Implications for the Future:
Using Population Demographics, Population Pyramids and the Demographic Transition Model to compare Japan, the United States, and three additional countries.

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Standards

National Geography Standards (http://www.nationalgeographic.com/xpeditions/standards/)
- Element 4: Human Systems
  - Standard 9: The Characteristics, Distribution, and Migration of Human Population on Earth's Surface
  - Standard 10: The Characteristics, Distribution, and Complexity of Earth's Cultural Mosaics
- Element 6: The Uses of Geography
  - Standard 17: How to Apply Geography to Interpret the Past
  - Standard 18: How to Apply Geography to Interpret the Present and Plan for the Future

College Board: AP® Human Geography (http://www.collegeboard.com/student/testing/ap/sub_humangeo.html)
- Content Area II: Population
  - Section A: Geographical analysis of population
    - Item 2: Implications of various densities and populations
    - Item 3: Patterns of composition: age, sex, race, and ethnicity
  - Section B: Population growth and decline over time and space
    - Item 1: Historical trends and projections for the future
    - Item 2: Theories of population growth, including the Demographic Transition Model
    - Item 3: Patterns of fertility, mortality, and health
    - Item 4: Regional variations of demographic transitions

Oklahoma C[3]: World Human Geography High School (http://ok.gov/sde/sites/ok.gov.sde/files/C3-SocialStudies.pdf)
- Content Standard 1: The student will use cite textual and visual evidence including maps and other geographic representations, tools and technologies to acquire, research, process, and solve problems from a spatial perspective.
  - Item 2: Utilize geographic skills to understand and analyze the spatial organization of people, places, and environments on the Earth's surface.
- Content Standard 2: The student will evaluate specific textual and visual evidence to analyze how human population is organized geographically in order to understand the cultural, political, and economic systems of the world.
  - Item 1: Analyze geographic data measuring population including density; distribution; patters of composition: age, sex, race, and ethnicity; and population trends and projections.

Objectives

By the end of this lesson student will:

- Understand and explain the meanings of vocabulary terms: Crude Birth Rate, Crude Death Rate, Rate of Natural Increase, More Developed Country, Lesser Developed Country, and Human Development.
- Understand and explain the meanings and implications of geographic models: Population Pyramid (also known as Age-Sex Diagrams) and Demographic Transition Model
- Research information relative to the vocabulary and geographic models from Japan, the United States, and three additional countries.
- Analyze the researched information and apply their understanding of vocabulary and geographic models so as to evaluate and predict the level of development for Japan, the United States, and the three additional countries.

Age and Discipline

High School: World Geography or Human Geography course, Advanced Placement or on-level

Time Required

Two to three class periods of approximately 55 minutes each.

Materials

Computers or tablets with internet access (MS Word installed would also be beneficial)
Population Pyramid sets printed from online
Handouts: 1) Population Profile, 2) Demographic Transition Model, and 3) Question Guide

Procedures

Prior to this specific lesson/activity, teacher should discuss with students about the topics of population pyramids and the Demographic Transition model. From discussion, students should gain a basic understanding of the information contained within each of these two types of geographic. Topics to include in discussion:

- Crude Birth Rate
- Crude Death Rate
- Rate of Natural Increase (remind students that RNI can decrease while total population is still increasing over time)
- "More Developed" versus "Lesser Developed" countries
- Factors which help to improve the level of development within a country (increased access to health care, improvements within infrastructure, and improved quality/access to education, especially for women)

This lesson/activity will help to expand upon the basic understanding of the models and help to guide students into seeing the "bigger picture" by using these models to compare several countries and make predictions upon the future of each by evaluating the past, present, and future expectations.

Each student will research information for Japan, the United States, and three additional countries from locations other than East Asia or Anglo-America. The three additional countries should represent a variety of developmental levels. It is up to the teacher's discretion to specifically assign countries he/she has pre-chosen or to allow students to randomly select from a list or from a "hat".

Give each student five copies of the Population Profile handout, one for each Japan, the United States, and the three other countries. Using the Population Reference Bureau's website (www.prb.org), have students complete the demographic information requested. **Please note that while the PRB strives to have a complete online profile for each country, occasionally there are gaps in information. If there is not information for a specific topic, just have the student/group enter "N/A" into the appropriate space on the handout or teacher may provide an alternate source for the information.

