

SCIENCE • CLASS 10

CHAPTER 13

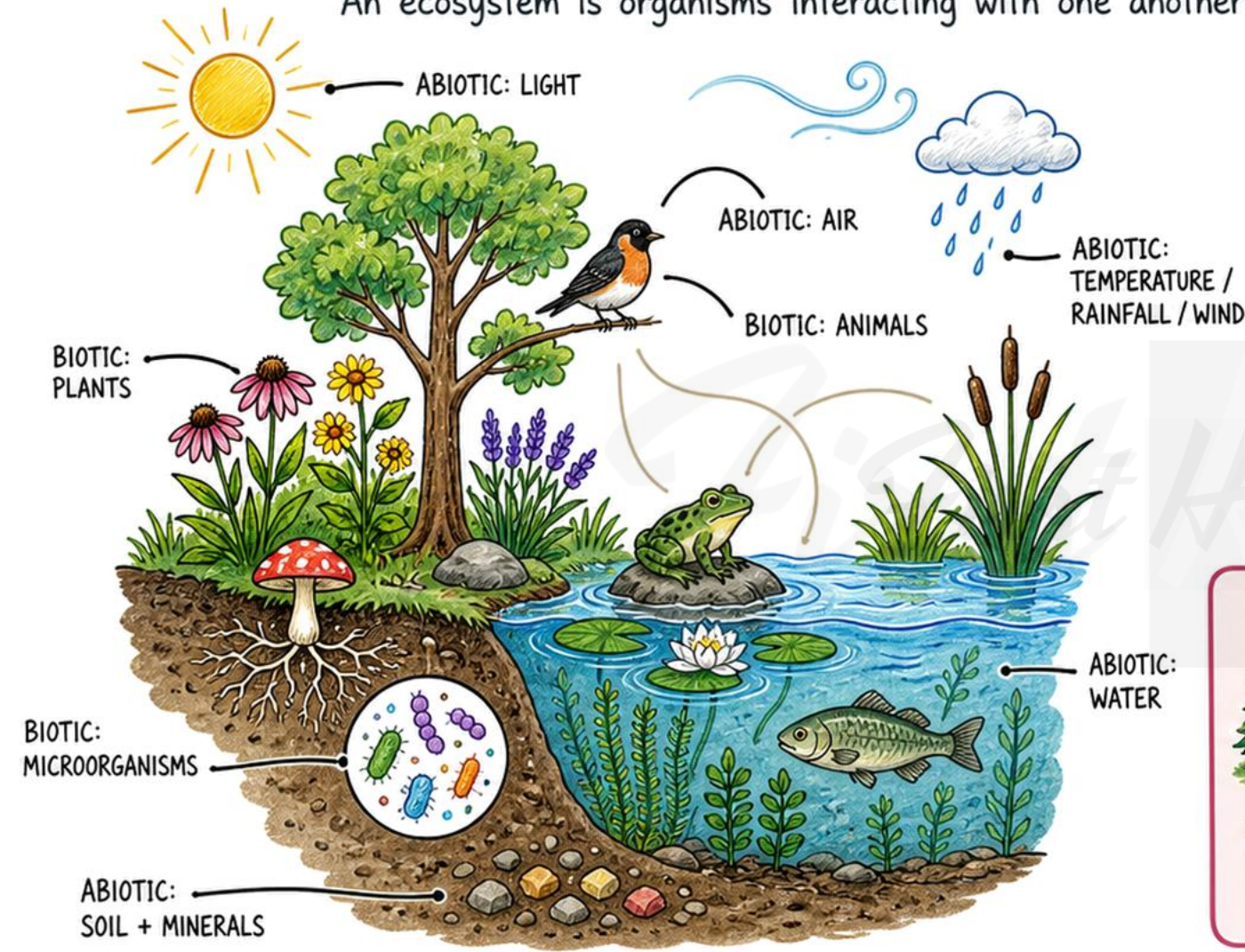
Our Environment

CHAPTER NOTES



ECOSYSTEM: COMPONENTS AND TYPES

An ecosystem is organisms interacting with one another and with their non-living environment.



