

Systematic Classification of Contemporary Humans

Galactic evolution

- Cosmic**
 - Spacetime
 - Energy
 - Matter
- Chemical**
 - Stars
 - Heavy elements
 - Chemical diversity

Origin of Life on Earth

- Terrestrial**
 - Earth
 - Atmosphere
 - Oceans
- Organic**
 - Carbon-based molecules
 - Complex structures
 - Amino acids
 - Sugars
 - Nucleotides
 - Hydrothermal vent mediation
 - Polymerization
 - RNA
 - Peptides
 - Lipid membranes
- Prebiota**
 - Ribozymes
 - Self-replication
 - Evolution
 - Proteins
 - Enzymes
 - Metabolic pathways
 - Protocells
- Viruses**

Single-celled life

- Biota (Life)**
 - Self-maintenance
 - DNA
 - Self-reproduction
 - Cellular structure
 - Last Universal Common Ancestor (LUCA)
- Archaea, Bacteria**
- Domain Eukaryota**
 - Membrane-bound organelles
 - Cell nucleus
 - Linear DNA
 - Sexual reproduction
 - Complex cytoskeleton
- Plants, Algae**
- Amorphea**
 - Amoeboid locomotion
 - Heterotrophy
- Amoeba**
- Obazoa**
 - Feeding groove
 - Flagellar structures
 - Signaling and regulatory pathways
- Breviatea**
- Opisthokonta**
 - Single posterior flagellum
- Fungi**
- Holozoa**
 - Food ingestion
 - Internal digestion
 - Cell differentiation
- Teretospores**
- Filozoa**
 - Filose tentacles for Sensory perception, Feeding, Locomotion and Adherence
- Filasteres**

Multicellularity

- Choanozoa**
 - Intercellular communication
 - Intercellular cooperation
- Choanoflagellates**
- Kingdom Metazoa (Animals)**
 - Multicellularity
 - Specialized tissues
 - Internal digestive system
 - Locomotion
 - Diplontic lifecycle
 - Embryonic development
- Sponges**

Soft-bodied animals

- Eumetazoa (True animals)**
 - Truly differentiated tissues
 - Symmetry
 - Mouth
 - Anus
- Comb jellies**

ParaHoxozoa

- Placozoa**
 - Anterior-posterior patterning
 - Distinct body parts

Planulozoa

- Jellyfish, Corals**
 - Larval stage
 - Gastrulation via Invagination

Bilateria

- Xenacoelomorpha**
 - Bilateral symmetry
 - Head
 - Three germ layers
 - Nervous system
 - Muscles
 - Digestive tract
 - Light-sensitive cells
 - Structured sleep patterns

Nephrozoa

- Flatworms, Nematodes, Arthropods, Mollusks, Octopuses**
 - Coelom
 - Excretory organ system

Cambrian explosion

- Deuterostomia**
 - Grows from anus to mouth
 - Mineralized body parts
- Starfish, Sea urchins**

Phylum Chordata

- Lancelets**
 - Pharyngeal arches
 - Notochord
 - Dorsal hollow nerve cord
 - Post-anal tail
 - Thyroid
 - Eyespots
 - Cardiac structures

Conquering land

- Olfactores**
 - Olfactory system
- Tunicates**
- Vertebrata**
 - Vertebral column
 - Skull
 - Nostrils
 - Paired eyes
 - Circulatory system
 - Muscular heart
- Lampreys, Hagfishes**
- Gnathostomata (Jawed vertebrates)**
 - Jaws
 - Teeth
 - Paired limbs
 - Lens-equipped eyes
- Sharks, rays**
- Osteichthyes (Bony fish)**
 - Bony endoskeleton
 - Lungs or swim bladder
 - Shoulders
- Ray-finned fish**
- Sarcopterygii (Lobe-finned fish)**
 - Lobed fins
 - Divided atrium
- Coelacanthus**
- Rhipidistia**
 - Limbs supported by bones
- Lungfishes**
- Tetrapodomorpha**
 - Weight supporting limbs
 - Pelvic girdle
- Choanata**
 - Air-breathing lungs
 - Internal nostrils
 - Nasal passage
- Elpistostegalia**
 - Shoulder girdle
 - Neck
 - Loss of dorsal and anal fins
- Stegocephalia**
 - Strong vertebral column
 - Complex teeth structures
- Tetrapoda**
 - Four fully functional limbs
 - Digits
 - Terrestrial locomotion
 - Complex respiratory system
- Amphibians**
- Reptiliomorpha**
 - Keratinized skin and claws
 - Internal fertilization
- Amniota**
 - Amniotic egg
 - Land-based
- Reptiles (including Birds), Turtles, Tortoises**

