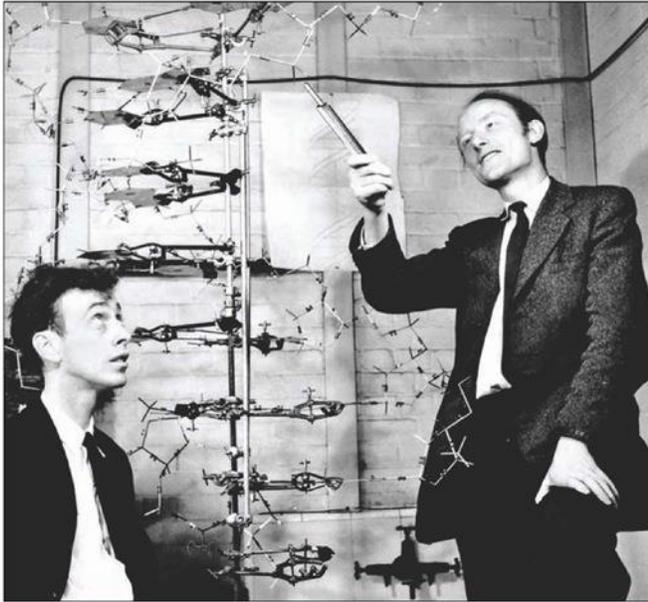
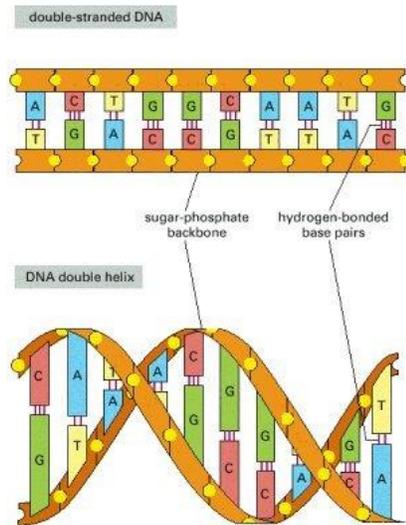


# What Are You?



In order to understand how we became “*who we are*,” we must first understand “*what we are*.” We are humans, members of 1 of 3,000,000 species created from a **chemical code recorded in DNA molecules** (*deoxyribonucleic acid*).<sup>1</sup>

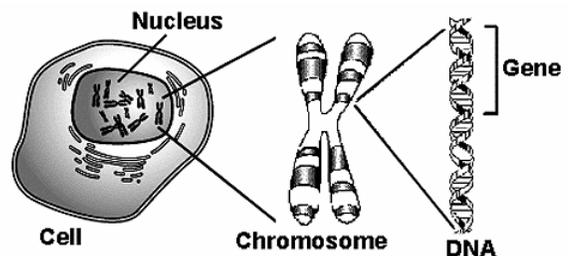
In 1953 James Watson (left) and Francis Crick revealed their model of the **DNA molecule** – *the basic building blocks of life*.<sup>2</sup> The **Human Genome Project** began in 1993 and was completed in 2003 and it created the first instruction manual for genetically creating a human.



The DNA code is written in the four letter alphabet – **A, T, G & C**.<sup>3</sup> In the DNA code **A & T** and **G & C** are always linked together. The total genetic code for making a human consists of 3 billion letters – *if we printed it out it would produce a document equal to 800 bibles in size*.

Cells are invisible to the naked eye, but each cell contains about 6 feet of DNA thread, which means there is about *3 billion miles of DNA in each of us!*<sup>4</sup> Each cell contains the complete instructional manual for creating a human. That’s why just a trace of DNA evidence is all that is needed to identify a specific person.

Sections of our DNA code are called **genes** and they contain specific instructions for making parts of human bodies. A *gene* tells cells what to do and when to do it – *be a muscle, a bone, a lung, an eye, etc.* Genes are part of *chromosomes* which are found in the *nucleus* of cells. There are 200 different types of cells in the body and each type performs a unique and special function.



All the cells work together to keep the human body running efficiently. The average body makes about 2 to 3 million red blood cells every second, or about 173 to 259 billion red blood cells per day. The human body contains 40 trillion cells, and almost every one contains a complete set of instructions for making that person.<sup>5</sup> Contrary to what most of think, humans do not have the most genes compared to other DNA forms of life.

### Humans have about 19,000 genes.



*More than a chicken.*



*About the same as a cat.*



*Fewer than an earthworm.*



*Fewer than a tomato.*

Cells normally contain 23 pairs of chromosomes, for a total of 46. Twenty-two of the pairs of chromosomes are the same in all humans. The 23rd pair is the sex chromosome. **Males have one X and one Y chromosome. Females have two of X chromosomes.**<sup>6</sup>

Until very recently, all humans were created through sexual reproduction. *One half of a baby's DNA comes from the male the other half from a female.* Each baby has a unique genetic code, but that code is 99% percent identical to the genetic of every other person.<sup>7</sup> A number of the major social conflicts today are related to genetic factors, beginning with skin *color* and *gender*. Social problems are created by the meanings linked to those genetic facts.

Below is the timeline for how DNA creates a human body. Pay close attention to when different organ systems begin to function – *especially the brain*.

- Conception
- 05 weeks -- Heart begins to beat.
- 06 weeks -- Facial features began to form.
- 08 weeks -- Arms, legs, fingers, nose and upper lip.
- 09 weeks -- Eyes developed & body loses tail.
- 10 weeks -- **Brain**, kidneys, intestines and liver starting to function.
- 10 weeks -- Fingernails and toenails forming.
- 11 weeks -- Bones beginning to harden and genitalia developing externally.
- 12 weeks -- Just over 2 inches long and weighs about half an ounce.
- 14 weeks -- Kidneys are producing urine and can make facial expressions.
- 15 weeks -- **Sees light** that filters in from outside womb.
- 16 weeks -- Sex detectable.
- 19 weeks -- Can **hear** mother's heartbeat and sounds from outside her body.

- 19 weeks -- Skin is wrinkly and is covered by protective, waxy coating.
- 19 weeks -- Length about 6 inches and weighs about 8 1/2 ounces.
- 23 weeks -- **Sense** of movement has developed.
- 24 weeks -- **Taste** buds developing, brain growing very quickly, hair may be growing.
- 24 weeks -- Almost a foot long and weighs just over a pound.
- 27 weeks -- Lungs developing, opening and closing **eyes**, sucking on fingers.
- 27 weeks -- Sleeping and waking up at regular intervals.
- 28 weeks -- May be dreaming, has eyelashes, **eyesight** is improving.
- 28 weeks -- Billions of neurons developing in **brain**.
- 28 weeks -- About 15 inches long and weighs about 2 1/4 pounds.
- 32 weeks -- Fingernails and toenails developed, starting to plump up.
- 32 weeks -- Almost 17 inches long and weighs about 3 3/4 pounds.
- 34 weeks -- Lungs and central **nervous system** continuing to develop.
- 34 weeks -- Skin has become soft and smooth, filling out and getting even rounder.
- 34 weeks-- Almost 18 inches long and weighs about 4 3/4 pounds.
- 39 weeks -- Full-term and ready for life outside the womb.
- 39 weeks -- Average weight about 7 1/2 pounds and average length about 20 inches.
- Birth

### **Personal Profile Project**

Creating your **Personal Profile** is a key part of self-discovery. We help you do this through Personal Profile Projects linked to the modules. The first project is the creation of your **Genetic Development** Timeline. It is **for your eyes only** unless you decide to share it. We will not ask for a copy. It is important to not only understand when internal organ systems develop, it is essential to be aware of external factors outside the womb that may affect the development of a baby. Learning as much about the male and female that provide half of the baby's DNA and events that took place in the mother's life after conception until birth are very important too.

1. Make a timeline that tracks the DNA development by adding actual dates next to the week numbers. A good way to start is begin at your date of birth and work back to the date of conception.
2. Create a parallel timeline for your mother's life during that period.
3. Identify traumatic events, diseases, habits, addictions, etc. in her life.
4. Identify important historical events that took place in that period.

It is good to do this on your computer so you can insert new information as you find it. You will need to refer back to this timeline for future **Personal Profile Projects**.

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- 1 <http://en.wikipedia.org/wiki/DNA>
  - 2 <http://www.sciencebeing.com/2012/11/history-of-dna-research/>
  - 3 <https://www.23andme.com/gen101/genes/>
  - 4 [http://kidshealth.org/teen/your\\_body/health\\_basics/genes\\_genetic\\_disorders.html](http://kidshealth.org/teen/your_body/health_basics/genes_genetic_disorders.html)
  - 5 <https://www.23andme.com/gen101/genes/>
  - 6 <http://www.dnafb.org/9/>
  - 7 <https://www.genome.gov/19016904/faq-about-genetic-and-genomic-science/>