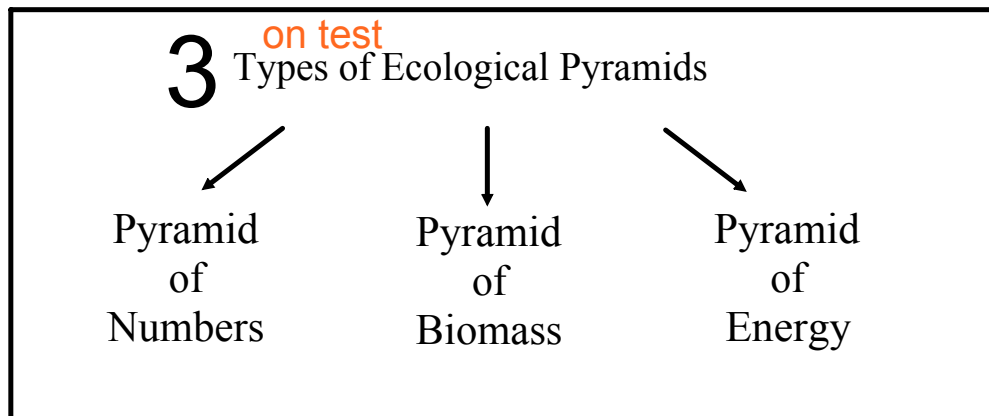


Ecological Pyramids

Ecological pyramids are graphical representations of the trophic structure of ecosystems.

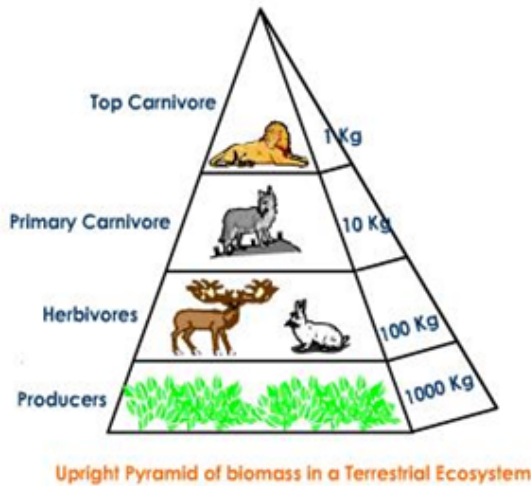
Picture



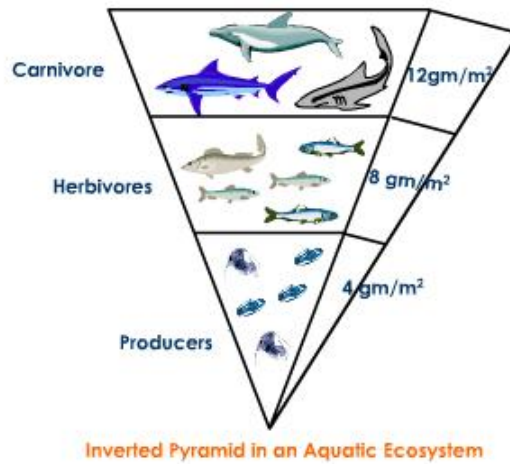
Pyramid of Biomass

- the graphic representation of the relationship between the amounts of biomass* at different trophic levels

*biomass - the total mass of all the living organisms in a given area



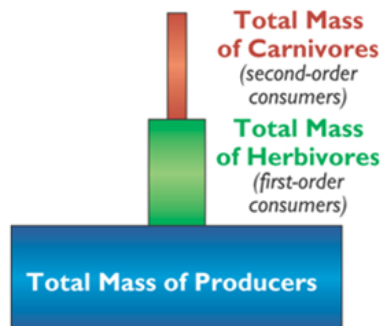
Maximum mass occurs in producers.



Biomass of trophic levels depend upon the reproductive potential and longevity of the members. (Less producers b/c less sunlight)

Pyramid of Biomass

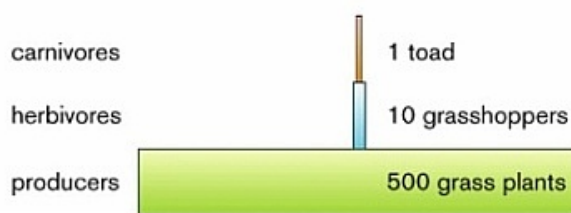
The biomass of the producers is always greater than the biomass of the herbivores, and the biomass of the herbivores is always greater than the biomass of the carnivores. The biomass decreases with each additional step in a food chain. A diagram that shows this decrease in biomass is a pyramid of biomass.



