

Table of Geological Periods

It is generally assumed that planets are formed by the accretion of gas and dust in a cosmic cloud, but there is no way of estimating the length of this process. Our Earth acquired its present size, more or less, between 4 billion and 5 billion years ago. Life on Earth originated about 2 billion years ago, but there are no good fossil remains from periods earlier than the Cambrian, which began about 490 million years ago.

The known geological history of Earth since the Precambrian Time is subdivided into three eras, each of which includes a number of periods. They, in turn, are subdivided into epochs and stage ages. In an epoch, a certain section may be especially well known because of rich fossil finds.

New Geological Period

In March 2004, geologists added a new time period to Earth's chronology—the Ediacaran Period. The Ediacaran Period lasted about 50 million years, from 600 million years ago to about 542 million years ago. It was the last period of the Precambrian's Neoproterozoic Era. Multicelled organisms first appeared during this time. This period is the first new one added in 120 years.

Precambrian Time

The Precambrian's lower limit is not defined, but ended about 542 million years ago. The Precambrian encompasses about 90% of Earth's history.

Eon	Duration ¹	Eras	Events
Archaean (Greek <i>archaios</i> = ancient)	2,500?	Eoarchean (Greek <i>eos</i> = dawn + <i>archaios</i> = ancient) Paleoarchean (Greek <i>palaios</i> = old) Mesoarchean (Greek <i>mesos</i> = middle) Neoarchean (Greek <i>neo</i> = new)	Formation of oceans, atmosphere, and continents; bacteria
Proterozoic (Greek <i>proteros</i> = earlier + <i>zoön</i> = animal)	c. 2,000	Paleoproterozoic (Greek <i>palaios</i> = old) Mesoproterozoic (Greek <i>mesos</i> = middle) Neoproterozoic (Greek <i>neo</i> = new)	Oxygen build-up; multicelled organisms

1. In millions of years.

Paleozoic Era

This era began 542 million years ago and lasted about 291 million years. The name was compounded from Greek *palaios* (old) and *zoön* (animal).

Period	Duration ¹	Epochs	Events
Cambrian (<i>Cambria</i> , Latin name for Wales)	54	Lower Cambrian Middle Cambrian Upper Cambrian	Invertebrate sea life proliferating during this and the following period
Ordovician (Latin <i>Ordovices</i> , people of early Britain)	45	Lower Ordovician Upper Ordovician	Diverse marine life, including vertebrates; vascular plants
Silurian (Latin <i>Silures</i> , people of early Wales)	28	Lower Silurian Upper Silurian	Coral reefs; giant scorpions; first jawed fish
Devonian (Devonshire in England)	57	Lower Devonian Upper Devonian	Numerous fishes, other sea life; many plants, first trees; wingless insects
Carboniferous (Latin <i>carbo</i> = coal + <i>fero</i> = to bear)	60	Upper, Middle, and Lower Mississippian ² Upper, Middle, and Lower Pennsylvanian ²	Maximum coal formation in swampy forests; insects, amphibians, reptiles; fishes, clams, crustaceans
Permian (district of Perm in Russia)	48	Lower Permian Upper Permian	Large reptiles, amphibians; most species become extinct

1. In millions of years.

2. Mississippian and Pennsylvanian names are used only in the U.S.

Mesozoic Era

This era began 251 million years ago and lasted about 186 million years. The name was compounded from Greek *mesos* (middle) and *zoön* (animal). Popular name: Age of Reptiles.

Period	Duration ¹	Epochs	Events
Triassic (<i>trias</i> = triad)	51	Lower Triassic Middle Triassic Upper Triassic	Early dinosaurs, crocodiles, turtles; first mammals

Jurassic (Jura Mountains)	54	Lower Jurassic Middle Jurassic Upper Jurassic	Many seagoing reptiles; early large dinosaurs; later, flying reptiles (pterosaurs), earliest known birds
Cretaceous (Latin <i>creta</i> = chalk)	80	Lower Cretaceous Upper Cretaceous	Dinosaurs and other reptiles dominate; seed-bearing plants appear

1. In millions of years.

Cenozoic Era¹

This era began 66 million years ago and includes the geological present. The name was compounded from Greek *kainos* (new) and *zoön* (animal). Popular name: Age of Mammals.

Period	Duration ²	Epochs	Events
Paleogene (Greek <i>palaios</i> = old + <i>genes</i> = born)	42	Paleocene (Greek <i>palaios</i> = old + <i>kainos</i> = new). Eocene (Greek <i>eos</i> = dawn). Oligocene (Greek <i>oligos</i> = few).	Rich insect fauna, early bats, increasingly diverse varieties of mammals and birds
Neogene (Greek <i>neo</i> = new + <i>genes</i> = born)	23	Miocene (Greek <i>meios</i> = less + <i>kainos</i> = new). Pliocene (Greek <i>pleios</i> = more). Pleistocene (Greek <i>pleistos</i> = most) (popular name: Ice Age). Holocene (Greek <i>holos</i> = entire), the last 10,000 years to the present.	Further development of mammals and birds. Various forms of humans, including <i>Homo sapiens</i>

1. This table reflects the divisions used by the International Commission on Stratigraphy. The U.S. Geological Survey divides the Cenozoic Era into the Tertiary Period (with the Paleocene, Eocene, Oligocene, Miocene, and Pliocene Epochs) and the Quaternary Period (with the Pleistocene and Holocene Epochs).

2. In millions of years.