



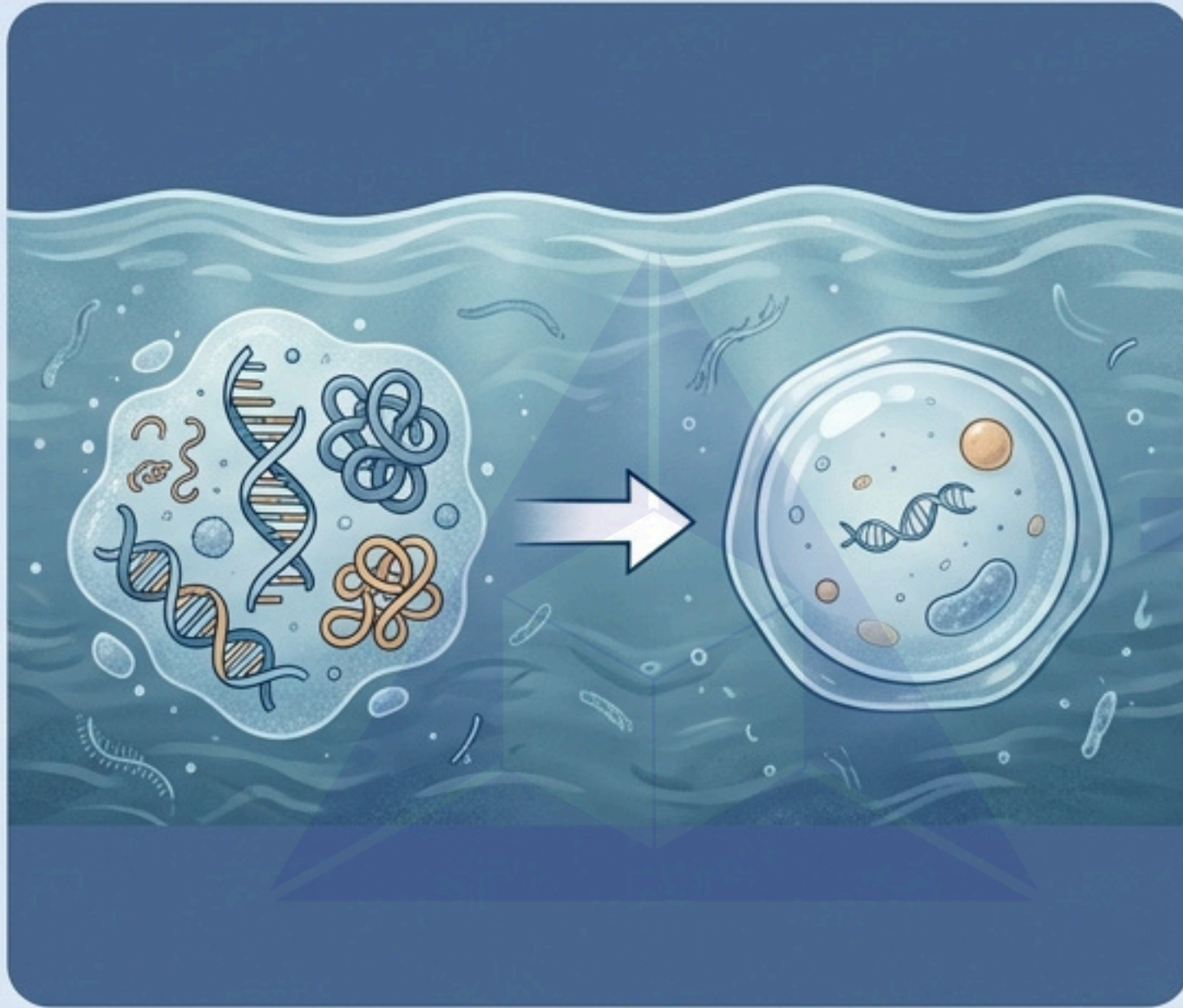
Evolution Timeline

A Brief Account of Life on Earth



NCERT Biology - Section 6.8

The Genesis of Cells



Evolutionary transition from non-cellular aggregates to the first cellular forms.

The first cellular forms of life appeared 2000 million years ago in a strictly aquatic environment.



The First Oxygen Producers

Some early single-celled organisms evolved the ability to release O_2 . This reaction was similar to the light reaction in photosynthesis, splitting water using solar energy captured by light-harvesting pigments.



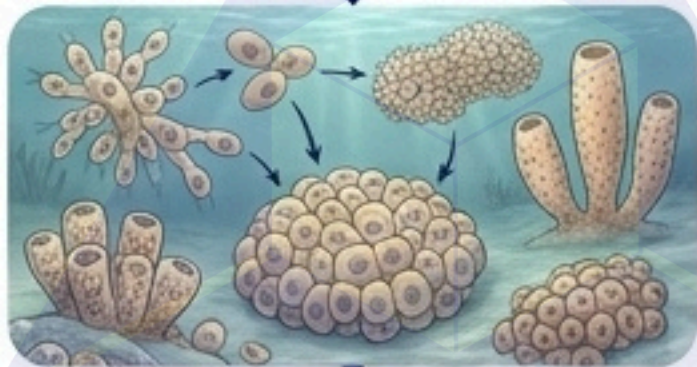
2000 mya

The Rise of Complexity

Context Note: Life at this stage remained entirely restricted to the water.



Single-celled organisms



Emergence of **multi-cellularity**: By 500 mya, diverse multi-cellular life forms evolved.



Complex, active invertebrates: Fully formed and highly active, completely dominating oceanic ecosystems.

500 mya



You've Learned the Theory. Let's Test Them Now.

$$E=mc^2$$



Turn theory into marks with **unlimited MCQs, smart analysis, and focused revision.**

Practice Now



At prep.topall.app

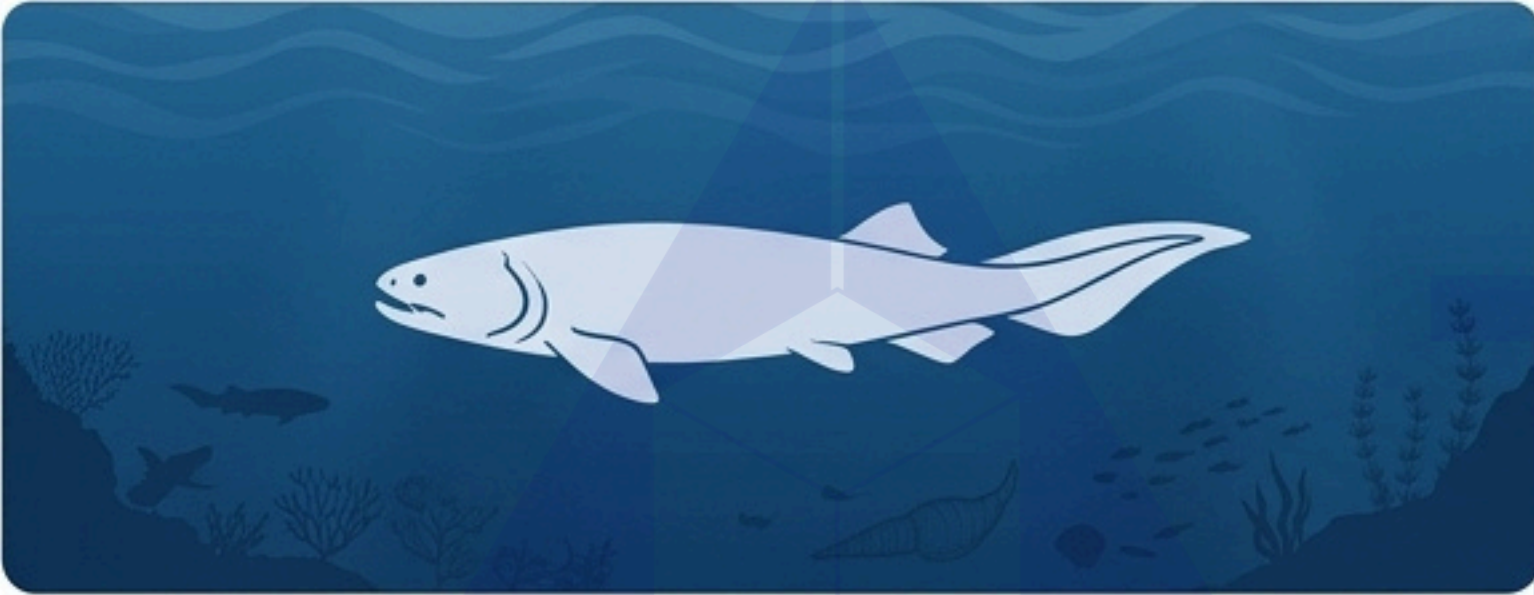
Key Highlights

- » Free Study Material, Videos & Infographics
- » Push Your Limits with Level-Based Challenges
- » Climb the Leaderboard Among Fellow Aspirants
- » Practice Unlimited MCQs for NEET & JEE
- » Get Clear Explanations, Not Just Marks
- » Track Your Performance Smarter



The Parallel Worlds

The Water (Fauna / 350 mya)



Jawless fish evolve and navigate the oceans.
Vertebrate life is still entirely aquatic.

The Land (Flora / 320 mya)



Plants were the first organisms to invade land.
Seaweeds and early terrestrial plants exist.



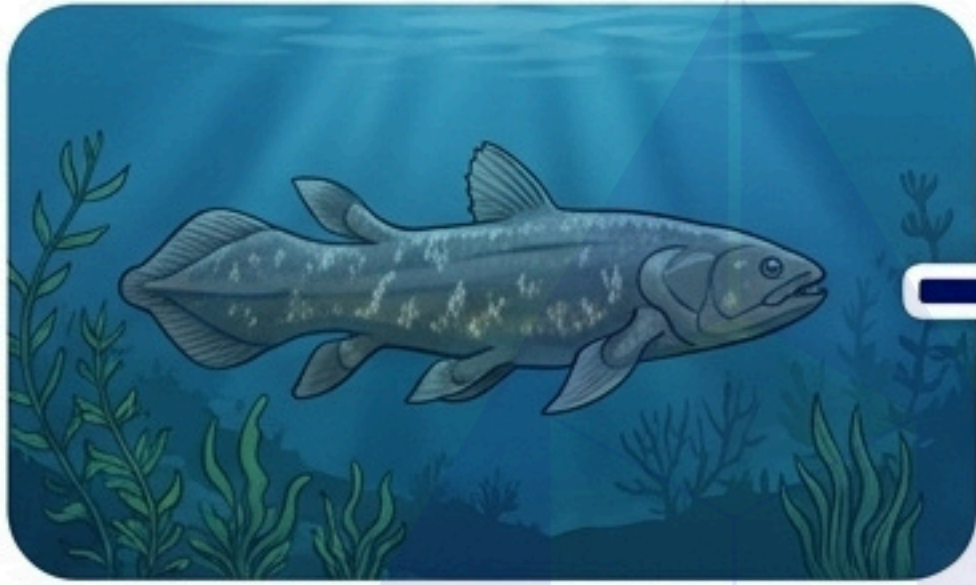
Ecosystems First

Plants became widespread on land long before animals arrived, establishing the necessary oxygen-rich atmosphere and food web required for the future terrestrial invasion by animals.

