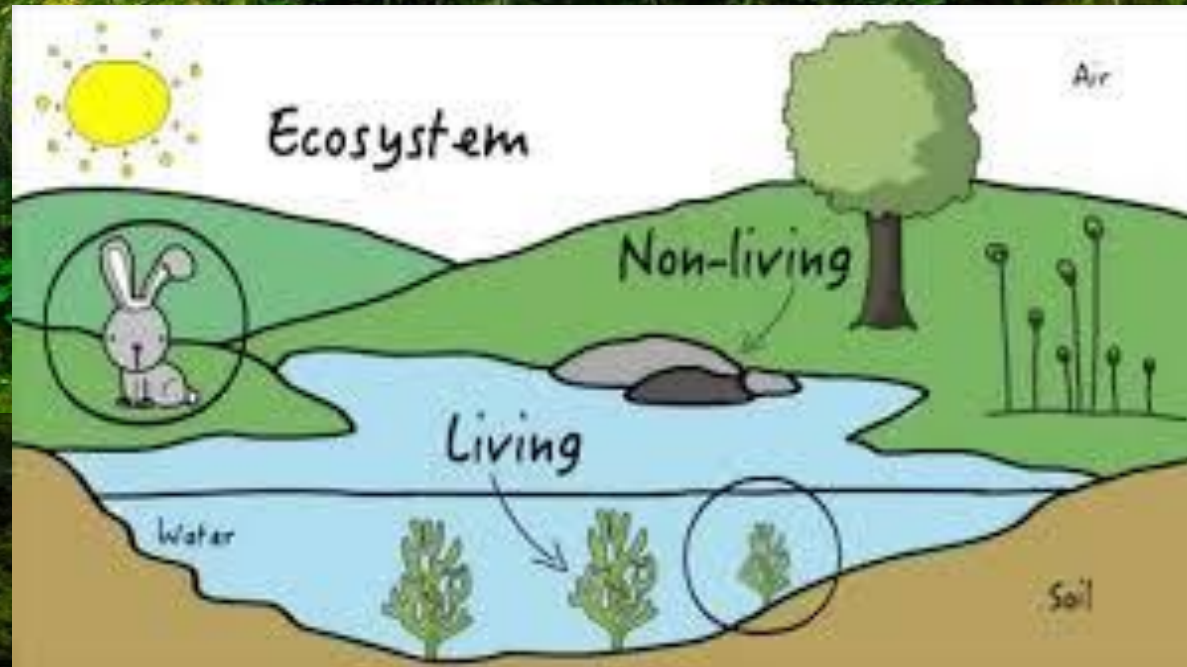


# ECOLOGY



Dr. Vijay K. Khorwal



# CHE 110: Environmental Studies

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Unit - 2

**Ecosystems**

U2\_L2\_CHE110\_VK



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# Functional unit

- Food chain (sequence of eating and being eaten), food web, trophic structure
- Energy flow
- Cycling of nutrients

