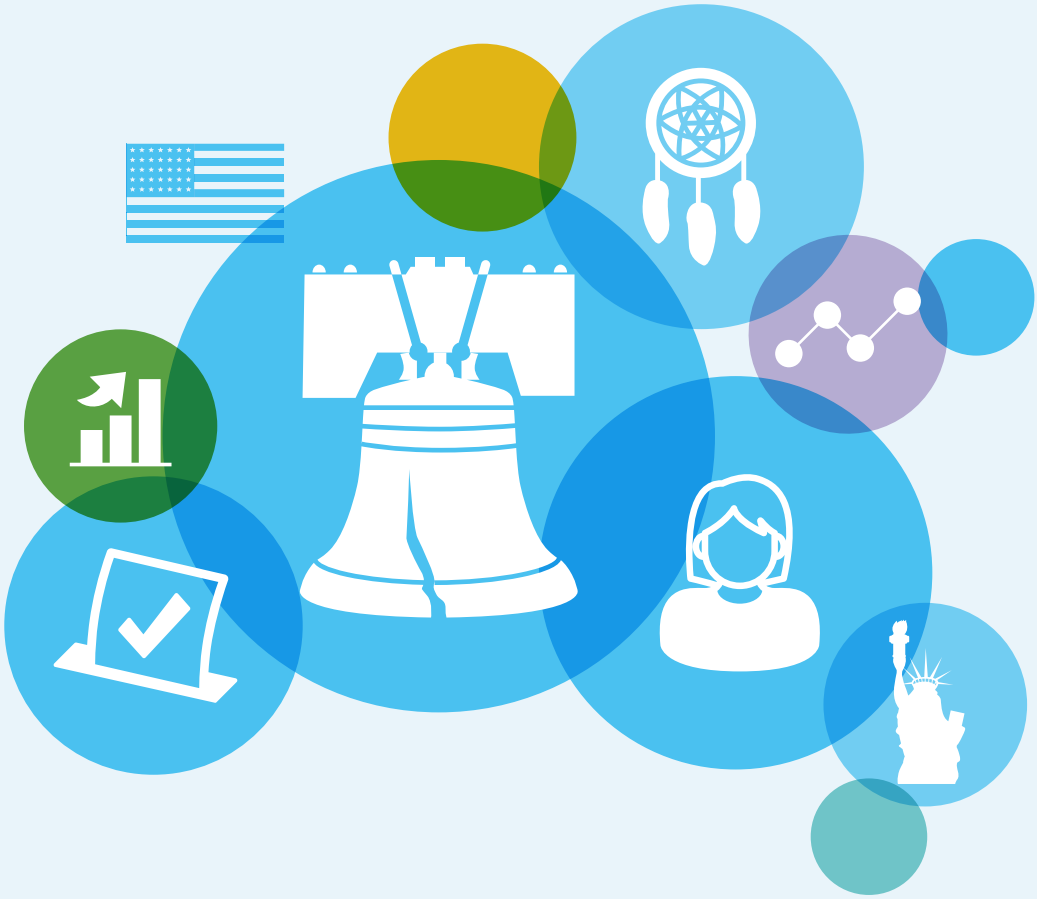


# TRENDS IN CONGRESSIONAL APPORTIONMENT

## TEACHER VERSION

**Subject Level:**
High School History

**Grade Level:**
9-10

**Approx. Time Required:**
45-60 minutes

**Learning Objectives:**

- Students will be able to understand how to calculate a state's number of seats in the U.S. House of Representatives.
- Students will be able to identify trends in congressional apportionment.
- Students will be able to analyze the relationship between population and apportionment to understand the distribution of congressional power in the United States.

# Activity Description

Students will examine a 2010 Census brief to understand the apportionment process and to analyze the relationship between a state's population and its number of seats in the U.S. House of Representatives, making calculations with a multistep formula. Students will also identify trends in congressional apportionment.

**Suggested Grade Level:**
9–10

**Approximate Time Required:**
45-60 minutes

**Learning Objectives:**

- Students will be able to understand how to calculate a state's number of seats in the U.S. House of Representatives.
- Students will be able to identify trends in congressional apportionment.
- Students will be able to analyze the relationship between population and apportionment to understand the distribution of congressional power in the United States.

**Topics:**

- Apportionment
- Choropleth maps
- Political representation
- U.S. House of Representatives

**Skills Taught:**

- Comparing time periods
- Identifying cause and effect

## Materials Required

- The student version of this activity, 11 pages; it contains images that should be printed in color.
- Calculators

A teacher computer with Internet access and a projector to display web sites are optional.

## Activity Item

The following item is part of this activity. The item, its source, and instructions for viewing it online appear at the end of this teacher version.

- Item 1: 2010 Census Brief — Congressional Apportionment

For more information to help you introduce your students to the U.S. Census Bureau, read "*Census Bureau 101 for Students*." This information sheet can be printed and passed out to your students as well.

## Standards Addressed

See charts below. For more information, read "*Overview of Education Standards and Guidelines Addressed in Statistics in Schools Activities*."

### Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects

| Standard | Strand | Cluster |
|---|---|---|
| **CCSS.ELA-LITERACY.RH.9-10.7** Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text. | RH 9–10 – History/Social Studies | Integration of Knowledge and Ideas |

## UCLA National Standards for History: U.S. History Content Standards

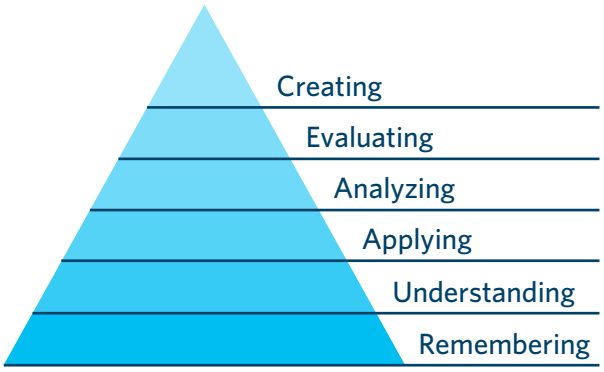
| Era | Standard |
|---|---|
| 3 – Revolution and the New Nation (1754–1820s) | **Standard 3:** The institutions and practices of government created during the Revolution and how they were revised between 1787 and 1815 to create the foundation of the American political system based on the U.S. Constitution and the Bill of Rights |

## UCLA National Standards for History: Historical Thinking Standards

| Standard | Description |
|---|---|
| Standard 2: Historical Comprehension | Draw upon data in historical maps. Students will examine a choropleth map of the United States that illustrates apportionment based on the 2010 Census. |
| Standard 3: Historical Analysis and Interpretation | Analyze cause-and-effect relationships. Students will analyze the direct relationship between population and the distribution of congressional power in the United States. |

# Bloom's Taxonomy

Students will ***analyze*** a Census Bureau document containing data tables, a map, and a graph to ***understand*** the relationship between the U.S. population and the apportionment of seats in the U.S. House of Representatives.



# Teacher Notes

## Before the Activity

Students must understand the following key terms:

- **Apportionment** – the process of dividing the 435 seats in the U.S. House of Representatives among the 50 states according to each state's population, which is determined by the decennial census; at the conclusion of each census, the results are used to calculate the number of House memberships to which each state is entitled.
- **Choropleth map** – a type of thematic map that uses different colors to show specific values or ranges of values, usually with darker colors representing greater values and lighter colors representing lesser values
- **Priority value (PV)** – a value calculated from a state's apportionment population and from the number of its next potential seat in the U.S. House of Representatives (starting with the second seat, as each state automatically gets one); to determine apportionment, the PVs from all states are ranked in descending order, and the state with the largest PV is assigned the next seat until the last (435th) seat has been filled.

Teachers could review the decennial census with students using the "*Census Bureau 101 for Students*" one-pager mentioned earlier.

Teachers should decide whether students will complete this activity in pairs or individually.

Teachers could show students the Census Bureau's "Amazing Apportionment Machine" video (*www.census.gov/schools/resources/videos/apportionment-machine.html*) to help them understand the apportionment process. Teachers could also review this web page about the history of congressional apportionment (*www.census.gov/population/apportionment/about/history.html*) on their own or with students.

## During the Activity

Teachers should use a think-aloud strategy to show students how to use the choropleth map of the United States on Page 3 of **Item 1**, making observations and asking questions such as: "Did our state experience a change in its number of representatives in the House between 2000 and 2010?" or "Which state's number of representatives surprises you?"

## After the Activity

Teachers should lead a class discussion and/or assign an exit slip — a student response to a question that teachers pose at the end of an activity — to give students a chance to share what they learned. Questions could include: Do you think your state will see an increase in representatives after the next decennial census? Why or why not?

## Extension Idea

Teachers could use other Statistics in Schools activities about similar topics to build on this activity.

# Student Activity

Click ***here*** to download a printable version for students.

## Activity Item

The following item is part of this activity and appears at the end of this student version.

- Item 1: 2010 Census Brief — Congressional Apportionment

## Student Learning Objectives

- I will be able to understand how to calculate a state's numbers of seats in the U.S. House of Representatives.
- I will be able to identify trends in congressional apportionment.
- I will be able to analyze the relationship between population and apportionment to understand the distribution of congressional power in the United States.

1. Read **Item 1: 2010 Census Brief — Congressional Apportionment**. Then summarize the congressional apportionment method used in 2010.

   **The first 50 seats in the U.S. House of Representatives were automatically assigned — one to each state. Then an ordered list of all states' priority values was calculated based on each state's apportionment population and the number of its next potential seat. This list was used to assign the remaining seats to states in order of their priority value ranks.**

2. Use the choropleth map, Figure 1 in **Item 1**, to summarize the apportionment changes seen across the United States between 2000 and 2010.

   **Student answers will vary but could include: Many states saw no change in their apportionment between 2000 and 2010. Texas was the only state that gained four seats in the House (to have 36 seats), and New York (with 27 seats) and Ohio (with 16 seats) were the only states that lost two House seats between those years.**

3. Use Figure 2 in **Item 1** to answer the following questions.
   a. Which region had the smallest percentage distribution of seats in the U.S. House of Representatives in 2010? Write the percentage, and describe what factors you think contributed to this apportionment.

      **The Northeast (17.9 percent). Student answers for contributing factors may vary but should relate to population decreases in this region.**

b. Which region had the largest percentage distribution of seats in the U.S. House of Representatives in 2010? Write the percentage, and describe what factors you think contributed to this apportionment.

