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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

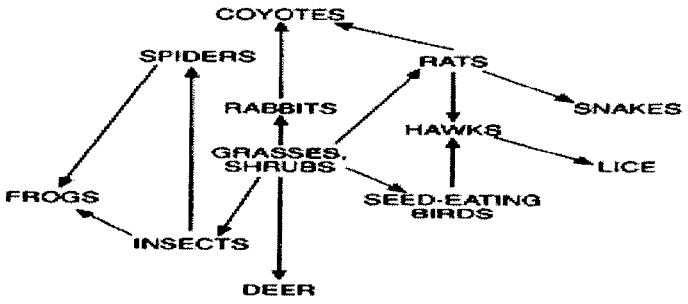
List two reasons decomposers are needed in any ecosystem.

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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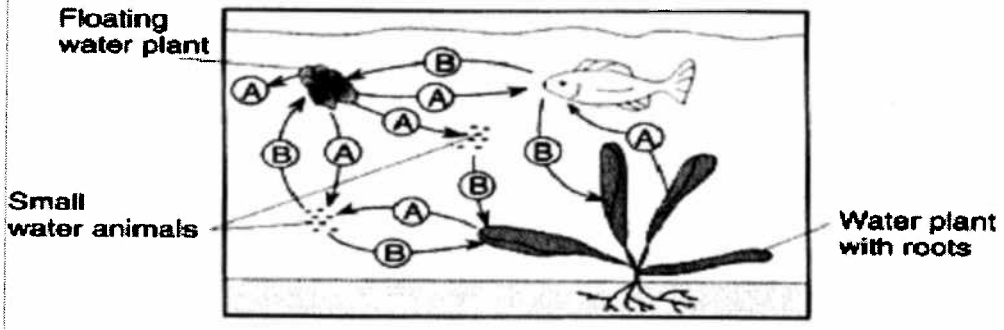

1. What gas is being given off that is represented by arrow A and what life process is responsible for its release?

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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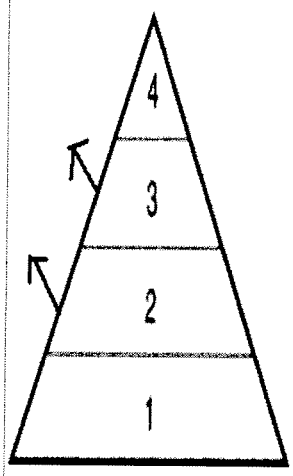


Identify the levels on the energy pyramid at the left.

1 = **producer**

2 = **primary consumer**

3 = **secondary consumer**

4 = **tertiary consumer**

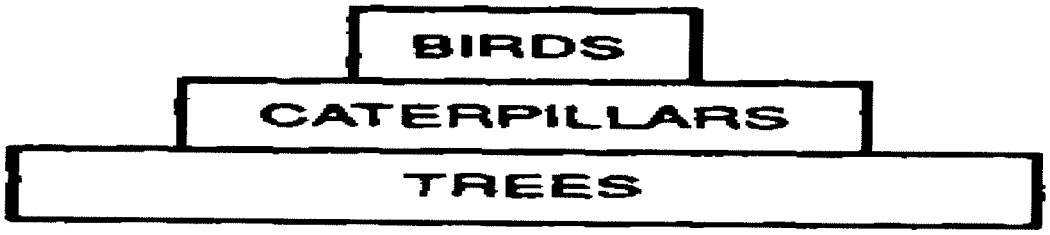
What do the arrows represent? _____**energy lost to heat**_____

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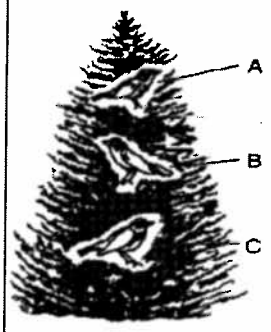
Why does the available water limit the number of organisms in an environment, even if all the animals have enough to drink?

_____**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 = physica (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**_____

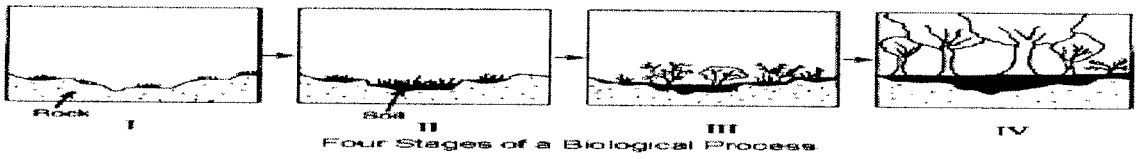
In order to have a stable ecosystem there must be:

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



Four Stages of a Biological Process

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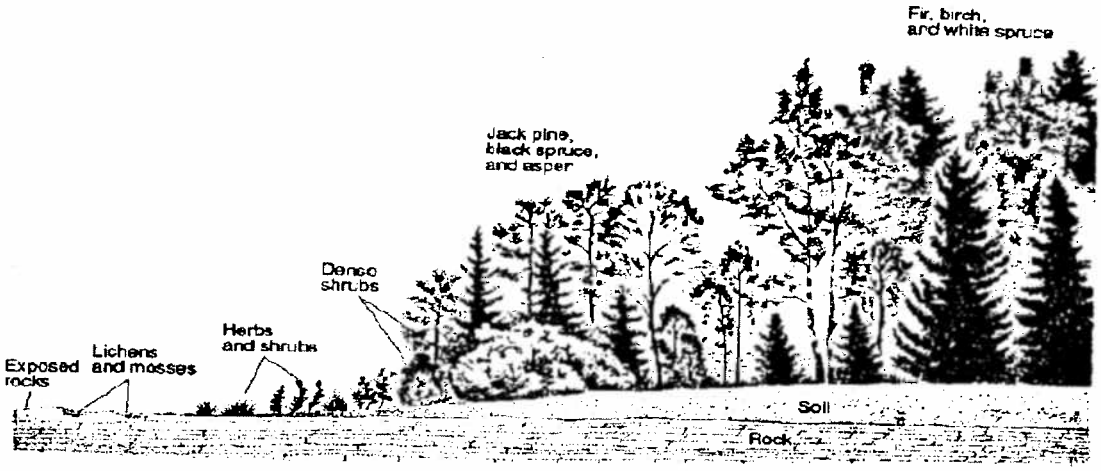

___**pioneers**___ -- are the first organisms in a succession ex. __ **grasses or lichens** __

___ **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**_____ c. ___**small sun loving trees (ie. Birch)**__

b.) __**shrubs and briers** _____ d. _**large shade tolerant trees (beech, maple)**