

# Genetic Engineering



José Camacho

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# History Of Genetic Engineering

- Before learning the basics of genetic engineering we first must understand its history
- One of the main discoveries that had to happen for us to understand genetic engineering is the discovery of DNA



# History Of Genetic Engineering (Part 2)

- DNA is the information every living thing has which shows how everything will look and function
- We can think of DNA as a blueprint for every organism
- DNA is similar to a computer, instead of being made up of 1's and 0's its made up of the letters A, T, G, and C




Game Time!  
Determine which  
letters are a pair.

[https://learn.g  
enetics.utah.e  
du/content/ba  
sics/builddna/](https://learn.genetics.utah.edu/content/basics/builddna/)

# History of Genetic Engineering (Part 3)

- From the game, we can see that the four letters come in two pairs. The first pair shows that A goes with T and the second pair shows C goes with G
- Having a specific sequence of letters makes a gene
- Every feature that we have such as the color of our eyes and hair is determined by our genes

**DIFFERENCE BETWEEN GENE AND DNA**



**GENE**

A GENE IS A SEQUENCE OF DNA OR RNA THAT CODES FOR A MOLECULE THAT HAS A FUNCTION. THE TRANSMISSION OF GENES TO AN ORGANISM'S OFFSPRING IS THE BASIS OF THE INHERITANCE OF PHENOTYPIC TRAITS.

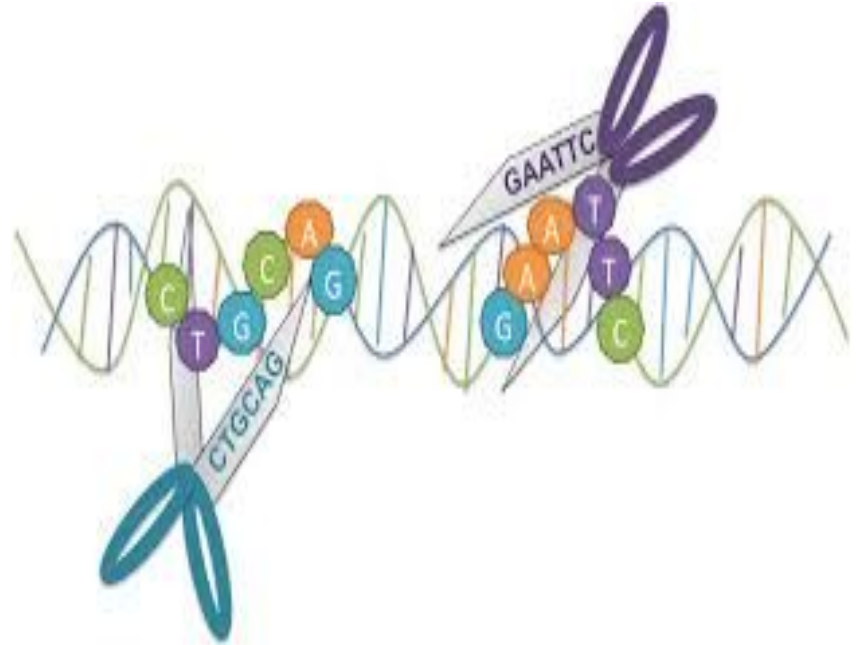
**DNA**

DEOXYRIBONUCLEIC ACID IS A MOLECULE COMPOSED OF TWO CHAINS WHICH COIL AROUND EACH OTHER TO FORM A DOUBLE HELIX CARRYING THE GENETIC INSTRUCTIONS USED IN THE GROWTH, DEVELOPMENT, FUNCTIONING OF ALL KNOWN LIVING ORGANISMS.

BYJU'S  
The Learning App

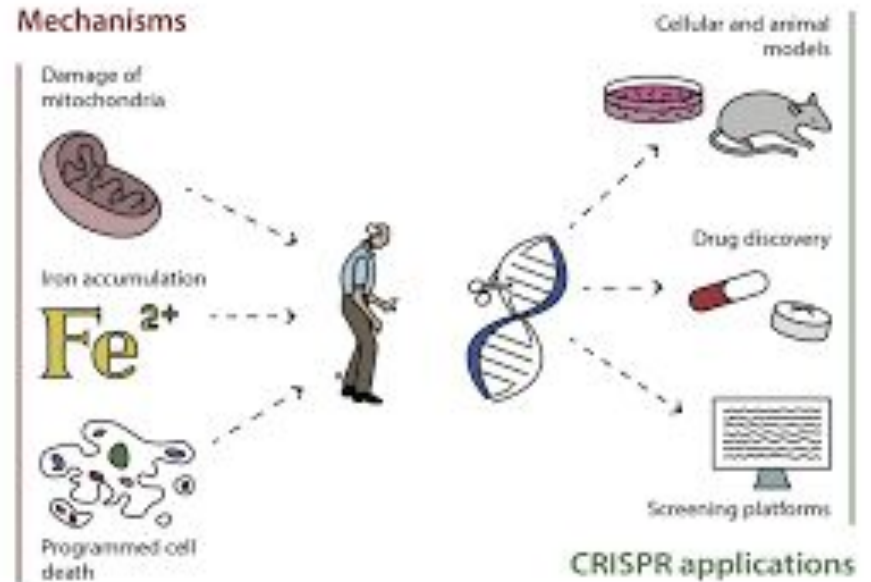
# What is Genetic Engineering?