# Food chain

- **Grazing food chain**

- Grass → Rabbit → Fox
- Algae → Water flea → Small fish → Big fish



- **Detritus food chain**

- Dead organic matter → Fungi → Bacteria

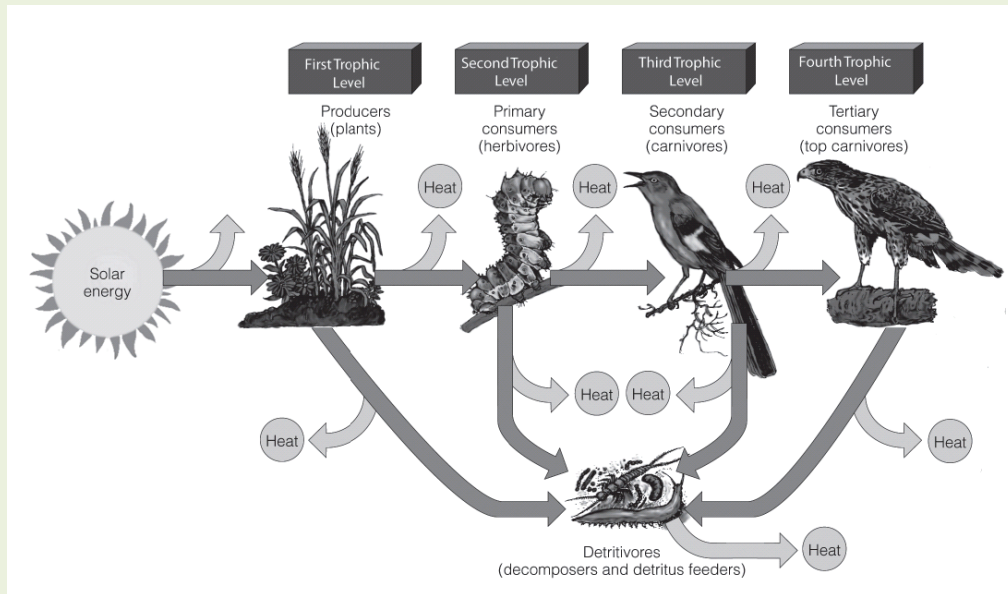


Food web: A network of food chain

- **Significance of food chain**

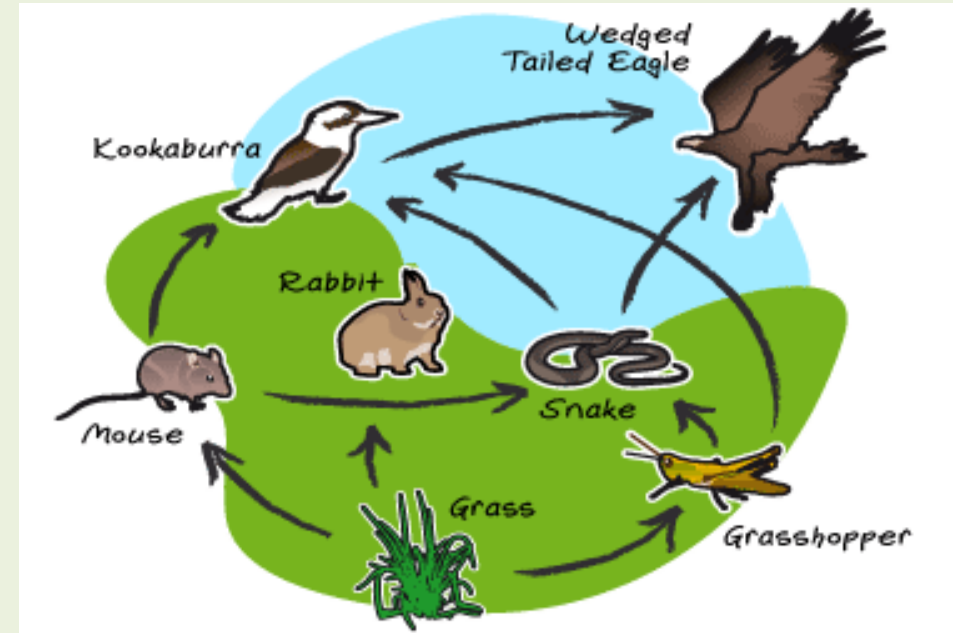
- Energy flow
- Nutrient cycles
- Ecological balance (population size regulation)
- Biomagnification

# Food Chain



The transfer of food energy from the source (plants) through a series of organisms by repeated eating and being eaten up is referred to as *food chain*.

