**13.2 Ribosomes and Protein Synthesis**

**A.RNA EDITING**

1. RNA molecules are produced by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Our DNA contains sequences of nucleotides called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that are NOT involved in coding for proteins

3. The DNA sequences that code for proteins are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**B. THE GENETIC CODE**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are made by joining \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into long chains called polypeptides. Each combination is made by the \_\_\_\_ different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of proteins are determined by the \_\_\_\_\_\_\_\_\_ in which different amino acids are joined together to produce\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is read \_\_\_\_\_\_\_\_ letters at a time. Each three-letter word in mRNA is known as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

4. A codon consists of \_\_\_\_\_\_\_\_ consecutive nucleotides that specify a single \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that is to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the polypeptide

5. A codon wheel shows all \_\_\_\_\_\_\_\_\_ possible codons of the genetic code. Some amino acids can be specified by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. The codon AUG can either specify the amino acid \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or serve as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ codon for protein synthesis. There are \_\_\_\_\_\_\_\_\_\_\_ STOP codons that do not code for an amino acid but signify the \_\_\_\_\_\_\_\_\_\_\_ of the polypeptide

**C. TRANSLATION**

1. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of an mRNA \_\_\_\_\_\_\_\_\_\_\_\_\_\_ into a polypeptide chain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is know as \_\_\_\_\_\_\_\_\_\_\_\_\_. Translation takes place on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. During \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the cell uses \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to produce \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Before translation occurs \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Study Questions : Develop 3 study questions from the material you learned today.

1.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Translation begins when the mRNA molecule in the cytoplasm \_\_\_\_\_\_\_\_\_\_\_\_\_\_ to a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. As each \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the mRNA molecule moves through the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the proper \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is brought into the ribosome by \_\_\_\_\_\_\_\_\_\_\_\_. In the ribosome, the amino acid is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the growing polypeptide chain.

5. Each \_\_\_\_\_\_\_ molecule carries only one kind of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. In addition to an amino acid, each tRNA molecule has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. These bases called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are complementary to one \_\_\_\_\_\_ codon

Like an assembly line worker who attaches one part to another, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ form a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between the first two amino acid as well as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the bond that held the first \_\_\_\_\_\_\_\_\_\_\_ to its amino acid, which \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the tRNA molecule.



**D. REMINDER**

**DNA🡪 DNA is called REPLICATION**

**DNA🡪 mRNA is called TRANSCRIPTION**

**mRNA🡪 Protein is called TRANSLATION**

SUMMARY:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_