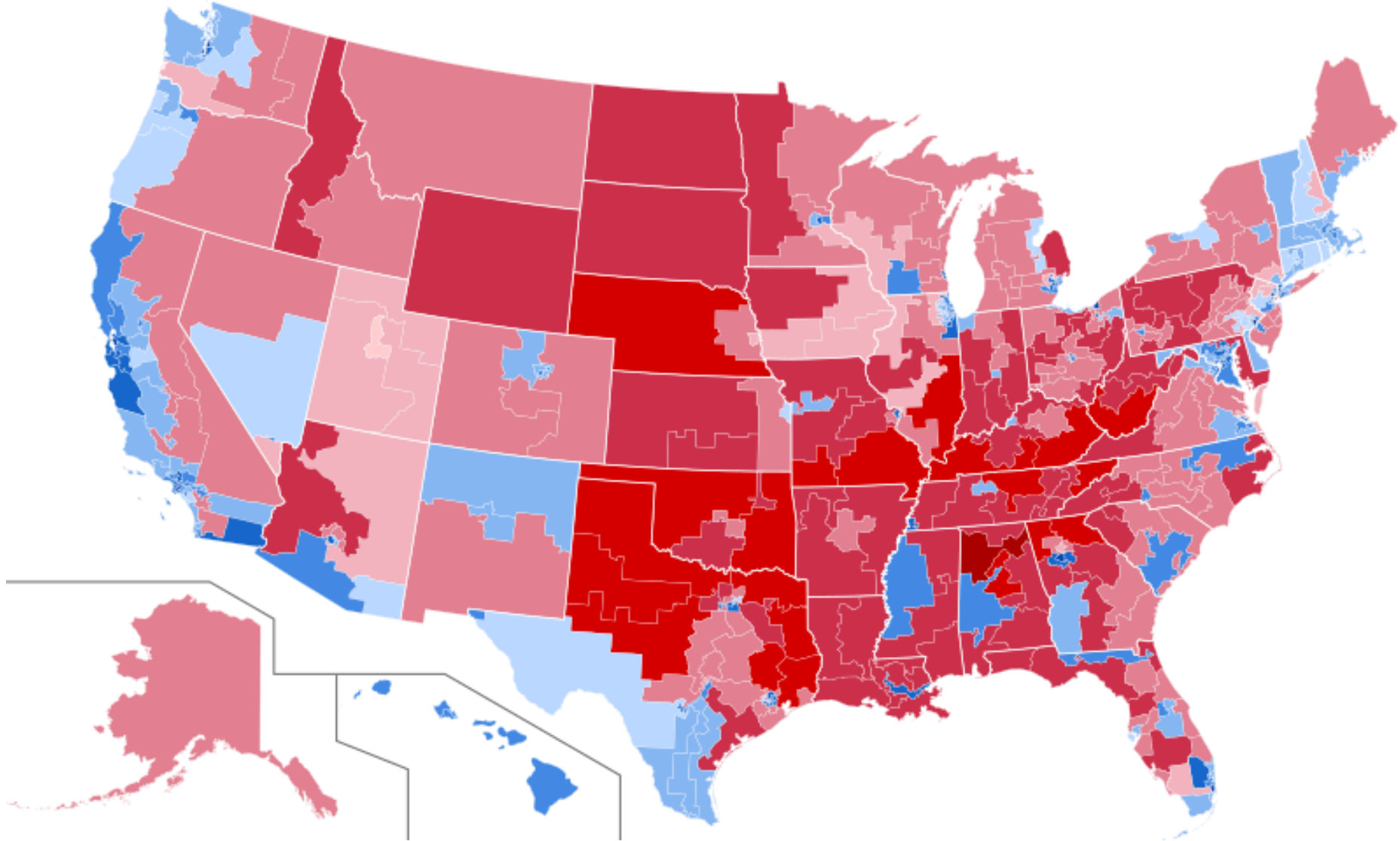


A complex network diagram with various sized nodes (black, blue, grey) and connecting lines, overlaid on a background of faint, light blue circular patterns.

