

Key Idea 6 Standard 4 Review Sheet/Living Environment

The head of the arrow in a food chain points toward organism being eaten

Organisms which carry on photosynthesis such as green plants or algae are called autotrophs or producers.

consumers or heterotrophs depend on other organisms for their food.

herbivores -- eat predominantly plant matter

carnivores -- eat predominantly animal matter

omnivores -- eat both plant and animal matter

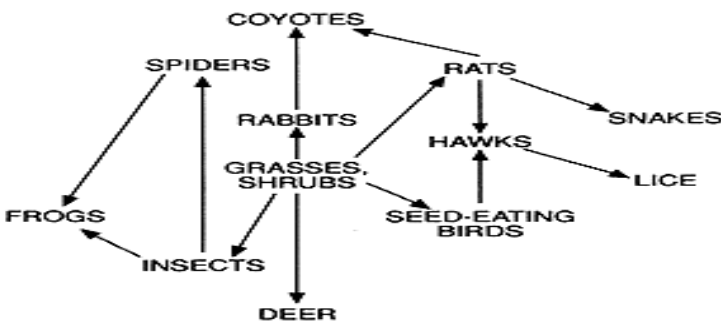
List two reasons decomposers are needed in any ecosystem.

a.) to recycle nutrients to the environment

b.) to prevent the environment from filling up with dead organisms

The graphic below is that of a food web. Explain the difference between a food chain and a food web.

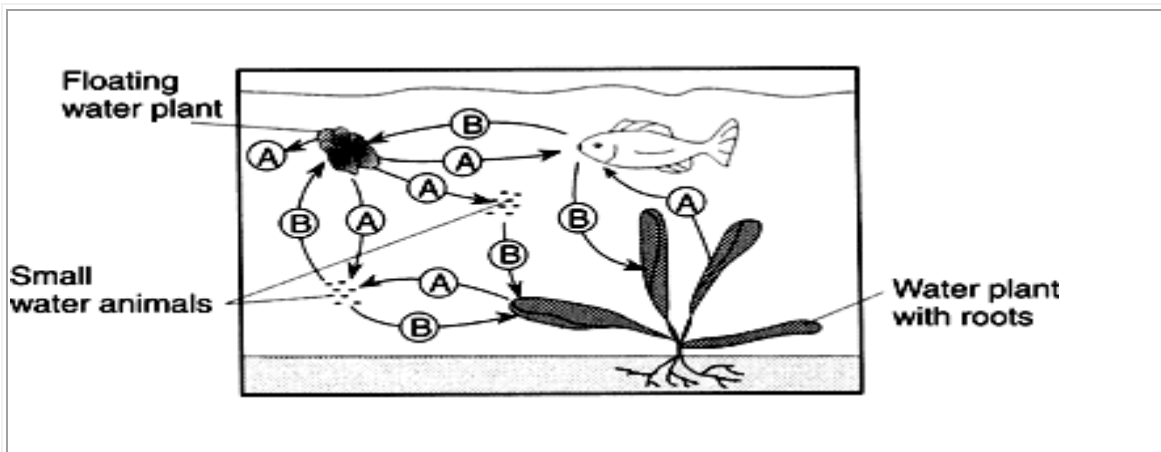
a food web contains many interacting food chains



Why is a food web usually a better representation of feeding relationships in an ecosystem than a food chain?

usually more than one organism eats a living thing

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1. What gas is being given off that is represented by arrow A and what life process is responsible for its release?

oxygen/photosynthesis

2. What gas is being given off represented by arrow B and what life process is responsible for its release?

carbon dioxide/respiration

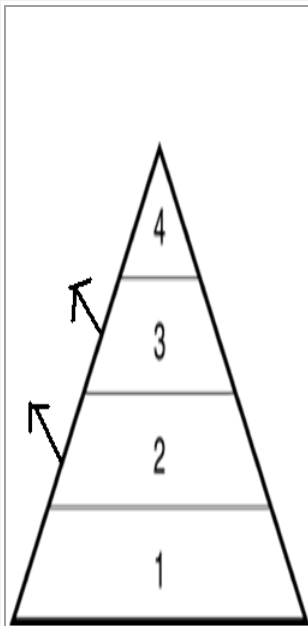
3. When do plants carry on cell respiration?

