Food Chains, Food Webs and Trophic Levels

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Lesson Objectives

- Explain the principles of a food chain and food web
- Construct a food chain and food web from a selected habitat
- Explain the ways in which other living organisms depend on plants directly or indirectly for food

Who eats who?

1

2

3

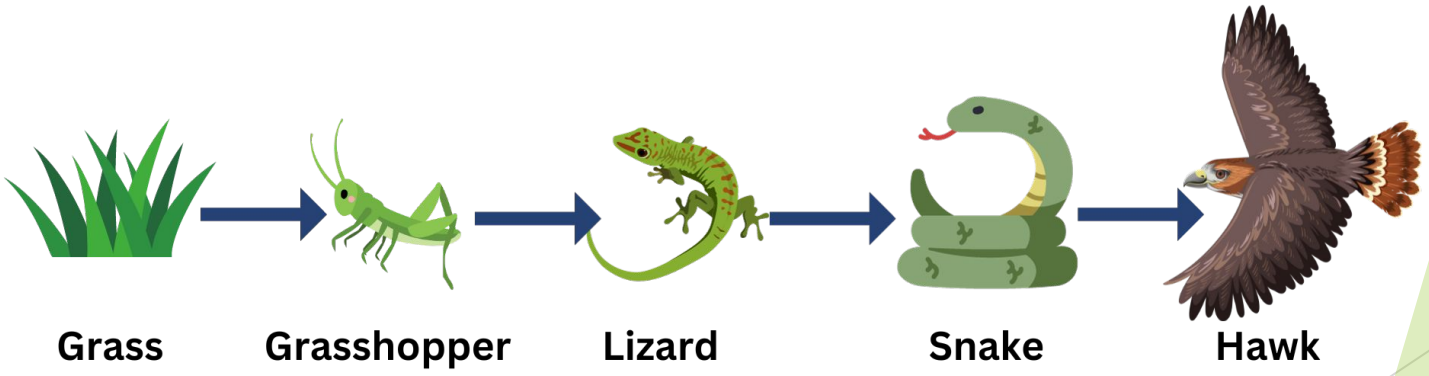
4

Definition

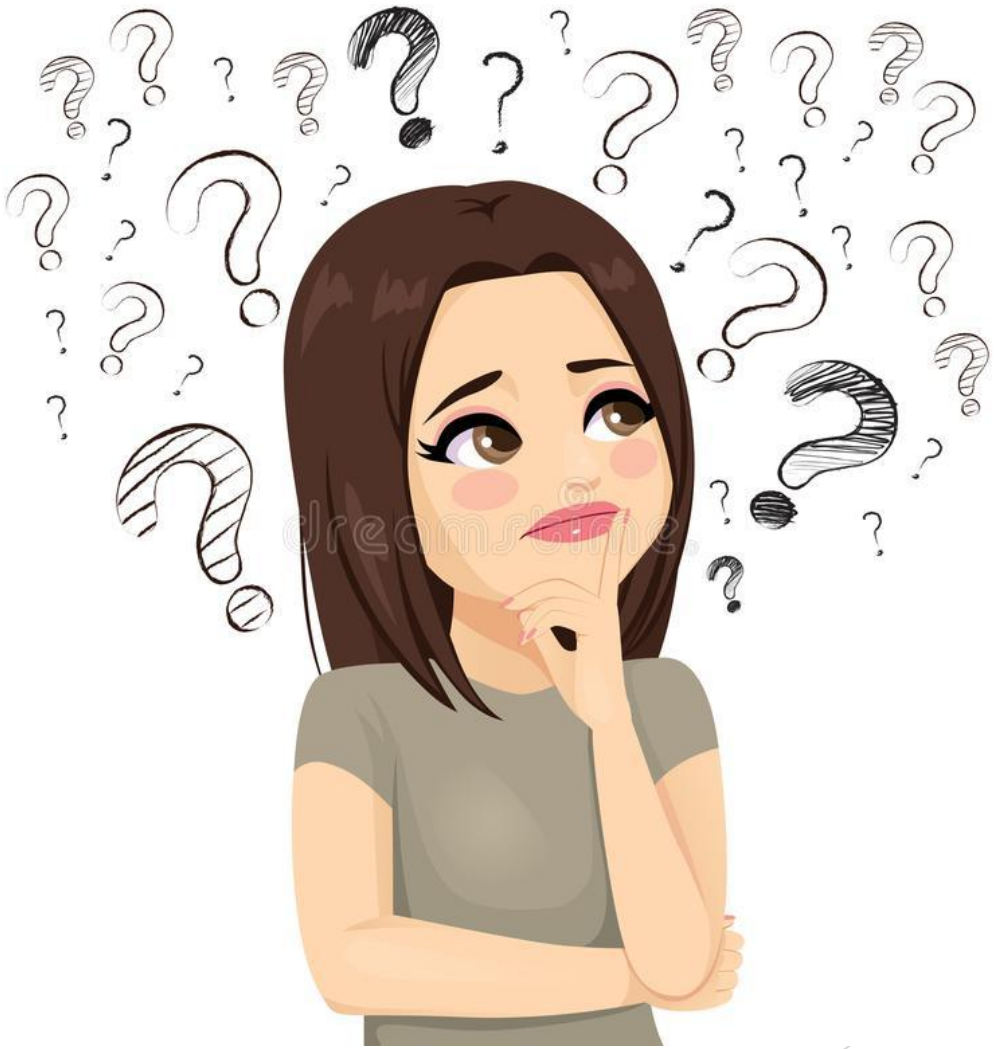
Food Chain: A succession of organisms in an ecological community that constitutes a continuation of food energy from one organism to another as each consumes a lower member and in turn is preyed upon by a higher member.

Definition

Food Chain Diagrams are used to show the flow of food and energy from one organism to the next.



DISCUSS: Who would win in a fight a lion or a bear?



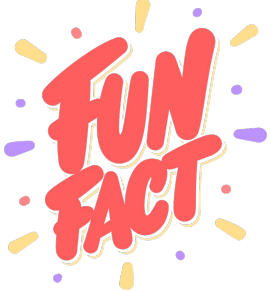
A food chain includes:

First level: A producer

Second level: Primary consumer that eats the producer (Herbivore-plant eaters)

