Lesson 7
Looking Back at the Shapes of Kenya and Japan and My Country

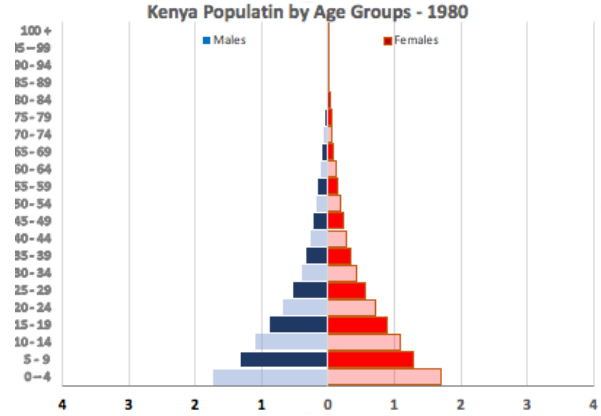
This lesson looks back at the population data for Kenya and Japan in the same way Lesson 6 looked back at the United States population. Kenya and Japan do not have a constitutional mandate to conduct a census every ten years. Each country periodically conducts a census, however, the time between each census varies. The data used in this lesson were obtained from the International Data Base (IDB) and are considered as accurate estimates of the population of the countries. Statistical procedures other than a census were used to estimate the population of Kenya and Japan.

Lesson 7 – Problems

Kenya

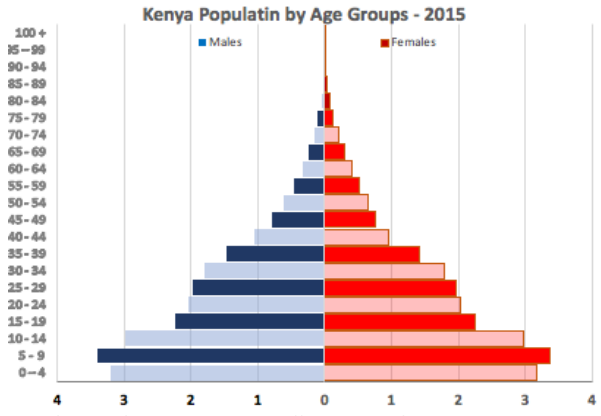
The 1980 population and the 2015 population are summarized by the following population pyramid graphs and histograms.

