**MILLION’S OF**

**YEARS AGO**

|  |  |
| --- | --- |
| **4,000** | **The earliest life appears.**  **Further information:** [**Origin of life**](http://en.wikipedia.org/wiki/Origin_of_life) |
| **3,900** | [**Cells**](http://en.wikipedia.org/wiki/Cell_(biology)) **resembling** [**prokaryotes**](http://en.wikipedia.org/wiki/Prokaryote) **appear.**  **Further information:** [**Cell (biology)#Origins of cells**](http://en.wikipedia.org/wiki/Cell_(biology)#Origins_of_cells) |
| **2,500** | **First organisms to utilize** [**oxygen**](http://en.wikipedia.org/wiki/Oxygen)**.** |
| **2,100** | **More complex cells appear: the** [**eukaryotes**](http://en.wikipedia.org/wiki/Eukaryote)**.**  **Further information:** [**Eukaryote#Origin and evolution**](http://en.wikipedia.org/wiki/Eukaryote#Origin_and_evolution) |
| **1,200** | [**Sexual reproduction**](http://en.wikipedia.org/wiki/Sexual_reproduction#Origin_of_Reproduction) **evolves, leading to faster evolution.**[**[1]**](http://en.wikipedia.org/wiki/Timeline_of_human_evolution#cite_note-0) |
| **900** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/8/86/Cronoflagelado2.jpg/100px-Cronoflagelado2.jpg](http://en.wikipedia.org/wiki/File:Cronoflagelado2.jpg)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:Cronoflagelado2.jpg)**  [**Choanoflagellate**](http://en.wikipedia.org/wiki/Choanoflagellate)  **The** [**choanoflagellates**](http://en.wikipedia.org/wiki/Choanoflagellate) **may look similar to the** [**ancestors**](http://en.wikipedia.org/wiki/Ancestors) **of the entire** [**animal**](http://en.wikipedia.org/wiki/Animal)[**kingdom**](http://en.wikipedia.org/wiki/Kingdom_(biology))**, and in particular they may be the direct ancestors of** [**sponges**](http://en.wikipedia.org/wiki/Sea_sponge)**.**[**[2]**](http://en.wikipedia.org/wiki/Timeline_of_human_evolution#cite_note-1)[**Proterospongia**](http://en.wikipedia.org/wiki/Proterospongia) **(members of the** [**Choanoflagellata**](http://en.wikipedia.org/wiki/Choanoflagellata)**) are the best living examples of what the ancestor of all** [**animals**](http://en.wikipedia.org/wiki/Animal) **may have looked like. They live in** [**colonies**](http://en.wikipedia.org/wiki/Colony_(biology))**, and show a primitive level of** [**cellular**](http://en.wikipedia.org/wiki/Cell_(biology)) **specialization for different tasks.** |
| **600** | **It is thought that the earliest multicellular animal was a** [**sponge**](http://en.wikipedia.org/wiki/Sea_sponge)**-like creature.** [**Sponges**](http://en.wikipedia.org/wiki/Sea_sponge) **are among the simplest of animals, with partially differentiated** [**tissues**](http://en.wikipedia.org/wiki/Biological_tissue)**. Sponges (**[**Porifera**](http://en.wikipedia.org/wiki/Porifera)**) are the phylogenetically oldest** [**animal**](http://en.wikipedia.org/wiki/Animal)[**phylum**](http://en.wikipedia.org/wiki/Phylum) **extant today.** |
| **580** | **The movement of all animals may have started with** [**cnidarians**](http://en.wikipedia.org/wiki/Cnidarians)**. Almost all cnidarians possess** [**nerves**](http://en.wikipedia.org/wiki/Nerves) **and** [**muscles**](http://en.wikipedia.org/wiki/Muscle) **and, because they are the simplest** [**animals**](http://en.wikipedia.org/wiki/Animal) **to possess it, their direct** [**ancestors**](http://en.wikipedia.org/wiki/Ancestor) **were very likely the first animals to use nerves and muscles together. Cnidarians are also the first animals with an actual** [**body**](http://en.wikipedia.org/wiki/Body) **of definite form and shape. They have** [**radial symmetry**](http://en.wikipedia.org/wiki/Symmetry_(biology)#Radial_symmetry)**.** |
| **550** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/3/32/FlatwormZICA.png/200px-FlatwormZICA.png](http://en.wikipedia.org/wiki/File:FlatwormZICA.png)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:FlatwormZICA.png)**  [**Flatworm**](http://en.wikipedia.org/wiki/Flatworm)  **Flatworms are the earliest animals to have a** [**brain**](http://en.wikipedia.org/wiki/Brain)**, and the simplest animals alive to have** [**bilateral symmetry**](http://en.wikipedia.org/wiki/Symmetry_(biology)#Bilateral_symmetry)**. They are also the simplest animals with organs that form from three** [**germ layers**](http://en.wikipedia.org/wiki/Germ_layer)**.** |
| **540** | [**Acorn worms**](http://en.wikipedia.org/wiki/Enteropneusta) **are considered more highly specialised and advanced than other similarly shaped** [**worm**](http://en.wikipedia.org/wiki/Worm)**-like creatures. They have a** [**circulatory system**](http://en.wikipedia.org/wiki/Circulatory_system) **with a** [**heart**](http://en.wikipedia.org/wiki/Heart) **that also functions as a** [**kidney**](http://en.wikipedia.org/wiki/Kidney)**. Acorn worms have a** [**gill**](http://en.wikipedia.org/wiki/Gill)**-like structure used for** [**breathing**](http://en.wikipedia.org/wiki/Breath)**, a structure similar to that of** [**primitive fish**](http://en.wikipedia.org/wiki/Prehistoric_fish)**. Acorn worms are thus sometimes said to be a link between** [**vertebrates**](http://en.wikipedia.org/wiki/Vertebrates) **and** [**invertebrates**](http://en.wikipedia.org/wiki/Invertebrates)**.** |
