

# Life

Did you know that **every living thing on earth exists because of a four-letter code** written in **nucleic acids**: **A** (adenine), **T** (thymine), **G** (guanine), and **C** (cytosine). It is called **DNA** (*deoxyribonucleic acid*). **DNA** looks exactly the same in every organism on Earth.<sup>1</sup>

The **DNA code** is the **genetic blueprint of a cell**, along with **instructions for the functions of the cell**. *The actual structure of the DNA molecule, and how it codes for proteins, is the same from bacteria to yeast to plants and animals – and humans. Nucleic acids are key macromolecules in the continuity of life.*

People are usually told that it is the order of the four letters that makes **3 million species** different.<sup>2</sup> But it is important to also understand that **those 3 million species make up one thing – life on earth**. They are interconnected and interdependent on each other.

- **Animals and humans** are dependent on **plants and trees** for **oxygen**.
- **Plants and trees** are dependent on **animals and humans** for **carbon dioxide**.
- **Humans** are dependent on **trillions of microorganisms** (bacteria), that inhabit just about every part of the human body -- *living on the skin, in the gut, and up the nose* -- survival and *play a vital role in human health*.
- **Trillions of microorganisms** are dependent on each human for their survival.<sup>3</sup>
- *It is the order of the four letters that determine **everything's place in "life."***

*Without DNA there is no life on earth!*

A **genome** is the **complete DNA code** for a species. The human genome has **3 billion letters**. **Sickle-cell anemia** is caused by **a mutation in a single letter**. The mutation causes a kink in the hemoglobin protein. Oxygen does not get to tissues and organs, causing severe pain, and in most cases, death by age fifty. This disease afflicts more than four million people worldwide. Today, the **CRISPR-Cas9 gene editing tool** can find the letter with the mutation and correct it. *There will be many other diseases cured by CRISPR tools in the near future.*<sup>4</sup>

- The average human body contains approximately **37.2 trillion cells**.
- The body replaces itself with **a largely new set of cells every 7 to 10 years**.
- **Every one of those trillions of cells** contains a complete DNA code for creating a human body.

<sup>1</sup> <https://learn.genetics.utah.edu/content/basics/dna>

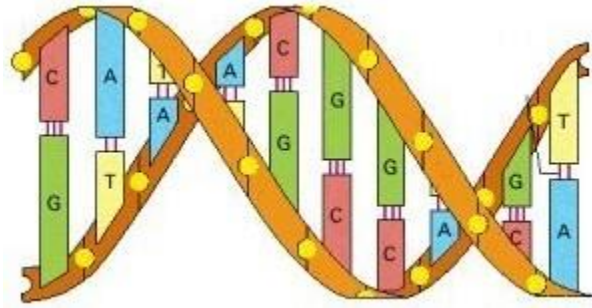
<sup>2</sup> <https://openoregon.pressbooks.pub/mhccmajorsbio/chapter/nucleic-acids/>

<sup>3</sup> <https://www.nih.gov/news-events/news-releases/nih-human-microbiome-project-defines-normal-bacterial-makeup-body>

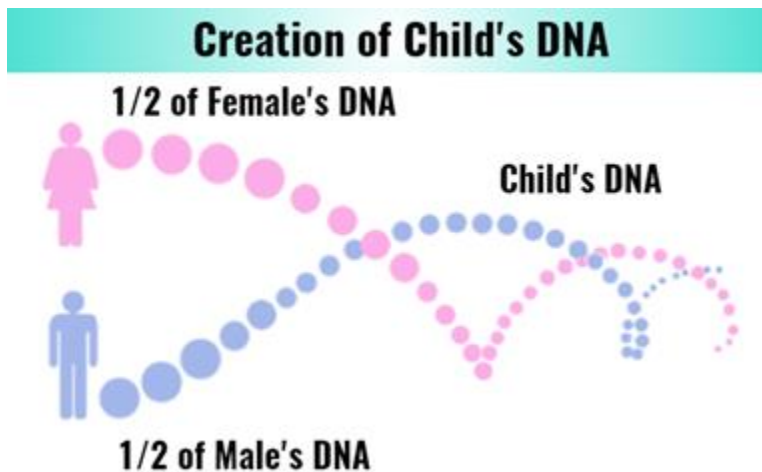
<sup>4</sup> *The Code Breaker: Jennifer Doudna, Gene Editing, and the Future of the Human Race* by Walter Isaacson; p. 245.

## Exploring the Bible & Biblical Heritages Guidelines

- **A** is always linked to **T**. **G** is always linked to **C**.



Each person is a unique combination of the **genetic endowment of a male and a female**.



They each provide one-half of the DNA that will become their child's DNA. The reassembled pieces of DNA will create differences in the new human life from the two people that provided it. But **all human have DNA that is 99.9% the same** -- the remaining **0.1%** makes every person **a unique combination of the genetic endowment**.

*Our DNA is a historical document that reaches back to the **origin of life**. Each person is a chapter in the greatest story ever written. It is a narrative of exploration and discovery remembered not only in stories and books – it is written in our cells.<sup>5</sup> Think about the complexity described above – millions of species, billions of letters, trillions of cells, etc. -- functioning simultaneously to create, maintain, and perpetuate life on earth.*

*Life is a priceless miracle,  
appreciate and value it every day.  
Remember it when you interact with any DNA creature.*

- Practice raising your awareness of the presence of DNA creatures around you.
- Share and discuss this email with someone else.

<sup>5</sup> The Wayfinders: Why Ancient Wisdom Matters in the Modern World by Wade Davis (pp. 6-7).



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