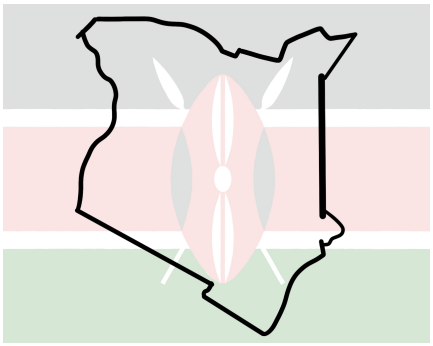
Lesson 2
Kenya
A Bottom-Layered Country

Kenya … home to the well-known cities of Nairobi and Mombasa. A beautiful country in eastern Africa with unique connections to some of the most exotic animals in the world. A country whose history is marked by several events that altered the count of its people. The geographical shape of Kenya and its flag are represented below:



But, Kenya, just like the previous lesson about the United States, has another shape that is equally important in understanding this country. Kenya's shape is different than the shape of the United States and conveys its own stories about the people of Kenya. Faith, the twin sister of Raphine whose story is included in this lesson, is thinking about the geographical shape of her country Kenya and the population shape.

Kristin and Raphine's Story – Chapter 2

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Raphine was born in a small village north of Nairobi, Kenya. In 2015, he celebrated his 36th birthday and felt a bit uneasy. He currently is caring for his elderly mother and grandmother, along with several younger brothers and sisters. He is the headmaster of an elementary school in his village, a position he held for the last 12 years. He teaches math to nearly 40 young children who are 5 to 14 years old. The children attending the school live near his village. He loves his job. There are many families hoping their children will be able to attend his school. Unfortunately, the school is just unable to accept everyone who wants to attend.

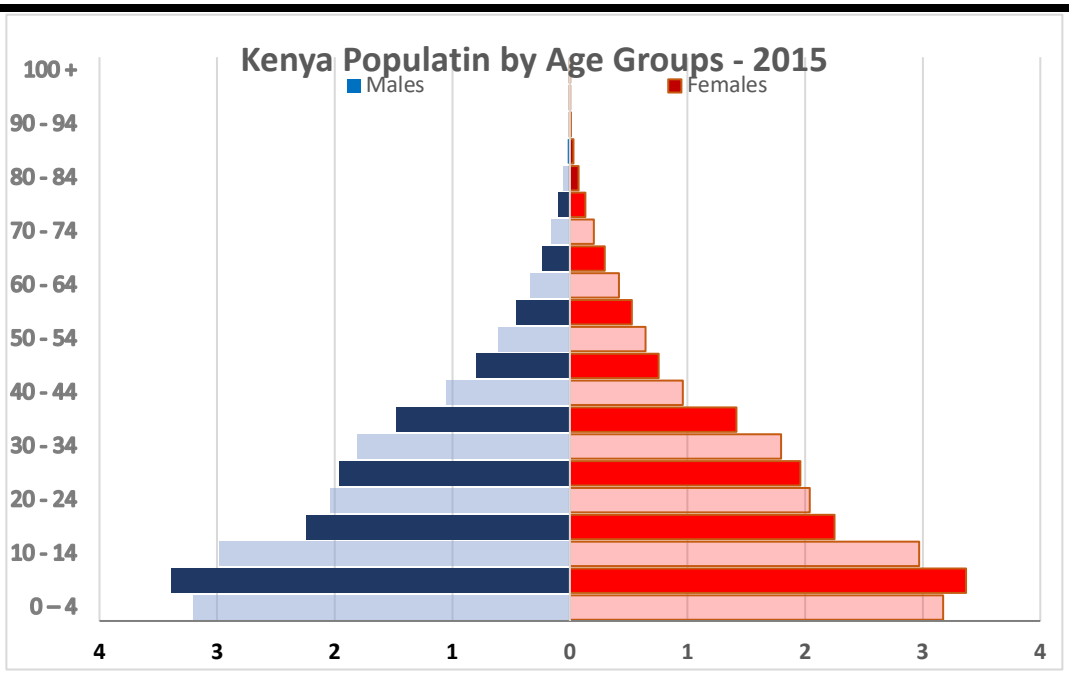
Raphine also has an interest in becoming a doctor. There is limited health care for his mother and twin sister Faith. He is quite sure Faith suffers from asthma that often makes life difficult for her to care for his younger brothers and sisters and nieces and nephews. The kids in his school also have many health problems. For the last couple of years, Raphine was looking into a program at a university in the United States to pursue a personal dream of becoming a doctor or a nurse. He recently applied to participate in the program and received a letter that his application was accepted. The university has offered Raphine a full scholarship to live and study in the United States. The university is also encouraging Raphine to attend a conference in Milwaukee, Wisconsin to learn more about the paperwork he will be required to complete to become a fulltime student. Kristin is responsible for identifying United States families who will assist Raphine with his transition if he accepts this offer. He is also encouraged to communicate through e-mail with Kristin to become more familiar with the obvious challenges of a possible move to the United States.

