

Mar 2021 | Issue 3 | Volume 1

EARTH HERO



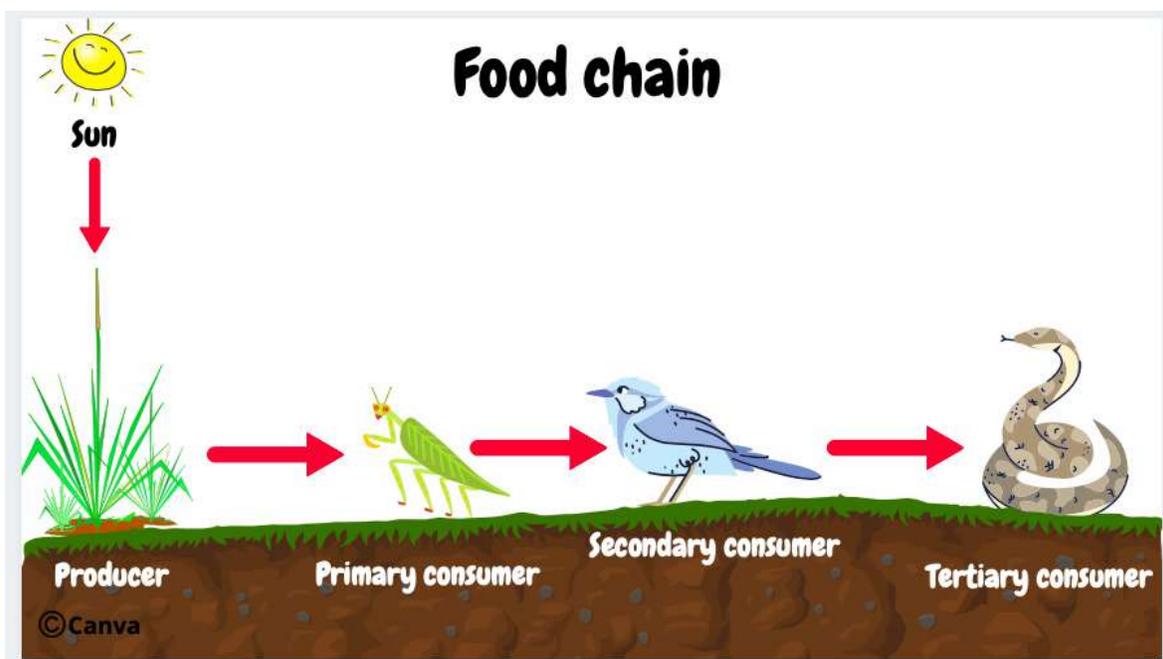
• Ecosystem • Forest • Animal • Environmental Issue • Actions



