A MORE PERFECT UNION

…an investigation into the mathematical fairness of democracy in the United States of America

Essential Question: *Is Democracy Fair?*

Lesson 1: Representation + Apportionment

This lesson begins by asking students to reflect on their prior assumptions on how representation functions in the United States. Students will then look at the 2010 census alongside each state's current congressional representation and determine a system for apportionment. Lastly, the class will review the system that the United States uses to divide representatives and critique it's effectiveness.

- 1.0: Pre-assessment: reflection + retrieval
- 1.1: Questioning our assumptions about representation
- 1.2: Activity: Trying it ourselves
- 1.3: Simulation: How does the United States of America does it?

Lesson 2: District Drawing + Gerrymandering

Lesson two begins with a classroom simulation to demonstrate the power of district drawing in elections. Students will then learn about the history of gerrymandering (on both sides of the political spectrum). Lastly, students will complete an investigation to discover the mathematical strategies of using district-drawing to skew election results.

- 2.1 Simulating Districting in the Classroom
- 2.2 History of Gerrymandering
- 2.3 We, the gerrymanderers…

Lesson 3: Presidential Elections + Electoral College

The final lesson of the unit introduces the electoral college. The lesson focuses on how it is possible in a democracy to win an election but lose the popular vote. The class will participate in a full simulation to discover this potential outcome. Students will then participate in a group activity that asks them to consider how few votes are needed to win the general election. Lastly, students will reflect on the qualities and shortcomings of the electoral college and suggest an alternative system.

- 3.1 Let's take a vote!
- 3.2: Electoral vs. Popular Vote
- 3.3: Group Activity: Majority Rules

LESSON 1: Representation + Apportionment

Essential Question: *How do you represent 330 million Americans, fairly?*

Understanding Goals:

- Students will understand how state representation is a mathematical function of population size, but not a direct ratio.
- Students will understand the implications of our current representation system, reflecting on the fairness and equity of some of the key features, including: minimum representation and the process of allocation.

Performance Goals:

- Students will be able to articulate the mathematical reasoning behind the representation system in the United States.
- Students will form judgments and opinions on the current system of representation allocation in the United States and state whether they believe it is mathematically fair.
- Students will be able to articulate the challenges of creating an equitable system of representation and whether or not they believe the system in place is an adequate solution.

LESSON INFORMATION

60-75 minutes   10 - 30+ students   **13+** grades 8-12

Teacher Materials:

- **Slide-deck**
- **Slide handouts – if appropriate**
- **2010 census: state population**

Student Materials:

- **Pencil**
- **Paper**
- **Calculator (optional)**

A More Perfect Union: Unit Map

Lesson 1: Representation + Apportionment

- **1.0: Pre-assessment: reflection + retrieval**
- 1.1: Questioning our assumptions about representation
- 1.2: Activity: Trying it ourselves
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- 3.1 Let's take a vote!
- 3.2: Electoral vs. Popular Vote
- 3.3: Group Activity: Majority Rules

MINI-REFLECTION: this exercise is informal and is intended to get us thinking about how our electoral system works. Feel free to write brief, first-person statements on the following prompts. No research is necessary, and you will not be evaluated on this assignment.

1. *What does it mean to live in a democracy?*

2. *If you had to pick three words to characterize a democracy what would they be?*

3. *How does the country determine representation? How many state representatives does each country get?*

4. *How does one win a presidential election?*

Pre-assessment: to be given to students as they enter the classroom. Students should complete the short writing assignment in a shared document if possible so that the teacher has access to the assignment. Students should spend no more than 5 minutes completing the pre-assessment.

Instructions:

1. Ask students to record responses to the reflection questions in either a shared document or on a document to be turned in to the teacher.
2. Students should know that the reflection is NOT an evaluation.
3. Students will revisit this reflection at the end of the unit.