| **530** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/2/2d/Pikaia3ZICA.png/200px-Pikaia3ZICA.png](http://en.wikipedia.org/wiki/File:Pikaia3ZICA.png)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:Pikaia3ZICA.png)**  [**Pikaia**](http://en.wikipedia.org/wiki/Pikaia)  **The earliest known ancestor of the** [**chordates**](http://en.wikipedia.org/wiki/Chordates) **is** [**Pikaia**](http://en.wikipedia.org/wiki/Pikaia)**. It is the first known** [**animal**](http://en.wikipedia.org/wiki/Animal) **with a** [**notochord**](http://en.wikipedia.org/wiki/Notochord)**. Pikaia is believed to be the ancestor of all** [**chordates**](http://en.wikipedia.org/wiki/Chordates) **and** [**vertebrates**](http://en.wikipedia.org/wiki/Vertebrates)**.**[**[3]**](http://en.wikipedia.org/wiki/Timeline_of_human_evolution#cite_note-2)**The** [**Lancelet**](http://en.wikipedia.org/wiki/Lancelet)**, still living today, retains some characteristics of the primitive** [**chordates**](http://en.wikipedia.org/wiki/Chordate)**. It resembles** [**Pikaia**](http://en.wikipedia.org/wiki/Pikaia)**. Other earliest known chordate-like fossils is from a** [**conodonts**](http://en.wikipedia.org/wiki/Conodonts) **a "eel-shaped animal of 4-20 cm (1½-8 in) long" with a pair of huge eyes at the head end were and a complex basket of teeth.** |
| **505** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/1/1e/Agnata.png/200px-Agnata.png](http://en.wikipedia.org/wiki/File:Agnata.png)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:Agnata.png)**  [**Agnatha**](http://en.wikipedia.org/wiki/Agnatha)  **The first** [**vertebrates**](http://en.wikipedia.org/wiki/Vertebrate) **appear: the** [**ostracoderms**](http://en.wikipedia.org/wiki/Ostracoderms)**, jawless fish related to present-day** [**lampreys**](http://en.wikipedia.org/wiki/Lamprey) **and** [**hagfishes**](http://en.wikipedia.org/wiki/Hagfish)**.** [**Haikouichthys**](http://en.wikipedia.org/wiki/Haikouichthys) **and** [**Myllokunmingia**](http://en.wikipedia.org/wiki/Myllokunmingia) **are examples of these jawless fish, or** [**Agnatha**](http://en.wikipedia.org/wiki/Agnatha)**. (See also** [**prehistoric fish**](http://en.wikipedia.org/wiki/Prehistoric_fish)**). They were jawless and their internal skeletons were cartilaginous. They lacked the paired (pectoral and pelvic)** [**fins**](http://en.wikipedia.org/wiki/Fins) **of more advanced** [**fish**](http://en.wikipedia.org/wiki/Fish)**. They were the Precursors to the** [**bony fish**](http://en.wikipedia.org/wiki/Bony_fish)**.** [**[4]**](http://en.wikipedia.org/wiki/Timeline_of_human_evolution#cite_note-3) |
| **480** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/5/5a/PlacodermiZICA.png/200px-PlacodermiZICA.png](http://en.wikipedia.org/wiki/File:PlacodermiZICA.png)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:PlacodermiZICA.png)**  **A** [**Placoderm**](http://en.wikipedia.org/wiki/Placoderm)  **The** [**Placodermi**](http://en.wikipedia.org/wiki/Placodermi) **were** [**prehistoric fishes**](http://en.wikipedia.org/wiki/Prehistoric_fish)**. Placoderms were the first of the jawed fishes, their jaws evolving from the first of their gill arches** [**[5]**](http://en.wikipedia.org/wiki/Timeline_of_human_evolution#cite_note-4)**. Their head and thorax were covered by articulated armoured plates and the rest of the body was scaled or naked.** |
| **400** | **First** [**Coelacanth**](http://en.wikipedia.org/wiki/Coelacanth) **appears; this order of animals had been thought to have no extant members until living specimens were discovered in 1938. It is often referred to as a** [**living fossil**](http://en.wikipedia.org/wiki/Living_fossil)**.** |
| **375** | [**Tiktaalik**](http://en.wikipedia.org/wiki/Tiktaalik) **is a genus of** [**sarcopterygian**](http://en.wikipedia.org/wiki/Sarcopterygian) **(lobe-finned) fishes from the late Devonian with many tetrapod-like features.** |