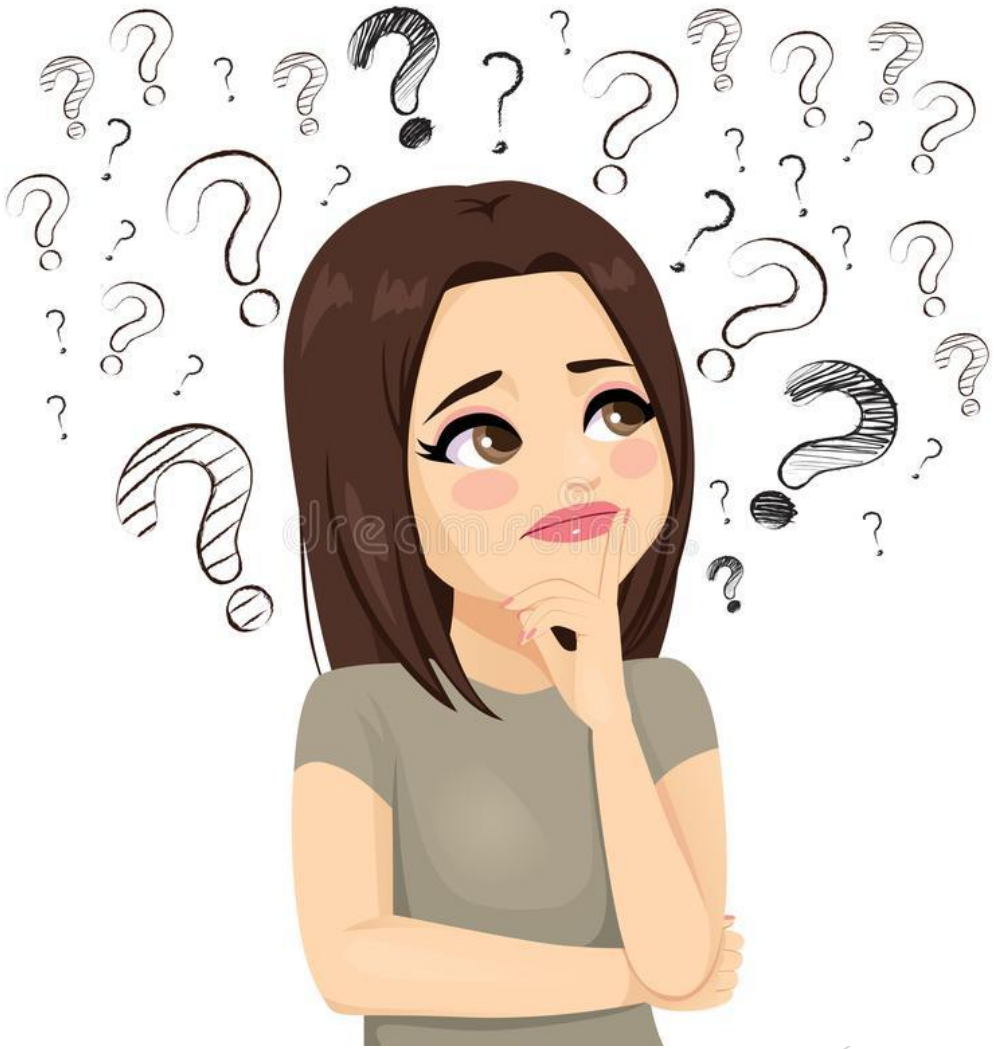
Third level: Secondary consumer that eats the primary consumer (Usually an omnivore-eats both plants and animals)

Fourth level: Tertiary consumer that eats the secondary consumer (Carnivore-consume animals or animal material only)



Some food chains may also include a **quaternary consumer** that eats the tertiary consumer. These are considered to be **Top Carnivores** since they are not preyed upon they are often referred to as the top of the food chain.

Are human considered top carnivores?



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Now you try!