5 minutes

A More Perfect Union: Unit Map

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- **1.1: Questioning our assumptions about representation**
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- 1.3: Simulation: How does the United States of America does it?
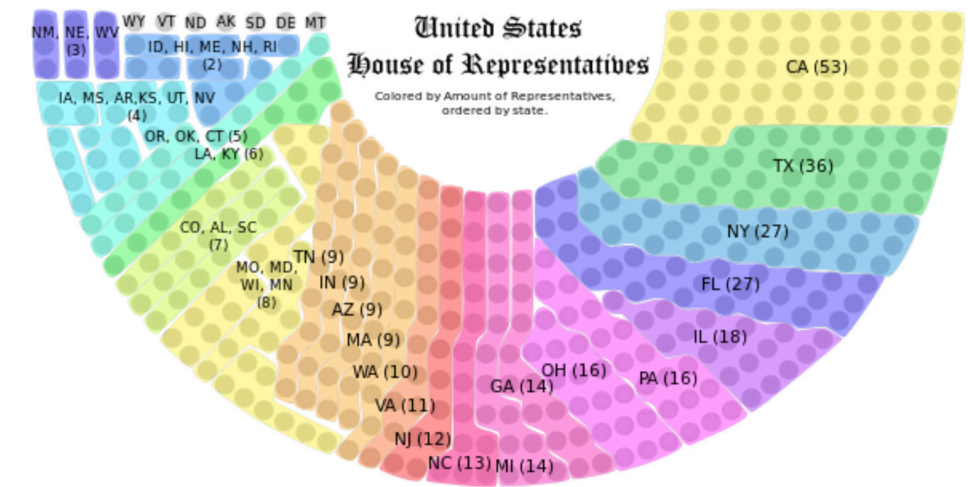
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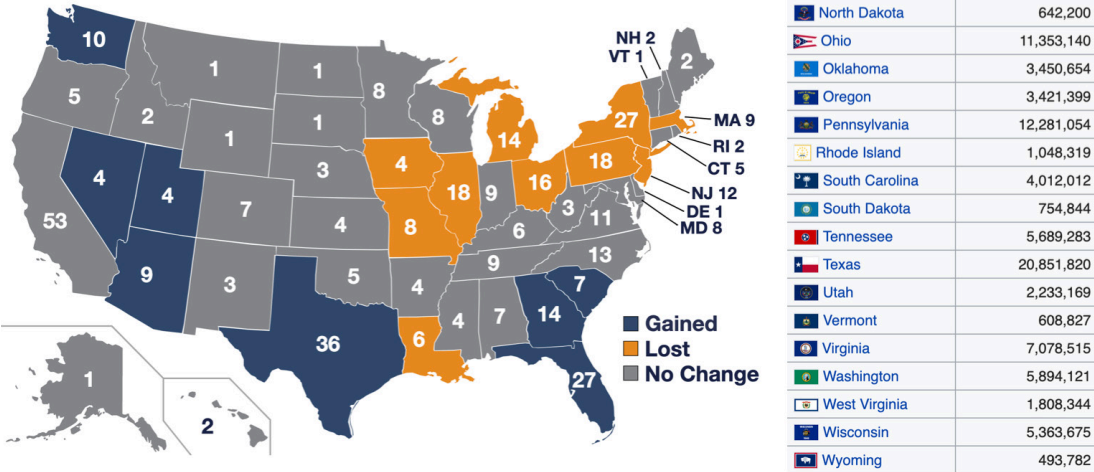**Brainstorm:** How does the country determine how many representatives each state has?

Objective: The purpose of this slide will be to uncover the current understandings of how representation is assigned in the United States.

Instructions:

1. Ask students to discuss in pairs: *How does the country determine how many representatives each state has?*
2. Prompt students to address both branches of congress; the senate and the house.
3. **Possible student answers include:**
   - *"Larger states get more representatives"*
   - *"There is a ratio between the number of representatives and state population"*
   - **Response***: Ask students to guess what the ratio might be between population and representatives and what information they would need in order to determine this.

5 minutes

Congressmen by State

North Dakota		642,200
Ohio		11,353,140
Oklahoma		3,450,654
Oregon		3,421,399
Pennsylvania		12,281,054
Rhode Island		1,048,319
South Carolina		4,012,012
South Dakota		754,844
Tennessee		5,689,283
Texas		20,851,820
Utah		2,233,169
Vermont		608,827
Virginia		7,078,515
Washington		5,894,121
West Virginia		1,808,344
Wisconsin		5,363,675
Wyoming		493,782

Gained
Lost
No Change

**How do we determine what the ratio is between citizen and representative?**

Objective: The purpose of this slide will be to come up with a function for how to determine how many representatives each stay receives.

Instructions:

1. Ask students to use the information on the board to create a formula that determines how many representatives each state receives.

2. **Potential questions to ask:**
   - *Should we include Wyoming (least populated state) in this calculation?"*
   - *Are there other states we should not include in our calculation?*
   - **Response**: Wyoming will skew the data as the population is well under the ratio of citizen:representative but will still receive a congressman. Other small states may skew the data. Large states should not skew the data.

⏰ 5 minutes

2000 to 2010: Changes in Congressmen
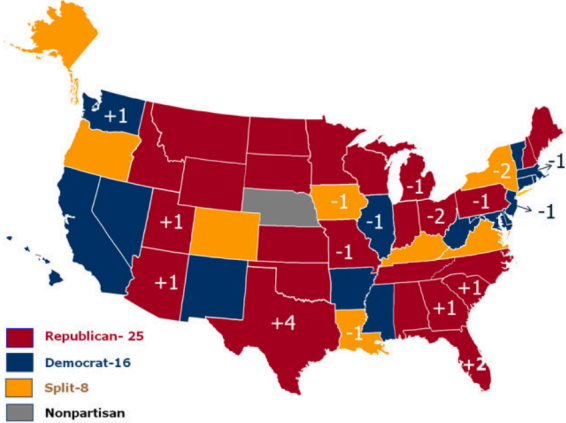
Illinois State Population:
2000 (12,419,293)
2010 (12,830,632)

New York State Population:
2000 (18,976,457)
2010 (19,378,102)

Texas State Population:
2000 (20,851,820)
2010 (25,145,561)

Republican- 25
Democrat-16
Split-8
Nonpartisan

Brainstorm: If our calculations are accurate, how is this possible?

