Assignment:\_\_\_\_

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour:\_\_\_\_

**Why is DNA so important?**

**Mutation** – a \_\_\_\_\_\_\_\_ in the sequence of DNA due to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ or an \_\_\_\_\_\_\_\_\_ in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **Common Mutations**

* Sickle Cell Anemia – caused by \_\_\_ being switched to \_\_\_ in the 17th nucleotide in the gene that codes for hemoglobin (so instead of coding for valine (val) it codes for glutamic acid (glu))
* Cystic Fibrosis – a single nucleotide is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and it causes a \_\_\_\_\_ codon to occur to early in a gene that creates a protein that lets chloride ions through the cell membrane
* Fragile X Syndrome (causes mental retardation in males, \_\_\_\_\_\_) and Muscular Dystrophy (causes muscle weakness and deterioration, \_\_\_\_\_) are both caused by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ codon sequences
* ALS/Lou Gerhrig’s disease – caused by \_\_\_\_\_\_\_\_\_\_\_ of “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_” on chromosome #9

**DNA Fingerprint** - a \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_ that often looks like a bar code that is sometimes used to identify a parent or a criminal





**DNA References in pop music**

What does Katy Perry say about DNA?

What does Lady Gaga say about DNA?

*Katy Perry – E.T.*

*“You’re so hypnotizing
Could you be the devil? Could you be an angel?
You touch magnetizing
Feels like I am floating leaves my body glowing*

*They say be afraid
You’re not like the others, futuristic lover
Different DNA
They don’t understand you*

*You’re from a whole other world
A different dimension”*

*Lady Gaga – Born this Way*

*“Same DNA, but born this way.
Same DNA, but born this way.”*

Who is accurate in their lyrics about DNA?

**DNA is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ code of life** – while the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_\_\_ of nucleotides varies between species all living organisms have DNA made of the \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ sequence

Assignment:\_\_\_\_

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour:\_\_\_\_

**Why is DNA so important?**

**Mutation** – a change in the sequence of DNA due to environmental damage or an error in replication, transcription or translation

 **Common Mutations**

* Sickle Cell Anemia – caused by A being switched to T in the 17th nucleotide in the gene that codes for hemoglobin (so instead of coding for valine (val) it codes for glutamic acid (glu))
* Cystic Fibrosis – a single nucleotide is switched and it causes a stop codon to occur to early in a gene that creates a protein that lets chloride ions through the cell membrane
* Fragile X Syndrome (causes mental retardation in males, CGG) and Muscular Dystrophy (causes muscle weakness and deterioration, CTG) are both caused by repeating codon sequences
* ALS/Lou Gerhrig’s disease – caused by repeats of “GGGGCC” on chromosome #9

**DNA Fingerprint** - a unique patter of bands that often looks like a bar code that is sometimes used to identify a parent or a criminal





**DNA References in pop music**

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*“Same DNA, but born this way.
Same DNA, but born this way.”*

Who is accurate in their lyrics about DNA?

**DNA is the UNIVERSAL code of life** – while the amount and the order of nucleotides varies between species all living organisms have DNA made of the same universal sequence