

ECOLOGY – the study of interactions between living things and their environment!

organism → population → Community → ecosystem → biome
 (SAME Species) (DIFFERENT Species)

BIOTIC Factors	ABIOTIC factors
<u>LIVING</u> *Plants *animals	<u>NON-LIVING</u> *Soil *sun *temperature *water

Introduced species	<u>INVASIVE</u> Species	Native species
<u>Not</u> naturally occurring Sometimes harmful but not always (like bees)	Not naturally occurring <u>Harmful</u> To a local food web!	Naturally occurring ☺

Keystone species: species that has an unusually large effect on an ecosystem.

Example: bees for pollination / Beavers to create still water ecosystems

POPULATION DYNAMICS: *What can change population levels?

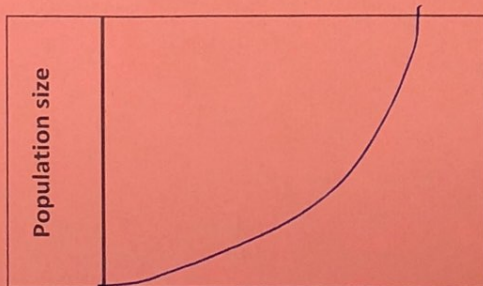
- **Immigration:** movement of individuals INTO a population from another one.
 - (I for INTO)
- **BIRTH:** individuals in a certain population are BORN ↑
 - (B for baby)
- **Emigration:** movement of individuals OUT of a population to another one.
 - (E for EXIT)
- **Death:** individuals in a certain population DIE ↓
 - (D for dies)

***** **Carrying Capacity:** a MAX number of individuals in a species an environment can support based on its available resources.

1. **Exponential growth:** (J CURVE)

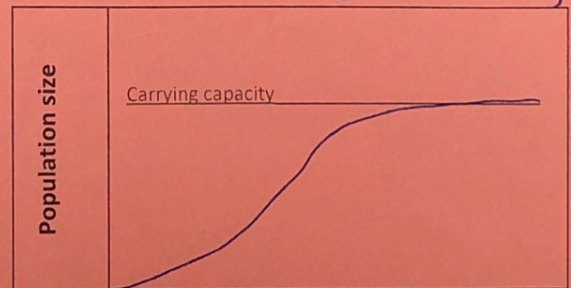
population increases dramatically over a period of time.

*Resources are abundant and populations can grow rapidly!



* **Logistic growth:** (S CURVE)

slow growth followed by exponential growth before leveling off at the carrying capacity



LIMITING FACTORS: FACTORS THAT KEEP THE SIZE OF A POPULATION DOWN.

1. **Density Dependent Factors** (dependent on organisms)

- a. Competition for resources
 - i. Food, water, shelter, space, light
- b. Predation (↑, ↓)
- c. Disease and parasites

2. **Density Independent Factors** (not dependent on organisms)

- a. Unusual weather
- b. Natural Disasters
- c. Human activities
 - i. Clearing forests, pollution, introducing non-native species

MARINE ECOSYSTEMS –

What factors affect life in both fresh and salt water ecosystems? What abiotic factors are important?

Different species of marine life are affected by:

Chemical factors :

- pH
- * light
- oxygen
- carbon dioxide
- nitrogen
- phosphorous
- * salinity – amount of SALT in water

Geographical factors:

- * water depth
- latitude
- * temperature
- underwater topography
- proximity to land

* **Estuary** – partially enclosed body of water formed where a _____ flows into an _____.

- Contains mixture of salt water and fresh water (brackish)
- Known as "nurseries of the sea" because they're a sanctuary for many species from strong currents and predators!
- Spawning grounds due to calm waters