Objective: Compare the answers established in the previous slide to the facts on the board. The purpose of this slide is to prove that though a ratio for population to number of congressmen is mostly accurate, it doesn't completely explain the system. If it did, states would not lose representation when their population grows.

Instructions:

1. Ask students to compare their results from the previous slide (the ratio between citizen : representative) to the figures on the board.

2. **Possible student answers include:**
   - *"Maybe the ratio changes every 10 years depending on the population size?"*
   - *"How would they calculate the new ratio every decade?"*
   - **Response**: The number of congressmen in this country has stayed at 435 since 1911, yet the country's population has almost quadrupled...

⏰ 3 minutes

A More Perfect Union: Unit Map

Lesson 1: Representation + Apportionment
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- 1.1: Questioning our assumptions about representation
- **1.2: Activity: Trying it ourselves**
- 1.3: Simulation: How does the United States of America does it?

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- 2.1 Simulating Districting in the Classroom
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Fixed: 435 members of the house

HOUSE

SENATE

435

100
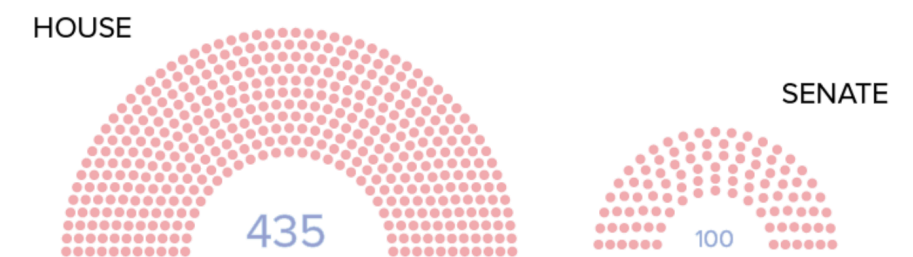
Actviity: how do you divvy up the 435 members of the house fairly?
Caveat: no such thing as a ½ congressman! Create a system or formula that you believe most *fairly* divides us our representation.

Objective: The purpose of this slide is to demonstrate how challenging (or impossible) it is to divide up a fixed number of representatives fairly.

Instructions:
1. Ask students to discuss in pairs: *How might you divide up a fixed number of congressmen as fairly as possible?*
2. **Potential questions to ask:**
   - Why wouldn't a fixed ratio do the trick? *(people are whole, not fractions)*
   - How do you make sure every state has a representative (Wyoming…)
   - What system is the most fair? Is any system totally fair?
3. **Activity: how do you divvy up the 435 members of the house fairly?**
   - Give students 15 minutes to think of their own system for determining a formula or system of dividing up all 435 representative of congress.
   - Activity Materials: List of 2010 census state populations
   - Groups: 3-4 students per group
   - At the end of the activity, students will share their methods

20 minutes

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Lesson 3: Presidential Elections + Electoral College

- 3.1 Let's take a vote!
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The United States of _____

State:	#1: _____	#2: _____	#3: _____	#4: _____	#5: _____
POPULATION (every 1 student = 1 million citizens)	(million)	(million)	(million)	(million)	(million)
REPRESENTATIVES					
$A_n = \dfrac{P}{\sqrt{n(n+1)}}$					
Representative Population					

Directions: Whichever group has the largest value of A receives the next representative. The task of the class is to now distribute all 25 representatives to the groups.

Objective: The purpose of this simulation is to model the system that the uses to United States divide their representatives. The system is dependent on the mathematical formula shown.

Instructions:

1. Divide the class into groups with the following system: (example is for 18 students)
    - State 1 = 1 student   State 2 = 2 students   State 3 = 3 students
    - State 4 = 4 students   *State 5 = 8 students*
      (Continue to distribute students as needed, be sure that the largest 'state' has at least 3 more students than the next largest)

2. Have students name their states. Next, complete the apportionment according to the formula show
    - *Each group is responsible for keeping track of their "A" value as the activity proceeds.*
    - *As each state receives a representative, they must recalculate their A value as well as the ratio of rep/population. Activity ends when all representatives have been allotted.*

3. **Potential questions to ask:**
    - *What does A actually represent?*
    - *Does this system work? What works about it?*
    - *What changes might you put into place to make it more "fair"?*

20 minutes

LESSON 2: Representation + Apportionment

Essential Question: *Does everyone have a voice?*

Understanding Goals:

- Student will understand how the process of district-drawing effects the representation of communities in regional and nation-wide elections.

- Students will understand how gerrymandering has historically been used, by both political parties, to deprive minority communities of representation and to better advantage the party in power.

- Students will understand what practices of district-drawing are most mathematically harmful to underrepresented communities as well what practice are most unbiased from a mathematical standpoint.

Performance Goals:

- Students will form judgments and opinions on the current system of representation allocation in the United States and state whether they believe it is mathematically fair.

- When given a map of districts and population distribution, students will be able to determine if it has been drawn to most fairly represent the communities present in the population.

- When given a map of districts and population distribution, students will be able to manipulate district borders to create an advantage for their given political priority.