Mathematics and Redistricting

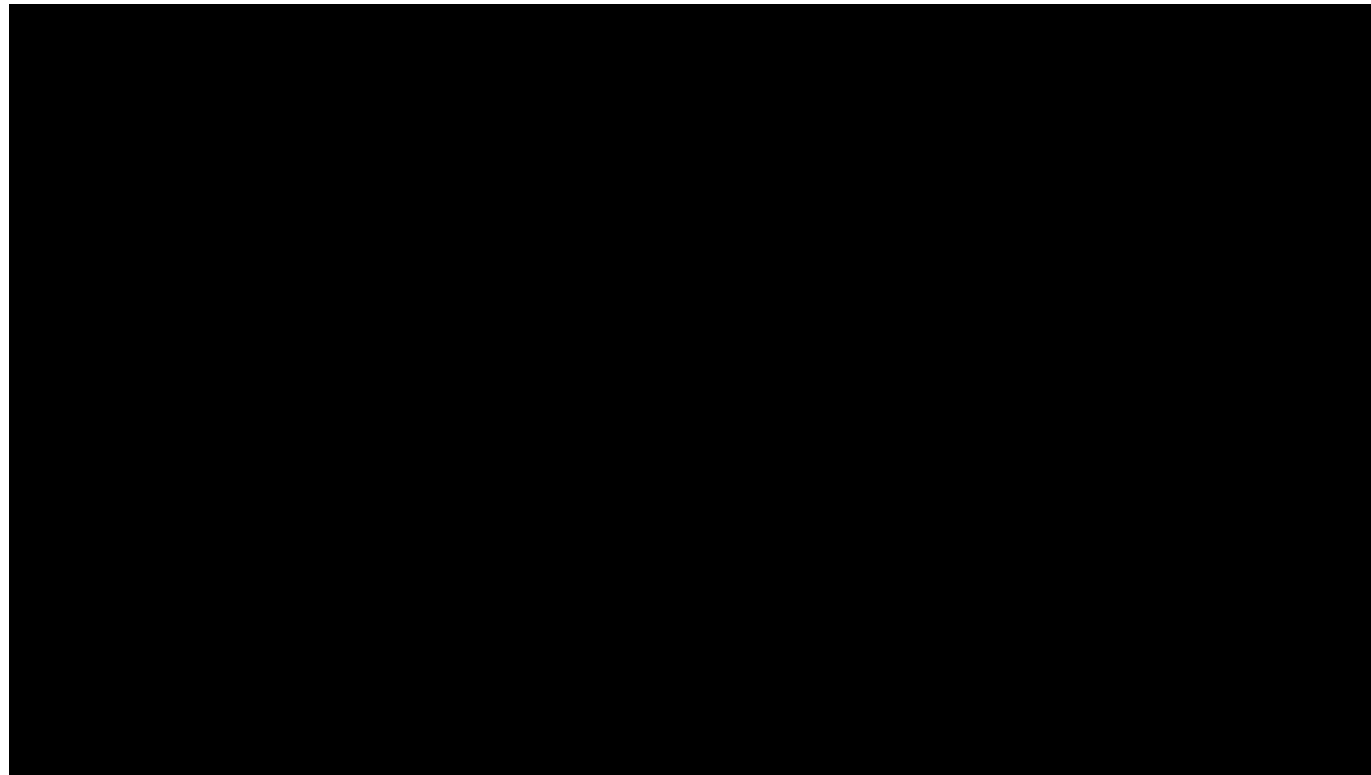
Trinity College, Fall 2021 (Kyle Evans)

What is redistricting / gerrymandering?



The only introduction you need...

<https://www.youtube.com/watch?v=A-4dIlmaodQ>



Redistricting Principles

Redistricting – the required process of redrawing maps every 10 years

*(1) to ensure the “one person, one vote” principle, all congressional and state legislature districts must contain roughly the same number of people

*(2) all districts must be contiguous, meaning that they are one connected shape

*(3) districts must abide by racial fairness (Voting Rights Act of 1965)

(4) districts should be compact, meaning that they have “nice and tidy” shapes

(5) districts should be fair to each party, with representation being roughly proportional to each party’s voters

(6) districts should preserve existing political communities rather than separate them into different districts

Gerrymandering (Types and Strategies)

Gerrymandering – the practice of political parties in power redrawing the district lines to maximize the representation of their party

Racial Gerrymandering – the (illegal) practice of drawing district lines to reduce the impact of minority voters by limiting their ability to elect candidates of their choice

Partisan Gerrymandering – the practice of drawing district lines to maximize a political party's advantage in elected representatives

Your turn!

