Transcription and Translation Worksheet

1. What are the bases in DNA? Guanine, cytosine, adenine, thymine

1. How do the bases pair up? *Adenine with thymine, guanine with cytosine*
2. What are the bases in RNA? *Guanine, cytosine, adenine, uracil*
3. What RNA nitrogen bases match with the following DNA nitrogen bases?

A T G C

U A C G

1. If this is a sequence of one DNA strand, what is the RNA sequences that would bond with this DNA sequence?

A T T C A G C G A

U A A G U C G C U

1. How are DNA and mRNA alike? *Both are nucleic acids, carry a “code” for a protein, have base pairs, phosphates, sugars.*
2. How are DNA and mRNA different? *RNA is single stranded, can leave the nucleus, uses uracil instead of thymine, its sugar is ribose*
3. What is a codon? *a sequence of three nucleotides that together form a unit of genetic code in a DNA or RNA molecule*
4. What does a codon code for? *A single amino acid*.
5. List three things proteins do for us. *Perform cellular functions, form cellular structures, determine our traits.*
6. Where in the cell are proteins made? *In the cytoplasm.*
7. If the following were part of a DNA chain, what mRNA bases would pair with it to transcribe the DNA code onto mRNA?

G-G-A-T-C-G-C-C-T-T-A-G-A-A-T-C

C C U A G C G G A AUC U U A G

Imagine you have the following strand of DNA. Go through the process of transcription and translation and build the correct amino acid chain (protein).

DNA mRNA Amino Acid

C GUA valine

A

 T

G

G CCA proline

 T

C

A GUC alaline

G

G

C CGU arginine

A

T AUA isoleucine

A

T

