Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period:\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**DNA -** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Function:** DNA is responsible for storing & transferring \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_from one generation to the next. It also contains the codes for making all the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in your body.

**Building block (Monomer):** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

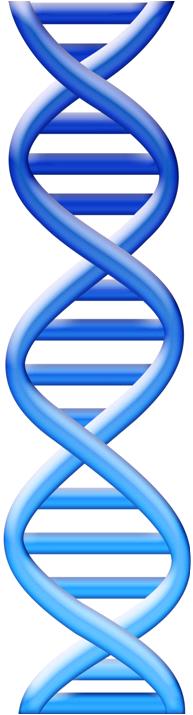
**3 parts:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **4 Different Nitrogen Bases:**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (A) pairs with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (T)

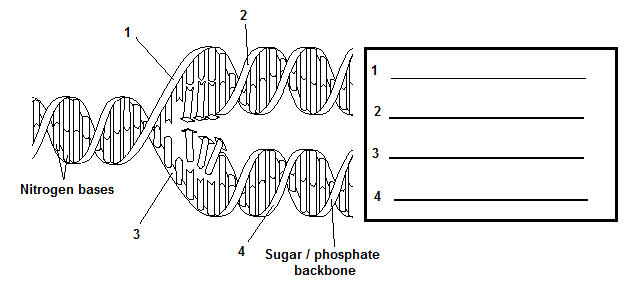
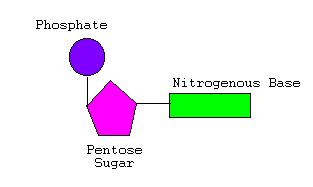
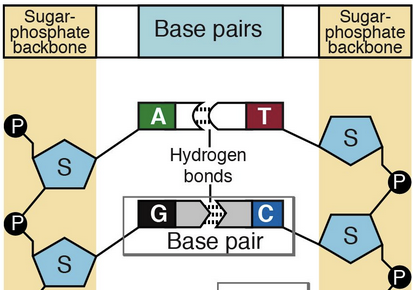
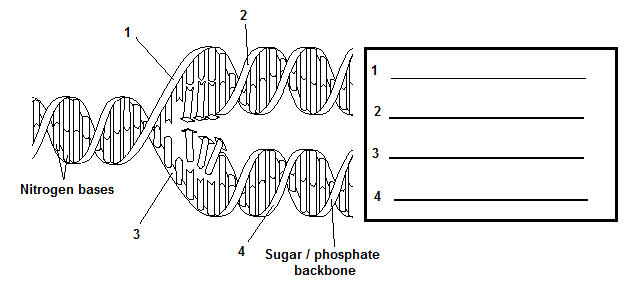
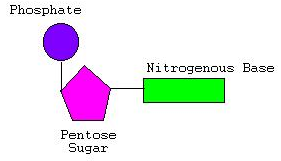
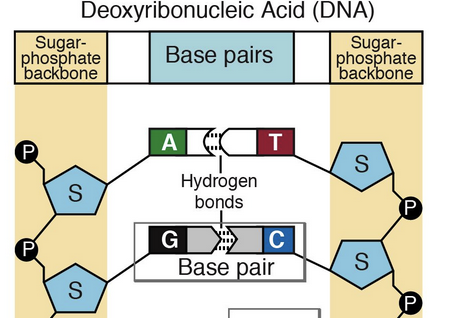
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (C) pairs with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (G)

**DNA looks like a twisted ladder. This**

**shape is known as a** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



**DNA Replication:**

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This mode of replication is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ replication because each parental strand is used as a model (or template) for the new daughter (or complementary) strand (Pair Old with New)