Overall goal: Create 5 (connected) districts with 9 voters each

Create three different maps:

- 1) Maximize number of districts won by ★
- 2) Maximize number of districts won by ◆
- 3) A “fair” map

Your Map

Create 5 connected districts with 9 voters each

★	◆	★	★	◆	★	◆	★	◆
★	★	◆	★	★	◆	◆	◆	◆
★	◆	★	★	◆	◆	★	◆	★
★	★	◆	★	★	★	★	◆	★
★	◆	★	◆	★	◆	◆	★	★

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Packing – the practice of map drawers placing as many voters of the opposing party into as few districts as possible to maximize their number of districts won

Cracking – the practice of map drawers splitting up voters of the opposing party into many districts to obtain a (slight) majority in as many districts as possible

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Partisan Gerrymandering

Wisconsin – (2012) 48.6% of people voted Republican → 60% of legislators

(2014) 52% of people voted Republican → 63% of legislators

Maryland – twice as many registered Democrats → 7/8 Congressional districts

~50% Black population → ~25% of Black representatives

North Carolina – 2011 map determined illegal (racial gerrymandering)

(2016) new map drawn to give 10–3 partisan advantage to Republicans

(2020) new map resulted in 8–5 advantage to Republicans

Pennsylvania – 2011 map determined illegal → 13 Republicans: 5 Democrats

(2018) new map → 9 Republicans: 9 Democrats

Partisan Gerrymandering

Supreme Court

June 27, 2019

"partisan gerrymandering claims present political questions beyond the reach of the federal courts"