Using the U.S. Census Department's "International Database" have the student access population pyramids for Japan, the United States, and the three other countries for the years 1995, 2010, 2025, and 2050.
1. Website: http://www.census.gov/population/international/data/idb/informationGateway.php
2. Select "Population Pyramid Graph" as your report
3. Select the country's name in the appropriate drop-down window
4. Select the four indicated years in the appropriate drop-down window
   - Holding the "ctrl" key down as selections are made will allow the student/group to select all four years at the same time; this is necessary for the next step
5. Select "submit"
6. Select the "Population Pyramids" tab
7. Copy/Paste each image into a single MS Word document and then print out this set of pyramids
8. Repeat this process for each of the countries
   - As a way of modifying or simplifying this process for on-level students, especially if assigned as an individual activity, the teacher may want to go ahead and complete this process and then photocopy enough copies of Japan and the United States for each student/group.

Give each student five copies of the Demographic Transition Model handout, one for each Japan, the United States, and the three other countries. For each country, have the student/group use the information gained from the Population Reference Bureau and the population pyramids so as to predict where that country falls on the Demographic Transition Model and then to defend, in writing, why this prediction was made.

Give each student a copy of the Question Guide. Even if students were working collaboratively on the above steps and continue to work collaboratively as they discuss and compose answers to these questions, encourage students to record their own thoughts even if those thoughts are different than their peers within the group.

For the final question on the Question Guide, assign students to a small collaboration and discussion group. Have students discuss their responses, especially focusing on the other three countries which may be different for each person within this group.

Close with a full class discussion on the final question as a way to debrief what the students have learned throughout the process.

Assessments

Formal assessment should be made from students' written responses to each the Population Profile, the Demographic Transition Model, and the Question Guide. While there is much room for a variety of responses from students, are the responses provided appropriate to the question and supported by evidence the student gained during the activity?

Informal assessments should be made during group discussions (both the collaboration groups throughout the activity if used and the discussion group as part of the Question Guide) as well as the full class discussion of the final question from the Question Guide. To what extent do student responses reinforce concepts discussed within the initial full class discussion which preceded the activity?

Modifications

This lesson plan was designed with the idea of it being primarily completed individually by each student (with the exception of the small group collaboration for the final question on the question guide). Using the dynamics of your specific classroom setting and the needs and ability levels of your students, determine whether the research activities within this lesson should best be completed by individual students or within small collaborative groups; the availability of internet access and/or quantity of computers or tablets within the school (for in class work) or at home (for a homework assignment) may also influence this decision. If using collaborative groups for the research activities of this lesson, it is recommended to use new groups for the small group collaboration on the final question of the question guide.

An additional way to adapt this lesson based upon your students' ability levels and the quantity of time available for the lesson is for the teacher to go ahead and complete the Population Profile information for the common countries of Japan and the United States. This information could then either be printed out for each student/group or projected/displayed for all students to see within the classroom; students would then research only the information need for the three additional countries.

Extension

This process works very well within other units common to a human geography course: migration, cultural geography, political geography, agriculture and rural use of land, industry and economic development, and cities and urban use of land. Students could compare Japan, the United States, and the same three additional countries throughout the course using and applying the vocabulary and geographic models relevant to each successive unit. Continually making the linkages back to an evaluation of the levels of human development within these countries helps students to understand the interconnectedness of a wide-range of issues and how those issues influence the human experience within an individual country and in the relationships countries have with each other.

Population Profile

Country's Name			
Population		Land Area (in sq. km)	
People per sq. km		Net Migration (# per 1000)	

Crude Birth Rate (# per 1000)		Crude Death Rate (# per 1000)	
Rate of Natural Increase (Crude Birth – Crude Death shown as %)		Infant Mortality Rate (# of deaths per 1000 live births)	
Total Fertility Rate (av. # of children per woman)		Dependency Rate (<age 15% + >age 65%)	
Male Life Expectancy		Female Life Expectancy	

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Male Literacy Rate		Female Literacy Rate	
% Male in Primary School		% Female in Primary School	
% Male in Secondary School		% Female in Secondary School	

GNI PPP per capita in US$		% Living Below US$2 Per Day	
% Male 15+ Economically Active		% Female 15+ Economically Active	
Mobile Phone Subscribers (# per 100)		Motor Vehicles (# per 1000)	

% Women in Parliament (or other legislature)	