Kenya -1980

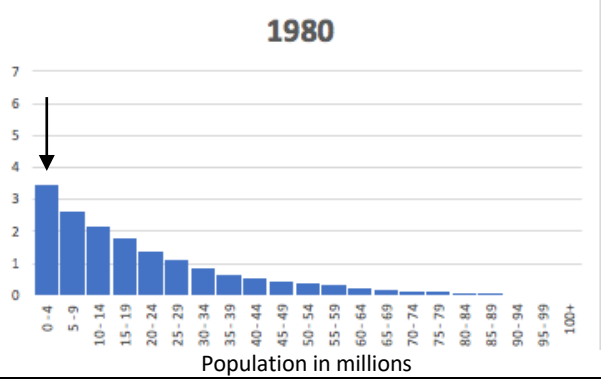


Total population: 16.33 million people

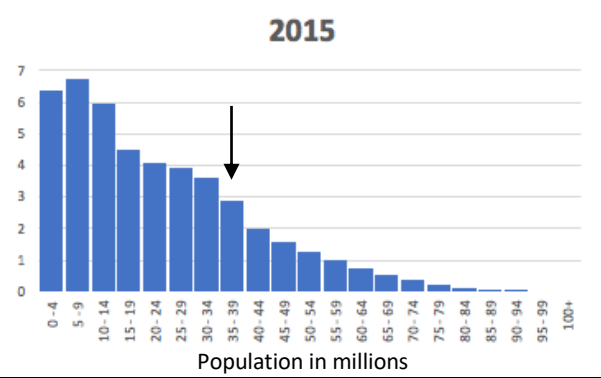
Kenya - 2015



Total population: 45.93 million people



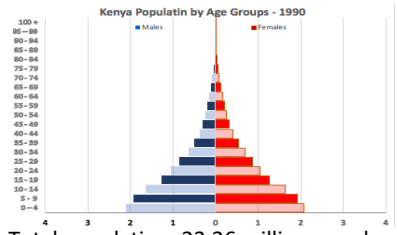
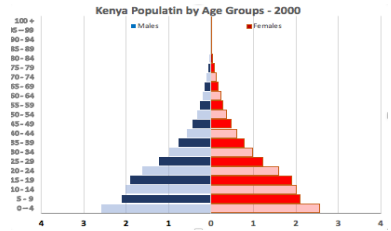
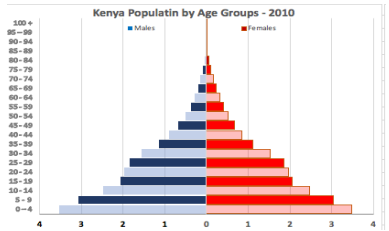
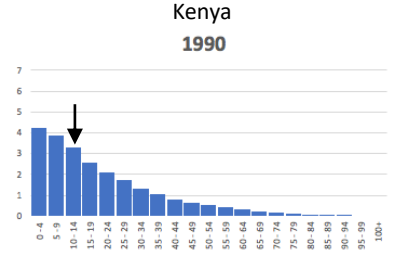
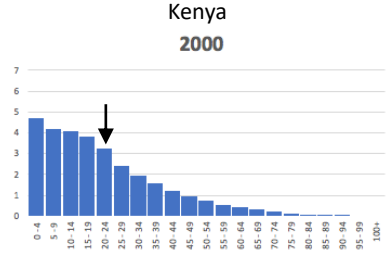
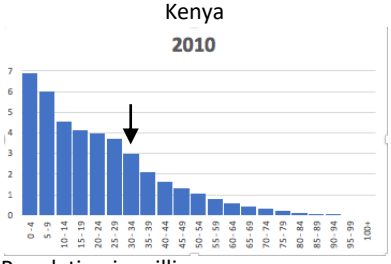
Arrow highlights the 0 – 4 years old age group or 3.48 million people



Arrow highlights the 35 – 39 years old age group or 2.89 million people

The population pyramid graphs and histograms of the intervening years of 1990, 2000, and 2010 are also provided. Note the changes in the shape of the population pyramid graphs and histograms.

Journey through the intervening years:

Kenya 1990	Kenya 2000	Kenya 2010
		
Total population: 23.36 million people	Total population: 30.61 million people	Total population: 40.84 million people
Kenya 1990  Population in millions	Kenya 2000  Population in millions	Kenya 2010  Population in millions
Arrow highlights the 10 – 14 years old age group or 3.28 million people	Arrow highlights the 20 – 24 years old age group or 3.22 million people	Arrow highlights the 30 – 34 years old age group or 3.00 million people

1. The information provided above indicates that the total population of Kenya increased from 16.33 million people in 1980 to 45.93 million people in 2015.
   a. Calculate the percent increase of the population from 1980 to 2015.

   b. Describe how the graphs (either the population pyramid graph or the population histogram) also indicate an increase of the population from 1980 to 2015.

2. The 0 – 4 years old in 1980 are highlighted by an arrow in the 1980 histogram. If the people in the 0 – 4 years old age group did not move to another country or did not die in the next 35 years, they were also counted in the 35 – 39 years old age group in 2015. An arrow is used to also identify the 35 -39 years old age group in 2015.
   a. What count and percent of the people in Kenya were 0 – 4 years old at the beginning of 1980?

   b. What count and percent of the people in Kenya were 35 – 39 years old at the beginning of 2015?

   c. Explain what factors contributed to the decrease in the population of the age group 0 – 4 years old in 1980 to the 35 – 39 years old in 2015 while the total population of Kenya increased.

3. Answer the following questions using the population graphs and the information provided about the total population and the population within highlighted age groups:
   a. In what age group in the 1990 population were people counted who were 0 – 4 years at the start of 1980?

   b. What percent of the people in 1990 belonged to the age group identified in 3(a)?