**The South (37.0 percent). Student answers for contributing factors may vary but should relate to population increases in the southern region.**

c. Which region saw the biggest decrease in its percentage of House representation between 1910 and 2010, and by how many percentage points did it decrease?

**The Midwest, 11.3 percentage points**

d. Which region saw the biggest increase in its percentage of House representation between 1910 and 2010, and by how many percentage points did it increase?

**The West, 15.8 percentage points**

e. Which region saw the smallest change in its percentage of House representation between 1910 and 2010? Did it increase or decrease, and by how much?

**The South, a 5.7 percentage-point increase**

4. Use the formula from Page 6 of **Item 1** (copied below) and the total population data from Table 1 on Page 2 to calculate the first five priority values (PVs) for your state in 2010, using $n = 2$ through $n = 6$, since each state's first seat assignment is automatic. Show your work and write your answers in the following table, rounding to the nearest whole number.

$$PV(n) = \frac{\text{State Apportionment Population}}{\sqrt{n*(n\text{-}1)}}$$

$n$ = the next potential seat number

**Student answers will vary depending on the state selected. Answers for all states are available here (*www.census.gov/population/apportionment/files/Priority%20Values%202010.pdf*). The following sample student answer uses the 2010 population data for Georgia (9,727,566).**

| *n* | Population / $\sqrt{(n * (n - 1))}$ | PV |
|---|---|---|
| 2 | 9,727,566 / $\sqrt{(2*(2 - 1))}$ | 6,878,428 |
| 3 | 9,727,566 / $\sqrt{(3*(3 - 1))}$ | 3,971,262 |
| 4 | 9,727,566 / $\sqrt{(4*(4 - 1))}$ | 2,808,106 |

| *n* | Population / $\sqrt{(n * (n - 1))}$ | PV |
|---|---|---|
| 5 | 9,727,566 / $\sqrt{(5*(5 - 1))}$ | 2,175,150 |
| 6 | 9,727,566 / $\sqrt{(6*(6 - 1))}$ | 1,776,002 |

5. Refer to Page 7 of **Item 1** to answer the following questions.
   a. Which groups of U.S. citizens living overseas were included in the state apportionment population count in 2010?

      **Federal employees (military and civilian) and their dependents living with them were included in the count.**

   b. Which groups of non-U.S. citizens were included in the state apportionment population count in 2010?

      **All noncitizens with a usual residence in one of the 50 states were included in the count.**

   c. Do you think any population group that was counted in 2010 should not have been, or vice versa? Explain.

      **Student answers will vary.**

## Item 1: 2010 Census Brief — Congressional Apportionment

# Congressional Apportionment

*2010 Census Briefs*

Issued November 2011

C2010BR-08

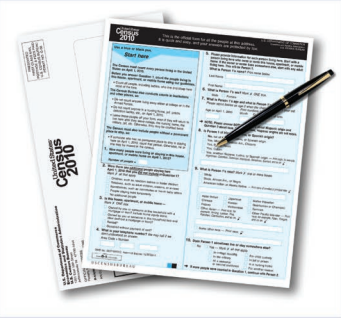
By
Kristin D. Burnett

The Constitutional basis for conducting the decennial census of population is to reapportion the U.S. House of Representatives. Apportionment is the process of dividing the 435 memberships, or seats, in the U.S. House of Representatives among the 50 states. With the exception of the 1920 Census, an apportionment has been made by the Congress on the basis of each decennial census from 1790 to 2010.

The apportionment population for 2010 consists of the resident population of the 50 states plus overseas federal employees (military and civilian) and their dependents living with them, who were included in their home states. The population of the District of Columbia is excluded from the apportionment population because it does not have any voting seats in the U.S. House of Representatives. The 2010 Census apportionment population was 309,183,463, as shown in Table 1.[1]

This report examines trends in congressional apportionment and discusses the apportionment population—what it is, who is included, and what method is used to calculate it. The report is part of a series that analyzes population and housing data collected by the 2010 Census.

[1] The 2010 Census resident population of the United States, including the District of Columbia, was 308,745,538.




### The average size of a congressional district will rise.

The number of representatives or seats in the U.S. House of Representatives has remained constant at 435 since 1911, except for a temporary increase to 437 at the time of admission of Alaska and Hawaii as states in 1959 (see Table 1). However, the apportionment based on the 1960 Census, which took effect for the election in 1962, reverted to 435 seats.

The average size of a congressional district based on the 2010 Census apportionment population will be 710,767, more than triple the average district size of 210,328 based on the 1910 Census apportionment, and 63,815 more than the average size based on Census 2000 (646,952). Based on the 2010 Census apportionment, the state with the largest average district size will be Montana (994,416), and the state with the smallest average district size will be Rhode Island (527,624).

United States™ Census Bureau

U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU

# Item 1: 2010 Census Brief — Congressional Apportionment (Continued)

Table 1.