Raphine is nervous. Leaving Kenya for 3 or 4 years is not an easy decision. Who will run his school? Who will take care of his family members? He is working with other teachers in his school who might address some of his concerns.

Lesson 2 – Problems

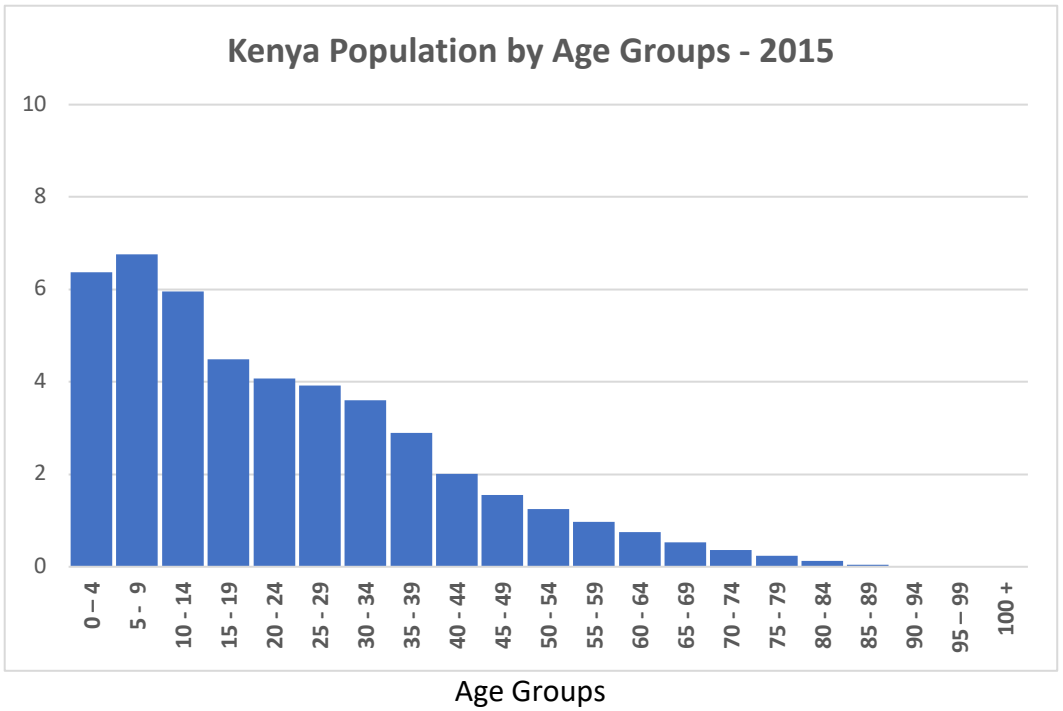
Handout needed to complete the following problems: Handout 2: *Kenya – 2015*

The US Census Bureau provides special graphs of the age distribution of countries around the world. The following graph and data were obtained from the United States Census Bureau's International Data Base (IDB) at *https://www.census.gov/programs-surveys/international-programs/about/idb.html.* The population pyramid graph of Kenya represents the 2015 age distribution of Kenya.



