

Age

GEOLOGIC TIME SCALE

Present	Holocene:	Now, this period feels very familiar... oh, it's because you live in the Holocene! The ice age of the Pleistocene has passed, and the megafauna didn't stick around. The climate is warmer and humans like you are the most abundant vertebrates on the planet
12,000	Pleistocene:	Ecosystems in the Pleistocene varied a lot depending on if you were on an island, like Australia, or on one of the larger continents like Africa, Europe, Asia and the Americas. Islands in the Southern Hemisphere had tropical climates and large birds and reptiles evolved. On the continents, mammals ruled and were becoming larger. These large mammals were known as Megafauna and included herbivores and carnivores. The glaciers that formed in the poles during the Pliocene became a lot bigger during the Pleistocene. Glaciers were found on every continent and covered up to 30% of the Earth's surface! There were even glaciers here in Indiana at some points. The Pleistocene truly was an ice age.
2.6 Million	Pliocene:	The Pliocene climate is cooler than the Miocene, but it's still becoming increasingly drier. It became so dry that the Mediterranean Sea had no water and was a grassland! Since grasses continued to take over the Earth's surface, animals that ate the grass known as grazers began to get a lot larger. Teeth had to become bigger to break down the tough grasses and body size followed. Because the climate was cooler, ice began to collect at the North and South Poles, creating glaciers.
5.3 Million	Miocene:	The Miocene is really starting to look like modern times because 95% of the plant families we see today, and a lot of the modern animal groups were present. The continents are continuing to move, cutting off oceans and raising mountains while they move. The climate is warm and getting drier, which means that open habitats like the grasslands, deserts, and tundra were the most common. This increase in dry and open habitats allowed animals to migrate to different continents easier. This is the first period that apes evolved and there were over 100 different species! (that's a lot more than the modern 20 we currently have.) Because of the increase in open habitats, apes were able to spread throughout Europe, Africa, and Asia.
~23 Million	Oligocene:	It's getting dryer as glaciers rapidly spread in Antarctica. The Tethys Sea that was around since the time of the dinosaurs was closing. The tropical forests are continuing to shrink, and grasses are starting to spread. This is a game changer! We will start to have less tree-dwelling animals and more open-plain dwelling animals. Some mammals are getting larger with longer legs to run and cover greater distances. These long-legged runners include hooved animals, which are related to modern horses, rhinos and camels. Predators also had to adapt to catch the speedy prey.
~34 Million	Eocene:	Whew! We just got really hot going from the Paleocene to the Eocene. But as we go on it's starting to cool down. In fact, Antarctica is starting to have ice near the end. Mammals are getting bigger too and some of the earliest ancestors of mammals that we see today are appearing! This means terrestrial habitats, habitats on land, are starting to get a bit crowded. So, some mammals begin to adapt to aquatic habitats.
~56 Million	Paleocene:	All the really large reptiles are gone! No more pterosaurs, marine reptiles, and, most of all, no more non-avian dinosaurs! Who is going to fill in their big shoes? Will it be birds, other reptiles, or mammals? Mammals and birds start to diversify but most things are still small, about the size of modern squirrel. The world is still like the Cretaceous. It is much warmer with forests worldwide, even in the Arctic and Antarctic! This means a lot of animals became adapted to forest habitats.
~66 Million	Cretaceous:	Well its certainly more tropical than the Jurassic. And look! Dinosaurs are everywhere in all sorts of shapes and sizes. From peaceful looking duck-bills to fighting ready armored and horned dinosaurs to quick and cunning dromeosaurs. Non-avian dinosaurs ruled the Cretaceous, but this is the last period they are found in. Pterosaurs have also gotten very big, becoming the largest animals to have flown. There's also a lot more color as the first flowers bloom! The sea

