

State lawmakers have the opportunity to redraw voting districts after each national census, in order to adjust for changes in population. Modifying voting districts may be done for a variety of legitimate reasons, but can also be used to reinforce the control of current leadership. In 1812, when Massachusetts governor Elbridge Gerry made a voting district that looked sort of like a salamander, the term “gerrymander” was born. This particular form of redistricting can be highly influential to election outcomes.

Congress has tried to regulate redistricting through legislation. Most recently, in 1982, it amended the Voting Rights Act to try and protect the voting rights of racial minorities. However, even under this and other voting laws, states still have a lot of leeway when creating congressional districts, which can lead to gerrymandering.

For the following puzzles, a voting area is being redistricted. The vote total of all precincts within each new district will determine the election outcome within that district. Your task is to form the designated number of districts from the given precincts so that the number of “No” voting districts is greater than the number of “Yes” voting districts. Each district must contain the same number of contiguous (edges touching, not just corners) precincts.

Finally, I feel it is necessary to put a general disclaimer here. These puzzles are not meant to make anyone good at gerrymandering! Since most voting precincts are not square, these puzzles represent an idealized demonstration of how redistricting can work, and the real possibility (and danger) of being able to influence an election through gerrymandering.

Technical and historical information gathered from www.fairvote.org.

Here is one example to show how you can influence the results of an election through redistricting:

Below is a voting area that will be broken down into three equal-sized districts. Notice that, while the total vote count swings in favor of the "Yes" vote, the number of precincts swings in favor of the "No" vote.

By dividing the region vertically, the strong "Yes" vote precincts are distributed equally among the three districts. This results in each district having a "Yes" majority. This matches the expectations of the overall vote count.

However, by dividing the region horizontally, the strong "Yes" vote precincts are isolated into one district. This results in one overwhelming "Yes" district, and two "No" districts. This matches the expectations of the precincts count.

Y: 50	Y: 50	Y: 50
N: 0	N: 0	N: 0
Y: 15	Y: 15	Y: 15
N: 35	N: 35	N: 35
Y: 15	Y: 15	Y: 15
N: 35	N: 35	N: 35

Y: 50	Y: 50	Y: 50
N: 0	N: 0	N: 0
Y: 15	Y: 15	Y: 15
N: 35	N: 35	N: 35
Y: 15	Y: 15	Y: 15
N: 35	N: 35	N: 35

Y: 50	Y: 50	Y: 50	Y: 150
N: 0	N: 0	N: 0	N: 0
Y: 15	Y: 15	Y: 15	Y: 45
N: 35	N: 35	N: 35	N: 105
Y: 15	Y: 15	Y: 15	Y: 45
N: 35	N: 35	N: 35	N: 105

total vote	precincts
count	count
Y: 240	Y: 3
N: 210	N: 6

Y: 80	Y: 80	Y: 80
N: 70	N: 70	N: 70

This is an example of the first method of gerrymandering: concentrating opposition votes so that they are isolated in certain districts. The technical term for this is "packing".

Here is another example to show how you can influence the results of an election through redistricting:

Below is another voting area that will be broken down into three equal-sized districts. Notice that now both the total vote count and the number of precincts swing in favor of the "Yes" vote.

Y: 45 N: 5	Y: 40 N: 10	Y: 40 N: 10
Y: 5 N: 45	Y: 30 N: 20	Y: 30 N: 20
Y: 5 N: 45	Y: 30 N: 20	Y: 30 N: 20

total vote count	precincts count
Y: 255	Y: 7
N: 245	N: 2

By dividing the region vertically, the three strong "Yes" vote precincts are distributed more or less evenly among the three districts, with the two strong "No" vote precincts concentrated in one district. This results in two "Yes" districts and one "No" district, which matches the expectations of the overall vote count.

Y: 45 N: 5	Y: 40 N: 10	Y: 40 N: 10
Y: 5 N: 45	Y: 30 N: 20	Y: 30 N: 20
Y: 5 N: 45	Y: 30 N: 20	Y: 30 N: 20

Y: 55 Y: 100 Y: 100
N: 95 N: 50 N: 50

However, by dividing the region horizontally, the strong "Yes" vote precincts are isolated into one district, while the slightly weaker "Yes" vote precincts are overpowered by the two strong "No" vote precincts. This results in one overwhelming "Yes" district, and two "No" districts.

Y: 45 N: 5	Y: 40 N: 10	Y: 40 N: 10	Y: 125 N: 25
Y: 5 N: 45	Y: 30 N: 20	Y: 30 N: 20	Y: 65 N: 85
Y: 5 N: 45	Y: 30 N: 20	Y: 30 N: 20	Y: 65 N: 85

This is an example of the second method of gerrymandering: diffusing votes so that they are simply not strong enough to win certain districts. The technical term for this is "dilution".