vote
    - Not applicable
12. Did the voting location have internal barriers which would block wheelchair access?
    - Yes, there were barriers which blocked wheelchair access
    - Yes, there were barriers; however, they did not block wheelchair access
    - No, there weren't barriers
    - Not applicable
13. Was there an ADA designated restroom at the voting location? [ADA designated restroom will have a sign or placard with a wheelchair.]
    - Yes, an ADA designated bathroom was located in or very near to the check-in area
    - Yes, however the ADA designated bathroom was not conveniently located in or very near to the check-in area
    - No, no bathroom was ADA designated
    - Not applicable
14. Was there adequate lighting inside this voting location?
    - Yes
    - No
    - Not applicable
15. How many voting machines were at the voting location?
    _____
16. How many people were **waiting in line** when you were at the voting location?
    - None
    - 5 or fewer
    - 6 to 10
    - 11 to 25
    - 26 to 50
    - More than 50
    - Not applicable
17. Did it appear that all voting machines were working properly?
    - Yes, all voting machines appeared to be working properly
    - No, several voting machines appeared to be not working properly
    - No, no voting machines appeared to be working properly
    - Not applicable

Field Researcher Questions

18. Would you recommend this voting location be used in future elections?
    - Yes
    - No
    - Not applicable
19. Explain why (or why not) this voting location should (or shouldn't) be used in future elections.
    _____
    _____
    _____
    _____
    _____
20. Additional observations about the voting location (be as specific as possible):
    _____
    _____
    _____
    _____
    _____