

## READING ACTIVITY

### FOOD CHAINS

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Professor:** Claudia Camila Coronado Rodríguez

**Purpose:** Through the paper “Food chains and types of food chains” students will know the importance of food chains.

**Content aim:** Students will be able to identify and classify food chains.

**Language aim:** Students will be able to summarize the food chains.

**Group:** Environmental engineering.

**Level IV**

**PRE-READING (20 minutes)**

Watch the video “What is a food chain?”:

<https://www.youtube.com/watch?v=YuO4WB4SwCg>



According to the video, answer the following questions:

A food chain usually starts with

- A. an animal
- B. a plant
- C. a bacteria
- D. an enzyme

A food chain

The food chains comprises of the

- A. plants, trees, sun, moon, animals.
- B. producers, consumers, decomposers.
- C. bacterias, animals, plants,
- D. herbivores, carnivores, plants

What are the living beings that create energy for other living things?

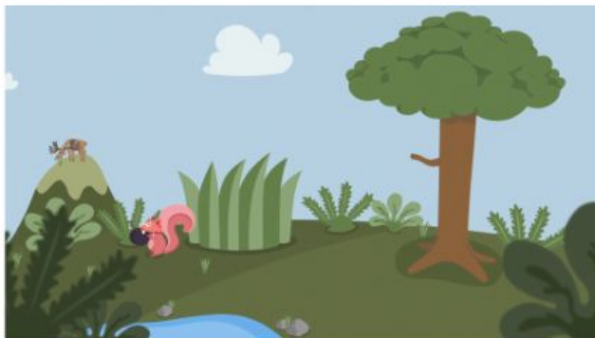
- A. animals
- B. plants
- C. bacterias
- D. sun

Animals that eat plants are called

- A. primary consumers
- B. secondary consumers
- C. third consumers
- D. fourth consumers

Animals that eat other animals are called

- A. primary consumers
- B. secondary consumers
- C. third consumers
- D. fourth consumers



**WHILE-READING (40 minutes)**

Complete the following KW chart before reading, after reading the text complete the L section.

<b>K</b> <b>What I know (about food chains)</b>	<b>W</b> <b>What I want to Know (food chains)</b>	<b>L</b> <b>What I learned (about food chains)</b>

After developing the comparative chart, socialize the KWL.

**Food chains**

A classic paper by Lindeman (1942) laid the foundations of ecological energetics. He attempted to quantify the concept of food chains by considering the efficiency of energy transfer between trophic levels. The first trophic level belongs to the primary producers, the second level to the herbivores (primary consumers), and the higher levels of the carnivores (secondary consumers). Some consumers occupy a single trophic level, but many others, such as omnivores, occupy more than one trophic level. The relationship between one trophic level and adjacent trophic levels may be described by a food chain.

‘The transfer of food energy from producers (plants) through a series of organisms that consume and are consumed is termed as a food chain.’ A food chain shows the movement of energy through a system by indicating the path of food from a producer to a final consumer. In general, food chains have 3 to 5 trophic links with 15 to 20 species. The length of food chain also may reflect the physical characteristics of a particular ecosystem. A harsh arctic landscape has a much shorter food chain than a temperate or tropical one.

Why are food chains relatively short? There are two main hypotheses. One, the energetic hypothesis, suggests that the length of a food chain is limited by the inefficiency of energy transfer along the chain. As we know, only about 10% of the energy stored in the organic matter of each trophic level is converted to organic matter at the next trophic level. At each transfer, a proportion (often as high as 80% to 90%) of the potential energy is lost as heat. Therefore, the shorter the food chain — or the nearer the organism to the first trophic level — the greater the energy available to that population. The second hypothesis, the dynamic stability hypothesis, proposes that long food chains are less stable than short chains. Population fluctuations at lower trophic levels are magnified at higher levels, potentially causing the local extinction of top predators. This hypothesis predicts that food chains should be shorter in unpredictable environments. Most of the data available support the energetic hypothesis.

### Types of food chains

Within any ecosystem, there are two major food chains: **the grazing food chain** and **the detritus food chain**. The distinction between these two food chains is the source of energy for primary consumers. In the grazing food chain, the source of energy is living plant biomass (or net primary production). In the detrital food chain, the source of energy is dead organic matter or detritus.

**Grazing food chains** begin with photosynthetic plants (primary producers). Primary consumers (or herbivores) form the second link in the grazing food chain. They gain their energy by consuming primary producers. Secondary consumers (or primary carnivores), the third link in the chain, gain their energy by consuming herbivores. Tertiary consumers (or secondary carnivores) are animals that receive their energy by consuming primary carnivores.



More often than not, such simple food chains are oversimplified versions of the reality of feeding relationships. Instead, there are often multiple and interconnecting pathways, as well as numbers of different species involved at each trophic level.

### Autotroph and detritus-based ecosystem

The autotroph based ecosystems depend directly on the influx of solar radiation. They are characterized by a dependence on energy captured by photosynthetic autotrophs and secondarily by the movement of that captured energy through the system via herbivory and carnivory. A large number of ecosystems function in this way and numerous herbivores, carnivores and omnivores are dependent on such autotrophic ecosystems. Some ecosystems depend less on direct solar energy incorporation and more on the influx of dead organic material, or detritus, produced in another ecosystem. Ecosystems, such as caves, are independent of direct solar energy and are dependent on the influx of detritus for energy. These ecosystems are regarded as detritus-based ecosystems.

Taken from . Fundamentals of ecology and environment Book. (p. 34)

Make a comparative chart that represents the different food chains

Food chains	Characteristics (at least three)
the grazing	Example: the source of energy is living plant biomass (or net primary production)
the detritus	

### POST READING (40 minutes)

- In pairs, write a short argumentative paragraph in which you discuss why you think food chains are important.
- Include linker (but, because, hence, also, etc)
- Include sequence words (first, second, third, finally)
- Include (from our point of view, we consider, we think)

This image shows a full page of blank, lined paper. It features approximately 20 evenly spaced horizontal grey lines across the entire width of the page, typical of notebook or composition paper. There are no margins, text, or other markings present.