% w/Access to Improved Water		% Undernourished	
% Children <age 5 Underweight		% HIV/AIDS Among Adults	

Demographic Transition Model

Generic Version of DTM: Here is a generic version of the Demographic Transition Model. You may need to review information in your textbook or class notes to recall the overall descriptions for each Stage of the model.
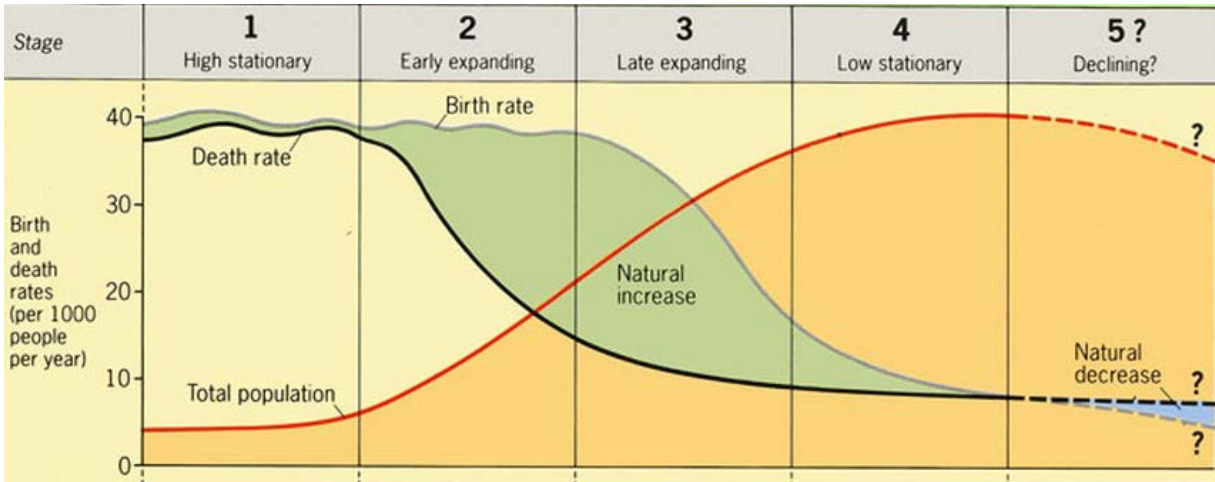
For <u>EACH</u> of your assigned countries, identify which Stage of the Demographic Transition Model you believe this country is currently in. Compose a well-developed paragraph to justify the stage's selection. Be sure to provide specific evidence from the Population Profile and population pyramids to help defend the Stage you have selected.

Country: _____

Paragraph:

Question Guide

Directions: Answer the following questions using information from the Population Profiles, the population pyramids, and the Demographic Transition Models. You may need to use additional paper for your responses.

1. For each country, what one fact on the Population Profile most surprised you and why?

   - Japan:

   - United States:

   - Country #4:

   - Country #5:

   - Country #6:

2. Which of these five countries do you believe to be the MOST developed? Why?

3. Which of these five countries do you believe to be the LEAST developed? Why?

4. Many geographers argue that improvements in Healthcare, Infrastructure, and Education (especially for women) are the three greatest factors to help a country become more developed. What evidence from these five countries can you find to help support **OR** to refute this claim?

5. Identify two additional factors (beyond those noted in the question above) that you believe to be important to help a country become more developed. What evidence from these five countries caused you to select these two factors?

6. Based on your information, what are the TWO biggest challenges that Japan will face within the future? What do you suggest the government of Japan do to overcome these challenges?

7. Based on your information, what are the TWO biggest challenges that the United States will face within the future? What do you suggest the government of the United States do to overcome these challenges?

8. Of the three other countries, which one do you believe will have the most significant challenges to overcome in the future? Why?

9. Based on your information, what are the TWO biggest challenges that the country you selected for Question #8 will face within the future? What do you suggest this country's government do to overcome these challenges?

10. Of these five countries, which one do you believe will be the MOST developed by the year 2025? Why did you select this country? Do you think that your selection will still be the MOST developed by the year 2050? Why or why not?

In a small group, as assigned by your teacher, discuss and answer the following question:

11. Why is a study of each of the following topics important for understanding the world?

- population demographics from a variety of countries:

- population pyramids from various countries:

- the Demographic Transition Model:

- characteristics that help a country become more developed: