**February Notes: Day 4 DNA Mutations**

Name: Period: Date:

**Aim: DNA and Mutations**

**Do now: Write down the name of your favorite X-men Character**

**What makes Mutations Dangerous**

* Mutations are dangerous because they the instruction in the DNA molecule.
* If this instruction is changed, the DNA will make the RNA .
* If the RNA is made incorrectly, then the will get the wrong message.
* If the ribosome gets the wrong message, then the wrong will be made.
* If he wrong protein is made, the individual die.

**What is a mutation?**

* A mutation is a change in the of an individual.
* There are types of mutations:
  + – where one nucleic base is substituted with nucleic base
    - Example: ATTCTGGAT 🡪 ATTTTGGAT
  + – where one nucleic base is from the DNA code.
    - Example: ATTCTGGAT 🡪 ATTCTGAT
  + (addition) – where one nucleic base is to the DNA code.
    - Example: ATTCTGGAT 🡪 ATTTCTGGAT

**Differences in the types of mutation**

* In a substitution mutation, only area of the DNA code is affected. This means only one amino acid may be affected.
  + Example: ATAGCGCCC codes for TYR-ARG-GLY
    - * + AAAGCGCCC codes for PHE-ARG-GLY
        + ATGGCGCCC codes for TYR-ARG-GLY

ATA and ATG code for the same amino acid.

* In a or mutation, the entire DNA code is because the will shift either to the left or the right – changing all the after the mutation.
  + Example: ATAGCGCCC codes for TYR-ARG-GLY

ATTAGCGCCC codes for STO-SER-ALA

AAGCGCCC codes for LEU- ALA

**What can cause a mutation?**

* There are many things that can cause mutations, such as:

**Are all mutations bad?**

* all mutations will you.
* mutations will do at all because even though the DNA is changed, the change does not the amino acid.
* Some mutations can cause a change to the shape of a protein, causing it not to work but it can still work.
  + Example: Sickle Cell Anemia
* Some mutations can be to the organism if the mutation creates a new gene with a good trait.
  + Example: Blue Eyes, Skin Color

**Can mutations be passed down to offspring?**

* When a mutation first occurs:
  + If the mutation happens in a cell, the mutation will only affect the with the mutation. The mutation will be past to the offspring.
  + If the mutation happens in a (sex cell), the mutation be passed to the offspring.
    - If the mutation is to the organism’s survival. The mutation will continue to be passed down through the .
    - If the mutation the organism’s chances to survive, the mutation will out when the individual .

**Mutations create new genes**

* If enough mutations occur, new genes will .
* These new are then passed down through the generations creating species.
* By looking at within individual DNA’s, scientist can trace of individuals.