DNA replicates before \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

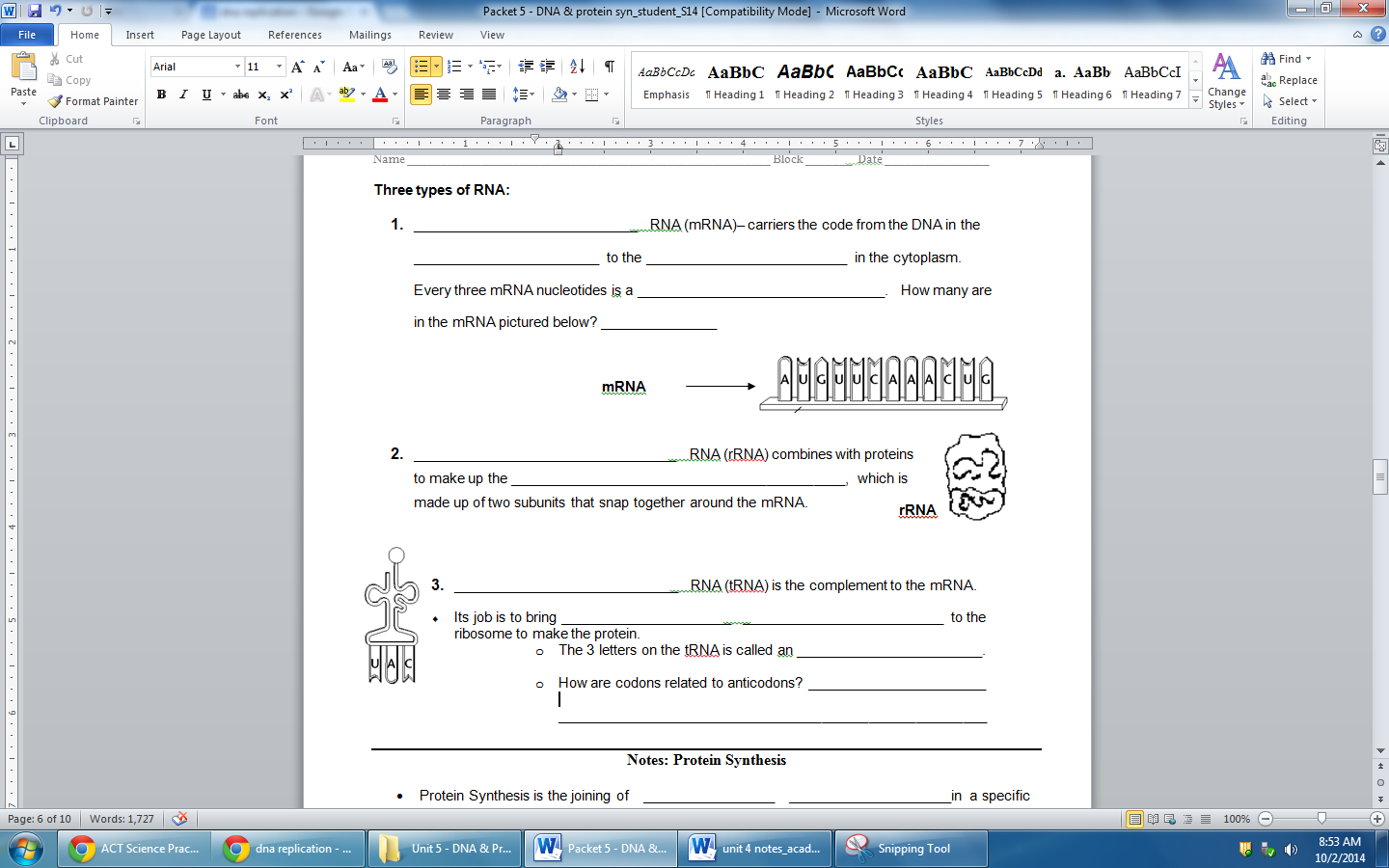
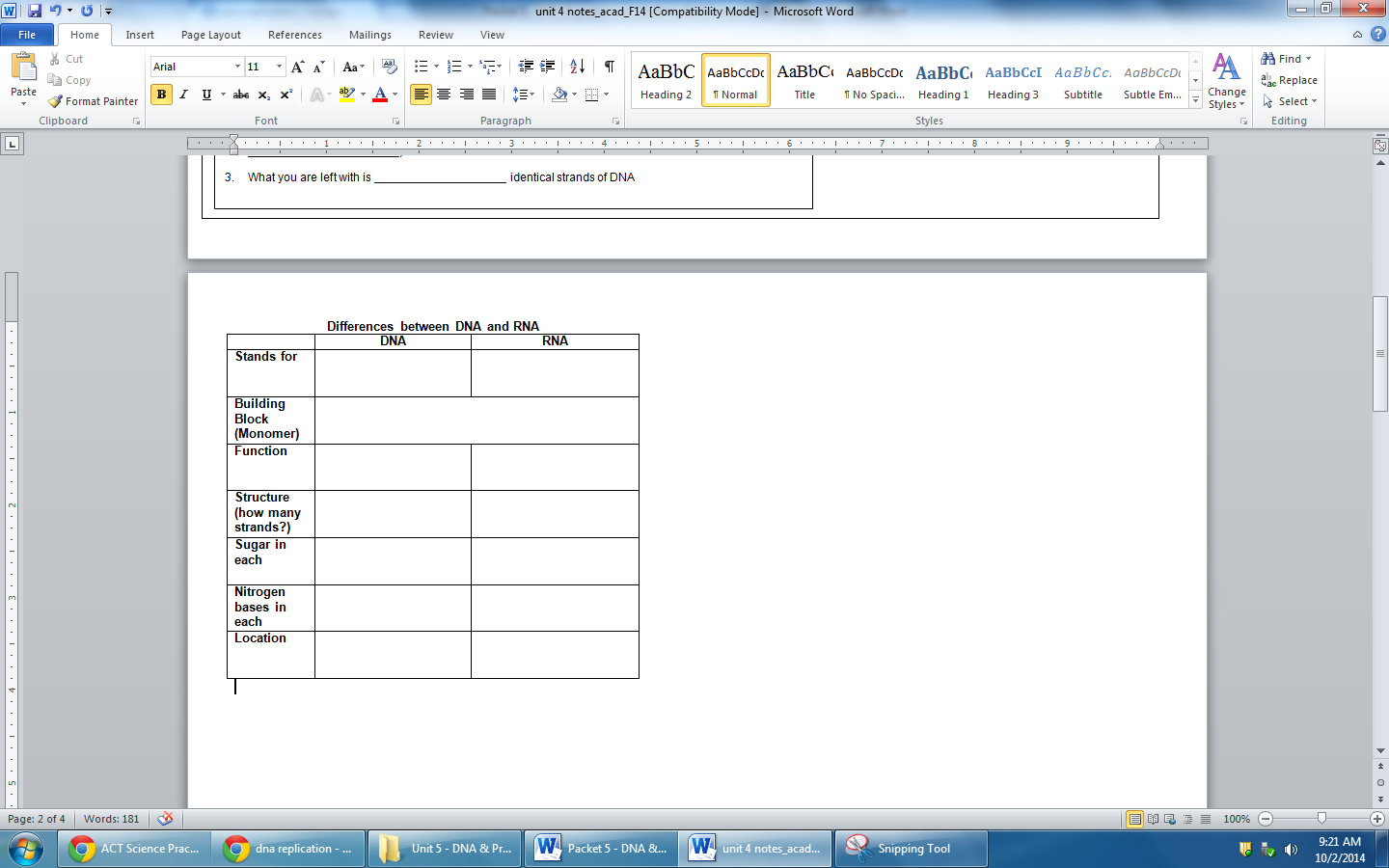
Steps:

