

POPULATIONS

EQ: How does density affect a population?

Q1

- **Population density** – the number of individuals per unit area or volume
 - Ex: In humans, urban areas have higher population density than rural areas (New York City vs. Perris)
- **Density varies based on available resources**
- **Increased density makes finding mates easier, but increases competition for resources**

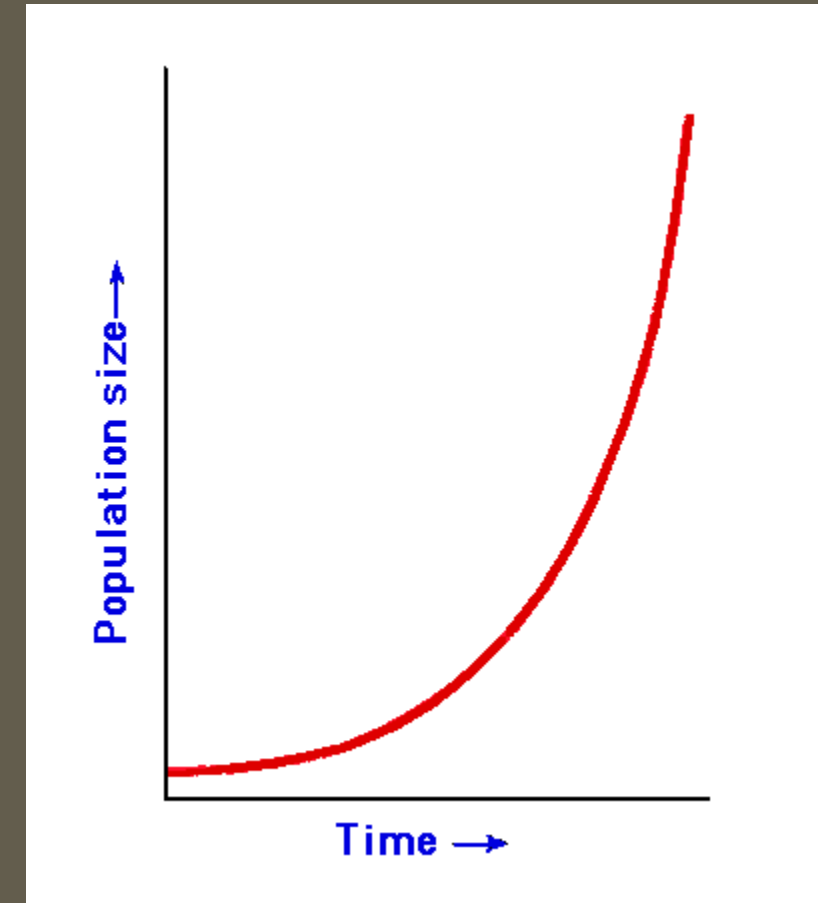
POPULATIONS

Q2

- **Density-Dependent Factors:** Affect populations more as the population density increases
 - Usually biotic (living)
 - Ex: diseases, infections, predation
- **Density-Independent Factors:** Do not correspond with population density.
 - Usually abiotic (nonliving)
 - Can affect a dense population just as much as one that is more dispersed

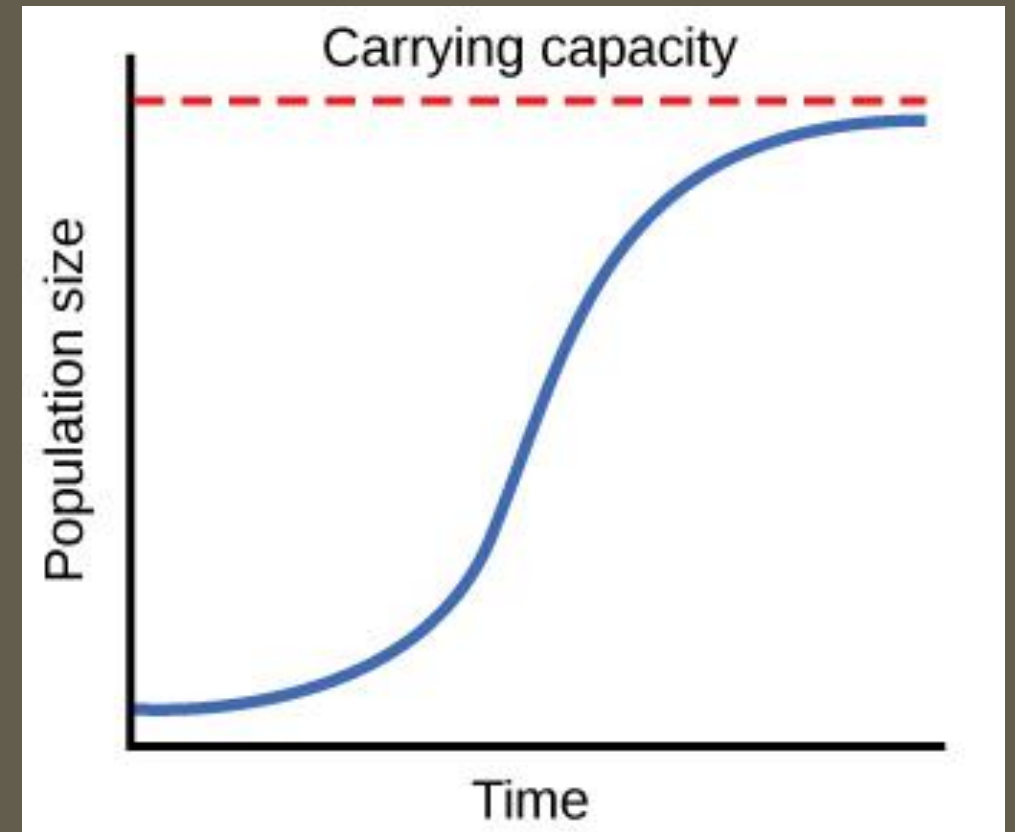
EXPONENTIAL POPULATION GROWTH

- Occurs when the growth rate is density-independent and constant
- Populations in ideal conditions, with no limitations
- Population increasing rapidly over time
- Shown as a J-shaped curve on a graph
- Populations will grow exponentially until they are lacking resources/ until they reach carrying capacity.
- Carrying Capacity – largest population size that can be supported by the ecosystem



LOGISTICAL POPULATION GROWTH

- Logistical growth is density-dependent
 - Density of the population is what is limiting its growth
- Occurs when a population reaches carrying capacity.
- Shown as an s-curve on a graph



ISLAND CARRYING CAPACITY