

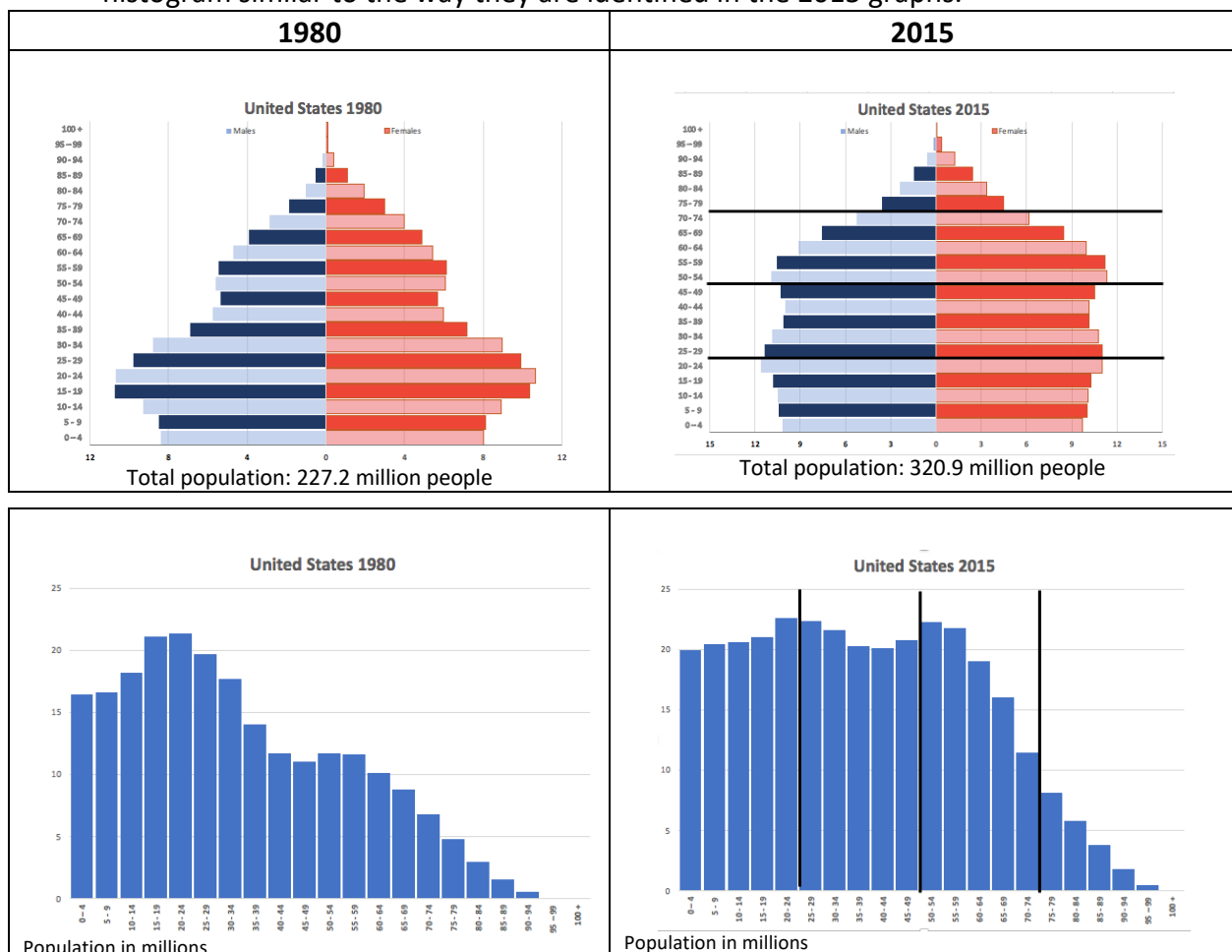
## Lesson 6

### Looking Back at the Shapes of the United States

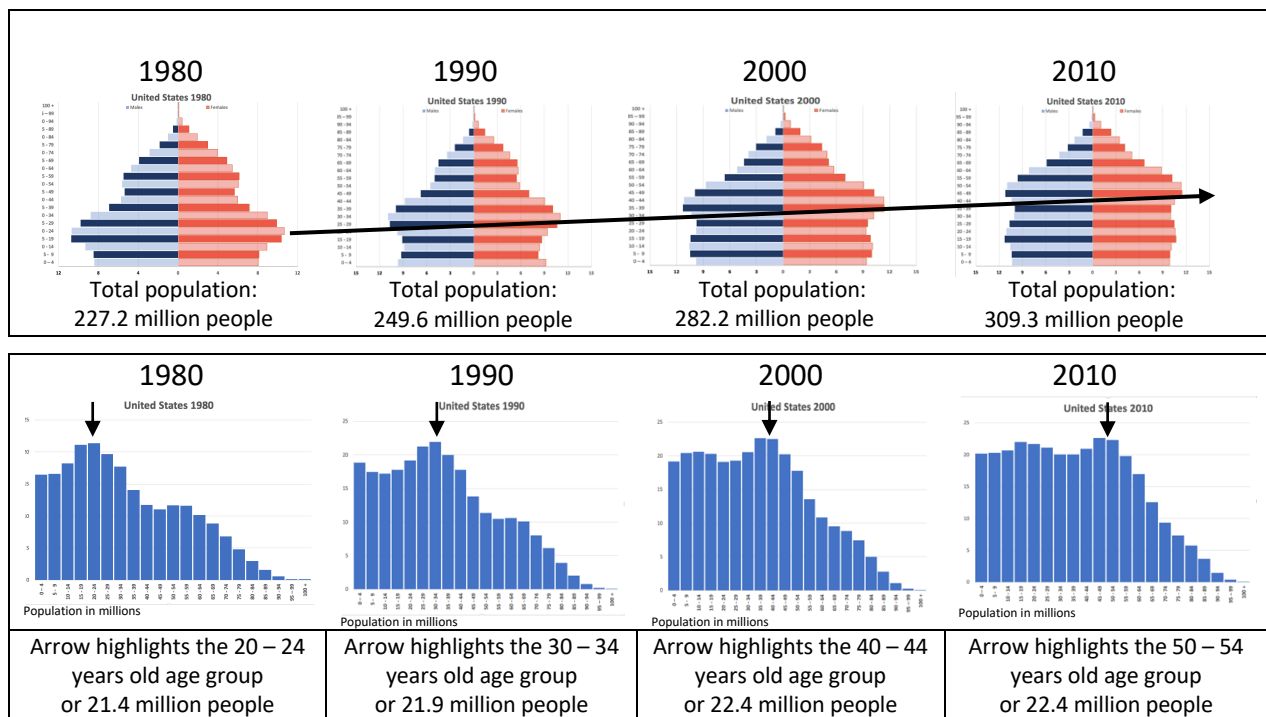
The shapes of the United States population pyramid graphs and histograms varied over time. The pyramid graphs and the population histograms displayed in this lesson provide a visual summary of the changes in the population of the United States from 1980 to 2015.

#### Lesson 6 – Problems

- Lesson 1 defined the age group layers (bottom-layered, lower middle-layered, upper middle-layered, and top-layered) for the 2015 pyramid graph or histogram. Based on the percent of people in each layer, the United States was identified as a lower middle-layered country in 2015. Identify the layers in the 1980 pyramid graph and the 1980 histogram similar to the way they are identified in the 2015 graphs.



- Based on the layered marks, what identification would summarize the shape of the country in the year 1980? Which graph, the pyramid graph or the histogram, did you use to make your identification? Explain why you selected the graph you identified.
- The change in the shape from 1980 to 2015 is highlighted by observing the aging of certain age groups over two to three decades. The arrows sketched on the following pyramid graphs and histograms trace the aging of people who were 20 – 24 years old at the start of 1980 through three decades. What is significant about this age group in 1980?



- Based on the above timeline, the people 20 - 24 years old in 1980 would be counted in the 30 – 34 years old age group of the 1990 Census if they did not move out of the country or die. What is significant about the count of the 30 – 34 years old age group in 1990?