~145 Million

~145 Million		level is also higher with an inland sea cutting through North America and Europe being a bunch of islands. Pretty exciting! Just don't stick around for the big boom at the end...
~201 Million	Jurassic:	Pangea was starting to split up during the Jurassic period, creating smaller continents and more oceans. Dinosauramorphs ruled the land, especially large plant eating dinosaurs. Flying reptiles like Pterosaurs were the only animals in the sky until the late Jurassic when the first birds appeared. The first lizards also appeared in the Jurassic. In the ocean, marine reptiles thrived and were at their most diverse.
~252 Million	Triassic:	In the Triassic Period, the 2 continents from the Permian period collided to form 1 supercontinent known as Pangea. Between the Permian and Triassic period there was a major mass extinction, which killed most of the ocean life and a lot of the terrestrial life. Because of this, there was a boost in evolution to repopulate the Earth. The Triassic is when we get the first evidence of marine reptiles, frogs, turtles, and mammals. Diapsids were the most successful group in the Triassic, specifically Dinosauramoprhs (dinosaurs, and flying reptiles) and crocodylomorphs (crocodiles and their closest relatives)
~299 Million	Permian:	During the Permian period, the continents were all smushed together to 2 continents. These large continents had a lot of different environments, including a huge dry desert in the middle of Pangea. Because there were less rainforests, the land vertebrates evolved to be completely on land and not rely as much on water. The terrestrial (land) vertebrates started to get much bigger and the earliest reptile group anapsids began to evolve and branch into synapsids (mammal like reptiles), and diapsids (true reptiles).
~359 Million	Carboniferous:	The word Carboniferous comes from the phrase "coal bearing." Coal comes from plants that have been buried very deep for a very long time. This period is called Carboniferous because there were so many plants on the Earth during this time and those plants are now coal. Because there were so many plants, the land was all rainforests and the atmosphere had highest amount of oxygen ever! The increase in oxygen allowed life on the surface to continue to evolve. Invertebrates like bugs became more complex and diverse and this is when the first amphibians and reptiles evolved.
~419 Million	Devonian:	The Devonian period is known as the age of fishes because there was a big increase in fish diversity during this time. While life continued to evolve in the oceans, the organisms on land started to evolve as well. This is the period when plants became common on Earth's surface and evolved things like leaves. The Devonian is the first time that plants created seeds and trees evolved. Arthropods on the surface evolved with the plants and became more diverse. You can thank the Devonian period for why you live on land because this was the first time that vertebrates started to walk on land
~444 Million	Silurian:	The Silurian is when plants and arthropods officially appeared on land and when true plants evolved. Even though organisms started to go onto land, most organisms still lived in the oceans. Before the Silurian period, the only vertebrate animals were jawless fish that had bones made of cartilage (the bendable material your ear is made of). The Silurian period is when fish evolved jaws AND solid bones, traits that are found in most vertebrates today
~485 Million	Ordovician:	Like the Cambrian, most of the organisms were aquatic; however, ocean life was becoming even more diverse and ocean ecosystems became more complex. There was an increase in filter feeders, jawless fish, and the introduction of cephalopods. Cephalopods are a class of invertebrate animals that include modern squids and octopus. Cephalopods are a part of the larger Mollusca phylum that includes snails, clams, and oysters. It may seem weird that squids are related to clams, but do any of the prehistoric creatures share traits with clams and squids?
~541 Million	Cambrian:	During this period, almost all organisms were aquatic, meaning they lived in the ocean. There was an event known as the "Cambrian Explosion" when there was a major burst of evolution and diversification of the life on the Earth. Because of this burst of evolution, this period is when we see the first evidence of arthropods (invertebrate animals with exoskeletons like crabs, shrimp, and beetles are arthropods), earliest spines, and even eyes!

~4.59 Billion

Precambrian:

This was the longest period of Earth history, lasting about 4.59 billion years! Most of that time, the Earth had no oxygen and was very hot, so life wasn't able to survive. 2.4 billion years ago, single celled organisms called Cyanobacteria evolved. These Cyanobacteria were the first organisms to use photosynthesis, which feeds the cyanobacteria by absorbing carbon dioxide and releasing oxygen, the air we breathe.