

Chapter 9 vocabulary 9.1-9.4

restriction enzyme

gel electrophoresis

restriction map

polymerase chain reaction (PCR)

primer

DNA fingerprint

clone

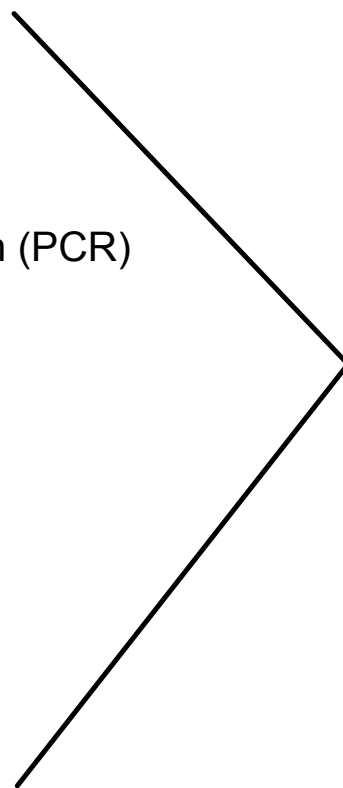
genetic engineering

recombinant DNA

plasmid

transgenic

gene knockout



When
finished, go
onto quizlet
and study the
vocabulary

Biotechnology

- use & application of living things & biological processes.

4 ways scientists can manipulate

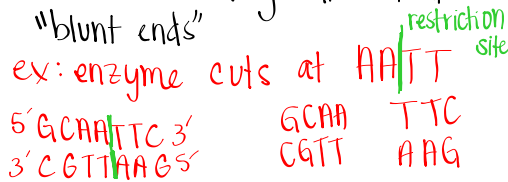
- DNA:
1. cutting it
 2. copying it
 3. sequencing it
 4. changing it

1. Cutting DNA

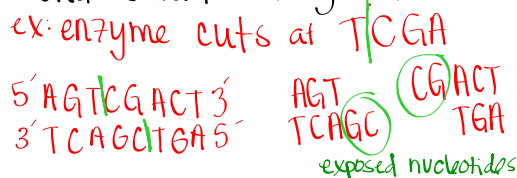
Restriction enzyme: enzymes that cut DNA molecules at a specific nucleotide sequence
 • come from bacteria

Restriction Site: the sequence of nucleotides that is identified & cut by the enzyme

- Restriction enzymes can cut straight through 2 strands of DNA & leave behind DNA fragments called "blunt ends"

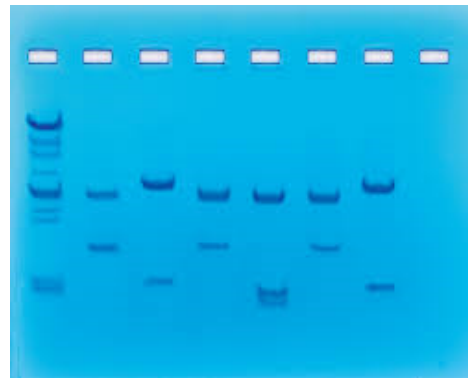
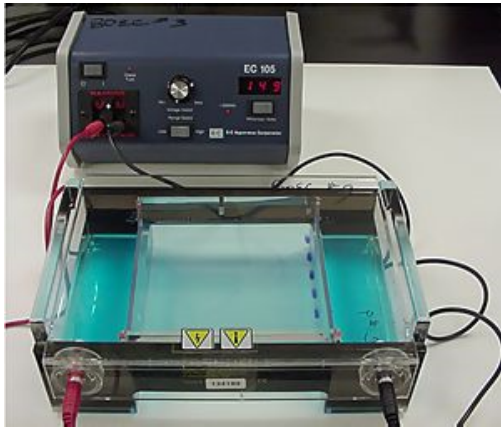


- Restriction enzymes can also make staggered cuts through DNA leaving nucleotides free on one end called "sticky ends"



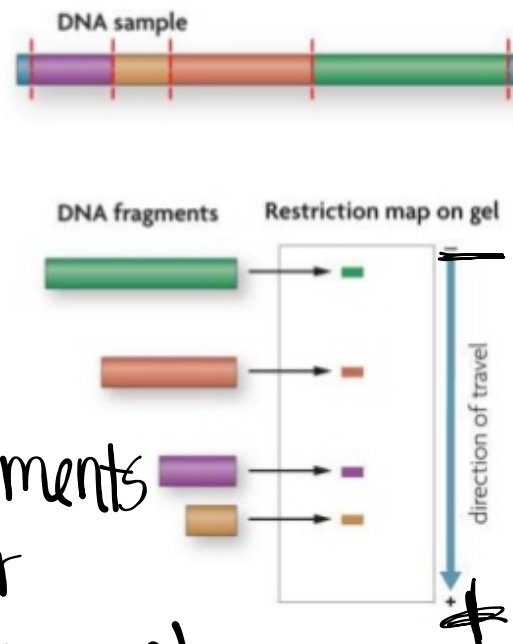
Gel Electrophoresis: an electrical current that is used to separate a mixture of DNA fragments from each other (according to their size)

- produces a restriction map: shows the length of DNA fragments between restriction sites on a strand of DNA.



9.1 Manipulating DNA

- A restriction map shows the lengths of DNA fragments between restriction sites.
 - only indicate size, not DNA sequence
 - useful in genetic engineering
 - used to study mutations



Smaller fragments
travel farther

DNA has a negative charge