LESSON INFORMATION

⏰ 60-75 minutes　　👥 10 - 30+ students　　13+ grades 8-12

Teacher Materials:

- **Slide-deck**
- **Slide handouts – if appropriate**
- **Group worksheets (final activity)**
- **Deck of cards (see activity)**

Student Materials:

- **Pencil**
- **Paper**
- **Calculator (optional)**

A More Perfect Union: Unit Map

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- 3.1 Let's take a vote!
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do now:

1. as you walk into the room, be sure to grab a card from the deck
2. tables should have close to same number of students, but no table should have an odd number.

Objective: The purpose of this activity is to demonstrate the power of district drawing and to allow students to experience the disenfranchising that it can cause.

Activity Prep:
- To prepare for this activity, the teacher should collect playing cards (or something similar) which are either red or black.
- There should be a card for every student in your class and you should have about 60% of the cards be one color, and 40% be another color. (e.g. 12 black cards, 8 red cards)
- You should then have a seating arrangement set up such that students are sitting at 5 separate tables.
- Direct students to take a card as they enter the classroom and to do their best to make the tables have a similar number of students. No table should have an even number of students (this is to make sure that there will be a winning vote at each table).
- Once all students have entered the classroom you may begin the simulation **(see next slide)**

3 minutes

Would you rather have 5 hours of school, 7 days a week or 8 hours of school, 5 days a week?

BLACK: If you are holding a black card, you represent a voter who would rather have 8 hours of school for 5 days.

RED: if you are holding a black card, you represent a voted who would prefer 5 hours of school, every day of the week

District 1		District 2		District 3		District 4		District 5	
RED	BLACK	RED	BLACK	RED	BLACK	RED	BLACK	RED	BLACK

Reflection Questions:

- If we had taken a popular vote, what would our results have been?

- What were the 3 results of our votes?

- What does this tell us about districting?

- What does it *not* tell us about districting? What's different?

Objective: The purpose of this activity is to demonstrate the power of district drawing and to allow students to experience the disenfranchising that it can cause.

Activity Instructions:

1. Take a vote on the question posed. Students must vote according to their card color.
2. Determine the winner of the election. Each district holds the same weight.
3. Next, erase the votes and start the following scenario, beginning by addressing team **RED**, who ought to be the team with 40% of the vote given the distribution of cards at the beginning of the activity: *"Team **RED**, you are now in power and can create whatever seating assignments you would like. If you are determined to win this vote, how would you change the seating?"* Once they have changed the seating, tally up the votes to see if they succeeded. Discuss why or why not they were successful.
4. Erase the votes once more. Address team **BLACK** (the team with 60% of the vote): *"Team **BLACK**, you've had enough of team Red, can you erase their vote entirely? Can you create a 5-0 result? If not how close can you get?"* Once they have changed the seating, tally up the votes to see if they succeeded. Discuss why or why not they were successful.

Activity Reflection:

1. Ask students to compare their results from the previous slide (the ratio between citizen : representative) to the figures on the board.
2. **Reflection questions:**
   - *If we had taken a popular vote, what would our results have been?*
     Response: 40% red, 60% black

   - *What were the 3 results of our votes?*
     Response: Discuss how this is possible

   - *Could red have eliminated black votes? What does this tell us about districting?*
     Response: Whoever draws the lines, has the power over the vote.

   - *How does this exercise differ from the actual process of district drawing?*
     Response: People aren't moved around, the lines are drawn, so it is somewhat more limited than free-movement.

A More Perfect Union: Unit Map

Lesson 1: Representation + Apportionment

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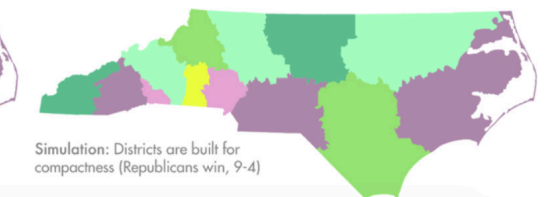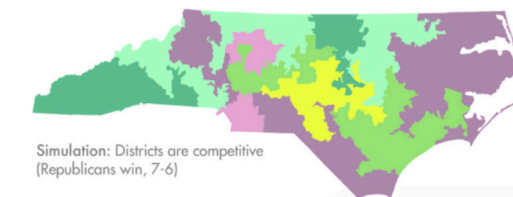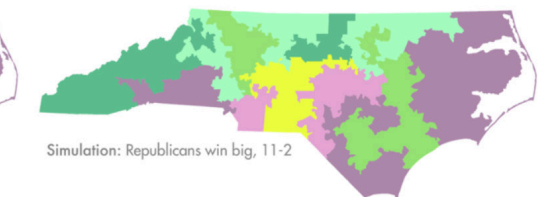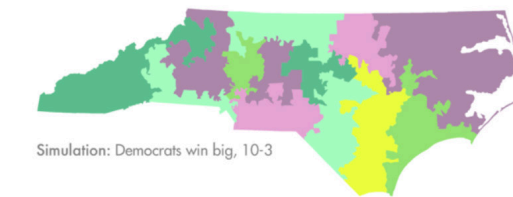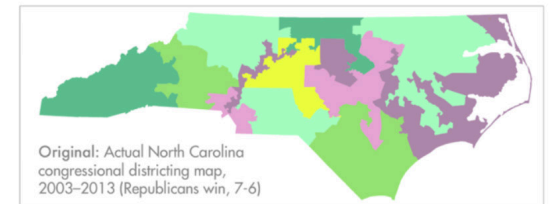## Lesson 2: District Drawing + Gerrymandering

