



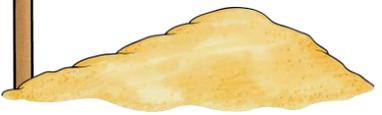
# sailing to the STAAAR

Pick up the booklet

THIS IS THE LAST BOOK!

I WILL CHECK ALL 5 BOOKS

TOMORROW FOR A TEST GRADE!



# Ecological Pyramids

How much energy is transferred between each energy level? What is the name for this rule?

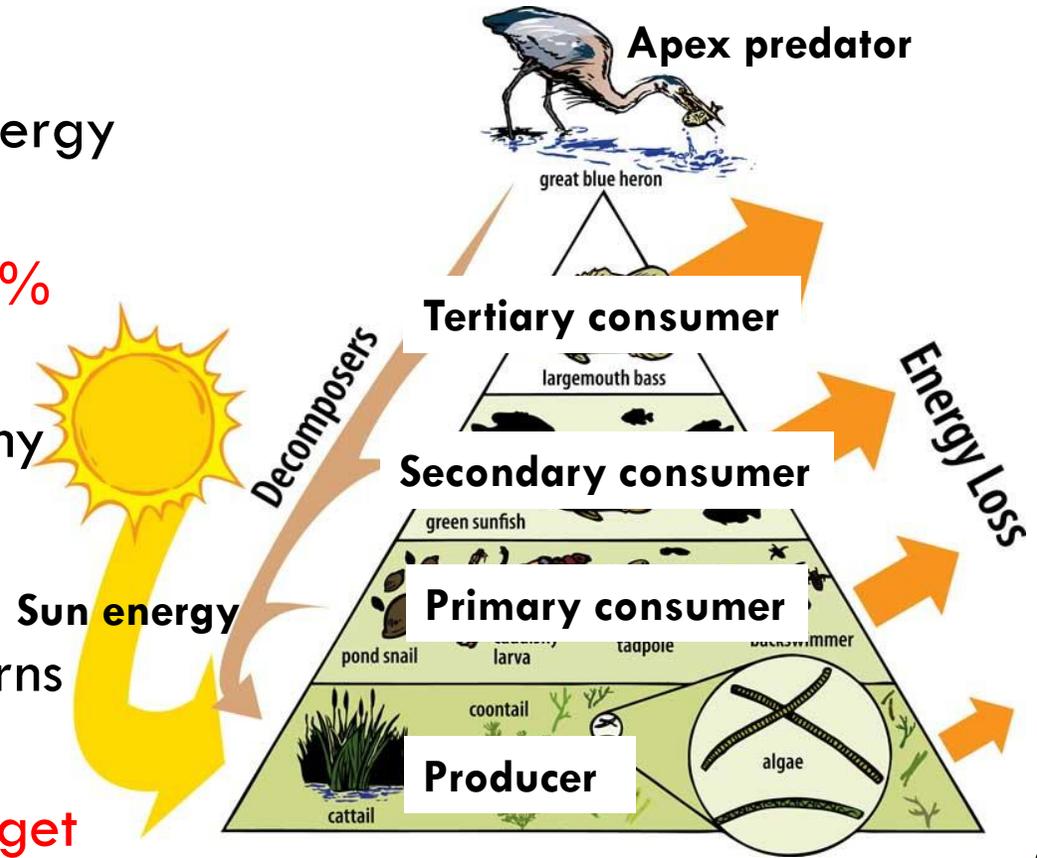
**10% of energy is transferred from each level, 10% rule**

If the algae contains 57,000 J of energy how many Joules does the blue heron receive?

**5.7J**

Explain the relationship between the eating patterns of Primary consumers and apex predators.

**Primary consumers do not have to eat as much to get energy compared to the apex predator. Although herbivores have special adaptations to process plant matter**



# Food Chains & food webs

Compare and contrast the food web and food chain.

Food chains are a single sequence of energy transfer and food webs show the energy transfer through an ecosystem

What do the arrows represent?

