

Lesson 14

Kenya, Japan, United States – Summing It Up

Lesson 14 – Problems

Handouts needed to complete the following problems:

Handout 6: *The United States 2010 – 2050*

Handout 7: *Kenya 2010 – 2050*

Handout 8: *Japan 2010 – 2050*

The United States

Use completed **Handout 6** to answer the following questions. Remember that the population estimates are in millions of people.

1. What is the count of people who are projected to be 10 – 14 years old in 2025? What is the count of people who are projected to be 15 - 19 in 2030? What is projected to happen during those 5 years to change the count of people in the connected age groups?
2. What is the projected count of people who will be 70 – 74 years old in 2040? What is the projected count of people who will be 75 – 79 years old in 2045? Explain what happened from 2040 to 2045 that changed the count of people in these connected layers?
3. What is the projected count of people 0 – 4 years old in 2030? What is the projected count of people 0 – 4 years old in 2035? Explain why the count of people in this age group is not predicted to stay the same.

Kenya

Use completed **Handout 7** to answer the following questions. Remember that the population estimates of Kenya are in millions of people.

4. The Population Factor for the projected change in the 15 – 19 age group to the 20 – 24 age group is 0.988. The same population factor for the United States is 1.032. What does that indicate is different about the projected count of people in these connected age groups?

5. What is the projected count of people in Kenya in the 80 - 84 age group in 2040? What is the project count of people in the 85 – 89 age group in 2045? Explain what happened during the 5 years to change that count of people.

6. None of Kenya's population factors are projected to be greater than 1.000. What does this indicate is different about the projections for Kenya and the United States?

7. All of the Population Factors in Kenya are less than the Population Factors in the United States (except for the population factor of the age group 90-94 which is due to a round off of the small projected populations). What does the smaller Population Factors indicate about Kenya that is different than the United States?
(Note: A special adjustment to the counts were needed to avoid a division by 0 in the population factors for the oldest 2 age groups. The estimated counts from the Census Bureau indicates a loss of the population during the five-years. Population Factors rounded to the next decimal place would be needed to reflect the small numbers and more accurate proportions.)

Kenya
Handout 7

Age Groups	Population Factors
0 – 4	0.984
5 - 9	0.990
10 - 14	0.987
15 - 19	0.988
20 - 24	0.982
25 - 29	0.973
30 - 34	0.963
35 - 39	0.957
40 - 44	0.951
45 - 49	0.947
50 - 54	0.942
55 - 59	0.926
60 - 64	0.898
65 - 69	0.837
70 - 74	0.742
75 - 79	0.600
80 - 84	0.500
85 - 89	0.250
90 - 94	1.000
95 – 99	0.205
100 +	

8. What is the Foundation Factor used to estimate the count of people in the 0 - 4 age group? Compare this to the Foundation Factor used in the United States. In what way is the projected population of Kenya changed by this different foundation factor?
9. What is the projected count of the 0 – 4 age group in 2030? What is the projected count of people for the 0 – 4 age group in 2035? Explain why the estimates for this age group are different.
10. Determine the projected percent increase in the population of Kenya from 2015 to 2050.

Japan

Use completed **Handout 8** to answer the following questions about Japan. Remember that the population estimates of Japan are in millions of people.

11. The Population Factor for the projected change of the 10 – 14 age group to the 15 – 19 age group is 0.998. The population factor for the same connected age groups in the United States is 1.020. What does that indicate is different about the projected count of people who will be in these connected age groups?
12. None of Japan's population factors are projected to be greater than 1.000. What does this indicate is different about the projections for Japan and the United States?
13. You are able to travel to a city in Japan. Do you expect to meet people who immigrated to Japan? Explain your answer.
14. Identify the age groups in which the population factors for Japan are greater than the population factors for the United States.