4. Continue to use the population graphs and the information provided to answer the following:
   a. In what age group in the 2000 population were people counted who were 0 – 4 years at the start of 1980?

   b. What percent of the people in Kenya belonged to the age group you identified in 4(a)?

c. In what age group in the 2010 population were people counted who were 0 – 4 years at the start of 1980?

d. What percent of the people in Kenya belonged to the age group you identified in (c)?

5. Summarize the change in the count and percent of the people who were 0 – 4 years old at the start of 1980 to the count and percent of people 35 – 39 years old in 2015.

6. Although a decrease in both the count and the percent of people were noted in the 0 – 4 years old age group to the 35 – 39 years old age group, there are other summaries that indicate changes in the population of Kenya from 1980 to 2015.
   a. Complete the following table by calculating the percent of the population in the given year who were 35 – 39 years old. (The calculation for 1980 has been completed as an example. Calculate your answer to the nearest tenth of a percent.)

Year	Count in age group 35 – 39 years old (millions of people)	Count in total population (millions of people)	Percent of 35 – 39 years old in the total population
1980	0.66	16.33	4.0%
1990	1.05	23.36	
2000	1.56	30.62	
2010	2.10	40.83	
2015	2.89	45.93	

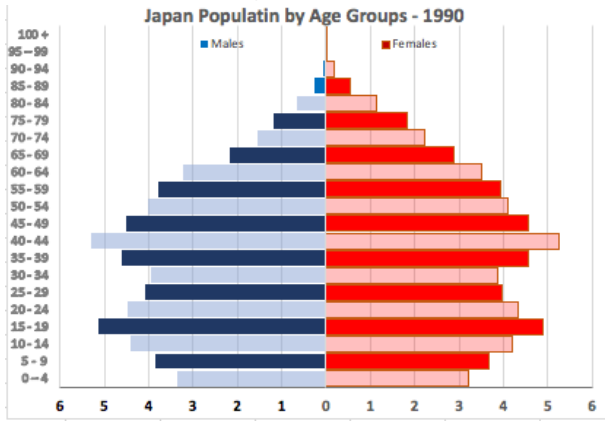
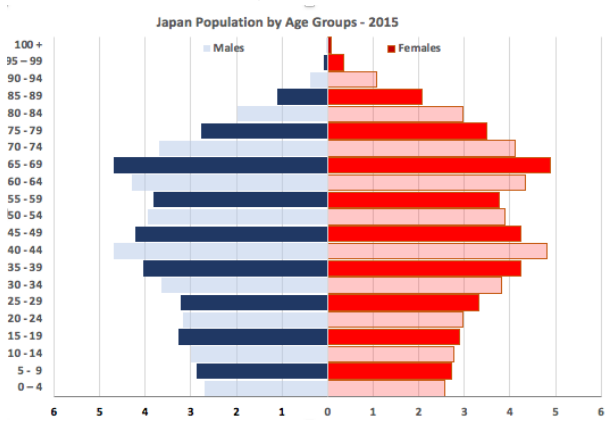
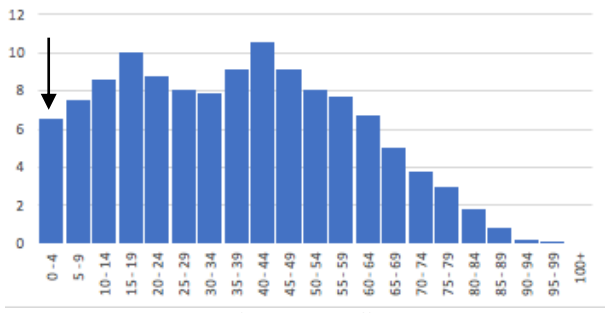
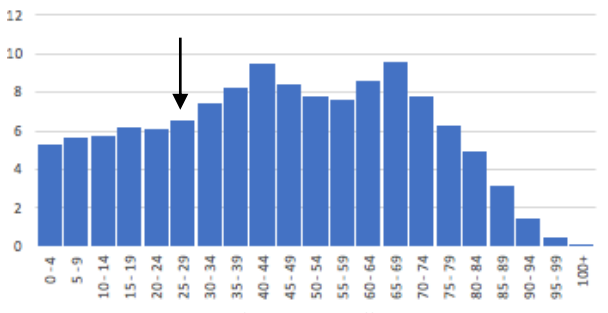
   b. Based on the above changes in this age group, and similar changes in several older age groups, describe a change in the median age of people in Kenya from 1980 to 2015.

   c. Why was the change in the median age an encouraging summary for the population of Kenya?

