Japan's Super-Aged Society and Declining Fertility Rate

Subject: Math/Demography
Grade Level: 9th and 10th Grade (High School)
Topic: Analyzing graphs and tables

Summary

One of the contemporary social issues in Japan is its super-aged society and declining fertility rate. Japan is the most rapidly aging society in the world and is categorized as an "ultra super-aged society." To understand the situation of each county's aging society and declining fertility rate, students need to learn how to interpret a population pyramid, graphs, and tables. Simultaneously, they need to research the background information of the charts. A primary factor of Japan's aging society is the declining fertility rate. The declining fertility rate is a severe issue especially among developed countries, including the United States. There is a possibility that the United States will follow current Japan's severe situation – aging society and declining fertility rate. Therefore, it is important for students to be aware of this social issue and think about its solution.

## Learning Goal

Students will:

- acquire skills to create and analyze graphs and tables by learning about social issues in Japan – specifically about super-aged society and declining fertility rate
- understand the social impact of a super-aged society and a low fertility rate by learning about Japan's current situation
- think about the global social impacts of an aging society and declining fertility rate by comparing the demographic changes of Japan and the United States
- develop research, analytical, and communication skills and logical thinking.

Key Facts

- Japan is the most "aged" society in the world, followed by other developed countries. In 2019, 28.4% of the total population of Japan is over 65 years old.
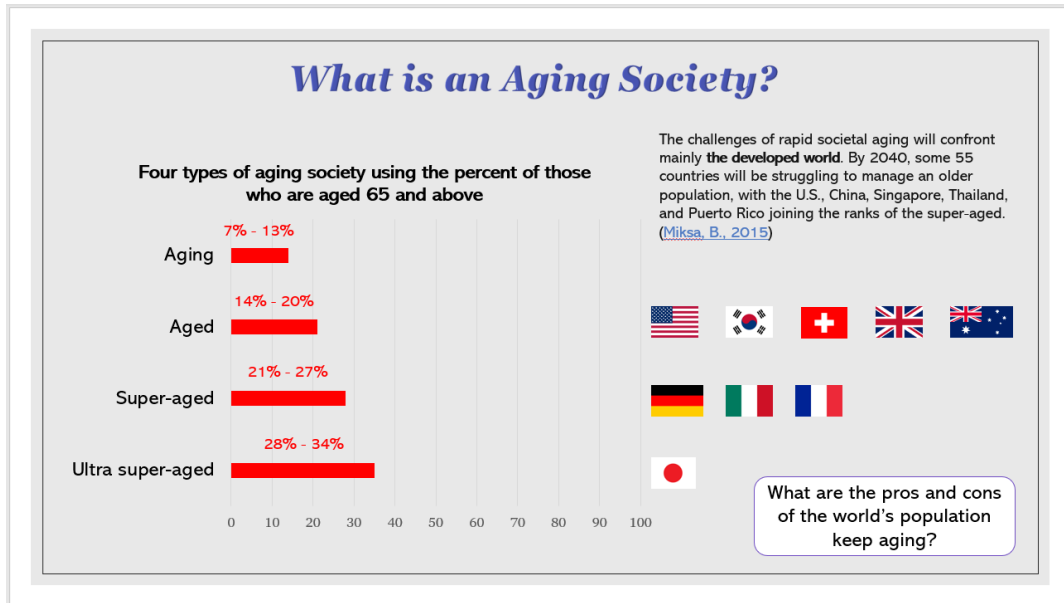
- The main factors of Japan's aging society are declining fertility rate and increasing life expectancy due to Japan's sufficient healthcare system (such as offering universal healthcare coverage and regular medical examination). However, an aging society is impacting on Japan's economic growth by reducing the labor force and affecting Japan's economic performance by increasing the social security burden and benefits. The Japanese government is responding to the issue by pressuring and giving incentives to companies to hire more women and give more leadership positions to female employees. Also, they are allowing more foreign younger and skilled workers in Japan.
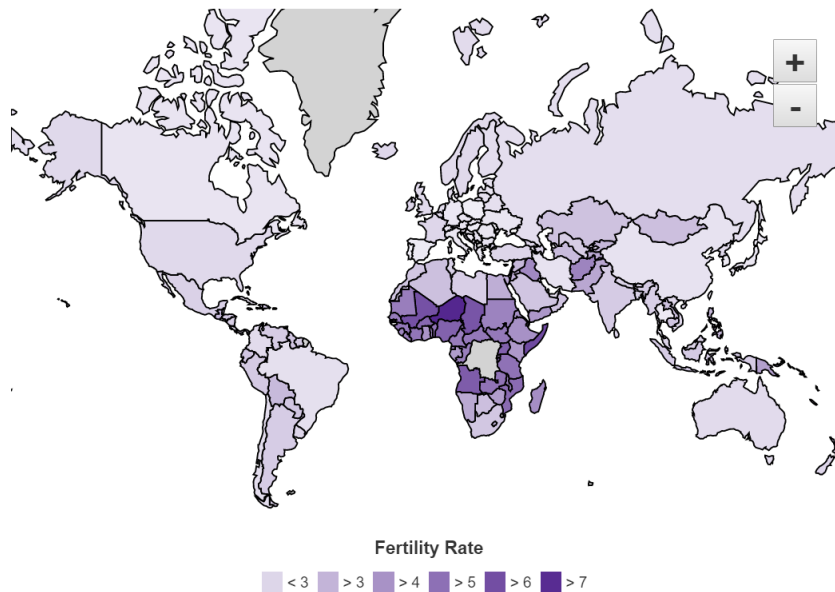
- The primary factor of Japan's aging society is its declining fertility rate. The issue is a result of Japan's shrinking pool of women of childbearing age, more women delaying having children or deciding not to have them as more of them enter the workforce and falling marriage rates. This issue needs a discussion on whether Japanese women do not want to have children, or they cannot have children.

