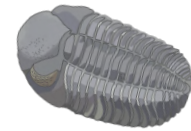




# The Geologic Time Scale Reference Table



Millions of Years Ago	Era	Period	Major Events
4600 – 540	Precambrian		Fossils extremely rare. Anaerobic heterotrophic prokaryotes appear 3.5 billion years ago. Photosynthetic prokaryotes appear 3.0 billion years ago. First aerobic eukaryotic cells appear 2.0 billion years ago. Multicellular algae appear 1.2 billion years ago. Additional multicellular forms quickly follow. Life existed only on the seas.
540 – 245	Paleozoic	540 Cambrian	The “Cambrian Explosion” brings great diversity in invertebrate life. Life includes: (1) Soft-bodied jellyfish, worms, and sponges, (2) Brachiopods with two-shells similar to clams, and (3) Trilobites (arthropods) are dominant.
		510 Ordovician	Diverse marine invertebrates are dominant. Ancestors of modern octopi and squid appear. First primitive jawless fish are present.
		430 Silurian	Jawless fish are abundant. Jawed fish appear. First colonization of land by arthropods and vascular plants, such as ferns.
		400 Devonian	Called the “Age of Fishes” because of abundant and diverse forms in the seas. Ferns and horsetails are present on land, as well as wingless insects and arachnids. First amphibians appear.
		360 Carboniferous	Rich deposits of coal are formed. First seed plants appear. Appearance of amniote egg in early reptiles. Abundant sharks, amphibians, and winged insects.
		285 Permian	Largest mass extinction in Earth’s history. 95% of marine species disappear. On land, gymnosperms and conifers are dominant.
		245 – 65	Mesozoic
200 Jurassic	Dinosaurs rule the Earth as the dominant animal life on land. Some reptiles develop bird-like characteristics leading to the evolution of birds. Pangaea begins to break apart. First angiosperms appear on land.		
140 Cretaceous	Dinosaurs are dominant early in this period, but in another mass extinction at the end of this period, 50% of all plant and animal species become extinct, including the dinosaurs. Angiosperms are dominant. Break up of Pangaea continues.		
65 – present	Cenozoic	65 Tertiary	Angiosperms and insects flourish. Earliest placental mammals. Rapid evolution seen in mammals includes large grazing mammals and marine mammals. Earth’s climate is warm and mild.
		2.0 Quaternary	Climate cools leading to a series of ice ages at the beginning of this period. Mastodons, mammoths, and large carnivores appear. Earliest hominids appear 4.5 million years ago, and <i>Homo sapiens</i> appear 200,000 years ago. 20,000 years ago Earth’s climate began to warm.