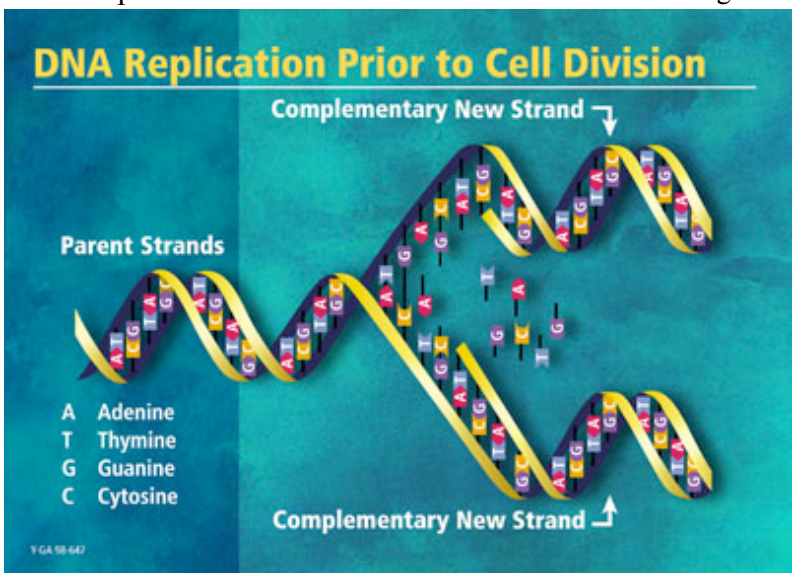
Name_____ **Date**_____ **Period**_____

DNA Replication Practice Worksheet

The double helix of DNA unwinds and each side serves as a pattern to make a new molecule.

DNA Replication - 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 (see the RNA sidebar on the previous page for more about the types of cells). 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. When it is not completed correctly, *mutations* (mistakes) then result.

Directions:

For each parent strand of DNA "replicate" the DNA correctly. See the example for details if you don't recall how. 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.

Example: one parent strand

TCCTG ACCCC GCCGG GATAT CCTTC TACCT CCAAA TGTAT

Solution in two parts:

A. *Fill in the complementary strand.*

Original DNA: TCC TG ACCCC GCCGG GATAT CCTTC TACCT CCAAA TGTAT

Complementary: AGGAC TGGGG CGGCC CTATA GGAAG ATGGA GGTTT ACATA

B. *Split the DNA and fill in the complementary strands to create two complete double helix strands.*

T CCTG ACCCC GCCGG GATAT CCTTC TACCT CCAAA TGTAT (original)

AGGAC TGGGG CGGCC CTATA GGAAG ATGGA GGTTT ACATA (new)

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1. A. Original DNA: CCTAT ATCTC TCTAT ATCTC TCATA CTGTG TGTCT CTATA

Complementary DNA: _____

B. Make identical strands of DNA:

CCTAT ATCTC TCTAT ATCTC TCATA CTGTG TGTCT CTATA (original)

_____ (new)

2. A. Original DNA: CCGGA TTTTA ATTAG CTACT ATCGT ACTAC GTTGG TGCTA

Complementary DNA: _____

B. Make identical strands of DNA:

CCGGA TTTTA ATTAG CTACT ATCGT ACTAC GTTGG TGCTA (original)

_____ (new)