**What Makes Us Human?**

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There are multiple theories about what makes us human—several that are related or interconnected. The topic of human existence has been pondered for thousands of years. Ancient Greek philosophers [Socrates](https://www.thoughtco.com/profile-of-socrates-121053), [Plato](https://www.thoughtco.com/plato-important-philosophers-120328), and [Aristotle](https://www.thoughtco.com/the-life-and-legacy-of-aristotle-112489)all theorized about the nature of human existence as have countless philosophers since. With the discovery of fossils and scientific evidence, scientists have developed theories as well. While there may be no single conclusion, there is no doubt that humans are, indeed, unique. In fact, the very act of contemplating what makes us human is unique among animal species.

Most species that have existed on planet Earth are extinct, including a number of early human species. Evolutionary biology and scientific evidence tell us that all humans [evolved from apelike ancestors](http://www.humanorigins.si.edu/education/introduction-human-evolution) more than 6 million years ago in Africa. Information obtained from early-human fossils and archaeological remains suggests that there were 15 to 20 different species of [early humans](https://www.thoughtco.com/denisovans-the-third-species-of-human-171214) several million years ago. These species, called *hominins*, migrated into Asia around 2 million years ago, then into Europe and the rest of the world much later. Although different branches of humans died out, the branch leading to the modern human, *Homo sapiens*, continued to evolve.

Humans have much in common with other mammals on Earth in terms of physiology but are most like two other living primate species in terms of genetics and morphology: the chimpanzee and bonobo, with whom we spent the most time on the phylogenetic tree. However, as much like the chimpanzee and bonobo as we are, the differences are vast.

Apart from our obvious intellectual capabilities that distinguish us as a species, humans have several unique physical, social, biological, and emotional traits. Although we can't know precisely what is in the minds of other animals, scientists can make inferences through studies of animal behavior that inform our understanding.

Thomas Suddendorf, professor of psychology at the University of Queensland, Australia, and author of "[The Gap: The Science of What Separates Us From Other Animals](https://www.amazon.com/Gap-Science-Separates-Other-Animals/dp/0465030149)," says that "by establishing the presence and absence of mental traits in various animals, we can create a better understanding of the evolution of mind. The distribution of a trait across related species can shed light on when and on what branch or branches of the family tree the trait is most likely to have evolved."

As close as humans are to other primates, theories from different fields of study, including biology, psychology, and paleoanthropology, postulate that certain traits are uniquely human. It is particularly challenging to name all of the distinctly human traits or reach an absolute definition of "what makes us human" for a species as complex as ours.

The Larynx (Voice Box)

Dr. Philip Lieberman of Brown University explained on NPR's "The Human Edge" that after humans diverged from an early-ape ancestor more than 100,000 years ago, the shape of the mouth and vocal tract changed, with the tongue and larynx, or voice box, moving further down the tract.

The tongue became more flexible and independent and was able to be controlled more precisely. The tongue is attached to the hyoid bone, which is not attached to any other bones in the body. Meanwhile, the human neck grew longer to accommodate the tongue and larynx, and the human mouth grew smaller.

**The larynx is lower in the throats of humans than it is in chimpanzees, which, along with the increased flexibility of the mouth, tongue, and lips, is what enables humans to speak as well as to change pitch and sing.** The ability to speak and develop language was an enormous advantage for humans. The disadvantage of this evolutionary development is that this flexibility comes with an increased risk of food going down the wrong tract and causing choking.

The Shoulder

Human shoulders have evolved in such a way that, according to David Green, an anthropologist at George Washington University, "the whole joint angles out horizontally from the neck, like a coat hanger." This is in contrast to the ape shoulder, which is pointed more vertically. **The ape shoulder is better suited for hanging from trees, whereas the human shoulder is better for throwing and hunting, giving humans invaluable survival skills.** The human shoulder joint has a wide range of motion and is very mobile, affording the potential for great leverage and accuracy in throwing.