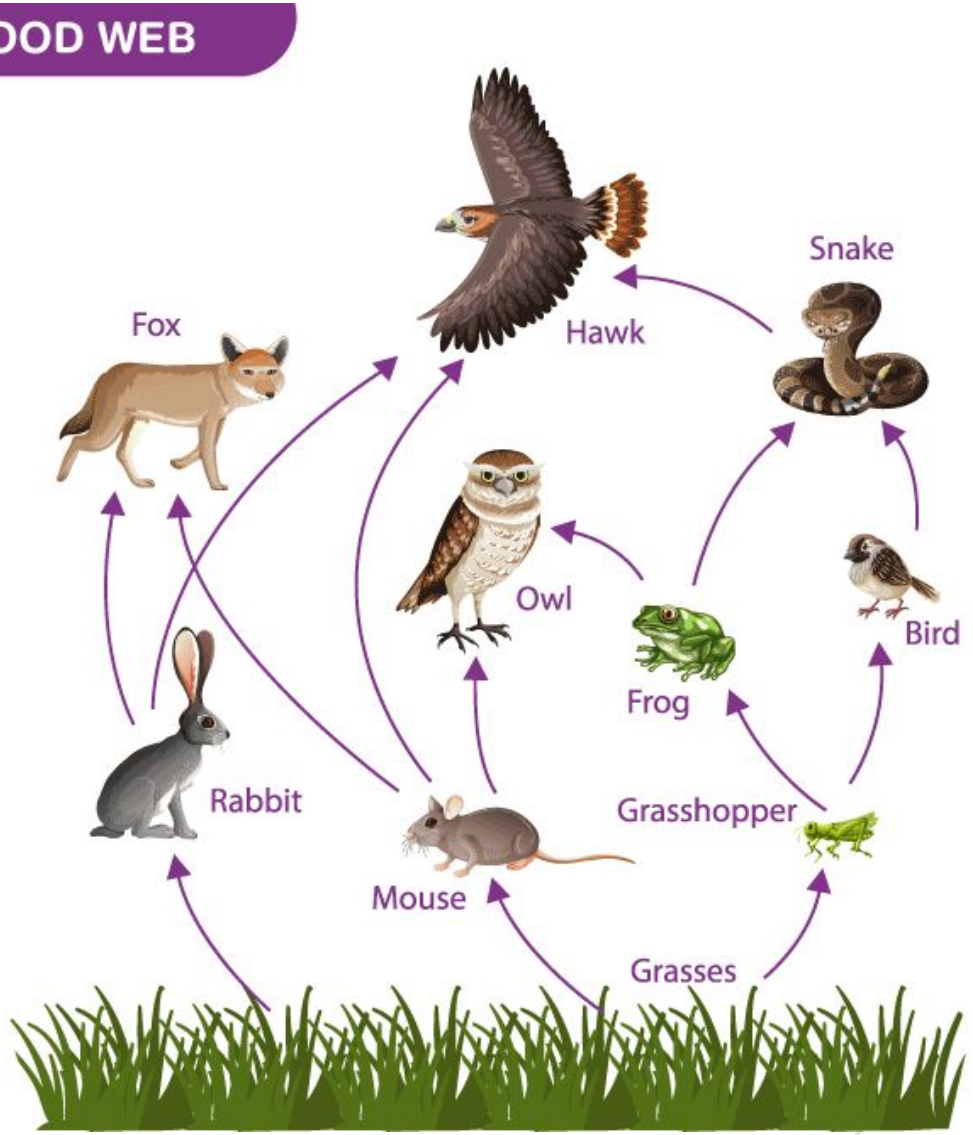
Create as many food chains as you can using the list of organisms listed below:

- Cow
- Lion
- Spider
- Shark
- Deer
- Grasshopper
- Seaweed
- Lizard
- Eagle
- Snail
- Slug
- Parrot fish
- Toad
- Crickets
- Barracuda
- Snake
- Grass
- Ladybug

