Systematic Classification of Contemporary Humans

Galactic development ~13 787 Mya — **Cosmic**
- Spacetime
- Energy
- Matter

~13 600 Mya — **Chemical**
- Stars
- Heavy elements
- Chemical diversity

Origin of Life on Earth

Hadean ~4 540 Mya — **Terrestrial**
- Earth
- Atmosphere
- Oceans

Archean ~4 000 Mya — **Organic**
- Carbon-based molecules
- Complex structures
- Amino acids
- Sugars
- Nucleotides
- Hydrothermal vent mediation
- Polymerization
- RNA
- Peptides
- Lipid membranes

~3 800 Mya — **Prebiota**
- Ribozymes
- Self-replicatiion
- Evolution by natural selection
- Proteins
- Enzymes
- Metabolic pathways
- Protocells

Viruses

Single-celled life

~3 500 Mya — **Biota** (Life)
- Self-maintenance
- DNA
- Self-reproduction
- Cellular structure
- Last Universal Common Ancestor (LUCA)

Archaea, Bacteria

Proterozoic ~1 650 Mya — Domain **Eukaryota**
- Membrane-bound organelles
- Cell nucleus
- Linear DNA
- Sexual reproduction
- Complex cytoskeleton

Plants, Algae

~1 500 Mya — **Amorphea**
- Amoeboid locomotion
- Heterotrophy

Amoeba

~1 100 Mya — **Obazoa**
- Feeding groove
- Flagellar structures
- Signaling and regulatory pathways

Breviatea

~1 100 Mya — **Opisthokonta**
- Single posterior flagellum

Fungi

~1 000 Mya — **Holozoa**
- Food ingestion
- Internal digestion
- Cell differentiation

Teretospores

~760 Mya — **Filozoa**
- Filose tentacles for Sensory perception, Feeding, Locomotion and Adherance

Filasteres

Multicellularity

~670 Mya — **Choanozoa**
- Intercellular communication
- Intercellular cooperation

Choanoflagellates

~665 Mya — Kingdom **Metazoa** (Animals)
- Multicellularity
- Specialized tissues
- Internal digestive system
- Locomotion
- Diplontic lifecycle
- Embryonic development

Sponges

Soft-bodied animals

~635 Mya — **Eumetazoa** (True animals)
- Truly differentiated tissues
- Symmetry
- Mouth
- Anus

Comb jellies

~580 Mya — **ParaHoxozoa**
- Anterior-posterior patterning
- Distinct body regions

Placozoa

~575 Mya — **Planulozoa**
- Larval stage
- Gastrulation via Invagination

Jellyfish, Corals

~567 Mya — **Bilateria**
- Bilateral symmetry
- Head
- Three germ layers
- Nervous system
- Muscles
- Digestive tract
- Light-sensitive cells
- Structured sleep patterns

Xenacoelomorpha

~558 Mya — **Nephrozoa**
- Coelom
- Excretory organ system

Flatworms, Nematodes, Arthropods, Mollusks, Octopuses

Cambrian explosion

Cambrian ~538 Mya — **Deuterostomia**
- Grows from anus to mouth
- Mineralized body parts

Starfish, Sea urchins

~525 Mya — Phylum **Chordata**
- Pharyngeal arches
- Notochord
- Dorsal hollow nerve cord
- Post-anal tail
- Thyroid
- Eyespots
- Cardiac structures

Lancelets

~518 Mya — **Olfactores**
- Olfactory system

Tunicates

Vertebrates

~518 Mya — **Vertebrata**
- Vertebral column
- Skull
- Nostrils
- Paired eyes
- Circulatory system
- Muscular heart

Lampreys, Hagfishes

Ordovician ~439 Mya — **Gnathostomata** (Jawed vertebrates)
- Jaws
- Teeth
- Paired limbs
- Lens-equipped eyes

Sharks, Rays

Silurian ~425 Mya — **Osteichthyes** (Bony fish)
- Bony endoskeleton
- Lungs or swim bladder
- Shoulders

Ray-finned fish

~425 Mya — **Sarcopterygii** (Lobe-finned fish)
- Lobed fins
- Divided atrium

Coelacanths

Devonian ~416 Mya — **Rhipidistia**
- Limbs supported by bones

Lungfishes

Conquering land

~409 Mya — **Tetrapodomorpha**
- Weight supporting limbs
- Pelvic girdle

~409 Mya — **Choanata**
- Air-breathing lungs
- Internal nostrils
- Nasal passage

~385 Mya — **Elpistostegalia**
- Shoulder girdle
- Neck
- Loss of dorsal and anal fins

~375 Mya — **Stegocephalia**
- Strong vertebral column
- Complex teeth structures

Carboniferous ~365 Mya — **Tetrapoda**
- Four fully functional limbs
- Digits
- Terrestrial locomotion
- Complex respiratory system

Amphibians

~350 Mya — **Reptiliomorpha**
- Keratinized skin and claws
- Internal fertilization

~320 Mya — **Amniota**
- Amniotic egg
- Land-based

Reptiles (including Birds), Turtles, Tortoises

Mammalian characteristics

~318 Mya — **Synapsida**
- Singular temporal fenestra
- Thermal regulation

~308 Mya — **Eupelycosauria**
- Differentiated teeth
- Primitive canines

~304 Mya — **Sphenacodontia**
- Articulated jaw
- Canines

Permian ~280 Mya — **Therapsida**
- Warm-blooded
- Vertical limb posture

~266 Mya — **Theriodontia**
- Flexible spine
- Mammalian locomotion
- Seven neck vertebrae

