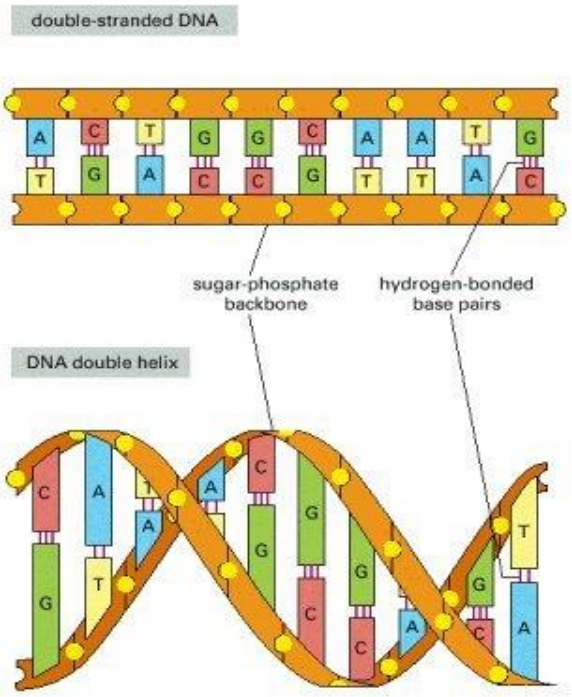
Exploring Our Genetic Heritage

By Jim Myers

Not everyone in the world has a biblical heritage, but all humans have a genetic heritage. The purpose of this series of articles is to simply introduce you to that heritage, so if in your explorations you encounter beliefs related to genetic facts, *you will know to include science-based facts in your discussions*.

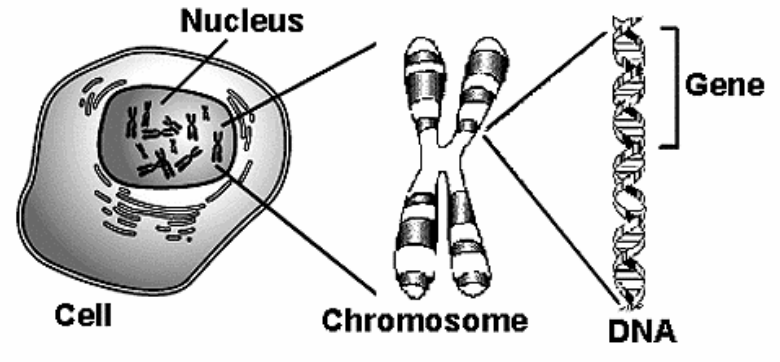
Humans **are members of *one of the* *three million species*** [1] with a **DNA code**. The genetic code is universal. With a few exceptions, virtually all species use the same genetic code for protein synthesis.[2] The **DNA code** is a **four letter chemical alphabet** – **A** (*adenine*)**, T** (*thymine*)**, G** (*guanine*) & **C** (*cytosine*)**.** [3]