- France is a country that succeeded in increasing its fertility rate from 1.66 in 1994 to 2.02 in 2010. France's numerous pro-natal policies that proved to be effective in addressing the situation include paid maternity leave, and other job guarantees so that a mother can return to the job she temporarily left and subsidized daycare.
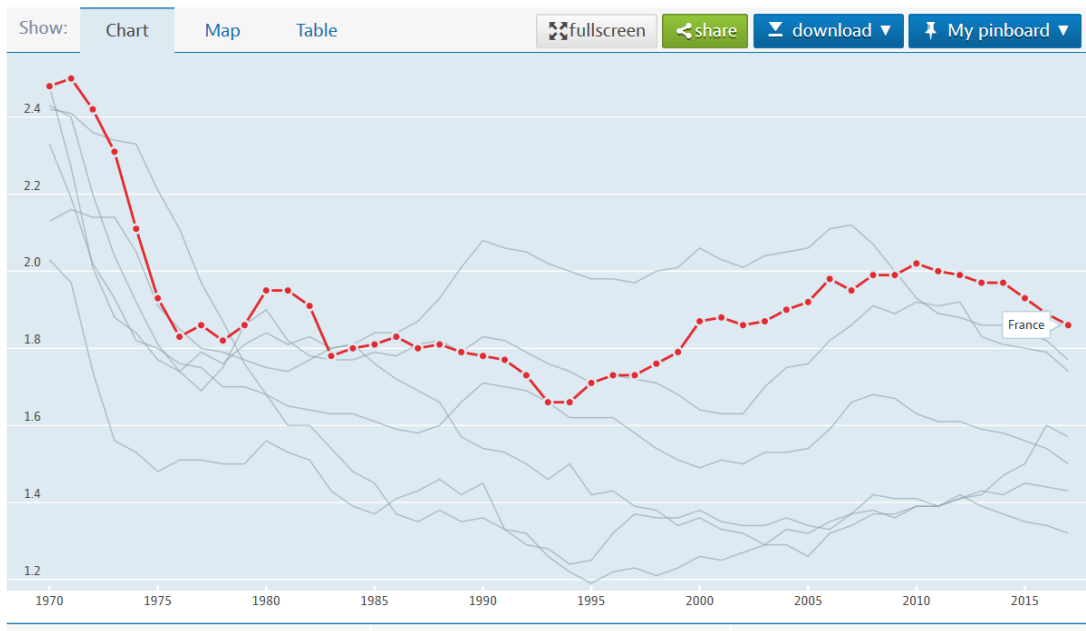
Relevant Curriculum Unit:

1. ***DCPS***:

➢ High School: Statistics & Probability

Statistics & Probability Overview

Interpreting Categorical and Quantitative Data

- Summarize, represent, and interpret data on a single count or measurement variable
- Summarize, represent, and interpret data on two categorical and quantitative variables
- Interpret linear models

Making Inferences and Justifying Conclusions

- Understand and evaluate random processes underlying statistical experiments
- Make inferences and justify conclusions from sample surveys, experiments, and observational studies

- ➢ High School: Modeling

  The basic modeling cycle is summarized in the diagram. It involves (1) identifying variables in the situation and selecting those that represent essential features, (2) formulating a model by creating and selecting geometric, graphical, tabular, algebraic, or statistical representations that describe relationships between the variables, (3) analyzing and performing operations on these relationships to draw conclusions, (4) interpreting the results of the mathematics in terms of the original situation, (5) validating the conclusions by comparing them with the situation, and then either improving the model or, if it is acceptable, (6) reporting on the conclusions and the reasoning behind them.

2. *FCPS*:
- ➢ Algebra, Functions, and Data Analysis

    Algebra and Functions

    AFDA.1 The student will investigate and analyze linear, quadratic, exponential, and logarithmic function families and their characteristics. Key concepts include

  g) connections between and among multiple representations of functions using verbal descriptions, tables, equations, and graphs;