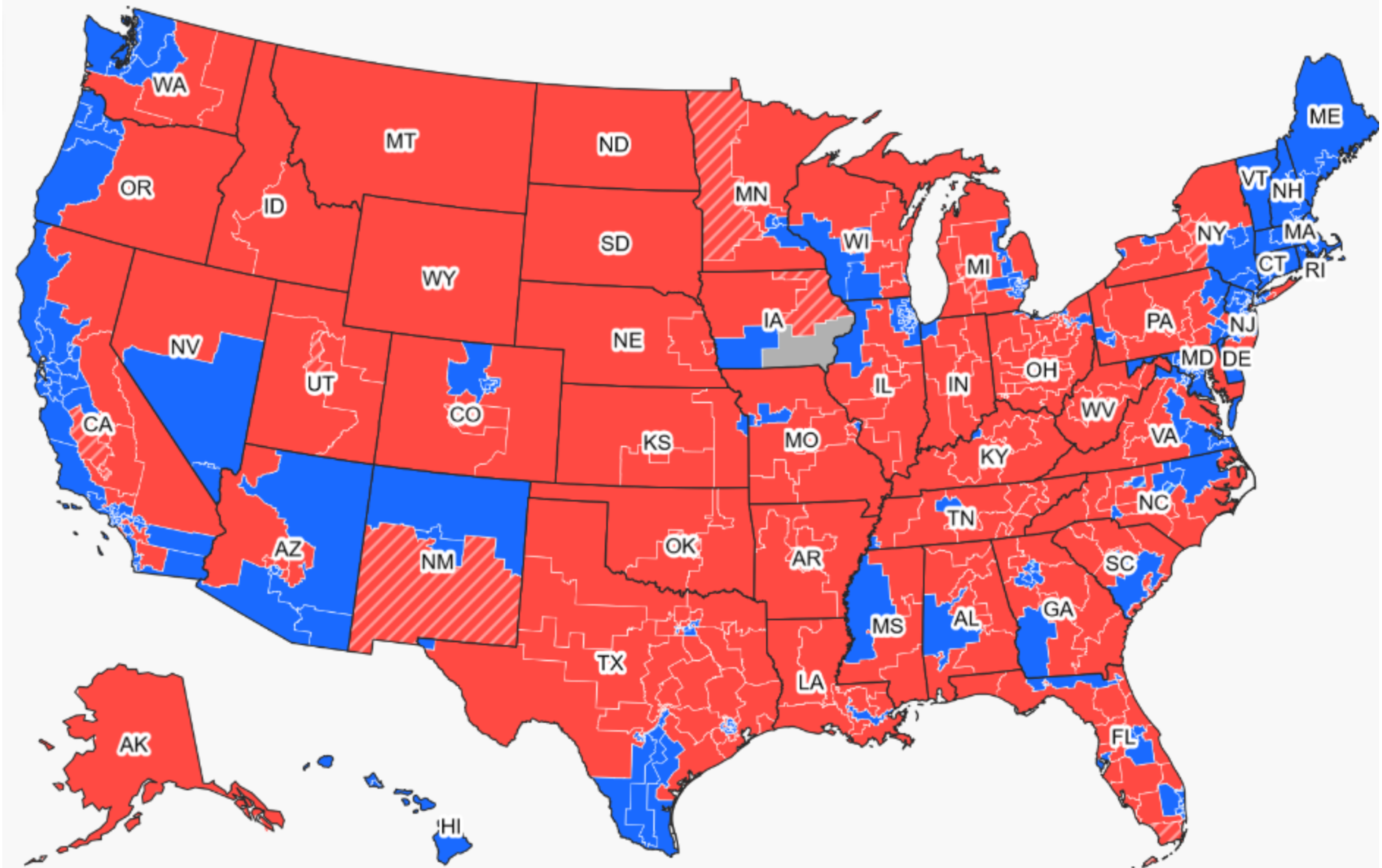
222 DEMOCRATS ✓

218 for Control of House

REPUBLICANS 212

Gained 3 Seats, Lost 13 Seats

Gained 14 Seats, Lost 3 Seats



Typical Redistricting Timeline

April 2020 – U.S. Census

November 2020 – Election Day

December 2020 – Apportionment

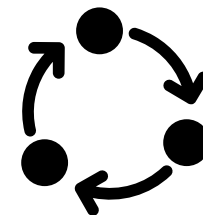
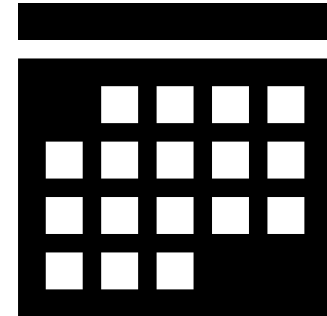
(2021-2022) – Redistricting deadlines

November 2022 – Election Day

November 2024 – Presidential election

November 2028 – Presidential election

April 2030 – U.S. Census



Adjusted Redistricting Timeline

April 2020 – U.S. Census

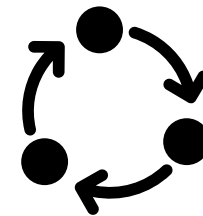
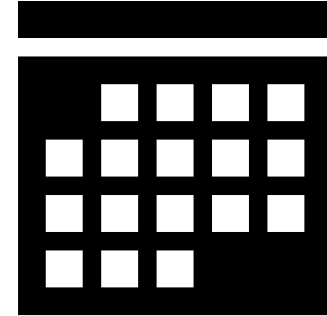
November 2020 – Election Day

~~December 2020~~ April 30, 2021 – Apportionment

August 12, 2021 – Redistricting data to states

(2021-2022) – Redistricting deadlines?