BIOTIC COMPONENTS

living parts

- producers
- consumers
- decomposers
- detritivores

examples: plants, animals, microorganisms, humans

ABIOTIC COMPONENTS

non-living conditions and resources

- light • air • water
- temperature • rainfall • wind
- soil • minerals

NATURAL ECOSYSTEMS



forest • pond • lake

HUMAN-MANAGED ECOSYSTEMS



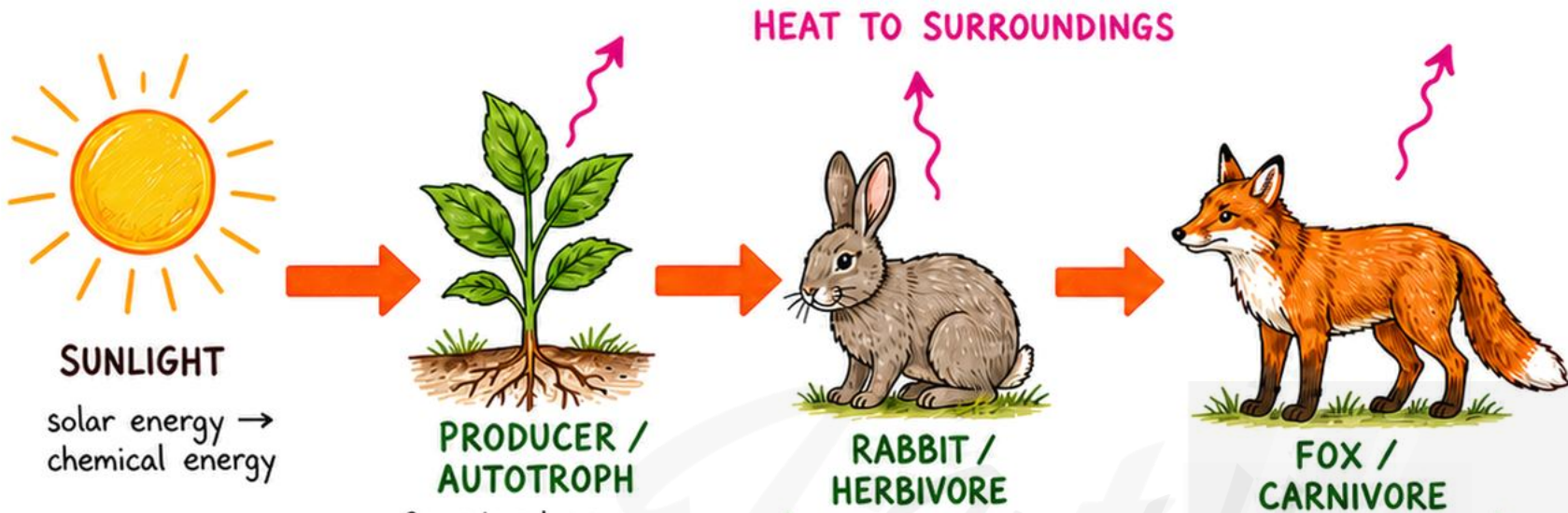
garden • crop field • aquarium

Human-managed ecosystems still interact with nature.

ECOSYSTEM = BIOTIC COMPONENTS + ABIOTIC COMPONENTS + THEIR INTERACTIONS

Balance is dynamic, not fixed.

PRODUCERS, CONSUMERS AND DECOMPOSERS



Converts solar energy;
it does not create energy.

CONSUMERS — obtain matter and energy
by eating.



- minerals returned;
matter can be reused

DECOMPOSERS
bacteria + fungi
chemically break down dead
organic matter and wastes



uptake by
producer roots



- **SOLID ORANGE** → feeding / energy transfer
- **SOLID CORAL** → dead matter + waste
- **DASHED GREEN** → nutrient return and reuse



PRODUCERS / AUTOTROPHS

- make energy-rich food from simple substances using light
- convert solar energy into chemical energy



CONSUMERS

obtain matter and energy by eating

- **herbivore** — rabbit
- **carnivore** — fox
- **omnivore** — human
- **parasite** — tick



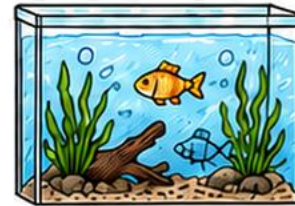
DECOMPOSERS

- mainly bacteria and fungi
- recycle matter and nutrients — NOT energy

Detritivores such as earthworms fragment dead material; they are not the same as microbial decomposers.



A MANAGED AQUARIUM NEEDS



- suitable water + space
- light
- oxygen / gas exchange
- producers
- consumers
- microbes
- suitable stocking
- maintenance

An aquarium is not automatically perfectly self-sustaining.