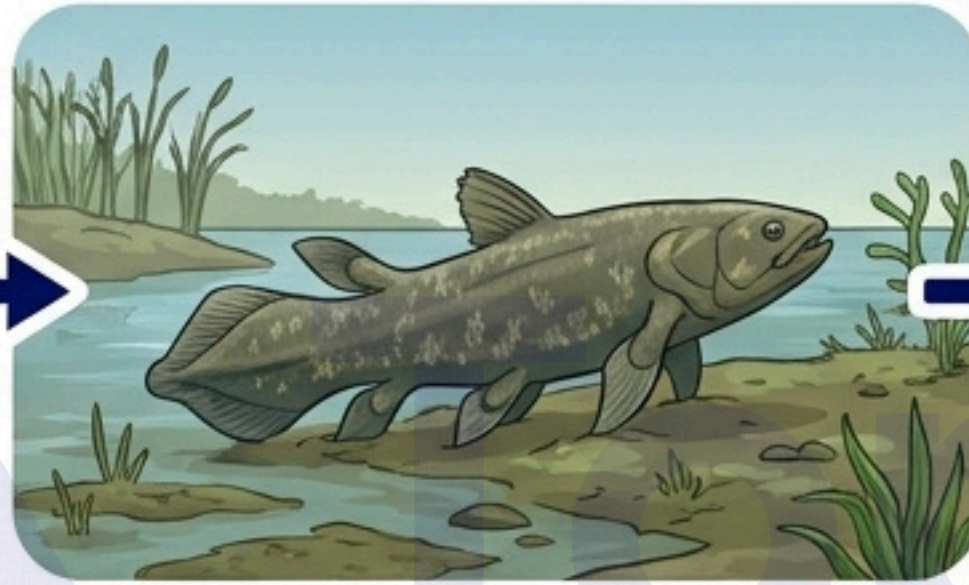
350 mya - 320 mya

The Leap to Land

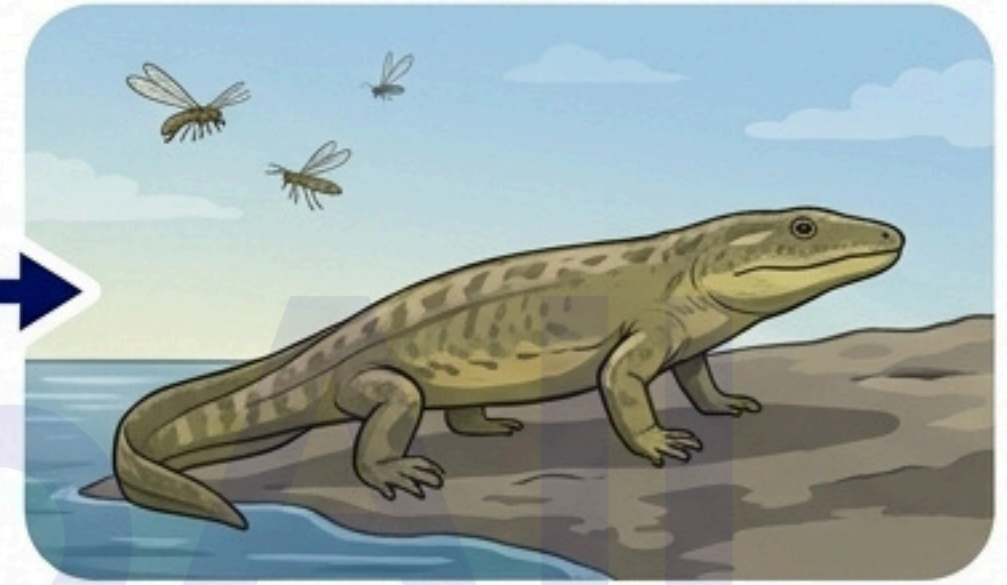
Water



Coastline



Land/Water



Fish equipped with strong, stout fins were the first to move onto land and retreat back to water. These 'Lobefins' are the direct ancestors of modern-day frogs and salamanders.



The Living Fossil

In 1938, a Coelacanth (a lobefin fish) was caught in South Africa. Previously thought to be entirely extinct, this discovery provided a living link to the first amphibians.

350 mya



Conquest of the Dry Earth



The Anatomical Upgrade: Thick-Shelled Eggs

Unlike amphibians, reptiles lay eggs with thick shells that do not dry up in the sun, granting total independence from water.

Flora



Flora

Giant ferns (pteridophytes) dominated, eventually falling to form the Earth's vast coal deposits.

Aquatic Return (~200 mya)



Aquatic Return (~200 mya)

Some land reptiles retreated back to the water, evolving into fish-like reptiles (e.g., Ichthyosaurs).

Apex Land



Apex Land

The land was dominated by giant reptiles. The largest, Tyrannosaurus rex, stood 20 feet tall with fearsome, dagger-like teeth.

65 mya: The Vanishing

Dinosaurs suddenly disappeared. Causes remain debated (climatic changes or evolution into modern birds). Only small-sized reptiles survived.

200 mya

65 mya



TopAll

The Mammalian Succession

The Survivors



The first mammals were small, shrew-like creatures.

- **Viviparous:** Protected unborn young inside the mother's body.
- **Intelligent:** Highly capable of sensing and avoiding danger.

Continental Drift



North American fauna overrode South American mammals when the continents joined.

Due to isolation, Australia's pouched mammals (marsupials) survived without competition.

Total Radiation



Mammals successfully conquered all domains, including a return to the water (whales, dolphins, seals, and sea cows).

65 mya

Present

Key Takeaway

Evolution is a directional saga of continuous adaptation.



Origin

Life began 2000 mya as simple cells confined to water.



Innovation

Life mastered the land through sequential anatomical upgrades: stout fins for coastal crawling, and thick-shelled eggs for solar resistance.



Opportunity

Mass extinctions create niche vacuums, paving the way for unprecedented adaptive radiation, ultimately leading to highly intelligent, viviparous mammals.



You've Learned the Theory.

Now Let's Test It.

Reading notes gets you knowledge.

Practicing MCQs gets you marks.

That's exactly what TopAll Pro is built for.

Try TopAll Pro Now

What TopAll Pro Does Differently

-  **Stuck? Snap it. Solve it. — Doubts AI**
Photo → step-by-step solution in seconds, 24/7
-  **Your AI Coach finds your blind spots**
Concept-level weakness detection — not just chapter-level
-  **4.5 Lakh+ questions. Never run out.**
13× more content than any other prep app in India
-  **Build your own test in 60 seconds**
Pick a chapter, set difficulty — AI does the rest instantly.
-  **AI Recommendation that helps you improve**
AI Recommendation Analysis your Tests and tell you where you need to improve.



Practice the moment you finish studying
Jump in while the concept is still fresh in your head

4.5L+
MCQs

1.5L+
Students

AI Powered
In-Depth Analysis