Name:_____

Age Structure and Population Growth. Due March 29.

48 points total

1) 6 points: Print (or sketch) age structures for two different countries, areas, or other groups that interest you. To do this, go to http://www.census.gov/ipc/www/idb/informationGateway.php choose a country or region, and click 'submit.' Then click the "populations pyramids" tab.

Note – the projections for the future presented at this site are based on the most complete and accurate data available to the US census bureau. They use standard approaches to account for expected changes in mortality (e.g., expected increases in AIDS-based mortality), natality (births, including expected changes in contraceptive use and other behaviors), and immigration.. However, they are still projections, and may prove to be incorrect. If you're interested in learning more, the methods and expectations they use are explained here: http://www.census.gov/ipc/www/idb/estandproj.php

2) 6 points. From the same website, for both countries areas, or other groups, go to the 'demographic indicators' tab, and fill in the table on the next page with vital statistics (e.g., r and N), and record them in the table.
For your projections, do the calculation yourself based on 'N' and 'r' for 2010. Be sure to set up and solve the equations to calculate the expected population size 10, 50, 100, and 200 years into the future. That is, write out the equation with the values you feed into it, then the calculated answer. E.g., $N_t = N_o e^{rt}$ = 10million * $2.718^{(0.01 * 100)}$ = 27.18 million

NOTE: at this site, the "rate of natural increase" is reported in percent, so in your calculations you must divide the reported value of 'r' by 100. That is, if rate of natural increase = 1%, r = 0.01.

Name:_____

	COUNTRY 1	COUNTRY 2
Country Name		
Where is this country?		
What type of country is this? *(Rich, poor, at war, etc)*		
Population size this year		
Growth rate (per capita rate of increase) /yr. Report as a % value		
Crude Birth Rate (Births/1000 population/year)		
Crude Death Rate (Deaths/1000 population/year)		
Life Expectancy at birth (years)		
Net migration rate (migrants per 1,000 population)		
YOU calculate the values below. *Divide the 'r' value (in %) by 100 for the calculations*		
Doubling (or halving) time (ln(2)/r)		
YOUR projections for the future: (calculate using $N_t = N_o e^{rt}$)		
15 years		
25 years		
50 years		
100 years		

Name:_____

3) 6 points Comment on the birth rates, death rates, and r's for these countries—for example are they high or low relative to one another, or compared to other countries in their region? Are differences between the countries in demographic factors mostly a result of differences in birth rates or death rates?

4) 6 points. Compare the current age structures and population growth rates for the two countries and suggest explanations for any differences between them.

5) 6 points. For EACH country, verbally compare the age structure for this year to that projected for 15 years in the future (to see the pyramid for that year, scroll below the pyramid figure, click on that year and click submit. To see both years at once, press and hold 'control' and choose the years you want to compare, then click 'submit'). Suggest some possible explanations for any differences that develop over time.

Name:_____

6) Projected population sizes

a) 4 points. Comment on your projected population sizes (for the future). Do you think these projections are likely to actually occur? Why/why not?

b) 4 points. Do your projections for the next 15 years agree with those provided by the website? Why/why not?

c) 4 points. Discuss specific assumptions of the growth model that may apply to your projections.

4) 6 points. Now choose one of your countries, and explore the consequences of increasing and decreasing r by 0.01 (1 percentage point). Use the r and projections you listed in the previous table for the center column (r = _____; N for this year= _____, N for 50 years in the future = _____), then use r's that you increase or decrease by 0.01 to predict population size changes over 50 years of exponential growth.

Country name: _____

	Increase r by 0.01 r = _____	Decrease r by 0.01 r =_____
Population estimate for 50 years from now		

Comment on the importance of these 1 percentage point differences in growth rate.