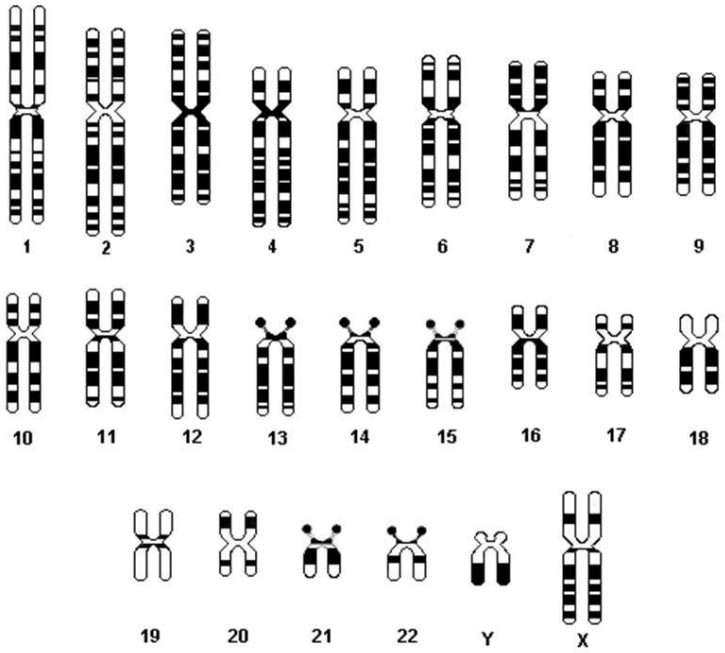


Be sure to note that **A** (adenine) is always linked to **T** (thymine) and **G** (guanine) is always linked to **C** (cytosine). Thanks to quantum chemistry we now know that that **A** (adenine) attracts **T** (thymine) and **G** (guanine) attract **C** (cytosine). An exciting consequence of this structure is that when the two strands split apart, they could perfectly replicate, because any half-rung would attract its natural partner. In other words, such a structure would permit the molecule to replicate itself and pass along the information encoded in its sequences.[4]

A *genome* **is** *the complete DNA code of a specie*. The **human genome** has **3 billion letters**. It would fill a space about the size of 800 bibles if it was printed out.

A **gene** is a specific section of DNA that is made up of hundreds or thousands of letters.[5] The gene is considered *the basic unit of inheritance*. Genes are passed from parents to offspring and contain *the information needed to specify physical and biological traits -- eyes, ears, skin, fingernails, hearts, brains, livers, feet, bones, stomachs, elbows, skin, etc*.[6]





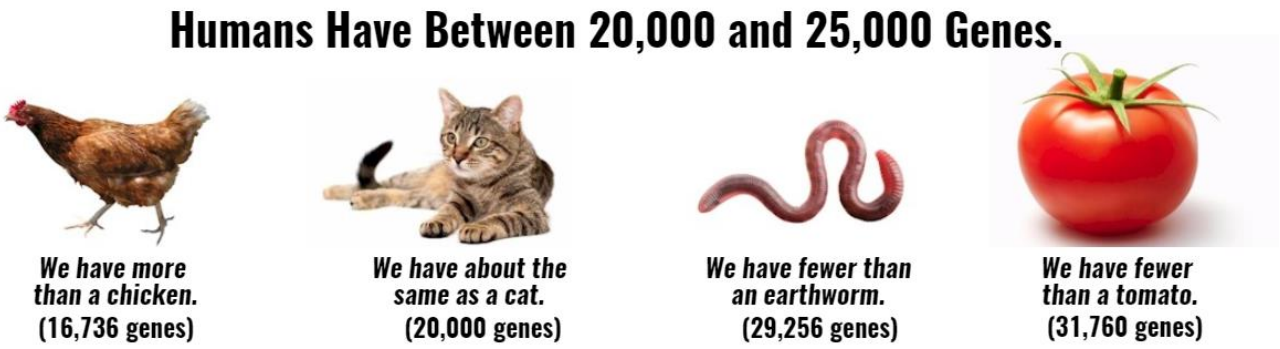
Genes are part of **chromosomes**, which are found in the **nucleus** of **cells**. Each cell normally contains *23 pairs of chromosome*s (46 chromosomes in total).

Twenty-two of the pairs of chromosomes ***are the same in all people***. The 23rd pair, the sex chromosomes, differs between males and females. *Females have* ***two X chromosomes***. *Males have* ***one X and one Y chromosome***.

A complete copy of the human DNA code is stored *in each cell of the body*. The average body contains approximately **37.2 trillion cells**.

Another striking feature of the human genome comes from the comparison of different members of our own species. **At the DNA level, we are all 99.9 percent identical**. That similarity applies regardless of which two individuals from around the world you choose to compare. Thus, by DNA analysis, we humans are truly part of one family. ***This remarkably low genetic diversity distinguishes us from most other species on the planet***, where the amount of DNA diversity is ten or sometimes even fifty times greater than our own. [7]

I will close with a graphic that may surprise you!



[1] http://en.wikipedia.org/wiki/DNA
[2] The Genetic Code – Biology (hawaii.edu)
[3] https://www.23andme.com/gen101/genes/
[4] *The Code Breaker: Jennifer Doudna, Gene Editing, and the Future of the Human Race* by Walter Isaacson © 2021; Simon & Schuster, New York, NY; p. 27.
[5] *The Language of God: A Scientist Presents Evidence For Belief* by Francis S. Collins © 2006; Free Press, New York, NY; p. 102.
[6] Gene (genome.gov)
[7] *The Language of God;* p. 125.