**NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**REPLICATION, TRANSCRIPTION, TRANSLATION…oops! MUTATION**

**SB2 Students will analyze how biological traits are passes on to successive generations.**

1. **Distinguish between DNA and RNA.**
2. **Explain the role of DNA in storing and transmitting cellular information**
3. **Describe the relationships between changes in DNA and potential appearance of new trails.**

Nucleotides:

* Draw the structure of a nucleotide
* What polymer do nucleotides make up?
* List which nucleotides are Purines. Which are Pyrimidines.

**DNA vs. RNA**

|  |  |  |  |
| --- | --- | --- | --- |
| Nucleic Acid | Structure | Location | Composition (Sugar) |
|  |  |  |  |
|  |  |  |  |

**Replication**

* Where does replication take place?
* List the steps of replication.
* Name the enzyme that builds the new DNA strand
* How many Hydrogen bonds hold Adenine to Thymine? Guanine to Cytosine?

**Transcription**

* Where does transcription take place?
* List the steps of replication.
* Name the enzyme that builds the new RNA strand.
* What nucleotide is replaced during this process?

**Translation**

* Where does translation take place?
* What does translation produce?
* List the steps of translation.
* Explain the name and purpose for each of the following types of RNA
	+ mRNA
	+ rRNA
	+ tRNA
* How many nucleotides are in a codon?
* How many codons are used to determine an amino acid?

**Label each of the structures (A-G) in the picture below.**



**Coding**

Write the mRNA, tRNA, and amino acids from the DNA strand

DNA TAC AAT CGC GAT TCG AGG ACT TCG ATT

mRNA

tRNA

Amino Acid

**Identify each of the following mutations based on the original strand**

Original Strand

TACATTGCATCGCCATUGA

Mutated Strands

TACATTCATCGCCATUGA

TACATTGCATCACCATUGA

TACATTTGCATCGCCATUGA

* How can mutagens affect your DNA?
* List common mutagens that can be found on Earth.