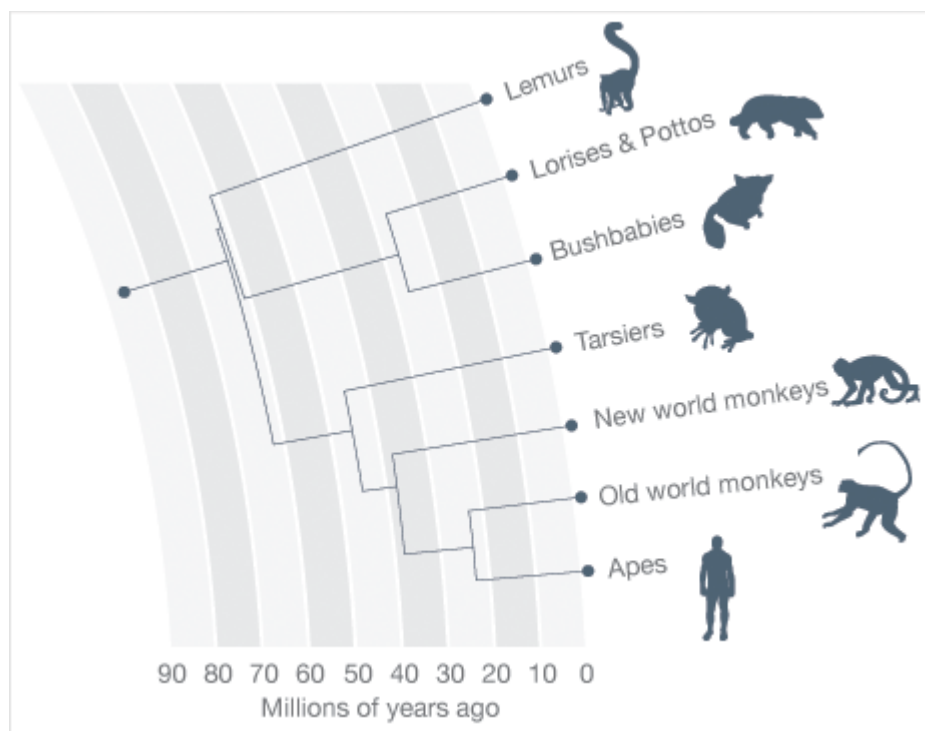
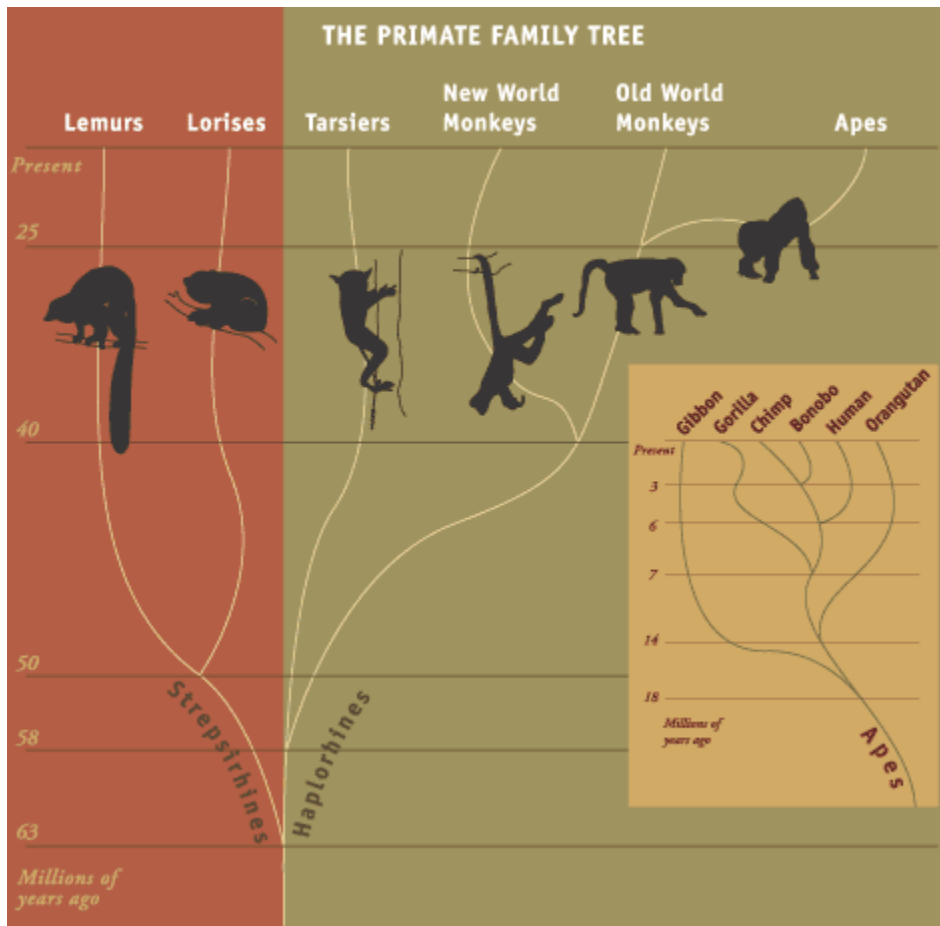