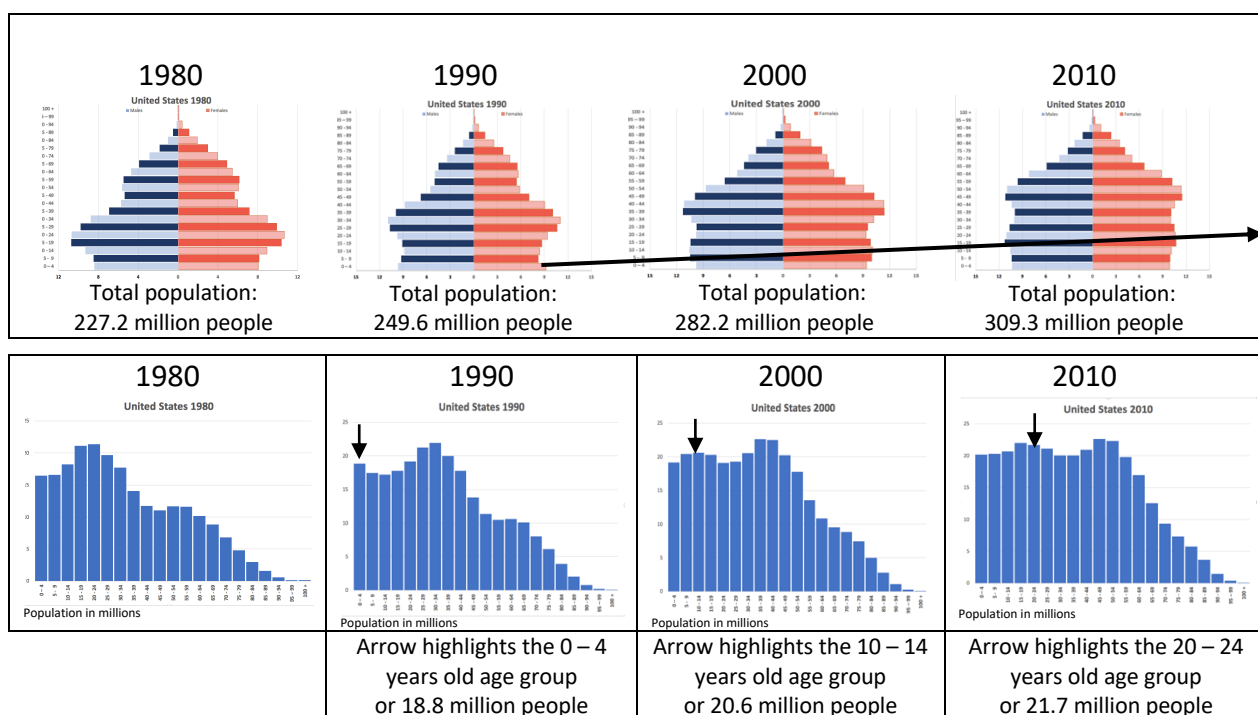
5. Observe that the people 20 – 24 years old in 1980 are counted in the 40 – 44 years old age group in the 2000 census if they did not move out of the country or they did not die. Did the count of people in the 40 – 44 years old age group in 2000 increase, decrease, or stay the same when compared to the count of people in the 20 – 24 years old age group in 1980? Explain what happened during the 20 years from 1980 to 2000 that might increase or decrease the count of people 20 – 24 years old in 1980 to the count of people 40 – 44 years old in 2000.
6. Calculate the following based on the above pyramid graphs and histograms highlighted in this lesson:
  - a. What percent of the population in 1980 were 20 – 24 years old?
  - b. What percent of the population in 1990 were 30 – 34 years old?
  - c. What percent of the population in 2000 were 40 – 44 years old?
  - d. What percent of the population in 2010 were 50 – 54 years old?
  - e. The count of people in 2015 who were 55 – 59 years old was 21.8 million people. What percent of the population in 2015 were 55 – 59 years old?

The people who were 20 – 24 years old in 1980 and then 50 - 54 years old in 2010 and 55 – 59 years old in 2015 are part of what demographers (or people who study and research populations) identify as the **Baby Boom Generation**. A generation refers to a range of birth years that identify a group of people with common historical experiences. Although a subjective topic, most research involving the Baby Boom Generation identify this group as people born in 1943 to 1960.

7. Recall that for this module, the count of people in an age group is based on ages **at the start of the year**. Therefore, a person born in 1943 was counted as a one-year old at the start of the 1945 United States Census count, although this person turned two years old sometime in 1945. If this person continued to live in the United States, he or she was six years at the start of 1950 and turned seven sometime in 1950. Based on that interpretation of the age groups represented in the graphs, answer the following:
  - a. What was the age of a person whose birth year is 1943 at the start of 2015?
  - b. What was the age of a person whose birth year is 1960 at the start of 2015?

- c. What age groups in the 2015 population graphs would include most of the people born in 1943 to 1960?
- d. What do the population graphs from 1980 to 2010 indicate is happening to the Baby Boom Generation?

In 1990, people who were 0 – 4 years old are identified by the arrows in the following pyramid graphs and histograms. In a similar way to the previous problems, the people 0 – 4 years old at the start of 1990 are identified in the following graphs and the aging of that age group for two decades.



8. What is significant about the 0 – 4 years old age group in 1990?
9. People 0 – 4 years old at the start of 1990 (or born in 1985 to 1989) would be 20 - 24 years old at the start of 2010 if they remained in the country or did not die. Did the count of people in the 0 – 4 years old age group in 1990 increase, decrease, or stay the same when compared to the count of people in the 20 – 24 years old age group in 2010? Explain what might increase or decrease the count of the people who were 0 – 4 years old in 1990 and then 20 – 24 years old in 2010.

