HISTORY OF
PLANET EARTH

From the Big Bang to the Modern Human

Ga: Billion years ago | **Ma: Million years ago** | **Ka: Thousand years ago**

THE BEGINNING

The Big Bang — 13.8 Ga

Sun is born & surrounded by dust — 4.6 Ga

Over millions of years gravity pulls rocks & dust together to form the Earth, which is hot & toxic. Temperature is over 12000 °C. The Earth is a boiling bowl of lava & liquid rock. — 4.54 Ga

Another young planet hits Earth. Debris from this collision forms the moon. — 4.5 Ga

For over 20 million years, water-rich meteorites bombard the Earth. Water is accumulated to form ocean. — 3.9 Ga

Meteorites hit again, but this time carrying amino acids. They hit the seabed where it's dark & freezing. Single-celled bacteria, the earliest form of life, appear in water. — 3.8 Ga

Colonies of bacteria in shallow sea start photosynthesizing to transform CO_2 & H_2O into glucose and releasing oxygen, the essence of life. — 3.5 Ga

Earth's crust is broken into plates. Movement of plates creates islands & oceans. Over 400 million years a super continent takes shape. — 1.5 Ga

Snowball Earth (the longest & coldest ice-age): Heat from the Earth's core rips the crust into pieces. The exposed rocks beneath the crust start absorbing CO_2. Without CO_2, the atmospheric temperature drops to -50 °C. — 750 Ma

Volcanos start erupting CO_2, which traps the sun's heat. Ice starts to melt. — 735 Ma

Primitive bacteria have evolved. Ocean is now filled with planktons, worms, sponges & many more multicellular organisms. — 540 Ma

1st Mass extinction occurs, caused by an ice age. 85% of the sea life is wiped out. — 443 Ma

The first primitive plants evolve from green algae along the edges of lakes and move onto land. — 434 Ma

Ozone layer is formed, blocking the sun's harmful radiations. Land now becomes favorable for life. — 375 Ma

Tiktaalik fish uses its fins as legs and makes land its home. The first tetrapods & reptiles appear. Plants evolve seeds, which accelerates their spread. — 360 Ma

2nd Mass extinction kills 75% of all species; caused by changes in sea level, asteroid impacts, climate change & new kinds of plants messing with the soil. — 359 Ma

Small lizards evolve into giant reptiles- some into herbivores, some into carnivorous killing machines. — 250 Ma

3rd & the greatest mass extinction (Permian mass extinction) occurs. It's called the Great Dying, since a staggering 96% of all species was wiped out. — 248 Ma

Earliest dinosaurs (Prosauropods) & first mammals appear. — 225 Ma

4th mass extinction occurs, wiping out almost half the species on Earth. This marks the beginning of the dinosaur's golden age. — 200 Ma

Over the next 10 million years, dead fish & planktons deposit on the sea-bed. This layer later becomes oil which we now use as fuel! — 190-180 Ma

The North American plate moves away from Asian & African plates. New oceans & continents are created. The world as we know now, takes shape. — 180 Ma

Diversity in animal kingdom- first ancestors of birds (Archaeopteryx), earliest bees, snakes & ants appear. Mammals live underground to hide from dinosaurs. — 150-80 Ma

An asteroid, bigger than Mount Everest, hits the Earth & causes the 5th Mass Extinction, wiping out the non-flying dinosaurs. — 66 Ma

As the rein of dinosaurs end, the mammals thrive. By living underground and eating almost anything, they survive the extinction. — 66-65 Ma

The Indian plate moves north towards the Asian plate. The colossal struggle between the 2 plates forms a vast mountain range: the Himalayas! — 47 Ma

Modern humans (Homo sapiens) appear. — 250 Ka

Source:
National Geographic, BBC Nature, Wikipedia, History

Research Paper:
"Transition of plants to land" by Dr. Paul F. Ciesielski, FL: University of Florida

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