- 2.1 Simulation: Districting in the Classroom
- **2.2 History of Gerrymandering**
- 2.3 We, the gerrymanderers…

Lesson 3: Presidential Elections + Electoral College

- 3.1   Let's take a vote!
- 3.2: Electoral vs. Popular Vote
- 3.3: Group Activity: Majority Rules

A BETTER MAP?

To uncover the roots of gerrymandering, researchers have created a simulation algorithm that generates millions or billions of district maps for comparison. Using presidential election results (in this case, the 2008 election, in which Barack Obama and John McCain nearly tied in North Carolina), the algorithm can calculate which party has the advantage in each map it draws.

Original: Actual North Carolina congressional districting map, 2003–2013 (Republicans win, 7-6)

Simulation: Democrats win big, 10-3

Simulation: Republicans win big, 11-2

Simulation: Districts are competitive (Republicans win, 7-6)

Simulation: Districts are built for compactness (Republicans win, 9-4)

Objective: The purpose of this slide is to show examples of district-drawing, how political parties use algorithms to help win elections. The above example is taken from Quanta Magazine and shows four simulated state maps of the North Carolina vote in the 2008 presidential election between Obama and McCain. The votes were not altered in these simulations, just the district borders.[1]

References:

1. Klarreich, Erica, and Quanta Magazine. "The Mathematics Behind Gerrymandering." Quanta Magazine, www.quantamagazine.org/the-mathematics-behind-gerrymandering-20170404/.

2 minutes

Modern Gerrymanders

These newly drawn congressional districts are among the most contorted in the nation. In some places, their appendages are not much wider than a highway.

Florida 14th — Tampa, St. Petersburg

Illinois 4th — Chicago

Illinois 7th — Chicago

Maryland 2nd — Baltimore

Maryland 3rd — Baltimore

North Carolina 1st — Raleigh

North Carolina 12th — Winston-Salem, Charlotte

Ohio 9th — Toledo, Cleveland

Pennsylvania 7th — Philadelphia

Texas 35th — Austin, San Antonio

Graphic by: PETER BELL

Source: State redistricting officials

Objective: The purpose of this slide is to show examples of gerrymandered districts in modern congressional districts. This image was taken from an article on Gerrymandering by website, Represent.Us.[1]

Potential questions:

- *What strikes you as unusual about these districts?*
- *What aspects of district-drawing might you look for to identify a gerrymandered district?*

References:

1. "Gerrymandering." RepresentUs, act.represent.us/sign/gerrymandering/

🕐 3 minutes

A More Perfect Union: Unit Map

Lesson 1: Representation + Apportionment

Lesson 2: District Drawing + Gerrymandering

Lesson 3: Presidential Elections + Electoral College

Objective: The purpose of the following slides is to practice, as a class, the power of redistricting. These problems are adapted from a lesson created for the Educational Resources section of Science Friday.[1]

Activity Instructions:

1. The teacher should articulate the following instructions for students:
   - *Work with the person next to them to determine how to draw district lines for the above 'state' so that all scenarios (A-D) are possible.*
2. Students might assume that districts need to be the same size. If that's true, then they will not be able to make scenario C work (D is impossible). However, this is an assumption about how fair distribution ought to function, and is not necessarily true (unbalanced district-sizes is a characteristic of gerrymandering).
3. Use this example as one of the rules they should be generating in the worksheet to determine what are the best practices of district-drawing.

References:

1. Zych, Ariel. "District Drawing Is Like Sudoku." Science Friday, www.sciencefriday.com/educational-resources/district-drawing-is-like-sudoku/.

5 minutes

3 DISTRICTS

Scenario A: 3 green, 0 white districts
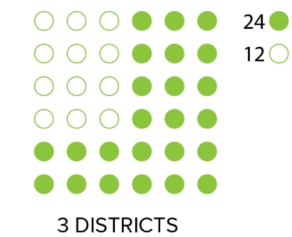
3 DISTRICTS

