

The History of Human Population

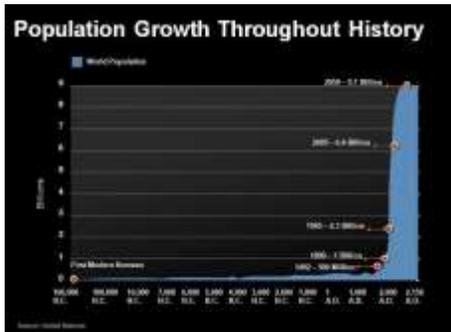
Ecology

World's Population: 7 Billion



Earth's Population Over Time

- Today we will discuss the history of our human population.



When did it all begin?

- First appearance of anatomically modern humans
 - Africa
 - 150,000 to 300,000 years ago
 - Extinct subspecies, *Homo sapiens idaltu*
- *Homo sapiens sapiens* (fully modern humans) fossils have been found elsewhere
 - Roughly 40,000 years old
- Population: maybe as low as 10,000!



- Nomadic lifestyle
- Hunter-gatherers or scavengers
- Gradually migration out of Africa
- Population increasing slowly: high infant mortality, low life expectancy

Early Humans



From Hunter-Gatherers to Agriculture

- 12,000 – 10,000 years ago: agriculture begins.
- Domestication of livestock
- Farming tools and technologies
- More food = better nutrition, less competition
- Human beings can live more densely
 - Form villages, towns, and eventually cities
- Population beginning to increase



Birth and Death Rates After Agriculture

- Population gradually increasing
- Death rate also gradually increasing- why?
- Growth rate: 1%
- 1000 AD: 300 million global population



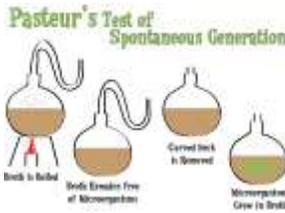
1700's - 1900's: Industrial Revolution

- Great advances in technology and science
 - Fossil fuels
 - Coal mining
 - Machinery



Medical Advances

- Louis Pasteur's Germ Theory
 - Microorganisms cause fermentation, spoiling food, and illness
 - Pasteurization (heat-killing bacteria in milk)
 - Antibiotics and vaccination
 - Antiseptic surgery (rubber gloves, sterilizing equipment)
 - Hygiene and sanitation!
- Other advances: blood transfusions, anesthetics



Agricultural Technology in 1900's

- Fossil fueled machines
- Synthetic fertilizers
- Pesticides and herbicides



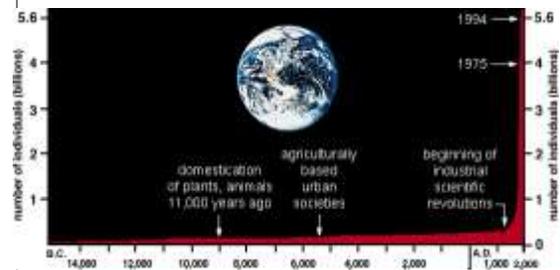
Increased Life Expectancy

- Improvements in sanitation, medicine, and overall quality of life allowed a greater life expectancy.
- Death rates drastically reduced
- Birth rates still high



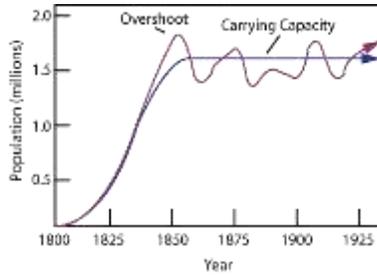
World Population Growth

- Exponential growth curve



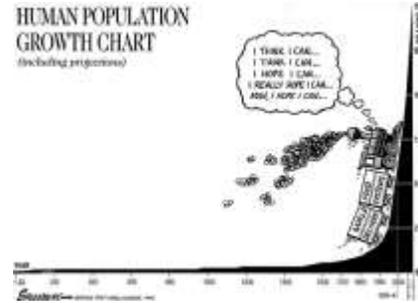
Review: Carrying Capacity

- What is “carrying capacity”?
- What happens in an “overshoot”?



Earth's Carrying Capacity

- Many scientists think that Earth has a carrying capacity of 9 – 10 million people.



Video

- <http://www.youtube.com/watch?v=VcSX4ytEfcE>