## Apportionment Population Based on the 2010 Census and Apportionment of the U.S. House of Representatives: 1910 to 2010

(For information on confidentiality protection, nonsampling error, and definitions, see *www.census.gov/prod/cen2010/pl94-171.pdf*)

| State | 2010 apportionment population[1] | | | Number of representatives | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Resident population | U.S. population overseas | 2010 | 2000 | 1990 | 1980 | 1970 | 1960 | 1950 | 1940 | 1930 | 1920[2] | 1910 |
| **Total** | **309,183,463** | **308,143,815** | **1,039,648** | **435** | **435** | **435** | **435** | **435** | **435** | **[3]437** | **435** | **435** | **435** | **[4]435** |
| Alabama | 4,802,982 | 4,779,736 | 23,246 | 7 | 7 | 7 | 7 | 7 | 8 | 9 | 9 | 9 | 10 | 10 |
| Alaska | 721,523 | 710,231 | 11,292 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | (X) | (X) | (X) | (X) |
| Arizona | 6,412,700 | 6,392,017 | 20,683 | 9 | 8 | 6 | 5 | 4 | 3 | 2 | 2 | 1 | 1 | 1 |
| Arkansas | 2,926,229 | 2,915,918 | 10,311 | 4 | 4 | 4 | 4 | 4 | 4 | 6 | 7 | 7 | 7 | 7 |
| California | 37,341,989 | 37,253,956 | 88,033 | 53 | 53 | 52 | 45 | 43 | 38 | 30 | 23 | 20 | 11 | 11 |
| Colorado | 5,044,930 | 5,029,196 | 15,734 | 7 | 7 | 6 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 |
| Connecticut | 3,581,628 | 3,574,097 | 7,531 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 5 |
| Delaware | 900,877 | 897,934 | 2,943 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Florida | 18,900,773 | 18,801,310 | 99,463 | 27 | 25 | 23 | 19 | 15 | 12 | 8 | 6 | 5 | 4 | 4 |
| Georgia | 9,727,566 | 9,687,653 | 39,913 | 14 | 13 | 11 | 10 | 10 | 10 | 10 | 10 | 10 | 12 | 12 |
| Hawaii | 1,366,862 | 1,360,301 | 6,561 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | (X) | (X) | (X) | (X) |
| Idaho | 1,573,499 | 1,567,582 | 5,917 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Illinois | 12,864,380 | 12,830,632 | 33,748 | 18 | 19 | 20 | 22 | 24 | 24 | 25 | 26 | 27 | 27 | 27 |
| Indiana | 6,501,582 | 6,483,802 | 17,780 | 9 | 9 | 10 | 10 | 11 | 11 | 11 | 11 | 12 | 13 | 13 |
| Iowa | 3,053,787 | 3,046,355 | 7,432 | 4 | 5 | 5 | 6 | 6 | 7 | 8 | 8 | 9 | 11 | 11 |
| Kansas | 2,863,813 | 2,853,118 | 10,695 | 4 | 4 | 4 | 5 | 5 | 5 | 6 | 6 | 7 | 8 | 8 |
| Kentucky | 4,350,606 | 4,339,367 | 11,239 | 6 | 6 | 6 | 7 | 7 | 7 | 8 | 9 | 9 | 11 | 11 |
| Louisiana | 4,553,962 | 4,533,372 | 20,590 | 6 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Maine | 1,333,074 | 1,328,361 | 4,713 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 4 |
| Maryland | 5,789,929 | 5,773,552 | 16,377 | 8 | 8 | 8 | 8 | 8 | 8 | 7 | 6 | 6 | 6 | 6 |
| Massachusetts | 6,559,644 | 6,547,629 | 12,015 | 9 | 10 | 10 | 11 | 12 | 12 | 14 | 14 | 15 | 16 | 16 |
| Michigan | 9,911,626 | 9,883,640 | 27,986 | 14 | 15 | 16 | 18 | 19 | 19 | 18 | 17 | 17 | 13 | 13 |
| Minnesota | 5,314,879 | 5,303,925 | 10,954 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 10 | 10 |
| Mississippi | 2,978,240 | 2,967,297 | 10,943 | 4 | 4 | 5 | 5 | 5 | 5 | 6 | 7 | 7 | 8 | 8 |
| Missouri | 6,011,478 | 5,988,927 | 22,551 | 8 | 9 | 9 | 9 | 10 | 10 | 11 | 13 | 13 | 16 | 16 |
| Montana | 994,416 | 989,415 | 5,001 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Nebraska | 1,831,825 | 1,826,341 | 5,484 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 5 | 6 | 6 |
| Nevada | 2,709,432 | 2,700,551 | 8,881 | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| New Hampshire | 1,321,445 | 1,316,470 | 4,975 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| New Jersey | 8,807,501 | 8,791,894 | 15,607 | 12 | 13 | 13 | 14 | 15 | 15 | 14 | 14 | 14 | 12 | 12 |
| New Mexico | 2,067,273 | 2,059,179 | 8,094 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | 1 |
| New York | 19,421,055 | 19,378,102 | 42,953 | 27 | 29 | 31 | 34 | 39 | 41 | 43 | 45 | 45 | 43 | 43 |
| North Carolina | 9,565,781 | 9,535,483 | 30,298 | 13 | 13 | 12 | 11 | 11 | 11 | 12 | 12 | 11 | 10 | 10 |
| North Dakota | 675,905 | 672,591 | 3,314 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 |
| Ohio | 11,568,495 | 11,536,504 | 31,991 | 16 | 18 | 19 | 21 | 23 | 24 | 23 | 23 | 24 | 22 | 22 |
| Oklahoma | 3,764,882 | 3,751,351 | 13,531 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 8 | 9 | 8 | 8 |
| Oregon | 3,848,606 | 3,831,074 | 17,532 | 5 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 3 | 3 | 3 |
| Pennsylvania | 12,734,905 | 12,702,379 | 32,526 | 18 | 19 | 21 | 23 | 25 | 27 | 30 | 33 | 34 | 36 | 36 |
| Rhode Island | 1,055,247 | 1,052,567 | 2,680 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 |
| South Carolina | 4,645,975 | 4,625,364 | 20,611 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 |
| South Dakota | 819,761 | 814,180 | 5,581 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 3 |
| Tennessee | 6,375,431 | 6,346,105 | 29,326 | 9 | 9 | 9 | 9 | 8 | 9 | 9 | 10 | 9 | 10 | 10 |
| Texas | 25,268,418 | 25,145,561 | 122,857 | 36 | 32 | 30 | 27 | 24 | 23 | 22 | 21 | 21 | 18 | 18 |
| Utah | 2,770,765 | 2,763,885 | 6,880 | 4 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Vermont | 630,337 | 625,741 | 4,596 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |
| Virginia | 8,037,736 | 8,001,024 | 36,712 | 11 | 11 | 11 | 10 | 10 | 10 | 10 | 9 | 9 | 10 | 10 |
| Washington | 6,753,369 | 6,724,540 | 28,829 | 10 | 9 | 9 | 8 | 7 | 7 | 7 | 6 | 6 | 5 | 5 |
| West Virginia | 1,859,815 | 1,852,994 | 6,821 | 3 | 3 | 3 | 4 | 4 | 5 | 6 | 6 | 6 | 6 | 6 |
| Wisconsin | 5,698,230 | 5,686,986 | 11,244 | 8 | 8 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 11 | 11 |
| Wyoming | 568,300 | 563,626 | 4,674 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

