

# DNA



What is it



and



What does it do?



Age Based Genomic Screening Program  
University of North Carolina at Chapel Hill



Illustrated by Nicki Shaw



# Age-Based Genomic Screening

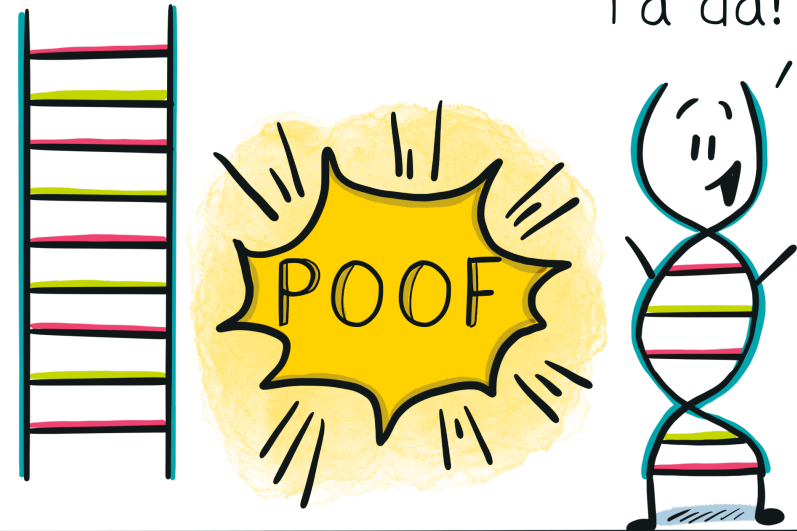
Illustrated by Nicki Shaw, Olilu Designed  
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©2023 Age-Based Genomic Screening (ABGS)  
Website: [go.unc.edu/abgs](http://go.unc.edu/abgs)

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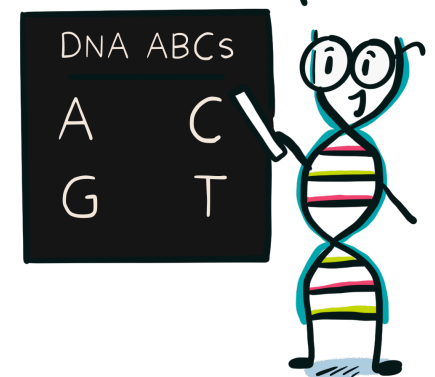
DNA is shaped like a twisted ladder or a double helix.

That's a lot of knowledge!



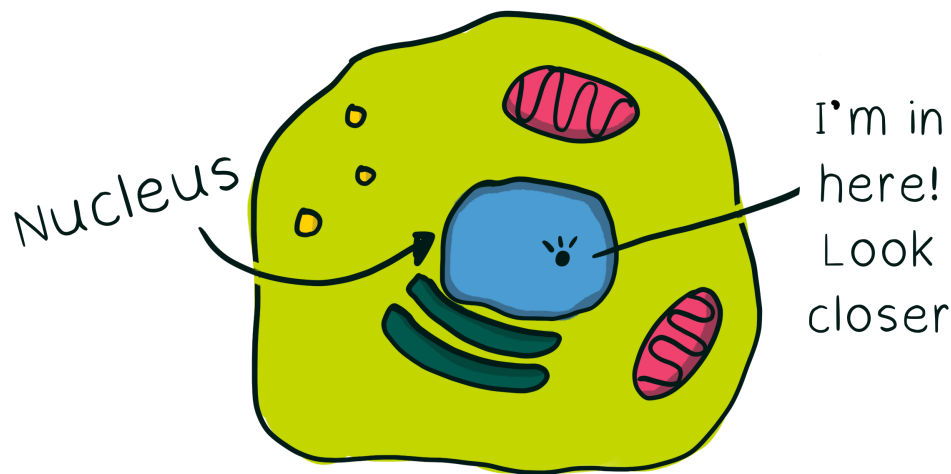
DNA is like an instruction manual for how a living thing is built and works.