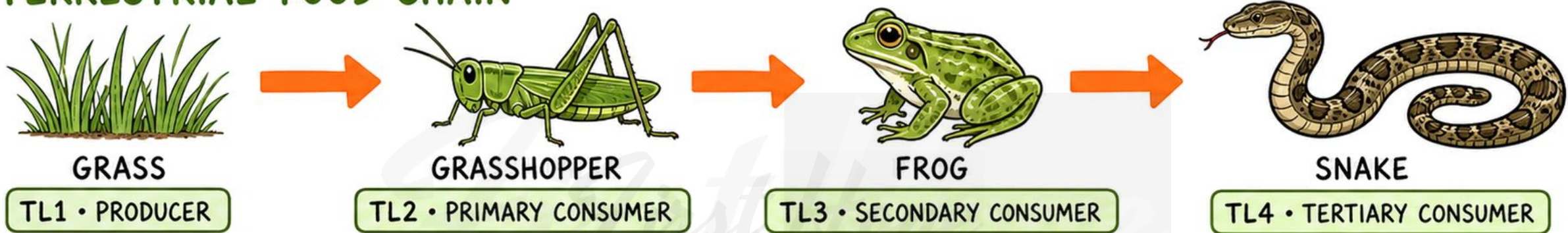
FOOD CHAINS AND TROPHIC LEVELS

A food chain is a simplified feeding pathway.

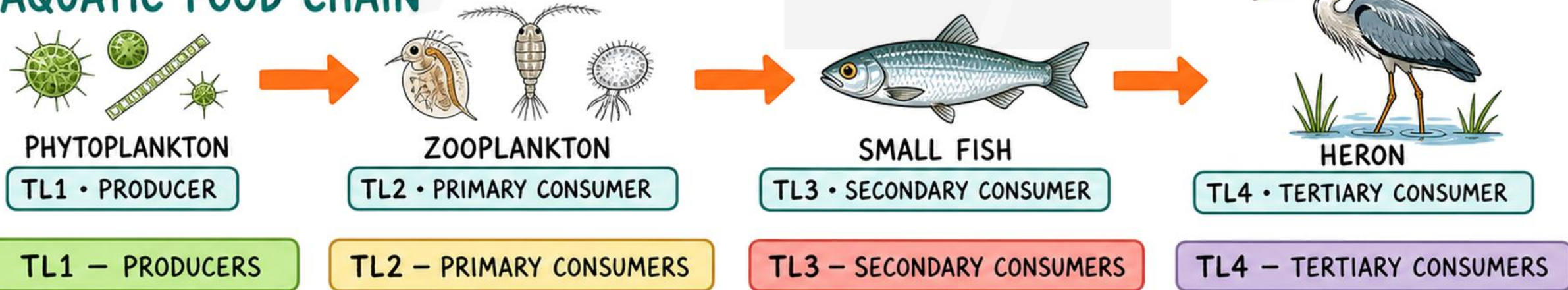
A trophic level is an organism's feeding position in a chain.

