CHAPTER 5: POPULATIONS

DESCRIBING POPULATIONS:

> USE THESE NOTES TO HELP YOU READ THROUGH CHAPTER 5. BE SURE TO TAKE TIME TO UNDERSTAND AND COMPLETE ALL OF THE HIGHLIGHTED PORTIONS.
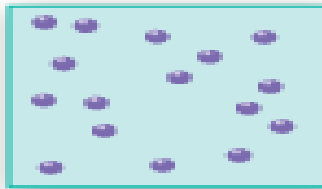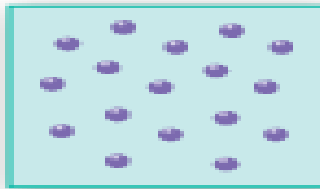
✓ Populations are studied by looking at:

Geographic Range = Inhabited Area

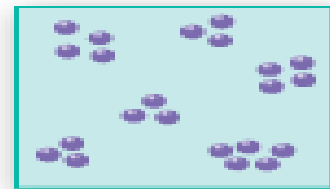**Population Density** = Number of individuals per unit area.

Distribution = How individuals are spaced out in a unit area.

A. Random   B. Uniform   C. Clumped

Growth Rate = Determines if a population's size increases, decreases or stays the same.

Age Structure = Refers to the number of males and females at specific ages. WHY?? *Predict change.*

→ *5.3*

POPULATION GROWTH:

(1) **Exponential Growth:** *Rapid*

Unlimited Resources
No Competition
"J" Shape

Models of Exponential Growth

Growth of Bacterial Population

Growth of Elephant Population

NEED TO KNOW VOCAB:

Birthrate

Death Rate   *Immigration*
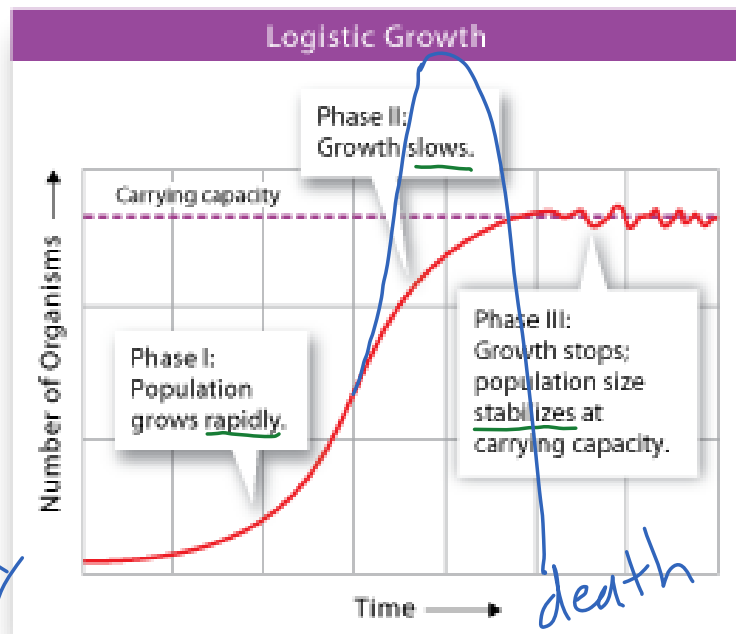
Emigration   *Exponential Growth*
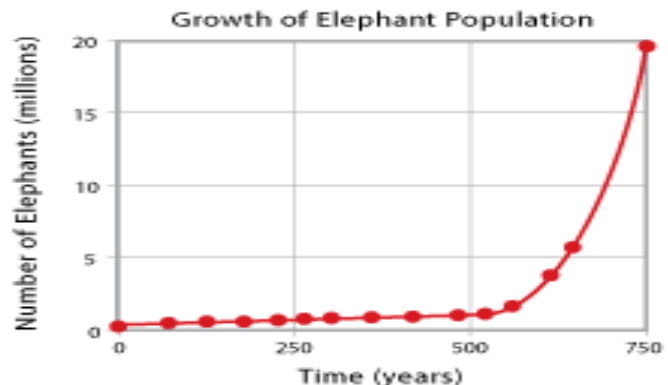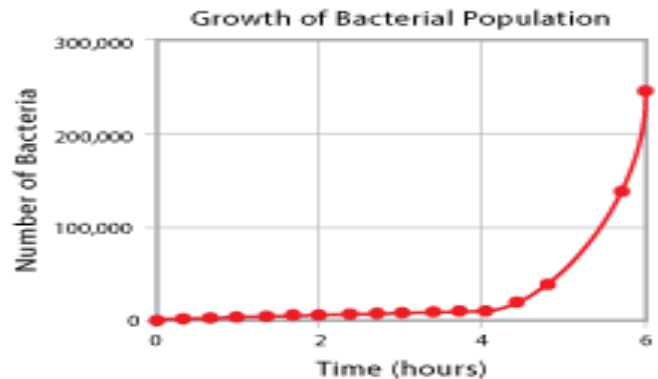
② LOGISTIC GROWTH: "S" Shape