24/7 just like animals

How does each of the following keep the size of a population from growing?

- a. Competition **limited resources restrict population size**
- b. Predators **prey are restricted in number by being eaten /eventually predators run out of food restricting their number as well**

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Identify the levels on the energy pyramid at the left.

- 1 = **producer**
- 2 = **primary consumer**
- 3 = **secondary consumer**
- 4 = **tertiary consumer**

What do the arrows represent? **energy lost to heat**

How much energy on average is lost between steps of this energy pyramid? **90** %

Where does this waste energy go? **heat and metabolic waste**

Why doesn't this energy pyramid run out of energy?

producers do photosynthesis capturing more energy



There are always more **producer** organisms than consumers in any stable ecosystem.

carrying capacity -- is the maximum number of organisms the resources of the environment can support

Explain how oxygen limits the number of organism that can live in an aquatic environment.

there is a much lesser percentage of oxygen in water than on land

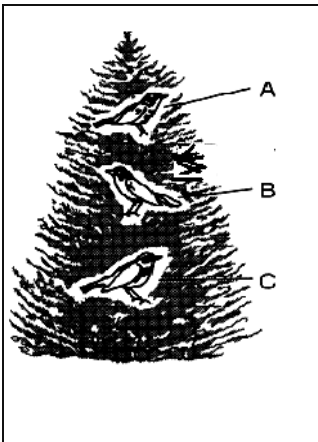
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Why does the available water limit the number of organisms in an environment, even if all the animals have enough to drink?

_____ **some water may be polluted or unusable** _____

List two examples of decomposers. _____ **fungi and bacteria of decay** _____

What is competition? _____ **two or more organisms needing a finite resource** _____



** No **2** organisms can occupy the same ecological **niche** .
 Feeding on different foods may also allow different species to occupy different niches.
 How does the principle illustrated by this pictured example relate to competition?
Birds are eating the same foods but in different places on the tree so there is no competition _____

Explain how these factors influence the growth/distribution of organisms in an ecosystem.

Factor	Influence on some ecosystem organisms
Light intensity	Less light/less photosynthesis
Temperature range	Many plants require specific temps for germination and growth
relative acidity (pH)	Many plants and fish can not live in acidic environments

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What is the difference between a biotic and an abiotic factor which limits the growth of a population?

biotic = living factor (predator for example) abiotic = physical (light or oxygen for example)

___ **habitat** ___ -- is the place an organism lives

___ **niche** ___ -- is the role of an organism in its ecosystem
(especially its feeding role)

___ **limiting** ___ factor: Anything in short supply which restricts the size of a population

Finite resources mean that population sizes can not ___ **increase** ___ forever.

List an example of a producer/consumer relationship.

___ **grass/cow** _____

___ **carnivore** ___ -- an organism which kills and eats its food

___ **scavenger** ___ -- feeds on animals which have already been killed

___ **prey** ___ --- the organism devoured by a predator

___ **parasitism** ___ -- a close living association where one member of the association is helped while the other is harmed

___ **host** ___ -- provides food for the parasite

List an example of a parasite/host relationship ___ **pinworm/human** _____

Explain the difference between mutualism and parasitism.

mutualism both organisms involved are helped with parasitism one is hurt and one is helped

___ **biodiversity** ___ -- refers to the differences between species and the variations within species in an ecosystem

Why does increased biodiversity increase the stability of an ecosystem?

___ **It increases the chance some species variations may survive environmental change** ___

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List three reasons humans should be concerned with preserving biodiversity.