Definition

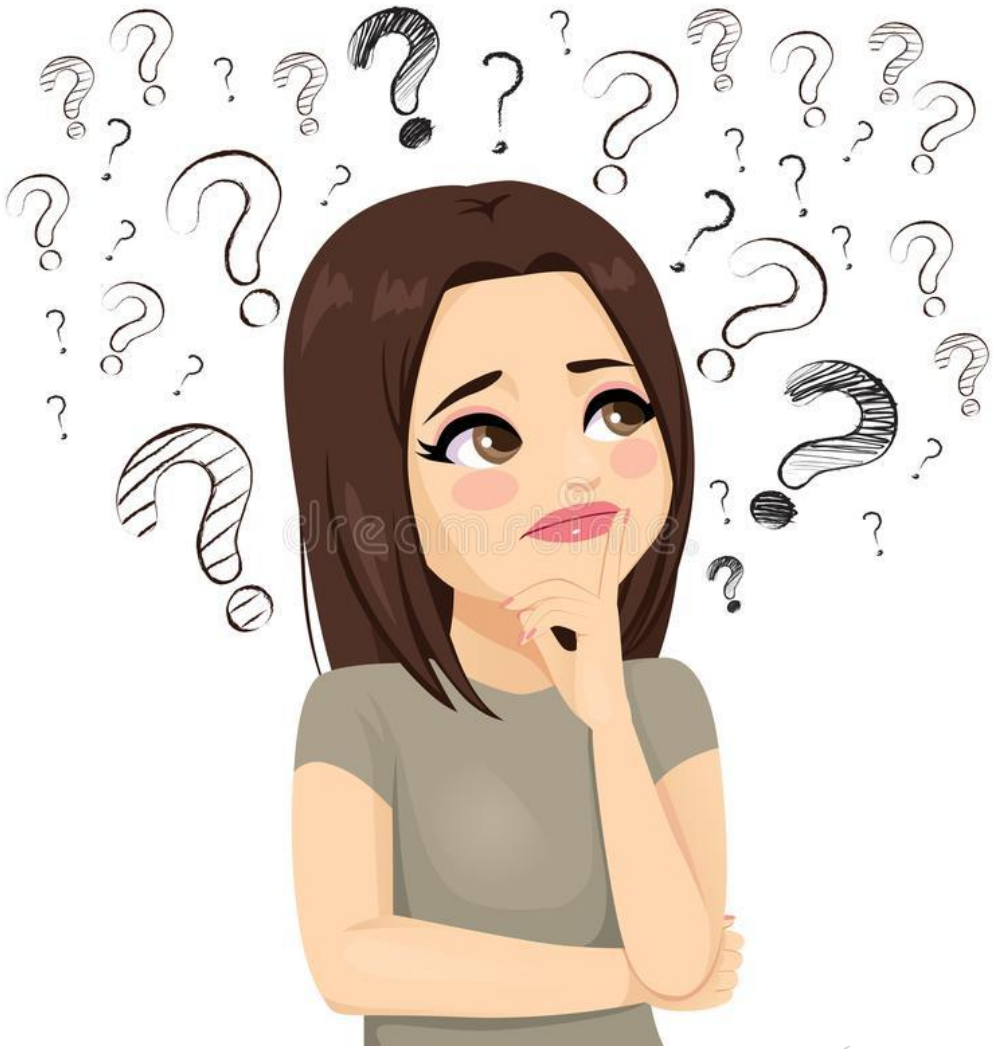
Food Web: In a food web, there is an interdependence of organisms in the food chain. Any environment usually has more than one producer and most consumers have more than one source of food.

Food Web Example:



Source: byjus.com

Where does all the energy from?