| **365** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/7/78/PanderichthysZICA.png/200px-PanderichthysZICA.png](http://en.wikipedia.org/wiki/File:PanderichthysZICA.png)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:PanderichthysZICA.png)**  [**Panderichthys**](http://en.wikipedia.org/wiki/Panderichthys)  **Some fresh water lobe-finned** [**fish**](http://en.wikipedia.org/wiki/Fish) **(**[**Sarcopterygii**](http://en.wikipedia.org/wiki/Sarcopterygii)**) develop legs and give rise to the** [**Tetrapoda**](http://en.wikipedia.org/wiki/Tetrapoda)**. The first tetrapods** [**evolved**](http://en.wikipedia.org/wiki/Evolution) **in shallow and** [**swampy**](http://en.wikipedia.org/wiki/Swamp)[**freshwater**](http://en.wikipedia.org/wiki/Freshwater)[**habitats**](http://en.wikipedia.org/wiki/Habitat_(ecology))**. Primitive tetrapods developed from a** [**lobe-finned fish**](http://en.wikipedia.org/wiki/Lobe-finned_fish) **(an "osteolepid** [**Sarcopterygian**](http://en.wikipedia.org/wiki/Sarcopterygii)**"), with a two-lobed** [**brain**](http://en.wikipedia.org/wiki/Brain) **in a flattened skull, a wide mouth and a short snout, whose upward-facing eyes show that it was a bottom-dweller, and which had already developed adaptations of fins with fleshy bases and** [**bones**](http://en.wikipedia.org/wiki/Bone)**. The "living fossil"** [**coelacanth**](http://en.wikipedia.org/wiki/Coelacanth) **is a related** [**lobe-finned fish**](http://en.wikipedia.org/wiki/Lobe-finned_fish) **without these shallow-water adaptations. These fishes used their fins as** [**paddles**](http://en.wikipedia.org/wiki/Paddle) **in shallow-water habitats choked with plants and** [**detritus**](http://en.wikipedia.org/wiki/Detritus)**. The universal tetrapod characteristics of front** [**limbs**](http://en.wikipedia.org/wiki/Limb_(anatomy)) **that bend backward at the** [**elbow**](http://en.wikipedia.org/wiki/Elbow-joint) **and hind limbs that bend forward at the** [**knee**](http://en.wikipedia.org/wiki/Knee) **can plausibly be traced to early tetrapods living in shallow water.**[**[6]**](http://en.wikipedia.org/wiki/Timeline_of_human_evolution#cite_note-5)  [**Panderichthys**](http://en.wikipedia.org/wiki/Panderichthys) **is a 90-130 cm (35-50 in) long** [**fish**](http://en.wikipedia.org/wiki/Fish) **from the Late** [**Devonian period**](http://en.wikipedia.org/wiki/Devonian_period)**. It has a large** [**tetrapod**](http://en.wikipedia.org/wiki/Tetrapod)**-like** [**head**](http://en.wikipedia.org/wiki/Head)**. Panderichthys exhibits features transitional between** [**lobe-finned fishes**](http://en.wikipedia.org/wiki/Lobe-finned_fish) **and early** [**tetrapods**](http://en.wikipedia.org/wiki/Tetrapods)**.** [**Lungfishes**](http://en.wikipedia.org/wiki/Lungfish) **retain some characteristics of the early** [**Tetrapodas**](http://en.wikipedia.org/wiki/Tetrapoda)**. One example is the** [**Australian Lungfish**](http://en.wikipedia.org/wiki/Australian_Lungfish)**.** |
| **315** | **[http://upload.wikimedia.org/wikipedia/en/thumb/c/c4/Acanthostega2_ZICA.png/200px-Acanthostega2_ZICA.png](http://en.wikipedia.org/wiki/File:Acanthostega2_ZICA.png)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:Acanthostega2_ZICA.png)**  [**Acanthostega**](http://en.wikipedia.org/wiki/Acanthostega)  **[http://upload.wikimedia.org/wikipedia/commons/thumb/4/4b/PleaisaidesZICA.png/200px-PleaisaidesZICA.png](http://en.wikipedia.org/wiki/File:PleaisaidesZICA.png)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:PleaisaidesZICA.png)**  [**Ichthyostega**](http://en.wikipedia.org/wiki/Ichthyostega)  [**Acanthostega**](http://en.wikipedia.org/wiki/Acanthostega) **is an extinct** [**amphibian**](http://en.wikipedia.org/wiki/Amphibian)**, among the first animals to have recognizable** [**limbs**](http://en.wikipedia.org/wiki/Limb_(anatomy))**. It is a candidate for being one of the first** [**vertebrates**](http://en.wikipedia.org/wiki/Vertebrate) **to be capable of coming onto land. It lacked** [**wrists**](http://en.wikipedia.org/wiki/Wrist)**, and was generally poorly adapted for life on land. The limbs could not support the animal's weight.** [**Acanthostega**](http://en.wikipedia.org/wiki/Acanthostega) **had both** [**lungs**](http://en.wikipedia.org/wiki/Lungs) **and** [**gills**](http://en.wikipedia.org/wiki/Gills)**, also indicating it was a link between** [**lobe-finned fish**](http://en.wikipedia.org/wiki/Lobe-finned_fish) **and terrestrial vertebrates.**  [**Ichthyostega**](http://en.wikipedia.org/wiki/Ichthyostega) **is an early** [**tetrapod**](http://en.wikipedia.org/wiki/Tetrapod)**. Being one of the first animals with legs, arms, and finger bones,** [**Ichthyostega**](http://en.wikipedia.org/wiki/Ichthyostega) **is seen as a** [**hybrid**](http://en.wikipedia.org/wiki/Hybrid_(biology)) **between a** [**fish**](http://en.wikipedia.org/wiki/Fish) **and an** [**amphibian**](http://en.wikipedia.org/wiki/Amphibia)**.** [**Ichthyostega**](http://en.wikipedia.org/wiki/Ichthyostega)**' had legs but its** [**limbs**](http://en.wikipedia.org/wiki/Limb_(anatomy)) **probably weren't used for** [**walking**](http://en.wikipedia.org/wiki/Walking)**, they may have spent very brief periods out of water and would have used their legs to paw their way through the** [**mud**](http://en.wikipedia.org/wiki/Mud)**.**[**[7]**](http://en.wikipedia.org/wiki/Timeline_of_human_evolution#cite_note-6)  [**Amphibia**](http://en.wikipedia.org/wiki/Amphibia) **were the first four-legged animals to develop** [**lungs**](http://en.wikipedia.org/wiki/Lungs)**.** [**Amphibians**](http://en.wikipedia.org/wiki/Amphibia) **living today still retain many characteristics of the early** [**tetrapods**](http://en.wikipedia.org/wiki/Tetrapods)**.** |
