

The background is a solid light green color with a pattern of faint, semi-transparent butterfly silhouettes scattered across it. The butterflies are in various orientations and sizes, creating a subtle, nature-themed texture.

# Flow of Energy in an Ecosystem

Section 2.2

# Energy in an Ecosystem

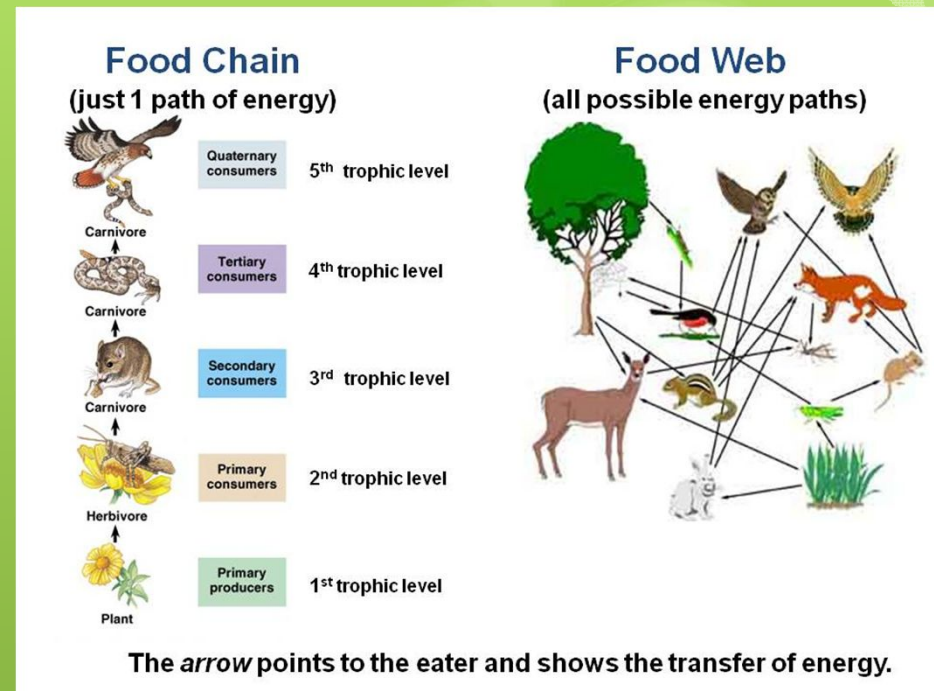
- Organisms differ in how they obtain energy in an ecosystem
- **Autotroph** – collects energy from sunlight to produce food
  - green plants or anything that makes their own food
  - Also called a primary producer
- **Heterotroph** – gets energy by consuming other organisms
  - Also called consumers
  - One that eats only plants is a **herbivore**
  - One that eats other heterotrophs is a **carnivore**

# Energy in an Ecosystem

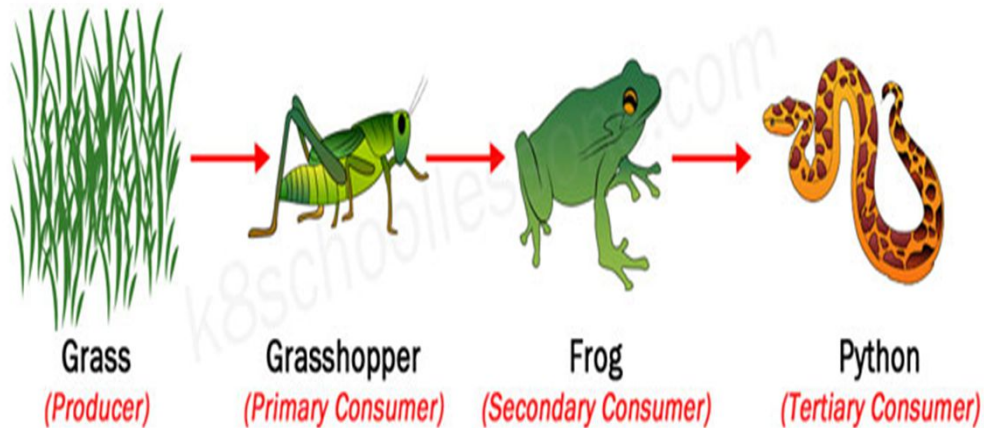
- **Omnivores** eat both plants and animals
  - this is what humans are
- **Detritivores** eat fragments of dead matter in the ecosystem
  - Return the nutrients to the soil, air and water
  - Includes worms and aquatic insects
  - Sometimes called **decomposers**