(X) Not applicable.

[1] Includes the resident population for the 50 states, as ascertained by the 2010 Census under Title 13, U.S. Code, and counts of overseas U.S. military and federal civilian employees (and their dependents living with them) allocated to their home state, as reported by the employing federal agencies. The apportionment population does not include the resident or the overseas population of the District of Columbia.

[2] No reapportionment was made based on the 1920 Census.

[3] The 1950 apportionment originally resulted in the previously fixed House size of 435 representatives; but in 1959, Alaska and Hawaii were both newly admitted to the United States, and each was granted one representative—temporarily increasing the size of the House to 437. Then the 1960 apportionment reverted back to the fixed size of 435.

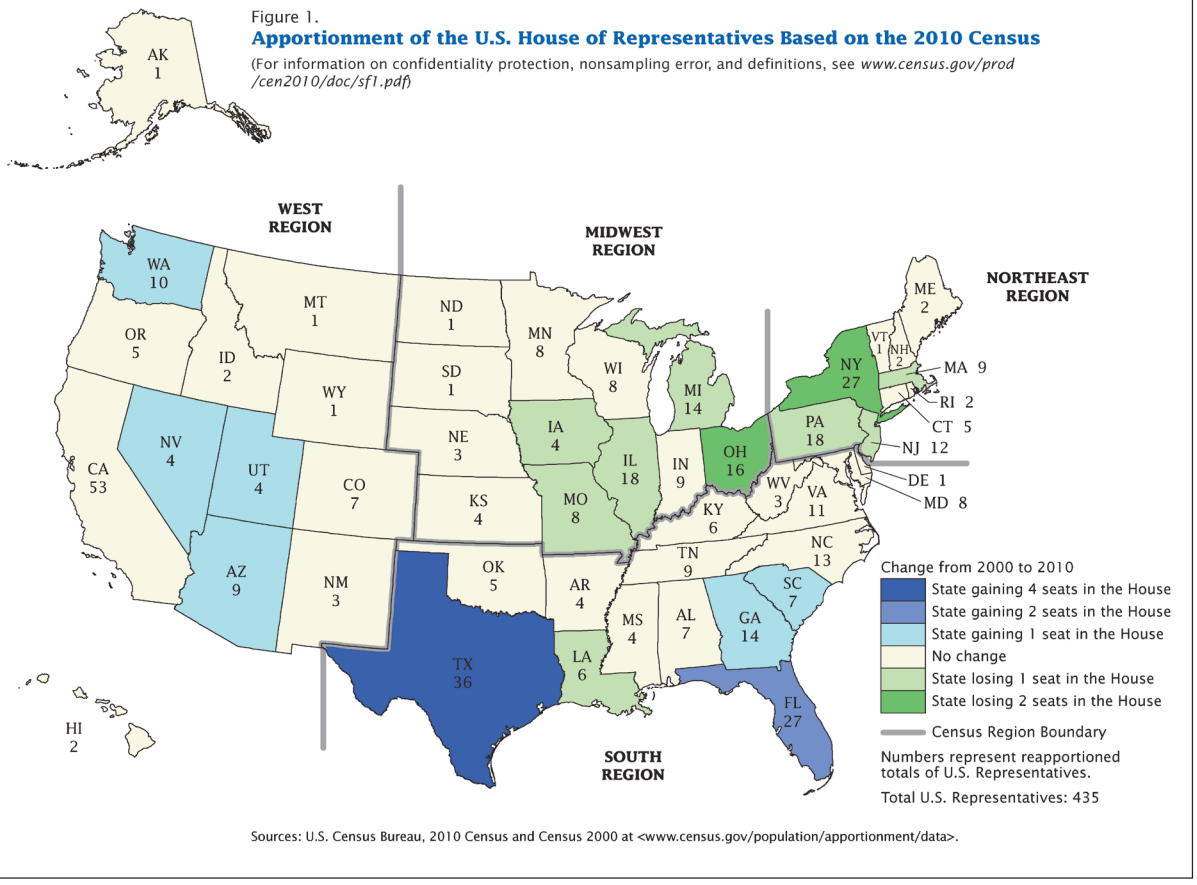
[4] The apportionment act following the 1910 Census was passed on August 8, 1911. This congressional act (U.S. Statutes at Large, Pub.L. 62-5, 37 Stat. 13) fixed the size of the House at 433 representatives, with a provision for the addition of one seat each for Arizona and New Mexico when they would become states the following year. The resulting House size, 435 members, has been unchanged since, except for a temporary increase to 437 at the time of admission of Alaska and Hawaii as states (see footnote 3).