| **300** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/a/af/HylonomusZICA.png/200px-HylonomusZICA.png](http://en.wikipedia.org/wiki/File:HylonomusZICA.png)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:HylonomusZICA.png)**  [**Hylonomus**](http://en.wikipedia.org/wiki/Hylonomus)  **From amphibians came the first reptiles:** [**Hylonomus**](http://en.wikipedia.org/wiki/Hylonomus) **is the earliest known** [**reptile**](http://en.wikipedia.org/wiki/Reptile)**. It was 20 cm (8 in) long (including the tail) and probably would have looked rather similar to modern** [**lizards**](http://en.wikipedia.org/wiki/Lizard)**. It had small sharp teeth and probably ate** [**millipedes**](http://en.wikipedia.org/wiki/Millipede) **and early** [**insects**](http://en.wikipedia.org/wiki/Insect)**. It is a precursor of later** [**amniotes**](http://en.wikipedia.org/wiki/Amniote) **and** [**mammal-like reptiles**](http://en.wikipedia.org/wiki/Mammal-like_reptiles)**.**  **Evolution of the** [**amniotic egg**](http://en.wikipedia.org/wiki/Amniotic_egg) **gives rise to the** [**Amniota**](http://en.wikipedia.org/wiki/Amniota)**,** [**reptiles**](http://en.wikipedia.org/wiki/Reptile) **that can reproduce on land and lay eggs on dry land. They did not need to return to water for reproduction. This adaptation gave them the capability to colonize the uplands for the first time.**  **Reptiles have advanced nervous system, compared to** [**amphibians**](http://en.wikipedia.org/wiki/Amphibians)**. They have twelve pairs of cranial nerves.** |
| **256** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/c/cf/Phtinosuchus1ZICA.png/200px-Phtinosuchus1ZICA.png](http://en.wikipedia.org/wiki/File:Phtinosuchus1ZICA.png)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:Phtinosuchus1ZICA.png)**  [**Phtinosuchus**](http://en.wikipedia.org/wiki/Phtinosuchus)**, an early** [**Therapsid**](http://en.wikipedia.org/wiki/Therapsid)  **Shortly after the appearance of the first** [**reptiles**](http://en.wikipedia.org/wiki/Reptile)**, two branches split off. One branch is the** [**Diapsida**](http://en.wikipedia.org/wiki/Diapsida) **from which come the modern** [**reptiles**](http://en.wikipedia.org/wiki/Reptile)**. The other branch is** [**Synapsida**](http://en.wikipedia.org/wiki/Synapsida) **which had** [**temporal fenestra**](http://en.wikipedia.org/wiki/Temporal_fenestra)**, a pair of holes in their skulls behind the eyes, which were used to increase the space for jaw muscles.**  **The earliest** [**mammal-like reptiles**](http://en.wikipedia.org/wiki/Mammal-like_reptiles) **are the** [**pelycosaurs**](http://en.wikipedia.org/wiki/Pelycosaur)**. The pelycosaurs were the first animals to have temporal fenestra. Pelycosaurs are not** [**Therapsida**](http://en.wikipedia.org/wiki/Therapsida) **but soon they gave rise to them. The Therapsida are the direct ancestor of** [**mammals**](http://en.wikipedia.org/wiki/Mammals)**.**  **The therapsids have temporal fenestrae larger and more mammal-like than pelycosaurs, their teeth show more serial differentiation; and later forms had evolved a** [**secondary palate**](http://en.wikipedia.org/wiki/Secondary_palate)**. A secondary palate enables the animal to eat and breathe at the same time and is a sign of a more active, perhaps warm-blooded, way of life.** [**[8]**](http://en.wikipedia.org/wiki/Timeline_of_human_evolution#cite_note-7) |
| **220** | **One sub-group of therapsids, the** [**cynodonts**](http://en.wikipedia.org/wiki/Cynodonts) **evolved more mammal-like characteristics. The jaws of cynodonts resemble modern mammal jaws. It is very likely this group of animals contains a species which is the direct ancestor of all modern mammals.**[**[9]**](http://en.wikipedia.org/wiki/Timeline_of_human_evolution#cite_note-8) |
| **220** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/2/2b/RepenomamusuZICA.png/200px-RepenomamusuZICA.png](http://en.wikipedia.org/wiki/File:RepenomamusuZICA.png)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:RepenomamusuZICA.png)**  [**Repenomamus**](http://en.wikipedia.org/wiki/Repenomamus)  **From** [**eucynodonts**](http://en.wikipedia.org/wiki/Eucynodonts) **(**[**cynodonts**](http://en.wikipedia.org/wiki/Cynodonts)**) came the first** [**mammals**](http://en.wikipedia.org/wiki/Mammal)**. Most early mammals were small and shrew-like animals that fed on insects. Although there is no evidence in the fossil record, it is likely that these animals had a constant body temperature, milk glands for their young. The** [**neocortex**](http://en.wikipedia.org/wiki/Neocortex) **region of the** [**brain**](http://en.wikipedia.org/wiki/Brain) **first evolved in mammals and thus is unique to them.** |
