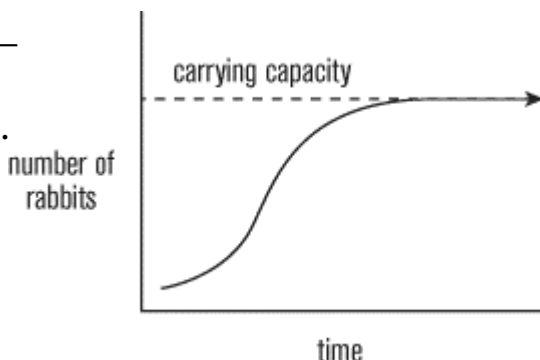


# TOPIC 6. ECOLOGY

71. Biotic factors = *plants and animals*.
72. Abiotic factors = *sunlight, temperature, air and water*.
73. Niche - A species' role in the environment.  
- it's job and what it does
74. Population - all the organisms of a species in the same area.
75. Community - all the different populations in an area.
76. Biomes - all of earth's ecosystems
77. Competition is the struggle for resources among organisms.
78. Limiting Factors - factors in the environment that limit the size of populations.  
Examples: food, water, light, shelter
79. Carrying Capacity  
- The number of organisms of any one species that an ecosystem can support.
- 
80. Predators kill and eat other organisms called prey which are killed for food.
81. Autotrophs – also called producers because they can make their <sup>(produce)</sup> food by the process of photosynthesis.

82. Heterotrophs - also called consumers because they cannot make their food and must get it from “other” sources.  
(consume)

83. Herbivores - also called primary consumers because they feed directly on plants or producers.

84. Carnivores - feed directly on the meat of other animals.

85. Omnivores - can eat all kinds of plants and animals.

86. Decomposers - breakdown the waste products of living organisms along with the remains of dead organisms returning vital nutrients to the soil for plants to use.

Examples: Fungi (mushrooms), earthworms and bacteria



DECOMPOSERS BREAK DOWN  
MATERIALS AND RETURN  
NUTRIENTS TO THE SOIL.

87. Scavengers - eat dead organisms that they did not kill themselves.

88. Parasites - live off of another organism called a host.  
- the parasite benefits and the host is harmed.

(+)

(-)

89. The Sun is the *ULTIMATE SOURCE OF ENERGY* for Earth.

90. On an energy pyramid, most amount of energy is located at the

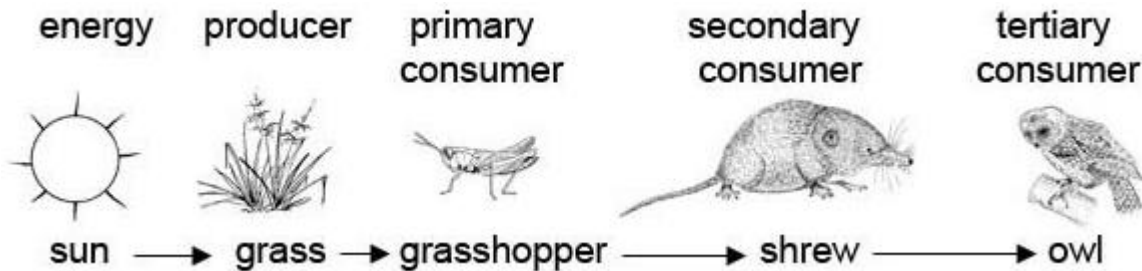
base or bottom of the pyramid where the producers are.