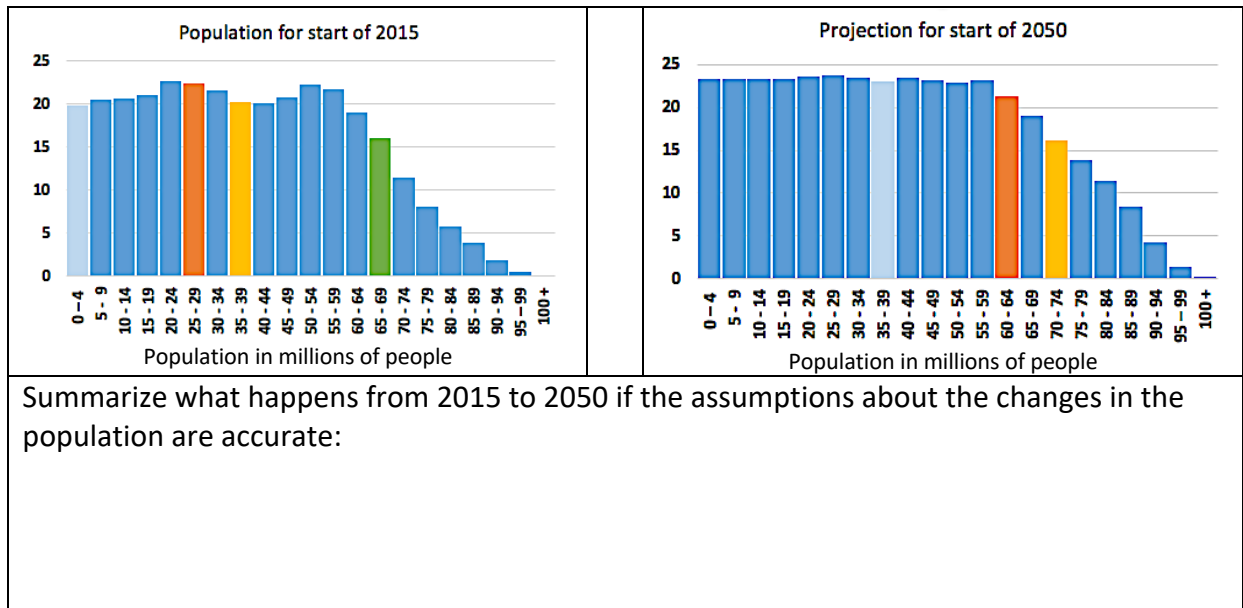
Japan
Handout 8

Age Groups	Population Factors
0 – 4	0.996
5 - 9	0.998
10 - 14	0.998
15 - 19	1.000
20 - 24	0.998
25 - 29	0.996
30 - 34	0.996
35 - 39	0.995
40 - 44	0.993
45 - 49	0.989
50 - 54	0.984
55 - 59	0.975
60 - 64	0.965
65 - 69	0.946
70 - 74	0.909
75 - 79	0.845
80 - 84	0.742
85 - 89	0.604
90 - 94	0.427
95 – 99	0.205
100 +	