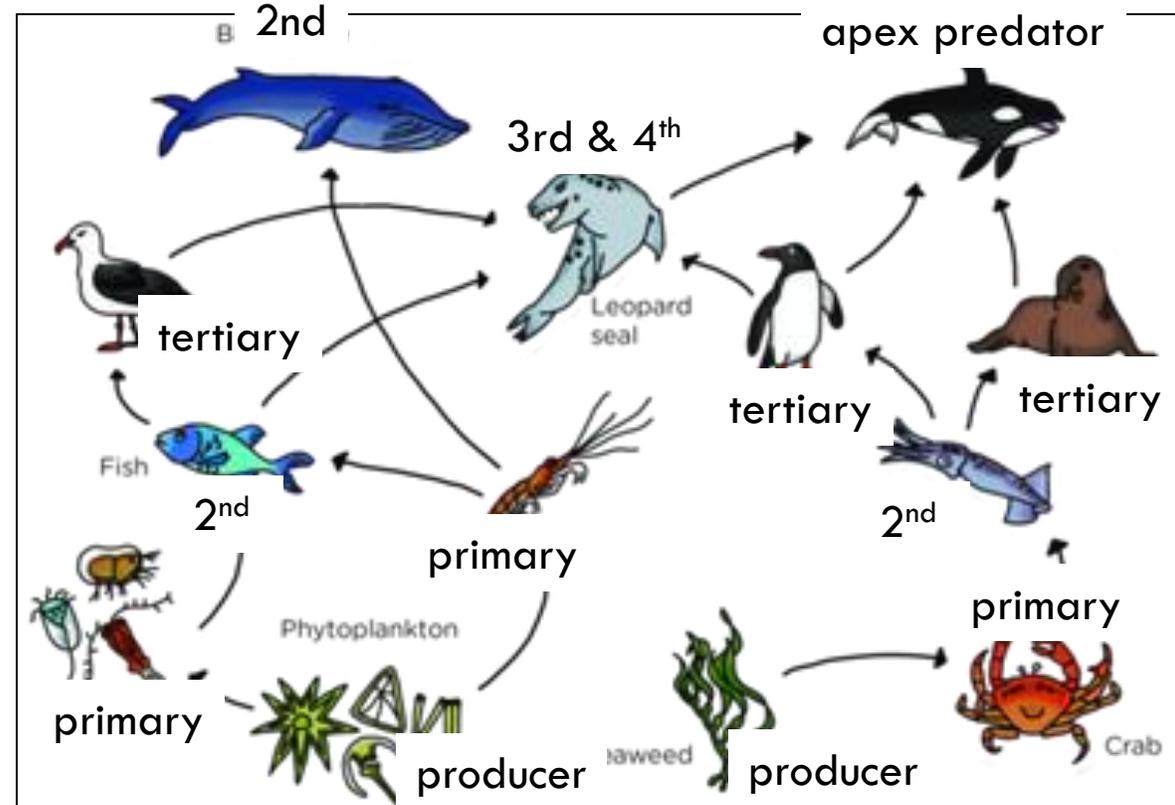
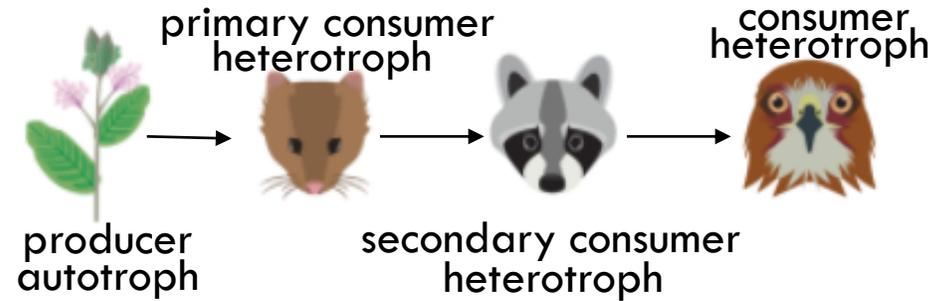
Arrows show the transfer of energy

How would the food web be effected if the phytoplankton became extinct?

When a food web loses a producer the whole food web is effected and the organism will have to find new source of food or risk extinction

What would happen if the leopard seal went extinct?

When a predator goes extinct the consumers below them will grow in population.



# Nitrogen Cycle

How do microorganisms maintain the nitrogen cycle?

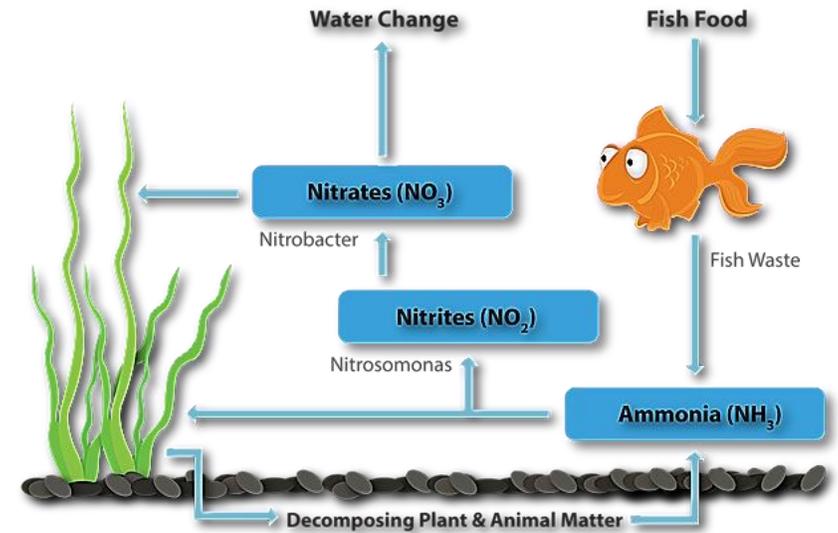
**Bacteria (microorganisms) turn ammonium into nitrates which are usable by other organisms**

What effect will there be on the ecosystem if it is exposed to chemicals that kill bacteria?