Demographers identify the people born in 1982 to 2004 as the **Millennial Generation**. (The birth years for people in this generation are frequently debated, but at the time of the writing of this module, most research involving the **Millennial Generation** identify this group as people born in the years 1982 to 2004.)

10. Calculate the following summaries of the population using the values included in the timeline:
- a. What is the percent of the population 0 – 4 years old in 1990?
  - b. What is the percent of the population 10 – 14 years old in 2000?
  - c. What is the percent of the population 20 – 24 years old in 2010?
11. Kristin was directed by the administrators at the health clinic to write a report highlighting the changes of the United States population by ages from 1980 to 2015. Which one of the following summaries would be appropriate for her report based on the descriptions of the Baby Boom Generation and the Millennial Generation in the previous problems? Explain why you think your selection is the most accurate.
- a. The Baby Boom Generation is growing in numbers.
  - b. The Millennial Generation is catching up to the Baby Boom Generation.
  - c. The Millennial Generation is decreasing in numbers.
  - d. The percent of the United States population in 2010 who are considered the Baby Boom Generation and the Millennial Generation is less than most other age groups.
12. Why are these two generations (Baby Boom Generation and the Millennial Generation) important in understanding the United States in the following areas:
- a. entertainment watched on TV or cable or streaming services?
  - b. musical preferences?
  - c. movies?
  - d. health care?

### **An Overview of Generations**

A description of age groups in the United States is often done by references to a generational classification. Several labels have been created to identify people by the year they were born or their birth year. There is debate among sociologists on the labels used to identify generations as well as the birth years used to classify the generations. Several sociologists, however, have defined generational labels when describing the United States population. The generational

labels used by sociologists William Strauss and Neil Howe are often cited in research studies. Although the dates are periodically revised, the following generational labels were defined by William Strauss and Neil Howe:

Generation label (by Strauss-Howe)	Birth years
Silent Generation	1925 to 1942
Baby Boom Generation	1943 to 1960
Generation X or Generation 13	1961 to 1981
Millennial Generation	1982 to 2004

Source: [https://en.wikipedia.org/wiki/Strauss-Howe\\_generational\\_theory](https://en.wikipedia.org/wiki/Strauss-Howe_generational_theory)

(The above dates are also cited in their book ***Generations: The History of America's Future*** by Strauss and Howe. Note the interesting title of this book as it indicates the impact of the past to the future.)

13. Let us return to the characters of the data stories in this module. Complete the following table (Kristin has been completed for you):

	Age at start of 2015	Birth year	Age at start of 1980	Generation
Kristin	36	1978	1	Generation X
Abbey (Kristin's sister)	26			
Kristin's mother	66			

14. Answer the following:

- In what age group did Kristin's mother belong in the 1980 population histogram?
- In what age group did Kristin belong in the 1980 population histogram?

15. Use the 2015 population histogram to answer the following:

- Identify the three age groups immediately younger than Kristin's age group in 2015. Are the counts in these age groups greater than or less than the count in Kristin's age group?
- Identify the three age groups immediately younger than Kristin's mother's age group in 2015. Are the counts in these age groups greater than or less than the count in her mother's age group?

16. In what age group was Abbey counted in 2015?. Identify the three age groups immediately younger than Abbey's age group in 2015. Are the counts in these age groups greater than or less than the count in Abbey's age group?
17. Kristin's mother was 30 years old when Kristin was born and 40 years old when Abbey was born. Members of the Baby Boom Generation generally had children at an older age than people in the generations older than the Baby Boom Generation. In what way did the decision of Baby Boomers to have children at an older age possibly impact the counts of people in age groups that included Kristin's age group and 3 age groups immediately younger than Kristin's age group?

The increased count of people in the age groups identified in the Baby Boom Generation is generally explained by the impact of World War II. This horrific war (1939 - 1943) directly involved millions of people and affected the counts of several age groups that is reflected in the 2015 population histogram. Several of the age groups identified as the **Silent Generation** were born just prior to this war and during the war. The counts of people born during this time were less than the counts before and after this generation. Wars have a major impact on the shape of a country.

What events happened to the Baby Boom Generation during their birth years and approximately 15 beyond their birth years? What events happened to Generation X during their birth years and approximately 15 beyond their birth years? What happened during the birth years and approximately 15 years beyond the birth years to the Millennial Generation? What events happened and are happening in the birth years of your generation that is still being defined? The events and changes in society due to economic conditions, changes in technology, changes in transportation and education are often researched to understand a generation.

