Chapter 11: Population Statistics (p. 358-364, 378-379)

- Population: number of people in a certain place
  - Canada has a population of approx. 33 million (~71,000 in PG)
  - the world's population is over 6.5 billion, but was only 2 billion 80 years ago (CD animation)
  - why has the world's population skyrocketed in the past 200 years compared with the previous 10,000?
- the statistical study of human population is called **demography**
  - population data is gathered in a **census**
    - the Canadian government holds a full census every 10 years, and a partial census every 5 years
  - demographers are most interested in population trends, such as the age of a population, whether it is growing or shrinking, and why
    - population trends can be used to predict changes in society
- statistics about births, deaths, and people moving in or out of an area are used to analyze changes in a population
- **Birth Rate**: number of babies born in a year per 1000 people
  - total live births / total population x 1000 = crude birth rate
  - Canada: 10.84 per thousand = 400,000 babies born a year
  - India: 22.34 per thousand = 24 million babies born a year
- **Fertility Rate**: average number kids a woman will have in her life
  - in theory, a total fertility rate of 2 would mean that each pair of parents replaces itself, but not all kids make it to adulthood or decide to have children of their own
    - Canada: it takes a total fertility rate of 2.1 to 2.2 to replace each generation (**replacement rate)**
- **Death Rate**: number of deaths in a year per 1000 people
  - total deaths / total population x 1000 = crude death rate
  - Canada: 7.73 per thousand = 280,00 deaths a year
  - Sierra Leone: 22.1 per thousand
- **Infant Mortality Rate**: number of infants who die before they are one year old, per 1000
  - can show how healthy a country is, level of living conditions
  - worldwide rate has decreased over the years, but there is still a huge difference between countries
  - Canada: 4.82 per thousand
  - Angola: 192.5 per thousand

- **Rate of Natural Increase**: shows how fast a population is growing or shrinking, without people moving in and out of an area
    - crude birth rate - crude death rate = rate of natural increase
    - Canada: 10.84/1000 - 7.73/1000 = 3.11/1000 = 0.3% a year
- **Net Migration Rate**: shows how many people are leaving or entering a country
    - uses a country's **immigration rate** (how many people per 1000 enter the country in a year) and **emigration rate** (how many people per 1000 leave the country in a year)
    - (immigration rate - emigration rate) / 1000 = net migration rate
    - if the net migration rate is positive more people are entering than leaving
    - Canada: +5.9 per thousand
    - India: -0.7 per thousand
- **Population Growth Rate**: shows how fast a country is growing or shrinking
    - rate of natural increase + net migration rate = population growth rate
    - Canada: 3.11/1000 + 5.9/1000 = 9.01/1000 = 0.9%
    - Immigration contributes the most to Canada's population growth
- **Doubling Time**: at the present rate of growth, how many years it would take a country's population to double
    - 70 / population growth rate = doubling time
    - Canada: 70 / 0.9 = 77.7 years
    - Liberia: 70 / 4.5 = 15.6 years
    - **Rule of 70**: a country with a growth rate of 1% will double in 70 years

Argentina Stats

Argentina (2005)

Crude birth rate:	16.9 / 1000
Crude death rate:	7.56 / 1000
Net migration rate:	0.4 / 1000

1. The rate of natural increase for Argentina is:
   A. 24.46 / 1000
   B. 8.6 / 1000
   C. 17.3 / 1000
   D. 9.34 / 1000

2. The population growth rate for Argentina is:
   A. 9.38 / 1000 = 0.938%
   B. 9.74 / 1000 = 0.974%
   C. 24.46 / 1000 = 2.446%
   D. 17.6 / 1000 = 1.76%

3. The doubling time for Argentina's population is:
   A. 70 / 0.938% = 74.63 years
   B. 70 / 0.974%= 71.87 years
   C. 70 / 2.446% = 28.62 years
   D. 70 / 1.76% = 39.77 years

- Two Views on Population Growth
  - some experts predict the world's population could reach as high as 12 billion
    - **carrying capacity**: the maximum number of people an area can support, based on resources such as food and water
    - once the carrying capacity is reached, people will begin to die because of a lack of resources
    - is Earth's carrying capacity fixed, or can it be changed?
  - Malthus's View of Population Growth
    - Thomas Malthus wrote in 1798 that Earth's carrying capacity is fixed, that it cannot be increased, and that once reached famine and starvation will stop further growth
    - there's only so much food the world can grow
  - Boserup's View of Population Growth
    - Esther Boserup argued in 1965 that population growth leads to new innovations in agriculture, which allows more food to be grown
    - this allows Earth's carrying capacity to be increased, although not forever