# Models of Energy Flow

- As energy moves through an ecosystem it enters **trophic levels**
  - Autotrophs are the first trophic level in ALL ECOSYSTEMS
  - Heterotrophs make up all other levels
  - Except for the first level, all energy comes from the level before it
- Two common models of energy flow are food webs and food chains



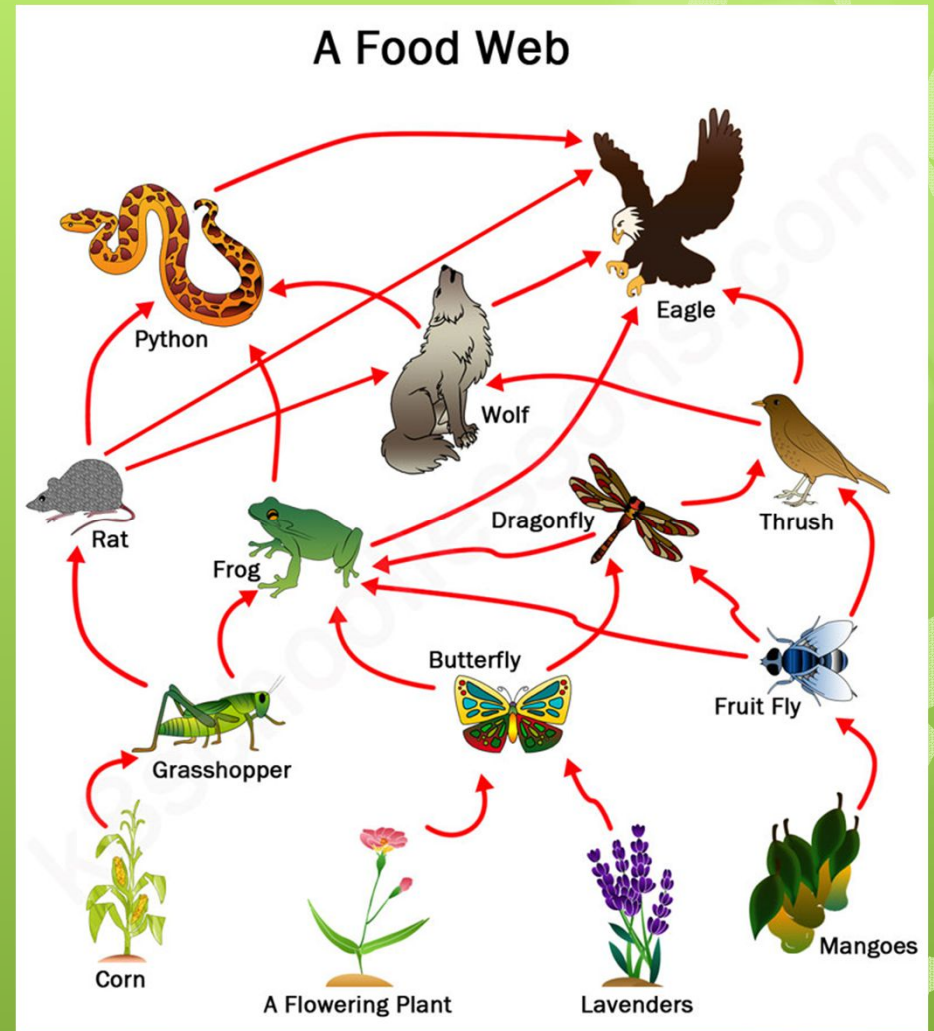
# Food Chains



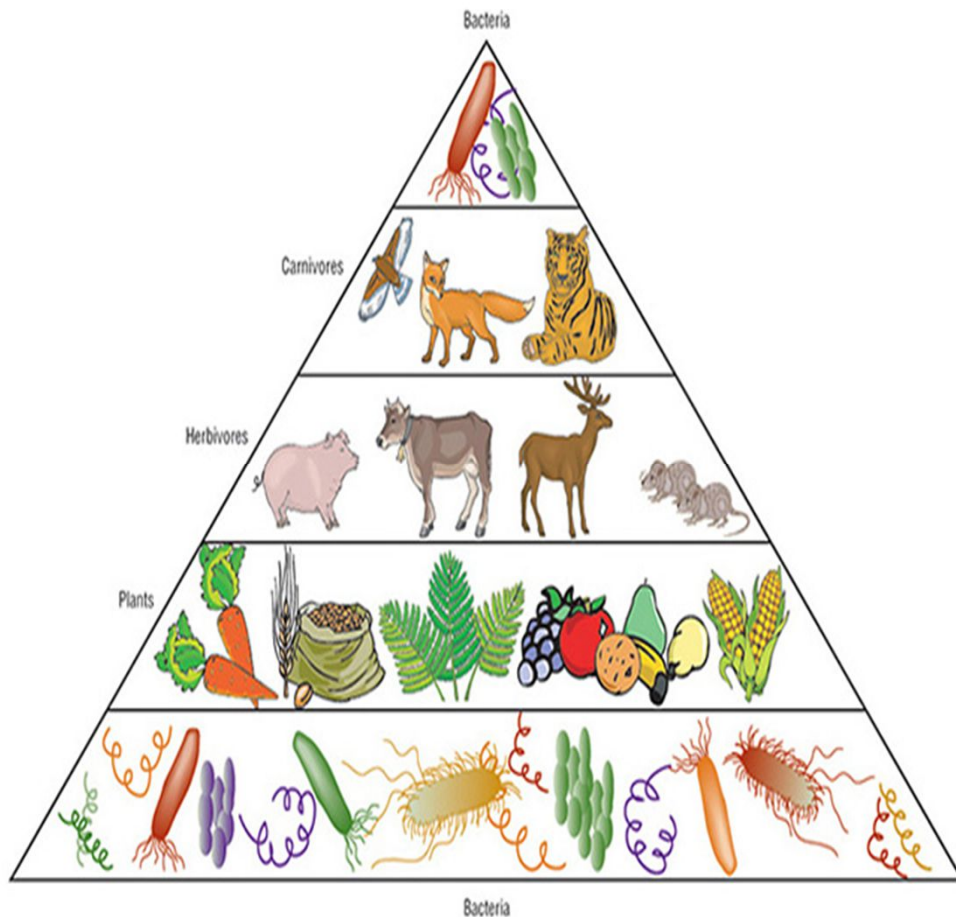
- Shows how energy flows – SIMPLE
- Represents just one way energy may flow
- Arrows represent the path from autotroph to heterotroph
- Each organism uses a portion of the energy it consumes
- Remaining energy is released into the environment
- This energy is no longer available to the organisms

# Food Webs

- More complex way to show energy flow in an ecosystem
- Shows many interconnected food chains and paths
- Many organisms may consume many others – there is no simple path
- Energy is still consumed from levels before – leaving unusable energy



# Food Pyramid



- Also called an ecological pyramid
- Directly shows the amount of energy in the trophic levels
- Can also show the number of organisms at each level
- Only 90% of all energy is transferred to the next level
- Shows **biomass** – the amount of living matter at each level