

Doubling Time - Rule of 72

$$\text{doubling time} = \frac{72}{\text{growth rate}}$$

ie/ annual growth rate of 8%

$$\begin{aligned}\text{doubling time} &= 72/8 \\ &= 9 \text{ years}\end{aligned}$$

DISCUSSION...from Lessons of Easter Island

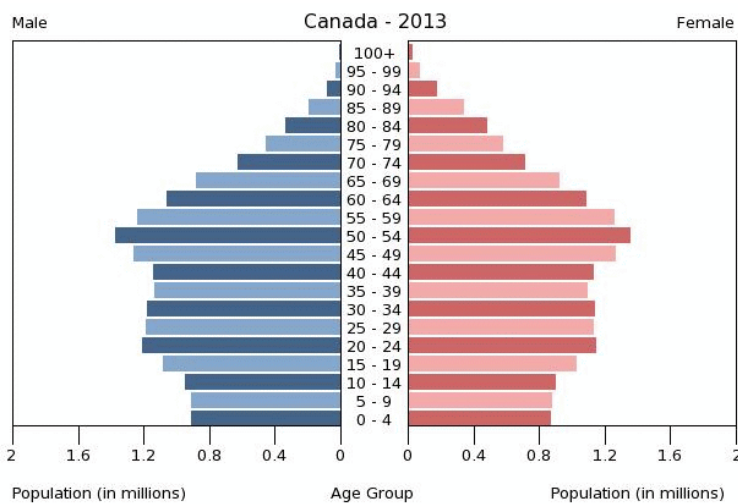
- summarize the article.
 - major environmental issue???
 - relation to population growth...
 - carrying capacity, exponential vs logistic growth and limiting factors
 - relation to the Lorax...
 - relation to the Earth...
 - limited resources, population growth, altering the space around us
- Have 'we' found a way of life that does not fatally deplete the resources that are available?**

Forecasting Population Size

- Age structure
 - › Distribution of various age groups
 - › Population pyramids can be made to show trends
 - › High growth rates have young populations
- Survivorship
 - › Determine how much of a population survives to a given age
- Fertility Rates
 - › Number of babies born each year per 1000 women
- Migration
 - › Movement of individuals in and out of a population
 - Immigration (into a country)
 - Emigration (out of a country)

Population Pyramid

A population pyramid illustrates the age and sex structure of a country's population and may provide insights about political and social stability, as well as economic development. The population is distributed along the horizontal axis, with males shown on the left and females on the right. The male and female populations are broken down into 5-year age groups represented as horizontal bars along the vertical axis, with the youngest age groups at the bottom and the oldest at the top. The shape of the population pyramid gradually evolves over time based on fertility, mortality, and international migration trends.

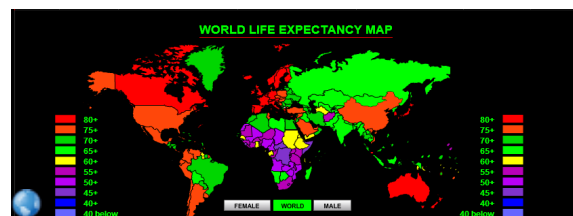
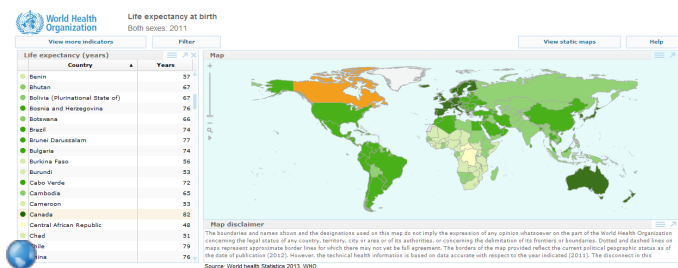


Age structure: 0-14 years: 15.5% (male 2,753,263/female 2,617,600)
15-24 years: 12.9% (male 2,285,268/female 2,160,005)
25-54 years: 41.4% (male 7,253,587/female 7,067,997)
55-64 years: 13.3% (male 2,285,072/female 2,329,760)
65 years and over: 16.8% (male 2,574,216/female 3,241,443) (2013 est.)

Definition: This entry provides the distribution of the population according to age. Information is included by sex and age group (0-14 years, 15-64 years, 65 years and over). The age structure of a population affects a nation's key socioeconomic issues. Countries with young populations (high percentage under age 15) need to invest more in schools, while countries with older populations (high percentage ages 65 and over) need to invest more in the health sector. The age structure can also be used to help predict potential political issues. For example, the rapid growth of a young adult population unable to find employment can lead to unrest.

