**Chapter 10 DNA: Review**

Scientists:

* James Watson, Francis Crick, Rosalind Franklin

DNA Structure

* Double Helix
* Antiparallel
* Nucleotides
  + 5 Carbon Sugar (Deoxyribose)
  + Phosphate
  + Nitrogenous Base (Adenine, Thymine, Cytosine, Guanine/ Purine vs. Pyrimidine)

DNA vs. RNA

* Deoxyribose vs. Ribose
* Thymine vs. Uracil

Random Terms to Know:

Molecular Biology

Codons

Anticodons

Genetic Code

Amino Acids

Polypeptides

Proteins

* 2 strands vs. 1 strand
* Functions of both

DNA Replication

* Semiconservative Model
* 5’ and 3’ ends
* Directions of replication
* Leading vs. Lagging strands
* Enzymes
  + Helicase
  + Ligase
  + DNA Polymerase

Transcription

* Nucleus
* Steps (Initiation, Elongation, Termination)
  + Promoter Region, RNA Polymerase, Terminator Region
* mRNA
* RNA Splicing (Introns and Exons)
* Cap and Tail

Translation

* Cytoplasm
* tRNA (picks up amino acid on one end – anticodon on other)
* Steps (Initiation, Elongation, Termination)
* Ribosomes
  + rRNA
  + (Small and Large subunits)
  + (P site and A site)

Mutation

* Mutagenesis and Mutagens
* Types
  + Silent, Missense, Nonsense
  + Insertion/Deletion or Substitutions

**Practice: Transcribing and Translating DNA**

DNA: TAC TAG CAT CCA AAG CAG GGT GGA ATC

mRNA:

tRNA:

Amino Acids:

**Practice: Mutations**

Original DNA:

DNA: TAC GAT TTA GGC CAT TTA ATT

mRNA:

tRNA:

Amino Acids:

Mutated DNA strand #1: (Reference the Original DNA)

DNA: TAC GAT TAG GCC ATT TAA TT

mRNA:

tRNA:

Amino Acids:

What type of mutation was this? Will it produce a change in the protein formed?

Mutated DNA strand #2: (Reference the Original DNA)

DNA: TAC AGA TTT AGG CCA TTT AAT T

mRNA:

tRNA:

Amino Acids:

What type of mutation was this? Will it produce a change in the protein formed?

Mutated DNA strand #3: (Reference the Original DNA)

DNA: TAC GAT TTA GGC CAT TTG ATT

mRNA:

tRNA:

Amino Acids:

What type of mutation was this? Will it produce a change in the protein formed?

**VIDEO LINKS TO HELP!**

[DNA](https://www.youtube.com/watch?v=q6PP-C4udkA)

[DNA Replication](https://www.youtube.com/watch?v=FBmO_rmXxIw)

[DNA Transcription and Translation](https://www.youtube.com/watch?v=h3b9ArupXZg)

[DNA Mutations](https://www.youtube.com/watch?v=eDbK0cxKKsk)