Population in millions of people
Data obtained from the US Census Bureau – International Data Base (IDB)

The following **hi*stogram*** combines the female and male counts of people in Kenya:



Population in millions of people
Data obtained from the US Census Bureau – International Data Base (IDB)

The population pyramid graph and histogram convey information about the count of people in Kenya in the same way the graphs conveyed information about the United States in Lesson 1. They provide visual representations of the estimates for the count of people in special age groups. The different shapes, however, indicate different challenges for Kenya and the United States.

Use **Handout 2: *Kenya – 2015*** to answer the following problems. You can use the population pyramid graph, the population histogram, or the table provided on the handout to answer these problems.

1. What 5-year age group has more people counted in it than any other age group?

2. In what age group was Raphine counted in the 2015 population pyramid graph or histogram? In what age groups were the students in his school counted at the start of 2015?

Review again the definitions from Lesson 1:
A population distribution is defined by the following *layers*:

- The ***bottom-layer*** refers to the counts of people in the 0 to 24 years old age groups.
- The ***lower middle-layer*** refers to the counts of people in the 25 to 49 years old age groups.
- The ***upper middle-layer*** refers to the count of people in the 50 to 74 years old age groups.
- The ***top layer*** refers to the count of people in the 75 to 100+ years old age groups.

Based on the summary of layers, a country's shape is defined by the following terms:

- A country that has most of its people in the bottom-layer is identified as **Bottom-Layered Country**.
- A country that has most of its people in the lower middle-layer is identified as a **Lower Middle-Layered Country**.
- A country that has most of its people in the upper middle-layer is identified as an **Upper Middle-Layered Country**.
- A country that has most of its people counted in the top layer is identified as a **Top-Layered Country**.

3. Estimate what layer (bottom, lower middle, upper middle, top) you think will have the least number of people in Kenya? Explain how you made your estimate.

4. Estimate what layer you think will have the greatest number of people? Explain how you made your estimate.

Identify on the ***population pyramid graph*** and the ***histogram*** where the layers begin and end.

5. Using the table of population counts on **Handout 2**, what is the percent of people 0 to 24 years old? (Round your answer to the nearest 10^{th} of a percent.)

6. In a similar way, what is the percent of the count of people 25 to 49 years old?

7. What is the percent of the count of people 50 to 74 years old?

8. What is the percent of the count of people 75 to 100+ years old?

9. Identify two age groups in which the count of people in one age group is approximately double the count in the other age group. Is the larger age group younger or older than the other age group?

10. Raphine's data story indicates that he was unable to accept all of the kids who wanted to attend his school. In what way do the graphs indicate that finding a school for all of the young people might be one of Kenya's challenges?

11. Identify one of the age groups from the table that has more than 10% of the total population of Kenya.

12. Estimate the count and percent of teenagers (13 to 19 years old). Explain how you derived your estimate. (Estimates will vary.)

13. What is the count of people who are under 10 years old?

14. What is the percent of the count of people who are under 10 years old?

15. What is the count of people who are 65 years old or older?

16. What is the percent of the count of people who are 65 years old or older?

17. Why is it important that the count and percent of people under 10 years old and 65 years old or older are given special attention?

18. "Old" and "young" are subjective descriptions that in many cases are defined by several factors other than age (for example, health status, or income status). For this unit, however, consider the definition of "young" as people less than 10 years old, and the definition of "old" as people who are 65 years old or older. What is the ratio of "old" to "young" using the above definitions of young and old? Derive a decimal from this ratio and interpret it by describing the approximate count of "old people" to the count of "young people." Express your answer to the nearest whole number.

19. If there are approximately 500 students in a typical school for students who are 5 to 14 years old, estimate the number of schools needed to educate the students who are 5 to 14 years old.