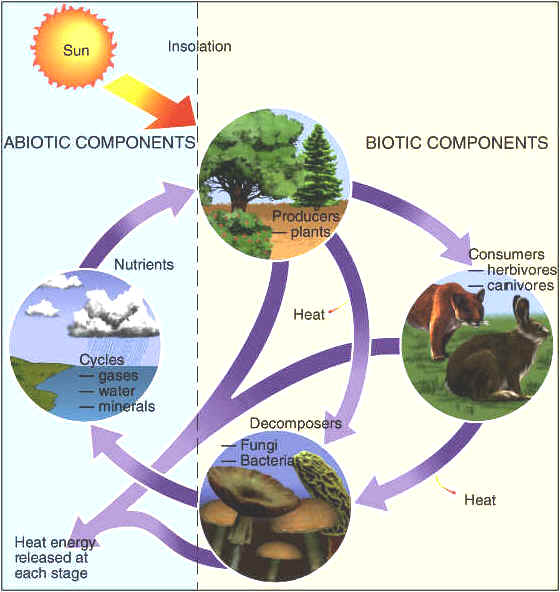
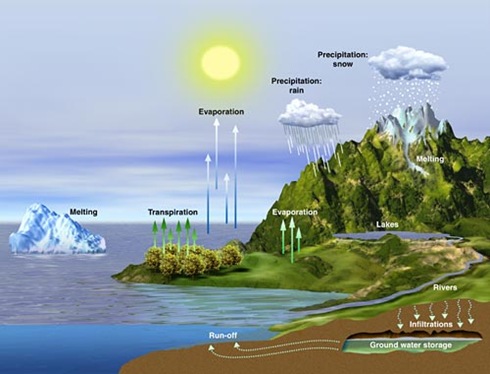
**Integrated Chapters 4-6**

**Ecology**

**Biotic factors**



**Abiotic factors**

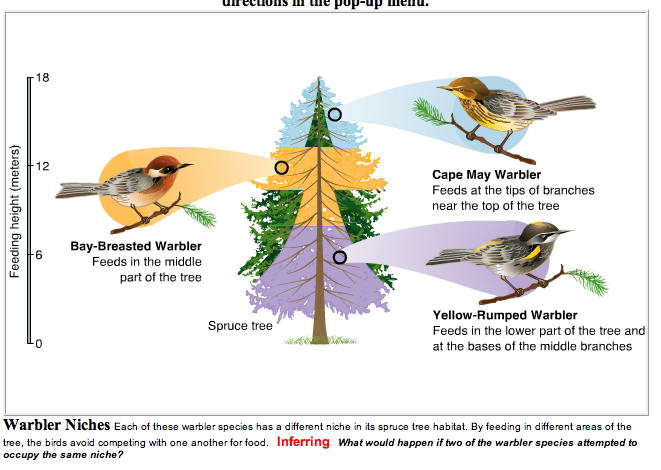


**Ecosystem interactions**

**Habitat**



**Niche**



**Community interactions**

**Competition**

**Predation**



**Symbiotic relationships**

**1.Mutualism**



**2.Commensalism**



**3.Parasitism**

****

**Autotrophs**

**Heterotrophs**

**1.Carnivore-**

****

**2.Herbivore**

**3.Omnivores-**

**4.Detritivores**



**-around 69% of all freshwater is found in ice caps and glaciers**

**Animal Dormancy**

**Hibernation**

**-Hibernating animals conserve energy, especially during winter when food supplies are limited, tapping energy reserves,** [**body fat**](http://en.wikipedia.org/wiki/Body_fat)**, at a slow rate.**

**-Although traditionally reserved for "deep" hibernators such as rodents, the term has been redefined based on specialized metabolic**

**-Hibernation during summer months is known as** [**aestivation**](http://en.wikipedia.org/wiki/Aestivation)**.**

**-Some reptile species are said to brumate, or undergo** [**brumation**](http://en.wikipedia.org/wiki/Brumation)**, but the connection to this phenomenon with hibernation is not clear.**



**-Although often associated with cold temperatures, the root purpose of hibernation is to conserve food during a period when sufficient food is scarce. It is the animal's slowed metabolic rate which leads to a reduction in body temperature and not the other way around. Hibernation may last several days, weeks, or months depending on the species, ambient temperature, time of year, individual animal's body condition, and fur on the animal's body.**

**Obligate hibernators**



**-The typical winter season for these hibernators is characterized by periods of hibernation interrupted by sporadic arousals, wherein body temperatures and heart rates are restored to more typical levels. These arousals are driven by internal mechanisms, and external stimuli often fail to wake them. This can make them subject to predation if discovered.**

**Hibernating ground squirrels**



**Facultative hibernation**



**-During a bear's winter sleep state, the degree of metabolic depression is much less than that observed in smaller mammals and the bear's body temperature remains relatively stable (depressed from 37 °C (99 °F) to approximately 31 °C (88 °F)). Increasing the body temperature for such a large animal would take a long time. Many prefer to use the term "denning" or "winter lethargy" but others just consider it a different form of hibernation.**