91. On the energy pyramid, each level above gets smaller. Where does the energy go?

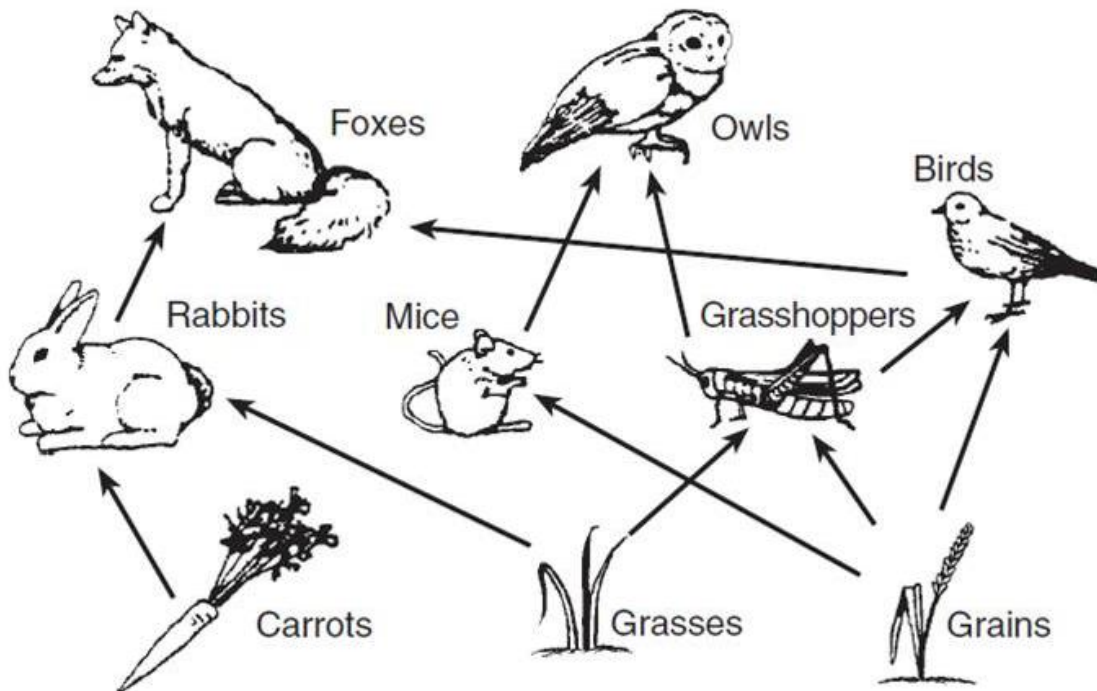
**Energy is lost to the environment as heat.**

92. Energy **CANNOT** be recycled in an ecosystem but nutrients can!

93. The diagram below represents a **food chain**.



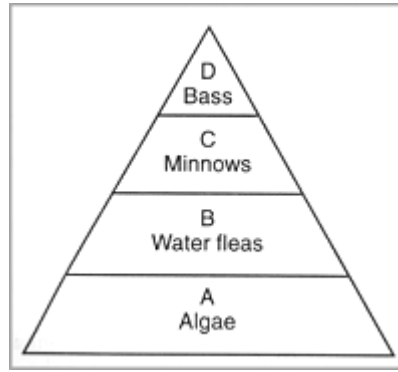
94. The diagram below represents a **food web**.



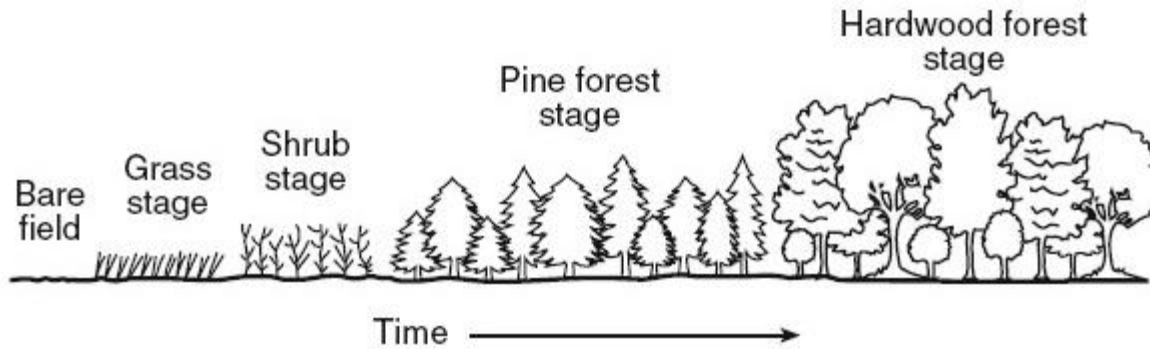
95. **Biodiversity** is a measurement of the degree to which species vary within an ecosystem.