The Hand and Opposable Thumbs

Although other primates also have opposable thumbs, meaning they can be moved around to touch the other fingers, imparting the ability to grasp, the human thumb differs from that of other primates in terms of exact location and size. According to the Center for Academic Research & Training in Anthropogeny, **humans have "a relatively longer and more**[**distally placed thumb**](https://carta.anthropogeny.org/moca/topics/thumb-opposability)**" and "larger thumb muscles." The human hand has also evolved to be smaller and the fingers straighter. This has given us better fine motor skills and the ability to engage in detailed precision work such as writing with a pencil.**

Naked, Hairless Skin

Although there are other mammals that are hairless—the whale, elephant, and rhinoceros, to name a few—humans are the only primates to have [mostly naked skin](https://www.scientificamerican.com/article/the-naked-truth/). Humans evolved that way because changes in the climate 200,000 years ago that demanded that they travel long distances for food and water. Humans also have an abundance of sweat glands, called eccrine glands. To make these glands more efficient, human bodies had to lose their hair to better dissipate heat. This enabled them to obtain the food they needed to nourish their bodies and brains, while keeping them at the right temperature and allowing them to grow.

Standing Upright and Bipedalism

One of the most significant traits that make humans unique preceded and possibly led to the development of other notable characteristics: [bipedalism](http://www.bbc.com/earth/story/20161209-the-real-reasons-why-we-walk-on-two-legs-and-not-four)—that is, using only two legs for walking. This trait emerged in humans millions of years ago, early in human evolutionary development and gave humans the advantage of being able to hold, carry, pick up, throw, touch, and see from a higher vantage point, with vision as the dominant sense. As human legs evolved to become longer about 1.6 million years ago and humans became more upright, they were able to travel great distances as well, expending relatively little energy in the process.

Blushing Response

In his book "The Expression of Emotions in Man and Animals," Charles Darwin said that "[blushing](https://brocku.ca/MeadProject/Darwin/Darwin_1872_13.html) is the most peculiar and the most human of all expressions." **It is part of the "fight or flight response" of the sympathetic nervous system that causes the capillaries in human cheeks to dilate involuntarily in response to feeling embarrassment**. No other mammal has this trait, and psychologists theorize that it has social benefits as well. Given that it is involuntary, blushing is considered to be an authentic expression of emotion.

The Human Brain

The human feature that is most extraordinary is the brain. The relative size, scale, and capacity of the human brain are greater than those of any other species. The size of the human brain relative to the total weight of the average human is 1-to-50. Most other mammals have a ratio of only 1-to-180.

The human brain is three times the size of a gorilla brain. Although it is the same size as a chimpanzee brain at birth, the human brain grows more during the lifespan of a human to become three times the size of the chimpanzee brain. In particular, the prefrontal cortex grows to encompass 33 percent of the human brain compared to 17 percent of the chimpanzee brain. The adult human brain has about 86 billion neurons, of which the cerebral cortex comprises 16 billion. In comparison, the chimpanzee cerebral cortex has 6.2 billion neurons.

It is theorized that childhood is much longer for humans, with offspring remaining with their parents for a longer period of time because it takes longer for the larger, more complex human brain to fully develop. Studies suggest that the brain is not fully developed until the ages of 25 to 30.

The Mind: Imagination, Creativity, and Forethought

The human brain and the activity of its countless neurons and synaptic possibilities contribute to the human mind. The human mind is different from the brain: The brain is the tangible, visible part of the physical body whereas the mind consists of the intangible realm of thoughts, feelings, beliefs, and consciousness.

In his book "The Gap: The Science of What Separates Us From Other Animals," Thomas Suddendorf suggests:

"Mind is a tricky concept. I think I know what a mind is because I have one—or because I am one. You might feel the same. But the minds of others are not directly observable. We assume that others have minds somewhat like ours—filled with beliefs and desires—but we can only infer those mental states. We cannot see, feel, or touch them. We largely rely on language to inform each other about what is on our minds." (p. 39)

As far as we know, humans have the unique power of forethought: the ability to imagine the future in many possible iterations and then to actually create the future we imagine. Forethought also allows humans generative and creative abilities unlike those of any other species.