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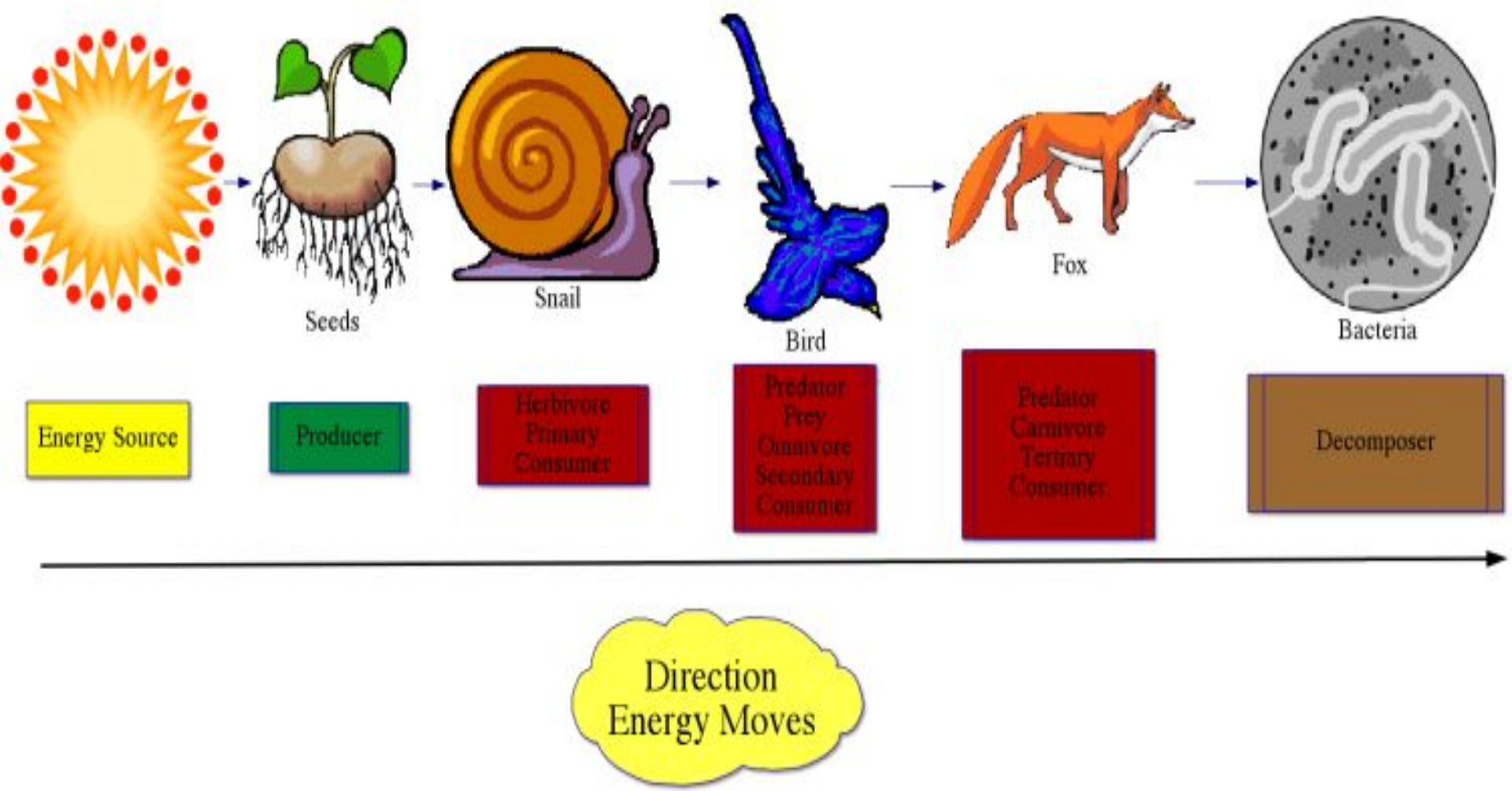
Point to note:

The further an organism moves away from the sun the less energy there is available in the ecosystem.

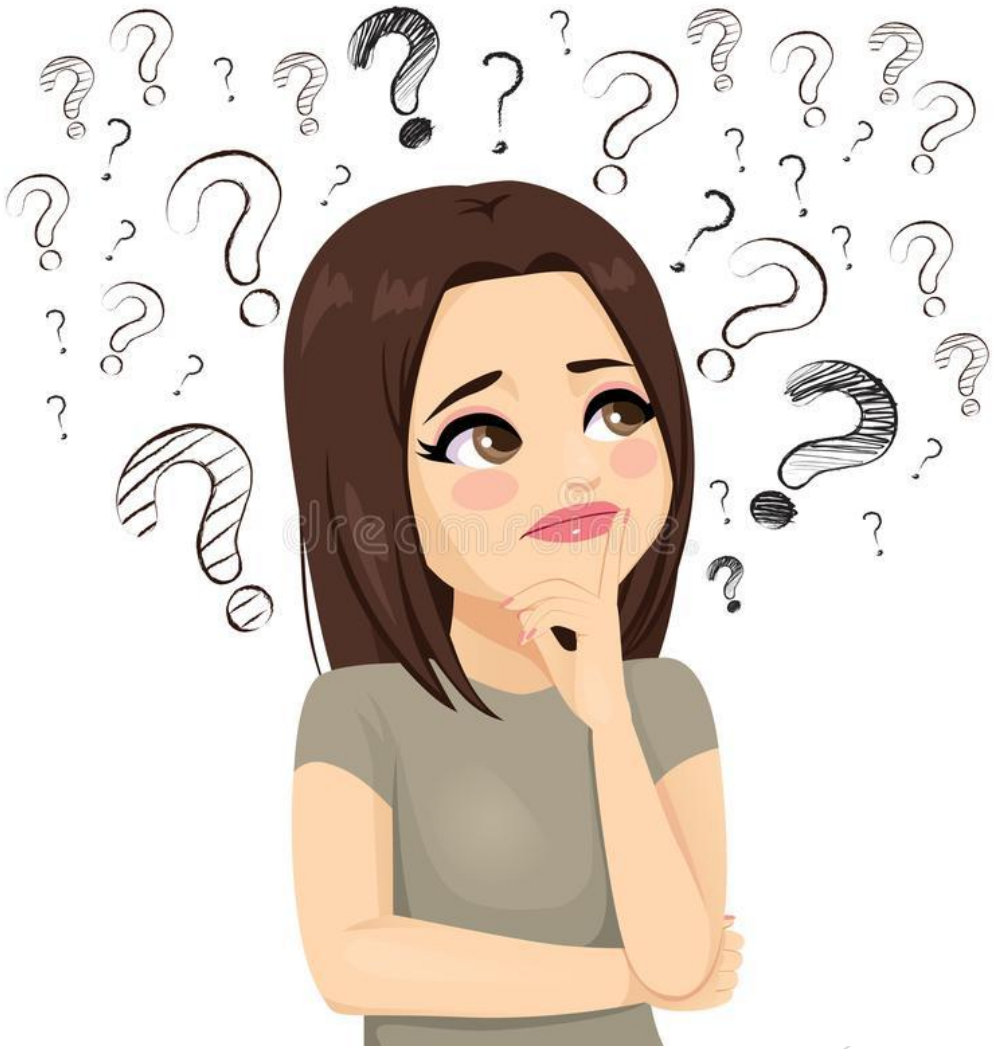
Point to note:

Decomposers: These organisms break down dead organisms and the urine and faeces of animals. Many fungi and bacteria are decomposers.

Food Chain Vocabulary



What's the difference between a food chain and a food web?



FOOD CHAINS FOLLOW A **SINGLE PATH** AS ANIMALS EAT EACH OTHER.

EXAMPLE:

- **THE SUN provides food for GRASS**
- **The GRASS is eaten by a GRASSHOPPER**
- **The GRASSHOPPER is eaten by a FROG**
- **The FROG is eaten by a SNAKE**
- **The SNAKE is eaten by a HAWK.**

FOOD WEBS SHOW HOW PLANTS & ANIMALS ARE INTERCONNECTED BY DIFFERENT PATHS.

EXAMPLE:

