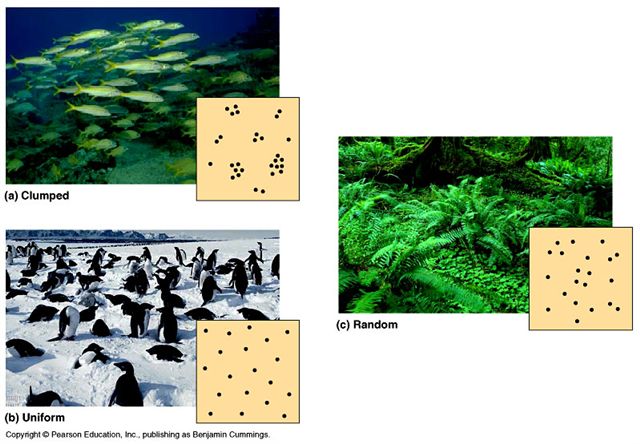
Populations Notes

**What is a Population?**

* All the members of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ living in the same \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at the same \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Examples: Palm trees on an island, a school of specific fish, and daisies in a field in Ohio.

**Properties of Populations**

* Population \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-the number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ per unit area or volume
  + Example: the number of small mouth bass per cubic meter of water in a lake.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- the relative distribution or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of its individuals within a given amount of space.



Clumped

Random

Uniform

**How Does a Population Grow?**

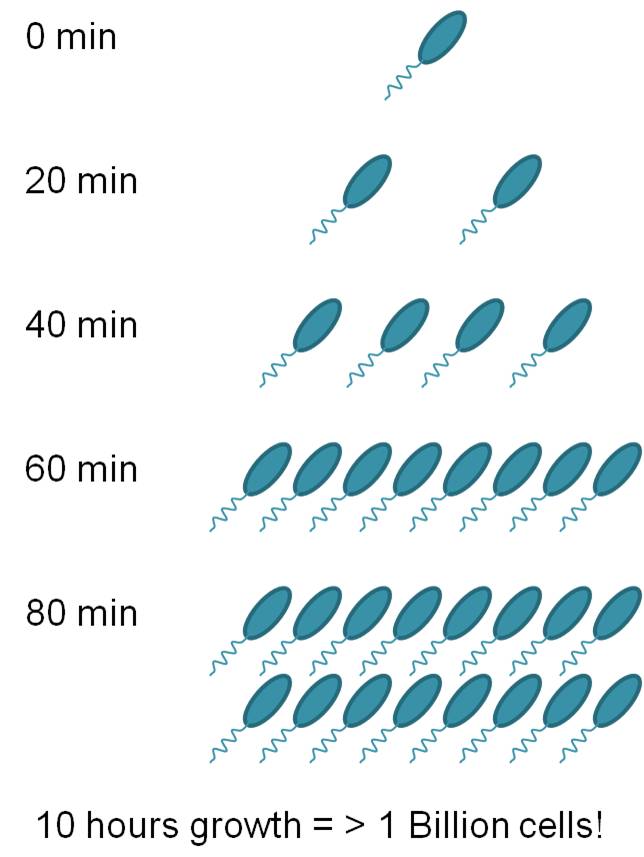
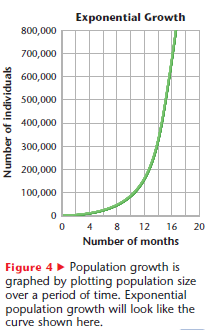
* Growth Rate-the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ minus the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a population.
* Change in population size = Births - Deaths

**How Fast Can a Population Grow?**

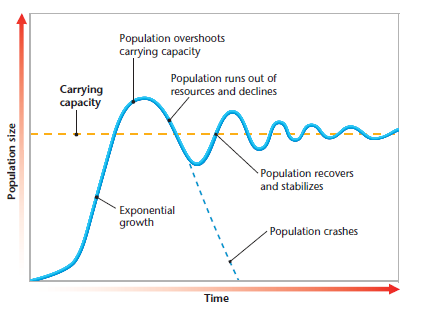
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: The fastest rate at which its potential population can grow.
* Reproductive Potential: The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that each member of the population can produce.
* If perfect conditions, it would take a pair of elephants \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to produce 19 million descendants.

**Exponential Growth**

* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_could produce 19 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ new cells in a few days or weeks.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ growth is an example of this.



**Carrying Capacity**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ population that the ecosystem can support indefinitely.
* While a population may \_\_\_\_\_\_\_\_\_\_\_\_\_\_ beyond this number, it will not remain at this increased size.
* Example:
  + Rabbits in Australia demonstrate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ growth and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + Originally, there were \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rabbits in Australia.
  + When they were introduced in 1859, their numbers grew \_\_\_\_\_\_\_\_\_\_\_\_\_\_ because they had plenty of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + Eventually, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ caused the rabbit population to crash. Over time, the vegetation \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and the rabbit population began to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ again.
  + The increasing and decreasing cycle continues, though less dramatically, as the population stays closer to the carrying capacity over time.

**Resource Limits**

* A species reaches its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when it consumes a particular natural resource at the same rate at which the ecosystem \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the resource.
* That natural resource is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* For example, plant growth is limited by supplies of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, sunlight, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* The supply of the most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ limited resources determines the current carrying capacity.

**Two Types of Population Regulation**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + Deaths occur more quickly in a crowded population than in a sparse population.
  + Reasons for deaths-
    - Competition
    - Predation
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   * When certain portions of the population die regardless of how dense the population is.
   * Reasons for deaths:
     + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
     + Natural disasters
     + Human actions (deforestation, damming a river, hunting, etc.)