

**Have you ever wondered why your hair is smooth, or straight, or curly, or kinky, or wavy?**

It has to do with your genes.

**Genes carry the code that your body reads to put together all of your parts—even your hair.**



## Rosalind Franklin

### Chemistry/Heredity

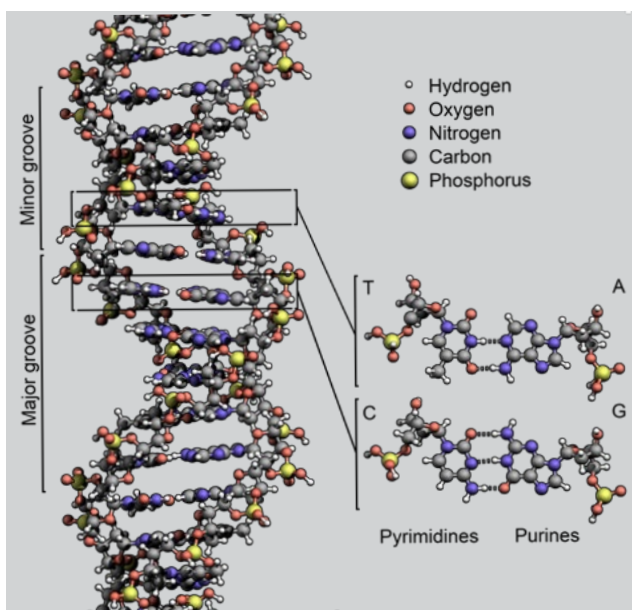
Genes are made from even smaller pieces called DNA. You may have seen drawings of DNA in your science materials. DNA has a twisted, ladder-like structure. DNA is so small, you cannot see it without a powerful microscope. All living things have DNA. Organisms that reproduce sexually get their DNA from their two parents. Many plants and animals reproduce sexually. Those offspring are also a combination of two parents' DNA. You, for example, are a combination of both of your parents' DNA.

But some organisms reproduce asexually. That means their offspring get their DNA from only one parent. The bacteria in yogurt are an example. The offspring of a bacterium is identical to its parent, because it has only that parent's DNA.

How do you think scientists learned so much about DNA? How do you think they figured out its structure and properties when DNA is so small? We have Dr. Rosalind Franklin to thank for that!

Dr. Rosalind Franklin was a female pioneer in the field of chemistry. She studied what different types of matter are made of and how they act. She was able to use someone else's discovery—x-rays—to discover the structure of DNA. X-rays are powerful waves of energy. They help scientists see details that cannot be seen with the naked eye. You may know that x-rays can see details inside your body like your bones. But Dr. Franklin was the first to use x-rays to discover the structure of DNA.

Dr. Rosalind Franklin was born into a Jewish family in London in 1920. She was interested in chemistry since she was 15. She was fortunate enough to attend an all-girls school that offered science classes. This happened at a time when it was rare for women to pursue careers in science.



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Dr. Rosalind Franklin earned her Ph.D. in physical chemistry from The University of Cambridge in England. After college, Dr. Franklin worked for the British Coal Utilization Research Association. There she studied the physical properties of coal. Then, she moved to Paris where she started using X-rays. Dr. Franklin made her big discovery at Kings College in London. By creatively combining her knowledge of X-rays and DNA, Dr. Franklin was able to produce a photograph showing the 3D structure of DNA.

Dr. Franklin is also known for another interesting aspects of her career. It is important to understand that science is a human endeavor. That means there are “habits of mind” and “ways of thinking” that are only possible by humans. But, being human also means that the way science discoveries happen and how people get credit for their work can be unfair. Scientists’ and engineers’ work often leads to developing new industries, new technologies, and new systems. They build on the work of other scientists. It’s a little like you changing one of your models based on another student’s model. Dr. Franklin’s work led to everything we know today about DNA and genes. Intellectual honesty is important in science, but women’s contributions were not always recognized like men’s contributions were. Dr. Franklin’s male colleagues were the ones to receive a Nobel Prize for discovering the structure of DNA. It was her scientific work that made that discovery possible, but she was not recognized in the same way. Today, scientists acknowledge Dr. Rosalind Franklin for the work she did that led to many other scientist’s discoveries after her.

### Works Cited

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