FOOD CHAIN

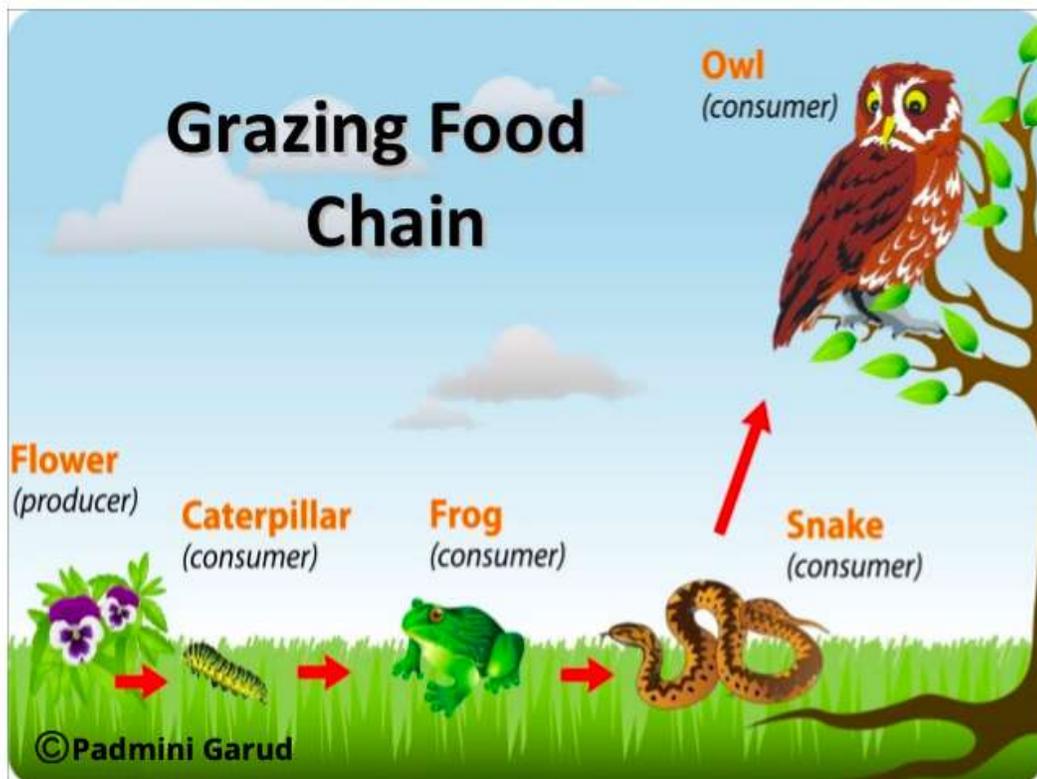
Every living thing is unique in their own way, but there's one thing we have in common. Can you guess what that is? All living organisms need energy and nutrients to grow and reproduce. We get most of our nutrients from the food that we consume. Food is what we eat to provide nutritional support to maintain life and growth. It gives us the energy to grow and move. Without food, all living things cannot survive and cannot conduct basic duties. To find out how living things get their food, we will first need to understand the term food chain. A food chain is a sequence of events in an ecosystem where one organism eats another. Food chains start with a primary source such as, the sun, which is absorbed by the producers (plants) to produce food (glucose). It continues with consumers (animals) who eat the food and end with the top predator (animal like tiger or lion).

The sun is a primary source in the food chain because a plant or producer transforms the energy provided by sun into food. A producer is any green plant that can make their food through photosynthesis. Examples include grass, flowers, trees, leaves, weeds and moss. It is the first level of every food chain as it acts as a manufacturer to provide a food source to the consumer.

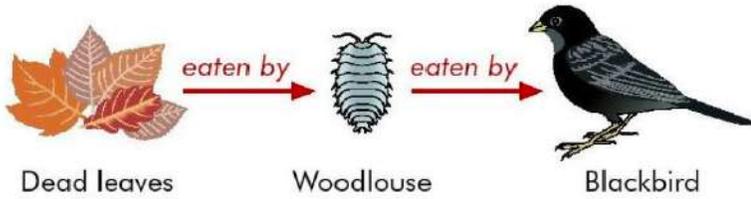


In the food chain ecosystem, consumers can be grouped into three categories, primary, secondary and tertiary. The organism that eats the producer is a primary consumer. The primary consumer is called a herbivore because it eats green plants. They are usually small organisms but exist in significant numbers. Some good examples are grasshoppers, caterpillars and termites. This primary consumer will be consumed or eaten by a group called secondary consumers. They can be omnivores or carnivores. An omnivore is a type of organism that eats both plants and meat, while a carnivore only eats meat. Examples of animals who are secondary consumers are frogs, mice, and birds like owls. The third category, tertiary consumers, are any organisms that eat secondary consumers and act as a top predator. Generally, they are carnivores and bigger in size but small in numbers, such as bears, tigers, and snakes. Can you guess where we (humans) are in the food chain?

There are two types of food chains found in an ecosystem which are grazing food chains and detritus food chains. The grazing food chain starts with the producer and moves on to the consumers and, lastly, the predator. In nature, most of the ecosystems follow this type of food chain.



