**Voter Turnout Lesson Plan (Day 1)**

In this lesson, students will perform methods on tables and write functions to analyze data from a dataset of Voter Turnout by State from 2020 in order to investigate Voter Suppression. The dataset comes from the US Census Bureau. It contains data about the population of people living in the US over the age of 18. The programs students write in this lesson use the language Pyret. The lesson was written by Marisa Laks.

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| Aim: How do we write and use table methods and functions in order to analyze data about Voter Turnout?<br><br>SWBAT: define variables, apply table methods, write functions and display data in charts.<br><br>This is Day 1 of a 2 - 3 day lesson. | NYS Standards:<br><br>9-12.CT.2 Collect and evaluate data from multiple sources for use in a computational artifact.<br><br>9-12.CT.3 Refine and visualize complex data sets to tell different stories with the same data set. |
| Materials: Google Slides, Peardeck, Computer, Internet, Pyret starter files | Vocabulary: Function, filter, sample, voter suppression |

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| 5 min | **Do Now:**<br><br>Click on the link for the Spreadsheet.<br><br>Write two statements for each of the following:<br><br>**I wonder....**<br>**I notice....**<br><br>Call on students to share their responses or read them from the peardeck. | Teacher Notes:<br><br>Instruct students to click on the link for peardeck and sign in with google.<br><br>Voter Data 2020 Dataset: https://docs.google.com/spreadsheets/d/1kSAXNDRTuQidwFuTGvQRMc7HtsIkczZGqG8q_r4iZR0/edit?usp=sharing<br><br>Original Data Set: https://www.census.gov/data/tables/time-series/demo/voting-and-registration/p20-585.html |
| 5 min<br><br>(2 min) | **Mini-Lesson:**<br><br>**What is Voter Suppression?**<br>Voter suppression is the act of preventing eligible people from voting or making it harder for them to vote or to register to vote.<br><br>In recent years, more than 400 anti-voter laws have been proposed in 48 states.<br><br>Why do you think these laws have been proposed?<br><br>Show video.<br>https://youtu.be/5b0W_5K7Kyk<br><br>**Analyzing Data**<br>In this project, we will be analyzing voter data from the US Census Bureau in | Briefly discuss voter suppression.<br><br>Students can answer the questions in the peardeck. Then discuss answers.<br><br>More Information: Brennan Center for Justice: |

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| | order to investigate differences in voter turnout of people of different races in different states. We will use our investigations to make conclusions about possible instances of voter suppression and the need for laws and actions to prevent future voter suppression.<br><br>In Part I of the project, you will practice writing functions and applying table methods using the "voter-table." This review of concepts will help you perform your own analysis in Part II.<br><br>**Voter Turnout Code**<br>Go to code.pyret.org and log in. Then click on the link for the "Voter Turnout Code." Save a copy of the file and add your name to the file name. Run the file.<br><br>Enter the code for voter-table in the interactions area. What do you see?<br><br>**Voter Turnout Project**<br>In today's lesson, we will practice writing functions and applying table methods using the voter-table. Follow the prompts for each section. Each student will create and submit their own code, but feel free to discuss the prompts with each other. If you need help, refer to the code on the next few slides. | https://www.brennancenter.org/our-work/research-reports/impact-voter-suppression-communities-color<br><br>Voter Turnout Code:<br>https://code.pyret.org/editor#share=1xTL_ltWgiROMFeIKSA9Ad19HkgsKZaMM&v=fef2e76<br><br>Voter Turnout Code Answer Key:<br>https://code.pyret.org/editor#share=1xUT5EYKbi8lXidO1i89Z8FnUMzXZ8OCp&v=da57865 |
| | **Helpful References:**<br><br>**Reference List of Data Displays**<br>pie-chart(Table, "column")<br>bar-chart(Table, "column")<br>histogram(Table, "column", bin width)<br>scatter-plot(Table, "label", "column 1", "column 2")<br><br>**Reference List of Table Methods**<br><Table>.row-n(index)<br><Table>.order-by("Column", Boolean)<br><Table>.filter(Boolean function)<br><Table>.build-column("Column", function)<br><br>**Design Recipe for Writing Functions :** The design recipe has three parts:<br>1) Write a contract and purpose statement.<br>2) Write examples.<br>3) Write the function. | Briefly review slides.<br><br>These slides are for student reference when writing their code. The arguments are not the exact words students should enter. They are a hybrid of the contract and the actual arguments.<br><br>The design recipe is from bootstrapworld.org. |

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| 30 min | **Activity:**<br><br>Note: This dataset contains information about the total US population which can be used for comparison.<br><br>Part I: In this part of the project, you will practice writing functions and applying table methods using the voter-table.<br><br>**Practice 1:** Look at the spreadsheet "voter-data-2020." Choose three states and define the rows below.<br><br>**Practice 2:** Define a table called "population-sort" that sorts the table by total population starting with the greatest population.<br><br>**Practice 3a:** Write a function called "states-only" that consumes a row and returns true if the population of the state is less than 250,000.<br><br>**Practice 3b:** Define a table called "states" that only shows the states. Note: This table will be used for many of your graphs.<br><br>**Practice 4a:** Write a function called "percent-voted" that calculates the percent of total voters out of the total population. Round your percent by adding the code num-round().<br><br>**Practice 4b**: Define a table adds a column with the percent of total voters to the total population.<br><br>**Practice 5**: Define a small random sample with 15 states and medium random sample with 25 states.<br><br>**Practice 6:** Create a scatter plot showing the total registered population to the total voters for only the states.<br><br>**Part II:** In this part, you will analyze the data from the table to see if there are differences between voter turnout rates of people of different races in different states. You should look at different groups of states individually, smaller samples of states or all of the states.<br><br>Write your code in the definitions area. You can save different tables or comment out the code when not required. Refer to the google slides for specific directions. | Begin lesson as a code-along.<br><br>As students are working, teachers should circulate and help address student errors and misconceptions.<br><br>Students can also work in pairs using the driver-navigator model to write the code.<br><br>This code is scaffolded to give all students entry points where they are at. Students who need more help have access to the pyret codes. Students with stronger skills will be able to go at their own pace and perform higher level analysis.<br><br>If students finish all of the practice, they can begin part 2. |
| 5 Min | Closing:<br><br>Submit Your Code: Submit the link to your code.<br>● Go to **Publish** in your Pyret editor and copy the link.<br>○ Ctrl + C (PC) or command + C (Apple)<br>● Submit your link for your code on the form: Voter Turnout Pyret Code Submission Form | Voter Turnout Pyret Submission Form: https://docs.google.com/forms/d/1kMcEU0ZMSiQ74viq0czq90rhD1KPaBg9UysFuTjcHzc/edit |

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| | Summary: In the next lesson, we will be investigating differences between voter turnout of different races in different states. List at least two things you would like to investigate based on your data. | Students will write their responses in the peardeck. |