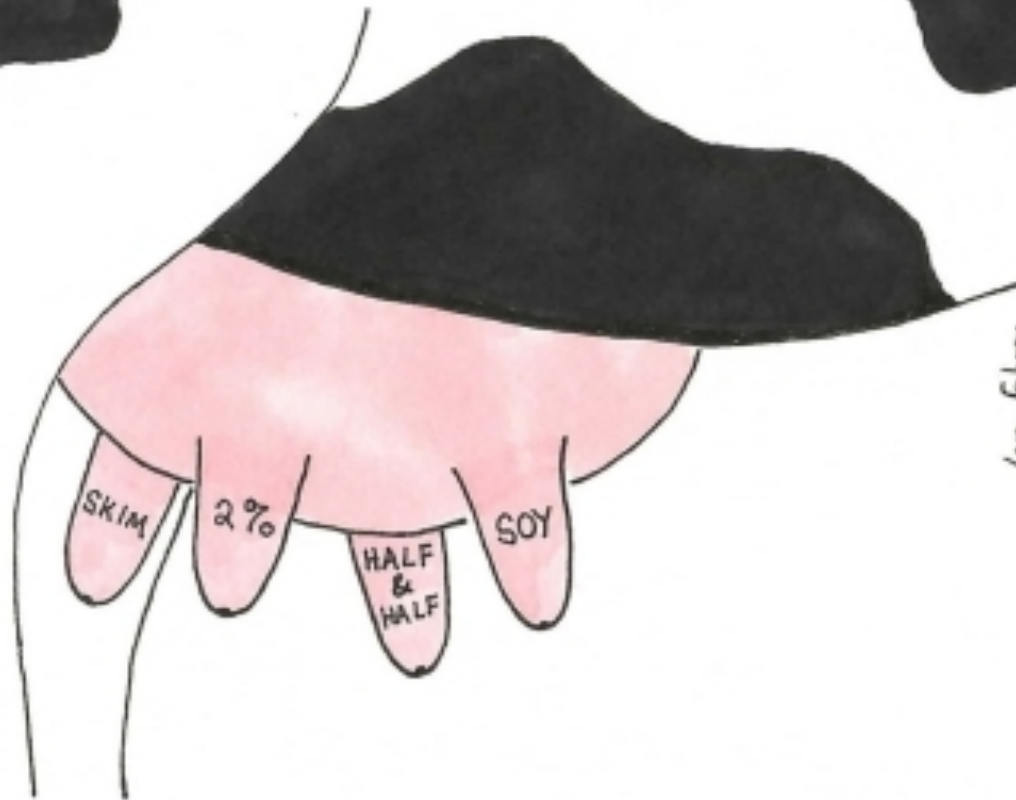


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henry of west

The miracle of genetic engineering

Changing Genes

# Reading Time

- Pg. 315-317, Level Green book

# Genetic Mutations

- a permanent change in the DNA or RNA of a cell
- can be inherited from a parent or acquired during a person's lifetime



# Causes for Genetic Mutations

- DNA damage from environmental agents such as ultraviolet light (sunshine), nuclear radiation, or certain chemicals
- Mistakes that occur when a cell copies its DNA in preparation for cell division



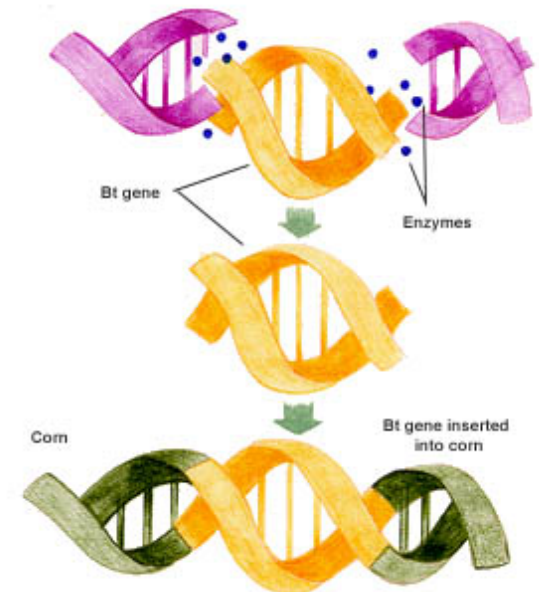
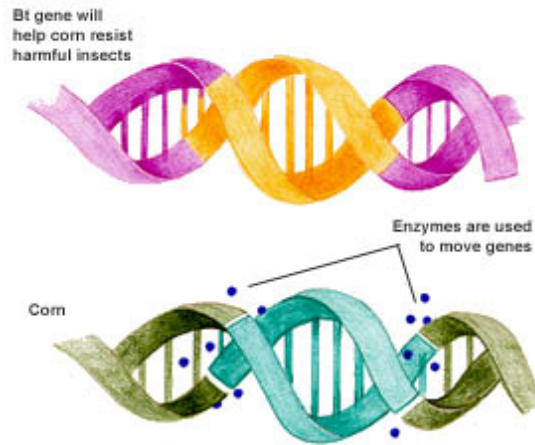
# Effects of Genetic Mutations

- Can cause diseases such as cancer
- May help organisms adapt to their environment



# Genetic Engineering

- Adding foreign DNA or synthetic genes to an organism's genome.



# Reasons for Genetic Engineering

- Gene therapy could be used to treat diseases
- Can make plants insect resistant, bigger, or grow with less water



# Concerns about Genetic Engineering

- May cause unintended changes in genes that are bad
- Makes crop failure more likely because of a lack of gene diversity





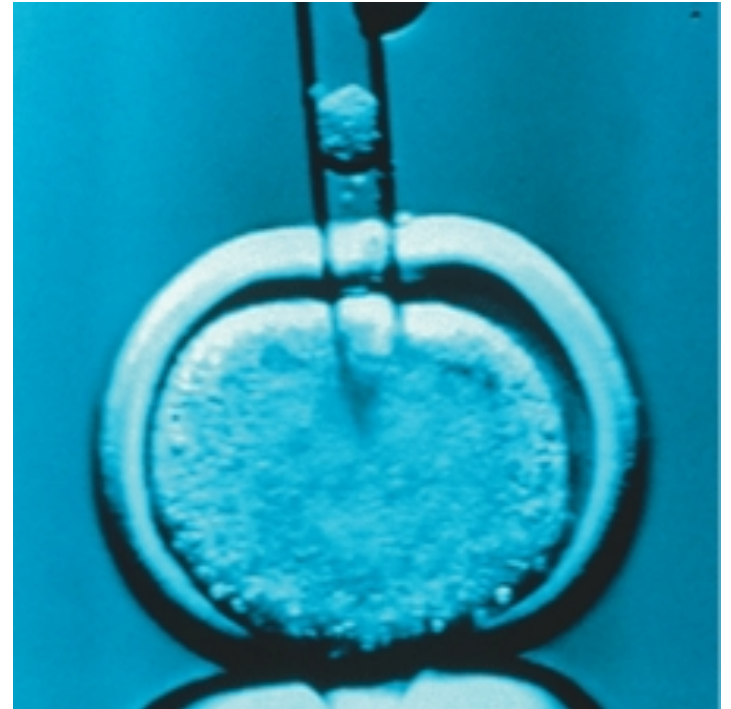
# Clones

- Organisms that share the same exact genes
- Examples: identical twins, cuttings from plants



# Nuclear Transfer

- Genes are removed from one cell nucleus and injected into another cell's nucleus.



# Reasons for cloning

- Potentially save animals from extinction
- Clone new body parts for people
- Clone the best animals or plants for food

