DNA Replication Drawing

You will draw out the steps of DNA replication. In each box, draw the event described. You will use 3 different colors: one for the original strands of DNA, one for the leading strand, and one for the lagging strand. You must label all the bold words in each drawing and indicate the **5' and 3' ends of each strand with direction arrows**.

1. Draw the DNA double helix, with the sequence on the 5' to 3' strand: ACCGTATTGATC, then write its complementary bases on the other strand.	2. **Helicase** (■) begins to unwind the DNA at the **replication fork**.	3. **DNA polymerase** adds complementary bases in the 5' to 3' direction to form the **leading strand**.	4. **DNA polymerase** adds complementary bases discontinuously in the 5' to 3' direction to form **Okazaki fragments** on the **lagging strand** & are joined by **DNA ligase**.	5. Two DNA double helices are formed, showing **semiconservative replication** (show what this means). Be sure to include bases on all strands.

DNA Strands KEY: ☐ = original ☐ = leading strand ☐ = lagging strand

Name:_____Date:_____Period:_____

DNA Replication Practice

DNA carries the information for making all of the cell's proteins. These proteins implement all of the functions of a living organism and determine the organism's characteristics. When the cell reproduces, it has to pass all of this information on to the daughter cells.

Before a cell can reproduce, it must first **replicate**, or make a copy of, its DNA. Where DNA replication occurs depends upon whether the cells is a prokaryote or a eukaryote. DNA replication occurs in the cytoplasm of prokaryotes and in the nucleus of eukaryotes. Regardless of where DNA replication occurs, the basic process is the same.

DNA Replication is a process that must be done exactly. In order to make sure that everything is replicated correctly, you will want to make sure that you use the proper *base pairing rules:* **A** will bond with **T** only, and **G** will bond with **C** only.

DNA replication is the process in which DNA is copied. It occurs during the synthesis (S) phase of the eukaryotic cell cycle. DNA replication begins when an enzyme breaks the bonds between complementary bases in DNA. This exposes the bases inside the molecule so they can be "read" by another enzyme and used to build two new DNA strands with complementary bases. The two daughter molecules that result each contain one strand from the parent molecule and one new strand that is complementary to it. As a result, the two daughter molecules are both identical to the parent molecule. DNA replication is a semi-conservative process because half of the parent DNA molecule is conserved in each of the two daughter DNA molecules.

On the following drawing, label the directions (**5'** and **3'**) on <u>both</u> strands. Also label: **leading strand**, **lagging strand**, **Okazaki fragments**, **replication fork,** and **DNA polymerase**.