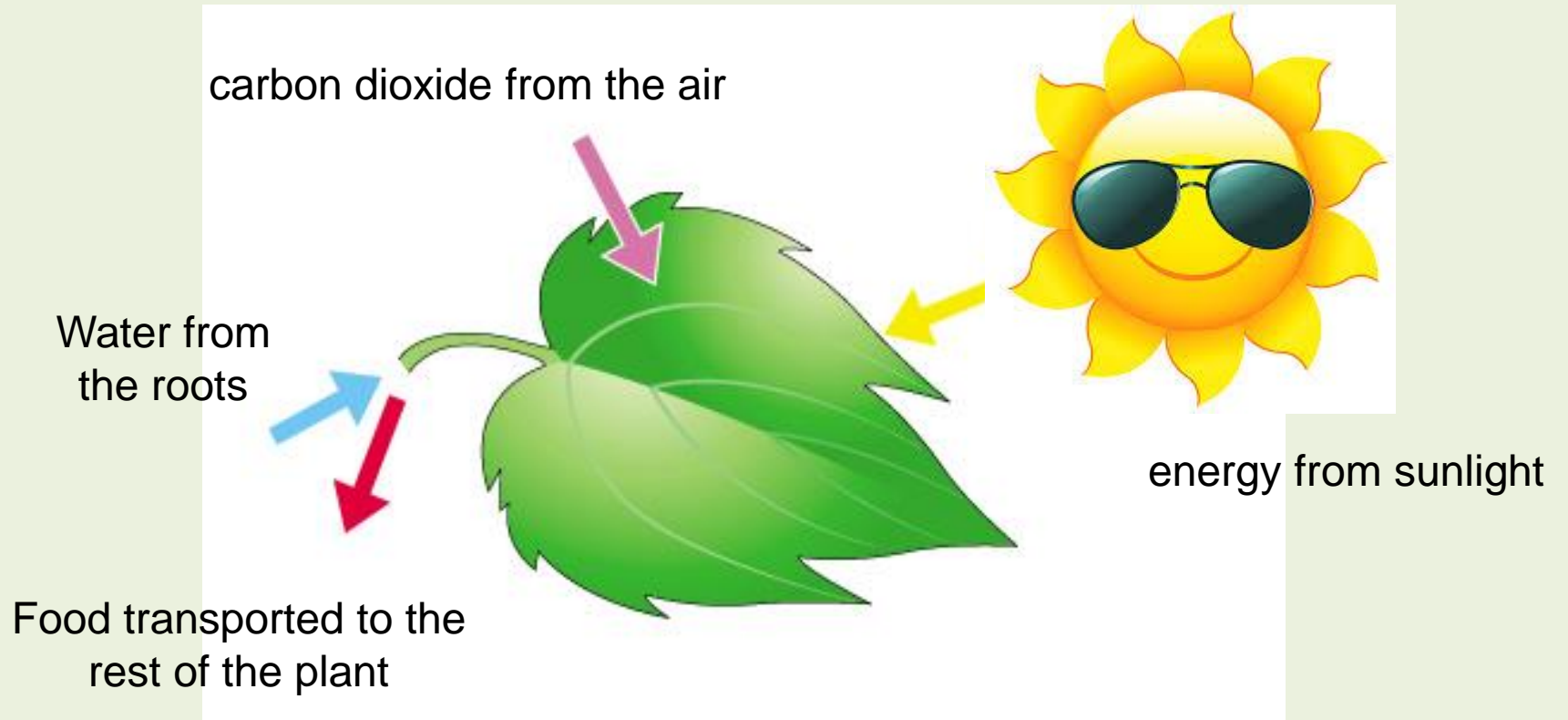
# Food Web



The interlocking pattern formed by several food chains that are linked together is called a *food web*.



# Energy Transfer



# Producers

## Producers: plants

- ❑ produce their own food



Continue...



The energy is then passed  
on to animals when they  
eat the plant.



