Genetic Engineering: altering the genetic makeup of an individual

Introduction:

In this web-quest, you will create a PowerPoint about genetic engineering, also called genetic modification or genetic manipulation. You will learn about the direct manipulation of an organism's genes using biotechnology. The types of genetic engineering you will learn about include

* Selective Breeding
* Recombinant DNA
* Transgenic Organisms
* Genetically modified organisms
* Ethic and Impacts of biotechnology

Task:

Create a PowerPoint about genetic engineering. Your slides should be in the following order and answer the questions listed below. *You can either answer each question individually or write a paragraph answering all the questions.* *Some answers are found on the websites/ textbook and others require your own thoughts!!!*

1. Title Slide – Include your name and a creative, informative title for your presentation.
2. Selective Breeding
   1. Define “selective breeding.”
   2. Give an example of hybridization and inbreeding
   3. Give an explanation for what selective breeding is used for.
3. Recombinant DNA
   1. Define recombinant DNA
   2. Give an example of how recombinant DNA is used
   3. Research and explain how human insulin is created using recombinant DNA
4. Transgenic Organisms
   1. Define “transgenic”
   2. Answer: How can genes from one organism be inserted into another organism?
   3. Define: Clone
   4. Research and explain how the scientist Ian Wilmut produced a sheep called Dolly. Provide 4 interesting facts about Dolly
5. Genetically Modified Organisms
   1. Provide 4 examples of how genetic engineering benefits agriculture and industry.
   2. Research and describe the protein known as Bt Toxin
   3. Define Gene Therapy and provide 2 examples
6. Ethics and Impacts of Biotechnology
   1. Research and answer “Are genetically modified foods safe?”
   2. List 3 pros of genetically modified foods
   3. List 3 cons of genetically modified foods
7. Persuasion
   1. Biologists may one day be able to use genetic engineering to alter a child’s inherited traits. Under what circumstances, if any, should this ability be used? (Write 5-7 lines expressing your opinion)

Resources to Use:

Chapter 15 of the Textbook

[Selective Breeding Website Link](https://www.yourgenome.org/facts/what-is-selective-breeding#:~:text=Selective%20breeding%20involves%20choosing%20parents,crop%20plants%20with%20better%20yields)

[Recombinant DNA Website Link](https://www.nlm.nih.gov/exhibition/fromdnatobeer/exhibition-interactive/recombinant-DNA/recombinant-dna-technology-alternative.html#:~:text=Recombinant%20DNA%20is%20a%20technology,insulin%20gene%20in%20the%20laboratory.)

[Transgenic Organism Website Link](https://www.ck12.org/book/cbse_biology_book_class_xii/section/15.5/)

[Genetically Modified Organisms Website Link](http://www.bt.ucsd.edu/gmo.html)

[Ethics and Impacts of Biotechnology Website Link](https://www.procon.org/headlines/gmos-top-3-pros-and-cons/)