

# DNA, Genes, and Traits

## What Is a **GENE?**

A gene is **an instruction manual in your DNA.**

A gene tells your body how to make **proteins.**

## Trait and Inheritance

A trait is a **characteristic** such as eye color, height, or blood type. Inheritance is how traits are **passed from parents to offspring** through genes.

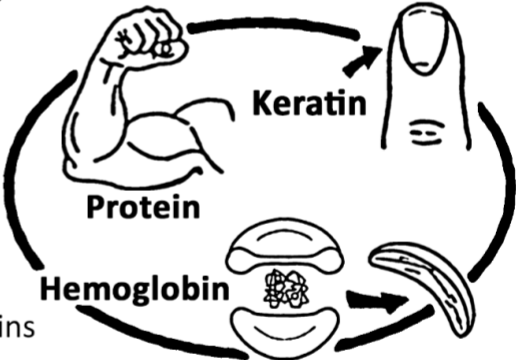
## DNA -> Proteins -> Traits



A segment of DNA called a **gene** gives instructions for building proteins.

Bases **A, C, T, and G** are used in the sequence.

The **size and shape** of proteins **determine their function.**



My example of a trait I inherited:

# Mutations

## Traits in Humans



**Harmful Trait**  
ex: Sickle Cell Anemia



**Neutral Trait**  
ex: Freckles



**Beneficial Trait**  
ex: Lactose Tolerance

## What Is a Mutation?



A mutation is a **change** in the **DNA** code.

## Same Letters, Different Jobs

All organisms use A, C, T, and G, but **when and where** a protein is made decides its job.

## Mutations

A mutation can change the **protein**.

A change to the protein changes the **trait**.