♪ A C G T ♪

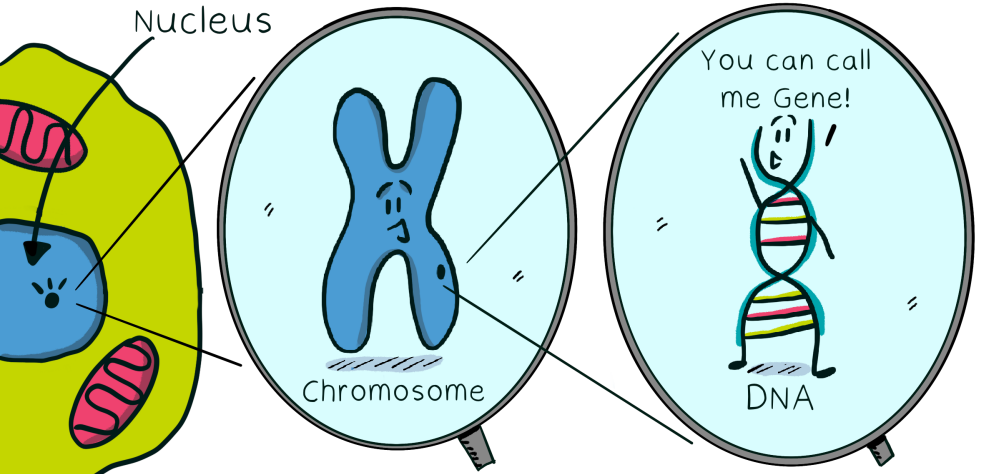


The DNA "alphabet" uses four letters: A, C, G, and T.

DNA is found in almost every cell in your body.

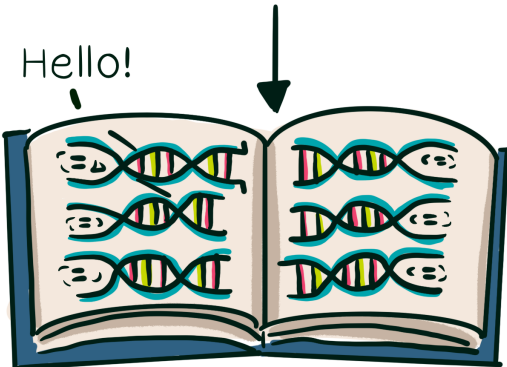
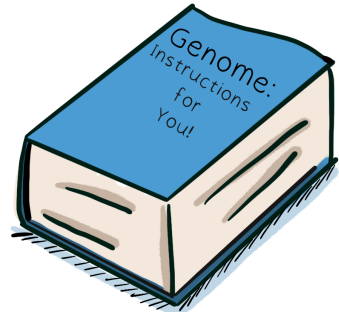


DNA is tightly packed into structures called chromosomes. Genes are specific pieces of DNA.



All of a person's chromosomes combine to make their genome.

If we think of the genome as a recipe book, the chromosomes are like the chapters of the book, written in the alphabet of DNA.



A gene is a sentence that tells the cell how to do a certain job or create traits.