Sources: U.S. Census Bureau, 2010 Census at <www.census.gov/population/apportionment/data>; and *2000 Census of Population and Housing, Population and Housing Unit Counts, United States Summary: 2000* (PHC-3-1, Part 1), Table 3.

## Item 1: 2010 Census Brief — Congressional Apportionment (Continued)

U.S. Census Bureau

Figure 1.
**Apportionment of the U.S. House of Representatives Based on the 2010 Census**
(For information on confidentiality protection, nonsampling error, and definitions, see *www.census.gov/prod/cen2010/doc/sf1.pdf*)




Sources: U.S. Census Bureau, 2010 Census and Census 2000 at <www.census.gov/population/apportionment/data>.

3

# Item 1: 2010 Census Brief — Congressional Apportionment (Continued)

### Twelve seats in the U.S. House of Representatives will shift from one state to another.

As a result of the apportionment based on the 2010 Census, 12 seats in the U.S. House of Representatives will shift among 18 states. Eight states will have more representatives in the 113th Congress, which convenes in January 2013, and ten states will have fewer representatives (see Figure 1 and Table 2).

Among the eight states gaining seats, Texas will gain four seats and Florida will gain two seats. The other six states (Arizona, Georgia, Nevada, South Carolina, Utah, and Washington) will each gain one seat.

Of the ten states losing seats, two states, New York and Ohio, will each lose two seats. The other eight states (Illinois, Iowa, Louisiana, Massachusetts, Michigan, Missouri, New Jersey, and Pennsylvania) will each lose one seat.

### The Census 2000 apportionment also shifted 12 seats.

The seat changes that will occur based on the 2010 Census show many parallels to the seat changes that occurred after Census 2000. For example, the 2000-based reapportionment also led to a shift of 12 seats among 18 states (see Table 2).

Five of the eight states that will gain seats following the 2010 Census also gained seats following Census 2000: Arizona, Florida, Georgia, Nevada, and Texas. Similarly, five of the ten states that will lose seats following the 2010 Census also lost seats following Census 2000: Illinois, Michigan, New York, Ohio, and Pennsylvania.

Table 2.
**Change in the Number of U.S. Representatives by State: 2000 and 2010**
(For information on confidentiality protection, nonsampling error, and definitions, see *www.census.gov/prod/cen2010/pl94-171.pdf*)

| State | Gain | State | Loss |
|---|---|---|---|
| **BASED ON 2010 CENSUS** | | **BASED ON 2010 CENSUS** | |
| **Total gain in 8 states** | **12** | **Total loss in 10 states** | **12** |
| Texas | 4 | New York | 2 |
| Florida | 2 | Ohio | 2 |
| Arizona | 1 | Illinois | 1 |
| Georgia | 1 | Iowa | 1 |
| Nevada | 1 | Louisiana | 1 |
| South Carolina | 1 | Massachusetts | 1 |
| Utah | 1 | Michigan | 1 |
| Washington | 1 | Missouri | 1 |
| | | New Jersey | 1 |
| | | Pennsylvania | 1 |
| **BASED ON CENSUS 2000** | | **BASED ON CENSUS 2000** | |
| **Total gain in 8 states** | **12** | **Total loss in 10 states** | **12** |
| Arizona | 2 | New York | 2 |
| Florida | 2 | Pennsylvania | 2 |
| Georgia | 2 | Connecticut | 1 |
| Texas | 2 | Illinois | 1 |
| California | 1 | Indiana | 1 |
| Colorado | 1 | Michigan | 1 |
| Nevada | 1 | Mississippi | 1 |
| North Carolina | 1 | Ohio | 1 |
| | | Oklahoma | 1 |
| | | Wisconsin | 1 |

Sources: U.S. Census Bureau, 2010 Census and Census 2000 at <www.census.gov/population/apportionment/data>.

### Shifts in congressional representation reflect regional trends in population.

The regional patterns of change in congressional representation between 2000 and 2010 reflect the nation's continuing shift in population from the Northeast and Midwest to the South and West.

Based on the 2010 Census apportionment, the net increase of seven seats in the South reflected a gain of eight seats across four states and a loss of one seat (see Figure 1 and Table 3). The West gained four seats and lost none. The Northeast lost five seats and gained none. The Midwest lost six seats and gained none.