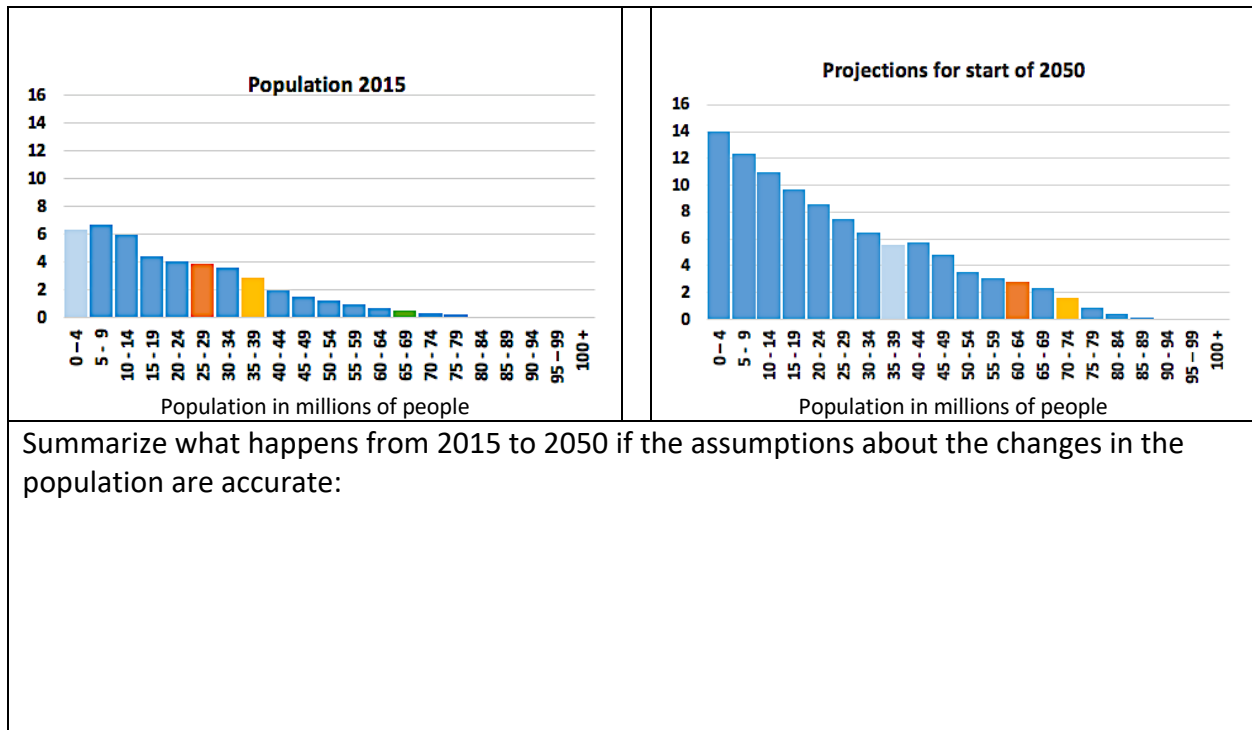
15. What does it indicate about the projected counts of people for connected age groups that have a greater population factor than the United States?
16. What is the Foundation Factor used to project the count of people in the 0 - 4 age group? Compare this to the Foundation Factor used in the United States. What does the different Foundation Factor for Japan indicate when comparing Japan to the United States? Kenya?
17. What is the projected count of the 0 - 4 age group for 2045? What is the projected count of the 0 - 4 age group for 2050? What does the difference in the projected counts tell us about Japan's future?