| **125** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/e/e0/Eomaia23423.jpg/200px-Eomaia23423.jpg](http://en.wikipedia.org/wiki/File:Eomaia23423.jpg)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:Eomaia23423.jpg)**  [**Eomaia scansoria**](http://en.wikipedia.org/wiki/Eomaia_scansoria)  **a eutherian mammal, leads to the formation of modern placental mammals. It looks like modern dormouse, climbing small shrubs in** [**Liaoning**](http://en.wikipedia.org/wiki/Liaoning)**,** [**China**](http://en.wikipedia.org/wiki/China)**.** |
| **100** | **Common** [**genetic**](http://en.wikipedia.org/wiki/Genetics)[**ancestor**](http://en.wikipedia.org/wiki/Ancestor) **of** [**mice**](http://en.wikipedia.org/wiki/Mouse) **and humans.** |
| **65** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/3/33/PlesiadapisZICA.png/200px-PlesiadapisZICA.png](http://en.wikipedia.org/wiki/File:PlesiadapisZICA.png)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:PlesiadapisZICA.png)**  [**Carpolestes simpsoni**](http://en.wikipedia.org/wiki/Carpolestes_simpsoni)  **[http://upload.wikimedia.org/wikipedia/commons/thumb/d/de/PlesiadapisNewZICA.png/200px-PlesiadapisNewZICA.png](http://en.wikipedia.org/wiki/File:PlesiadapisNewZICA.png)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:PlesiadapisNewZICA.png)**  **A** [**Plesiadapis**](http://en.wikipedia.org/wiki/Plesiadapis) **without** [**fur**](http://en.wikipedia.org/wiki/Fur)**.**  **A group of small, nocturnal and arboreal, insect-eating mammals called the** [**Euarchonta**](http://en.wikipedia.org/wiki/Euarchonta) **begins a speciation that will lead to the** [**primate**](http://en.wikipedia.org/wiki/Primate)**,** [**treeshrew**](http://en.wikipedia.org/wiki/Treeshrew) **and** [**flying lemur**](http://en.wikipedia.org/wiki/Flying_lemur)[**orders**](http://en.wikipedia.org/wiki/Order_(biology))**. The** [**Primatomorpha**](http://en.wikipedia.org/w/index.php?title=Primatomorpha&action=edit&redlink=1) **is a subdivision of Euarchonta that includes the primates and the proto-primate** [**Plesiadapiformes**](http://en.wikipedia.org/wiki/Plesiadapiformes)**. One of the early proto-primates is** [**Plesiadapis**](http://en.wikipedia.org/wiki/Plesiadapis)**. Plesiadapis still had claws and the eyes located on each side of the head, because of that they were faster on the ground than on the top of the trees, but they begin to spend long times on lower branches of trees, feeding on** [**fruits**](http://en.wikipedia.org/wiki/Fruit) **and** [**leaves**](http://en.wikipedia.org/wiki/Leaf)**. The** [**Plesiadapiformes**](http://en.wikipedia.org/wiki/Plesiadapiformes) **very likely contain the species which is the ancestor of all primates.**[**[10]**](http://en.wikipedia.org/wiki/Timeline_of_human_evolution#cite_note-9)  **One of the last** [**Plesiadapiformes**](http://en.wikipedia.org/wiki/Plesiadapiformes) **is** [**Carpolestes simpsoni**](http://en.wikipedia.org/wiki/Carpolestes_simpsoni)**. It had grasping digits but no forward facing eyes.** |
| **40** | [**Primates**](http://en.wikipedia.org/wiki/Primate) **diverge into suborders** [**Strepsirrhini**](http://en.wikipedia.org/wiki/Strepsirrhini) **(wet-nosed primates) and** [**Haplorrhini**](http://en.wikipedia.org/wiki/Haplorrhini) **(dry nosed primates). Strepsirrhini contains most of the** [**prosimians**](http://en.wikipedia.org/wiki/Prosimian)**; modern examples include the** [**lemurs**](http://en.wikipedia.org/wiki/Lemur) **and** [**lorises**](http://en.wikipedia.org/wiki/Loris)**. The haplorrhines include the three living groups the prosimian** [**tarsiers**](http://en.wikipedia.org/wiki/Tarsier)**, the simian** [**monkeys**](http://en.wikipedia.org/wiki/Monkey)**, and** [**apes**](http://en.wikipedia.org/wiki/Ape)**. One of the earliest haplorrhines is** [**Teilhardina asiatica**](http://en.wikipedia.org/w/index.php?title=Teilhardina_asiatica&action=edit&redlink=1)**, a mouse-sized, diurnal creature with small eyes.** |
| **30** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/e/e6/AegptecusZICA.png/200px-AegptecusZICA.png](http://en.wikipedia.org/wiki/File:AegptecusZICA.png)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:AegptecusZICA.png)**  [**Aegyptopithecus**](http://en.wikipedia.org/wiki/Aegyptopithecus)  [**Haplorrhini**](http://en.wikipedia.org/wiki/Haplorrhini) **splits into infraorders** [**Platyrrhini**](http://en.wikipedia.org/wiki/Platyrrhini) **and** [**Catarrhini**](http://en.wikipedia.org/wiki/Catarrhini)**. Platyrrhines, New World monkeys, have prehensile tails and males are color blind. They may have migrated to South America on a raft of vegetation across the Atlantic ocean (circa 4,500 km, 2,800 mi). Catarrhines mostly stayed in** [**Africa**](http://en.wikipedia.org/wiki/Africa) **as the two continents drifted apart. One ancestor of catarrhines might be** [**Aegyptopithecus**](http://en.wikipedia.org/wiki/Aegyptopithecus)**.** |