Detritus Food Chain



© Cooknuts

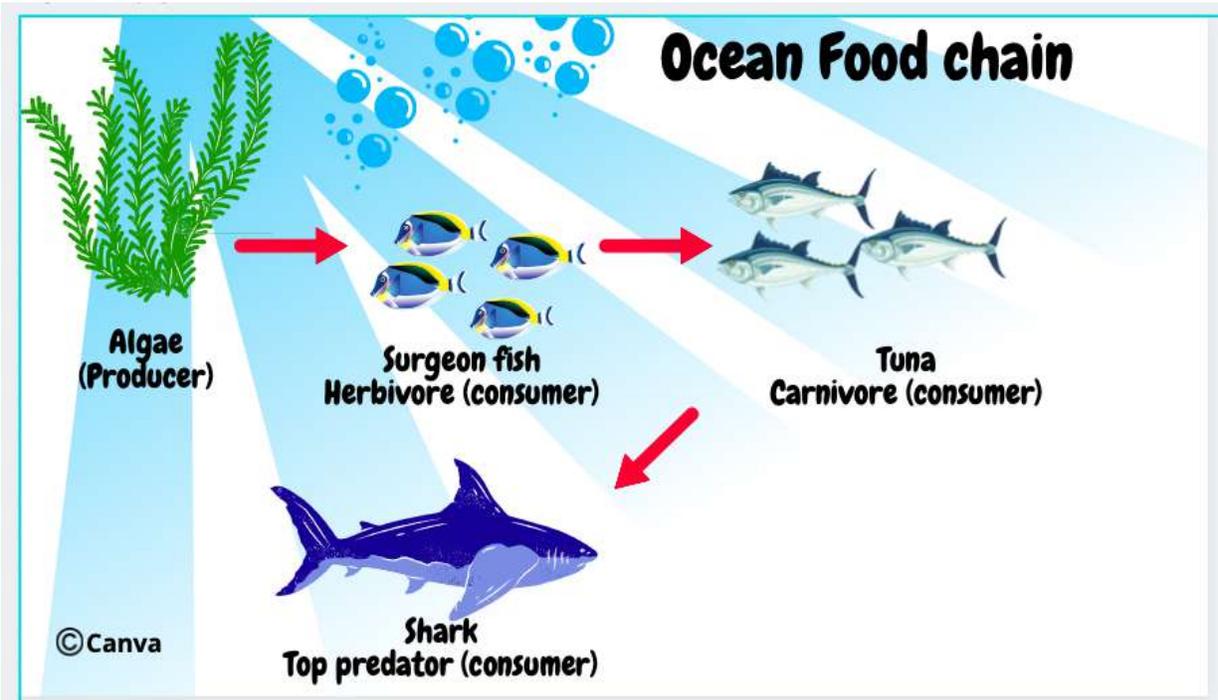
While the grazing food chain begins with an autotroph (an organism that can produce its food), the detritus food chain starts with dead organic matter. What does detritus mean? Detritus is an organism that eats dead organic matter. They are also known as detritivores or decomposers, which are later eaten by predators.

These two food chains are also different in its function, whereby the grazing food chain releases energy into the ecosystem, and the detritus food chain utilizes energy from the ecosystem.

The food chain is very important for all living organisms, including the organisms in the ocean. The ocean food chain consists of four main components, the sun, producers, consumers and decomposers. It starts with solar energy, which combines with carbon dioxide and water to form glucose or sugars. Glucose or sugar is food for plants. In the ocean food chain, the main producer is plankton, as there are no green plants to produce food. Plankton are tiny organisms made up of a plant, animal or bacteria. Phytoplankton is a microscopic organism that can photosynthesize, which means that they use the sun's light energy to produce food. There are different types of phytoplankton, and the most common are diatoms, blue-green algae and dinoflagellates.

The consumers in the ocean food chain consist of herbivores and carnivores. The herbivores in the ocean food chain are known as, zooplankton such as surgeonfish, parrotfish, turtles and sea cows. The carnivores that eat the herbivores include fish like sardines, herring and menhaden.

