

## Short Note

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### 1. Food Chain & Food Web

Every plant and animal species, no matter how big or small, depends to some extent on another plant or animal species for its survival. It could be bees taking pollen from a flower, photosynthesis of plants, deer eating shrub leaves or lions eating the deer.

#### Definition of Food Chain

The flow of energy in one way process and the sequence in which the energy from the lower level of organisms to the higher level of the organisms are called as the food chain. The food chain is of two types – Grazing food chain and Detritus food chain.

1. **Grazing food chain:** Grazing food chain consists mainly of Producer (green plants), Primary consumer (Herbivores), and Secondary consumer (Carnivores). The chain starts with the green plants also known as autotrophs. These can prepare their food with the help of sunlight (the main source of energy), water and air.

This is known as the first trophic level. These plants are eaten up by the first consumer (Herbivores), and eventually, these (Herbivores) are eaten up by the different secondary consumer (Carnivores).

2. **Detritus food chain:** It starts with the dead organic matter (detritus), which was produced in the grazing food chain. The waste material such as dead bodies of animals or fallen leaves is eaten by the decomposers or detritivores. At last the organic matter gets decomposed by their predators. Energy flows in the large amount in this food chain.

#### Food chain in a Terrestrial Ecosystem

The sun is the source of energy, which is the initial energy source. This is used by the producers or plants to create their own food, through photosynthesis and grow. Next in this chain is another organism, which is the consumer that eats this food, taking up that energy.

The primary consumers are the organisms that consume the primary producers. In a terrestrial ecosystem, it could be a herbivore like a cow or a goat or it could even be a man. When a goat is consumed by man, he becomes the secondary consumer.

As the energy goes one level up, the food chain also moves up. Each level in the food chain is called a trophic level. The different trophic levels are Primary producers, primary consumers, secondary consumers, tertiary consumers and quaternary consumers.

#### Example of food chain

Grass (Producer) —Goat (Primary Consumer) — Man (Secondary consumer)

When dead organic matter becomes the starting of a food chain, then it is called the *detritus food chain* (DFC). The decomposers, which are the fungi and bacteria, feed on the organic matter to meet the energy requirements. The digestive enzymes secreted by the decomposers help in the breakdown of the organic matter into inorganic materials.

#### Definition of Food Web

When several food chains are linked or interconnected together to form a network is called as the food web. There is the involvement of various. Organism of different species in the population. There is one common thing in all, is the need of energy to do their activities. The sun is considered as the main source of energy on Earth. This energy is used by the green plants (producer) to make their food.

Once the energy got captured, it is now will get pass through many phases of various organisms of the particular area; this is called as the food web.

Many interconnected food chains make up a food web. When you look at the larger picture, a food web shows a realistic representation of the energy flow through different organisms in an ecosystem. Sometimes, a single organism gets eaten by many predators or it eats many other organisms. This is when a food chain doesn't represent the energy flow in a proper manner because there are many trophic levels that interconnect. This is where a food web comes into place. It shows the interactions between different organisms in an ecosystem.

### Key Differences between Food Chain and Food Web

Given below are the important point which differentiates the Food Chain and Food Web:

1. The **Food Chain** can be said as the single straight pathway, through which there is a flow of energy from the lower trophic level to the higher trophic level. **Food Web** can be defined as the complex interconnection of numerous food chains through which the energy flow in the ecosystem.
2. Food Chain consists of only **one straight chain**, while food web has **numbers of interconnected food chains**.
3. In comparison to the food web, there is a lot of **instability** in the food chain, and this is due to increasing number of separate and confined food chains. Whereas in food web there is **stability** and it increases due to the presence of the complex food chains.
4. As in food chain, there are **4-6 trophic levels** only of different species, and any disturbance at any level may disturb the whole chain. On the other hand in food web there in the involvement of **numerous trophic level** of the different population of a species and so it does not affect the food web if there is a removal of any group of organisms at any trophic level.

In the food chain usually, member of higher trophic level depends or feed upon the single type of organisms of the lower trophic level. On the contrary, in the food web, the members of higher trophic level depend or feed upon many different types of the organism of the lower trophic level.

### Conclusion

All forms of life need energy, directly or indirectly. The flow of energy and nutrients among different organisms in an ecosystem is called as the food chain while the natural linking or interconnection numerous food chains of what-eats-what in the community is called as the food web.