- a.) more sources of food
- b.) more sources of organisms to make medicines
- c.) many organisms are aesthetically pleasing

How does increased biodiversity relate to Darwin's theory of natural selection?

More variations increase the chance that some variation may be better suited for survival

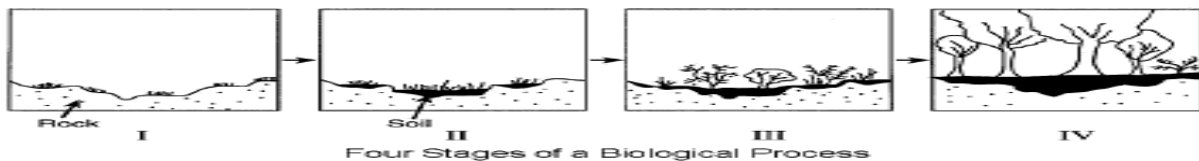
Why are monocultures vulnerable to being wiped out and becoming extinct?

Only one variation may be completely destroyed by a disease

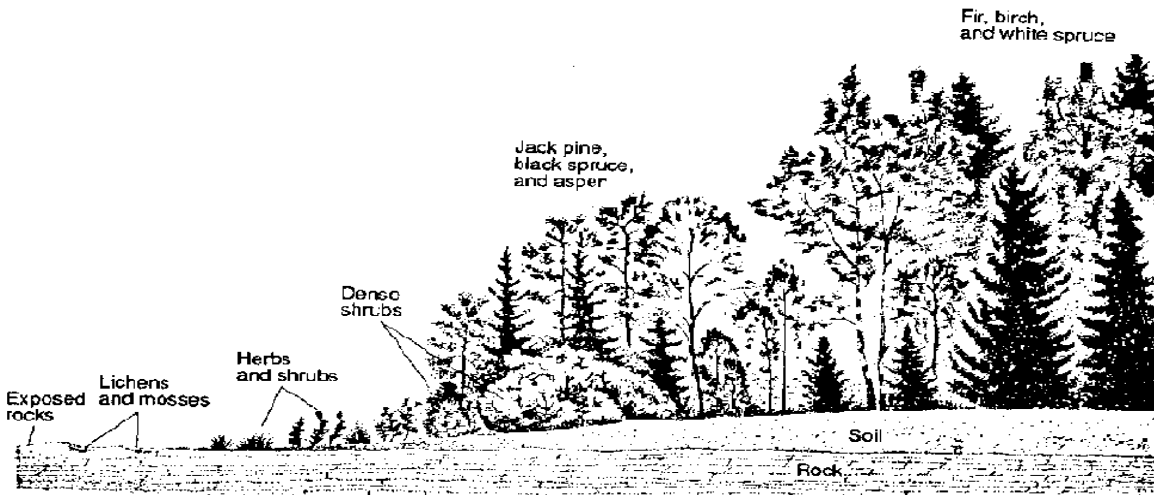
In order to have a stable ecosystem there must be:

- a.) An input of **energy (Sun)**
- b.) A way of converting solar energy and inorganic to organic compounds. This process is usually called **photosynthesis**.
- c.) A **cycling** of materials through the ecosystem.

Succession -- is a gradual change in an ecosystem over time



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___ **pioneers** ___ -- are the first organisms in a succession ex. ___ **grasses or lichens** ___

___ **climax community** ___ -- is the final stable plant community in a succession

List two major environmental changes that commonly disrupt stable New York State ecosystems.

___ **forest fires, human disruptions** ___

If most of the Adirondack forest park forests burned down, what community of plants would like reestablish itself after 100 years.

___ **Mature trees like the one's that burned ... maple, beech, hemlock, etc.** ___

List the stages of an old field succession

- a.) ___ **grasses** ___
- b.) ___ **shrubs and briers** ___
- c. ___ **small sun loving trees (ie. Birch)** ___
- d. ___ **large shade tolerant trees (beech, maple)** ___