Summaries

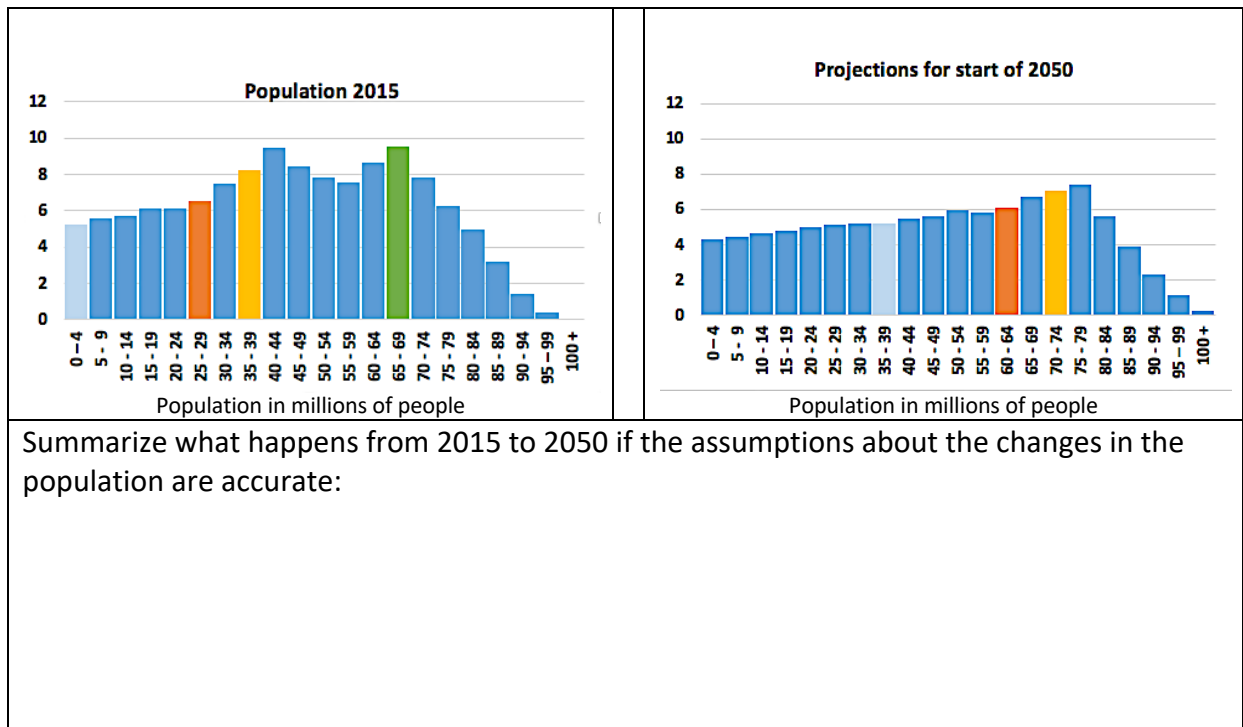
18. The United States



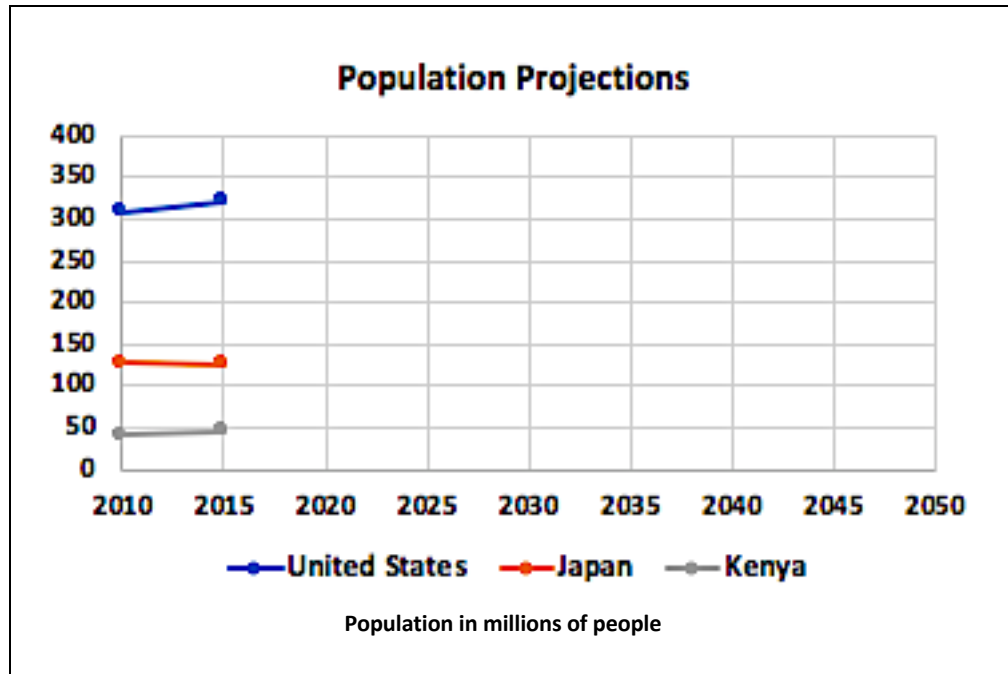
19. Kenya



20 Japan



21 Use **Handouts 6, 7, and 8** to complete the following graph:



State at least two reasons why the recursive model used in making the above projections can not continue without revisions.

Extension

This extension is to be completed using the Excel file **“The 1 Country”.xlsx** or **MyCountry Recursive Model.xlsx**. Recall that the file **“The 1 Country”.xlsx** implemented the recursive model for a fictitious country, or “The 1 Country”, in which the count for each of the age groups and the foundation and population factors were 1. Replace the counts of the age groups in 2010 and 2015 with the population counts of your country. Make sure you carefully save the revised spreadsheet using a different file name as “The 1 Country” file will also be used in Lessons 15 and 16. If directed by your teacher, use the Excel file **MyCountry Recursive Model** to answer the following questions or topics based on the fictitious country introduced in earlier lessons as MyCountry. Describe the results of applying the recursive model to your data or to the MyCountry data by completing the following summaries:

- a. Shape of your country or My Country in 2010 (bottom-layered, lower middle-layered, upper middle-layered, top-layered):
- b. Shape of your country or My Country in 2050:
- c. Description of the histogram for 2015.
- d. General description of the Population Factors (for example, age groups in which the factors were greater than 1, less than 1, or even equal to 1):
- e. Value of your foundation factor for 2015. Change the foundation factors for all of the other years (2020, 2025, etc.) to this value.
- f. Description of the histogram for 2050.
- g. General summary of the population of your country in 2050: