

Geologic Time Scale

Time (Before Present)	Major Biological Events	Major Geological Events
4.5 – 3.6 bya Precambrian	None	Cold climate Volcanic activity Atmosphere of N ₂ and CO ₂
3.6 – 2 bya Precambrian	First known life on earth – bacteria and blue-green algae	Cold climate Volcanic activity Shallow seas O ₂ in the atmosphere First large continents
2 bya –1 bya Precambrian	Algae abundant	O ₂ in atmosphere increases Ozone layer develops
1 bya – 600 mya Precambrian	Algae abundant, jellyfish, worms	
600 – 500 mya Cambrian Period	All life aquatic: Clams, snails, trilobites , sponges, jellyfish, tunicates, brachiopods, flatworms, worms, mollusks, arthropods, seaweeds, lichens	Climate gets warmer (warmer than today) Wide spread shallow seas
500 – 440 mya Ordovician Period	Jellyfish, primitive fishes, coral, cephalopod mollusk, seaweeds, lichens	Warm climate Appalachian Mountains form Floods in North America
440 – 408 mya Silurian Period	First air-breathing animal: scorpion , first vascular land plant, cooksonia, jawless fish	Seas in N. America dry up
408 – 360 mya Devonian Period	First fresh water fish, shark, lungfish, armored fish, primitive amphibians, woody plants, scouring rushes, scale trees, forests	
360- 290 mya Carboniferous Period	First reptiles, many insects, spiders, snails, scorpions, cockroach Ferns and swamp forests, conifers	North America and Europe collide
290 – 250 mya Permian Period	Mass extinction of marine animals, evolution of reptiles, ferns and conifers	Pangaea, a super continent forms
250 – 210 mya Triassic Period	First mammals, turtles, bony fishes First dinosaurs, Evergreens, ginkgo, conifer, palm	Warm climate Deserts extensive
210 – 140 mya Jurassic Period	First birds, moth, fly, beetle, grasshopper, termite, lobster, shrimp, ammonite Dinosaurs, primitive crocodiles, winged reptiles	Pangaea breaks up into continents
140 – 65 mya Cretaceous Period	First flowering and deciduous plants First marsupials, first placental mammals, crabs, ants, Dinosaurs become extinct (65 million)	Rocky Mountains form
65 – 1.8 mya Tertiary Period	Birds and mammals flourish Earliest Humans (5 mya)	Himalayas form (India collides with Europe) World temperatures cool Hawaiian Islands Form (65 mya) Grand Canyon forms (35 mya) Santa Ynez Mtns. and Channel Islands forming, Polar Icecaps form (5 mya)
2 mya-Present Quaternary Period	Modern Humans Present Large horses, Human use of tools Conifers and deciduous trees	Climate change, temps increased, Yosemite Valley formed by glaciers (10 thousands years ago)

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