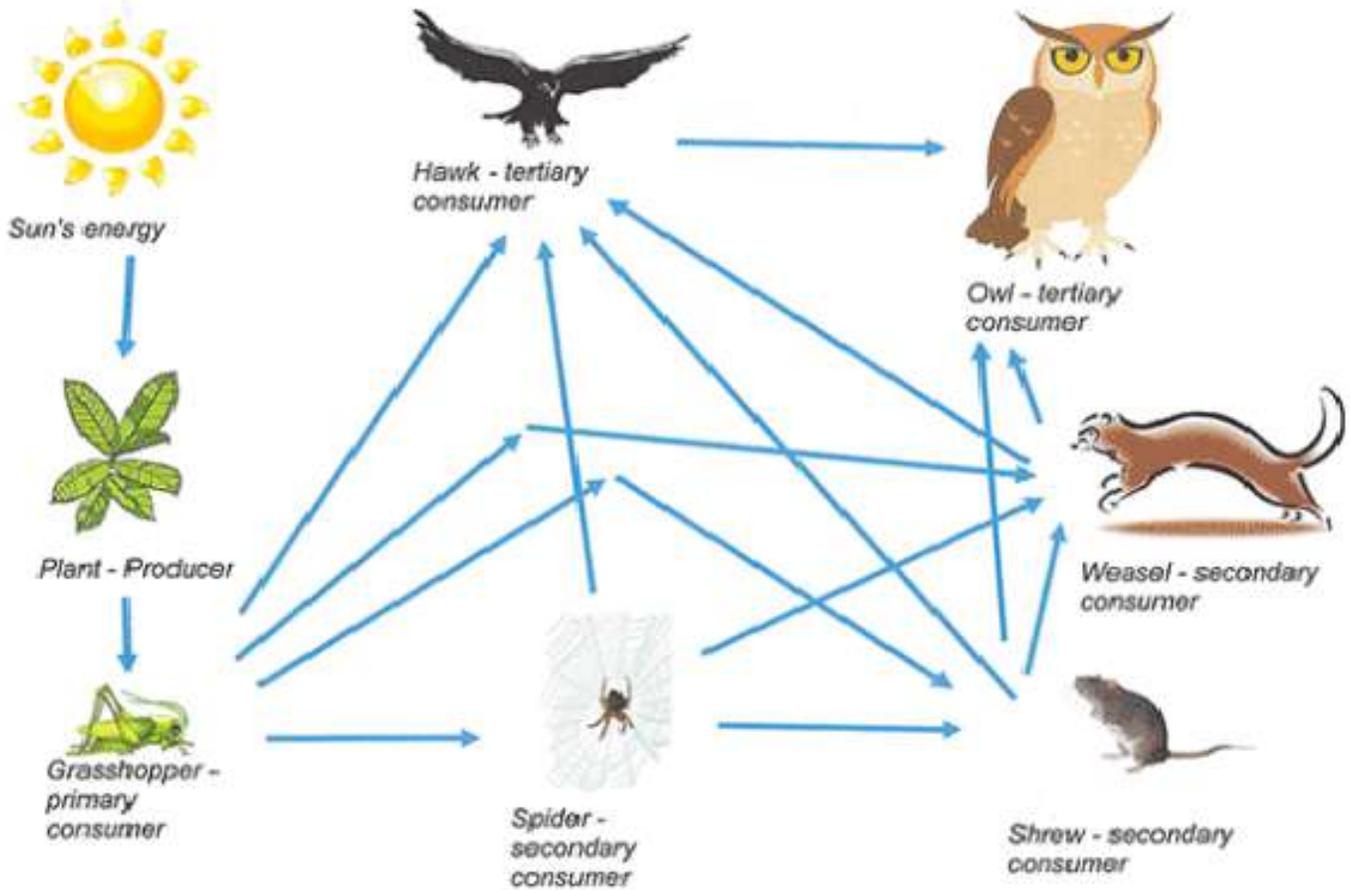
The top predator in the ocean food chain will be some finned animals like sharks, tuna and dolphins. Most of the top predators are big, fast, have a longer lifespan but are slow in reproducing.



In the ecosystem, the food chain is very important because it shows the complex relationship between living organisms. Besides, the food chain exposes how one organism depends on another organism for survivability. If any problem happens to the producers or consumers, the whole food chain can collapse. For example, humans' overhunting of the sambar deer will significantly impact the tiger's food source. A reducing sambar deer population will push the tiger to hunt further and possibly bring them closer to the human population. The tiger might end up preying on villagers' livestock for food. There are also adverse effects if the number of apex predators (top consumer) declines. In certain parts of the Northern Hemisphere, the reduction in predator numbers, particularly wolves, have caused an exceptionally large number of large herbivores such as moose and deer. This has crippled the growth of young trees and negatively affected the biodiversity in the area. Due to top predator's slow reproduction, it will take many years to recover the population, causing a ripple effect on the entire food web. As human beings, we are responsible for caring for the ecosystem as we are all connected.

Living organisms depend on various food sources. They interact with each other, and not being limited to a single food chain. This interconnection amongst many food chains is called a food web.

Food Web



© Idaho

The biggest difference between the food chain and the food web is that the food chain is a simple, linear series of steps while the food web is more complex. Even though there are differences between both chains, they are a part of the ecosystem. Without one of them, the interconnected chain will be disrupted. The food web helps us to understand feeding relationships, community structure, energy transfer, and illustrates species interactions. When we can understand this, we are able to work with nature and not against her.