Similar regional shifts occurred after Census 2000. At that time, the net increase of five seats in the South reflected a gain of seven seats in four states and a loss of two seats. The West gained five seats across four states and lost none. The Northeast and Midwest each lost five seats and gained none.

Figure 2 shows the percentage distribution of House seats or memberships by region for each census since 1910. In 1910, the West held the smallest share of House seats out of the four regions (33 seats, or 7.6 percent), but it steadily increased each decade, more than tripling in seats by 2010 (102 seats, or 23.4 percent). After the 1990 apportionment, the West

# Item 1: 2010 Census Brief — Congressional Apportionment (Continued)

Table 3.
**Change in the Number of U.S. Representatives by Region: 2000 and 2010**
(For information on confidentiality protection, nonsampling error, and definitions, see *www.census.gov/prod/cen2010/pl94-171.pdf*)

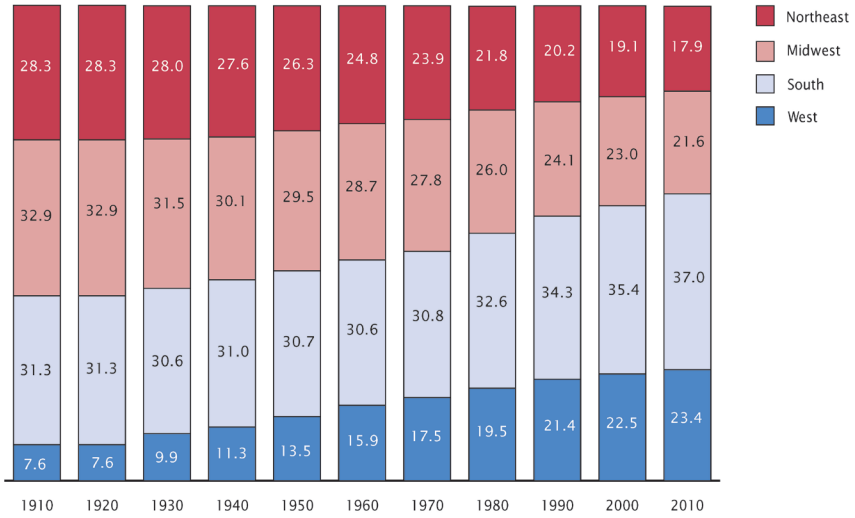
| Region | Gain | Loss | Net |
|---|---|---|---|
| **BASED ON 2010 CENSUS** | | | |
| Northeast | – | 5 | –5 |
| Midwest | – | 6 | –6 |
| South | 8 | 1 | 7 |
| West | 4 | – | 4 |
| **BASED ON CENSUS 2000** | | | |
| Northeast | – | 5 | –5 |
| Midwest | – | 5 | –5 |
| South | 7 | 2 | 5 |
| West | 5 | – | 5 |

– Represents zero.
Sources: U.S. Census Bureau, 2010 Census and Census 2000 at <www.census.gov/population/apportionment/data>.

(93 seats, or 21.4 percent) surpassed the Northeast (88 seats, or 20.2 percent) in share of seats for the first time; and after the 2010 apportionment, the West (102 seats, or 23.4 percent) will surpass the Midwest (94 seats; 21.6 percent) for the first time.

The South's share of House seats held relatively firm from 1910 to 1970 at about 31 percent (between 133 and 136 seats), and then it increased to 37.0 percent (161 seats) by 2010. After the 2010 apportionment, the South will maintain the largest share of House seats among all four regions, as it has since 1940.

Figure 2.
**Percentage Distribution of Seats in the U.S. House of Representatives by Region: 1910 to 2010**
(For information on confidentiality protection, nonsampling error, and definitions, see *www.census.gov/prod/cen2010/pl94-171.pdf*)




Sources: U.S. Census Bureau, 2010 Census at <www.census.gov/population/apportionment>; and *2000 Census of Population and Housing, Population and Housing Unit Counts, United States Summary* (PHC-3-1, Part 1), Table 3.

# Item 1: 2010 Census Brief — Congressional Apportionment (Continued)

Meanwhile, the Midwest, which accounted for the largest regional share of House seats in 1910 through 1930 (between 137 and 143 seats, or between 31.5 and 32.9 percent), showed a steady decline to 21.6 percent (94 seats) by 2010.

After holding relatively stable at about 28 percent (between 120 and 123 seats) from 1910 to 1940, the Northeast's share of House seats gradually decreased to only 17.9 percent (78 seats) by 2010. Therefore, after the 2010 apportionment, the Northeast will hold the smallest share of House seats among all four regions, as it has since 1990.

## CALCULATING APPORTIONMENT

### Congress decides the method to calculate apportionment.

The process of apportionment determines the distribution of congressional seats among the states. Several apportionment methods have been used since the first census in 1790. The apportionment for the 2010 Census was calculated using the method of equal proportions, in accordance with the provisions of Title 2, U.S. Code. The method of equal proportions has been used for apportionment after every census since 1940.

### Step 1: Automatically assign the first 50 seats.

First, each state is assigned one congressional seat, as provided by the Constitution. Then, in the following steps, the method of equal proportions allocates the remaining 385 congressional seats among the 50 states, according to their apportionment populations.