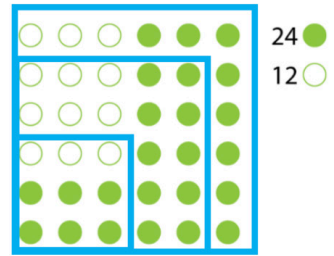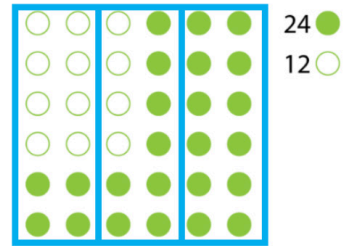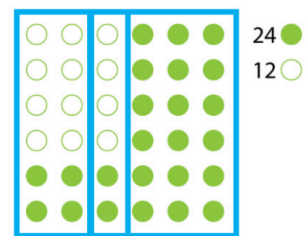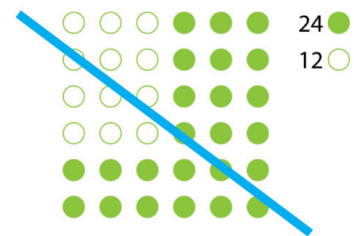**Scenario B:** 2 green, 1 white districts

3 DISTRICTS

Scenario C: 1 green, 2 white districts

3 DISTRICTS

Scenario D: 0 green, 3 white districts

Objective: This slide offers one set of solutions for the scenarios above.

https://www.wired.com/story/pennsylvania-partisan-gerrymandering-experts/
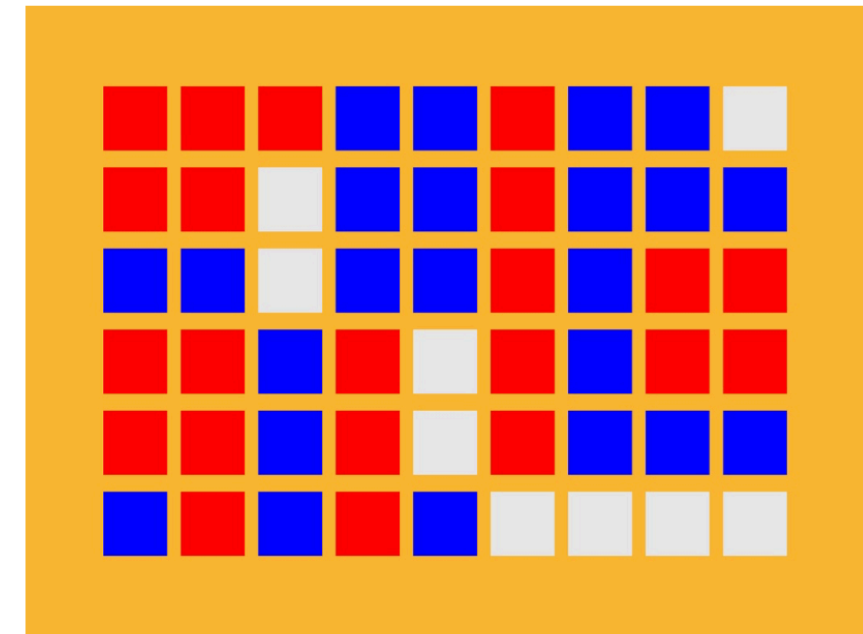
Group Worksheet: work in groups to determine what the qualities of fair districting might be. Likewise, what are the indicators of unfair districting?

Objective: This slide introduces the group worksheet. The intention of the worksheet is to have students investigate the different ways in which one can manipulate district borders and the strategies that are indicative of a gerrymandered state. **(see worksheet)**

5 minutes

20 minutes

LESSON 3: Presidential Elections + Electoral College

Essential Question: *Does majority rule?*

Understanding Goals:

- Students will understand the process by which the electoral college elects a president.
- Students will understand the mathematical implications of our current system of national elections.
- Students will understand how it is possible to win the popular vote but not the election

Performance Goals:

- Students will be able to articulate the mathematical justifications and shortcomings of our electoral college system.
- Students will be able to create hypothetical election results that exaggerate the shortcomings of the electoral college.
- Students will suggest and design systems that are more mathematically fair.
- Students will be able to articulate why swing states are so impactful on the election.

LESSON INFORMATION

🕐 60-75 minutes   👥 10 - 30+ students   13+ grades 8-12

Teacher Materials:

- Slide-deck
- Lesson 3 worksheets

Student Materials:

- Pencil
- Paper
- Calculator (likely needed)

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- 1.0: Pre-assessment: reflection + retrieval
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Lesson 3: Presidential Elections + Electoral College

- **3.1 Let's take a vote!**
- 3.2: Electoral vs. Popular Vote
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voting activity pt. 1: REPRESENTATION
The United States of _____

STATE	#1: _____	#2: _____	#3: _____	#4: _____	#5: _____
POPULATION (every 1 student = 1 million citizens)	(million)	(million)	(million)	(million)	(million)
REPRESENTATIVES					
$A_n = \dfrac{P}{\sqrt{n(n+1)}}$					
Representative / Population					

Objective: Part 1 of this activity will review the lessons of representation and apportionment.

Instructions: The format of this will depend on students being split into an odd number of groups. For an example sake, we will say that there are 20 students in the class, and we will split them into 5, uneven groups. This activity works best when most (not necessarily all) groups are made up of an odd number of students.

Example: Group A: 1 students   Group B: 3 students   Group C: 4 students
              Group D: 5 students   Group E: 7 students

Step 1: The representation procedure will go as follows:
- Each group will have representation apportioned in the process that was discovered in Lesson 1, dividing up a total of 15 representatives.
- Similar to the activity in lesson 1, have each group keep track of their own A value and advocate for representation if their state has the largest A value. Continue this process until all 15 delegates are apportioned.