~260 Mya — **Cynodontia**
- Secondary palate
- Proto-hair
- Single lower jawbone
- Middle ear bones
- Heel
- Diaphragm

Triassic ~235 Mya — **Probainognathia**
- Incisors
- High metabolic rate
- Mammalian gait

~233 Mya — **Prozostrodontia**
- Upright running
- Mammalian jaw

~227 Mya — **Mammaliaformes**
- Molars
- Hair

Jurassic ~200 Mya — Class **Mammalia**
- No teeth at birth
- Mammary glands
- Fur
- Three inner ear bones

Platypuses, Echidnas

Placenta & Pregnancy

~170 Mya — **Theriiformes**
- Separate anus and urogenital tract
- External ear

~168 Mya — **Trechnotheria**
- Radial articulation of limbs
- Ankle
- Two sets of teeth

~165 Mya — **Cladotheria**
- Sensory capabilities: Hearing, Smell, Touch

~155 Mya — **Zatheria**
- Nipples

Cretaceous ~140 Mya — **Tribosphenida**
- Tribosphenic molars
- Modern ear

~120 Mya — **Theria**
- Live birth

Marsupials

~110 Mya — **Eutheria** (Placental mammals)
- Placenta

Mammalian diversity

~100 Mya — **Placentalia**
- Extended gestation

Aardvarks, Sloths, Anteaters, Armadillos

~95 Mya — **Boreoeutheria**
- External scrotum

Shrews, Moles, Hedgehogs, Bats, Carnivorans, Pangolins, Ungulates, Elephants, Whales, Manatees

~90 Mya — **Euarchontoglires**
- Omnivory
- Diverse ecological niches

Rodents, Rabbits, Hares, Pikas

~85 Mya — **Euarchonta**
- Hand-eye coordination
- Symbiosis with seeds and berries

Treeshrews

Paleogene ~66 Mya — **Primatomorpha**
- Forward-facing eyes
- Binocular depth perception
- Grasping hands and feet

Colugos

Humanoid form

~65.9 Mya — Order **Primata** (Monkeys)
- Opposable thumbs
- Nails instead of claws
- Larger brain-to-body ratio
- Flexible shoulders
- Extended parental care
- Complex social structures

Lemurs

~60 Mya — **Haplorhini** (Dry-nosed monkeys)
- Dry nose
- Reduced olfactory capabilities
- Vision as primary sense
- Group behavior

Tarsiers

~40 Mya — **Simiiformes** (Simians)
- Loss of sensory whiskers
- Two pectoral nipples
- Naked pendulous penis
- Vocalizations

New world monkeys

~30 Mya — **Catarrhini** (Old world monkeys)
- Trichromatic vision
- Reduced tail
- Downward-facing nostrils
- 2.1.2.3 dental formula
- Flattened nails

Baboons, Macaques, Mandrills

Cognition & Awareness

Neogene ~23 Mya — Family **Hominoidea** (Apes)
- Advanced problem-solving
- Prolonged maternal care
- Learning by observation
- Tendency toward bipedalism
- Flexible shoulder joints

Gibbons

~17 Mya — **Hominidae** (Great apes)
- Human-like teeth and ears
- Primitive tool use
- Recognizes their own reflection
- Self-awareness
- Empathy
- Deliberate deception
- Mourning
- Fingerprints

Orangutans

~12.5 Mya — **Homininae**
- Family structure
- Facial expressions
- Emotions

Gorillas

~7.5 Mya — **Homonini**
- Loss of penile bone
- Inter-group conflicts
- Culture

Bonobos, Chimpanzees

~6.1 Mya — **Australopithecines**
- Bipedal locomotion
- Human-like limb proportions
- Flexible fingers
- Thicker enamel

~4.5 Mya — **Australopithecus**
- Efficient walking
- Smaller canines
- Reduced prognathism
- Varied diet
- Diverse habitats

~2.8 Mya — Genus ***Homo*** (Human)
- Stone tool making
- Meat consumption
- Social complexity
- Division of labor

Pleistocene ~2 Mya — ***Homo erectus***
- Loss of body hair
- Complex cognition
- Passing on knowledge
- Technological development
- Hunter-gatherer
- Food processing
- Controlled fire
- Roasting, Grilling, Smoking

~700.0 kya — ***Homo heidelbergensis***
- Spear
- Shelter construction
- Complex communication

Humanity

~310.0 kya — Species ***Homo sapiens*** (Modern human)
- Perennially enlarged breasts
- Advanced language
- Social learning
- Clothing
- Human migration
- Behavioral modernity
- Spiritualism
- Art
- Fishing
- Trade
- Weaving
- Ceramics
- Bow and Arrow
- Bread

Neolithic ~12.7 kya — **Civilized**
- Settlements
- Agriculture
- Grindstones
- Pottery
- Domestication of animals
- Fermentation
- Metalworking
- Wheel

~5.2 kya — **Historic**
- Writing
- Copper smelting
- Calendar
- Formal education
- Bronze smelting
- Law
- Governance
- Literature
- Sail
- Architecture
- Mathematics
- Alphabet
- Medicine
- Philosophy
- Currency
- Engineering
- Compass
- Gunpowder
- Printing press
- Scientific revolution
- Enlightenment
- Industrialization

Copper age

Bronze age

Antiquity

Medieval

Modern

~70ya — **Contemporary** (You are here)
- Space exploration
- Globalization
- Digitization
- Anthropogenic climate change

Compiled by Anthony Liekens, January 2025