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





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?