November 2022 – Election Day

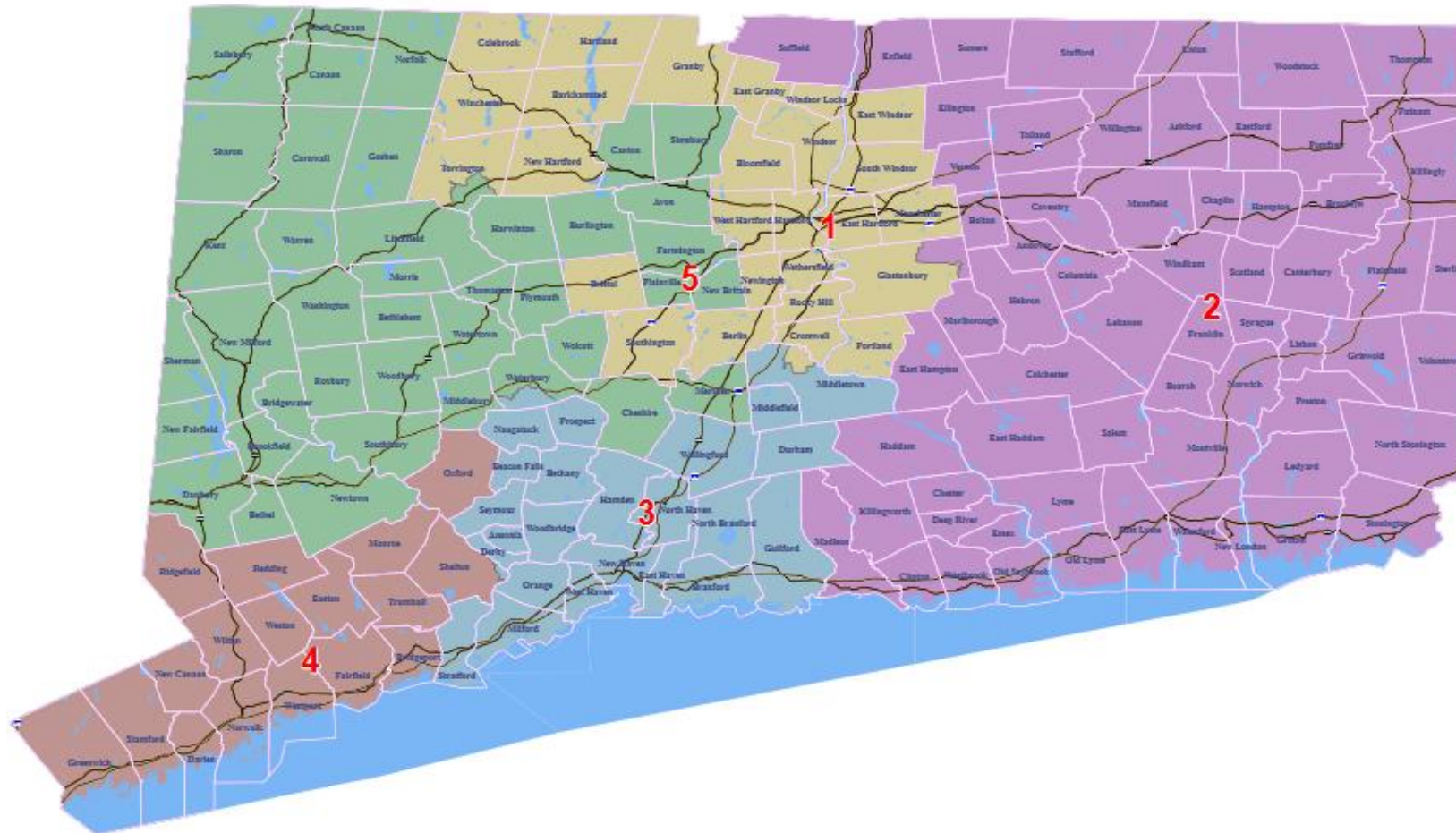


What Maps are Redrawn?