96. As biodiversity **increases**, the **health** of an ecosystem **increases**.  
(stability)

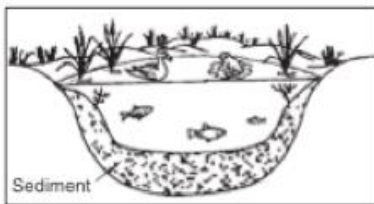
97. Construct a food chain based upon the food/energy pyramid below.



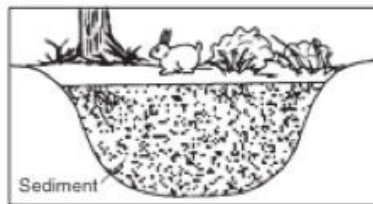
98. The diagram below depicts the ecological succession of a forest.



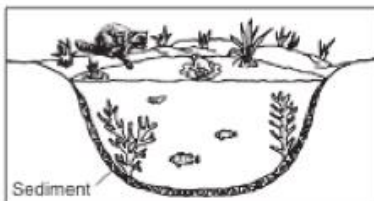
99. The diagram below depicts the ecological succession of a pond. What is the correct sequence of these stages?



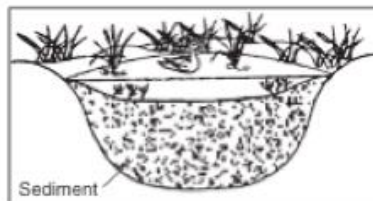
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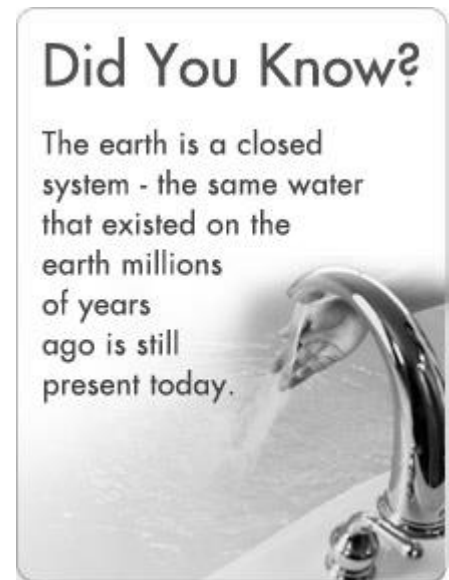