Declining Death Rates

- Access to food, cleaner water, better medicine, safe sewage disposal have contributed to people living longer
- Global life expectancy has increased to 70 years
- In developed countries, it is upwards of 80 years



Women and Fertility

- Increased education and economic independence has contributed to birth decline
- Countries that want to reduce their birth rate typically put incentives in place to increase education of women

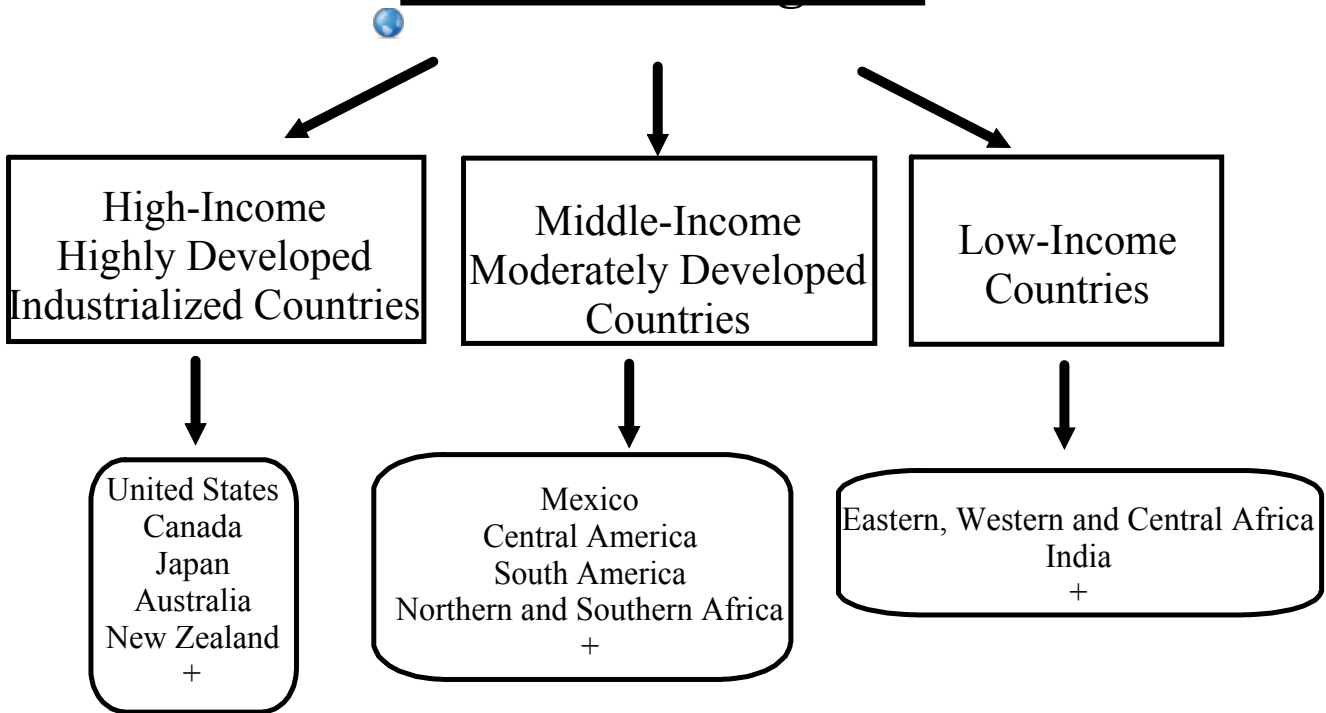


- The World Bank is a vital source of financial and technical assistance to developing countries around the world.
- Its mission is to fight poverty with passion and professionalism for lasting results and to help people help themselves and their environment by providing resources, sharing knowledge, building capacity and forging partnerships in the public and private sectors.



- The World Bank divides the countries of the world into three main economic categories according to **gross national income (GNI) per capita** (per person).

Economic Categories



GNI per capita is the dollar value of a country's final income in a year , divided by its population. It reflects the **average income of a country's citizens**.

Average Income of a Canadian Citizen (2013)

Median family income in Canada is \$76,000, Statscan survey shows



CTV National News: Cash-strapped Canadians

The latest numbers from the 2011 National Household Survey reveal how much Canadians are making. Omar Sachedina breaks down the numbers.

CTV News Channel: What the results mean

Merella Fernandez says the National Household survey releases Canadians are spending more money than they should and taking on much debt.