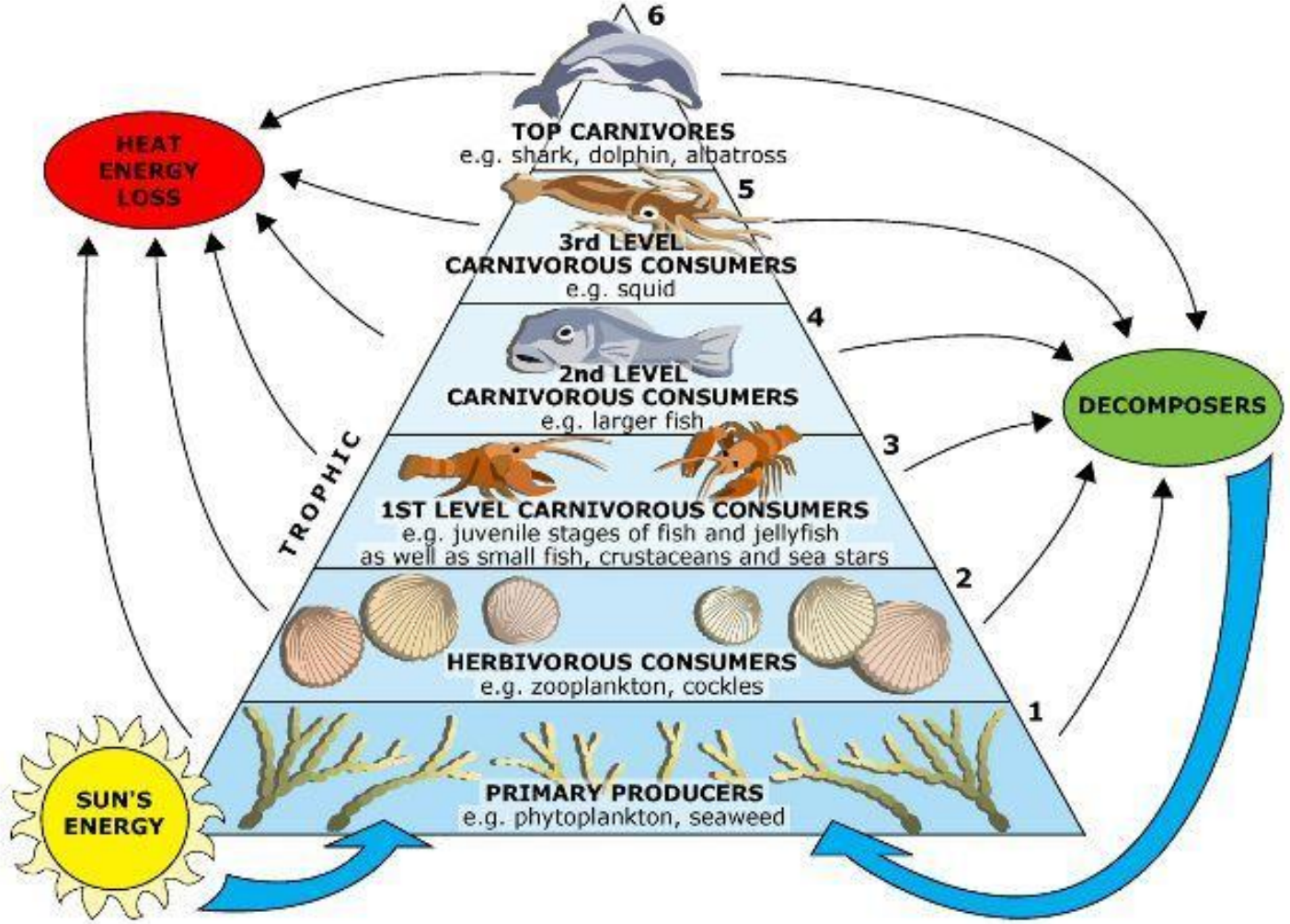
- **TREES produce ACORNS which act as food for many MICE and INSECTS.**
- **Because there are many MICE, WEASELS and SNAKES have food.**
- **The insects and the acorns also attract BIRDS, SKUNKS, and OPOSSUMS.**
- **With the SKUNKS, OPPOSUMS, WEASELS and MICE around, HAWKS, FOXES, and OWLS can find food.**
- **They are all connected! Like a spiders web, if one part is removed, it can affect the whole web.**

FOOD WEBS show how plants and animals are connected in many ways to help them all survive.

FOOD CHAINS follow just one path of energy as animals find food.

Definition

Trophic Levels: The trophic level of an organism is the position it occupies in a food chain. A food chain represents a succession of organisms that eat another organism and are, in turn, eaten themselves.



Summary

- A food chain is a diagram showing the flow of food and energy from one organism to the next.
- A food chain includes: a producer, a primary consumer, a secondary consumer and a tertiary consumer.
- Trophic level refers to the position or level that an organism occupies in a food chain.
- Energy, therefore, flows from producers to consumers and decomposers in one direction and is not recycled. In general, only about 10% of the energy from one trophic level is transferred to the next level.

Lesson Sources:

Concise Revision Course - Human and Social Biology - a Concise Revision Course for CSEC® Textbook by Anne Tindale and Shaun deSouza

- Human & Social Biology for CSEC® Examinations 6th Edition Student's Book by Phil Gadd