Example: Group A: 1 students = 1 rep   Group B: 3 students = 2 rep
              Group C: 4 students = 3 rep   Group D: 5 students = 4 rep
              Group E: 7 students = 5 rep

8 minutes

voting activity pt. 2: THE VOTE

The United States of _____

STATE	#1: _____	#2: _____	#3: _____	#4: _____	#5: _____
POPULATION (every 1 student = 1 million citizens)	(million)	(million)	(million)	(million)	(million)
REPRESENTATIVES					
VOTE:					
ELECTORAL WEIGHT:					

Round 1: Which ice-cream flavor should I bring into class tomorrow?
- Top contenders are: "Vanilla" or "Chocolate"
- Students may NOT write in their own selection for this simulation
- If there a tie, students of a group must decide on how to best decide

Objective: Part 2 of this activity will introduce the electoral college.

Step 2: The first round of voting will be about ice-cream (or add in your own question as you see appropriate). Important considerations for the voting:

- Only two options: "Vanilla" or "Chocolate"

- Students may NOT write in their own selection for this simulation

- If there a tie, students of a group must decide on how to best decide. **This is consistent with the federal law that requires each state to determine the results of a tie.**

- See example results on the following page.

Examples of potential voting results.

Note: students should reflect on whether the electoral vote reflects the popular vote

Example 1:

STATE 1	chocolate							Choc = 1
STATE 2	vanilla	chocolate	vanilla					Vanilla = 2
STATE 3	vanilla	chocolate	chocolate	chocolate				Choc = 3
STATE 4	vanilla	chocolate	chocolate	vanilla	vanilla			Vanilla = 4
STATE 5	vanilla	vanilla	vanilla	chocolate	chocolate	chocolate	chocolate	Choc = 5

Electoral Vote: 9 chocolate – 6 vanilla   **Popular Vote:** 11 Chocolate – 9 vanilla

Example 2:

STATE 1	chocolate							Choc = 1
STATE 2	chocolate	chocolate	chocolate					Choc = 2
STATE 3	chocolate	chocolate	chocolate	chocolate				Choc = 3
STATE 4	vanilla	vanilla	chocolate	chocolate	chocolate			Choc = 4
STATE 5	vanilla	vanilla	vanilla	vanilla	vanilla	vanilla	vanilla	Vanilla = 5

Electoral Vote: 10 chocolate – 5 vanilla   **Popular Vote:** 11 Chocolate – 9 vanilla

EXAMPLE VOTE COUNT

12 minutes

voting activity pt. 2: Reflection
The United States of _____

	#1: _____	#2: _____	#3: _____	#4: _____	#5: _____
STATE					
POPULATION (every 1 student = 1 million citizens)	(million)	(million)	(million)	(million)	(million)
REPRESENTATIVES					
VOTE:					
ELECTORAL VOTES WON:					

Round 2 Reflection: Given the results of the previous vote, how many votes can you lose while still winning the election? These votes are called "wasted votes" as they are not needed for an election victory.

Objective: This slide will ask students to reflect on the previous vote. The concept of a "wasted vote" is important in understanding how elections are won without the majority of the popular vote.

Step 3: The teacher should give the following instructions:

- The teacher should ask the question posted on the slide: *"Given the results of the previous vote, how many votes can you lose while still winning the election? These votes are called "wasted votes" as they are not needed for an election victory."*
- Reflection Questions:
  - *"What is the significance of the wasted vote?"*
  - *"What does it mean for elections in the United States?"*

🕐 10 minutes

A More Perfect Union: Unit Map

Lesson 1: Representation + Apportionment

- 1.0: Pre-assessment: reflection + retrieval
- 1.1: Questioning our assumptions about representation
- 1.2: Activity: Trying it ourselves
- 1.3: Simulation: How does the United States of America does it?

Lesson 2: District Drawing + Gerrymandering

- 2.1 Simulation: Districting in the Classroom
- 2.2 History of Gerrymandering
- 2.3 We, the gerrymanderers…

Lesson 3: Presidential Elections + Electoral College

- 3.1 Let's take a vote!
- **3.2: Electoral vs. Popular Vote**
- 3.3: Group Activity: Majority Rules

