

Chapter 12

Patterns in Life: Diversity and Classification

“ Living things show wonderful variety, and classification helps us understand their relationships.”



Observe



Compare



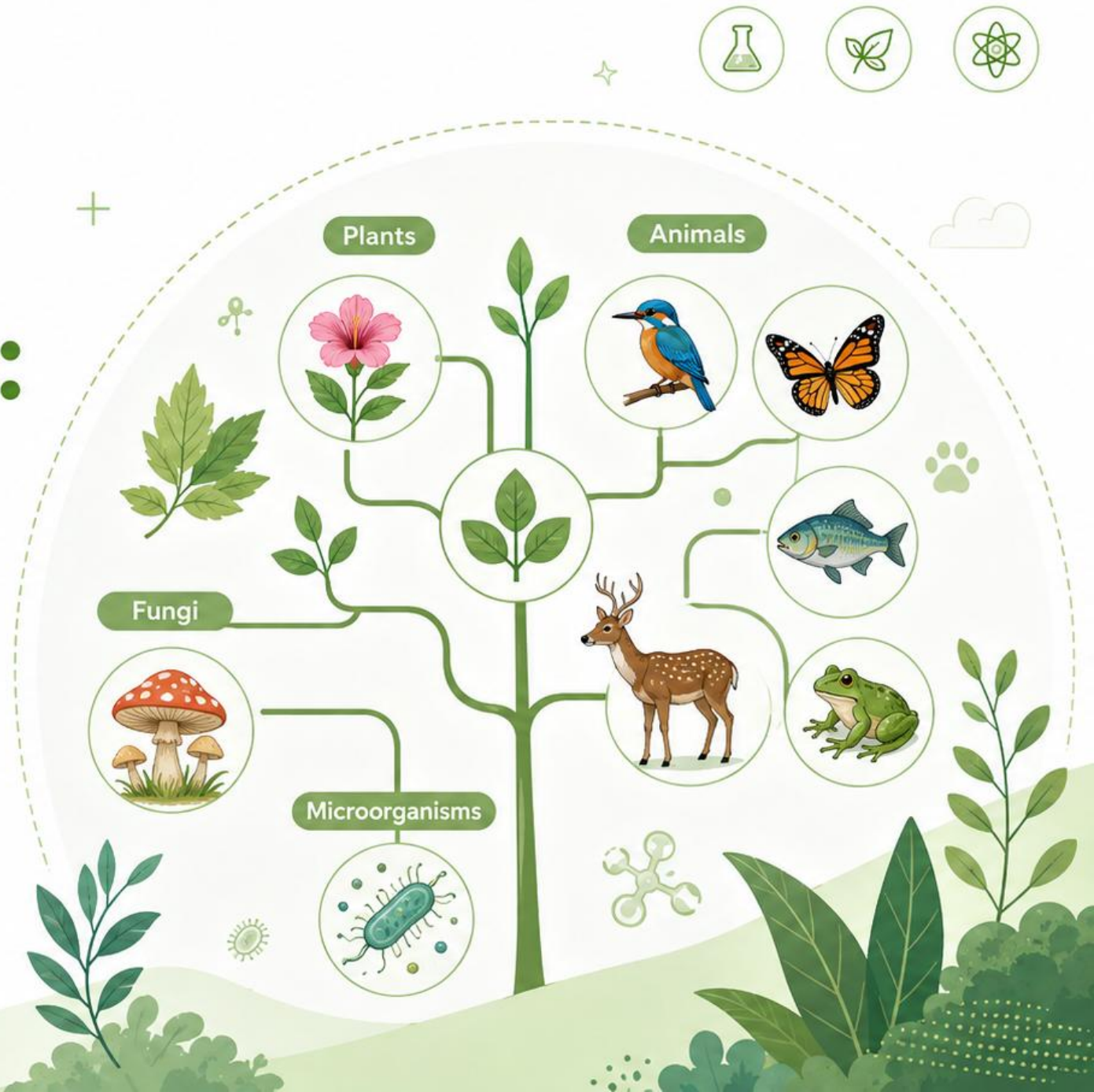
Classify



Explore

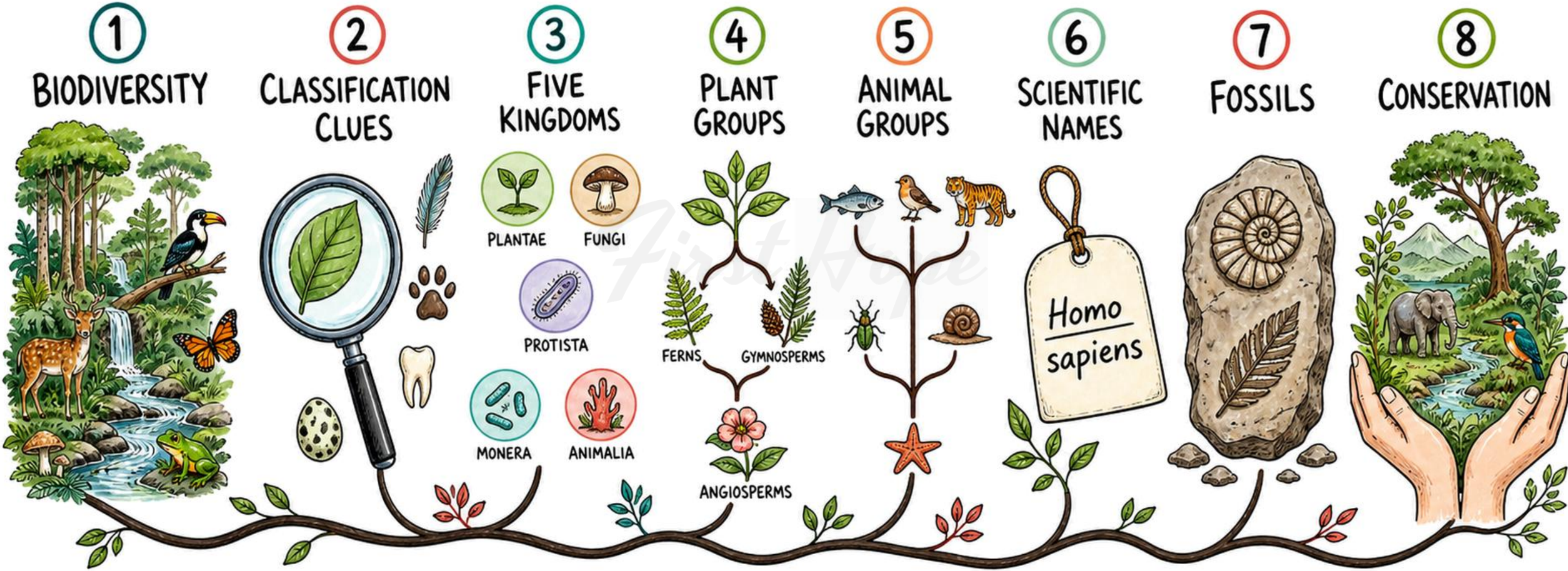


Discover



PATTERNS IN LIFE: DIVERSITY & CLASSIFICATION

Life appears in many forms. Classification helps us study it.



KEY IDEA: Grouping life reveals relationships and helps protect biodiversity.

BIODIVERSITY & INTERDEPENDENCE

Biodiversity = the variety of life at three levels.