6ft

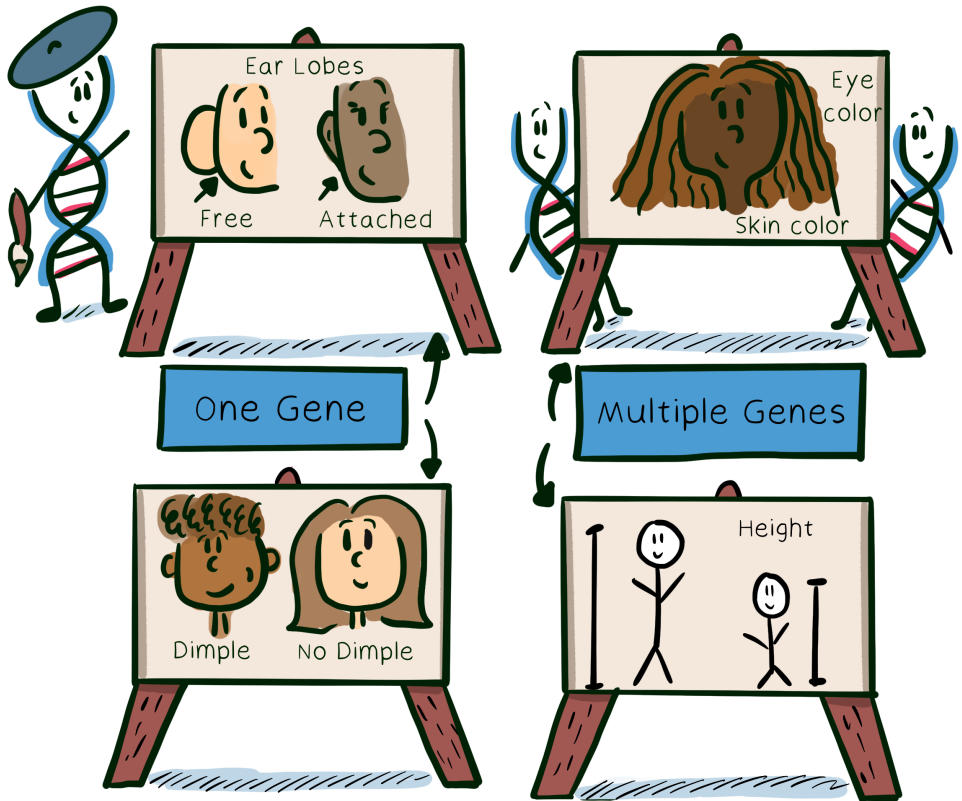
It was cramped in that chromosome!

If you stretched out all the DNA inside a person's cell, the total length would be 6 feet long!



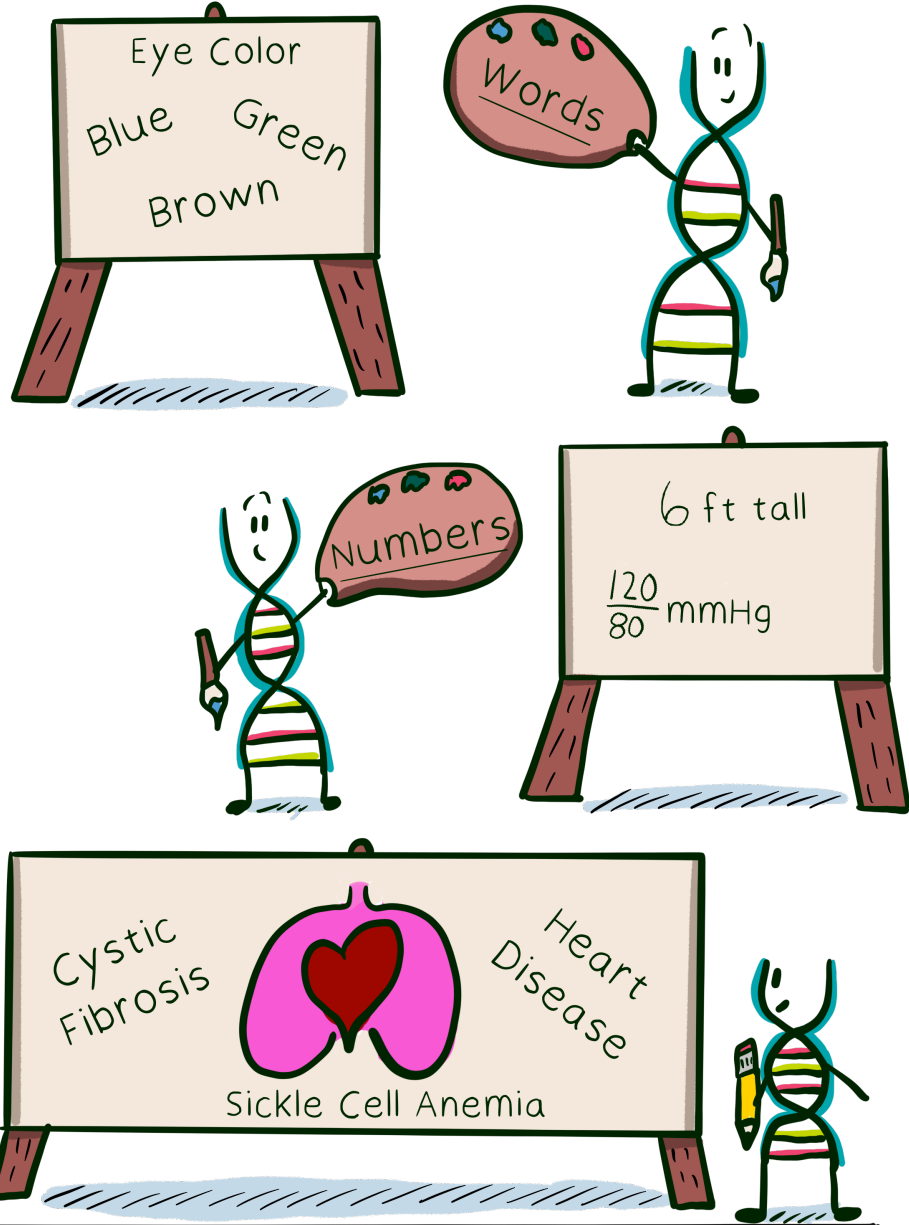
A trait is a specific characteristic of a person.

