# Systematic Classification of Contemporary Humans

## Galactic development

**Cosmic** ~13 787 Mya
Spacetime
Energy
Matter

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

## Origin of Life on Earth

**Terrestrial** ~4 540 Mya
Earth
Atmosphere
Oceans

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

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

Viruses

## Single-celled life

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

Archaea, Bacteria

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

Plants, Algae

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

Amoeba

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

Breviata

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

Fungi

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

Teretospores

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

Filasteres

## Multicellularity

Choanoflagellates

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

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

Sponges

## Soft-bodied animals

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

Comb jellies

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

Placozoa

**Planulozoa** ~575 Mya
Larval stage
Gastrulation via invagination

Jellyfish, Corals

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

Xenacoelomorpha

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

Flatworms, Nematodes, Arthropods, Molluks, Octopuses

## Cambrian explosion

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

Starfish, Sea urchins

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

Lancelets

**Olfactores** ~518 Mya
Olfactory system

Tunicates

## Vertebrates

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

Lampreys, Hagfishes

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

Sharks, Rays

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

Ray-finned fish

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

Coelacanths

**Rhipidistia** ~416 Mya
Limbs supported by bones

Lungfishes

## Conquering land

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

**Choanata** ~409 Mya
Nipples

**Zatheria** ~155 Mya
Sensory capabilities:
Hearing, Smell, Touch

**Cladotheria** ~165 Mya
Two sets of teeth
Ankle
Radial articulation of limbs

**Trechnotheria** ~168 Mya
External ear
Separate anus and urogenital tract

**Therifformes** ~170 Mya

## Placenta & Pregnancy

Platypuses, Echidnas

No teeth at birth
Mammary glands
Fur
Three inner ear bones

Class **Mammalia** ~200 Mya

**Mammaliaformes** ~227 Mya
Molars
Hair

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

**Probainognathia** ~235 Mya
Incisors
High metabolic rate
Mammalian gait

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

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

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

**Sphenacodontia** ~304 Mya
Articulated jaw
Canines

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

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

## Mammalian characteristics

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

Reptiles (including Birds), Turtles, Tortoises

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

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

Amphibians

**Euarchontoglires** ~90 Mya
External scrotum

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

**Boreoeutheria** ~95 Mya
Extended gestation

Aardvarks, Sloths, Anteaters, Armadillos

**Placentalia** ~100 Mya
Loss of dorsal and anal fins

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

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

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

## Mammalian diversity

**Placentalia** ~100 Mya
Extended gestation

**Boreoeutheria** ~95 Mya
External scrotum

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

Rodents, Rabbits, Hares, Pikas

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

Treeshrews

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

Colugos

## Humanoid form

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

Lemurs

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

Tarsiers

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

New world monkeys

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

Baboons, Macaques, Mandrills

## Cognition & Awareness

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

Gibbons

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

Orangutans

**Hominae** ~12.5 Mya
Family structure
Facial expressions
Emotions

Gorillas

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

Bonobos, Chimpanzees

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

**Australopithecus** ~4.5 Mya
Air-breathing lungs
Internal nostrils
Nasal passage

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Placenta

**Therian** ~120 Mya
Live birth

Marsupials

**Triboshenida** ~140 Mya
Triboshenic molars
Modern ear

Efficient walking
Smaller canines
Reduced progunathism
Varied diet
Diverse habitats

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

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

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

## Humanity

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

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

**Historic** ~5.2 kya
Writing
Calendar
Formal education
Law
Governance
Literature
Sail
Architecture
Mathematics
Alphabet
Medicine
Philosophy
Currency
Engineering
Compass
Gunpowder
Printing press
Scientific revolution

**Modern** ~250ya
Enlightenment
Industrialization

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