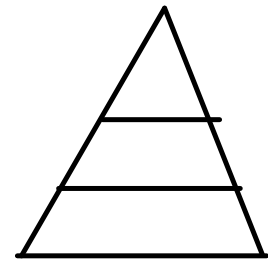
Pyramid of Numbers

- the graphic representation of the number of individuals at various trophic levels
- usually shows a large number of producers with diminishing numbers of consumers

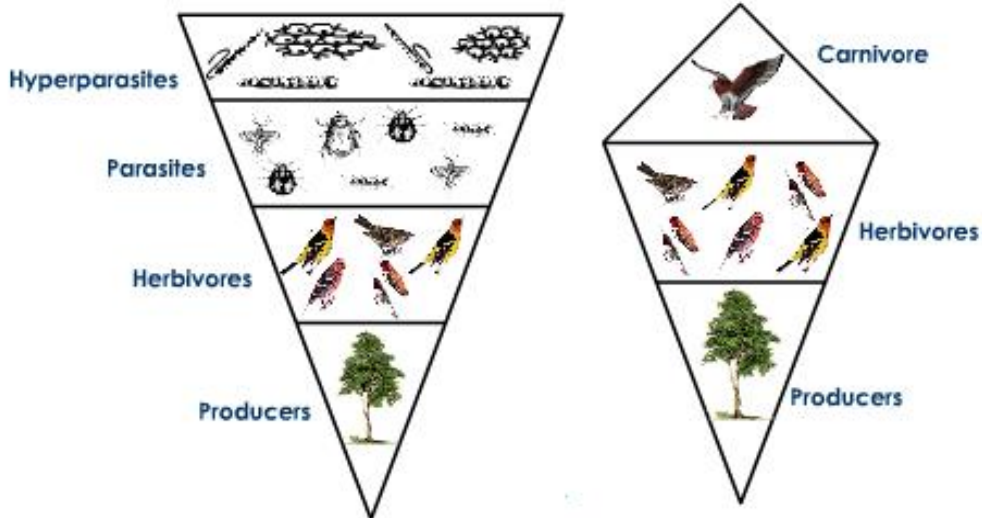
For a food chain
(grass → grasshopper → toad)



Ex) more producers than there is consumers



Can be inverted based on the environment



Ex) more consumers than there is producers
Pyramid of Numbers

hyperparasite - an organism that is parasitic on or in another parasite

Pyramid of Energy

<http://www.cas.miamioh.edu/scienceforohio/Wetlands/images/Day3A.pdf>

- a graphic representation that shows the amount of energy that is available at each trophic level.

*Only part of the energy that is stored in one trophic level is passed on to the next level. This is because organisms use much of the energy that they consume for life processes (Respiration, movement, reproduction, etc.). Some remaining energy is released into the environment as heat.

Can an energy pyramid be inverted?

Never

[Notes - Pyramids of Energy.pdf](#)

Read to better understand



 Activity - Energy Pyramids.pdf

 Square Based Pyramid Net.pdf

Pyramid Directions

1. Shade the first (bottom) level of each pyramid green.
2. Shade the second level of each pyramid yellow.
3. Shade the third level of each pyramid blue.
4. Shade the fourth (top) level of each pyramid red.
5. Label each level of the first pyramid side with the following terms as you move up the pyramid: producer, primary consumer, secondary consumer, tertiary consumer.
6. Label each level of the second pyramid side with the following terms as you move up the pyramid: plants, herbivores, carnivores, top carnivores.
7. Label each level of the third pyramid side with the following terms as you move up the pyramid: autotroph, 1st order heterotroph, 2nd order heterotroph, 3rd order heterotroph.
8. Draw a picture of what might belong in each level:
 - 1st: flowers, trees, grass, algae
 - 2nd: caterpillars, cows, grasshoppers, beetles
 - 3rd: humans, birds, frogs
 - 4th: lions, dogs, snakes
9. Fold your pyramid on the lines radiating from the center and tape it together.
10. Answer the following questions using your pyramid:
 - a. What are three terms used to describe organisms such as trees?
 - b. What are three terms used to describe organisms such as cows?
 - c. What are three terms used to describe organisms such as humans?
 - d. What are three terms used to describe organisms such as lions?
 - e. What do the organisms in each trophic level eat?
 - f. Do organisms always stay in the same level? Explain your answer.

Attachments

Notes - Pyramids of Energy.pdf

Activity - Energy Pyramids.pdf

Square Based Pyramid Net.pdf