# Art Exhibit: Uniquely You!



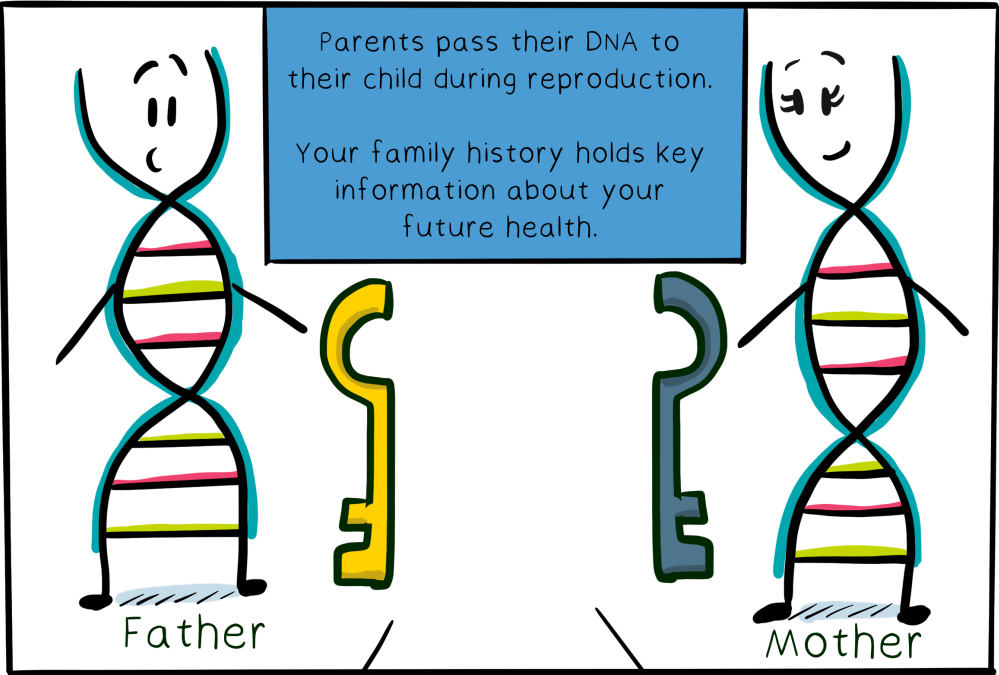
Some traits are determined entirely by genes, while others are influenced by our environment. Some traits are determined by a mixture of both.

Traits can be described with...