Phase 1 = why? rapid
Many resources

Phase 2 = why? Slow
resources become limited
Competition/Predators

Phase 3 = why? Stable
reached Carrying Capacity

Carrying Capacity =
Maximum Sustainable population

Logistic Growth

Phase II: Growth slows.

Carrying capacity

Number of Organisms

Phase I: Population grows rapidly.

Phase III: Growth stops; population size stabilizes at carrying capacity.

Time ⟶ death

LIMITS TO GROWTH: Chapter 5.2 Read + Fill in

LIMITING FACTORS: Any factor that can control the growth of a population.

> **List of Limiting Factors:**

DENSITY DEPENDANT LIMITING FACTORS:

➢ Competition

➢ Predation

➢ Herbivory

➢ Parasitism

➢ Disease

➢ Stress from Overcrowding
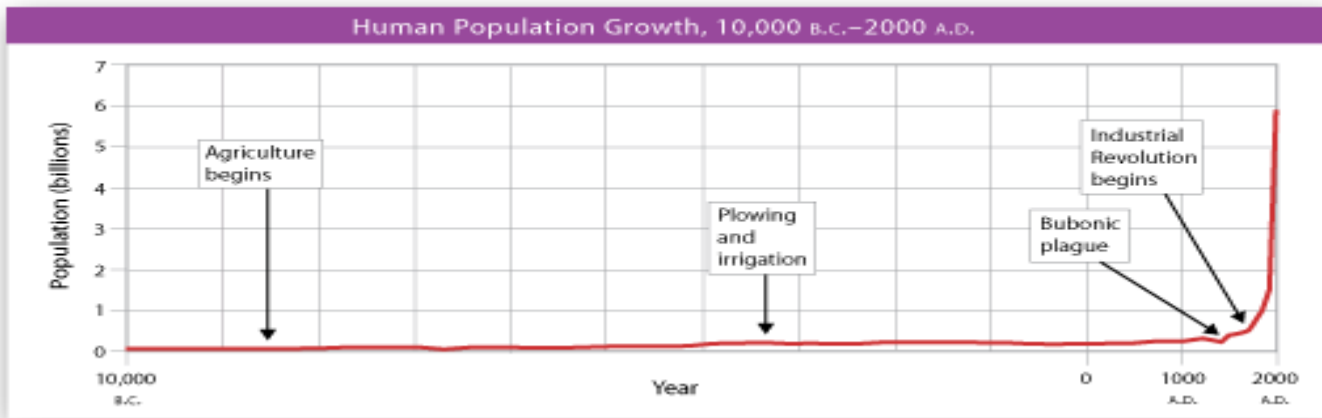
DENSITY INDEPENDENT LIMITING FACTORS:

➢ Extreme Weather (give examples)

➢ Natural Disasters (give examples)

