

TIMELINE OF GEOLOGIC HISTORY WITH EXTINCTIONS

("mya" is Million Years Ago; "bya" is Billion Years Ago; from www.finner.org)

Eon	Era	Period	Epoch	Events / Appearance of Plants and Animals	
Phanerozoic Eon (Visible Life) 540 mya - now	Cenozoic Era (Recent Life) 65 - now mya Age of Mammals	Quaternary 2.6 mya - now Age of Man	Holocene 11,000 years ago to today	Human Activity	
			Pleistocene 1.8 mya to 11,000 years ago	The last Ice Age	
	Tertiary 65 to 1.8 mya - 1.8 mya	Neogene 23-2.6 mya	Pliocene 5-2.6 mya	Australopithecines	
			Miocene 23-5 mya	Horses, dogs, modern birds	
		Paleogene 66 - 23 mya	Oligocene 34-23 mya	Pigs, deer, cats	
			Eocene 58-34 mya	More mammals, first rodents	
			Paleocene 66-58 mya	Big mammals	
	Extinction event: 66 mya, Cretaceous-Paleogene (K-Pg) Possible Causes: Asteroid impact at Chicxulub, volcanism with the Deccan Traps Damage: 75% of species including all non-avian dinosaurs, ammonites and many marine reptiles like Mosasaurs, Plesiosaurs, and Ichthyosaurs are gone.				
	Mesozoic Era (Middle Life) 248-65 mya Age of Reptiles	Cretaceous 146-65 mya	Late 98-66 mya	Primitive marsupials, ends with huge K-T extinction of dinosaurs	
			Early 145-98 mya	Snakes, ants, bees. Dinosaurs are ruling the earth.	
Jurassic 201-145 mya		Giant plant eating Sauropods. Flowering plants bloom. Pangaea starts to break up about 180 mya, creating the Atlantic ocean.			
Extinction event: 201 mya, Triassic-Jurassic Possible Causes: Volcanism with Central Atlantic Magmatic Province, climate change, increasing CO ₂ Damage: 80% of species, many reptiles and large amphibians vanish.					
		Triassic 252-201 mya	The rise of the dinosaurs, first mammals, many turtle-like reptiles. Ends with extinction of 35% of all animals families including most marine reptiles.		
Extinction event: 252 mya, Permian-Triassic, "The Great Dying". Possible Causes: Massive volcanic activity in Siberian Traps, methane release, climate warming, ocean acidification Damage: 96% of marine species, 70% of terrestrial vertebrates, and most insects are gone.					

Paleozoic Era (Ancient Life) 540-252 mya	Permian 299-252 mya Age of Amphibians	One supercontinent is formed named Pangaea. Phytoplankton and plants pollute the air with oxygen. Ends with mass extinction - 50% of animal families, 95% of marine species.	
	Carboniferous 359-299 mya coal swamps, corals, Amphibians more numerous	Pennsylvanian 323-299 mya Mississippian 359-323 mya	First reptiles.
	Devonian 419-359 mya Age of Fishes	First amphibians, sharks, bony fish, grasshoppers, cockroaches, mantids.	
	Extinction event: 372-359 mya, Late Devonian Possible Causes: Climate change, ocean anoxia (lack of oxygen), asteroid impacts Damage: 75% of species, especially marine life including reef builders and armored fish disappear.		
	Silurian 444-419 mya	First jawed fish. First vascular plants.	
	443 mya, Ordovician–Silurian extinction event Possible Causes: Global cooling, glaciation, dropping sea level Damage: 85% of marine species, including many trilobites, brachiopods, and reef-building organisms vanish.		
	Ordovician 485-444 mya	First primitive land plants, corals, primitive fish, fungi, kelp, seaweed.	
	Cambrian 541-485 mya Age of Trilobites	Cambrian explosion of life. First vertebrates, Trilobites, starfish, urchins, marine animals with mineralized shells. Supercontinent of Rodinia starts to break apart. Mass extinction of 50% of animal families around 488 mya.	
Proterozoic Eon (Earlier Life) 2.5 bya - 541 mya	Vendian/Ediacaran 600-640 mya	First multi-celled animals. Continents merge into first supercontinent, Rodinia. Mass extinction.	
Archeozoic Eon (Beginning Life) 3.9-2.5 bya		First single celled life, blue-green algae and bacteria live in the sea.	
Hadean Eon (Hellish) 4.6 - 3.9 bya		Earth is forming, very hot, no life.	

