

# GEOLOGICAL TIME SCALE

Chronostratigraphic Reference Chart

Ref: ICS Standard  
Units: Ma (Millions of years ago)

EON	ERA	PERIOD	START (MA)	KEY BIOLOGICAL / GEOLOGICAL EVENTS	
Phanerozoic	Cenozoic	Quaternary	2.58	Evolution of humans; repeated glaciation (Ice Ages).	
		Neogene	23.0	First hominids; North and South America join.	
		Paleogene	66.0	Radiation of mammals; rise of alpine orogeny.	
	Mesozoic	Cretaceous	Cretaceous	145.0	Peak of dinosaurs; first flowering plants; K-Pg extinction.
			Jurassic	201.3	Pangea begins to break up; first birds and lizards.
			Triassic	251.9	First dinosaurs and mammals; major desertification.
		Paleozoic	Permian	298.9	Formation of Pangea; largest mass extinction at end.
	Carboniferous	Carboniferous	358.9	Widespread coal swamps; first reptiles; high oxygen.	
		Ediacaran	635.0	First multi-cellular soft-bodied organisms.	
Proterozoic	Neoproterozoic				
Archean	Neoarchean to Eoarchean		4,000	Stabilization of cratons; first life (cyanobacteria).	
Hadean	Informal		~4,600	Formation of Earth and Moon; heavy bombardment.	

Note: Dates are approximate based on the International Commission on Stratigraphy. For educational reference only.