https://www.economist.com/graphic-detail/2016/12/28/americas-electoral-college-and-the-popular-vote
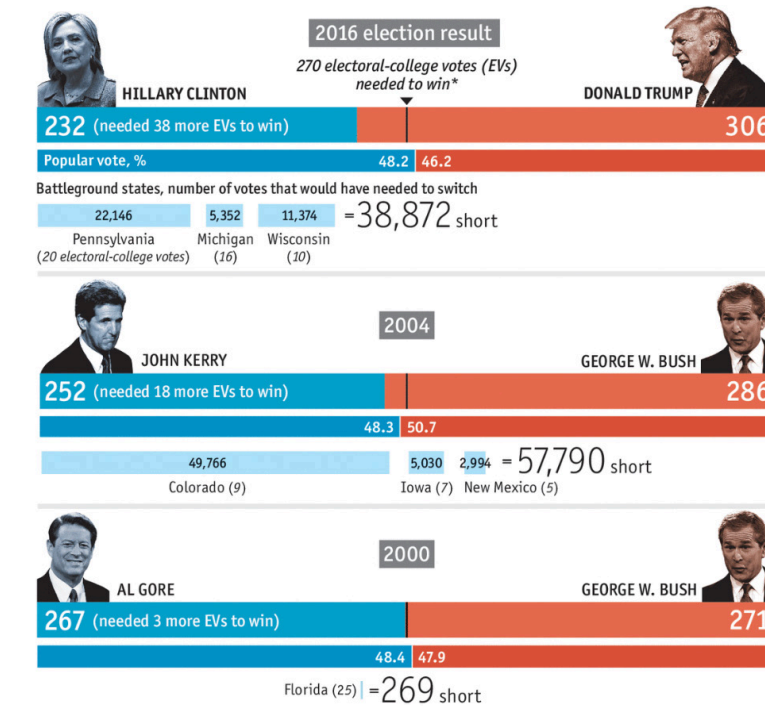
How is this possible? Should it be possible?

Objective: Students will look at this slide and determine why it might be possible to lose the popular vote and win the election. Once students have generated ideas as to why this is possible, they can then start the group activity. The graphics on this slide come from The Economist.[1]

References:

1. "America's Electoral College and the Popular Vote." The Economist, The Economist Newspaper, www.economist.com/graphic-detail/2016/12/28/americas-electoral-college-and-the-popular-vote.

5 minutes

A More Perfect Union: Unit Map

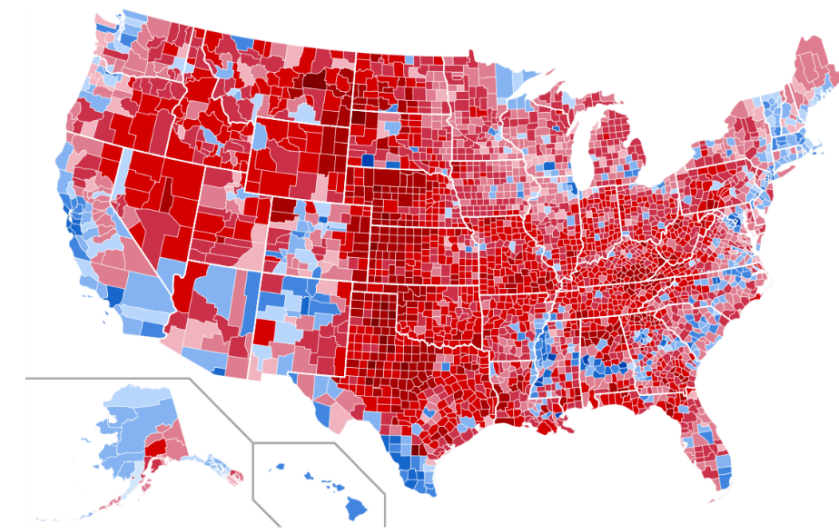### Lesson 1: Representation + Apportionment

- 1.0: Pre-assessment: reflection + retrieval
- 1.1: Questioning our assumptions about representation
- 1.2: Activity: Trying it ourselves
- 1.3: Simulation: How does the United States of America does it?

Lesson 2: District Drawing + Gerrymandering

- 2.1 Simulation: Districting in the Classroom
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Lesson 3: Presidential Elections + Electoral College

- 3.1 Let's take a vote!
- 3.2: Electoral vs. Popular Vote
- **3.3: Group Activity: Majority Rules?**

Group Work:
1. What is the smallest amount of states you need to win in order to win a general election?
2. What is the smallest amount of votes you need to win the general election?
3. Are swing states actually more important?
4. Is our system working? Why or why not?

Objective: Students will look at this slide and determine why it might be possible to lose the popular vote and win the election.

Instructions: Once the class has generated ideas as to why it might be possible to win a general election but not the majority of the votes, the class may begin the group activity.

Step 1: Students are split into groups of 2-4 students in order that they all participate in the group discussions and activity.

Step 2: Students are given the worksheet which includes a given a spreadsheet of states and their corresponding electoral representation figures. Then, students will be asked to answer the questions stated above. **(see worksheet)**

Step 3: Lastly, students will complete a reflection exercise as their final assessment for the unit.

30 minutes

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Lesson2/Slide 6: Zych, Ariel. "District Drawing Is Like Sudoku." Science Friday, www.sciencefriday.com/educational-resources/district-drawing-is-like-sudoku/.

Lesson2/Slide 7: Zych, Ariel. "District Drawing Is Like Sudoku." Science Friday, www.sciencefriday.com/educational-resources/district-drawing-is-like-sudoku/.
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Lesson 3/Slide 4: "America's Electoral College and the Popular Vote." The Economist, The Economist Newspaper, www.economist.com/graphic-detail/2016/12/28/americas-electoral-college-and-the-popular-vote.

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