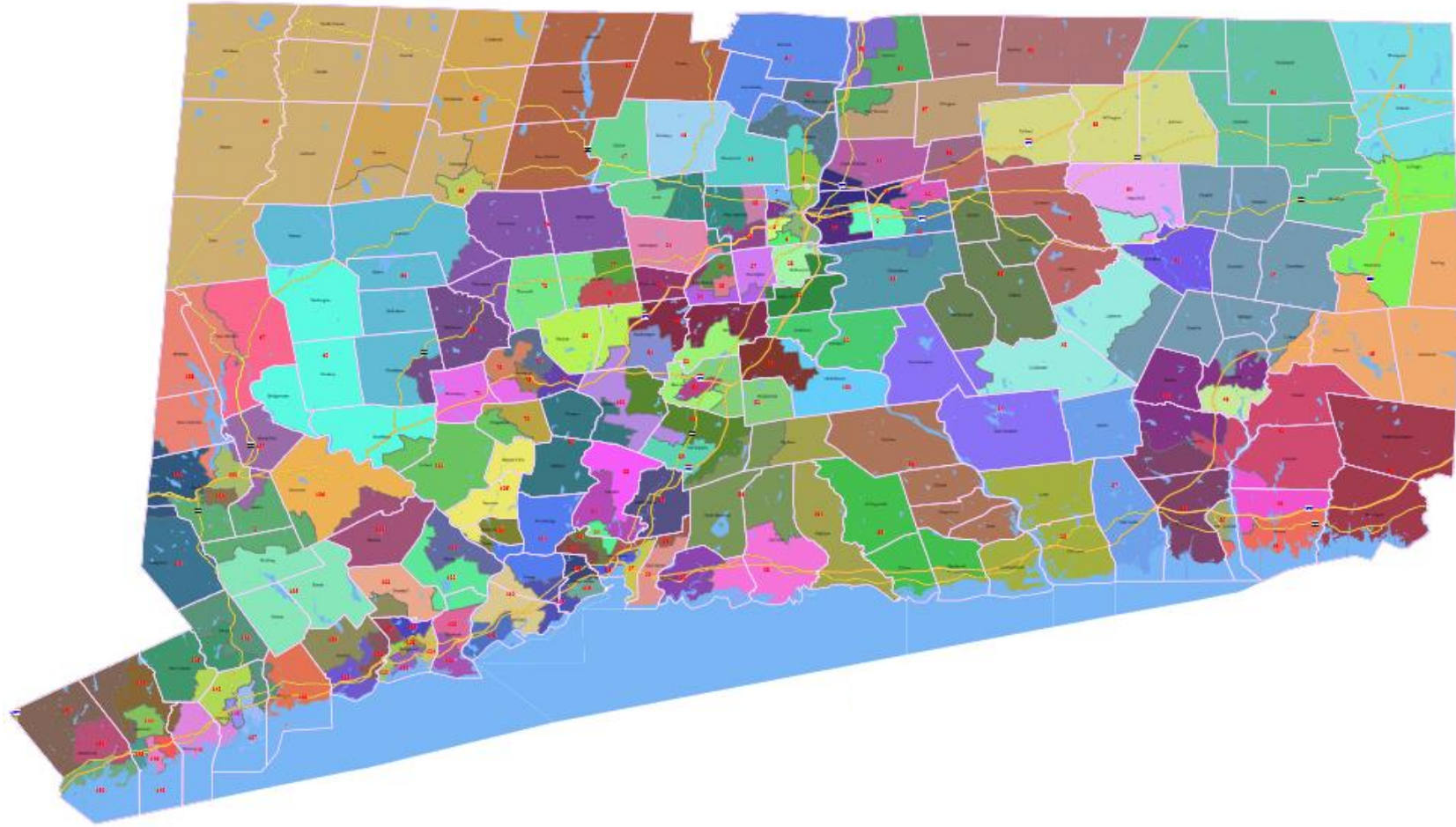
Every 10 years, the U.S. Census data forces *redistricting* or the redrawing of three different statewide maps:

- Congressional districts
 - Number determined by an apportionment method (Huntington-Hill Method)
- State House districts
 - Number varies by state (151 in Connecticut)
- State Senate districts
 - Number varies by state (36 in Connecticut)

