

Important events in evolution

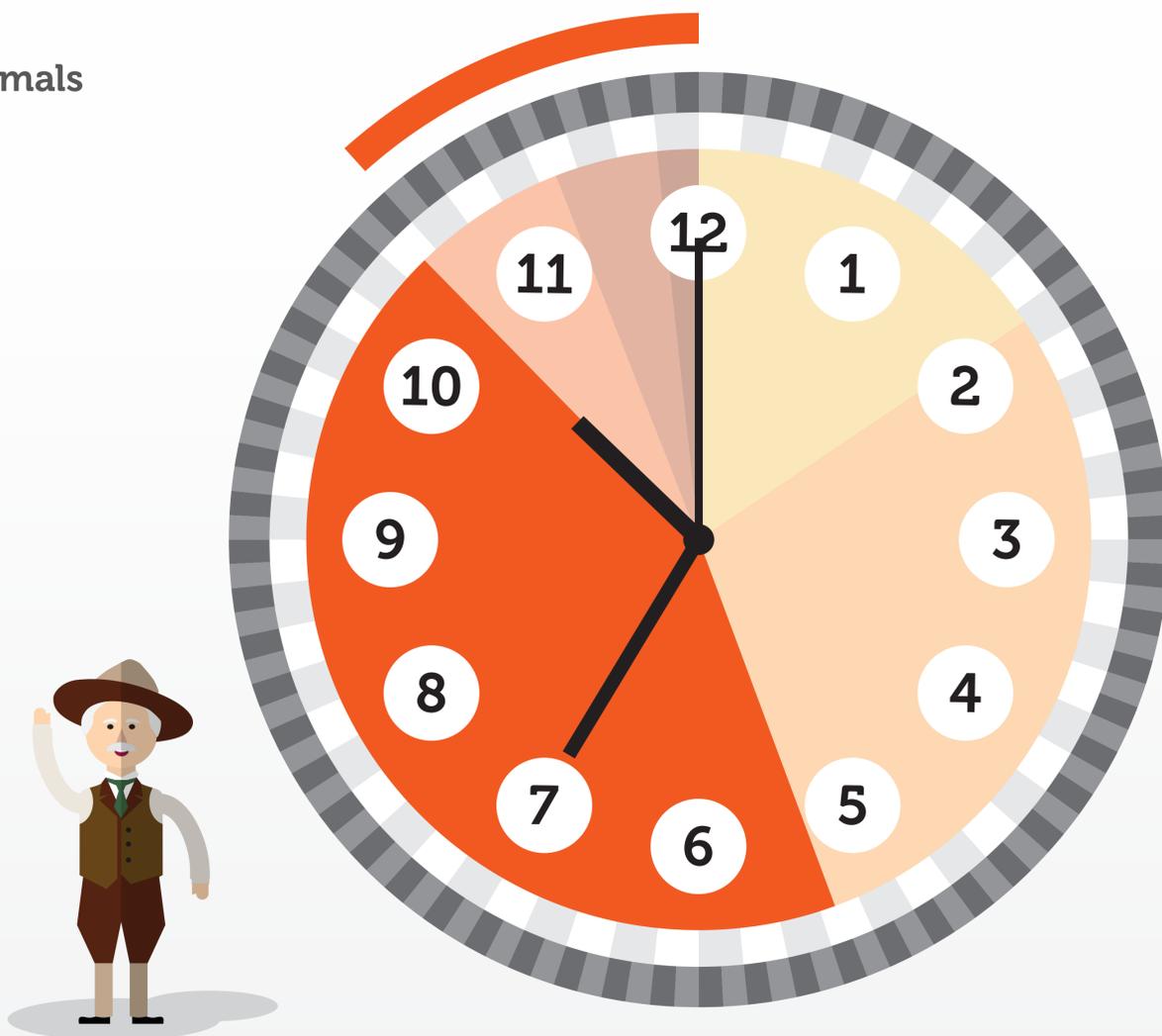
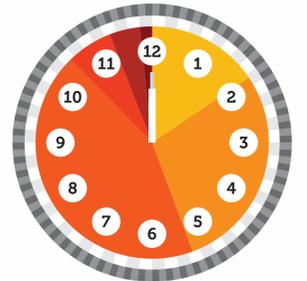
Significant events which impacted the history of Earth

543 million years ago
The Cambrian Explosion

10:35:00 HRS



Animals



The multicellular animals that appeared during the Cambrian period are perhaps the most astonishing example of animal diversity that evolution can produce.

In 1909, an American paleontologist named Charles Doolittle Walcott made an extraordinary discovery in a limestone quarry called The Burgess Shale in Yoho National Park, Canada. He found an enormous amount of fossils of soft-bodied animals, all perfectly well preserved.

Today, Walcott's collection contains around 80,000 specimens. The quarry is the remains of an ancient sea where an amazingly varied set of species evolved, much more diverse than whatever exists in any sea at present.

All these animals appeared between 543 and 488 million years ago and almost all of them went eventually extinct. It is possible to find among them the origin of arthropods and vertebrates.

A complete collection of Cambrian fossils is in the Royal Museum of Toronto, with more than 150,000 specimens representing 200 different species.

Some of the organisms that stand out for their oddness are:

- *Opabinia*, a soft-bodied animal with five eyes, a mouth pointing backwards, a tail with fins and a proboscis.
- *Anomalocaris*, the predatory monster of the Cambrian period. It reached up to a meter in size, had an oral appendix similar to a shrimp, mouthparts like a jellyfish, and a body very similar to a primitive sponge.
- *Hallucigenia*, with a name that suggests a very strange and bizarre animal. It had a tubular body with seven pairs of long and slender legs, lacking antennae, eyes, and mouth. Only about 30 specimens exist.
- *Wiwaxia*, a soft-bodied animal with a small elliptical body, covered with scales and spines.

Cambrian animals had already incorporated some minerals into parts of their bodies because volcanic activity had caused an increase in carbon dioxide and calcium in the oceans. They are the earliest known calcifying organisms. Those with mineralized tubes, thorns, and plates were able to defend themselves from predators.