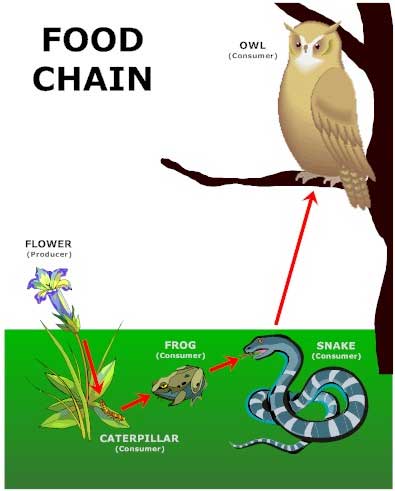
Science 9 Ecology Notes Lesson 3 Name:

*Food Chains/Webs & Bioaccumulation/Biomagnification*

Objectives: By the end of the lesson you should be able to:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



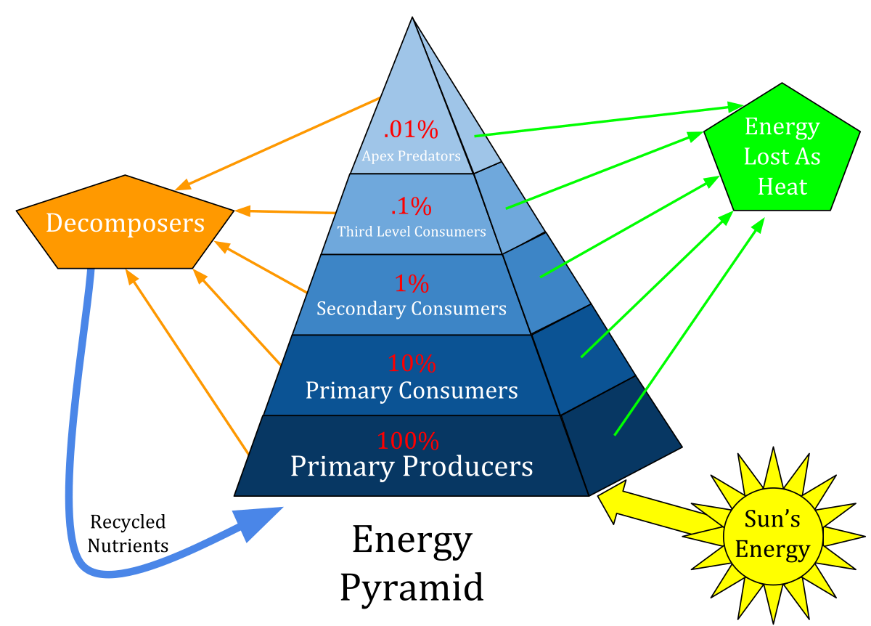
Food Chains:

* All food chains start with the \_\_\_\_\_\_\_\_\_\_\_\_
* Arrow always points to who is doing the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (E.G. where the energy is \_\_\_\_\_\_\_\_\_\_\_\_\_)

*(Note that the sun isn’t eating the flower!)*

Terminology:

* *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*: makes their own food
* *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ consumer*: eats the producer (aka: the herbivore)
* *\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_consumer*: eats the primary consumer (aka: a carnivore)
* *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_consumer*: eats the secondary consumer (aka: a carnivore)
* *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ consumer*: eats the tertiary consumer

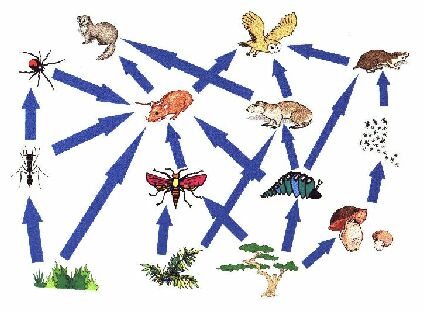


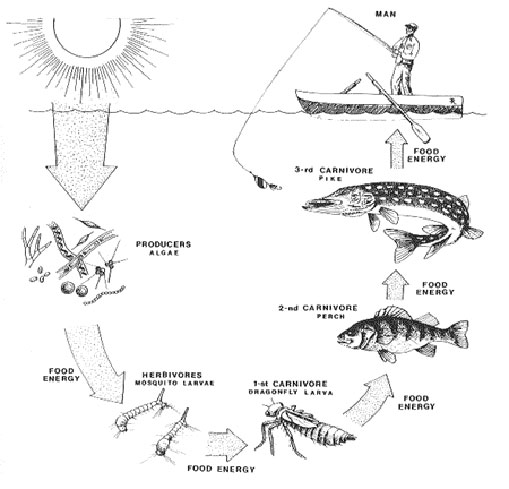
Detritivore VS Decomposer:

Detritivores: Organisms that gain their energy from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_dead organisms or animals wastes

Decomposers: Organisms that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ organic matter into useable nutrients

[](http://images.google.ca/imgres?imgurl=http://www.bbc.co.uk/devon/content/images/2006/11/15/fungi_stubbs_465x349.jpg&imgrefurl=http://www.bbc.co.uk/devon/content/image_galleries/fungi_gallery.shtml?1&usg=__PJV8uCG8BMEbShnckJhL24tqLgk=&h=349&w=465&sz=41&hl=en&start=5&um=1&tbnid=LBxor2cVs7WREM:&tbnh=96&tbnw=128&prev=/images?q%3Dfungi%26gbv%3D2%26um%3D1%26hl%3Den%26safe%3Dactive)[](http://images.google.ca/imgres?imgurl=http://www.fotosearch.com/comp/PDS/PDS088/earthworm_~AA039282.jpg&imgrefurl=http://www.fotosearch.com/PDS088/aa039282/&usg=__a7ouT-ntHD4I7UfCD8QTtOF2kq4=&h=300&w=300&sz=33&hl=en&start=6&um=1&tbnid=Q1tQVAQlW0FNaM:&tbnh=116&tbnw=116&prev=/images?q%3Dearthworm%26gbv%3D2%26um%3D1%26hl%3Den%26safe%3Dactive)





Food Webs:

* A number of inter-related food \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ create a food \_\_\_\_\_\_\_\_\_\_\_\_

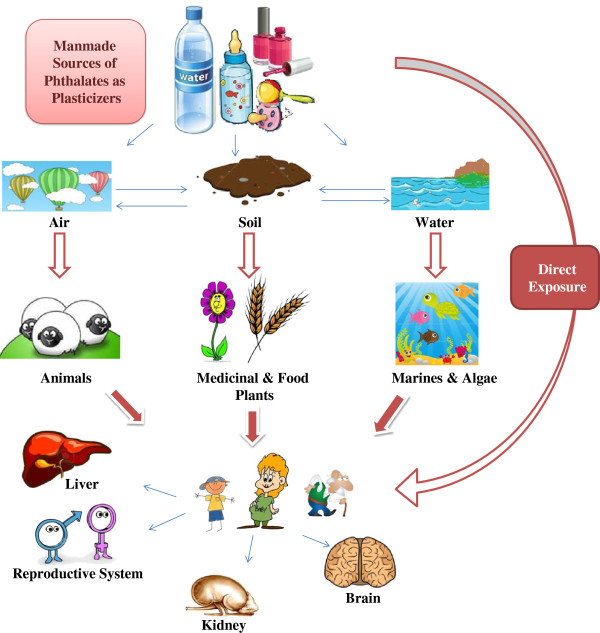
Who’s who in this food web?

Video Food Web:

Bioaccumulation:

* Gradual build up of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ chemicals in living organisms
* These chemicals build up because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cannot break them down so they remain in an ecosystem
* These chemicals usually build up in \_\_\_\_\_\_\_\_\_\_ tissues
* These chemicals can effect the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ systems

Chemicals:

* \_\_\_\_\_\_\_\_\_\_: polychlorinated biphenyls
  + Used from 1930-1970 Ex: coolants, lubricants
  + Banned in North America
* \_\_\_\_\_\_\_\_\_\_: persistent organic pollutants
  + Ex: DDT – introduced in 1941, now banned in most countries
  + Toxic at 5 ppm (part per million)
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: Pb, Cd, Hg
  + Lead: electronics; toxic at 0.0012 ppm
  + Cadmium: smoking, half life of 30 yrs!
  + Mercury: 40+% from coal burning

Biomagnification:

* Process where chemicals become more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at each \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ level
* More toxic for the higher trophic level organisms first – why?