7. In what way do you think the mean ages has also changed from 1980 to 2015 in Kenya? Explain your answer.

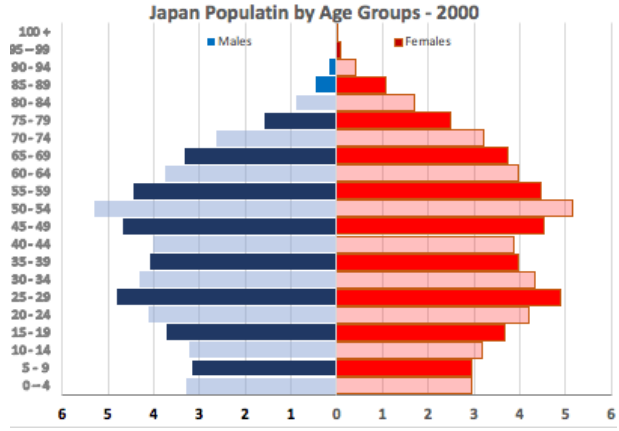
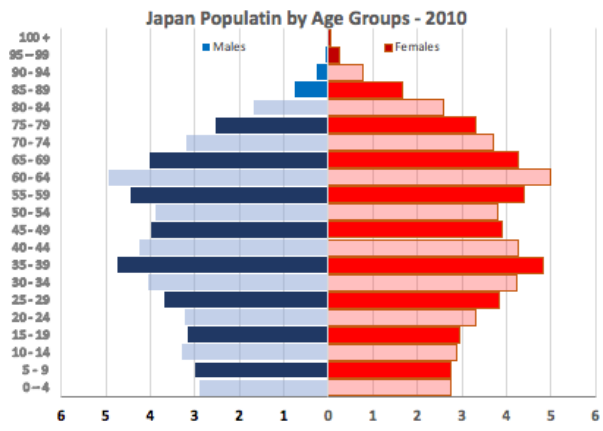
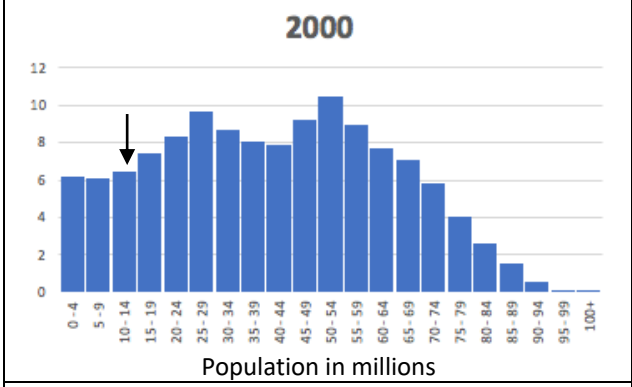
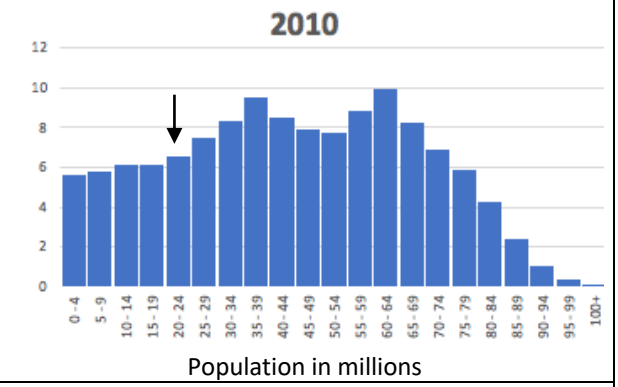
Japan

The 1980 population and the 2015 population are summarized by the following population pyramid graphs and histograms.