Consider researching what happened in the United States during the birth years of the generations identified in the table. Also consider interviewing a person in a different generation, discussing with them some of the events they identify as important (for example, 9/11, the moon landing, the Vietnam War, the disaster of the Challenger mission). ***As this possible interview can result in some personal discussions that might be difficult for people to share, carefully write out what you plan to ask in your interview and share your plan with your teacher before you conduct the interview.*** And, respect the decision of a person to decline an interview.

18. Determine the percent change in the age groups from 1980 to 2015 by completing the following table (round off the percent increases to the nearest tenth of a percent):

Age Group	1980 Population	2015 Population	Percent change from 1980 to 2015
0-4	16,451,184	19,912,499	$(19,912,499 - 16,451,184)/16,451,184$ 0.210 = 21.0%
5-9	16,602,353	20,481,130	$(20,481,130 - 16,602,353)/16,602,353$ 0.234 = 23.4%
10-14	18,236,335	20,605,579	
15-19	21,110,940	21,084,710	
20-24	21,385,705	22,693,026	$(22,693,026 - 21,385,705)/21,385,705$ .061 = 6.1%
25-29	19,685,966	22,401,168	
30-34	17,742,706	21,617,533	
35-39	14,076,734	20,312,646	$(20,312,646 - 14,076,734)/14,076,734$ 0.443 = 44.3%
40-44	11,728,497	20,156,736	
45-50	11,048,040	20,801,156	
50-54	11,694,715	22,289,734	
55-59	11,611,382	21,767,855	$(21,767,855 - 11,611,382)/11,611,382$ 0.875 = 87.5%
60-64	10,142,668	19,038,554	$(19,038,554 - 10,142,668)/10,142,668$ 0.877 = 87.7%
65-69	8,809,479	16,049,246	
70-74	6,841,235	11,477,776	$(11,477,776 - 6,841,235)/6,841,235$ 0.678 = 67.8%
75-79	4,829,832	8,119,847	
80-84	2,955,279	5,798,910	
85-89	1,580,234	3,864,289	$(3,864,289 - 1,580,234)/1,580,234$ 1.445 = 144.5%
90 - 94	557,241	1,851,620	
95 – 99	119,057	495,362	$(495,362 - 119,057)/119,057$ = 316.07%
100+	15,099	77,242	
Totals	227,224,681	320,896,618	

It is important to look back when designing a model that is designed to look forward. The 2010 and 2015 counts recorded by the United States Census Bureau are considered accurate **estimates** of the actual population at the start of 2010 and 2015. Population estimates beyond 2015 will be identified in the following lessons as **projections**. It may be possible that the actual counts from the US Census Bureau for the year 2020 or later are available at the time you are working with this module. Consider modifying the projection models presented in the following lessons that result in a match of the projections for 2020 to the estimates of the actual counts for 2020.

Remember, these recorded counts are based on either an actual census (e.g., 2010) or an adjusted census (e.g., 2015). Also remember, although these counts are recorded “to the nearest person or nearest whole number”, they are nonetheless estimates – the Census Bureau’s best estimates! In several of the lessons that follow, these counts will be rounded off to other units to make the calculations more manageable.

**The United States**

<b>Age Group</b>	<b>2010</b>	<b>2015</b>
0-4	20,189,589	19,912,499
5-9	20,331,807	20,481,130
10-14	20,681,215	20,605,579
15-19	21,983,206	21,084,710
20-24	21,704,549	22,693,026
25-29	21,145,232	22,401,168
30-34	20,070,096	21,617,533
35-39	20,079,840	20,312,646
40-44	20,905,848	20,156,736
45-50	22,637,291	20,801,156
50-54	22,353,471	22,289,734
55-59	19,795,182	21,767,855
60-64	16,990,224	19,038,554
65-69	12,521,439	16,049,246
70-74	9,336,583	11,477,776
75-79	7,320,106	8,119,847
80-84	5,759,428	5,798,910
85-89	3,640,827	3,864,289
90 - 94	1,471,494	1,851,620
95 – 99	376,356	495,362
100+	54,410	77,242
<b>Totals</b>	<b>309,348,193</b>	<b>320,896,618</b>

19. Identify age groups that you would like to follow as projection estimates are derived in the following lessons. Why are you interested in these age groups?

**\*Henry's Quilt Problem:**

Identify one country from the cover (Henry's quilt) that you think has a Baby Boom Generation. Explain why you selected this country. Also identify one country that you think has a Millennial Generation. Explain why you selected this country.