Religion and Awareness of Death

One of the things that forethought also gives humans is the awareness of mortality. Unitarian Universalist minister Forrest Church (1948-2009) explained his [understanding of religion](https://www.amazon.com/Chosen-Faith-Introduction-Unitarian-Universalism/dp/0807016179) as "our human response to the dual reality of being alive and having to die. **Knowing we are going to die not only places an acknowledged limit upon our lives, it also gives a special intensity and poignancy to the time we are given to live and love."**

Regardless of one's religious beliefs and thoughts about what happens after death, the truth is that, unlike other species who live blissfully unaware of their impending demise, most humans are conscious of the fact that someday they will die. Although some species react when one of their own has died, it is unlikely that they actually think about death—that of others or their own.

The knowledge of mortality also spurs humans on to great achievements, to making the most out of the lives they have. Some social psychologists maintain that without the knowledge of death, the birth of civilization and the accomplishments it has spawned might never have occurred.

Storytelling Animals

Humans also have a unique type of memory, which Suddendorf calls "episodic memory." He says**, "Episodic memory is probably closest to what we typically mean when we use the word 'remember' rather than 'know.'"** Memory allows human beings to make sense of their existence and to prepare for the future, increasing their chances of survival, not only individually but also as a species.

Memories are passed on through human communication in the form of storytelling, which is also how knowledge is passed from generation to generation, allowing human culture to evolve. Because human beings are highly social animals, they strive to understand one another and to contribute their individual knowledge to a joint pool, which promotes more rapid cultural evolution. In this way, unlike other animals, each human generation is more culturally developed than preceding generations.

Drawing on research in neuroscience, psychology, and evolutionary biology, in his book, "The Storytelling Animal," Jonathon Gottschall delves into what it means to be an animal that relies so uniquely on storytelling. He explains what makes stories so important: They help us to explore and simulate the future and test different outcomes without having to take real physical risks; they help to impart knowledge in a way that is personal and relatable to another person; and they encourage pro-social behavior, since "the urge to produce and consume [moralistic stories](https://www.nytimes.com/2012/08/05/books/review/the-storytelling-animal-by-jonathan-gottschall.html?mcubz=0) is hard-wired into us."

Suddendorf writes this about stories:

"Even our young offspring are driven to understand others' minds, and we are compelled to pass on what we have learned to the next generation. As an infant starts on the journey of life, almost everything is a first. Young children have a ravenous appetite for the stories of their elders, and in play they reenact scenarios and repeat them until they have them down pat. Stories, whether real or fantastical, teach not only specific situations but also the general ways in which narrative works. How parents talk to their children about past and future events influences children's memory and reasoning about the future: the more parents elaborate, the more their children do."

Thanks to their unique memory and ability to acquire language skills and write, humans around the world, from the very young to the very old, have been communicating and transmitting their ideas through stories for thousands of years, and storytelling remains integral to being human and to human culture.

Biochemical Factors

Defining what makes humans human can be tricky as more is learned about the behavior of other animals and fossils are uncovered that revise the evolutionary timeline, but scientists have discovered certain biochemical markers that are specific to humans.

One factor that may account for human language acquisition and rapid cultural development is a **gene mutation that only humans have on the**[**FOXP2 gene**](https://www.nytimes.com/2007/10/18/science/19speech.html?mtrref=www.google.com&gwh=CA51336169A9DF371CBA52298E92A097&gwt=pay), a gene we share with Neanderthals and chimpanzees, that is critical for the development of normal speech and language.

A study by Dr. Ajit Varki of the University of California, San Diego, found another mutation unique to humans in the [polysaccharide covering](https://thedoctorweighsin.com/the-1-thing-that-makes-humans-different-from-animals/) of the human cell surface. Dr. Varki found that the addition of just one oxygen molecule in the polysaccharide that covers the cell surface differentiates humans from all other animals.