# Primary consumers

Because these animals  
are the *first* to take the  
food energy from the  
plants



## *Secondary consumers*

*Animals that eat  
primary consumers*



consumers

**This bird eats smaller  
birds, mice, and rabbits**





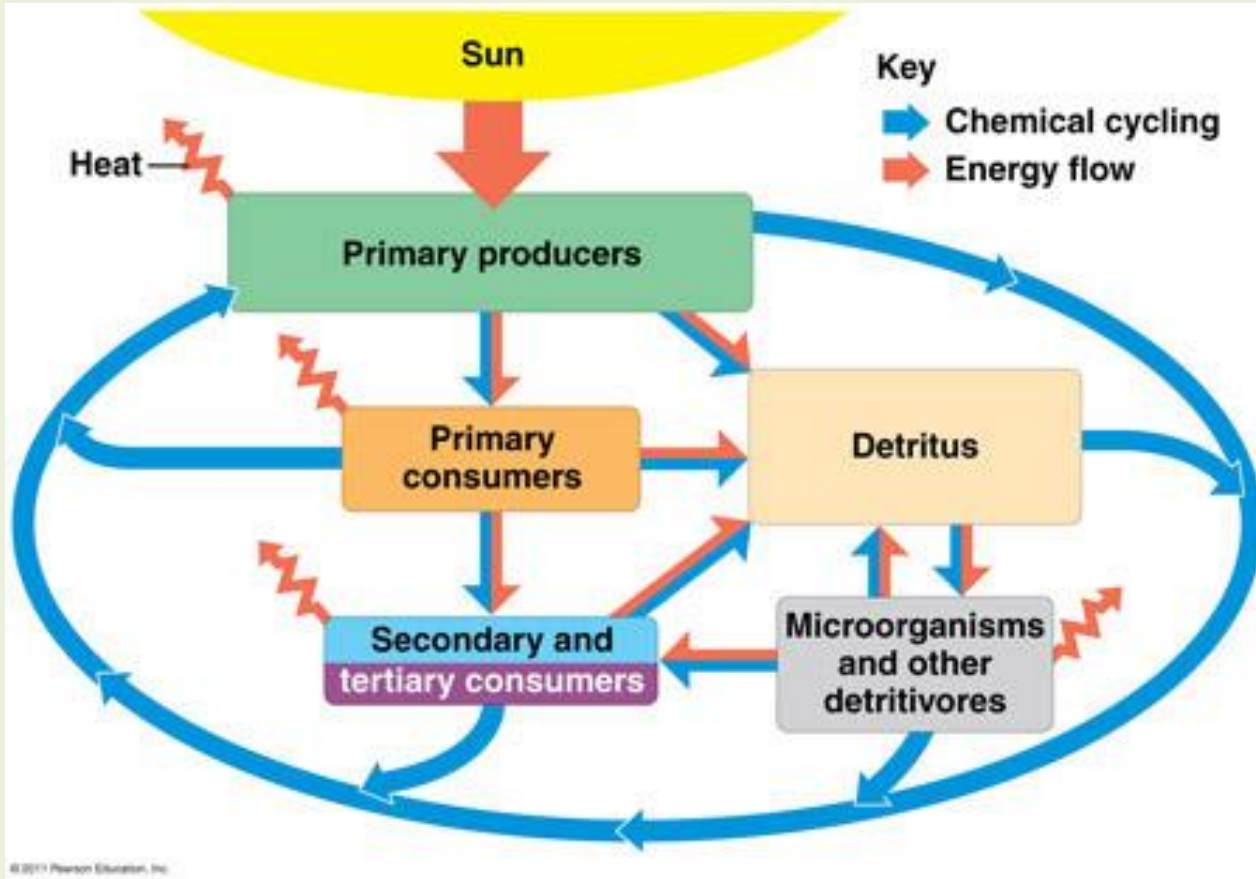
consumers

**Sometimes it's not entirely  
clear who eats who!**

**[https://www.youtube.com/  
watch?v=j78g5iRnYBM](https://www.youtube.com/watch?v=j78g5iRnYBM)**



# Energy flow



## ❑ First Law of Thermodynamics

Energy can neither be created nor destroyed but only is transformed from one form to another.

## ❑ 10 Percent Rule of Energy

As a rule of thumb, 90 percent of the energy involved is degraded at each trophic transfer and only **10 percent of the energy** is conserved in the organism's tissue.

# Continue...