1. An \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (called ­­­­­­­­­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) comes in and breaks the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonds (weak bonds) between the base pairs which causes the strand of DNA to split or “unzips.”
2. The appropriate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are then matched up (by another enzyme called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_).
3. What you are left with is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ identical strands of DNA

**Circle one nucleotide.**

**How many nucleotides are in this picture?**

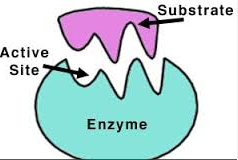
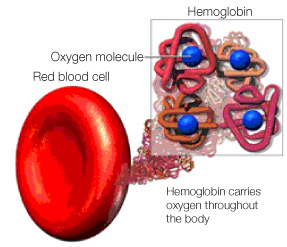
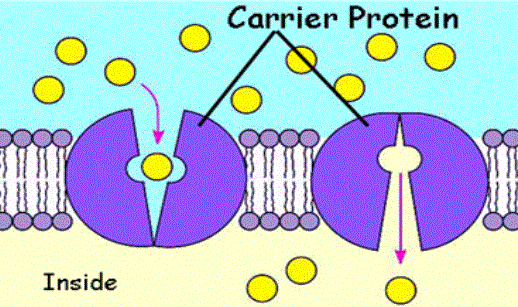
**We say A is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to T and C is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to G. this is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