### Step 2: Calculate a list of priority values.

A "priority value" is based on a state's apportionment population and the number of its next potential seat. More specifically, the formula for a priority value (PV) equals the state's apportionment population divided by the geometric mean of its current (n–1) and next (n) potential seat number.

$$PV(n) = \frac{State\ Apportionment\ Population}{\sqrt{n*(n-1)}}$$

Because every state automatically receives its first seat, priority values start with each state's second seat. The maximum number of priority values ever needed for each state would account for the hypothetical situation in which one state is so large that it receives all of the final 385 seats that remain after the first 50 are automatically assigned. This means one could potentially calculate a total list of 19,250 priority values (385 PVs multiplied by 50 states). In general, however, it is more efficient to only calculate enough priority values to account for the largest number of seats any particular state might currently be assigned (or proportionate to each state's actual population). For example, one may choose to calculate approximately 60 priority values for each state because the most populous state in Census 2000 received 53 seats.

In practice, the priority values for a specific state's second and third seats in the 2010 Census are computed as follows. Using Alabama as the example state:

$$PV(2nd\ Seat\ for\ Alabama) = \frac{4{,}802{,}982}{\sqrt{2*1}} = 3{,}396{,}221$$

$$PV(3rd\ Seat\ for\ Alabama) = \frac{4{,}802{,}982}{\sqrt{3*2}} = 1{,}960{,}809$$

The rest of the priority values for all of Alabama's potential seats are calculated in a similar fashion. Then the same process is repeated for each of the other states.

### Step 3: Assign the remaining seats in ranked order.

After all of the states' priority values have been calculated, a combined list of priority values from every state is ranked in descending order. The state with the largest priority value in the list is given the 51st seat (because the first 50 seats are automatically assigned); then the state with second largest priority value is given the 52nd seat. This process is continued for each consecutively descending priority value until the last (435th) seat has been filled. The state composition of the reapportioned House of Representatives is then complete.

## ADDITIONAL TOPICS ON CONGRESSIONAL APPORTIONMENT

### When are the apportionment population counts given to the President? To the Congress? To the states?

*To the President.* Title 13, U.S. Code requires that the apportionment population counts for each state be delivered to the President within 9 months of Census Day, which was April 1, 2010. The 2010 Census counts were delivered to the President on December 21, 2010.

*To the Congress.* According to Title 2, U.S. Code, within 1 week of the opening of the next session of the Congress in the new year, the President must report to the Clerk of the U.S. House of Representatives the apportionment population counts for each state and the number of representatives to which each state is entitled. The President sent the 2010 apportionment results to the House on January 5, 2011.

# Item 1: 2010 Census Brief — Congressional Apportionment (Continued)

*To the States*. Also according to Title 2, U.S. Code, within 15 days of receiving the apportionment population counts from the President, the Clerk of the House must inform each state governor of the number of representatives to which each state is entitled. The 2010 apportionment results were transmitted to all the states by January 18, 2011.

### Were children under 18 years old included in the 2010 Census apportionment population counts even though they cannot vote?

Yes. Being old enough to vote, being registered to vote, or actually voting are not requirements for inclusion in the apportionment counts.

### Did the 2010 Census apportionment population counts include all Americans overseas?

The overseas portion of the 2010 apportionment counts only included overseas federal employees (military and civilian) and their dependents living with them. Private U.S. citizens living abroad who were not employees of the federal government (or their dependents) were not included in the overseas counts.

### Were undocumented residents in the 50 states included in the 2010 Census apportionment population counts?

All people (citizens and noncitizens) with a usual residence in one of the 50 states were included in the 2010 Census and thus in the apportionment counts. This has been true since the first census in 1790.

### What is the difference between apportionment and redistricting?

Population data from the decennial census provide the basis for both apportioning House seats among the states and for redistricting the legislative bodies within each state. Apportionment is the process of determining the number of representatives to which each state is entitled in the U.S. House of Representatives based on the decennial census. Whereas, redistricting is the process of revising the geographic boundaries of areas from which people elect representatives to the U.S. House of Representatives, a state legislature, a county or city council, a school board, and so forth. By law (PL 94-171), redistricting data must be submitted to the states within one year of the census date (so, for this decade, redistricting data had to be submitted to states by no later than April 1, 2011). The Census Bureau released the redistricting population data at the census block level on a state-by-state basis during February and March 2011.

### FOR MORE INFORMATION

For more information on apportionment for both the 2010 and 2000 censuses, visit the U.S. Census Bureau's Internet site at <www.census.gov/population/apportionment>. Data from the 2010 Census are available on the Internet at <http://factfinder2.census.gov> and on DVD. Information on confidentiality protection, nonsampling error, and definitions is available at <www.census.gov/prod/cen2010/doc/pl94-171.pdf>.

Information on other population and housing topics is presented in the 2010 Census Briefs series, located on the Census Bureau's Web site at <www.census.gov/prod/cen2010>. This series will present information about race, Hispanic origin, age, sex, household type, housing tenure, and people who reside in group quarters.

For more information about the 2010 Census, including data products, call our Customer Services Center at 301-763-INFO or at 1-800-923-8282. You can also visit our Question and Answer Center at <ask.census.gov> to submit your questions online.



www.census.gov/prod/cen2010/briefs/c2010br-08.pdf

*Click on the link above to view the item online.*