Mammalian characteristics

- Synapsida**
 - Singular temporal fenestra
 - Thermal regulation
- Eupelycosauria**
 - Differentiated teeth
 - Primitive canines
- Sphenacodontia**
 - Articulated jaw
 - Canines
- Therapsida**
 - Warm-blooded
 - Vertical limb posture
- Theriodontia**
 - Flexible spine
 - Mammalian locomotion
 - Seven neck vertebrae
- Cynodontia**
 - Secondary palate
 - Proto-hair
 - Single lower jawbone
 - Middle ear bones
 - Heel
 - Diaphragm
- Probainognathia**
 - Incisors
 - High metabolic rate
 - Mammalian gait
- Prozostrodontia**
 - Upright running
 - Mammalian jaw
- Mammaliaformes**
 - Molars
 - Hair
- Class Mammalia**
 - No teeth at birth
 - Mammary glands
 - Fur
 - Three inner ear bones
- Platypuses, Echidnas**

Placenta & Pregnancy

- Theriiformes**
 - Separate anus and urogenital tract
 - External ear
- Trechnotheria**
 - Radial articulation of limbs
 - Ankle
 - Two sets of teeth
- Cladotheria**
 - Sensory capabilities
 - Hearing, smell, touch
- Zatheria**
 - Nipples
- Tribosphenida**
 - Tribosphenic molars
 - Modern ear
- Theria**
 - Live birth
- Marsupials**
- Eutheria (Placental mammals)**
 - Placenta

Mammalian diversity

- Placentalia**
 - Extended gestation
- Boreoeutheria**
 - External scrotum
- Euarchontoglires**
 - Omnivory
 - Diverse ecological niches
- Rodents, Rabbits, Hares, Pikas**
- Euarchonta**
 - Hand-eye coordination
 - Symbiosis with seeds and berries
- Treeshrews**
- Primatomorpha**
 - Forward-facing eyes
 - Binocular depth perception
 - Grasping hands and feet
- Colugos**

Humanoid form

- Order Primata (Monkeys)**
 - Opposable thumbs
 - Nails instead of claws
 - Larger brain-to-body ratio
 - Flexible shoulders
 - Extended parental care
 - Complex social structures
- Lemurs**
- Haplorhini (Dry-nosed monkeys)**
 - Dry nose
 - Reduced olfactory capabilities
 - Vision as primary sense
 - Group behavior
- Tarsiers**
- Simiiformes (Simians)**
 - Loss of sensory whiskers
 - Two pectoral nipples
 - Naked pendulous penis
 - Vocalizations
- New world monkeys**
- Catarrhini (Old world monkeys)**
 - Trichromatic vision
 - Reduced tail
 - Downward-facing nostrils
 - 2.1 2.3 dental formula
 - Flattened nails
- Baboons, Macaques, Mandrills**

Cognition & Awareness

- Family Hominoidea (Apes)**
 - Advanced problem-solving
 - Prolonged maternal care
 - Learning by observation
 - Tendency toward bipedalism
 - Flexible shoulder joints
- Gibbons**
- Hominidae (Great apes)**
 - Human-like teeth and ears
 - Primitive tool use
 - Recognizes their own reflection
 - Self-awareness
 - Empathy
 - Deliberate deception
 - Mourning
 - Fingerprints
- Orangutans**
- Homininae**
 - Family structure
 - Facial expressions
 - Emotions
- Gorillas**
- Homonini**
 - Loss of penile bone
 - Inter-group conflicts
 - Primitive tool use
 - Culture
- Bonobos, Chimpanzees**
- Australopithecines**
 - Bipedal locomotion
 - Human-like limb proportions
 - Flexible fingers
 - Thicker enamel
- ~6.1 Mya**
- Australopithecus**
 - Efficient walking
 - Smaller canines
 - Reduced prognathism
 - Varied diet
 - Diverse habitats
- ~4.5 Mya**
- Genus Homo (Human)**
 - Stone tool making
 - Meat consumption
 - Social complexity
 - Division of labor
- ~2.8 Mya**
- Erectus**
 - Loss of body hair
 - Complex cognition
 - Passing on knowledge
 - Technological development
 - Hunter-gatherer
 - Food processing
 - Controlled fire
 - Roasting, Grilling, Smoking
- ~2 Mya**
- Heidelbergensis**
 - Spear
 - Shelter construction
 - Complex communication
- ~700.0 kya**

Humanity

- Species 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
- ~310.0 kya**

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

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