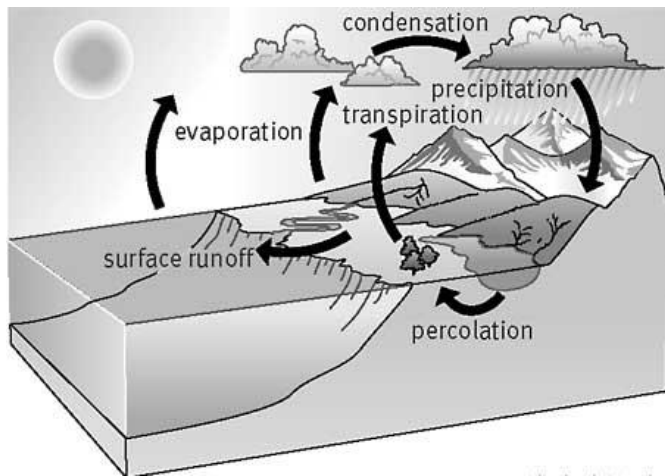
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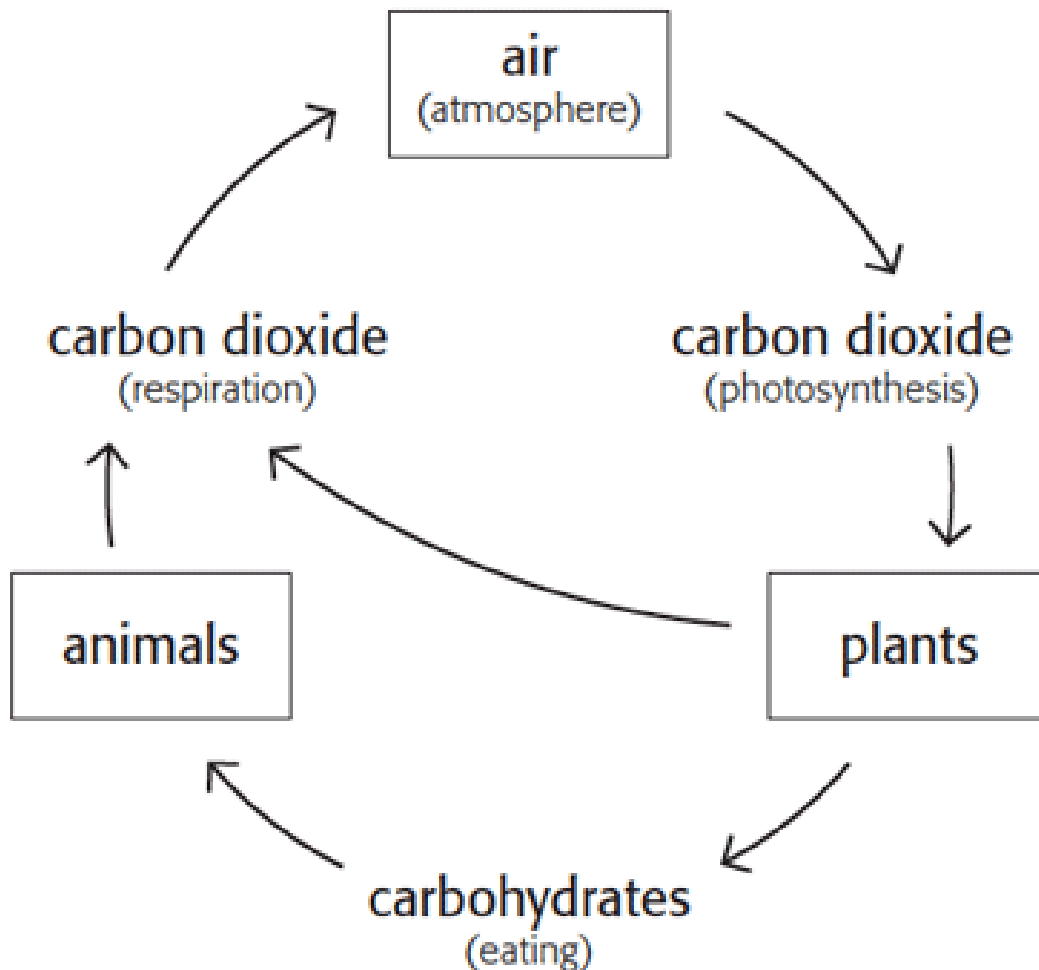
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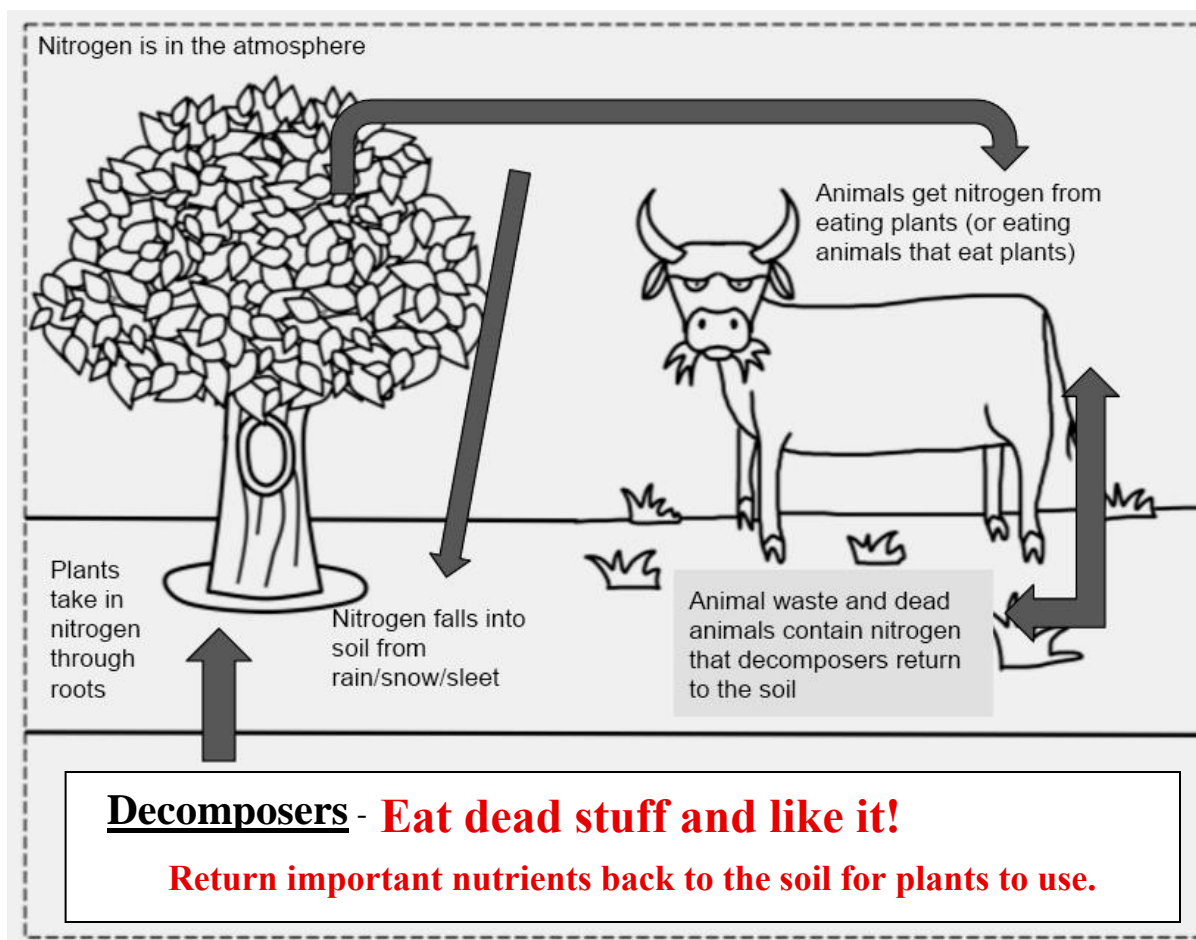
100. Planet Earth is a **CLOSED** system is regards to water and nutrients (*matter*).