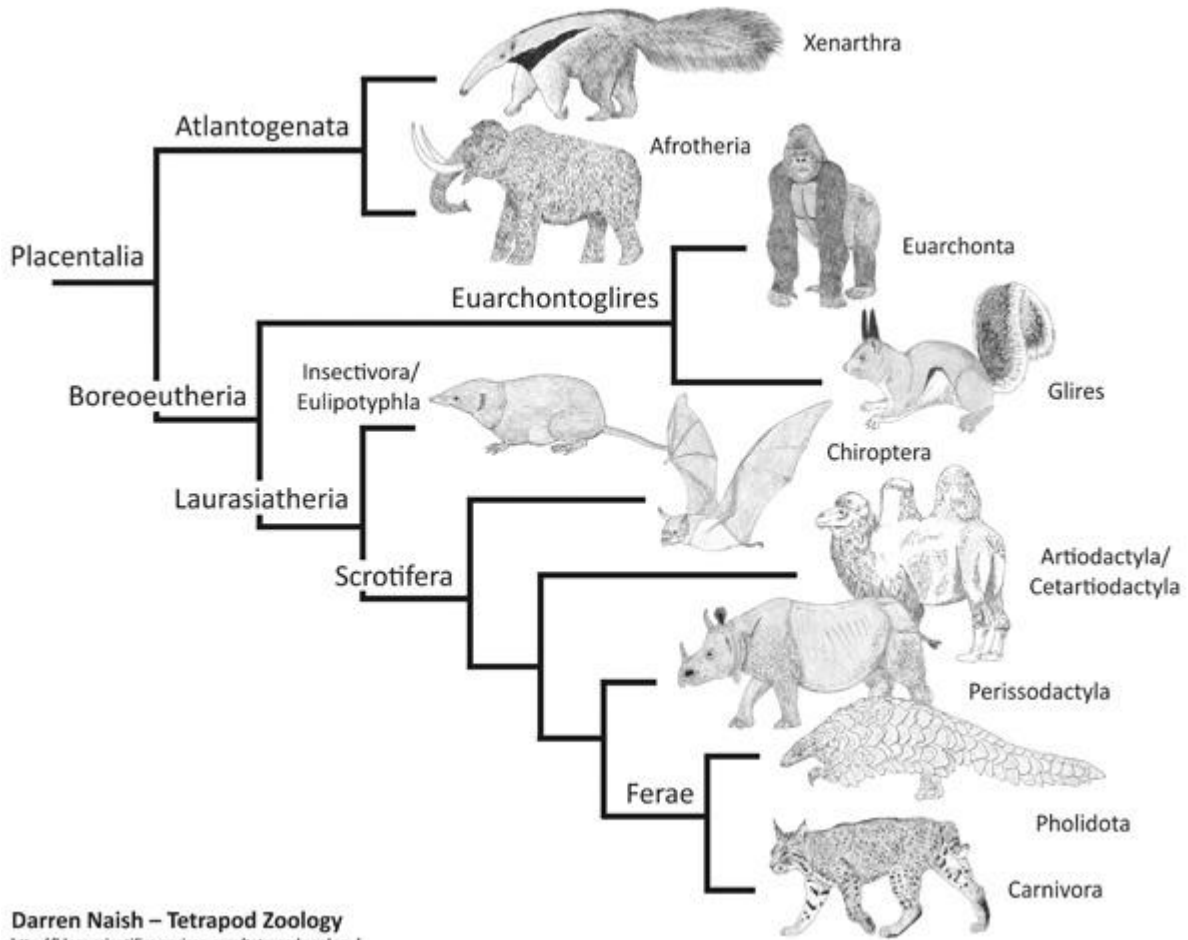