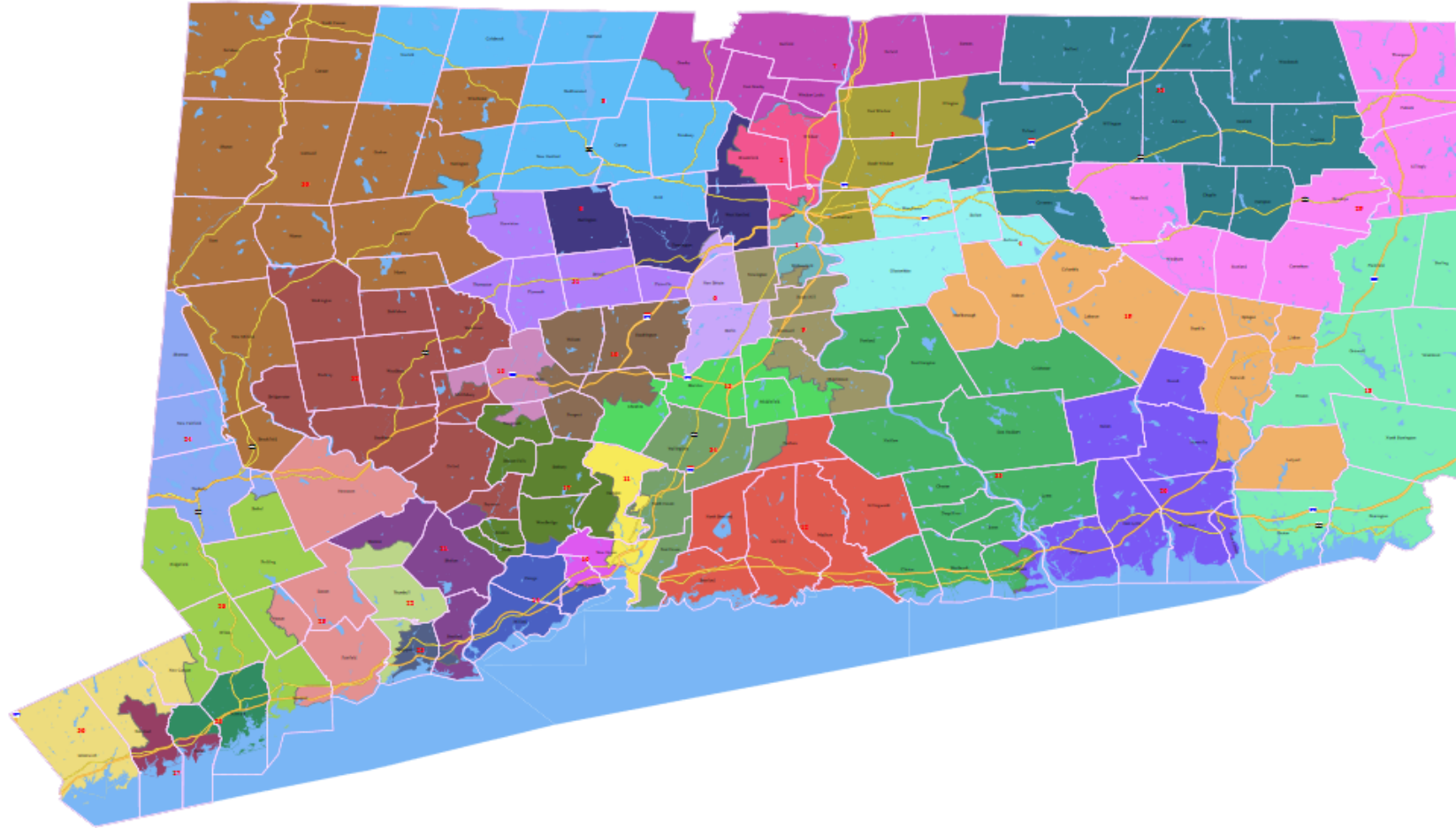
Congressional Districts



State House Districts



State Senate Districts



Who draws the maps? What is the process in Connecticut?

- 1) “Reapportionment” Committee – 8 legislators
 - 2 Democrats and 2 Republicans from State House and Senate
 - Deadline: *September 15, 2021*
 - Requires 2/3 approval in each house to pass
- 2) “Reapportionment” Commission – 9 members
 - 2 members selected from Majority and Minority leaders of House and Senate, 8 members collectively choose a 9th member
 - Deadline: November 30, 2021
 - Requires approval of at least 5 members of Commission
- 3) Connecticut Supreme Court
 - Can extend deadline or appoint “Special Master” to draw lines
 - Final deadline: February 15, 2022

Can the public participate?

It depends on the state, some are more transparent and have more opportunities for the public to share thoughts and maps.

Connecticut public hearing schedule:

- Wed Sep 8, 7pm (LOB in Hartford)
- Thu Sep 9, 1pm (Norwich Town Hall)
- Mon Sep 13, 1pm (Shelton Town Hall)
- Tue Sep 14, 7pm (via Zoom)

Who draws the maps? What is the process in other states?

Your assignment:

Detail the processes for the various maps in 3 states.

For each map:

- How many districts?
- Who draws the maps?
- What are the deadlines this year?
- What is needed for maps to pass?
- Did the process change for 2021? How?

- REPUBLICAN • 188 seats
- DIVIDED/INDEPENDENT • 167 seats
- DEMOCRATIC • 47 seats
- ONE DISTRICT • 7 seats

It's not clear yet if Democrats will redraw New York's **26** districts alone or if Republicans will share that power.