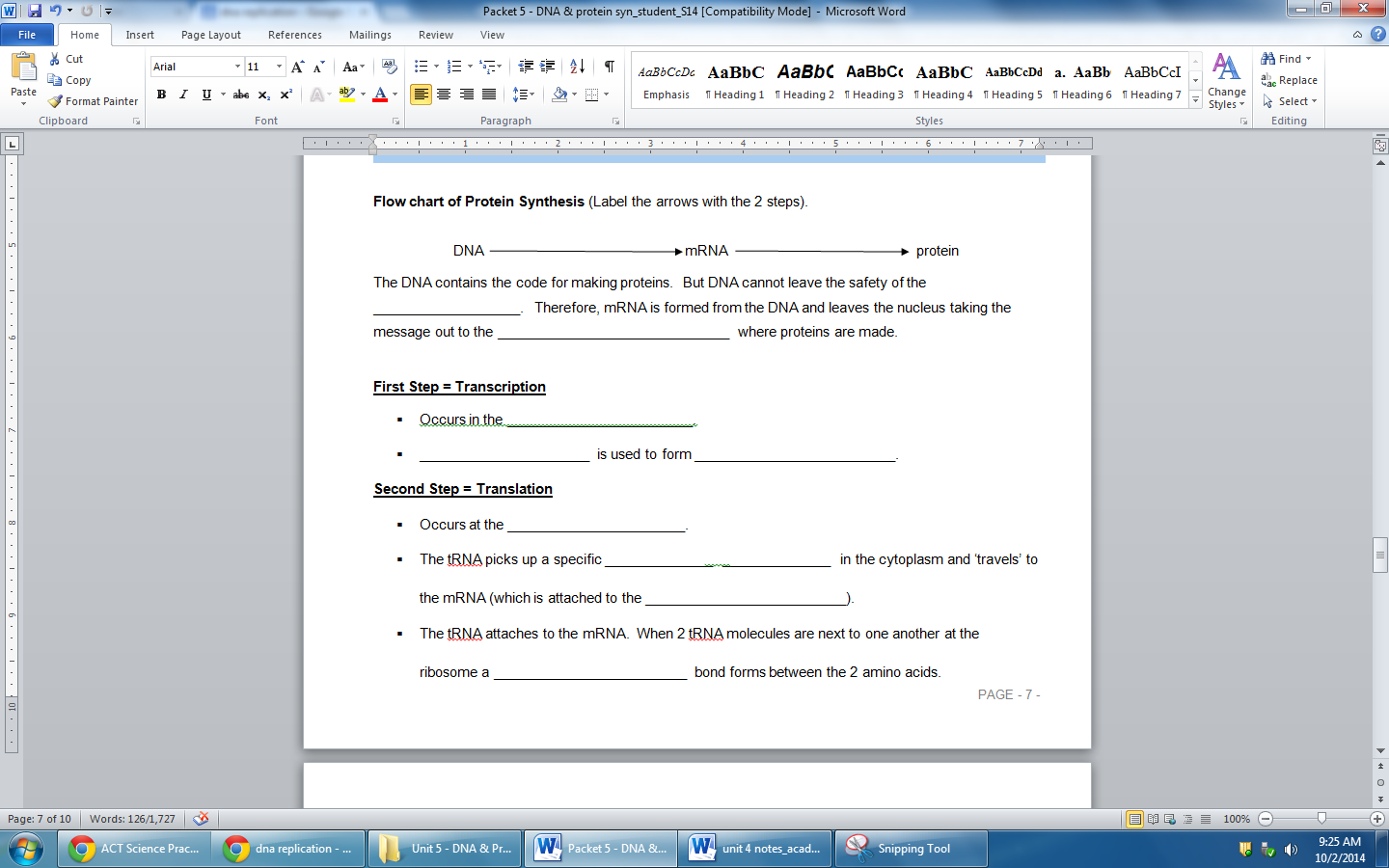
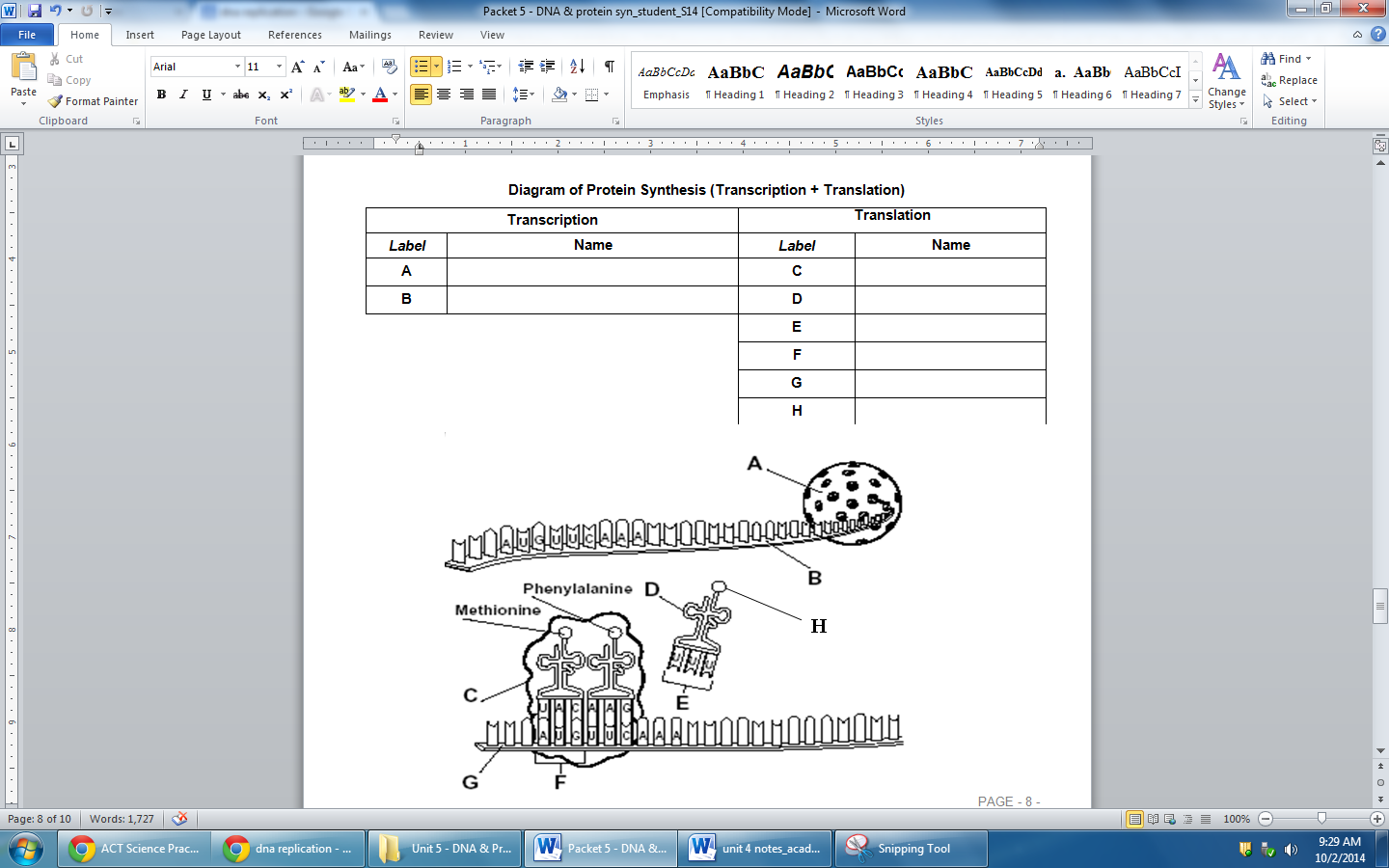
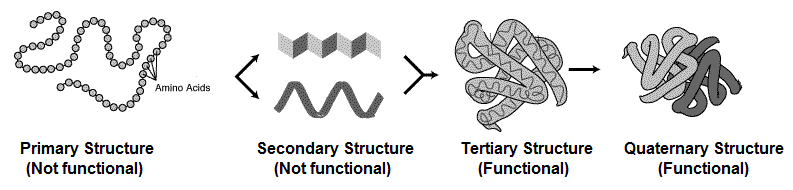