**If bacteria is killed then nitrogen will not be fixed and plants wouldn't have nitrogen to use.**

What are other examples of where nitrogen fixation is taking place?

**Occurs in soil, occurs during lightning strikes**



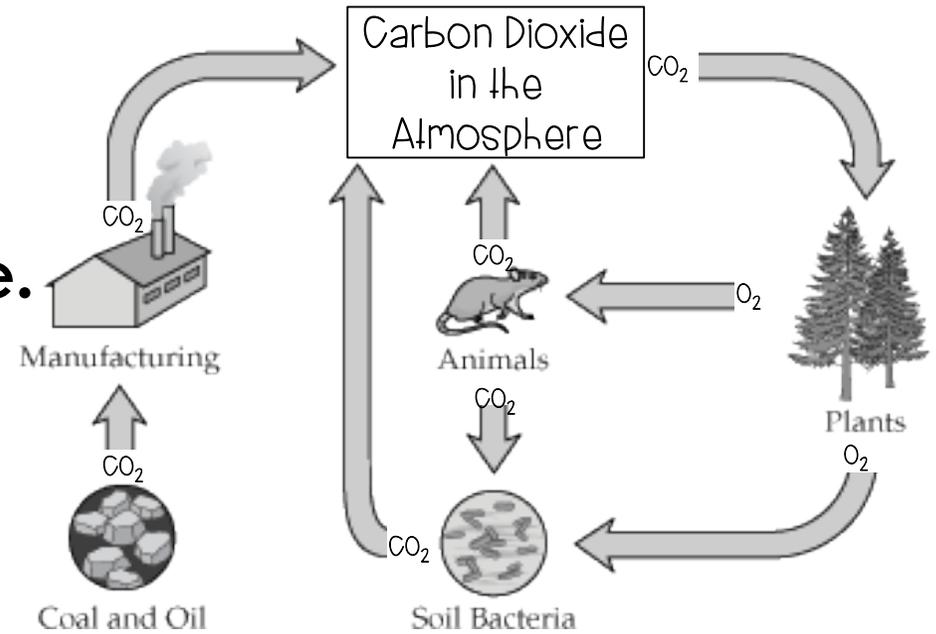
# Carbon Cycle

Explain two ways that humans have increased the amount of carbon in the cycle.

Carbon emissions can be found at power plants and from cars

How has the increase of carbon in the atmosphere effected the overall biosphere and ecosystems?

An increase of carbon has lead to the ozone losing its effectiveness which has led to climate change





# Succession

Compare and contrast primary and secondary succession. Include the following terms: bare rock, lichen, pioneer species, climax community, biodiversity and disturbance.

Students share summaries

## Primary Succession:

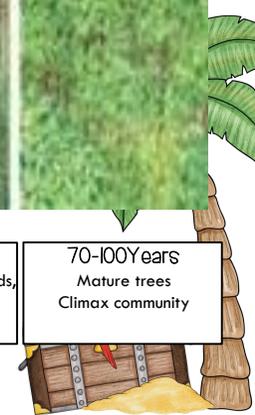


0-15 Years Mosses and Lichen grow on bare rock	15-80 Years Shrubs, young trees	80-115 Years Transition to forest, mature trees	115-200 Years Climax community
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## Secondary Succession:



0-2 Years Weed, grass and small shrubs	2-18 Years Shrubs, young trees, flowers	18-70 Years Mature trees, hard woods, shrubbery	70-100 Years Mature trees Climax community
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# Ecological Relationships

1. Mutualism: (+,+) Both benefit

Ex: bee and flower

2. Parasitism: (+,-) One benefits, One harmed

Ex: mosquitoes

3. Commensalism: (+,0) One benefits, the other is neutral

Ex: whale and barnacle

4. Predation: (+, 😞 ) One benefits, the other is eaten

Ex: Lion and gazelle

5. Competition: fighting/adapting for the same resources

Ex: tendrils on plants, stags fighting for a doe

Which of the relationships are considered symbiotic? Why are the others not symbiotic?

Symbiotic relationships include: Mutualism, parasitism and commensalism because in each relationship at least one organism is benefitting.

Predation and competition are not symbiotic but responses to evolutionary pressure to survive and reproduce





# Biomes

Biome	Characteristics	Adaptations
Desert	Dry region with very little rain fall, mostly covered in sand	Plant: <b>Cacti: reserve there water and protect against predators</b> Animal: <b>Snakes: move quickly across the hot sand and camouflage</b>
Tundra	Frozen mountain peeks and landscape near the north pole. Permafrost year round	Plant: <b>Arctic moss: can survive under a layer of frost</b> Animal: <b>Polar bears: hibernate through the winter</b>
Rain Forest	Plentiful rain fall, large biodiversity and competition	Plant: <b>Tons of biodiversity to try to use the resources available</b> Animal: <b>Tons of biodiversity to try to use the resources available</b>
Grassland	Expanses of land with grasses and few trees, found on all continents except Antarctica	Plant: <b>Not as drastic pressures for survival</b> Animal: <b>Not as drastic pressures for survival</b>