HUMAN POPULATION GROWTH: Chapter 5.3 Read + Fill in

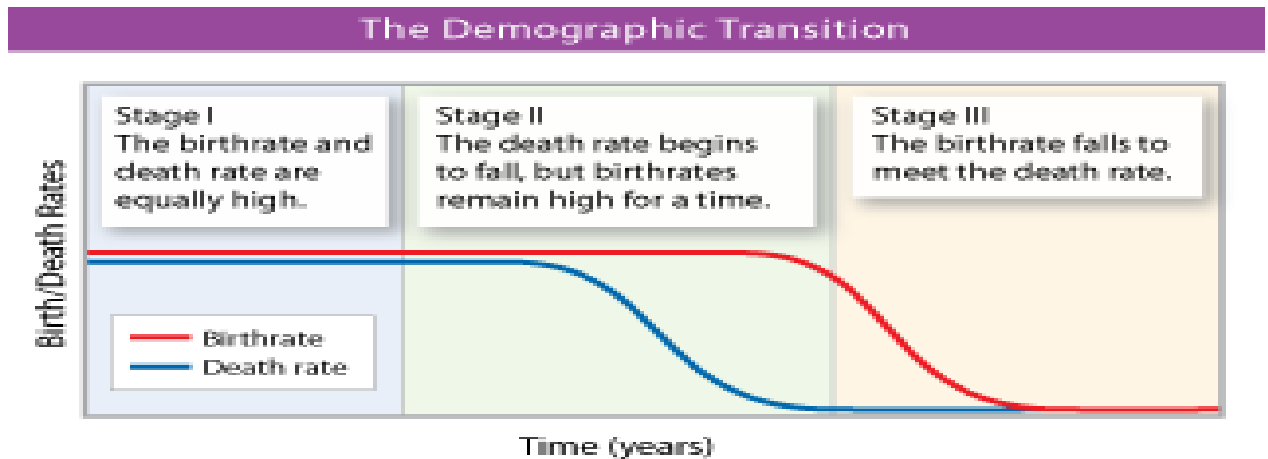## HISTORICAL OVERVIEW

Exponential Human Population Growth:

Human Population Growth, 10,000 B.C.–2000 A.D.

➢ What factors lead to exponential growth?

PATTERNS OF HUMAN POPULATION GROWTH:

✓ Demography… Uses birth rates, death rates and age structure of a population to predict population growth patterns in a given area/country.

✓ **Demographic Transition....**

  o Occurs in 3 stages as seen in the graph

The Demographic Transition

Stage I
The birthrate and death rate are equally high.

Stage II
The death rate begins to fall, but birthrates remain high for a time.

Stage III
The birthrate falls to meet the death rate.

Birth/Death Rates

— Birthrate
— Death rate

Time (years)

  o ==What is the major concept of the graph?==

Age Structure

➤ Refers to the number of people per age range among a given population.

➤ Know how to read an age structure graph.

  o ==Try this: Predict how the age structure of Guatemala will change in 30 years.==

Age-Structure Diagrams

UNITED STATES
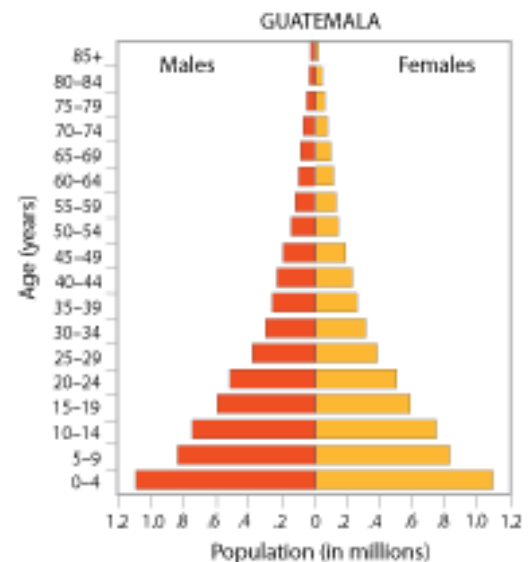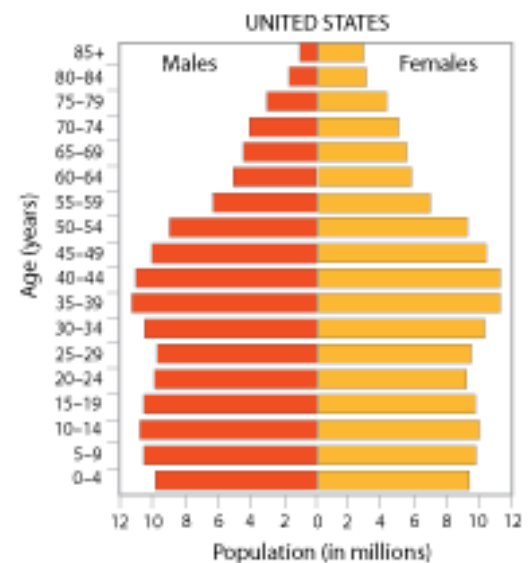
They do it again!

MrDBioCFC Chapter 5

Crash Course:
Population
Ecology

Crash Course: Human Population Growth:

GUATEMALA