*My Family in 100 Years**

Questions

How quickly will families grow if there are different numbers of children born each generation and different times at which the females begin having children? Which will contribute most to the growth of a family over a century: the number of children born each generation or the age at which the female first has children?

Materials (per student group)

Centimeter graph or poster paper; large marking pens; calculators
Optional: Current *World Population Data Sheet* at *www.prb.org/*

Procedure

1. The teacher will divide the class into groups of 3-4 students and give each group a family assignment.

Growth Assumptions for Various Families

Family	Assumptions
Asano	The Asano family lives in the suburbs and averages two female children per generation. The women have their first child at age 25
Brown	The Brown family lives in a metropolis. The women have their first and only child at age 35.
Norako	The Norako family lives in a large city and averages three female children per generation. The women have their first child at age 15.
Ruppert	The Ruppert family lives in a rural area and averages three female children per generation. The women have their first child at age 20.
Ortiz	The Ortiz family lives in a college town and averages two female children per generation. The women have their first child at age 20.

2. Compute the number of female children each generation for your assigned family for the generation interval nearest to 100 years. For this population growth model, assume that all children born are females. Count only the number of children each generation beginning with each first mother on day zero. Use what you need of the data table below.

Assigned Family _____

Generation Number					
Number of Children					

(over)

3. Graph the number of children in your family for up to one hundred years. Use the existing axes shown in dark lines on the centimeter graph paper given. Try to make your data fit as much of the graph page as possible. Give particular thought to which axes should be the independent and dependent variables. Connect your data points with what you think is a best-fit curve.

4. Trace your curve with a thick colored marker for a class presentation. Elect a member of your group to present the data. The presenter will identify to the class your family, tell your family growth assumptions and illustrate the growth that occurred. Have another member of your team hold up your family name during the graph presentation

Interpretations

1. How does the number of descendants in your assigned family compare to those of the other families after100 years.

2. Examine graphs for all five families and determine **which variable appears to have a greater impact on the final generation size of a family: the number of children in each generation or the time between generations.** Explain how you arrived at your answer.

3. If you calculate the total number of descendants (rather than just the number of children born each generation) how do the data and graphs change?

Applications

1. Explain how this activity has made you think about the possible contribution to world population growth by persons having children early in their lives.

2. For further research: Visit and examine the Population Reference Bureau at www.prb.org to address the following questions:
   a. Compare the population profiles of the United States, Germany and Keyna.
   b. What is the 3rd largest country by total population?
   c. In Italy, the average age that females both get married and have children is 30. (Most females graduate from college and enter careers.) How would these facts affect a typical Italian family population over 100 years? How does this change your perception of a typical Italian family today? What else do these facts imply about the Italian population overall?
   d. What country appears to have the largest population growth rate per capita?

3. Use their World Population Data Sheet and their Data Finder to determine possible reasons why human populations in various parts of our world appear to be rapidly growing and which appear very stable. What appear to be other variables contributing to potential overpopulation? What other interesting information can you find at prb.org?

4. Using data available from your local city or county government, how does your local population growth rate compare to the United States overall?

*Taken from Leonard W., Penick, J. and Speziale, B. 2007. *BIOCOMM: Biology in the Community*. Armonk, NY: Its-About-Time Publishing.