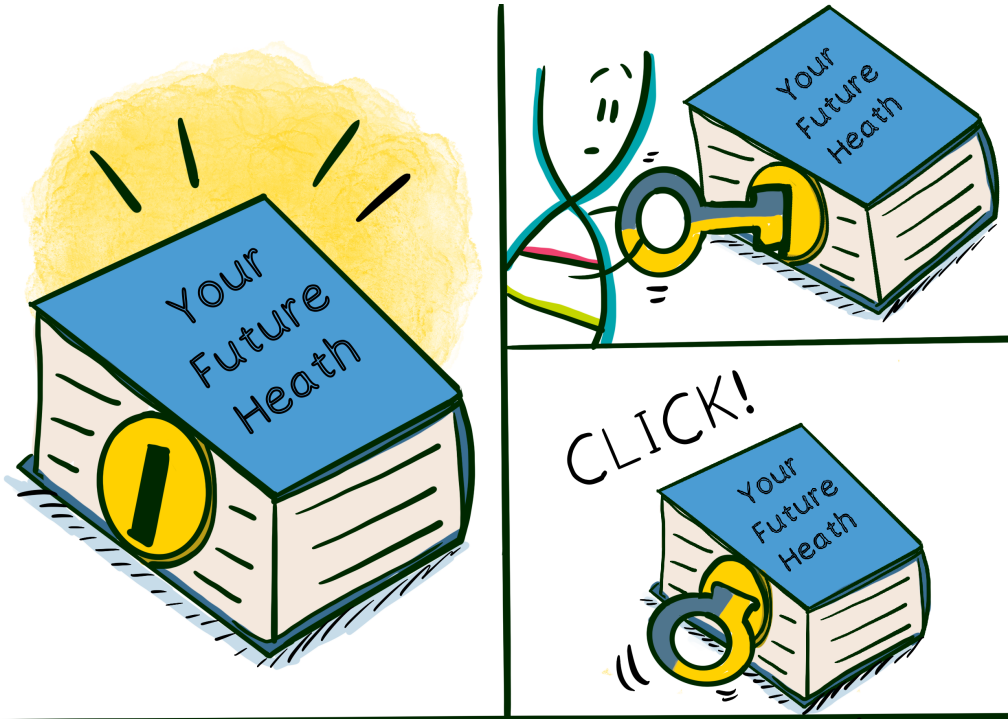


...and also include health conditions.

