**DNA Structure and Function**



**DNA Structure**

DNA is composed of units called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, which

 are composed of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ sub-molecules

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (deoxyribose)



1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Adenine, thymine, cytosine or guanine)

DNA is composed of two \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ strands of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ joined together by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

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

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

DNA twists into a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Packing of DNA in the Cell**



**Functions of DNA**

1. DNA \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the machinery of the cell to make specific \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and therefore, DNA indirectly controls all of the functioning of all living things
2. DNA stores the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of an individual.
3. DNA has the ability to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (change). This allows for new characteristics and abilities to appear which may help an individual to survive and reproduce (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
4. Self-replication: DNA bas the ability to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**DNA Replication**

1. DNA replication I called “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”.
2. Semi-conservative replication is the process in which the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of DNA \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and act as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for the synthesis of duplicate strands of DNA.
3. One copy of a DNA molecule will split apart to make \_\_\_\_\_\_\_\_\_\_\_\_\_\_ complete copies of itself. Each new DNA molecule is made up of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ molecule and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ molecule.



**Steps to DNA Replication**

1. ­­­­­­­­­­­­­­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: The DNA molecule “unzips” as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between base pairs are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The enzyme \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ causes this unzipping to occur.
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: complementary \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ move into position to bond with the complementary bases on the DNA chain.
3. Form NEW \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ backbone: The nucleotides join as the sugars and phosphates bond to form a new backbone. This process occurs due to the enzyme \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which also checks for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as it goes.
4. This process continues along the primary chain until we have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of DNA molecules (assuming there have been no errors made).