**So DNA contains the codes for making proteins, but why do we even need to make proteins???? Here are several important proteins.**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - help with the chemical reactions in your body (metabolism).
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - covers the red blood cells and helps carry oxygen to all the cells in your body. Remember your body needs oxygen to undergo \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to produce 38 \_\_\_\_\_\_\_\_\_\_\_\_ molecules giving your body energy.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - helps maintain blood sugar homeostasis. Excess glucose is stored as glycogen in the muscles and liver.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - Forms channels in the cell membrane to help transport substances in and out of the cell
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - These help with growth and development
* Makes up your muscles that help your body move.

Is every protein made at all times within an organism? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_





**2 Main types of DNA mutations:**

**If the DNA mutates then the protein may \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - one base is replaced with a different base
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - a base is inserted or deleted so the entire sequence is changed from that point on.

**Example:**

Normal Protein: - The red cat ate the fat rat.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Mutation - The red **h**at ate the fat rat.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Mutation - The re**b** dca tat eth efa tra t

**Causes of Mutations:**

* Random errors in DNA replication
* mutagens – physical or chemical agents that cause mutations
  + Ex: x-rays, UV rays
* Mutations are not always bad –they are a source of **genetic diversity**

After all the amino acids are put together, the protein is not functional until it \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ up into it’s 3-D shape.

**Different structures of a protein:**