| **25** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/3/3f/ProconsulZICA.png/200px-ProconsulZICA.png](http://en.wikipedia.org/wiki/File:ProconsulZICA.png)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:ProconsulZICA.png)**  [**Proconsul**](http://en.wikipedia.org/wiki/Proconsul_(genus))  [**Catarrhini**](http://en.wikipedia.org/wiki/Catarrhini) **splits into 2 superfamilies,** [**Old World monkeys**](http://en.wikipedia.org/wiki/Old_World_monkey) **(**[**Cercopithecoidea**](http://en.wikipedia.org/wiki/Cercopithecoidea)**) and** [**apes**](http://en.wikipedia.org/wiki/Ape) **(**[**Hominoidea**](http://en.wikipedia.org/wiki/Hominoidea)**).**  [**Proconsul**](http://en.wikipedia.org/wiki/Proconsul_(genus)) **was an early** [**genus**](http://en.wikipedia.org/wiki/Genus) **of catarrhine primates. They had a mixture of** [**Old World monkey**](http://en.wikipedia.org/wiki/Old_World_monkey) **and** [**ape**](http://en.wikipedia.org/wiki/Ape) **characteristics. Proconsul's** [**monkey**](http://en.wikipedia.org/wiki/Monkey)**-like features include thin** [**tooth**](http://en.wikipedia.org/wiki/Tooth) **enamel, a light build with a narrow chest and short forelimbs, and an arboreal quadrupedal lifestyle. Its ape-like features are its lack of a** [**tail**](http://en.wikipedia.org/wiki/Tail)**, ape-like** [**elbows**](http://en.wikipedia.org/wiki/Elbow-joint)**, and a slightly larger brain relative to body size.** [**Proconsul africanus**](http://en.wikipedia.org/wiki/Proconsul_africanus) **is a possible ancestor of both great and lesser apes, and humans.** |
| **15** | [**Hominidae**](http://en.wikipedia.org/wiki/Hominidae) **(great apes) speciate from the ancestors of the** [**gibbon**](http://en.wikipedia.org/wiki/Gibbon) **(lesser apes).** |
| **13** | [**Homininae**](http://en.wikipedia.org/wiki/Homininae) **ancestors speciate from the ancestors of the** [**orangutan**](http://en.wikipedia.org/wiki/Orangutan)[**[11]**](http://en.wikipedia.org/wiki/Timeline_of_human_evolution#cite_note-10)**.**  [**Pierolapithecus catalaunicus**](http://en.wikipedia.org/wiki/Pierolapithecus_catalaunicus) **is believed to be a** [**common ancestor**](http://en.wikipedia.org/wiki/Common_ancestor) **of humans and the great apes or at least a species that brings us closer to a common ancestor than any previous** [**fossil**](http://en.wikipedia.org/wiki/Fossil) **discovery.**  **Pierolapithecus had special adaptations for tree climbing, just as humans and other great apes do: a wide, flat** [**ribcage**](http://en.wikipedia.org/wiki/Ribcage)**, a stiff lower** [**spine**](http://en.wikipedia.org/wiki/Vertebral_column)**, flexible wrists, and** [**shoulder**](http://en.wikipedia.org/wiki/Shoulder) **blades that lie along its back.** |
| **10** | [**Hominini**](http://en.wikipedia.org/wiki/Hominini) **speciate from the ancestors of the** [**gorillas**](http://en.wikipedia.org/wiki/Gorilla)**.** |
| **7** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/5/5c/SahelanthropustchadensisZICA.png/200px-SahelanthropustchadensisZICA.png](http://en.wikipedia.org/wiki/File:SahelanthropustchadensisZICA.png)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:SahelanthropustchadensisZICA.png)**  [**Sahelanthropus tchadensis**](http://en.wikipedia.org/wiki/Sahelanthropus_tchadensis)  [**Hominina**](http://en.wikipedia.org/wiki/Hominina) **speciate from the ancestors of the** [**chimpanzees**](http://en.wikipedia.org/wiki/Chimpanzee)**. The** [**latest common ancestor**](http://en.wikipedia.org/wiki/Latest_common_ancestor) **is** [**Sahelanthropus tchadensis**](http://en.wikipedia.org/wiki/Sahelanthropus_tchadensis) **(ca. 7 Ma). The earliest known human ancestor post-dating the separation of the human and the chimpanzee lines is** [**Orrorin tugenensis**](http://en.wikipedia.org/wiki/Orrorin_tugenensis) **(Millennium Man, Kenya; ca. 6 Ma). Both chimpanzees and humans have a** [**larynx**](http://en.wikipedia.org/wiki/Larynx) **that repositions during the first two years of life to a spot between the** [**pharynx**](http://en.wikipedia.org/wiki/Pharynx) **and the lungs, indicating that the common ancestors have this feature, a precursor of speech.** |
| **4.4** | [**Ardipithecus**](http://en.wikipedia.org/wiki/Ardipithecus) **ramidus ramidus** |
| **4.4** | **Some** [**Australopithecus afarensis**](http://en.wikipedia.org/wiki/Australopithecus_afarensis) **left footprints on volcanic ash in Laetoli, Kenya (Northern Tanzania) Strong evidence of bipedalism.** |
| **3.5** | **[http://upload.wikimedia.org/wikipedia/en/thumb/7/74/Kenyanthropus.jpg/140px-Kenyanthropus.jpg](http://en.wikipedia.org/wiki/File:Kenyanthropus.jpg)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:Kenyanthropus.jpg)**  [**Kenyanthropus platyops**](http://en.wikipedia.org/wiki/Kenyanthropus_platyops)**, a possible ancestor of Homo, emerges from the Australopithecus genus.** |