Japan - 1990	Japan - 2015
	
Total population: 123.54 millions of people	Total population: 126.91 millions of people
	
Population in millions	Population in millions
Arrow highlights the 0 – 4 years old age group or 6.57 million people	Arrow highlights the 25 – 29 years old age group or 6.54 million people

The population pyramid graphs and histograms of the intervening years of 2000 and 2010 are also provided. Note the changes in the shape of the population pyramid graphs and histograms.

Journey through the intervening years:

Japan 2000	Japan 2010
	
Total population: 126.78 million people	Total population: 127.56 million people
	
Arrow highlights the 10 – 14 years old age group or 6.42 million people	Arrow highlights the 20 – 24 years old age group or 6.55 million people

8. What do the graphs tell us about the changes in the population of Japan from 1990 to 2015? Identify at least 2 changes highlighted by the graphs.

9. Use the 1990 and 2015 population pyramid graphs or histograms to answer the following questions.
   a. What is the count of people 0 – 4 years old in 1990?

   b. What is the percent of people 0 – 4 years old in 1990?

   c. What is the count of people 25 – 29 years old in 2015?

   d. What is the percent of people 25 – 29 years old in 2015?

10. Use the 2000 and 2010 population pyramid graphs or histograms to answer the following questions?
    a. What is the count of people 10 – 14 years old in 2000?

    b. What is the percent of people 10 – 14 years old in 2000?

    c. What is the count of people 20 – 24 years old in 2010?

    d. What is the percent of people 20 – 24 years old in 2010?

11. Based on the counts and percent derived in questions (9.) and (10.), what happened to the people and the country of Japan who were 0 – 4 years old at the start of 1990 that changed the counts and the percent from 1990 to 2015?

12. In what way do you think the median ages changed from 1990 to 2015 in Japan? Explain your answer.

13. In what way do you think the mean ages changed from 1990 to 2015 in Japan? Explain your answer

14. If you knew a person from Japan who was well aware of the history of Japan, what questions would you ask this person based on the above pyramid graphs or histograms?

15. Complete the following summary table of the United States, Kenya, and Japan:

Country	Explain the changes of the counts of the age groups over time that were highlighted in this lesson.	Summarize the changes in the overall population count and shape of the countries during the years highlighted in the lesson.
United States		
Kenya		
Japan		

Use the population totals for 2010 and 2015 as ***anchor years*** in observing changes over time for the next unit. The totals represent estimates of the country's population in millions of people. The summaries from 2010 and 2015 provide a summary of the past and a basis for speculating on the future. If you are completing this module when census counts of the population are known for the years 2020 or beyond, consider adjusting the anchor years. Also create 2015 population estimates for the country you set-up in Lesson 5, or the My Country example. Create counts for the country set-up in 2010 that when linked to the 2015 counts can be used to estimate future counts.

	Kenya		Japan		My Country	
Age Group	**2010**	**2015**	**2010**	**2015**	**2010**	**2015**
0 – 4	6.87	6.38	5.63	5.27		
5 – 9	6.01	6.76	5.76	5.61		
10 - 14	4.55	5.95	6.16	5.75		
15 - 19	4.13	4.49	6.13	6.15		
20 - 24	3.99	4.08	6.55	6.13		
25 - 29	3.70	3.92	7.50	6.54		
30 - 34	3.00	3.6	8.30	7.47		
35 - 39	2.10	2.89	9.55	8.27		
40 - 44	1.63	2.01	8.52	9.50		
45 - 49	1.32	1.55	7.91	8.46		
50 - 54	1.04	1.25	7.69	7.82		
55 - 59	0.81	0.98	8.84	7.57		
60 - 64	0.59	0.75	9.92	8.62		
65 - 69	0.43	0.53	8.27	9.57		
70 - 74	0.31	0.36	6.89	7.82		
75 - 79	0.20	0.23	5.86	6.26		
80 - 84	0.10	0.12	4.27	4.95		
85 - 89	0.04	0.05	2.40	3.17		
90 - 94	0.01	0.01	1.03	1.45		
95 - 99	0.01	0.01	0.33	0.44		
100+	0.00	0.01	0.05	0.09		
Totals	40.84	45.93	127.56	126.91		