**April Notes: Day 3 Carrying Capacity**

Name: Period: Date:

**Aim: What things determine the size of a population?**

**Objectives:** At the end of this lesson you should be able to:

* Explain and identify the factors an effect on the carrying capacity of an ecosystem for a given population.

**Do now Quick Review: Fill in the blanks with the missing Ecology vocabulary words**

* Living things are known as Factors
* Non-living things are known as Factors
* An is an area where living things interact with nonliving things
* Biotic factors include:
  + , , .
  + Predator, prey, mates
* Abiotic factors:
  + , , .
  + , .
* are a group of the same species

**What determines the size of a population?**

* The of a is on how much are .
* These resources can be or .
  + If there is plenty of , organisms will produce more . Increasing the . (biotic)
  + If there are mates, there will be more resulting in a population. (biotic)
  + If there are more available, more organisms can build homes. The population . (abiotic)
  + If there is a of water, there will be an increase in competition resulting in a population. (abiotic)
* **What determines the size of a population? (cont)**
* Under circumstances populations will not continue to indefinitely.
* This is because as populations there is an for .
  + If there is of food, organisms will produce more offspring. But that also means there is an need for and shelter. (forcing a of the population)
  + If there are more shelters available, more organisms can build homes. But that also means there is an need for and . (forcing a of the )
* This in which an environment places of a population is known as the environment’s .
* Dynamic equilibrium -a state of in which conditions over time, but always stay to a certain .
* is the up and down line in a graph.
* The population (goes up and down) around the .
* Carrying capacity – is the point that an can a .

**Dynamic Equilibrium Graph**

**Why do populations fluctuate?**

Within any given , there is a number of

This limit in the amount of resources is known as .

2. Availability of :

-water/food

-amount of

- in soil

- /carbon dioxide

1. /
2. Other conditions:

-

-

-ability of to /

**Why are Limiting Factors Limiting?**

* Organisms many different resources to live ( , , ).
* As use these resources, the resources need to be replenished or they will be all used up.
* If the resource become up faster than it is , those organisms that once used them will begin to out.

**The Balance between Prey and Predator**

* Sometimes a can be a limiting factor for another .
* In a predator / prey relationship, the size of one population influences the size of the other.
* The more - the more for the predator- the more the predators make.
* The more – the more prey they – population of prey .
* The prey – there is not food for the predators to eat – predator population .
* The less of predators – more prey to making more babies.

**Competition**

Both and the of are affected by . Less space, less resources = More competition Those that are fit will , while those that are fit will .