| **3** | **The bipedal** [**australopithecines**](http://en.wikipedia.org/wiki/Australopithecus) **(a genus of the** [**Hominina**](http://en.wikipedia.org/wiki/Hominina) **subtribe) evolve in the savannas of** [**Africa**](http://en.wikipedia.org/wiki/Africa) **being hunted by** [**Dinofelis**](http://en.wikipedia.org/wiki/Dinofelis)**. Loss of** [**body hair**](http://en.wikipedia.org/wiki/Body_hair) **takes place in the period 3-2 Ma, in parallel with the development of full** [**bipedalism**](http://en.wikipedia.org/wiki/Bipedalism)**.** |
| **2.5** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/5/51/HabilisZICA.png/200px-HabilisZICA.png](http://en.wikipedia.org/wiki/File:HabilisZICA.png)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:HabilisZICA.png)**  [**Homo habilis**](http://en.wikipedia.org/wiki/Homo_habilis)  **Appearance of** [**Homo**](http://en.wikipedia.org/wiki/Homo_(genus))**.** [**Homo habilis**](http://en.wikipedia.org/wiki/Homo_habilis) **is thought to be the ancestor of the lankier and more sophisticated,** [**Homo ergaster**](http://en.wikipedia.org/wiki/Homo_ergaster)**. Lived side by side the** [**Homo erectus**](http://en.wikipedia.org/wiki/Homo_erectus) **until at least 1.44 Ma, making it highly unlikely that** [**Homo erectus**](http://en.wikipedia.org/wiki/Homo_erectus) **directly evolved out of** [**Homo habilis**](http://en.wikipedia.org/wiki/Homo_habilis)**. First** [**stone tools**](http://en.wikipedia.org/wiki/Stone_tool)**, beginning of the** [**Lower Paleolithic**](http://en.wikipedia.org/wiki/Lower_Paleolithic)**.**  **Further information:** [**Homo rudolfensis**](http://en.wikipedia.org/wiki/Homo_rudolfensis) |
| **1.8** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/2/23/Homo_erectus.JPG/200px-Homo_erectus.JPG](http://en.wikipedia.org/wiki/File:Homo_erectus.JPG)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:Homo_erectus.JPG)**  **A reconstruction of** [**Homo erectus**](http://en.wikipedia.org/wiki/Homo_erectus)**.**  [**Homo erectus**](http://en.wikipedia.org/wiki/Homo_erectus) **evolves in** [**Africa**](http://en.wikipedia.org/wiki/Africa)**. Homo erectus would bear a striking resemblance to modern humans, but had a brain about 74 percent of the size of modern man. Its forehead is less sloping and the teeth are smaller. It is believed to be an ancestor of modern humans (with** [**Homo heidelbergensis**](http://en.wikipedia.org/wiki/Homo_heidelbergensis) **usually treated as an intermediary step).**  **Homo erectus** [**migrates**](http://en.wikipedia.org/wiki/Early_human_migrations) **out of Africa and colonizes** [**Eurasia**](http://en.wikipedia.org/wiki/Eurasia)**.** |
| **1.5** | [**Dmanisi**](http://en.wikipedia.org/wiki/Dmanisi) **man /** [**Homo georgicus**](http://en.wikipedia.org/wiki/Homo_georgicus) **(**[**Georgia**](http://en.wikipedia.org/wiki/Georgia_(country))**), tiny brain came from Africa, with Homo erectus and Homo habilis characteristics.** [**Control of fire by early humans**](http://en.wikipedia.org/wiki/Control_of_fire_by_early_humans)**. Evolution of** [**dark skin**](http://en.wikipedia.org/wiki/Dark_skin) **is complete by 1.2 Ma.** |
| **0.516** | [**Common genetic ancestor of humans and Neanderthal**](http://en.wikipedia.org/wiki/Homo_antecessor)**.**[**[12]**](http://en.wikipedia.org/wiki/Timeline_of_human_evolution#cite_note-11) **At present estimate, humans have approximately 20,000–25,000** [**genes**](http://en.wikipedia.org/wiki/Gene) **and share 99% of their** [**DNA**](http://en.wikipedia.org/wiki/DNA) **with the now** [**extinct**](http://en.wikipedia.org/wiki/Extinct)[**Neanderthal**](http://en.wikipedia.org/wiki/Neanderthal)[**[13]**](http://en.wikipedia.org/wiki/Timeline_of_human_evolution#cite_note-12) **and 95% of their** [**DNA**](http://en.wikipedia.org/wiki/DNA) **with their closest** [**living**](http://en.wikipedia.org/wiki/Living) **evolutionary relative, the** [**chimpanzees**](http://en.wikipedia.org/wiki/Chimpanzee)[**[14]**](http://en.wikipedia.org/wiki/Timeline_of_human_evolution#cite_note-13)**.** |
| **0.355** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/d/d9/Neanderthal_child.jpg/200px-Neanderthal_child.jpg](http://en.wikipedia.org/wiki/File:Neanderthal_child.jpg)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:Neanderthal_child.jpg)**  **Reconstruction of a Neanderthal child from** [**Gibraltar**](http://en.wikipedia.org/wiki/Gibraltar) **(Anthropological Institute, University of Zürich)**  **Three 1.5 m (5 ft) tall** [**Homo heidelbergensis**](http://en.wikipedia.org/wiki/Homo_heidelbergensis) **left footprints in powdery volcanic ash solidified in Italy. Homo heidelbergensis is the common ancestor of both** [**Homo neanderthalensis**](http://en.wikipedia.org/wiki/Homo_neanderthalensis) **and** [**Homo sapiens**](http://en.wikipedia.org/wiki/Homo_sapiens)**. It is morphologically very similar to** [**Homo erectus**](http://en.wikipedia.org/wiki/Homo_erectus) **but Homo heidelbergensis had a larger brain-case, about 93% the size of that of Homo sapiens. The species was tall, 1.8 m (6 ft) on average, and more muscular than modern humans. Beginning of the** [**Middle Paleolithic**](http://en.wikipedia.org/wiki/Middle_Paleolithic)**.** |