GENETIC DIVERSITY

SPECIES DIVERSITY

ECOSYSTEM DIVERSITY



Plants make food + oxygen



Bees and bats pollinate flowers



Animals spread seeds



Healthy soil supports plants

Fungi and bacteria recycle nutrients



Humans depend on food, medicine, shelter and livelihoods

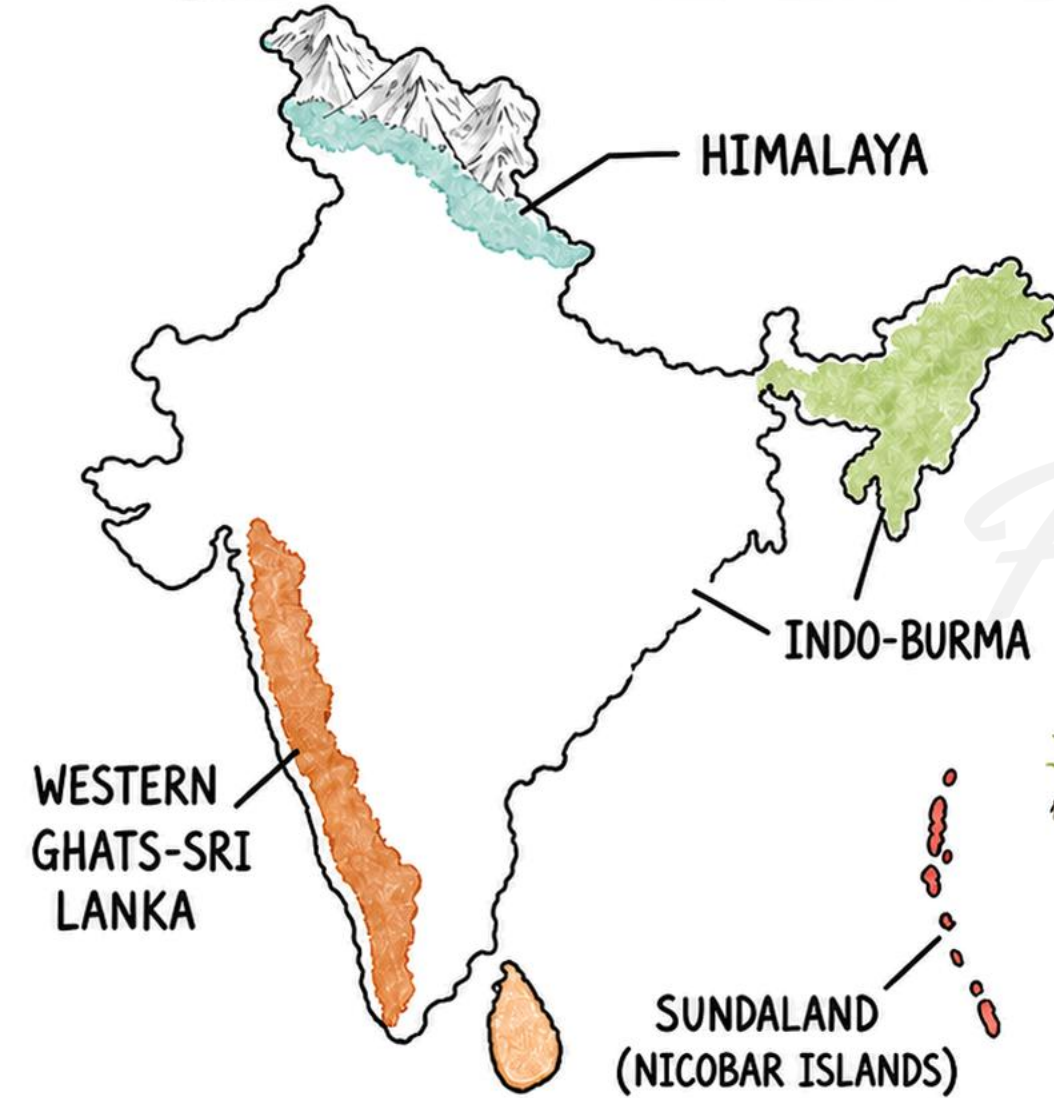


More connections can make an ecosystem stronger and more stable.

INDIA: HOTSPOTS & ENDEMIC SPECIES

Endemic species: naturally found only in a particular region.

Biodiversity hotspot = many endemic species + major habitat loss.



Nilgiri tahr



Lion-tailed macaque



Nepenthes khasiana



Neelakurinji



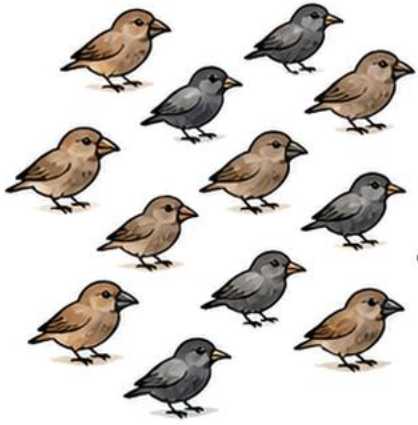
Protecting habitats protects complete food webs.