FOOD / PREY → EATER
ARROW = DIRECTION OF MATTER
AND CHEMICAL ENERGY TRANSFER

TERRESTRIAL FOOD CHAIN



AQUATIC FOOD CHAIN

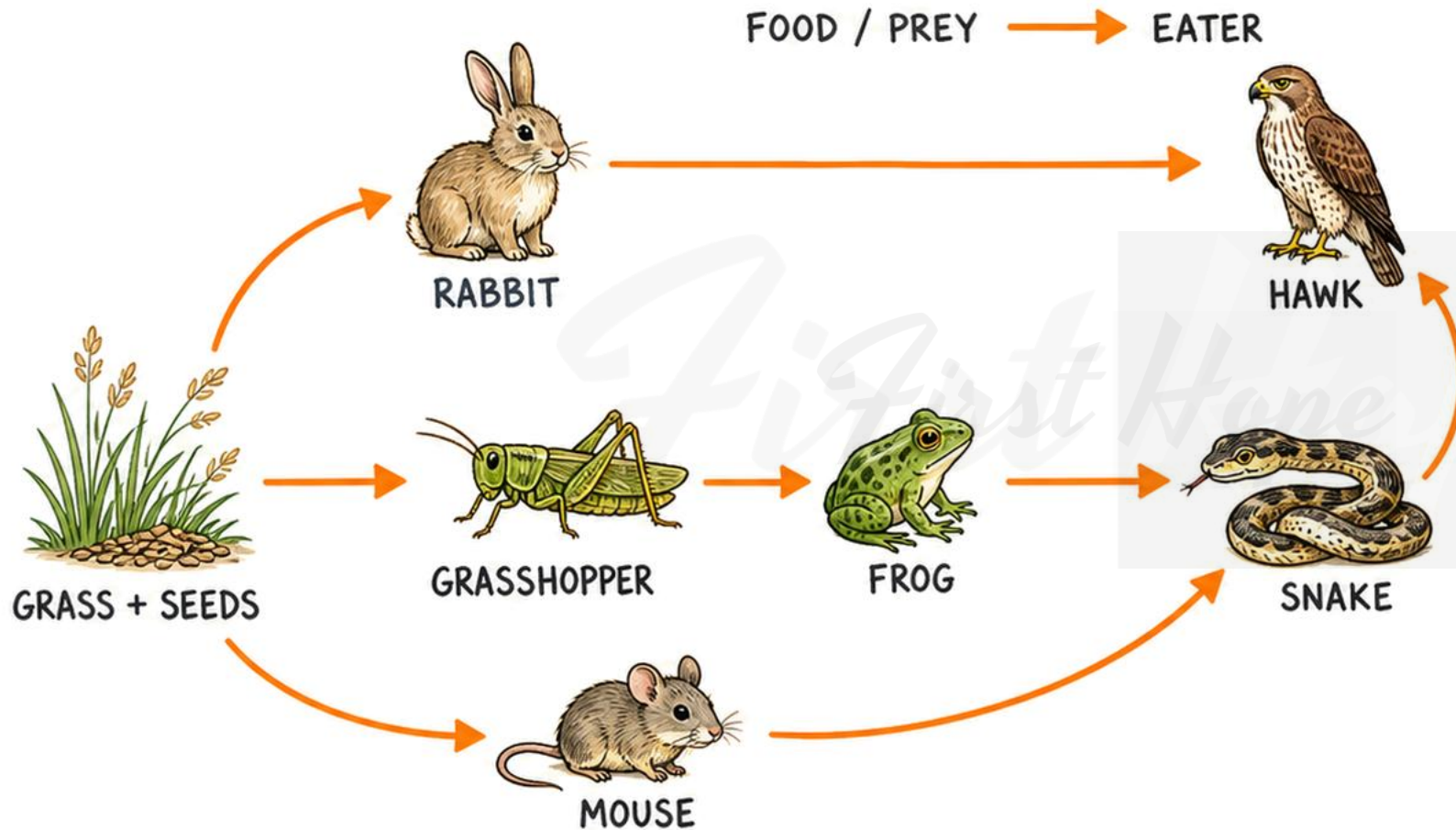


- Higher trophic level means a later feeding position, not a 'better' organism.

- An omnivore may occupy different trophic levels in different chains.

FOOD WEBS AND INTERDEPENDENCE

A food web is a network of interconnected food chains — more realistic than one isolated chain.
One species may feed at more than one trophic level.



IF FROGS DECLINE



- snakes may lose one food source
- grasshoppers may increase
- other prey may partly compensate
- effects can spread through the web

Direct and indirect effects depend on redundancy, interaction strength and the ecosystem.

Removing one link does not guarantee one simple fixed cascade.



INTERDEPENDENCE = A CHANGE IN ONE POPULATION CAN AFFECT SEVERAL OTHERS

Food webs show alternative feeding paths, but alternatives may not fully replace a lost link.





FREE PREVIEW

[Click here to visit our website](#)

SCHOOL NOTES & NCERT SOLUTIONS

Complete notes and
NCERT solutions are
available on
FirstHope app only.



[Scan or click here](#)

Click here to get the app



Available on Google Play

JOIN THE FIRSTHOPE COMMUNITY

Join our Telegram channel

Click here to join Telegram



[Scan or click here](#)

@FirstHope_CBSE_Notes

Instagram

@firsthope.school

[Click here to follow >](#)

YouTube channel

@firsthope.school

[Click here to watch >](#)

FirstHope website

firsthope.co.in

[Click here to visit our website >](#)

CBSE / Class 9 / Class 10 / Class 11 / Class 12

Preview notes and NCERT solutions. Full PDFs in the FirstHope app.