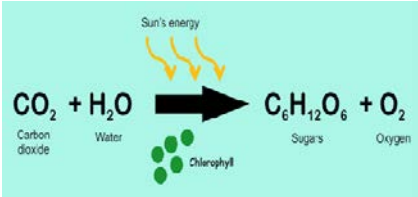


Main Topic:

Energy Flow in Ecosystems

Learning Objectives/Outcomes:

Topic 1: Types of Biotic Organisms	Topic 2: Food Chains	Topic 3: Food Webs
<p style="text-align: center;"><u>Ideas</u></p> <p>Where does most of the energy that fuels life come from?</p> <ul style="list-style-type: none"> - The sun <p>What is a producer?</p> <ul style="list-style-type: none"> - An organism that makes their own food by using the sun's energy <p>What is photosynthesis?</p> <ul style="list-style-type: none"> - The process in which producers transform the sun's energy into food <p>Explain the process of photosynthesis.</p> <ul style="list-style-type: none"> - Chlorophyll containing organisms transform energy from the sun into glucose. - Also requires carbon dioxide and water, and also produces oxygen <div style="text-align: center;">  </div> <p>What is a consumer?</p> <ul style="list-style-type: none"> - An organism that eats producers or other consumers for energy <p>What is a primary consumer?</p> <ul style="list-style-type: none"> - Organisms that eat only producers - Also known as herbivores 	<p style="text-align: center;"><u>Ideas</u></p> <p>What is a food chain?</p> <ul style="list-style-type: none"> - Energy passing from one organism to another in the form of food <p>What indicates the direction of energy transfer?</p> <ul style="list-style-type: none"> - Arrows <p>What is an energy pyramid?</p> <ul style="list-style-type: none"> - Compares the energy available at each level of the food chain <p>What is 90% of energy organisms consume used for?</p> <ul style="list-style-type: none"> - Life processes or lost as heat <p>How much energy is passed on to organisms at the next level?</p> <ul style="list-style-type: none"> - About 10% <p>Which organisms have the least amount of energy available?</p> <ul style="list-style-type: none"> - Organisms at the top of the food pyramid <p>Why do energy pyramids and food chains rarely have more than 4 levels?</p> <ul style="list-style-type: none"> - Because the limited amount of energy available at higher levels would not be enough to sustain organisms at that level 	<p style="text-align: center;"><u>Ideas</u></p> <p>What is a food web?</p> <ul style="list-style-type: none"> - A series of overlapping food chains that more completely model the flow of energy through an ecosystem - Can also model the variety of organism in an ecosystem <p>Describe a healthy food web.</p> <ul style="list-style-type: none"> - Has an abundance of producers, many herbivores, and relatively few carnivores and omnivores. - The balance helps the ecosystem maintain and recycle biomass. <p>Do food webs include decomposers?</p> <ul style="list-style-type: none"> - Many food webs do not include decomposers, but they are present and essential in providing balance of energy flow of an ecosystem - All organisms in a food web would have arrows pointing to decomposers.

<p>What is a secondary consumer?</p> <ul style="list-style-type: none"> - Organisms that eat primary consumers <p>What is a carnivore?</p> <ul style="list-style-type: none"> - Animals that only eat other animals <p>What is an omnivore?</p> <ul style="list-style-type: none"> - Organisms that eat both plants and animals <p>What is a decomposer?</p> <ul style="list-style-type: none"> - An organism that breaks down dead material for energy <p>What is biomass?</p> <ul style="list-style-type: none"> - The energy stored in once-living organisms <p>How do decomposers help recycle biomass?</p> <ul style="list-style-type: none"> - By breaking it down into energy-rich substances such as, carbon, nitrogen, and phosphorus 		
<p><u>Key Vocabulary</u></p> <p>Producer: An organism that makes their own food by using the sun's energy</p> <p>Photosynthesis: The process in which producers transform the sun's energy into food</p> <p>Consumer: An organism that eats producers or other consumers for energy</p> <p>Primary consumer: Organisms that eat only producers</p> <p>Secondary consumer: Organisms that eat primary consumers</p>	<p><u>Key Vocabulary</u></p> <p>Food chain: Energy passing from one organism to another in the form of food</p> <p>Energy pyramid: Compares the energy available at each level of the food chain</p>	<p><u>Key Vocabulary</u></p> <p>Food web: A series of overlapping food chains that more completely model the flow of energy through an ecosystem</p>

Carnivore: organisms that only eat other animals

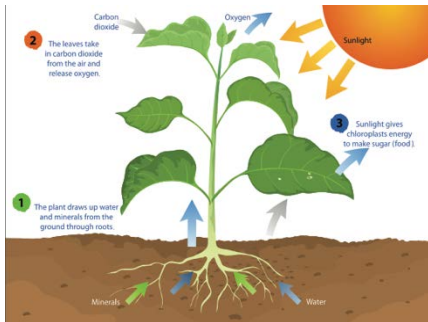
Omnivore: Organisms that eat both plants and animals

Herbivore: organisms that eat only producers

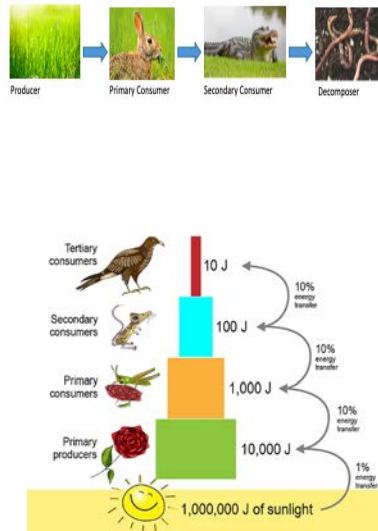
Decomposer: An organism that breaks down dead material for energy

Biomass: The energy stored in once-living organisms

Pictures



Pictures



Pictures