HOW BIODIVERSITY EVOLVED

① INHERITED VARIATION

Individuals are not exactly alike.



One population.
Different beak shapes
and colours are inherited.

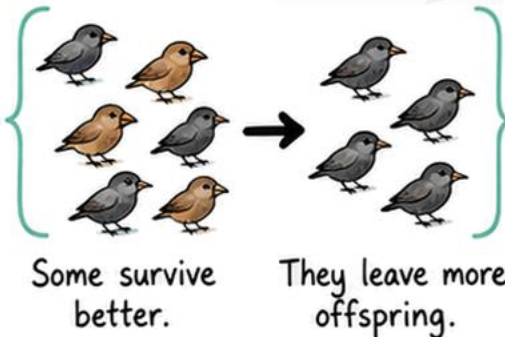
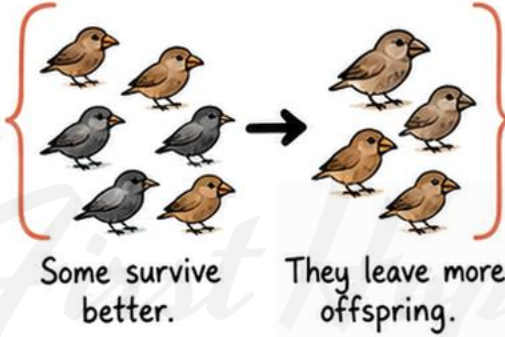
② ENVIRONMENTAL CHALLENGE

Some features work better in that place.



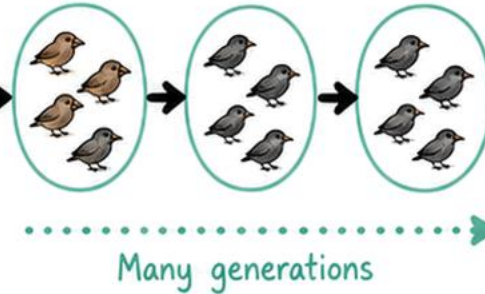
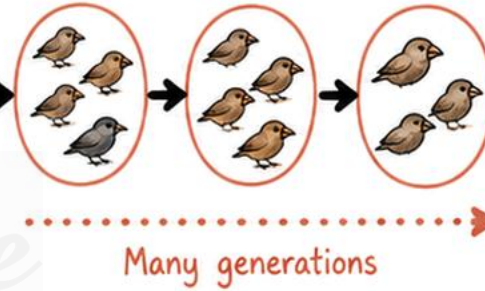
③ SURVIVAL + REPRODUCTION

More helpful features are passed on.



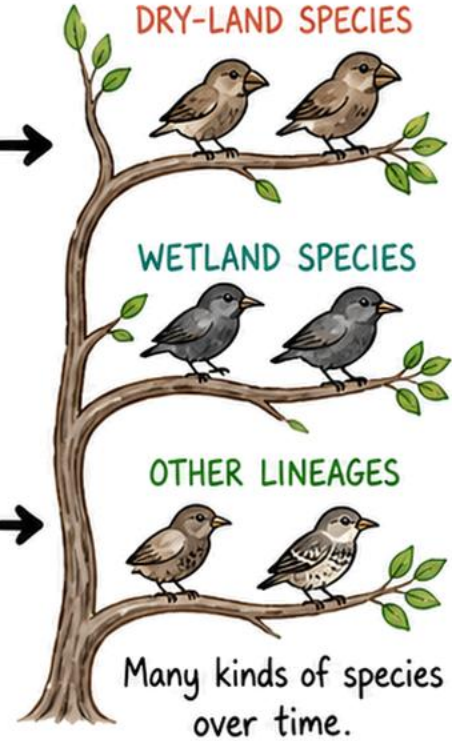
④ MANY GENERATIONS

Populations gradually change.



⑤ BRANCHING DIVERSITY

Populations may form new species.



ADAPTATION: an inherited feature that improves survival or reproduction in a particular environment.



Evolution branches like a tree - it is not a ladder toward 'better' life.

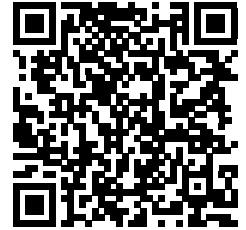


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