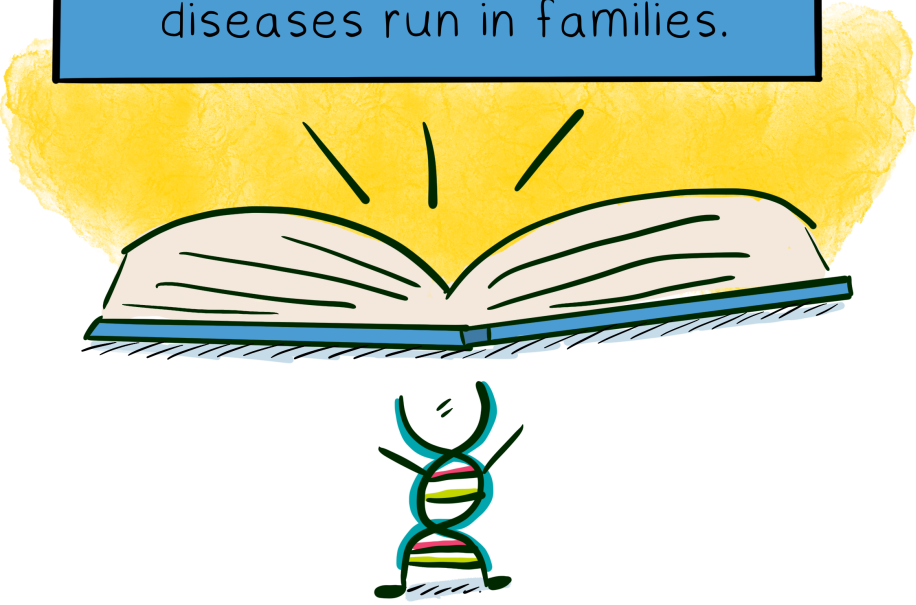




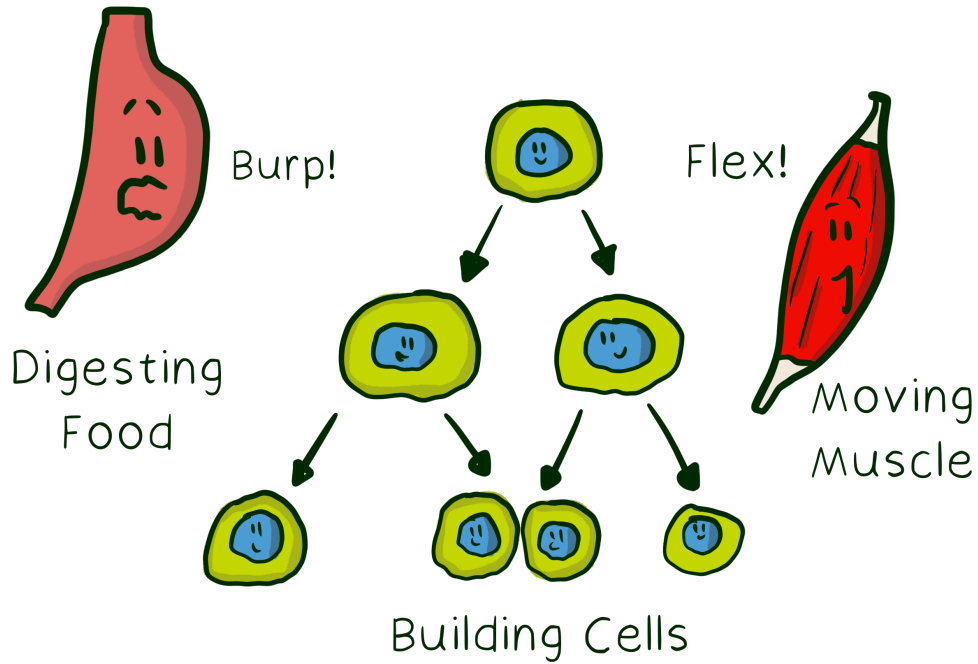
Risks for certain diseases such as heart disease, diabetes, and some cancers are inherited.



This explains why some diseases run in families.



Genes provide instructions for traits and body functions.

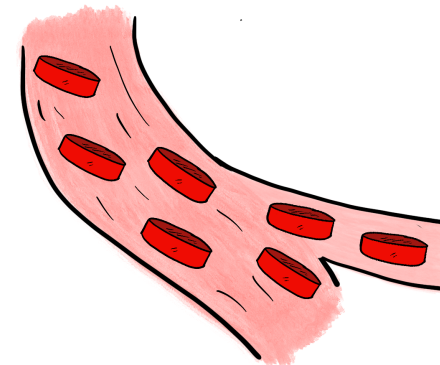


HBB  
Gene

CCTG**A**GGAG



Normal Red Blood Cell



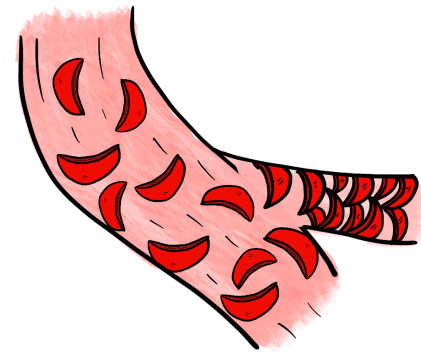
Typical Blood Flow



CCTG**T**GGAG



Crescent Shaped Red Blood Cell



Sickle Cell Disease:

- Pain attacks
- Swelling in hands and feet
- Infections
- Stroke

Differences in DNA can change these instructions, just like changing the spelling of a word can affect the meaning of that word.

In summary, your DNA contains...



Genes!

Which code for...



Know your genes, know more about your health!

## Plain Language Glossary

- DNA: the blueprint for a person which is written in the letters “A, G, C, T” and inherited across each generation.
- Gene: a small piece of DNA that provides the code for specific functions or traits.
- Trait: any characteristic of a person; can be based on one or multiple genes as well as the setting that a person lives.
- Chromosomes: tight coils of DNA, containing multiple genes, held within each cell.
- Genome: all of a person’s DNA organized in chromosomes.