## 6SSEL045 – Language Origins Primate Evolution in Pictures



## Evolution of Placental Mammals, including Primates (Euarchonta)



Darren Naish – Tetrapod Zoology  
<http://blogs.scientificamerican.com/tetrapod-zoology/>

## Classification and Orders in Primates

**D.4.1 State the full classification of human beings from kingdom to sub-species**

	<b>Kingdom</b> Animalia		
	<b>Phylum</b> Chordata		
	<b>Class</b> Mammalia		
	<b>Order</b> Primate		
	<b>Family</b> Hominidae		
	<b>Genus</b> Homo		
	<b>Species</b> sapiens		
	<b>Subspecies</b> sapiens		

**Classification of *Homo sapiens* within the order Primates**

<b>species</b> <i>sapiens</i>		<b>contained forms:</b> modern humans
<b>genus</b> <i>Homo</i>		modern and archaic humans
<b>family</b> Hominidae		humans and great apes
<b>superfamily</b> Hominoidea		humans and all apes (great apes and gibbons)
<b>infraorder</b> Simiiformes		humans, apes, and monkeys
<b>suborder</b> Haplorrhini		humans, apes, monkeys, and tarsiers
<b>order</b> Primates		humans, apes, monkeys, tarsiers, lemurs, and lorises

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N.B. The word CLADE can be used for any level of classification; e.g. “the primate clade includes the hominidae clade.” So use “clade” instead of the more confusing classificatory terms.



# Evolution of Vertebrates, including Placental Mammals (Placentalia)

## MILESTONES OF VERTEBRATE EVOLUTION

Scientists have been trying to solve the riddle of mammal evolution for over 200 years. Although some details are still obscure, they have been able to determine a great many of the major steps in the evolution of mammals. The most important ones are shown in this diagram. They are referred to as milestones. In one well-known study, the evolutionary process of the mammalian ear was traced back to a group of reptiles. It is now known that a group of reptiles, the cynodonts, gave rise to the mammals. The cynodonts were a group of mammals that lived during the Permian period. The cynodonts were a group of mammals that lived during the Permian period. The cynodonts were a group of mammals that lived during the Permian period.



**LEATHERS & BONES**

Leathers and bones are defining features of many vertebrates. They are made of collagen fibers, which are secreted by fibroblasts. In mammals, the dermis is thick and contains many hair follicles. The bones are made of calcium phosphate and are covered by a layer of cartilage. The cartilage is made of collagen fibers and is secreted by chondrocytes.

**PLACENTA**

The placenta is a temporary organ that develops in the uterus of a mammal. It is attached to the wall of the uterus and is connected to the fetus by the umbilical cord. The placenta provides the fetus with oxygen and nutrients from the mother's blood. It also removes waste products from the fetus's blood.

**MAMMARY GLAND**

Mammary glands are specialized glands that produce milk in mammals. They are located in the chest area and are connected to the nipple. The milk is secreted into the nipple and is then sucked by the infant. The mammary glands are made of epithelial cells and are controlled by hormones.

**HINGELIKE ANKLE**

A hinged ankle is a characteristic feature of many mammals. It allows the animal to move forward and backward. The ankle is made of the tibia and fibula bones. The tibia is the larger bone and is located on the inner side of the leg. The fibula is the smaller bone and is located on the outer side of the leg.

**ANTONIAL FERTILIZATION**

Antonial fertilization is a process in which the egg and sperm meet in the uterus. This is a common feature of many mammals. The egg is released from the ovary and is fertilized by the sperm. The fertilized egg then develops into a zygote, which implants itself in the uterine wall.

**ENDOTHERMY**

Endothermy is the ability of an animal to generate its own heat. This is a characteristic feature of mammals and birds. They have a high metabolic rate and can maintain a constant body temperature. This allows them to live in a wide range of environments.

**TO BE DETERMINED**

This section is currently blank and is intended for future milestones.

**AMNIOTE EGG**

The amniote egg is a defining feature of mammals, birds, and reptiles. It is a large, complex structure that contains the developing embryo. The egg is surrounded by a protective shell and contains a large amount of yolk. The embryo is attached to the yolk by a placenta.

**FOUR DIGITS**

Four digits are a characteristic feature of many mammals. This is a result of the evolutionary process of tetrapodization. The four digits are the thumb, index, middle, and ring fingers. They are used for grasping and manipulating objects.

**LUNGS**

Lungs are the respiratory organs of vertebrates. They are located in the chest area and are used for breathing. The lungs are made of a spongy tissue and are covered by a layer of pleura. The pleura is a thin layer of tissue that reduces friction between the lungs and the chest wall.

**JAWS**

Jaws are a defining feature of vertebrates. They are used for biting and chewing food. The jaws are made of bone and are supported by muscles. The jaws are a result of the evolutionary process of the transition from fish to land vertebrates.

**CLASSE GANTHODIES**

Classodonts are a group of early vertebrates. They are characterized by their unique jaw structure. They are considered to be a transitional form between fish and land vertebrates. They have a jaw that is supported by a single bone, the dentary.

**VERTERBAL COLUMN**

The vertebral column is a defining feature of vertebrates. It is a series of vertebrae that support the body and protect the spinal cord. The vertebrae are made of bone and are connected by intervertebral discs. The vertebral column is a result of the evolutionary process of the transition from invertebrates to vertebrates.

filename: Milestones of Vertebrate Evolution | Draft 426 | Sept 1, 2005