- Genetic Engineering is changing the genes of an organism's to get a desired trait that it would not have gotten normally
- To genetically modify an organism we need to insert a gene from one organism to another
- We can think of this as cutting a gene that has a trait we want then pasting it in the organism that we want



# Applications of Genetic Engineering

- With the use of genetic engineering, there are fields that can be positively impacted
- The two main fields that are being impacted are the agricultural and medical field





# Genetic Engineering in Agriculture

- There are many things that are impacting the agricultural field
- The main problem is climate change. Due to the rise of Earth's temperature some places experience more droughts or floods



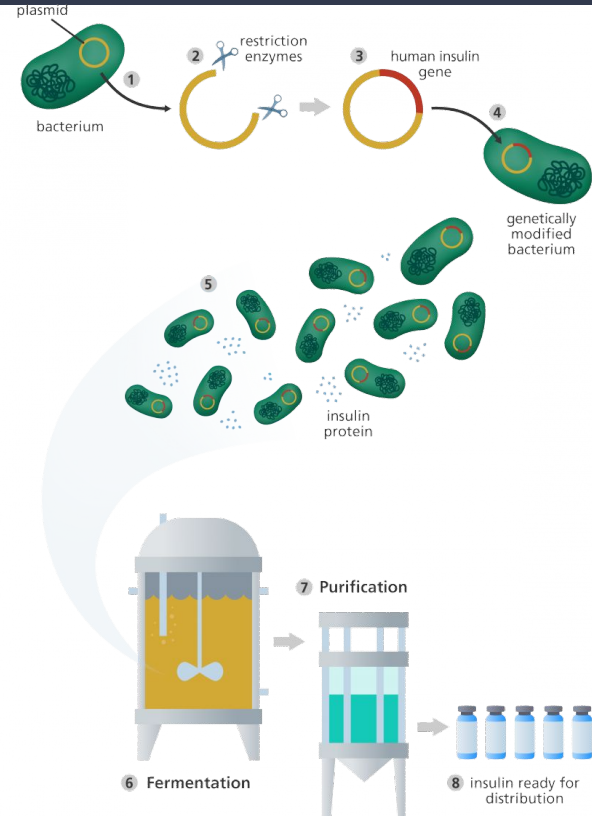
# Genetic Engineering in Agriculture (Part 2)

- Due to climate change, farmers are not able to grow their crops because of droughts or floods
- However, some plants are able to grow in difficult environments which means that they have a gene dedicated to grow in harsh environments
- As a result, scientist are able to take the gene that allows the plant to grow in harsh environments and give it to a crop that would have otherwise not been able to grow



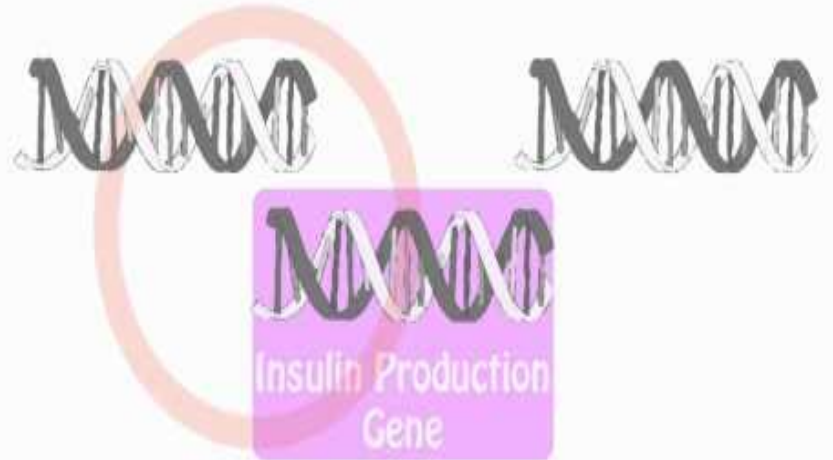
# Genetic Engineering in Medicine

- Genetic Engineering can also be applied in the medicine field
- One of the most important creation due the the technology was the invention of insulin
- Insulin is used by a lot of people who have diabetes



# Genetic Engineering Video!

Stage Two  
Cut Out Gene Using a  
Restriction Enzyme



# Genetic Engineering in Medicine (Part 2)

- Throughout history, humankind has faced many pandemics such as the one we are facing called the Coronavirus
- We will continue to encounter newer and deadly viruses as time goes on which will force us to find solutions
- One of the pandemics we faced was smallpox which killed approximately 300-500 million people
- The biggest solution we came up with was the use of genetic engineering
- Using this technology, we were able to create vaccines to prevent viruses such as smallpox
- As we learn more about all the deadly viruses, genetic engineering will allow us to find a cure

# Why I Chose Genetic Engineering

- I chose to make a website about genetic engineering because it is a topic I am curious about and the different fields it can positively impact such as the medical and agricultural field
- I wanted to learn what problems could be solved by using genetic engineering that had no solutions prior to its discovery
- The intended audience for this topic besides English Com II are those who are interested in the science field
- For the design of the website, I decided to have a simple background and layout to make it easier to explain the topic since it is relatively difficult and easier for the audience to understand the concepts



# Works Cited

- DNA Base Pair Matching Game:  
[https://learn.genetics.utah.edu/  
content/basics/builddna/](https://learn.genetics.utah.edu/content/basics/builddna/)
- Youtube Video:  
<https://www.youtube.com/watch?v=H7FdzpE2GIE>