


What is evolution?

Evolution denotes the change in species over the course of time. Until the middle of the 19th century, the prevailing belief was that all species of living beings on Earth had 'always' existed and, apart from minor variability, were unchangeable. In 1859, Charles Darwin published his epoch-defining work 'On the Origin of Species', in which he set out his theory of how species arise. With minor adaptations, it is still valid today.

The **theory of evolution** in two short sentences:

- Heritable changes to organisms arise by chance through modifications to their genetic make-up, occurring e.g. during cell division.
- These changes are subject to a selection process in which the organisms best adapted to their habitat have an advantage in terms of survival and reproductive success.



Evolution is therefore not a purposeful process, but rather relies on variations that arise through **random changes** in the genome of individuals. Advantageous changes are favoured by environmental conditions (**selection**) and by being passed on to many offspring. If the changes are so significant that individuals of one variety can only reproduce among themselves, but no longer with other varieties, a **new species** has emerged.

Such speciation processes take place **extremely slowly**. Depending on how quickly the generations follow one another and on the interactions within the organism and with its environment, anything from **several decades to millions of years** can pass between the emergence of a variety and the actual splitting off of a new species

Locations

You can find the Evolution Path at several locations in Germany (as of spring 2025):



Directions and further information:
www.evolutionsweg.de/standorte

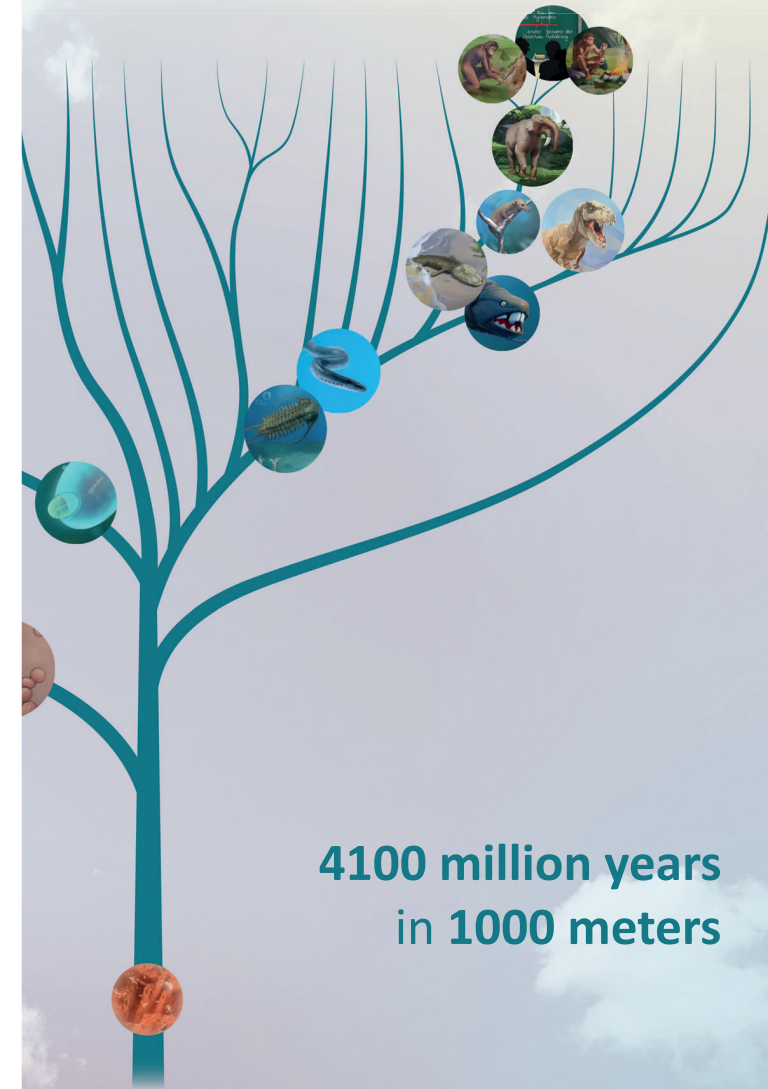
Would you like an Evolution Path in your town too?

We are happy to support you! Please get in touch with us and we will send you information material to help you and your community decide about setting up the pathway.

www.evolutionsweg.de/kontakt-impressum



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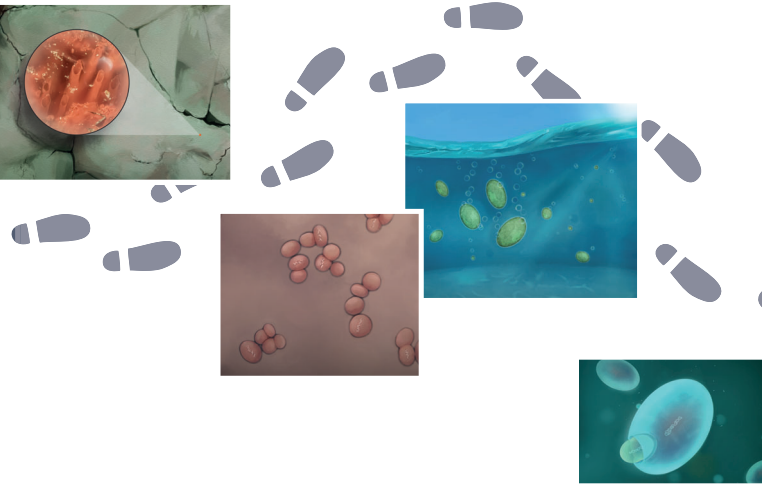
4100 million years
in 1000 meters

Questions about the origins of the various living organisms on Earth or even about life itself have probably preoccupied humankind from the dawn of civilization. Different cultures and societies have offered many different answers to these questions over the course of our species' long history.

For a good 200 years now, science has been investigating, discovering and explaining how the evolution of life on Earth actually occurred.

Waypoints

- Formation of the Earth
- First Evidence of Life
- First Cyanobacteria
- Photosynthesis
- Cells With Nucleus (Eukaryotes)
- Supporting and Protective Skeletons
- Vertebrates
- Plants Come Ashore
- Vertebrate Jaw Formation
- Vertebrates Come Ashore
- Supporting Skeleton of the Plants
- Plant Skeletons Decompose
- Dinosaurs
- Origin of Mammals
- Flowering Plants
- Era of the Mammals
- Great Apes (Hominids)
- Early Humans (Homininae)
- Modern Humans (Homo sapiens)



The Evolution Path

This educational trail about evolution presents important stages in the 4100-million-year history of life. From the first traces of life to the present day, it is 1000 metres long.

On this scale, one metre corresponds to a time span of 4.1 million years, or 1 mm to 4100 years, which is roughly the time that has passed since the Egyptian pyramids were built.

Significant developments or events in evolution are described on the signs. The waypoints do not repre-

sent the direct development from the beginning of life to us humans. Rather, they pick out fossil finds displaying important developments on the large and intensively branched evolutionary tree, ones that strongly influenced our world as we find it today, or without which we humans would not exist at all.

Each step along the path gives a sense of just how much time life on Earth took to develop.

Although not all of evolution's significant achievements

can be shown, it is clear that important developments have taken place at ever shorter intervals.

Evolution continues to take place wherever there is life.

More information:
www.evolutionsweg.de