But it is observed that food web is more realistic than the food chain, as it shows the multiple relationships of how the interactions occur among the organisms. Therefore food web is considered as more complicated than the food chain.

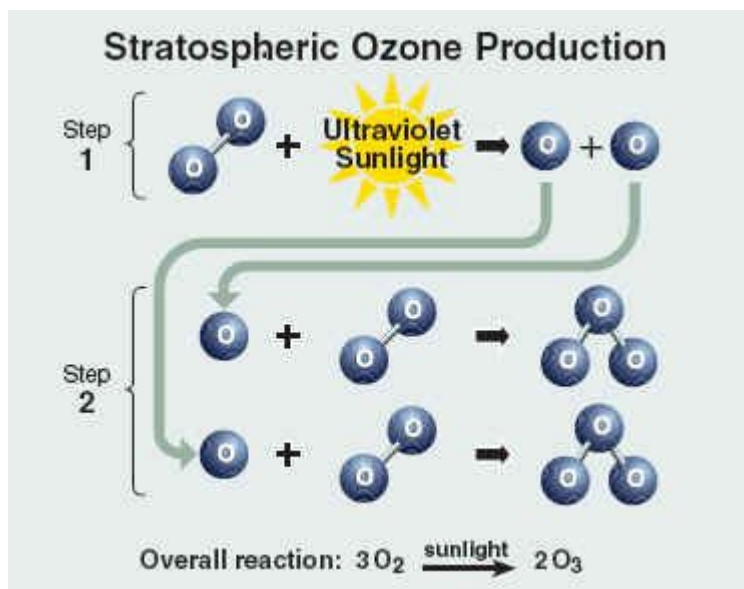
## 2. Ozone

Ozone, or trioxygen, is an inorganic molecule with the chemical formula  $O_3$ . It is a pale blue gas with a distinctively pungent smell. It is an allotrope of oxygen that is much less stable than the diatomic allotrope  $O_2$ , breaking down in the lower atmosphere to  $O_2$ . Near the Earth's surface, those reactions cause rubber to crack, hurt plant life, and damage people's lung tissues. But ozone also absorbs harmful components of sunlight, known as "ultraviolet B", or "UV-B". High above the surface, above even the weather systems, a tenuous layer of ozone gas absorbs UV-B, protecting living things below.

The Dobson Unit (DU) is the unit of measure for total ozone. If you were to take all the ozone in a column of air stretching from the surface of the earth to space, and bring all that ozone to standard temperature (0 °Celsius) and pressure (1013.25 millibars, or one atmosphere, or "atm"), the column would be about 0.3 centimeters thick. Thus, the total ozone would be 0.3 atm-cm. To make the units easier to work with, the "Dobson Unit" is defined to be 0.001 atm-cm. Our 0.3 atm-cm would be 300 DU.

Each year for the past few decades during the Southern Hemisphere spring, chemical reactions involving chlorine and bromine cause ozone in the southern polar region to be destroyed rapidly and severely. This depleted region is known as the “ozone hole”. The area of the ozone hole is determined from a map of total column ozone. It is calculated from the area on the Earth that is enclosed by a line with a constant value of 220 Dobson Units. The value of 220 Dobson Units is chosen since total ozone values of less than 220 Dobson Units were not found in the historic observations over Antarctica prior to 1979. Also, from direct measurements over Antarctica, a column ozone level of less than 220 Dobson Units is a result of the ozone loss from chlorine and bromine compounds.

**Ozone** is produced naturally in the stratosphere when highly energetic solar radiation strikes molecules of oxygen, O<sub>2</sub>, and cause the two oxygen atoms to split apart in a process called photolysis. If a freed atom collides with another O<sub>2</sub>, it joins up, **forming ozone** O<sub>3</sub>.



Several feel-good stories about the earth recovering have gone viral since the coronavirus pandemic forced the world indoors. Amid this, scientists have confirmed that the largest hole in the ozone layer over the Arctic region has closed in.

The ozone layer shields the earth from most of the sun’s ultraviolet radiation, which is a major cause of skin cancer. Netizens, however, claim that this healing of the ozone layer is one of the positive effects of the corona epidemic lockdown.