101. Material Cycles involve the elements **carbon** and **oxygen** and the processes of **respiration** and **photosynthesis** (*mitochondria*) (*chloroplast*)



102. The **nitrogen** Cycle involves the **recycling** of  $N_2$  between the atmosphere and living things.
103. The Nitrogen Cycle is dependent on the role of **DECOMPOSERS**.  
(earthworms / fungi / bacteria)



104. **Renewable Resources** - resources that can **replenish** themselves if **NOT** abused.  
**Examples:** (1) trees (wood, lumber and paper)  
(2) water  
(3) solar energy...in our lifetime  
(4) wind
105. **Nonrenewable Resources** - resources that take a long time to replace.  
**Examples:** (1) coal  
(2) oil  
(3) natural gas

**Fossil Fuels**



106. Three ways you can preserve our resources:

(1) **Reduce** - cut down on the amount used.

Examples: smaller packaging, car pooling, walking, riding a bike, take mass transit (*bus or subway*)

(2) **Reuse** - use it for another application

Examples: bring your own bags to the grocery store, bring your own water from home in a BPA-free waterbottle, buy a live Christmas Tree and replant it in the Spring.

(3) **Recycle** - use it to make the same or another product again

Examples: Patagonia using recycled plastic to make fleeces, using old tires to make playground flooring

107. Pollution is the harmful **contamination** of the air, water, or soil.

108. Certain human activities that have contributed to the loss of biodiversity include:

(1) **Direct Harvesting** - the removal of a species (plant or animal) from their natural habitat.

Examples: using exotic animals as pets, killing elephants for the ivory in the tusks, killing sharks for their fins, deforestation for lumber

(2) **Habitat Destruction** - the process in which a natural **habitat** is rendered unable to support the species present.

Examples: deforestation of the tropical rain forest, ocean pollution

(3) **Imported Species** - the introduction of a non-native species to a new habitat.

Examples: Zebra Mussels, Gypsy Moth, Snakehead Fish, Purple Loosestrife

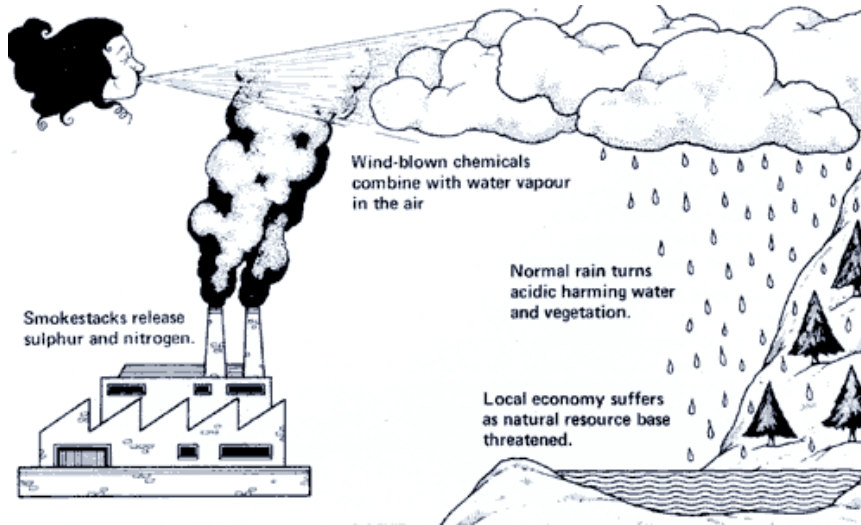


109. The negative impacts of industrialization and technology include:

(1) **Pollution**

Example: PCB contamination of the Hudson River

- (2) **Acid Rain** - the burning of fossil fuels releases **sulfur dioxide (SO<sub>2</sub>)** and nitrogen oxides (NO<sub>2</sub>) into the atmosphere where they react with water to form mild solutions of sulfuric and nitric **acid**.



Example: Acid rain almost destroyed the pine forests of the Adirondack mountains.

- (3) **Global Warming** - an increase in the earth's temperature resulting from an increase in greenhouse gases (**CO<sub>2</sub>** and CH<sub>4</sub>) caused by the burning of fossil fuels (*coal/oil/gasoline*) and biofuels (*ethanol*).

- (4) **Ozone Depletion** - destruction of the ozone layer due to the air pollution caused by aerosol sprays releasing **ChloroFlouroCarbons** or **CFC's**

- Ozone protects life on Earth from the harmful UV rays of the Sun.
- The decrease in ozone may be responsible for the increase in skin cancer.



**Ozone Depletion is NOT Global Warming!**