| **0.195** | [**Omo1**](http://en.wikipedia.org/wiki/Omo_remains)**,** [**Omo2**](http://en.wikipedia.org/wiki/Omo_remains) **(Ethiopia, Omo river) are the earliest fossil evidence for** [**archaic Homo sapiens**](http://en.wikipedia.org/wiki/Archaic_Homo_sapiens)**, evolved from** [**Homo heidelbergensis**](http://en.wikipedia.org/wiki/Homo_heidelbergensis)**.** |
| **0.160** | **Homo sapiens (**[**Homo sapiens idaltu**](http://en.wikipedia.org/wiki/Homo_sapiens_idaltu)**) in Ethiopia, Awash River, Herto village, practise mortuary rituals and butcher hippos.** |
| **0.150** | **[http://upload.wikimedia.org/wikipedia/commons/thumb/b/bf/PPlaqueB.png/200px-PPlaqueB.png](http://en.wikipedia.org/wiki/File:PPlaqueB.png)**  **[http://upload.wikimedia.org/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:PPlaqueB.png)**  **Homo sapiens sapiens (**[**Pioneer plaque**](http://en.wikipedia.org/wiki/Pioneer_plaque)**)**  [**Mitochondrial Eve**](http://en.wikipedia.org/wiki/Mitochondrial_Eve) **lives in** [**East Africa**](http://en.wikipedia.org/wiki/East_Africa)**. She is the most recent female ancestor common to all** [**mitochondrial**](http://en.wikipedia.org/wiki/Mitochondrial) **lineages in humans alive today.** |
| **0.70** | **Appearance of mitochondrial haplogroup** [**L2**](http://en.wikipedia.org/wiki/Haplogroup_L2_(mtDNA))**.** [**Behavioral modernity**](http://en.wikipedia.org/wiki/Behavioral_modernity)**. The** [**FOXP2**](http://en.wikipedia.org/wiki/FOXP2) **gene (associated with the** [**development of speech**](http://en.wikipedia.org/wiki/Origin_of_language)**) appears in this period.**[**[15]**](http://en.wikipedia.org/wiki/Timeline_of_human_evolution#cite_note-14) |
| **0.60** | [**Y-chromosomal Adam**](http://en.wikipedia.org/wiki/Y-chromosomal_Adam) **lives in Africa. He is the** [**most recent common ancestor**](http://en.wikipedia.org/wiki/Most_recent_common_ancestor) **from whom all male human Y chromosomes are descended. Appearance of mitochondrial haplogroups** [**M**](http://en.wikipedia.org/wiki/Haplogroup_M_(mtDNA)) **and** [**N**](http://en.wikipedia.org/wiki/Haplogroup_N_(mtDNA))**, which participate in the** [**migration out of Africa**](http://en.wikipedia.org/wiki/Recent_African_Origin)**.** |
| **0.50** | [**Migration**](http://en.wikipedia.org/wiki/Early_human_migration) **to** [**South Asia**](http://en.wikipedia.org/wiki/Paleolithic_South_Asia)**.** [**M168**](http://en.wikipedia.org/wiki/M168) **mutation (carried by all non-African males). Beginning of the** [**Upper Paleolithic**](http://en.wikipedia.org/wiki/Upper_Paleolithic)**. mt-haplogroups** [**U**](http://en.wikipedia.org/wiki/Haplogroup_U_(mtDNA))**,** [**K**](http://en.wikipedia.org/wiki/Haplogroup_K_(mtDNA))**.** |
| **0.40** | **Migration to** [**Australia**](http://en.wikipedia.org/wiki/Prehistory_of_Australia) **and** [**Europe**](http://en.wikipedia.org/wiki/Paleolithic_Europe) **(**[**Cro-Magnon**](http://en.wikipedia.org/wiki/Cro-Magnon)**).** |
| **0.25** | [**Neanderthals die out**](http://en.wikipedia.org/wiki/Neanderthal_interaction_with_Cro-Magnons)**. Y-Haplogroup** [**R2**](http://en.wikipedia.org/wiki/Haplogroup_R2_(Y-DNA))**; mt-haplogroups** [**J**](http://en.wikipedia.org/wiki/Haplogroup_J_(mtDNA))**,** [**X**](http://en.wikipedia.org/wiki/Haplogroup_X_(mtDNA))**.** |
| **0.12** | **Beginning of the** [**Mesolithic**](http://en.wikipedia.org/wiki/Mesolithic) **/** [**Holocene**](http://en.wikipedia.org/wiki/Holocene)**. Y-Haplogroup** [**R1a**](http://en.wikipedia.org/wiki/Haplogroup_R1a_(Y-DNA))**; mt-haplogroups** [**V**](http://en.wikipedia.org/wiki/Haplogroup_V_(mtDNA))**,** [**T**](http://en.wikipedia.org/wiki/Haplogroup_T_(mtDNA))**. Evolution of** [**light skin**](http://en.wikipedia.org/wiki/Light_skin) **in Europeans (**[**SLC24A5**](http://en.wikipedia.org/wiki/SLC24A5)**). First** [**domestication of the dog**](http://en.wikipedia.org/wiki/Origin_of_the_domestic_dog)**.** [**Homo floresiensis**](http://en.wikipedia.org/wiki/Homo_floresiensis) **dies out, leaving Homo sapiens as the only living species of the genus** [**Homo**](http://en.wikipedia.org/wiki/Homo_(genus))**.** |
| **0.10** | **Beginning of the** [**Neolithic**](http://en.wikipedia.org/wiki/Neolithic) **/** [**Holocene**](http://en.wikipedia.org/wiki/Holocene)**. The** [**invention of farming**](http://en.wikipedia.org/wiki/Neolithic_revolution) **in the** [**Fertile Crescent**](http://en.wikipedia.org/wiki/Fertile_Crescent) **occurred during this time.** |